



# SEWER SYSTEM MANAGEMENT PLAN

Granada Community Services District  
Updated March 2017

Prepared by



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—  
& ASSOCIATES

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**LIST OF ACRONYMS**

BACWA	Bay Area Clean Water Agencies
BMP	Best Management Practice
CASA	California Association of Sanitation Agencies
CCTV	Closed-Circuit Television
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
DISTRICT	Granada Community Services District
EHS	Environmental Health Services
FOG	Fats, Oils and Grease
GIS	Geographical Information System
GCSD	Granada Community Services District
I/I or I&I	Inflow & Infiltration
JPA	Joint Powers Agency
LRO	Legally Responsible Official
MRP	Monitoring and Reporting Program
NASSCO	National Association of Sewer System Companies
NPDES	National Pollution Discharge Elimination System
OERP	Overflow Emergency Response Plan
OES	California Office of Emergency Services (Previously Cal-EMA)
PACP	Pipeline Assessment and Certification Program
PM	Preventive Maintenance
RWQCB	Regional Water Quality Control Board
SAM	Sewer Authority Mid-Coastside
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board

WDID	Waste Discharge ID Number
WDR	General Waste Discharge Requirements
WWTP	Wastewater Treatment Plant



## LIST OF TERMS

Bay Area Clean Water Agencies (BACWA) – Association comprised of Bay Area wastewater treatment and collection system agencies. BACWA represents the interests of public wastewater agencies in regulatory matters and to support the exchange of information.

Website: <http://www.bacwa.org>

Blockage – An object that partially or fully hinders flow through a sewer pipeline. The blockage can be caused by debris in the sewer, grease buildup, root intrusion, or a partial or full collapse of the pipeline. Also known as a stoppage.

California Association of Sanitation Agencies (CASA) - A non-profit, statewide association representing public agencies that provide wastewater collection, treatment, disposal, and/or water reclamation services to California agencies. Website: <http://www.casaweb.org>

California Integrated Water Quality System (CIWQS) – A computer system used by the State and Regional Water Quality Control Boards to track information about SSOs, among other information. CIWQS is the tool used for online submittal of SSO details, which are then made available to the public. Website: <http://www.swrcb.ca.gov/ciwqs/>

Enrollee – The legal public entity that owns a sanitary sewer system, as defined by the Statewide WDR. Also known as a sewer system agency or wastewater collection system agency.

FOG Control Program – Program implemented at the discretion of the agency, based on the identified causes of sewer overflows, to reduce the discharge of fats, oils and grease into the sewer system.

Geographical Information System (GIS) – A database linked with mapping that records sewer system information. The GIS database could include sewer features such as pipe location, diameter, material, condition, or last date cleaned or repaired. GIS maps also typically contain base information such as streets and parcels.

Governing Board – Board of Directors for Granada Community Services District

Infiltration – The seepage of groundwater into a sewer system, including service connections. Seepage frequently occurs through defective or cracked pipes, pipe joints, connections or manhole walls and joints.

Inflow – Water discharged into a sewer system from such sources as roof leaders, cellars, yard and area drains, foundation drains, through holes in manhole covers, cross connections from the storm system or street wash waters. Inflow differs from infiltration in that it is a direct discharge into the sewer rather than a leak through defects in the sewer.

Lateral or Private Lateral – The privately-owned sewer pipeline that conveys wastewater from the premises of a user to the District’s sewer system. The upper lateral extends from the building to property line (or easement line). The lower lateral extends from the property or easement line to the connection to the pipe.

Monitoring and Reporting Program - The program used by the District to monitor, maintain records, report issues and complete needed public notifications.

Overflow Emergency Response Plan – This document identifies measures that are needed to respond to sanitary sewer overflows in a way that maximizes the protection of public health and the environment.

Preventive Maintenance (PM) – Regularly scheduled servicing of machinery, infrastructure or other equipment using appropriate tools, tests, and lubricants.

Rehabilitation and Replacement Plan (also referred to as a Capital Improvement Plan) – Identifies and prioritizes system deficiencies and implements short-term and long-term rehabilitation actions to address each deficiency.

San Francisco Bay Regional Water Quality Control Board – Also known as Region 2 or RWQCB. This regulatory agency preserves, enhances and restores the quality of California's water resources, and ensures their proper allocation and efficient use for the benefit of present and future generations. Website: <http://www.waterboards.ca.gov/sanfranciscobay>

Sanitary Sewer Overflow (SSO) – Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system, including overflows or releases that reach waters of the United States, overflows or releases that *do not* reach water of the United States, and backups into buildings and/or private property caused by conditions within the publicly owned portion of the sewer system.

Sanitary Sewer System – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the wastewater treatment plant.

Satellite Collection System – The portion, if any, of a sanitary sewer system that is owned or operated by a different public agency or user.

Sewer System Management Plan – A series of written programs that address how a collection system owner/operator conducts daily business. Each SSMP is unique for an individual discharger. The plan includes provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit.

State Water Resources Control Board – Also called the State Board. This agency developed and passed the Statewide Waste Discharge Requirements for collection systems and maintains the SSO reporting web site.

System Evaluation and Capacity Assurance Plan – A required component of an agency's SSMP that provides hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event.

Statewide Waste Discharge Requirements – The Statewide General Waste Discharge Requirements for Sanitary Sewer Systems was adopted by the SWRCB in 2006 to provide a structure and guidance for SSMP development. Also known as Order No. 2006-0003-DWQ.

Wastewater Collection System – See Sanitary Sewer System.

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## EXECUTIVE SUMMARY

This Sewer System Management Plan (SSMP) has been prepared in compliance with requirements of the State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ, and Amended Monitoring and Reporting Program (MRP), Order No. WQ 2013-0058-EXEC.

### ES-1 Background

On July 7, 2005, the RWQCB issued a letter to the San Francisco Bay Region (Region 2) sewer collection system agencies, including the Granada Community Services District (District) that required the District to prepare a SSMP. At the same time, the RWQCB released the SSMP Development Guide that was prepared in cooperation with the Bay Area Clean Water Agencies (BACWA). The 2005 directive stated that the District must also comply with RWQCB sanitary sewer overflow (SSO) electronic reporting requirements issued in November 2004.

Similarly, on May 2, 2006, the State Water Resources Control Board (SWRCB) issued a directive through Order No. 2006-0003-DWQ to require all public wastewater collection system agencies in California with greater than one mile of sewers to be regulated under the Statewide General Waste Discharge Requirements (WDR). The SWRCB action also mandates the development of an SSMP and the reporting of SSOs using an electronic reporting system.

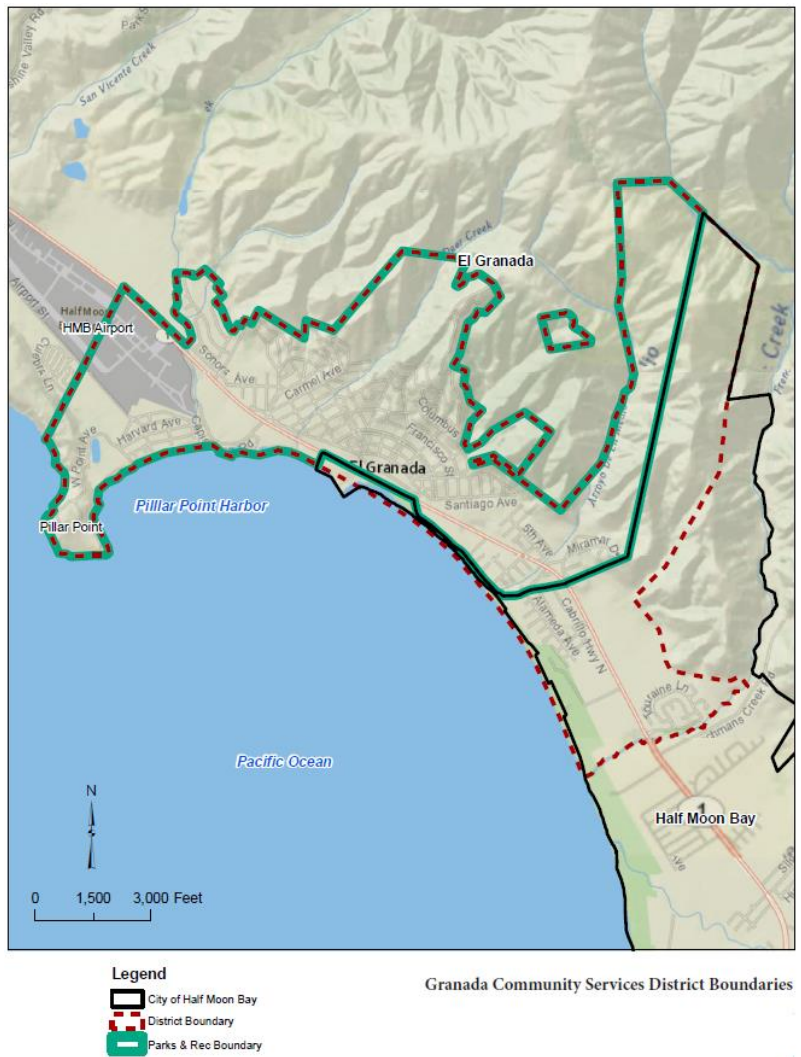
The SWRCB amended the Statewide WDR Monitoring and Reporting Requirements through Order No. 2013-0058-EXEC, which became effective on September 9, 2013. Around this time, the State also confirmed that agencies should follow the WDR format for the SSMP, in lieu of the previously accepted RWQCB format. The intent of this SSMP is to meet the requirements of the Statewide WDR.

The District's Waste Discharge ID Number (WDID) for the California Integrated Water Quality System (CIWQS) is 2SSO10138.

### ES-2 District Service Area

The Granada Sanitary District was formed in 1958 under the California Sanitary District Act of 1923. In October of 2014, the District was reorganized as the Granada Community Services District under California Government Code 61000 et seq. The District is responsible for parks, recreation, garbage and recycling services in the unincorporated areas of El Granada, Princeton, Princeton-by-the-Sea, Clipper Ridge, and Miramar, California. The District is responsible for the sewage collection system and wastewater disposal for approximately 2,500 residences and businesses in these same unincorporated areas as well as the northern portion of the District of Half Moon Bay as shown in Figure ES-1. Sewage is conveyed to the Sewer Authority Mid-Coastside (SAM) wastewater treatment plant (WWTP), located near Kehoe Avenue in Half Moon Bay.

The District’s wastewater collection system includes approximately 31 miles of gravity sewer pipe, 12 miles of lower lateral pipelines, 1 mile of force main pipeline, and 1 pump station. The District’s system conveys approximately 360,000 gallons per day of average dry weather flow to the SAM WWTP.



**Figure ES-1. Granada Community Services District Sewer Service Area**

**ES-3 SSMP Objectives**

The objectives of the SSMP are to accomplish the following:

1. Establish goals that align the District’s sewer collection system operation, management and capacity assurance activities in a manner that achieves the intended purpose of this SSMP
2. Comply with the Statewide WDR through provision of the following:

- Elements I through XI, following the outline of the Statewide WDR, including a description of the regulatory requirements and a summary of existing and planned documents and plans related to each element
  - Appendices that are amended over time to reflect changes in contact personnel, job descriptions, policies, procedures and programs
3. Minimize the frequency and duration of SSOs, including implementing regular, proactive maintenance of the system to remove issues that may cause sewer backups or SSOs
  4. Mitigate the impact of SSOs on public health and the environment
  5. Be available and responsive to the needs of the public and work cooperatively with local, state, and federal agencies to reduce, mitigate impacts of, and properly report SSOs
  6. Provide District staff and contractors with proper training needed to perform their work effectively to achieve the District's goals

Table ES-1, shown on the following page, identifies the objectives that must be addressed to comply with each SSMP element.

Table ES-1. SSMP Objectives

Element	Objective
I. Goals	<ul style="list-style-type: none"> <li>• Properly manage, operate and maintain the collection system</li> <li>• Provide capacity to convey base and peak flows</li> <li>• Minimize the frequency and severity of SSOs</li> <li>• Mitigate the impact of SSOs</li> </ul>
II. Organization	<ul style="list-style-type: none"> <li>• Identify agency staff responsible for the SSMP</li> <li>• Identify chain of communication for responding to and reporting SSOs</li> </ul>
III. Legal Authority	<ul style="list-style-type: none"> <li>• Control I/I from the collection system and laterals</li> <li>• Require proper design and construction of sewers and connections</li> <li>• Require proper sewer installation, testing and inspection</li> <li>• Limit discharge of FOG and other debris that may cause blockages</li> <li>• Ability to impose source control requirements</li> </ul>
IV. Operation and Maintenance Program	<ul style="list-style-type: none"> <li>• Maintain up-to-date maps</li> <li>• Allocate adequate resources for system operation and maintenance</li> <li>• Prioritize preventative maintenance activities</li> <li>• Identify critical equipment and spare parts to minimize equipment and/or facility downtime</li> <li>• Provide staff training on a regular basis</li> </ul>
V. Design & Construction Standards	<ul style="list-style-type: none"> <li>• Identify minimum design and construction standards and specifications</li> <li>• Identify procedures and standards for inspecting and testing</li> </ul>
VI. Overflow Emergency Response Plan (OERP)	<ul style="list-style-type: none"> <li>• Provide SSO notification procedures</li> <li>• Develop and implement a plan to respond to SSOs</li> <li>• Develop procedures to report and notify SSOs</li> <li>• Develop procedures to train staff and contractor of OERP</li> <li>• Develop procedures to address emergency operations</li> <li>• Develop procedures to prevent overflows from reaching surface waters, and to minimize or correct any adverse impact from SSOs</li> </ul>
VII. FOG Control Program	<ul style="list-style-type: none"> <li>• Develop a Fats, Oil and Grease (FOG) control plan, if needed</li> </ul>
VIII. System Evaluation and Capacity Assurance	<ul style="list-style-type: none"> <li>• Establish a process to assess the current and future capacity requirements</li> <li>• Implement a capital improvement plan to provide hydraulic capacity</li> </ul>
IX. Monitoring, Measurement and Program Modifications	<ul style="list-style-type: none"> <li>• Maintain relevant information to be used to prioritize SSMP activities</li> <li>• Measure the effectiveness of each SSMP element</li> <li>• Assess the success of preventative maintenance program</li> <li>• Monitor each SSMP element and make updates as necessary</li> </ul>
X. SSMP Audits	<ul style="list-style-type: none"> <li>• Conduct a bi-annual audit that includes deficiencies and steps to correct them</li> </ul>
XI. Communication Program	<ul style="list-style-type: none"> <li>• Communicate with public (Customers) on SSMP development, implementation and performance and create a plan for communication with tributary/satellite sewer systems</li> </ul>



## ELEMENT 1 - GOALS

The purpose of this section is to identify the goals that the District has established for its SSMP. These goals are intended to define a program that promotes continuous improvement in the District's existing wastewater collection system management and maintenance processes.

### 1.1. SWRCB SSMP Requirements

Requirements for the Goals element of the SSMP are described in the SWRCB Statewide WDR as follows:

*The District must provide a plan and schedule to properly manage, operate, and maintain all parts of its wastewater collection system in order to reduce and prevent SSOs, as well as to mitigate any SSOs that occur.*

### 1.2. Granada Community Services District SSMP Goals

The goals of the District's SSMP are to accomplish the following:

- To properly manage, operate, and maintain all parts of the wastewater collection system, so as to preserve and protect the public's investment in that system
- To provide adequate capacity to convey peak flows to the SAM WWTP without SSOs
- To minimize the frequency and duration of SSOs, including implementing regular, proactive maintenance of the system to remove issues that may cause sewer backups or SSOs
- To mitigate the impact of SSOs on public health and the environment
- To respond quickly and respectfully to public notifications of SSOs or other collection system problems
- To collect complete and accurate information regarding SSOs for reporting to the appropriate regulatory agencies
- To uphold the District's standards and specifications on newly constructed public and private sewers
- To provide a safe working environment for District staff
- To provide District staff with the tools and training needed to perform their work effectively and achieve the District's goals

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## ELEMENT 2 - ORGANIZATION

The purpose of this section is to identify District staff responsible for implementing this SSMP, responding to SSO events, and meeting the SSO reporting requirements. This section also includes the designation of the Legally Responsible Official (LRO) or Authorized Representative to Statewide WDR requirements for completing and certifying spill reports.

### 2.1. SWRCB SSMP Requirements

The SSMP is required to identify the following:

- The name of the responsible or authorized representative
- The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. Include lines of authority as shown in an organization chart or similar document with a narrative explanation
- 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))

### 2.2 Organization Chart and SSMP Responsibilities

The organization chart for Granada Community Services District, as related to SSMP implementation, is shown in Figure 2-1. Roles and responsibilities of key personnel involved in the wastewater collection system are as noted below.

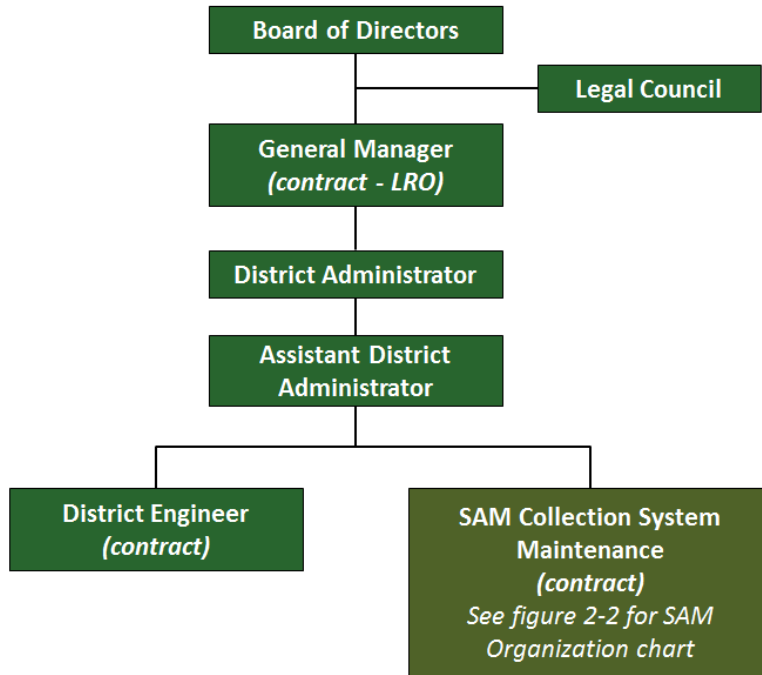
Board of Directors: Governing Board that adopts SSMP plan and policy. Approves budget to implement SSMP.

General Manager: Overall responsibility for preparing and implementing the SSMP, monitors SSMP budget and performance, manages capital improvement projects, and serves as the Legally Responsible Official.

District Administrator: The District Administrator directs contractor activities in cleaning and television inspection of the collection system; manages wastewater collection system staff and oversees sewer overflow response; prepares and submits reports; and develops the annual work plan for maintaining, inspecting and improving the sewer system.

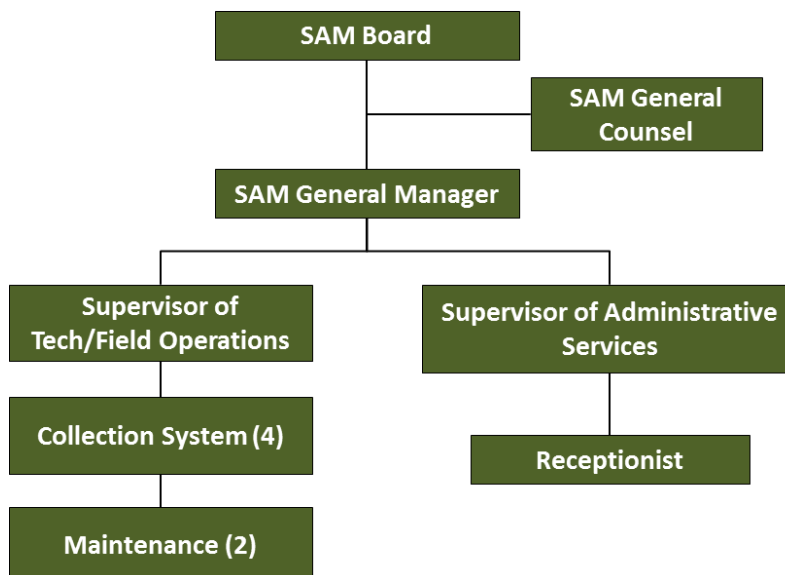
District Engineer (contract): Provides support to the District Administrator in support of the SSMP.

Maintenance Workers: Assist with sewer system activities in conjunction with Sewer Authority Mid-Coastside staff, which provides sewer system cleaning, some maintenance, and SSO response by contract. The SAM Supervisor is the CIWQS Data Submitter.



**Figure 2-1. SSMP Organization Chart**

Most of the District’s collection system maintenance activities are contracted out to Sewer Authority Mid-Coastside (SAM). Figure 2-2 shows the organizational chart for SAM, as related to sewer maintenance functions.



**Figure 2-2. SAM Organization**

Table 2-1 on the following page summarizes the individuals who are responsible for each section of the SSMP.

**Table 2-1. SSMP Responsibilities**

SSMP Element	Responsible Position
I. Goals	The General Manager leads staff in the implementation of the SSMP goals
II. Organization	The Governing Board updates the organization structure. The General Manager manages SSMP implementation assignments, and amends SSO response and reporting chains of communication, as needed.
III. Legal Authority	The General Manager and Legal Counsel uphold the Municipal Code and draft new ordinances as needed.
IV. Operations & Maintenance	The General Manager manages resources and budget, and with support from the contract District Engineer, oversees cleaning (via SAM by contract), preventive maintenance, training of District staff, maintaining a current system map, and overseeing the schedule for inspections and condition assessment.
V. Design and Construction Standards	The contract District Engineer reviews design and construction documents to ensure that all construction projects meet the adopted standards. Construction inspection is managed by the General Manager, unless otherwise contracted to SAM.
VI. Overflow Emergency Response Plan	The District contracts with SAM for overflow emergency response. The General Manager manages the contract between the District and SAM.
VII. FOG Control Program	The District contracts with SAM for sewer cleaning and non-domestic waste source control. The General Manager manages the contract between the District and SAM.
VIII. System Evaluation and Capacity Assurance	The contract District Engineer, under supervision by the General Manager, establishes and assesses capacity requirements, and develops the associated Capital Improvement Plan including updating budgets and schedules.
IX. Monitoring, Measurement and Program Modifications	The General Manager monitors implementation and assesses success of the overall SSMP program elements with the assistance of staff. This effort includes the identification of trends in SSO occurrences.
X. SSMP Audits	The General Manager oversees biannual SSMP audits.
XI. Communication Plan	The Governing Board, General Manager, and District Administrator communicate with the public and nearby agencies of the SSMP.

**2.3 Chain of Communication for Reporting**

Figure 2-2 shows a simplified Chain of Communication for reporting overflows.

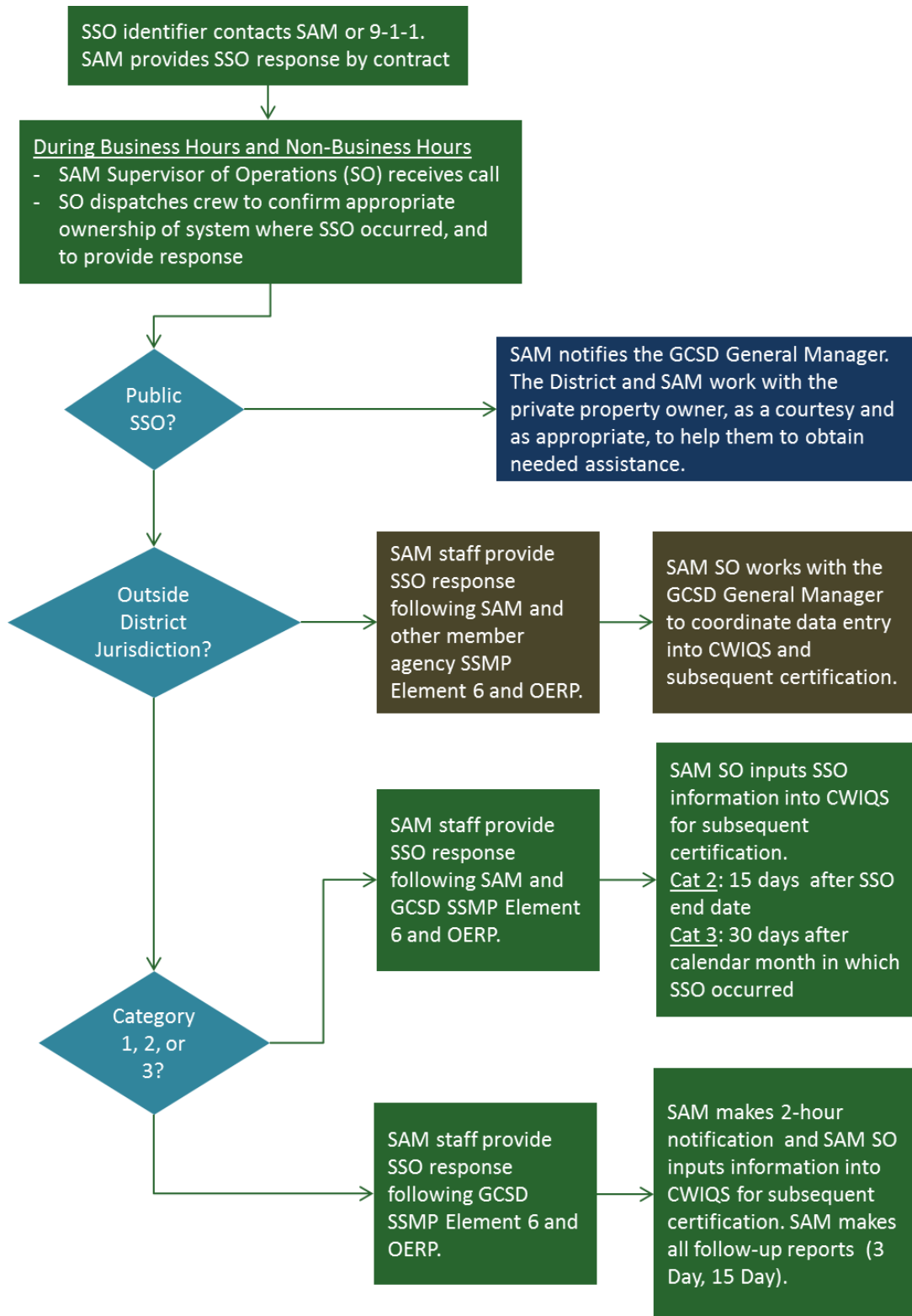


Figure 2.2. Chain of Communication

**Appendix A – Element 2 Documents**

Appendix A includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix A may have been superseded. Please contact the District Administrator for the most recent updates to the Appendix A documents.

- First Responder Contact List

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### **ELEMENT 3 - LEGAL AUTHORITY**

This element of the SSMP discusses the District's Legal Authority and establishes wastewater discharge requirements for the District's customers.

#### **3.1 SWRCB SSMP Requirements**

The District must demonstrate, through collection system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

- Prevent illicit discharges into its wastewater collection system (examples may include infiltration and inflow (I/I), storm water, chemical dumping, unauthorized debris and cut roots, etc.)
- Require that sewers and connections be properly designed and constructed
- Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency
- Limit the discharge of fats, oils, and grease and other debris that may cause blockages
- Enforce any violation of its sewer ordinances

#### **3.2 Legal Authority to Enforce SSMP Requirements**

The District has legal authority to enforce SSMP requirements through the Granada Community Services District Ordinance Code. Specific sections related to the SSMP are described below.

##### **3.2.1 Prevention of Illicit Discharges**

The District's Ordinance Section 503, Prohibitions, prohibits the discharge of certain materials into sewers which cause, threaten to cause, or are capable of causing, either alone or by interaction with other substances:

- A. A fire or explosion;
- B. Obstruction of flow, or injury to , the wastewater facilities, or any portion thereof;
- C. Danger to life or safety of persons;
- D. Conditions inhibiting or preventing the effective maintenance or operation of the wastewater facilities;
- E. Strong or offensive odors, air pollution, or any noxious, toxic, or malodorous gas or substance, or gas-producing substances;
- F. Interference with the wastewater treatment process, or overloading of the wastewater facilities, or excessive collection or treatment costs, or use of capacity in the wastewater facilities to which the person is not entitled.
- G. Interference with any wastewater reclamation process that may operate in conjunction with the wastewater facilities, or overloading, or a breakdown of such reclamation

process, or excessive reclamation costs, or any product of the treatment process which renders such reclamation process impracticable or not feasible under normal operating conditions;

- H. A detrimental environmental impact, or a nuisance wherever located, or a condition unacceptable to any public agency having regulatory jurisdiction over operation of the wastewater facilities;
- I. Discoloration, or any other adverse condition in the quality of the effluent from the wastewater facilities such that receiving water quality requirements established by any statute, rule, regulation, ordinance, or permit condition cannot be met by the District or Authority;
- J. Conditions at or near the wastewater facilities, or any portion thereof, which cause, or may cause, the District or Authority to be in violation of the requirements of law.

Further, Section 502 requires grease, oil and sand interceptors to be provided when necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand and other harmful ingredients.

### 3.2.2 Proper Design and Construction of Sewers and Connections

Article IV - Specification Controlling Manner of Construction, establishes the District's authority for design and construction of sewers. Article IV is further delineated as follows:

- Section 400, Standard Specifications, establishes the District's Standard Specifications as the document that governs the manner of construction, repair, maintenance, and operation of all wastewater facilities for the District.
- Section 401, Building Sewers and Connections, establishes requirements for private laterals.
- Section 403, Inspection of Construction, establish authority for inspection
- Section 404, Dedication of Sewers – Easements, defines required easements for pipelines and other District facilities.
- Section 405, Protection from Backflow, establishes the requirements for protecting buildings from backflow of sewage
- Section 406, Grinder and Ejector Pumps, establishes requirements for the installation and maintenance of private pumping systems

### 3.2.3 Access for Maintenance, Inspection & Repairs

Article VIII, Enforcement, Section 801, Powers and Authority of Inspectors of the District's Ordinance, establishes the District's authority to access property for the purposes of inspection, observation, measurement, sampling, and testing.

Further, Section 803 (3) authorizes District staff to enter upon private property in order to alleviate or remove a public hazard or nuisance associated with wastewater facilities.

### 3.2.4 Limit Discharge of Fats, Oils & Grease and Debris

Article V, Use of Public Sewers, Section 502, Grease, Oil and Sand Interceptors, discusses requirements for grease traps and interceptors, as follows:

- (01) Grease, oil and sand interceptors shall be provided whenever the District deems them to be necessary for the proper handling of wastewaters containing grease, flammable waste, sand and other harmful ingredients. All interceptors shall be of a type and capacity approved by the District's engineering representative, and shall be located so as to be readily and easily accessible for cleaning and inspection.
- (02) All interceptors shall be of a type and capacity approved by the District's engineering representative, and shall be located so as to be readily and easily accessible for cleaning and inspection.
- (03) Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, water tight, and equipped with easily removable covers which when bolted in place shall be gas tight and water tight.
- (04) All grease, oil and sand interceptors, where required, shall be properly operated and maintained by the owner, at the owner's expense, at all times.

### 3.2.5 Enforcement Measures

Article VIII, Enforcement, defines the powers and authority of inspectors (Section 801), customer responsibilities for correcting violations (Section 802), termination of service (Section 803), revocation of permits (Section 804), public nuisance (Section 805), criminal penalties (Section 806), and cumulative remedies (Section 807)

## 3.3 Interagency Agreements and Satellite Systems

The District does not receive wastewater from any satellite agencies. However, the District is a participant in SAM, which is a Joint Powers Agency (JPA) comprised of the District, City of Half Moon Bay, and Montara Water and Sanitary District. The JPA was formed in 1976 through the execution of an Exercise of Joint Powers Agreement, which is included in Appendix B. The District is a member of the JPA representing 25% of the voting interest. The District represents approximately 25% of the treated effluent of the JPA members.

The District contracts separately with SAM for collection system cleaning services.

**Appendix B – Element 3 Documents**

Appendix B includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix B may have been superseded. Please contact the District Administrator for the most recent updates to the Appendix B documents.

- Granada Community Services District Ordinance Code
- SAM Exercise of Joint Powers Agreement

## **ELEMENT 4 - OPERATION AND MAINTENANCE PROGRAM**

This section of the SSMP discusses the District's mapping, operations, preventive maintenance, inspection, training and outreach activities.

The requirements and the District's plan for Element 4 are summarized in each category below. Since requirements for this SSMP element contain many categories, this summary is organized by category.

The categories that are addressed in Element 4 include:

- Collection System Mapping
- Resources and Budget
- Prioritized Preventive Maintenance
- Scheduled Inspections, Condition Assessments and Replacement Planning
- Critical Equipment and Spare Parts
- Training

### **4.1 Collection System Mapping**

The District is required to maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments, manholes, pumping facilities, pressure pipes, valves and applicable stormwater facilities.

The District's system is currently stored in map format in the ICOMMM computerized maintenance management system (CMMS) that is shared among the SAM member agencies. The system maps include pipes and manholes, including pipe lengths and diameters. Maps are updated by the ICOMMM provider, which is now owned and managed by RedZone® Robotics.

The sewer maps do not include storm drain facilities. County of San Mateo is responsible for maintaining the storm drain system including mapping.

### **4.2 Resources and Budget**

The Statewide WDR includes no requirement for resources and budget.

The District is required to prepare an annual budget, and funds improvements to the collection system as well as to its share of the SAM facilities. In FY 16/17, the District allocated funding of \$1,535,000 for annual operations and maintenance and \$824,338 for capital projects including the update of the District's SSMP. Funding is provided through property tax, sewer service

charges, reimbursement from the Assessment District (salaries and overhead), and Recology of the Coast franchise fee. The portion of the budget that relates to sewer service is included in Appendix C.

#### **4.3 Prioritized Preventative Maintenance**

The District is required to 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 Preventive Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders.

The District contracts with SAM to clean the gravity collection system and to operate and maintain the pump stations. Pipes up to 18 inches in diameter are cleaned on an annual basis by SAM, under the terms of an operating and maintenance contract.

The contract requires SAM to be responsible for the means and methods used for cleaning, and for providing a sufficient quality of cleaning to avoid maintenance-related SSOs. In addition to providing annual sewer system cleaning, SAM develops and maintains a hot spot cleaning list for the District, and provides this list to the District for review on an annual basis. The hot spot cleaning list includes all areas with known maintenance issues. This list is augmented to include new sites that had the potential to lead to SSOs in the prior year.

#### **4.4 Scheduled Inspections, Condition Assessment and Rehabilitation Plan**

The District is required to 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.

The District completes Closed-Circuit Television (CCTV) inspection and repairs through contract, but also requests, from time to time, that SAM conduct the work and to pass these costs cost back to the District.

The District's CCTV inspection program is funded through the CIP and includes CCTV of pipe segments approximately every five years. CCTV inspection results are available from the District Manager.

#### **4.5 Training**

The District is required to provide training on a regular basis for staff in sanitary sewer system operations, maintenance, and require contractors to be appropriately trained.

The District contracts with SAM to provide maintenance services and the appurtenant training including equipment training and safety training. SAM training includes overflow emergency response, vector operations, injury and illness prevention, hazardous communications, and various safety trainings. SAM maintains training records including date, time, place, and content, name of trainer and names of attendees.

#### **4.6 Contingency Equipment and Replacement Inventories**

The District must demonstrate that contingency equipment is provided to handle emergencies, and that spare parts are available to minimize equipment/facility downtime during emergencies. The District must also provide equipment and replacement part inventories, including identification of critical replacement parts.

SAM, as the District's contract responder, and should maintain contingency equipment and replacement parts inventories as described in the SAM SSMP. The District does not keep additional equipment or spare parts on hand.

#### **Appendix C – Operation and Maintenance Program Documents**

Appendix C includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix C may have been superseded. Please contact the District Administrator for the most recent updates to the Appendix C documents.

- Granada Community Services District FY 2016-2017 Sewer District Budget
- SAM Maintenance and Operation Agreement

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## **ELEMENT 5 - DESIGN AND PERFORMANCE PROVISIONS**

This section of the SSMP discusses the District's design and construction standards.

### **5.1 SWRCB SSMP Requirement**

The District must have design and construction standards and specifications for the installation of new sewer systems, pump stations and other appurtenances, and for the rehabilitation and repair of existing sewer systems.

### **5.2 Standards for Installation, Rehabilitation, Repair, and Testing**

The District utilizes the expertise of professional consultants in establishing design criteria for the pump station, force main, and gravity interceptor rehabilitation projects. The District uses the County of San Mateo's sanitary sewer design standards with minor modifications as its design standard for collection system pipelines. Information regarding current standards utilized by professional engineers working on the District's infrastructure is attached in Appendix D of this document.

### **Appendix D – Design and Performance Provisions Documents**

Appendix D includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix D may have been superseded. Please contact the District Administrator for the most recent updates to the Appendix D documents.

- Granada Community Services District Design Standards

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## **ELEMENT 6 – OVERFLOW EMERGENCY RESPONSE PLAN**

This section of the SSMP provides a summary of the District’s emergency response documents and procedures for sanitary sewer overflows. SAM provides overflow emergency response by contract, and follows the District’s OERP, which closely resembles the SAM OERP.

### **6.1 SWRCB SSMP Requirements**

The summarized requirements for the Overflow Emergency Response Plan element of the SSMP are as follows.

The District shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
- A program to ensure appropriate response to all overflows;
- 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 Statewide 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 WDR or National Pollution Discharge Elimination System (NPDES) permit requirements. The SSMP should identify the officials who will receive immediate notification;
- Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the emergency response plan and are appropriately trained;
- Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated 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.

The purpose of the OERP is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). The OERP provides guidelines for the District or its contract responder, SAM, to follow in responding to, cleaning up, and reporting SSOs that may occur within the District’s service area.

## 6.1 SSO Categories

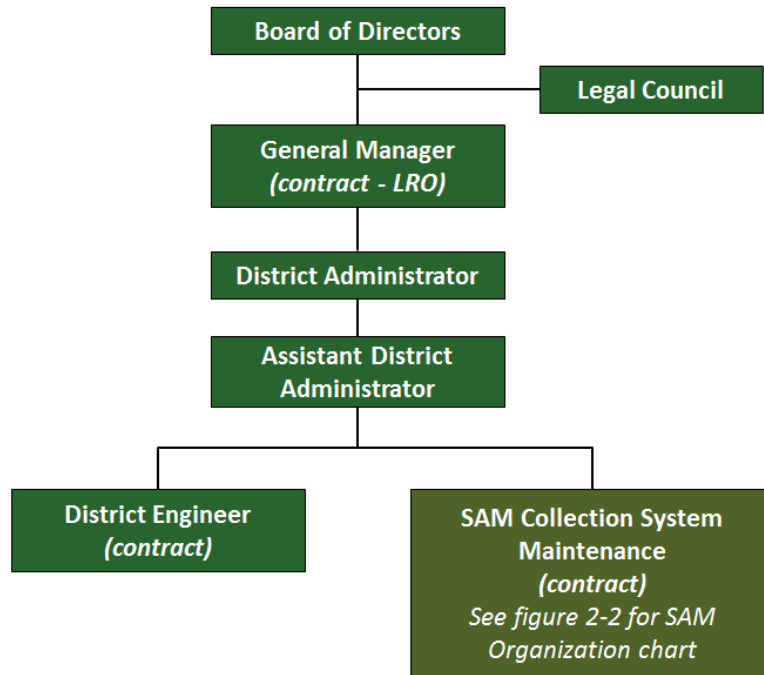
The responsibilities of the SSO Response Team depend on the volume and location of an incident. Three categories of SSOs are defined by the SWRCB:

- Category 1 SSO: 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 municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).
- Category 2 SSO: 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 municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
- Category 3 SSO: All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

## 6.2 Notification Procedures

The District is most often notified by the public of an SSO. The public is directed to contact SAM for issues related to the sewer system. SAM's main telephone number is **(650) 726-0124 day or night**. SSOs are also sometimes reported in person at the District's or SAM's office. The main SAM telephone number is included on the SAM website, and is accessed through the url: [http://www.samcleanswater.org/phone\\_numbers.htm](http://www.samcleanswater.org/phone_numbers.htm).

Figure 6-1 presents a flowchart showing the SSO response notification process during business hours and non-business hours. This flowchart is also included in Element 2, Organization.



**Figure 6.1. SSO Notification Process**

6.2.1 Response During and After Normal Working Hours

**During normal office hours**, which are from Monday through Friday from 8:00 a.m. to 4:30 p.m. excluding holidays, calls are received at the SAM or GCSD front desk and forwarded to the SAM office. SAM conveys the information to the SAM Supervisor of Technical and Field Operations (SO). Following the communication process outlined in the SAM SSMP, SAM collection systems staff (usually the lead collection system worker) investigates whether the SSO is from a District facility. If the SSO is from the SAM or a member agency’s sewer collection system, SAM deploys the SAM collection system maintenance crew to provide SSO response. If the SSO is from a private facility, SAM works with District staff to provide assistance as appropriate in guiding the property owner toward a solution to the issue.

For public SSOs within the District’s service area that are less than 500 gallons in volume, the Supervisor of Operations provides information to the District by the morning of the first subsequent business day. For SSOs greater than 500 gallons in volume, the information must be relayed to the District’s General Manager **within 4 hours of learning of the SSO**.

The SAM Supervisor of Operations makes the initial (2-hour) notifications, enters the information in CIWQS and makes all follow-up (maximum 3-day) reports. The District General Manager certifies all reports as the LRO.

**After normal working hours**, the caller is directed to call SAM. The SAM 24-hour phone number instructs the user to press, “1.” The caller is directed to leave a message and told that SAM will call them back. The caller is directed to leave their name, address, telephone number, and a description of the problem. The telephone system then calls the First Responder with a message that there is a message in voice mail box “911”.

After hours, SAM’s First Responder is the on-duty treatment plant/lift station operator. The plant is staffed every day, including weekends and holidays. SAM also designates and pays on-call staff after hours, weekends, and holidays.

The First Responder retrieves the message remotely, and may call the caller for additional information. The voice mail notification system rolls over to a back-up cell phone number after 15 minutes of trying to contact the First Responder. After the call is received, SSO response and reporting proceed in the same manner as during normal working hours. SAM’s general voice mail box is checked at the beginning of the next working day to ensure that all calls have received a response.

#### 6.2.2 Notification from Pump Station SCADA Alarms

The District’s lift station has an auto-dialer incorporated into its alarm system. An alarm event is transmitted to the alarm monitoring company via telephone. The alarm monitoring company, in turn, notifies the SAM Mechanic during working hours, or the designated SAM First Responder after hours. Alarm conditions include power failure and high wet well level.

### 6.3 Staff and Contractor Training

All personnel and contractor employees who may have a role in responding to, reporting and/or mitigating a sewer system overflow receive training on the contents of the OERP. All new employees receive training before they are placed in a position where they may have to respond. Current employees receive annual refresher training on this plan and the procedures to be followed.

Records are kept by SAM of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event include date, time, place, content, name of trainer(s) and names of attendees.

### 6.4 Response Program

Currently, the following positions are responsible for responding to SSOs:

- First Responder to SSOs: SAM Collection System Maintenance Workers
- First Responder to Pump Station Failures: SAM Supervisor of Operations and/or Maintenance Staff

- Claims Processing: District Administrator

The contact information for those currently holding the positions named above are included in the OERP.

#### 6.4.1 First Responder Priorities

The first responder's priorities are as follows:

- To follow safe work practices, including those related to traffic control, confined space, and employee and public safety
- To respond promptly with the appropriate equipment
- To evaluate the cause of spill and determine responsibility
- To restore the flow as soon as possible
- To contain the spill whenever feasible
- To minimize public access to and/or contact with the spilled sewage

#### 6.4.2 Initial Response

Figure 6-2 provides a flowchart that shows the steps involved in initial SSO response. The First Responder reports to the location within 60 minutes of the initial SSO report with the objective of minimizing and/or eliminating an overflow. The appropriate response measure varies based on the circumstances and nature of the SSO and the information provided by the caller. Actions related to external and internal SSOs are summarized below.

The District, via SAM, uses a standard form to document the contact and response for each SSO that occurs. SAM's SSO response field forms can be found in Appendix E of this document.

##### Available Equipment

Available equipment for response utilized by SAM for SSO related response can be found in Appendix E of this document.

##### External SSO

Upon arrival at the site, the First Responder should complete the following:

- Note arrival time at spill site, and include the time in the SAM SSO Reporting Form. Record basic incident information on site, and complete the form after finishing the response.

- Verify the existence of the SSO
- Field verify the address and nearest cross street, and confirm that the SSO is part of SAM's or a member agency's sewer/conveyance system
- Conduct visual monitoring to determine immediate actions, starting with documentation of SSO volume using the methods included in the OERP
- Begin activities to contain, mitigate, and minimize impacts from the SSO, and restore flow.
- If the blockage cannot be cleared within a reasonable time, or sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping.
- Identify and clearly assess the affected area and extent of spill, including possible impacts on surface water. Where it is safe and practical, visually inspect surface water in the vicinity of the SSO & record observations on the SSO Report Form. Signs of receiving water impacts include clear signs of sewage (solids, grease, paper), abnormal color, fish kills, etc.

The California Department of Fish and Wildlife (CDFW) should be notified in the event a SSO impacts any creeks, gullies, or natural waterways. CDFW will provide guidance associated with cleanup. Cleanup should proceed quickly, and any water used in the process should be dechlorinated prior to use.

- Notify the District Administrator if the spill appears to be large (over 1000 gallons), in a sensitive area, may imminently and substantially endanger human health, results in fish kills, if there is doubt regarding the extent, impact, or how to proceed, or if additional help is needed for line cleaning or repair, containment, recovery, lab analysis, and/or site cleanup.
- Where safe and feasible, take necessary water quality samples at the point of discharge and at upstream and downstream locations. Use best judgment and consult with the District Administrator if uncertain. Water quality monitoring is not given precedence over stopping the SSO or protecting public health. However, if sufficient personnel are available, monitoring is conducted in parallel with these activities or with the cleanup effort.
- Comply with all safety precautions (traffic, confined space, etc.)
- Contact caller, if time permits. Identify SSO cause, including conducting CCTV inspection as appropriate.
- Document all activities through photos and written documentation

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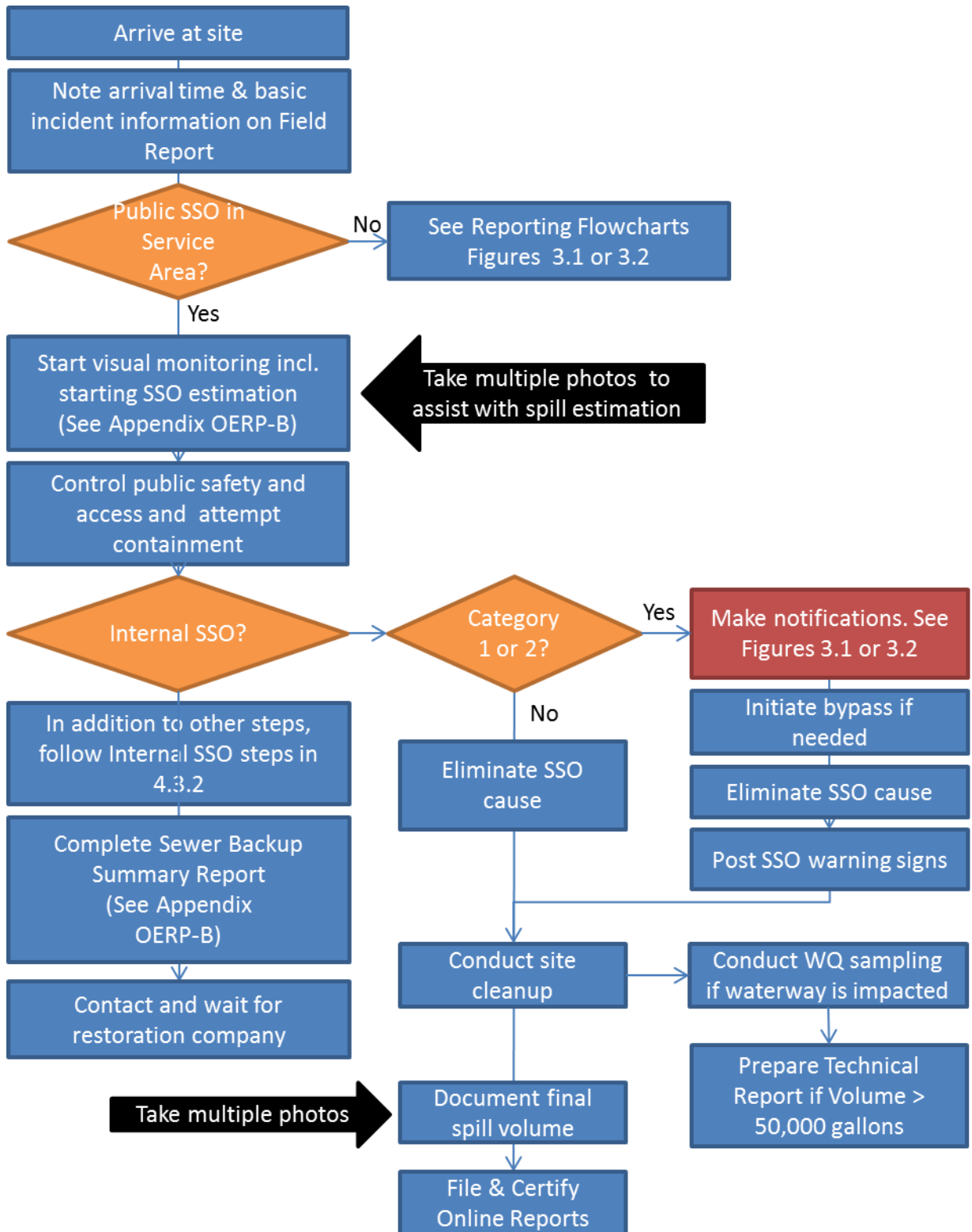


Figure 6.2. SSO Response Activities

The First Responder should provide the completed SSO Reporting Form to the GCSD District Administrator and the SAM Supervisor of Operations for input into the computerized maintenance management system. Contact information is included in the OERP.

### Internal SSO

Upon arrival at the location of a spill into a house or a building, the First Responder should evaluate and determine if the spill was caused by a blockage in a private pipeline or in a publicly owned sewer pipelines. If a blockage is found in a private line, it should be clearly communicated that response and repair of private pipelines are not the District's responsibility. The property owner is responsible for clearing any blockage in the private plumbing system and for any resulting flood damage to private property. The property owner is also responsible for damage that happens because a private line was not properly installed. All service laterals are private and not owned by GCSD.

If a backup in the public sewer system is found to have caused the SSO in a house or building, the First Responder should take steps to address the issue as described above. The First Responder should attempt to instruct the property owner to follow the following guidelines:

- Keep all family members and pets away from the affected area
- Place towels, rags, blankets, etc. between areas that have been affected and areas that have not been affected, and move any uncontaminated property away from the overflow area
- Move any uncontaminated property away from the overflow area. Do not remove any contaminated items.
- Turn off the HVAC system

The First Responder should follow the following steps to assist the homeowner:

- Gather information
- Call a restoration company (contact numbers are included in the OERP), and wait for the restoration firm to arrive
- Forward incident reports and related documents to the District Administrator

### Pump Station SSO

The First Responder to a potential pump station or forcemain failure should determine whether flow can be restored within a reasonable time. If it appears that flow cannot be restored within a reasonable time or if the conveyance system facility requires construction and/or repairs, then the First Responder should employ a pump station contingency plan covering containment, bypass pumping, contractual assistance. SAM currently does not have a formalized emergency contingency plan for the District's pump station, and SAM or GCSD will develop this plan in the future.

In addition, response activities discussed above should be implemented where applicable.

#### 6.5.3 Recovery and Cleanup

The recovery and cleanup phase begins immediately after the flow has been restored and the SSO has been contained to the extent possible. The SSO recovery and cleanup procedures include volume estimation, sewage recovery, and cleanup and disinfection.

#### Estimate and Recover the Volume of Spilled Sewage

Use the methods outlined in the OERP in Appendix E to estimate the volume of the spilled sewage. The District utilizes 3 methods in estimating SSO volume, as appropriate:

1. Eyeball Estimate
2. Measured Volume
3. Duration and Flowrate

Wherever possible, document the estimate using photos of the SSO site before and during the recovery operation.

Spilled sewage shall be vacuumed and/or pumped and, to the extent possible, discharged back into the sanitary sewer system.

#### Clean Up and Disinfection

Clean up and disinfection 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. Clean up should proceed quickly in order to minimize negative impact. Any water that is used in the cleanup process should be de-chlorinated prior to use.

Where cleanup is beyond the capabilities of response staff, SAM's Supervisors of Operations will request authorization from the GCSD District Administrator to contact a cleanup contractor to complete the work.

Spills inside houses or buildings should be cleaned by a professional cleaning company. Contact information for professional cleaning companies can be found in the "Water Damage Restoration" section of the Yellow Pages. Claims by homeowners should be forwarded to the GCSD District Administrator.

### *Guidelines for Cleanup*

On **hard surface areas**, collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Take reasonable steps to contain and vacuum up the wastewater. Disinfect all areas that were contaminated from the SSO as appropriate. Apply minimal amounts of the disinfectant solution using a hand sprayer. Document the volume and application method of disinfectant that is employed. Allow area to dry. Repeat the process if additional cleaning is required.

On **landscaped or unpaved areas**, collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Allow the area to dry. Repeat the process if additional cleaning is required.

If the SSO has reached the **storm drain system**, a combination sewer cleaning truck should be used to vacuum/pump out the catch basin and any other portion of the storm drain that may contain sewage. In the event that an overflow occurs at night, the location should be re-inspected as soon as possible the following day. The operator should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

After SSO response has been completed, SAM provides a "call-out" form to the District to determine whether additional follow-up activities, including point repairs, are required.

## **6.5 Impact to Waters of United States**

If an SSO is confirmed to have entered waters of the United States<sup>1</sup>, the GCSD District Administrator must be notified immediately. The response team would then proceed with the following additional activities:

- Determine the extent of the SSO by investigating downstream until there is no evidence of sewage or debris along the creek or water body

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<sup>1</sup> **40 Code of Federal Regulations (CFR) 230.3(s)** defines the term "waters of the United States." This term includes all lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, or natural ponds, or waters that could be used for recreational or other purposes.

- Conduct Water Quality Sampling, following the process described below. If the SSO is 50,000 gallons or greater, collect water quality samples within 48 hours of becoming aware of the SSO
- Immediately post contaminated water sign(s) and protect the water body from public access on all sides
- Photograph sign placement and evidence of the overflow in and around the water body to the farthest point reached by the sewage
- Determine if the water body is safe to enter. During the winter storm season, cleaning the water body may not be feasible due to high water flows
- If feasible, block the water body downstream of the affected area in a location that is safe to enter and is accessible to set up a pump or utilize other sewer cleaning equipment
- To the extent feasible, recover and return contaminated water to the collection system
- Perform follow-up sampling until the area shows no water quality impairment and the posted signs can be removed. The Inspection Superintendent ultimately determines when this happens and makes any follow up calls to affected agencies

#### 6.5.1 Water Quality Sampling

Water quality sampling and testing is required whenever the spilled sewage enters a water body. The purpose of testing is to determine the extent and impact of the SSO. The following guidelines must be followed:

- The First Responder should arrange for collection of samples. Samples should be collected as soon as possible after the discovery of the SSO event
- For spills less than 1,000 gallons, at a minimum, water quality samples should be collected at the discharge point, 100 feet upstream, and 100 feet downstream
- If a spill is more than 1,000 gallons, additional sites may require sampling, following the requirements of the County Environmental Health Services (EHS) department
- The water quality sampling procedures should follow EHS procedures as follows:
  - Keep the sterile collection bottle closed until it is to be filled. Do not contaminate inner surface of the lid or bottle rim.
  - Collect water sample just below the surface in knee deep water, approximately 3 feet deep (full arm's length), without rinsing. If needed, extend the sampling pole to the fullest length to reach deeper water depth. Minimize contact with bank or beach bed as water fouling may occur.

- Remove cap and hold the bottle near its base and plunge it, neck downward, below the surface
  - Turn bottle until neck points slightly upward and mouth is directed toward the current. Fill bottle leaving about 1 inch of air to allow lab to mix by shaking. Collect a minimum of 100 mL. (If applicable, insert sterile collection bottle into the holder on the sample pole. Extend the sample pole and plunge bottle end into the water, bottle opening downward.)
  - Immediately place cap securely on bottle to avoid leaks and contamination
  - Dry the bottle
  - Label container with distinctive sample site name, date, and time collected
  - Complete the laboratory requisition slip with requested information (site, bottle number, collector, date and time of collection, type of sample, test requested, name and phone number of responsible person for reporting purposes, and deliverer name). Note any field observations that may have occurred during the sampling.
- Samples should be tested for fecal coliform, total coliform and enterococcus.
    - Samples should be stored and shipped by placing the water sample bottle in a cooler with frozen blue ice. Water sample must be kept cool. Ice may be used but care must be taken so water samples are not contaminated or diluted by the ice.

Water samples may be taken to the **County of San Mateo Public Health Laboratory at 225 W. 37<sup>th</sup> Avenue, Room No. 113, San Mateo, CA 94403, (650) 573-2500**. The water samples must be brought to the laboratory within 8 hours of collection, before 3:00 pm, for processing.

If the County laboratory is closed, then the County's designated laboratory shall be used.

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.

### 6.5.2 Water Quality Monitoring Plan

A Water Quality Monitoring Plan must be implemented immediately upon discovery of any Category 1 SSO of 50,000 gallons or more in order to assess impacts from SSOs to surface waters. Water quality testing must be completed within 48 hours of the District becoming aware of the SSO.

The District's SSO Water Quality Monitoring Program is included in Appendix E, and includes the following:

- 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.)
- Requirement for water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory
- Requirement for 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

### 6.5.3 SSO Technical Report

If 50,000 gallons or greater from an SSO reaches surface waters, an SSO Technical Report must be prepared and submitted to the CIWQS online SSO database within 45 calendar days of the SSO end date. The SSO Technical Report must include, at a minimum, the following:

1. Causes and Circumstances of the SSOs
2. Complete and detailed explanation of how and when the SSO was discovered
3. Diagram showing the SSO failure point, appearance point(s), and final destination(s)
4. Detailed description of the causes(s) of the SSO
5. Copies of the original field crew records used to document the SSO
6. Historical maintenance records for the failure location
7. Response to SSO:
8. Chronological narrative description of all actions taken to terminate the SSO
9. Explanation of how the OERP was implemented to respond to and mitigate the SSO
10. Final corrective action(s) completed and/or planned to be completed, including a schedule or actions not yet completed
11. Water Quality Monitoring:
12. Description of all water quality sampling activities conducted including analytical results and evaluation of the results
13. Detailed location map illustrating all water quality sampling points

The SAM Supervisor of Operations is responsible for the development of the report. The General Manager is responsible for certification and submittal of the SSO Technical Report.

## 6.6 Containment or Bypass

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 available equipment and materials to contain the spill, where feasible. 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 using dike/dam or sandbags
- Pump around the blockage/pipe failure/pump station or vacuum flow from upstream of the blockage and dispose of downstream of the blockage to prevent further overflow
- If an SSO reaches a water body, follow the requirements below for posting and SSO notification signage. Also conduct water quality sampling as discussed above.

## 6.7 SSO Notification Signage

Barriers shall be installed to prevent the public from having contact with the sewage. Signs should be posted to keep vehicles and pedestrians away from contact with spilled sewage. Signs should remain in place until removal of the signs is directed by the District Administrator, as advised by EHS. A sample warning sign is included in Appendix E.

If a creek, stream and/or beach have been contaminated as a result of an SSO, notifications 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. “Closed” signs should be posted at the outfall and a minimum of 100 feet upstream and 100 feet downstream of the discharge. If there is a large volume of sewage, more signs must be posted downstream.

Signs must remain posted until at least two consecutive days of sampling to meet the Public Beach Sanitation and Ocean Water-Contact Sports standards that are described above. The removal of signs must be approved by EHS and the County Public Health Officer.

## 6.8 Failure Analysis

For each SSO event greater than 1000 gallons, all participants involved in the response – from the person who received the call to the last person to leave the site – should meet, as soon as feasible, after the event to review and evaluate the incident and SAM’s response procedures. The objective of the Post-SSO Debrief is to determine actions necessary, if any, to reduce the recurrence and better mitigate the effects of SSOs.



## 6.9 SSO Documentation and Reporting

### 6.9.1 Documentation

In accordance with the WDR, SAM maintains, on behalf of the District, records for each sanitary sewer overflow. Records include:

- Documentation of response steps and/or remedial actions
- Photographic evidence as available to document the extent of the SSO, field crew response operations
- Site conditions after field crew SSO response operations have been completed
- The date, time, location, and direction of photographs taken will be documented
- Documentation of how any estimations of the volume of discharged and/or recovered overflow were calculated

The records are maintained at the SAM office and are also entered into joint SAM and member agency CMMS system (ICOMMM).

### 6.9.2 Regulatory Reporting

Table 6-1 summarizes the regulatory reporting requirements that are also described in the paragraphs following the table.

#### Multiple Appearance Points – Single SSO

For reporting purposes, if one SSO event of whatever category results in multiple appearance points in a sewer system, a single SSO report is required in CIWQS which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and descriptions of the locations of all other discharge points associated with the single SSO event.

#### 2-Hour Notification to Regulatory Agencies of SSOs

Cal OES is only to be notified of a Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water. In addition, both the County Health Officer and EHS are to be contacted. During regular business hours, the Health Officer can be reached at (650) 372-6200. During evenings/weekends, call the County Sheriff's Office at (650) 216-SMSO (7676)

The First Responder is responsible for reviewing field data for reporting to regulatory agencies by the SAM Supervisor of Operations. If it is determined that the criteria for OES notification was met, the First Responder must notify OES of the event no later than two (2) hours after:

1. The District has knowledge of the SSO;
2. Notification is possible; and
3. Notification can be provided without substantially impeding cleanup or other emergency measures.

The OES phone number is (800) 852-7550. The First Responder is responsible for obtaining an OES Control number. Following the initial notification to OES and until the SSO report is certified in the SWRCB online SSO Database, the LRO will provide updates (or provide direction for updates to be provided) to OES regarding substantial changes to estimated volume of untreated or partially treated sewage discharged and any substantial changes to known impact(s).

#### Detailed Reporting Requirements

Table 6-1 provides detail on the District's regulatory reporting process, which is also described below.

#### *SSO Reporting for Category 1 SSOs*

Cal OES and EHS shall receive notification of Category 1 SSOs greater than or equal to 1,000 gallons, as stated earlier in this Section.

The Data Submitter must then submit the initial draft report to the SWRCB's CIWQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs> within 3 business days of becoming aware of the SSO.

Within 15 calendar days of the SSO end date, the LRO must review and certify the report in the CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>

#### *SSO Reporting for Category 2 SSOs*

Within 3 business days of becoming aware of the SSO, the Data Submitter must submit the initial report to the SWRCB's CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

Within 15 calendar days of the SSO end date, the LRO must review and certify the report in the CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

#### *SSO Reporting for Category 3 SSOs*

Within 30 calendar days of the end of the calendar month in which the SSO occurred, the LRO must submit and certify a report to the SWRCB's CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

*No Spill Certification (Monthly)*

Within 30 calendar days of the end of a calendar month that there are no SSO's, the LRO must submit and certify a "No Spill" certification to the CIWQS online SSO database.

CIWQS Not Available

In the event that the CIWQS online SSO database is not available, the LRO should fax or e-mail all required information to the RWQCB office at (510) 622-2460 in accordance with the time schedules identified above. In such an event, the District will submit the appropriate reports using the CIWQS online SSO database when the database becomes available. A copy of all documents that certify the submittal in fulfillment of this section shall be retained in the SSO document file.

Amending SSO Reports

The LRO is responsible for amending SSO reports. Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date. After 120 days, the District must contact the State SSO Program Manager to request to amend an SSO report along with a justification for why the additional information was not available prior to the end of the 120 days. The SWRCB SSO Program Manager contact information is as follows:

Gil Vazquez  
State Water Resources Control Board  
Division of Water Quality  
1001 I Street 15<sup>th</sup> Floor  
Sacramento, CA 95814  
E-mail: [Gil.vazquez@waterboards.ca.gov](mailto:Gil.vazquez@waterboards.ca.gov)  
Phone: (916) 322-1400

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**Table 6-1 Regulatory Reporting Requirements**

Element	Requirement	Method
<b>NOTIFICATION</b>	Within two hours of becoming aware of any Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water, the District’s contract SSO responder will notify the California Office of Emergency Services (OES) and obtain a notification control number.	Call Cal OES at: <b>(800) 852-7550</b> . County Health Officer (650) 372-6200 must also be contacted. During evenings/weekends, call the Sheriff Communication Center at <b>(650) 216-SMSO (7676)</b> .
<b>REPORTING</b>	<ul style="list-style-type: none"> <li>Category 1 SSO: The District will submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.</li> <li>Category 2 SSO: The District will submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date.</li> <li>Category 3 SSO: The District will submit certified report within 30 calendar days of the end of month in which SSO the occurred.</li> <li>SSO Technical Report: The District will submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters.</li> <li>“No Spill” Certification: The District will certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred.</li> <li>Collection System Questionnaire: The District will update and certify every 12 months</li> </ul>	<ul style="list-style-type: none"> <li>Enter data into the CIWQS Online SSO Database (<a href="http://ciwqs.waterboards.ca.gov/">http://ciwqs.waterboards.ca.gov/</a>), certified by the Legally Responsible Official(s).</li> <li>All information required by CIWQS will be captured in the Sanitary Sewer Overflow Report.</li> <li>Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date. After 120 days, the State SSO Program Manager must be contacted to request to amend an SSO report along with a justification for why the additional information was not available prior to the end of the 120 days.</li> </ul>
<b>WATER QUALITY MONITORING</b>	<ul style="list-style-type: none"> <li>The District’s contract SSO responder will conduct water quality sampling within 48 hours after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters. EHS requires daily water quality sampling until compliance is achieved, if there is a Category I discharge of 1,000 gallons or greater and spills into surface water.</li> </ul>	Water quality results will be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.
<b>RECORD KEEPING</b>	<p>The District’s contract maintenance provider will maintain the following records:</p> <ul style="list-style-type: none"> <li>SSO event records.</li> <li>Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP.</li> <li>Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.</li> </ul>	Self-maintained records must be retained for five years, and shall be available during inspections or upon request.

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## 6.10 Contractors Working On District Sewer Facilities

All contractors working on the District's sewer facilities should be trained in the OERP and will be required to follow the OERP in the event that they cause or observe an SSO. If the contractors are hired by SAM on behalf of the District, then SAM will provide this training.

## 6.11 Training

### SSO Response Training

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

#### *Initial and Annual Refresher Training*

All personnel who may have a role in responding to, reporting, and/or mitigating a sewer system overflow will receive training on the contents of this OERP. All new employees will receive training before they are placed in a position where they may have to respond. Current employees will receive annual refresher training on this plan and the procedures to be followed. Affected employees will receive annual training on the following topics, at a minimum, by knowledgeable trainers:

- Overflow Emergency Response Plan
- SSO Volume Estimation Techniques
- Impacted Surface Waters: Response Procedures

The District will verify that annual safety training requirements are current for each employee, and that employees are competent in the performance of all core competencies. The District will address, through additional training/instruction, any identified gaps in required core competencies.

#### *SSO Response Drills*

Periodic training drills will be held to ensure that employees are up to date on these procedures, equipment is in working order, and the required materials are readily available. The training drills will cover scenarios typically observed during sewer related emergencies (e.g. mainline blockage, mainline failure, force main failure, pump station failure, and lateral blockage). The results and the observations during the drills will be recorded and action items tracked to ensure completion.

### *SSO Training Record Keeping*

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

SAM provided Overflow Emergency Response training in 2016 in support of this program element.

### **Appendix E – Overflow Emergency Response Plan**

Appendix E includes a full copy of the District's Overflow Emergency Response Plan. The information in this document will change from time to time, and the OERP may have been superseded. Please contact the District Administrator for the most recent updates to the OERP.

- SAM SSO Field Forms
- Spill Calculation and Estimation
- SAM SSO Warning Sign
- Water Quality Monitoring Program
- SSO Technical Report



## **ELEMENT 7 - FOG CONTROL PROGRAM**

The intent of this section of the SSMP is to evaluate the extent and nature of SSOs related to Fats, Oils and Grease (FOG), to determine the need for a FOG Control Program, and to outline the elements of the District's FOG control program.

The District does not have a history of FOG-related issues within the system. The District receives source control services from SAM, under SAM's non-domestic waste source control program (NDWSCP).

### **7.1 SWRCB SSMP Requirements**

The District shall evaluate its service area to determine whether a FOG control program is needed. If the District determines that a FOG program is not needed, justification must be provided for why it is not needed. If FOG is found to be a problem, the District must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The FOG source control program shall include the following as appropriate:

- An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG
- 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.
- The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG
- Requirements to install grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, best management practice (BMP) requirements, record keeping and reporting requirements
- Authority to inspect grease producing facilities, enforce requirements, and determine whether the District has sufficient staff to inspect and enforce the FOG ordinance
- An identification of sewer system sections subject to FOG blockages and the establishment of a cleaning maintenance schedule for each section
- Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified as subject to blockages

## **7.2. Goals for the FOG Program**

The goal for the District's FOG program is to avoid FOG related SSOs. The District has had no reported FOG-related SSOs since 2011. SSO records in CWIQS prior to 2011 only show general SSO information (total volume SSO, volume recover, etc.) and do not indicate the cause of spill.

SAM provides mainline cleaning to the District through an O&M agreement, and FOG control services to the District by contract, following its NDWSCP. Additional FOG Program goals have not been established for the District because there have been no FOG related issues.

FOG materials utilized by SAM can be found in Appendix F of this document.

## **7.3 Legal Authority to Prohibit SSOs and Blockages Caused by Fog Discharge**

The District's authority to regulate the discharge of FOG is provided by Section 502 of the District's Ordinance, which is discussed in Element 3.

## **7.4 Sewer Sections Subject to FOG Blockages**

Since 2011, the District has had no FOG-related SSOs.

## **Appendix F – FOG Control Program Documents**

Appendix F includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix F may have been superseded. Please contact the District Administrator for the most recent updates to Appendix F.

- SAM FOG Control Handout

## **ELEMENT 8 - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN**

This section of the SSMP discusses the District's activities related to capacity management.

### **8.1 SWRCB SSMP Requirements**

The District must prepare and implement a CIP that will provide hydraulic capacity of key sanitary sewer system elements from dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:

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

### **8.2 System Evaluation and Capacity Assurance Plan**

The District does not have a formal System Evaluation and Capacity Assurance Plan. However, special studies have been completed for problem areas and areas with older sewer pipelines. The District completed planned work from their 2015 CIP, and have included \$250,000 in funding for the 2016/17 Main Replacement Program.

### **Appendix G – System Evaluation and Capacity Assurance Plan Documents**

There are no documents related to Appendix G. As documents are developed they will be incorporated into the 2017 update. Please contact the District Administrator for the most recent updates to Appendix G.

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## **ELEMENT 9 - MONITORING, MEASUREMENT AND PROGRAM MODIFICATIONS**

This section of the SSMP discusses the District's Monitoring, Measurement, and Program Modifications.

### **9.1 SWRCB SSMP Requirements**

The requirements for the Monitoring, Measurement, and Program Modifications element of the SSMP are summarized below.

The District shall:

- Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities
- Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP
- Assess the success of the preventative maintenance program
- Update program elements, as appropriate, based on monitoring or performance evaluations
- Identify and illustrate SSO trends, including SSO frequency, location, and volume

### **9.2 Utility Metrics to Measure Progress and Prioritize Activities**

The District has established the preventive maintenance sewer metrics that are shown in Table 9-1 for use in monitoring, measuring and adjusting sewer maintenance activities. After these metrics are included in the updated CMMS system, they will be monitored on a regular basis. Until this time, the District will compile and monitor the most relevant indicators, which include the number and causes of SSOs, length of pipes cleaned, length of pipes televised and length of pipes repaired.

**Table 9-1. Success Factors and Metrics**

Sewer Maintenance Success Factor	Metric
• Sewer Maintenance Field Staff	• Full Time Equivalents (FTE)
• Pipes Cleaned	• Miles/Year
• Pipe Inspected (CCTV)	• Miles/Year
• Hot Spots Cleaned	• Number by Underlying Cause (Roots, Debris, FOG, Structural)
• SSOs	• Number by Underlying Cause per 100 Miles
• Response Time	• Minutes per SSO
• Pump Station Overflows	• Number by Cause
• Pipe Replaced	• Miles/Year
• Claims	• #/Year and \$/Year

### 9.3 SSO Trends – Frequency, Location and Volume

In the past five years (2012 through 2016), the District has had 17 SSOs, as follows. There have been no reported SSOs in 2017.

DATE	VOLUME (gallons)	CAUSE
09/27/2012	5	Undetermined
11/19/2012	1	Root Intrusion
12/23/2012	1,125	Structural Failure
02/14/2013	25	Root Intrusion
02/16/2013	150	Root Intrusion
03/01/2013	25	Debris
07/16/2013	50	Structural Failure
10/19/2013	400	Root Intrusion
01/22/2014	577	Debris
05/27/2014	165	Debris
08/30/2015	5	Root Intrusion
10/19/2015	20	Root Intrusion
02/16/2016	1	Root Intrusion
03/06/2016	350	Debris
03/12/2016	100	Root Intrusion
03/15/2016	1	Root Intrusion
07/29/2016	10	Debris

**Appendix H – Monitoring, Measurement and Program Modification Documents**

There are no Appendix documents to accompany Section 9. However, this Appendix H is included as a placeholder for future documents.

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## ELEMENT 10 - SSMP PROGRAM AUDITS

This section of the SSMP discusses the SSMP auditing program.

### 10.1 RWQCB and SWRCB SSMP Requirements

The requirements for the SSMP Audits element of the SSMP are as follows:

The District 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 the District's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

### 10.2 Audit Procedures, Roles and Responsibilities

The District will prepare a biannual SSMP audit, and will retain the audit on file in accordance with the Statewide WDR requirements, beginning in March 2019. A template of the SSMP audit form is included in Appendix I.

### 10.3 SSMP Program Modification/Update Process

If the biannual audit identifies significant changes to be made to the SSMP, then the SSMP will be updated by June 30 of the same year in which the audit was submitted. However, it is anticipated that the main SSMP document will remain generally unchanged, and that a comprehensive SSMP update will be completed every five years, as required by the WDR.

Changes made to the SSMP will be documented in the Change Log located in Appendix I. SSMP Audit results will also be included in Appendix I, beginning in 2017.

### Appendix I – SSMP Program Audit Documents

Appendix I includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix I may have been superseded. Please contact the District Administrator for the most recent updates to the Appendix I documents.

- SSMP Audit Form Template
- SSMP Change Log
- SSMP Audits (beginning in 2019)

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## **ELEMENT 11 - COMMUNICATION PLAN**

This section of the SSMP discusses the District's Communication plan.

### **11.1 RWQCB and SWRCB SSMP Requirements**

The requirements for the Communication Plan element of the SSMP are as follows:

The District shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the District as the program is developed and implemented. The District shall also create a plan of communication with systems that are tributary and/or satellite to the sanitary sewer system.

The District shall post the SSMP on its website or otherwise provide the SSMP in electronic form to the SWRCB.

### **11.2 Communication Plan**

The District does not currently have a formal communication plan in place for the communication of SSMP elements, performance or updates. However, the District distributes permit information, fat-trap bags, and brochures developed by San Mateo County titled, "Understanding your Sewer and be Sewer Savvy" when appropriate. The San Mateo County brochure is included in Appendix J for reference.

The SSMP will be added to the District's website after adoption by the Board.

### **Appendix J – Communication Plan Documents**

- San Mateo County Sewer Savvy Brochure

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Appendix A  
Element 2 (Organization) Supporting Documents

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**Granada Community Services District  
SSMP and OERP Contact List**

**SSO REPORTING AND EMERGENCY CONTACT INFORMATION**

Agency	Phone Number
Sewer Authority Mid-Coastside (Maintenance and SSO Response) Tim Costello, Supervisor	650-726-0124 (24 hours)
City of Half Moon Bay	650-726-7177
Montara Water and Sanitary District	650-728-3545
CA Office of Emergency Services	800-852-7550
San Mateo County Environmental Health	650-372-6200
San Mateo County Sheriff Dispatch	650-216-SMSO (7676)
San Mateo County Public Health Laboratory	650-573-2500
CA Department of Fish and Wildlife	707-944-5523
SWRCB SSO Program Manager: Russell Norman, P.E.	916-323-5598

Title	Name	Contact #
General Manager	Chuck Duffy	Cell: 760-522-4419
District Administrator	Delia Comito	Office: 650-726-7093 Cell: 650-766-6715
Legal Counsel	Jonathan Wittwer	831-429-4055
District Engineer	John Rayner	Cell: 650-483-5301
Sewer Authority Mid-Coastside (Maintenance and SSO Response)	Tim Costello, Supervisor	650-726-0124 (24 hours)

**ADJACENT SEWER SERVICE AREAS**

Agency	Phone Number
City of Half Moon Bay	650-726-7177
Montara Water and Sanitary District	650-728-3545

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Appendix B  
Element 3 (Legal Authority) Supporting Documents

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# GRANADA COMMUNITY SERVICES DISTRICT

## ORDINANCE CODE

Adopted by Ordinance No. 57  
on August 14, 1984

Granada Community Services District  
504 Avenue Alhambra, 3<sup>rd</sup> Floor Post Office Box 335 El Granada California 94018-0335

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**ARTICLE I**  
**GENERAL PROVISIONS**

**SECTION 100. Purpose of Code; Separate Regulations Governing Non-Domestic Wastewater Discharge.**

**100 (01)** The purpose of this Ordinance Code, hereinafter referred to as the "Code" is to establish standards and conditions, and to provide for fees, relating to the use of sanitary wastewater facilities of Granada Sanitary District, San Mateo County, California. It is further the purpose of this Code to establish uniform requirements for the installation and connection of building sewers. It is further the purpose of this Code to establish uniform requirements for discharge into the District's wastewater collection system and the treatment system used jointly with other public entities. It is further the purpose of this Code to enable the District to comply with and meet applicable laws, regulations, standards and conditions established by the Federal and State Government, or by agencies thereof, in implementation of such laws. The District Board of Granada Sanitary District hereby finds and declares that the health, safety and welfare of the people of the Granada Sanitary District require the enactment of the provisions of this Ordinance Code.

**100 (02)** This Code shall govern all matters having to do with the conduct of District affairs and District business, except that any matters having to do with Non-Domestic Wastewater Discharges ("NDWD") and NDWD permits and activities shall, to the extent applicable, be governed by the Non-Domestic Wastewater Source Control Program and Regulations adopted and enacted by the Sewer Authority Mid-Coastside by its Resolution 1-91 dated August 26, 1991, which regulations, as hereafter amended from time to time, are hereby adopted by reference as the District's NDWD Regulations. Copies of the NDWD Regulations shall be available for examination at all times in the offices of the District and such other places as the Board directs. In any case where the issue in question pertains to matters within the coverage of the NDWD Regulations, those Regulations shall control notwithstanding conflicting provisions of this Code. In all other cases, the provisions of this Code shall apply.

**SECTION 101. Mailing and Office Address.**

The mailing address of the Granada Sanitary District is as follows:

GRANADA SANITARY DISTRICT  
PO Box 335  
El Granada, CA 94018 – 0335

The official office of the District is fixed and established at 504 Avenue Alhambra, 3<sup>rd</sup> Floor, El Granada, CA 94018

**SECTION 102. Superseding Previous Ordinances.**

This Code shall supersede all previous ordinances and policies of the District governing items covered in this Code.

**SECTION 103. Distribution of Revenue.**

All fees and charges payable under the provisions of this Codes shall be paid to the Granada Sanitary District, County of San Mateo, State of California. Revenues derived from the activities of the District shall be allocated to a fund or funds established by the District. The District

Board may transfer monies from any fund to any other fund in accordance with applicable provisions of law.

Revenues derived under the provisions of this Code shall be used for the acquisition, construction, reconstruction, maintenance and operation of sanitary or wastewater facilities to repay principal and interest on bonds issued for the construction or reconstruction of wastewater facilities, or any other lawful purpose as the District Board deems necessary in order to conduct the business of the District.

**SECTION 104. Definitions.**

Words, phrases or terms not specifically defined herein, and having a technical or specialized meaning shall be defined as set forth in the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Health Association, The American Waterworks Association, and the Water Pollution Control Federation.

References to waste constituents and characteristics shall have the meaning ascribed thereto in the aforesaid "Standard Methods for the Examination of Water and Wastewater", and measurements thereof shall be as set forth in said publication, or as established by Federal or State regulatory agencies.

Unless the context specifically indicates otherwise, the meanings of terms used in this Code are applicable to this Code only and do not necessarily correspond to definitions that may be used by other public agencies.

Unless the context specifically indicates otherwise, the meaning of terms used in this Code shall be as follows:

- (01) Authority. The Sewer Authority Mid-Coastside.
- (02) Building Sewer or Side Sewer. The extension from the building drain to the public sewer or other place of disposal.
- (03) Charge or Fee. Any pecuniary assessment established pursuant to this Code for services and facilities furnished by the District to any premises in connection with the operation of the wastewater facilities.
- (04) Code. The Ordinance Code for the District, with such amendments as may be adopted from time to time.
- (05) Collector. Any person to whom a contract shall have been let by District to collect and transport refuse through the streets, alleys and public ways.
- (06) Commercial. Any premises used for commercial or business purposes and discharging a quality and/or quantity of wastewater essentially similar to that of a residential customer.
- (07) Condominium. An estate in real property consisting of an undivided interest in common in a portion of a parcel of real property together with a separate interior space in a residential, industrial or commercial building on the real property, such as an apartment, office or store. A condominium may include, in addition, a separate interest in other portions of the real property.



(08) Condominium/Hotel. Any building or portion thereof containing six or more guest rooms used, designed or intended to be used, let or hired out to be occupied for no more than 30 days at a time by transient occupants, homeowners association or other similar entity, or the individual owner of a unit or units within a project, and, that is also an estate in real property consisting of an undivided interest in common in a portion of a parcel of real property together with a separate interior space in the building on real property. In addition, a condominium may include a separate interest in other portions of the real property.

(09) Contamination. An impairment of the quality of the waters of the District or State by waste to a degree which creates a hazard to the public health. Contamination shall include any equivalent effect resulting from the disposal of wastewater whether or not waters of the District or State are affected thereby.

(10) County. The County of San Mateo, California.

(11) Customer. Owner or owners of any real property for which the District is providing sewer service, also any person who discharges, causes or permits the discharge of wastewater into the wastewater facilities.

(12) District. The Granada Sanitary District, located in the County of San Mateo, State of California.

(13) District Representative. Any person authorized by the District Board to act on its behalf in carrying out the administrative functions of the District.

(14) Emergency. A condition which creates imminent danger to the public health, safety or welfare.

(15) Garbage. Any kitchen, table, counter, fountain, bar refuse including offal, vegetable or animal matter, dead animals not more than ten (10) pounds each, or other matters pertaining to the preparation, consumption, decay, or storage of meats, fish, fowl, birds, fruits, vegetables and other matters for human food consumption.

(16) Governmental or Public Premises. Any premises owned, controlled or used by: (1) the United States Government or any department or agency thereof, (2) The State of California or any department or agency thereof, (3) any city, county, town, or any of their departments or agencies, (4) any school district and (5) any other governmental or public entity.

(17) Hotel. Any building or portion thereof containing six or more guest rooms used, designed, or intended to be used, let out or hired out to be occupied. (15) Natural Outlet. Any outlet into a watercourse, pond, ditch, lake or other body or surface or ground water.

(18) Non-Residential Customer. Any commercial, industrial, institutional, governmental, or miscellaneous customer not classified as a residential customer.

(19) Parcel. A parcel of real property as described in the records of the San Mateo County Assessor by an assessor's parcel number. It includes both improved and unimproved real property.

- (20) Person. Any individual, property owner, firm, company, partnership, association, private corporation, public corporation, or governmental entity, authority or agency, and the officers, agents or employees of such organizations.
- (21) pH. A measure of acidity or alkalinity.
- (22) Pollution. An alteration of the quality of the waters of the District or State by waste to a degree which unreasonably affects such waters for any beneficial use or affects facilities serving such beneficial use. The term pollution may also include contamination.
- (23) Premises. A parcel of land, or portion thereof, including any improvements thereon, which is directly or indirectly connected to the wastewater facilities for purposes of receiving, using, and paying for service, or other purposes relating to the wastewater facilities, by an individual customer. Each dwelling unit of a duplex, apartment, or any other dwelling being used as a multi-family residence shall be deemed a separate premise. Subject to the provisions of this Subsection, the District shall determine what constitutes a premise.
- (24) Public Sewer. A sewer in which all owners of abutting properties have equal rights and which is controlled by public authority.
- (26) Refuse. All types of waste materials as defined under the headings of "garbage", "rubbish", and "waste matter".
- (27) Report. The sewer service charge report referred to in Section 5473 of the Health and Safety Code of the State of California.
- (28) Requirement of Law; Other Requirements of Law. A pertinent provision of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500, 33 U.S.C. Section 1151 et seq.), or of any statute, ordinance, code, rule, regulation, order, directive, or of the District's or Authority's National Pollutant Discharge Elimination System (NPDES) permit, or of any amendments thereto, or other Federal, State, Regional or local law.
- (29) Residential Customer. Any single or multiple family dwelling customer, including premises defined as condominiums, apartment houses, duplexes, motels, rooming houses, or boarding houses, dormitories or similar structures.
- (30) Rubbish. Any pasteboard boxes, rags, paper, straw, sawdust, packing material, shavings, boxes, trimmings from lawns, trees and flower gardens and similar non-combustible materials.
- (31) Sanitary Sewer. A pipe or conduit which carries wastewater and to which storm, surface, and ground waters are not intentionally admitted.
- (32) Sewer. A pipe or conduit for carrying sewage.
- (33) Shall. The word "shall" is mandatory; "may" is permissive.
- (34) Single-Family Dwelling. Premises designed, improved or used as a residence for one family only and for no other purpose.

(35) Storm Sewer or Storm Drain. A sewer which carries storm and surface waters and drainage, but excludes wastewater and polluted industrial wastes.

(36) Suspended Solids (SS). The total non-filterable residue as defined in "Standard Methods for Chemical Analysis of Water and Wastewater."

(37) Type of Use. The purpose of the Premises, such as commercial, industrial, institutional, single-family dwelling, multiple-family dwelling, and miscellaneous use.

(38) Unpolluted Water. Water to which no constituent has been added, either intentionally or accidentally, which would render such water unacceptable to the District for disposal to storm or natural drainage, or directly to surface waters.

(39) Waste Matter. Wastewater and any and all waste substances, whether liquid, solid, gaseous, or radioactive including, but not limited to, crockery, bottles, tin cans, metal vessels, ashes, shells, plaster, and all other similar non-combustible materials.

(40) Wastewater. Waste and water, whether treated or untreated, discharged into, or permitted to enter into the wastewater facilities. Wastewater shall mean a combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface, and storm waters as may be present.

(41) Wastewater Constituents and Characteristics. The individual chemical, physical, bacteriological and radiological parameters, including volume and flow rate and such other parameters that serve to define, classify or measure the contents, quality, quantity, or strength of wastewater.

(42) Wastewater Facilities. All facilities for collecting, pumping, treating, and disposing of wastewater.

## **SECTION 112.**

Any person who is the owner of a parcel of real property which has received an Entitlement under the LCP may offer to transfer the entitlement to the District or to an immediate family member owning title to a non-priority parcel for the benefit thereof, in accordance with this ordinance. For the purpose of this subsection, an immediate family member is the wife, husband, daughter, son, father, mother, brother or sister of the transferee. The mitigation fee set forth in Sec. 1.05.04 shall be waived where the transferee under this subsection will be the owner/occupant of the residence benefited by the transfer. (Ord No. 118)

**ARTICLE II**  
**MEETINGS & CONDUCT OF BUSINESS OF THE DISTRICT BOARD**

**SECTION 200. Public Meetings.**

All meetings of the District Board shall be open to the public except for closed sessions convened pursuant to the Ralph M. Brown Act (California Government Code, Sections 54950. et. seq.).

**SECTION 201. Regular Meetings.**

The regular meeting of the District Board shall be held at the date, time and location specified in the Granada Sanitary District Bylaws. The District Board may cancel a regular meeting at anytime.

**SECTION 202. Special Meetings.**

The President of the District Board or a majority of the members of the District Board may schedule a special meeting at any time deemed necessary. Notice, by personal delivery or written notice, must be given to each member, and if requested in writing, to each local newspaper of general circulation, radio or television station. Such notice must be delivered personally or by mail not less than 24 hours before the time fixed for the proposed meeting as specified in the notice. The notice shall specify the time and place of the special meeting and the business to be transacted. No other business shall be considered at such special meeting. The written notice required hereunder may be dispensed with by any member who files with the Secretary of the District a written waiver of notice at or prior to the time the meeting convenes. Such waiver may be given by telegram. Attendance at a special meeting shall constitute a waiver of the notice provisions.

**SECTION 203. Quorum.**

A majority of the members of the District Board shall constitute a quorum.

**SECTION 204. Adjournment.**

**SECTION 204 (01) Order and Notice of Adjournment.**

The District Board may adjourn any regular, adjourned regular, special, or adjourned special meeting to a time and place specified in an order of adjournment. When a meeting may not be opened, or further action may not be had at a regularly opened meeting, for want of a quorum, said meeting may be adjourned to a day and hour certain by the Secretary or any member of the Board, and notice of such adjournment shall be given for the time and in the manner provided for calling the special meeting, excepting that the purpose of the adjourned meeting need not be stated. A copy of the order or a notice of adjournment shall be conspicuously posted on the nearest exterior door to the place where the meeting was held, within 24 hours after the adjournment. When a regular or adjourned regular meeting is adjourned, the resulting adjourned regular meeting is a regular meeting for all purposes. When an order of adjourned meeting fails to state the hour at which the adjourned meeting is to be held, it shall be held at the hour specified for regular meetings.

**SECTION 204 (02) Adjournment Time.**

The District Board shall adjourn each meeting at 10:00 p.m. if such meeting has not been adjourned prior to that time, unless a majority of the Board members then present vote to extend the time of adjournment. The vote of all Board members present except one shall be required to

extend the time of adjournment past 10:30 p.m.. When the agenda for the meeting has not been completed by the time of adjournment, unfinished business shall be continued to the next regular meeting, or to an adjourned meeting to be held at such date and time determined by a majority of the Board members present at the time of adjournment. Failure of the Board to adjourn in accordance with the provisions of this section something missing shall at the time of adjournment. Failure of the Board to adjourn in accordance with the provisions of this section shall not affect the validity of any hearing taken, deliberation conducted, or action taken prior to or after said prescribed adjournment time.

**SECTION 205. Minutes of Meetings.**

Minutes shall be taken of all public meetings of the District Board. The minutes shall be approved by the District Board and, upon approval, shall be signed by the Secretary of the District. All minutes of public meetings of the District Board shall be retained with the District's records and shall be available for reading by the public upon request.

**SECTION 206. Method of Action.**

The District Board shall act only by ordinance, resolution or motion. Unless otherwise required by law, actions of the District Board shall be effective if approved by a majority of members in attendance and voting on the question.

**SECTION 207. Recording Vote.**

Except where an action is approved by the unanimous vote of all members present and voting, the ayes and noes shall be recorded.

**SECTION 208. Conduct of Meetings.**

All meetings of the District Board shall be conducted as determined by the chair, provided, however, that upon the request of any Board Member, a meeting shall be conducted in accordance with Robert's Rules of Order. The priority of officers to chair any meeting is: 1. President, 2. Vice-President, 3. Secretary, 4. Treasurer.

**SECTION 209. Contracts.**

All contracts, deeds, warrants, releases, receipts, and documents shall be signed in the name of the District by its President, and countersigned by its Secretary, except that the Board may, by resolution authorize a District Representative to sign releases, receipts, and similar documents in the name of the District.

**SECTION 210. Amendments to the Ordinance Code.**

Amendments to this Code shall be adopted in the same manner as other ordinances. They shall be entered in the minutes of the District Board and shall be published once in the Half Moon Bay Review, or such other newspaper of general circulation as may be determined by the District Board, and shall be posted in three (3) public places within the District for a period of one week. An amendment to this Code takes effect upon expiration of the week of publication and posting.

**SECTION 211. Orders Not Establishing Amendments to the Code of General Regulations (Resolutions).**

Orders of the District Board not establishing Amendments to the Code shall be known as "Resolutions" and shall be entered in the minutes and shall take effect upon adoption. They need not be published or posted.

**SECTION 212. Adoption of Bylaws.**

The District Board may adopt Bylaws containing the procedures and policies for the conduct of business of the District which are not contained in the District Ordinance Code. The Bylaws shall not have the effect of law and shall be guidelines which the District Board may waive by majority vote.

**SECTION 213. Formation of District Committees and Appointment of Committee Members or District Representatives.**

Committees of the District may be formed and committee members or representatives of the District appointed by the Board of Directors or the Board President in the manner provided by the District Bylaws.

**ARTICLE III**  
**COLLECTION, REMOVAL & DISPOSAL OF GARBAGE,  
RUBBISH, WASTEMATTER, AND REFUSE**

**SECTION 300. District Solid Waste Collection, Removal and Disposal System.**

**SEC. 300 (01) Election to Operate Garbage Collection and Disposal System.**

In accordance with California Health & Safety Code § 6512 and pursuant to this Article III, the District elects to operate a garbage collection and disposal system within the District.

**SEC. 300 (02) Applicability.**

Except to the extent other provisions of Federal, State or local law are entitled to precedence with respect to matters covered by this Article III, the provisions of this Article shall be applicable to all activities having to do with the collection, removal and disposal of garbage, rubbish, refuse and other solid waste matter by any person in the District.

**SEC. 300 (03) Mandatory Collection.**

Except as provided in Section 305, the owners or occupants of each inhabited premises located in the District shall subscribe to and pay for the garbage collection and disposal system provided by the District. For purposes of this Article III, a premises is not deemed to be inhabited unless it is occupied.

**SEC. 300 (04) Receptacles.**

Every occupant or tenant of any premises within the District shall provide one or more garbage cans or refuse receptacles for receiving and holding all garbage, rubbish and waste matter. Garbage cans shall be constructed of metal or an approved plastic material, be water-tight, equipped with handles, and have tight fitting covers with handles. Each container shall have the capacity of not less than ten (10) nor more than fifty (50) gallons, and shall be kept clean at all times. Unless other arrangements are made with and fees paid to collector, containers shall be placed in front of the premises for easy access from the street on each collection day. At all other times, containers shall not be kept in or on any public place. Collector may, with the consent of the owner, occupant, or tenant provide tote-boxes for the use of occupants or tenants classified as commercial, industrial or multiple-dwelling. Containers used by collectors shall be cleaned daily with an approved disinfectant or by the application of live steam, except tote-boxes which shall be cleaned as often as is necessary to keep in a sanitary condition, but in any event not less than once every six (6) months.

**SEC. 300 (05) Premises Under Construction.**

Every person engaged in construction of improvements to real property, including property owners, contractors and subcontractors, shall make provision for periodic collection and removal of all debris, scrap, trash and other waste materials which are generated in the course of construction. As a minimum, an adequately sized waste receptacle or receptacles shall be provided on site, and shall be emptied as often as necessary to ensure that the site remains free of waste materials. In no event shall waste materials be permitted to be deposited onto other properties or onto public streets or easements. In the event a person subject to this Section shall fail to comply with these requirements, District may in its discretion require the person or persons responsible for the construction to contract with District's collector for waste removal at the expense of the affected person.

## **SECTION 301. Unlawful Acts.**

### **SEC. 301. (01) Unsanitary Activities.**

It is unlawful for any persons to place, deposit or permit to be deposited in an unsanitary manner upon any public or private property within the District, or in any area under the jurisdiction of the District, any human or animal excrement, garbage, rubbish, refuse, waste or other offensive or objectionable matter.

### **SEC. 301. (02) Dumping or Burying.**

No person shall dump or place upon or bury in any property within the District any garbage, rubbish or any other offensive substance under any circumstances whatsoever without having first obtained a permit from the District.

### **SEC. 301. (03) Accumulation.**

No person owning or occupying any building, lot, or premises within the District shall allow any refuse or other offensive substance to accumulate or remain in or upon said building, lot or premises except during the period between the regular collections required by Section 302(04), and then only for the purpose of permitting its collection by collector or disposal within a reasonable time pursuant to a permit issued by the District as provided herein, and only in receptacles of the type required by Section 300(04).

### **SEC. 301. (04) Burning.**

No person shall burn any refuse or other offensive substance in the open air within the District without having first obtained a permit to do so from any local government body or agency responsible for fire protection, air quality or related matters and having jurisdiction to issue such a permit. Any such burning pursuant to permit shall be done in accordance with any and all applicable Federal, State and local laws, ordinances, rules and/or regulations, including, but not limited to, requirements of any entity or agency having jurisdiction over air pollution or public health or safety.

### **SEC. 301. (05) Tampering.**

It is unlawful for any person, other than the owner thereof or a person authorized by the District Board to tamper with any garbage can or other solid waste receptacle on any premises, or to collect, remove, or dispose of the contents thereof.

### **SEC. 301. (06) Unauthorized Collection.**

Except as provided in Section 305, it is unlawful for any person to collect or carry garbage through the streets of the District without first having entered into a contract or obtained a permit from the District to do so. It is also unlawful for any authorized collector to permit any refuse to fall or remain on any public street or private premises in the District and the collector shall: close all gates used by it in collection service; operate quietly; not damage the container of any person; and, empty the container and place it in the position where found.

### **SEC. 301. (07) Private Removal.**

Except as provided in Section 305, it is unlawful for any person to dispose of garbage collected from premises owned, occupied or leased within the District, other than by and through the District's duly authorized collector.



**SECTION 301. (08) Payment of Rates.**

It is unlawful for any person to refuse to pay the rates fixed by the District Board.

**SECTION 302. Contracts With Collectors.**

The District may enter into a contract, exclusive or otherwise, with any person for the right and privilege of collecting solid waste within the District. The contract shall: contain such terms and conditions as the District Board may deem necessary for the best interests of the District; be consistent with this Code, incorporate the provisions of this Code and make them a part of the contract; and, in addition to the other matters required by this Code, provide the following:

**SECTION. 302. (01) Rates.**

Collector shall collect and dispose of all refuse at the rates fixed and determined by the District Board. Collector may terminate service to any owner or occupant for nonpayment only upon application to and approval of the District Board. Delinquent payments shall be collected in the manner prescribed in Section 303(03).

**SECTION. 302. (02) Disposal.**

Collector will dispose of refuse at such place and by such methods as the District Board shall determine, and shall comply with this Code and all applicable laws and ordinances of San Mateo County and other government agencies having jurisdiction over such matters.

**SECTION. 302. (03) Fees.**

Collector shall pay annually to the District such fee as agreed upon by the District Board and collector.

**SECTION. 302. (04) Periodic Service.**

Collectors shall collect all refuse as often as may be required by District, or any owner or occupant, but in no instance shall collector provide less than weekly service.

**SECTION 303. Establishment of Rates.**

By resolution duly adopted, the District Board shall establish rates to be paid by residents and property owners or make such other provisions as it deems appropriate for the collection, removal and disposal of garbage and solid waste.

**SECTION 303 (01). Rates to be Charged.**

Charges shall be billed and collected by collector for the collection, removal, and disposal of garbage and solid waste at the rates and billing frequencies established by the District Board. Except as provided in Subsection (03) below, collection of fees and charges shall be solely the responsibility of collector.

**SECTION 303 (02). Disputed Rates.**

In the event of any dispute arising out of the determination of the rate to be paid collector, District shall have the power to resolve such dispute, and both the collector and its customer shall be bound thereby. In no event shall District be obligated in any way to collector or any owner or occupant for the collection of disputed accounts.

**SECTION 303 (03). Delinquencies.**

Pursuant to California Health & Safety Code Section 5473.10, any fee or charge not paid within 30 days after it is due shall be subject to penalties of 10% on the unpaid balance and thereafter at the rate of 1-1/2% per month for each month that the amount remains unpaid. The penalties provided for by this Subsection shall be calculated and imposed in the same manner as those called for in Section 700(13)(E) of this Code. Pursuant to California Health & Safety Code Section 5473 et seq., the District may collect delinquencies on the tax roll of the County of San Mateo in accordance with Subsection (04) below.

**SECTION 303 (04). Tax Roll Collections.**

On or before June 1st of each year, the collector shall furnish the District with a list of persons whose accounts are delinquent as of April 1st of that year and showing the amounts of the delinquencies, the address and other identifying data of the parcel and such other information as District may require. The collector shall certify that the information contained on the list is true and correct under penalty of perjury. The District Board shall review the information on the list and if the Board determines that the information is correct and in good order, the District shall cause the delinquencies to be collected on the tax roll of San Mateo County in the same manner as sewer service charges, as provided in Section 700(11) of this Code.

**SECTION 303 (05). Assignment.**

Neither the contract, nor any part thereof, shall be assigned either voluntarily or by operation of law except upon the consent of the District expressed by a resolution of the District Board.

**SECTION 303 (06). Termination.**

If the collector fails, refuses or neglects to comply with the terms of the contract or with any laws, ordinances or regulations above referred to for a period of thirty (30) days after being notified in writing to do so on the order of the District Board, then after hearing upon ten (10) days written notice to the collector, the District shall be entitled to terminate the contract.

**SECTION 303 (07). Recycling.**

The collector shall conduct such recycling activities as the District may require.

**SECTION 304. Recycling.**

It is the policy of this District that the District shall, to the extent reasonably possible, sponsor, support, assist, enforce and otherwise facilitate recycling of reusable waste materials within the District. The District Board shall establish procedures to carry out this policy.

**SECTION 305. Relief From Participation In Mandatory Collection System.**

Notwithstanding the other provisions of Section 300(03) and the other provisions of this Article III, it shall not be unlawful for persons to collect, remove or dispose of garbage or solid waste within the District in the following circumstances

**SECTION 305 (01). Permit.**

The District Board may, upon payment of the applicable fee required by Article VII of this Code, issue a permit for such activities upon such terms and conditions as it may find necessary and reasonable. If the Board finds, upon satisfactory evidence, that an applicant will completely remove all garbage, refuse and other solid waste from the applicant's premises in a manner which is sanitary, healthful and otherwise proper, the Board may in conjunction with the permitting process relieve the applicant from the requirement to subscribe to and pay for the District's

mandatory garbage collection and removal system. Any permit issued pursuant to this section may be revoked at any time, and upon a determination by the Board that the applicant's disposal practices are unsanitary and not in the best interests of the public health, safety and welfare.

**SECTION 305 (02). Composting.**

It is permissible for any person to dispose of waste matter by the use of composting techniques so long as such techniques do not cause noxious odors, the accumulation of insects and pests or other conditions adversely affecting the public health, safety and welfare.

**SECTION 305 (03). Removal to Authorized Disposal Site.**

It is permissible for any person to remove waste matter from premises within the District owned or occupied by the person provided that the waste matter is removed to a duly authorized and constituted disposal site in accordance with the provisions of this Code and other applicable provisions of Federal, State and local law.

**ARTICLE IV**  
**SPECIFICIATIONS CONTROLLING MANNER OF CONSTRUCTION**

**SECTION 400. Standard Specifications**

The document entitled "Standard Specifications For Design and Construction of Sanitary Sewer Collection and Conveyance Facilities (November 1990)" promulgated by the District, as hereafter amended from time to time, is adopted as the District's Standard Specifications governing the manner of construction, repair, maintenance and operation of all wastewater facilities within the District. These Standard Specifications are incorporated herein by reference. Copies of the Standard Specifications shall be available for examination at all times in the offices of the District and the District's engineering representative, and such other places as the District Board directs. (Ordinance No. 82)

**SECTION 401. Building Sewers and Connections.**

Section 401 (01) No unauthorized person shall uncover, make any connections with or openings into, use, alter or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the District.

401 (02) All costs and expenses incident to the installation and connection of the building sewer shall be borne by the owner. The owner shall indemnify the District from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.

401 (03) A separate and independent building sewer shall be provided for every building; except:

(A) Where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard, or driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer.

(B) Where it is determined by the District that it is necessary to do so in order to properly service a particular building, more than one building sewer may be required.

401 (04) Every building sewer shall have an approved clean-out located within five (5) feet of the property line of the premises served by such building sewer. When a public sewer is located in a street, alley, or easement the clean-out shall be flush with the sidewalk level. Unless otherwise approved by the District, the clean-out shall be located within the property to be served.

401 (05) Concrete sidewalks shall have an appropriate sized clean-out box made of concrete fitted with a loose cover. The concrete cover shall have two holes in the top for removal. The clean-out boxes installed in alleys, streets, or driveways shall be of cast iron. The cast iron clean-out box cover shall be installed with two brass screws. Clean-out boxes installed in unpaved surfaces shall be of concrete or of equal quality as approved by the District.

401 (06) The clean-out assembly, consisting of a "Y" and branch fittings, shall be made of cast iron or clay of the same size as the building sewer it serves. The cast iron riser shall connect the "Y" and branch fittings up to the clean-out box. The top of the riser shall be fitted with a brass or plastic screw type clean-out cap. The clean-out shall be readily accessible for maintenance

purposes and plainly visible to the eye or its location shall be marked with a suitable stake driven in the ground.

401 (07) The responsibilities for the operation, maintenance, repair and replacement of the building sewer shall be as follows:

(A) The owner of the premises shall be fully responsible for the building sewer except as provided in (B), below.

(B) The District will be responsible for the clean-out assembly and the portion of the building sewer between the clean-out and the connection with the District's main line (but not the portion of the building sewer between the building and the clean-out), subject to all of the following conditions:

(i) The building sewer has been lawfully connected to the District's wastewater collection system;

(ii) The building sewer was constructed and installed in full conformance with District regulations including installation of a fully conforming property line clean-out assembly;

(iii) The clean-out assembly is easily locatable and readily accessible to District service representatives; and

(iv) Any conditions which have created the need for maintenance services, repairs or replacement of a portion or portions of the building sewer for which the District has responsibility are not due to the wrongful conduct of the owners or occupiers of the premises.

(C) Notwithstanding the provisions of (B) above, the owner of the premises shall be responsible for the costs of any repairs, modifications or replacement of building sewer facilities which the District determines are necessary for purposes of issuance of a permit which is required pursuant to Section 600, or any provision, of this Code.

(D) Nothing in this Subsection (07) shall be deemed to preclude the District from exercising any rights or remedies available to the District, including rights and remedies to require responsible persons to bring non-conforming building sewers into conformance with District regulations. (Ordinance No. 92)

401 (08) The building sewer for residential property shall be of vitrified clay pipe, cast iron pipe, or approved equal; for non-residential property, the building sewer shall be cast iron pipe or vitrified clay pipe. The maximum nominal pipe length shall be five (5) feet. Pipe specifications shall be in conformance with the technical specifications of the Standard Specifications approved by the District Board. Any variations from the conditions must be approved by the District's engineering representative.

401 (09) All joints and connections shall be made gas-tight and water-tight. Cast iron pipe joints shall be firmly packed with oakum or hemp and filled with molten lead, Federal specification (QQ-L-156), not less than one inch deep. Lead shall be run in one pouring and calked tight. No paint, varnish, or other coatings shall be permitted on the jointing material

until after the joint has been tested and approved. All joints between vitrified clay pipe and metals shall be made with approved hot-poured jointing material or other approved couplings. Material for hot-poured joints shall not soften sufficiently to destroy the effectiveness of the joint when subject to a temperature of 160 degrees Fahrenheit, nor be soluble in any of the wastes carried by the drainage system. The joint shall first be calked tight with jute, hemp, or similar approved metals.

All joints for vitrified clay pipe shall be speed seal in type. Other jointing materials and methods may be used only by approval of the District engineering representative.

401 (10) The connection of the building sewer into the public sewer shall be made at the "Y" branch, if such branch is available at a suitable location. If no such "Y" branch is available, a service "Y" shall be installed using standard manufacturer's fittings, with entry in the downstream direction at an angle of about forty-five (45) degrees. Connection closure shall be standard band seal couplings on service additions. No pipe breaking and concrete patching will be permitted; only neatly snapped or sawcut lengths will be allowed. The invert of the building sewer at the point of connection shall be at the same or at a higher elevation than the invert of the public sewer. A smooth, neat joint shall be made, and the connection laid secure and watertight by encasement in concrete. Special fittings may be used for the connection only when approved by the District or its engineering representative.

401 (11) Whenever possible the building sewer shall be brought to the building at an elevation below the basement floor. Changes in direction of the building sewer require a clean-out or properly curved pipe and fittings as approved by the District or its engineering representative.

401 (12) The size and slope of the building sewer shall be subject to the approval of the District, but in no event shall the diameter be less than four (4) inches. The slope shall be not less than one-eighth (1/8) inch per foot.

401 (13) In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary wastewater carried by such drain shall be lifted by approved artificial means and discharged to the building sewer. In areas where a stoppage in a District sewer may cause a back flow into the building sewer it shall be the responsibility of the property owner to install an adequate backflow prevention device on private property in accord with Section 405 below. Responsibility for construction, operation, and maintenance of wastewater facilities located on private property shall be the sole obligation of the property owner. The District shall maintain only that portion of the building sewer which is within the public right-of-way, as provided by Subsection (07) above.

401 (14) All excavations for building sewer installation shall be adequately guarded with barriers and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the District or its representative and to any governmental agency having jurisdiction thereof.

401 (15) When required by the District, the owner of any property served by a building sewer carrying non-residential wastes shall install a suitable control manhole in the building sewer to facilitate observation, sampling and measurement of the wastes. Such manhole, when required, shall be constructed in accordance with plans approved by the District's engineering

representative. The manhole shall be installed by the owner at owner's expense, and shall be maintained by the owner at all times.

**SECTION 402. Examination of Plans - Class 3 Sewer Permit.**

The District's engineering representative shall examine the plans submitted under a Class 3 sewer permit (See Section 604 of Article VI) to verify that they are in accordance with good engineering practices and in compliance with the Standard Specifications and policies of the District. Plans which have been so examined and approved will be submitted to the District Board for approval, alteration, or rejection.

**SECTION 403. Inspection of Construction.**

After approval of the plans by the District Board or its representative, actual construction may be started and all work shall be performed under the inspection of, and in accordance with the Standard Specifications and policies of the District.

All work shall be inspected by the District or its representative when construction is completed but before use is made of the facilities constructed. Inspection shall be made at such other times as the District or its representative may require. The applicant shall give 24 hours advance notice to the District that construction performed under a Class 1 or a Class 2 sewer permit is ready for inspection and connection to the public sewer. The applicant shall give 48 hours advance notice to the District's engineering representative with respect to such construction performed under a Class 3 sewer permit.

**SECTION 404. Dedications of Sewers - Easements.**

No sewer which is installed in private property shall become a public sewer unless it is dedicated to public use and is accepted by the District on such terms as the District may require. As a condition of accepting such a sewer as a public sewer, the applicant shall provide such original grant deed of easement to the District together with rights of ingress and egress, as may be necessary for the District to enter upon the property for the purposes of operating and maintaining the public sewers. No such easement shall be less than ten (10) feet in width. Such easements shall be recorded in the Official Records of the County of San Mateo as an encumbrance on the property which the easement traverses.

**SECTION 405. Protection From Back Flow.**

All buildings which have any plumbing fixture with an overflow rim installed at a level below the level of the top of the nearest upgrade manhole of the District's main line sewer to which the building is connected shall be protected from back flow of sewage in accordance with the District's Standard Specifications and in the manner approved by the District's engineering representative.

405 (01) All buildings discharging to a District main line sewer through a pump and pressure lateral must be protected by the installation of an appropriate number of back water valves, in accordance with the District's Standard Specifications, of a type and in the manner approved by the District's engineering representative. The back water valves shall be located in such a manner as to be accessible for inspection and repair at all times and, unless continuously exposed by suspension inside the building, shall be enclosed in a watertight masonry pit fitted with a removable cover.

405 (02) Buildings connected to gravity sewer laterals may be protected by back water valves as described in subsection (01) above or by back water overflow devices installed in accordance with the District Standard Specifications of a type and in a manner approved by the District's engineering representative. (Ordinance No. 100)

**SECTION 406. Grinder and Ejector Pumps**

406 (01) It is the policy of the District that it is preferable that the discharge of wastewater from any premises shall be accomplished by the fall of gravity rather than by the use of grinder pumps, ejector pumps or other forms of pressure or pumping facilities.

406 (02) In any case where it is impracticable to discharge wastewater from a premises by gravity, the property owner shall furnish and install pumping facilities so as to enable wastewaters from the premises to be properly discharged to the District's wastewater system. The design, construction, and installation of the pumping facilities shall be approved in advance by the District's engineering representative, shall contain such features and safeguards as may be reasonably required to ensure safe, reliable and continuous operation, and shall conform to all applicable laws and regulations of the District or other public agencies having jurisdiction and including the District's Standard Specifications, as applicable. Under no circumstances shall any pumping facilities be maintained or operated in such a manner as to interfere with the proper operation of the District's wastewater system or its use by others whose premises are connected to the District's system.

406 (03) All responsibility for the pumping facilities, including the costs and expenses of their ownership, design, acquisition, furnishing, construction, installation, operation, maintenance, repair, renewal and replacement shall be borne by the property owner without any cost, expense or liability to the District. The property owner shall defend, indemnify and hold the District harmless, at the property's owners expense, from any and all liabilities or obligations arising out of or related to the pumping facilities.



**ARTICLE V**  
**USE OF PUBLIC SEWERS**

**SECTION 500. Use of Public Sewers and Establishment of Service Area and Zone Boundaries.**

500 (01) Except as provided in Section 501(02) below, the owner of each house, structure, or property used for human occupancy, employment, recreation, or other purpose, situated within the Urban Zone of the District, is required at the owner's expense to install suitable toilet facilities therein, and to connect such facilities directly with the District's public sewer in accordance with the provisions of this Code.

The District Service Area is shown on the Service Area Map most recently adopted by the District Board and on file in the District Office. The Service Area Map, including each Urban Zone shown thereon, is hereby incorporated into this District Ordinance Code by reference as though it were fully included herein. In the unincorporated area of the District, the District Service Area Boundaries shall correspond to the boundaries of urban areas (excluding area shown as rural in the urban area). The District is divided into Urban Zone and Rural Zone, as shown on the Service Area Map. Any District permit issued or District service provided in the Rural Zone shall be commensurate with the uses and densities designated in the San Mateo County Local Coastal Land Use Plan for the property involved. Any user charges in any Rural Zone shall be reduced or eliminated consistent with the reduced or eliminated level of service. Any property designated as rural in an Urban Zone which has sewer service as of July 1, 2002 may continue to receive such sewer service; however, sewer service to that property may not be expanded so long as that property continues to be designated as rural.

501 (02) Except as hereinafter provided, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended or used for the private disposal of wastewater.

**SECTION 501. Private Wastewater Disposal.**

501 (01) Where a public sanitary sewer is not available, as defined in Section 500(01), the building sewer shall be connected to a private wastewater disposal system complying with the provisions of this Article.

501 (02) Any private wastewater system in existence at the time of the adoption of this Code may be continued in operation even though the premises which it serves has a public sewer within 100 feet of the property line, subject to the following:

501 (02) (a) The private wastewater system shall be operated and maintained by the owner so as to fully comply with all provisions of this Code and any other public agency having authority for such matters.

501 (02) (b) The owner shall apply for and obtain a written permit from the District in accordance with Article VI of this Code. As a condition of granting a permit, the property owner shall be required to record a notice in the Official Records of San Mateo County disclosing the matters set forth in Subsection (02)(E) below. The notice shall be in a form approved by the District.

501 (02) (c) If not otherwise established by the permit issued by the District Board, the private wastewater facilities shall be inspected at least annually by a sanitarian licensed by the State of California who shall certify in a report to the District whether the facilities continue to operate and be maintained in a proper and sanitary fashion.

501 (02) (d) If at any time the condition of the facilities is such that they cannot be or are not being operated in a satisfactory fashion, the District shall revoke the permit for the facilities and require the premises to be connected to the District's wastewater system.

501 (02) (e) At such time as all of the persons who were owners of the premises as to which Subsection (02) applies are no longer owners of record the right to continue operation of the private wastewater facilities shall terminate and any permit issued therefor shall be revoked. The effective date of termination and revocation shall be 180 days after termination of such persons' ownership. Within that time, the new owner or owners shall connect the premises to the District's wastewater facilities.

501 (03) Before commencement of construction of a private wastewater disposal system, the owner shall first obtain a written permit from the District.

501 (04) The type, capacities, location, layout, operation and maintenance of a private wastewater disposal system shall comply with the following District regulations, as well as all applicable regulations promulgated by any other government agency having jurisdiction with respect to the discharge of wastewater into a private wastewater disposal system. A private wastewater disposal system is defined as any private wastewater treatment and/or disposal system located on any individual parcel serving only that parcel, which disposes of the wastewater in-site.

501.04 (a) General requirements.

Without limitation upon all other applicable requirements of this Code or other regulations of the District, no permit for a private wastewater disposal system for any parcel shall be issued unless each of the following general requirements is satisfied.

501.04.a (1) The District Board or its designee shall have found that the construction, operation, maintenance and repair of such private wastewater disposal system shall have no adverse effect upon the environment as determined in accordance with the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and the District's regulations implementing same;

501.04.a (2) The plans for each private wastewater disposal system shall have been approved by the District Board or its designee pursuant to an application submitted in compliance with Sections 602 and 606. The plans shall state that installation of the system shall be in accordance with the approved plans and that any change in the installation plan must be first approved by the District General Manager or his/her designee prior to installation. The approved plans shall also contain a condition expressly stating that construction of buildings, sheds, permanent swimming pools, driveways, parking areas, or other permanent structures shall not be permitted over any portion of a private wastewater disposal system or any future expansion area.

501.04.a (3) The approved plans shall show that all wastewater from a parcel shall be discharged into one private wastewater disposal system located on the same parcel.

501.04.a (4) An additional area equal to the amount of area necessary to install the current leaching system for the parcel shall be shown on the approved plans and kept available for future expansion and/or repair of the leaching system. For new development on previously undeveloped parcels, with soils that percolate in the range of thirty to sixty minutes per inch (2 inches per hour to 1 inch per hour) the expansion system shall be installed at the time that the primary system is installed. This second system shall be interconnected with the first by means of an approved flow diversion device.

501.04.a (5) The approved plans shall show that each private wastewater disposal system (including the expansion system) is located so as to be accessible for maintenance and repairs and that each septic tank is located so as to allow easy access (as determined by the District) for vacuum pumping.

501.04.a (6) No portion of any private wastewater disposal system may be permitted or installed in or on any slope greater than twenty percent. This slope restriction applies only to the areas used for sewage leaching, including the area reserved for expansion of the leaching system. A slope of twenty percent or less is not acceptable when created by grading or other modification of slopes.

501.04.a (7) No portion of any private wastewater disposal system may be permitted or installed in any area subject to a high water table, whether seasonal or permanent. The bottom of each leaching area shall be separated from groundwater in compliance with the standards prescribed in Subsection (C) below for leaching trenches and seepage pits. Observation for a seasonal high water table shall take place only during the rainy season and when both of the following occur: (1) the cumulative rainfall reaches the total of 50% of the average annual rainfall has occurred according to local NOAA weather service data and (2) six inches of rainfall has occurred within thirty days immediately preceding the date of observation. The District Engineer or his/her designee may require the construction of piezometers (shallow groundwater monitoring pipes) in the vicinity of proposed leaching devices to enable the observation of depth to groundwater throughout the winter. Such piezometers shall be constructed to specifications established by the District Engineer or his/her designee. The District Engineer or his/her designee may observe seasonal high water table anytime during the winter water table test period established by (1) and (2) above. The determination, for design purposes, of seasonal high water table elevation in the vicinity of the proposed leaching devices shall be the static piezometric water level observed that is not influenced by confined water in lower strata that are penetrated by the piezometer. Temporary and brief saturated conditions caused by significant rain events shall not provide the sole basis for determination of seasonal high water table for leaching device design purposes.

501.04.a (8) No portion of any private wastewater disposal system may be located in any low lying area receiving or carrying storm water drainage, or within any area of special flood hazard as identified by the Federal Insurance Administration, through the Federal Emergency Management Agency, and shown on an FHBM or FIRM map as Zone A, AO, A1-A30, AE, A99, V1-V30, VE or V., except for the repair of an existing septic system which cannot be relocated outside the area of special flood hazard. If any portion of a private wastewater disposal system is located within an area of special flood hazard, no bedroom addition or building addition greater than five hundred square feet may be permitted or installed.

501.04.a (9) No portion of any individual private wastewater disposal system may be located within a distance of one hundred feet of any stream, ephemeral stream, creek, well, spring, or watercourse. The distance from a stream or creek shall be measured from the mean rainy season flowline. A watercourse is defined as a water flow fed from a permanent or natural source, including a river, run, or rivulet, usually flowing in a particular direction (though it need not flow continuously) in a definite channel having a bed or bank, and usually discharging into some other body of water.

501.04.a (10) No portion of any private wastewater disposal system may be permitted or installed in any area containing fill.

501.04.a (11) No portion of any effluent leaching system may be permitted or installed in any soil or formation containing any continuous channel, crack or fracture unless there is a setback distance of at least two hundred fifty feet from any domestic water supply well, potential domestic water supply well site, or surface water. No leachfield area may be located within a distance of one hundred fifty feet from any community well.

501.04.a (12) The use of a haulaway system is prohibited, except in the case of the necessary repair of an existing system when no other alternative is available.

501.04 (b) Septic Tank requirements.

501.04.b (01) Proximity to other structures or resources. No portion of any septic, pumping or holding tank shall be located closer than:

- (i) Five (5) feet of any building, foundation, structure, or bearing weight building overhang;
- (ii) Fifty (50) feet of any property line for parcels without an available public water supply or ten (10) feet of any property line for parcels with approved public water supply;
- (iii) One hundred (100) feet from any well, stream, spring, or water course;
- (iv) Twenty-five (25) feet of a swimming pool;
- (v) Three (3) feet of any leaching device;
- (vi) Ten (10) feet of any water line;
- (vii) Five (5) feet of any driveway or pavement; or
- (viii) Five (5) feet of the edge of a road easement or right of way.

501.04 (b) (02) Standards for Construction. The septic tank sewer and connecting piping shall be of A.B.S. Schedule 40 plastic, or other material approved by the District Engineer. The connecting piping shall have approved watertight fittings and be of at least the same diameter of the building drain. Ells and bends of ninety degrees shall be long turn. Cleanouts shall be provided in accordance with the Uniform Plumbing Code.

501.04 (b) (02) (i) The septic tank size required for residences from one to four bedrooms shall be one thousand five hundred (1,500) gallons. An additional two hundred fifty (250) gallons per bedroom shall be provided for each bedroom in excess of four.

501.04 (b) (02) (ii) Each septic tank shall have at least two compartments separated by a baffle or equivalent arrangement. The inlet compartment shall have a capacity of not less than two-thirds the total volume. Access to each compartment shall be provided by a manhole twenty

inches in minimum dimensions with a close fitting manhole cover equipped with a durable handle to facilitate removal.

501.04 (b) (02) (iii) Each septic tank shall be installed so that each manhole cover is within twelve (12) inches of the ground surface. If the top of a septic tank is deeper than twelve (12) inches from the ground surface, the tank shall be modified so as to extend the manhole and covers to within twelve (12) inches of the surface. Material used to extend the manhole covers shall be of the same material as the septic tank. A cleanout to finished grade shall be provided between the house and the septic tank.

501.04 (b) (02) (iv) A riser shall extend from each manhole cover to the surface of the ground so as to facilitate inspection and maintenance of the septic tank. The riser shall be of larger size than the manhole cover and shall be constructed of durable material.

501.04 (b) (02) (v) Each septic tank shall be reinforced concrete, standard weight reinforced concrete blocks, or approved corrosion proof synthetic materials. Metal septic tanks shall not be permitted. Interior surfaces of concrete tanks shall be coated with a bituminous or similar compound to minimize corrosion.

501.04 (b) (02) (vi) A reinforced concrete and reinforced concrete block septic tank shall be constructed with #3 (three-eighths inch) steel reinforcing bars placed sixteen (16) inches on center vertically and twenty (20) inches on center horizontally with all cells grouted. Each concrete septic tank cover shall be reinforced.

501.04 (b) (02) (vii) Each septic tank shall conform to the standards set forth in the EPA Design Manual for Onsite Wastewater Treatment and Disposal Systems.

501.04 (b) (02) (viii) Each septic tank shall be structurally designed to withstand all anticipated loads, stress, and weight. Each septic tank subjected to vehicular traffic shall be traffic rated to State Department of Transportation Standard H20-44 truck loading standards. Complete plans and design standards shall be submitted to the District for its approval prior to installation.

501.04 (b) (02) (ix) No pumping of sewage from the house to any septic tank shall be permitted; gravity flow only shall be utilized.

501.04 (c) Leachfield requirements.

**501.04 (c) (01) Proximity to other structures or resources.** In addition to location restrictions established in other portions of this Section, no portion of any leachfield, drainfield or other leaching system or device shall be located closer than:

- (i) Ten (10) feet of any building;
- (ii) Fifty (50) feet of any property line for any parcel without an available public water supply and ten (10) feet of any property line for any parcel with approved public water supply;
- (iii) Fifty (50) feet of a ditch, cut bank or slope of 30 percent or greater;
- (iv) Twenty-five (25) feet of a swimming pool;
- (v) One hundred (100) feet of a stream, well, spring, or seasonal drainage way which flows more than one week after significant rainfall;
- (vi) Two hundred (200) feet of a domestic water supply reservoir; or

(vii) One hundred (100) feet of a reservoir, other than a domestic water supply reservoir.

**501.04 (c) (2) Standards for Soil and Percolation Testing and Construction.** The following requirements shall apply to soil and percolation testing and construction of any leachfield, drainfield or other leaching system or device.

**501.04 (c) (2) (a)** Soil percolation tests shall be required prior to approval of any application for a private wastewater disposal system to serve new development. Percolation tests shall not be required in order to obtain a repair permit unless the applicant's estimated percolation range differs from the opinion of the District Engineer or his/her designee. Percolation tests shall be performed by any of the following, who shall be licensed in California: a registered civil engineer; a registered environmental health specialist; licensed septic tank contractor who has a contract to install the individual private wastewater disposal system; a general engineering contractor; a registered geologist or soils scientist. All steps in the percolation testing process shall be arranged so as to be personally observable by the District Engineer or his/her designee. The District Engineer or his/her designee shall determine the number and location of percolation test borings. A minimum of six (6) test holes per building site in the area to be used for the leach field shall be provided. Percolation test procedures shall be established by written policy of the District Engineer or his/her designee. For the soils where the leach field is proposed, the minimum acceptable percolation rate is sixty minutes per inch (one inch per hour). The maximum acceptable percolation rate is one minute per inch (sixty inches per hour). For soils beneath the leaching device, the minimum acceptable percolation rate is sixty minutes per inch in the first three feet below the trench and one hundred twenty minutes per inch (one-half inch per hour) from three to ten feet below the trench.

**501.04 (c) (2) (b)** If the District Engineer or his/her designee expects the soils to have a percolation rate slower than sixty minutes per inch (one inch per hour) or have a shrink-swell potential (due to high clay content, generally over thirty percent clay), the District Engineer or his/her designee may require percolation testing during the time period for winter water table observation. The District Engineer or his/her designee may require the extent of shrink-swell potential to be evaluated using a soil texture (hydrometer method) and bulk density analysis.

**501.04 (c) (2) (c)** One or more soil excavations shall be performed for each individual private wastewater disposal system to demonstrate the suitability of soil conditions to serve new development. Soil excavations for repair permits may be required if the District Engineer or his/her designee believes the soil may not meet the requirements set forth in this Section. When effluent leaching trenches are to be used, the excavation shall be made by backhoe whenever possible and shall extend to at least ten feet below the bottom of the proposed trench leaching device to demonstrate the suitability of soil conditions.

**501.04 (c) (2) (d)** The licensed individual performing the soil tests shall provide an evaluation of soil texture for each soil stratum encountered during the soil excavation. When laboratory analysis of soil texture is required by the District Engineer or his/her designee, the testing individual shall collect a sample or samples, as required by the District Engineer or his/her designee, and deliver the samples to an approved soil testing lab for analysis. The test results shall be forwarded to the District Engineer or his/her designee with identification of the sampling location, depth and method. The soil textural classification system shall be the USDA method. Soils with greater than forty percent clay content shall be unacceptable regardless of percolation rate.

**501.04 (c) (2) (e)** The District Engineer or his/her designee may also require any other information necessary to evaluate the proposed system. If, in the opinion of the District Engineer or his/her designee, the land proposed for individual sewage disposal has severe soil limitations, or introduction of sewage effluent into the soil may create slope instability, submission of a technical report prepared at the applicant's expense by a California licensed soils scientist, engineering geologist, registered geologist or similarly qualified soils expert shall be required.

**501.04 (c) (2) (f)** Rock used in leaching systems shall be washed and reasonably free of fines, sand, very fine silt, and clay.

**501.04 (c) (2) (g)** Leaching systems shall have a slightly sloped finished grade to promote surface runoff.

**501.04 (c) (2) (h)** Except in emergencies, leaching system installation in clayed soils shall only be done when soil moisture content is low, to avoid smeared infiltrative surfaces.

**501.04 (c) (2) (i)** Leaching area sidewalls shall be left with rough surfaces.

**501.04 (c) (2) (j)** Construction and paving over a leaching system and/or expansion area is prohibited.

**501.04 (c) (3) Leachfield or Drainfield Design** - Septic tank effluent shall be leached into the ground by means of a sewage leaching system. The type of system used shall be approved by the District Engineer based on review of the location and topography of the site, the soil permeability and groundwater level at the site, and all other relevant factors. The following construction standards shall be used in the construction of any trench leaching system:

501.04 (c) (3) (a) The width of the drainfield trench shall be a minimum of eighteen (18) inches and a maximum of twenty-four (24) inches

501.04 (c) (3) (b) The minimum distance between drainfield trenches shall be fifteen (15) feet measured horizontally from the closest edges of adjacent trenches. In cases of sloping terrain and where geological conditions indicate, an increase in this spacing may be required.

501.04 (c) (3) (c) The total drainfield shall be divided into two (2) equal lengths preceded by a diversion valve or equivalent device of approved design to allow for alternate use of each half of the drainfield system.

501.04 (c) (3) (d) Each half of the drainfield, whenever possible, shall be located along one elevation contour (at one elevation).

501.04 (c) (3) (e) The minimum length for a trench shall be twenty five (25) feet. The maximum length shall be one hundred twenty five (125) feet.

501.04 (c) (3) (f) The standard trench shall have six (6) feet of properly graded clean rock fill of ¾ to 1-1/2 inch size placed below the standard perforated drain pipe and extending at least two (2) inches above the top of the perforated drain pipe. The rock fill shall be covered

with a protective layer of filter fabric and then with twelve (12) to eighteen (18) inches of uncompacted native top soil.

501.04 (c) (3) (g) The drainfield shall be sized in accord with the following:

- (i) For percolation rates of five (5) minutes per inch (MPI) but less than thirty (30) MPI and dwelling size of up to 3 bedrooms, use two lines each of seventy (70) linear feet. For each additional bedroom add twenty (20) linear feet to each line;
- (ii) For percolation rates of thirty (30) MPI but less than sixty (60) MPI and dwelling size of up to 3 bedrooms, use two lines each of one hundred twenty five (125) linear feet. For each additional bedroom add forty (40) linear feet to each line.

501.04 (c) (3) (h) Both the perforated drain pipe and the trench bottom shall be level. Perforated pipe shall have a minimum 2,000 lb. standard crush weight or greater and shall be capped at the ends.

501.04 (c) (3) (i) Capped observation standpipes shall be installed at each end of the drainfield trench and extend from the bottom of the trench to the ground level. The standpipe shall not be connected to the drain line.

501.04 (c) (3) (j) No portion of any drainfield shall be located in fill over twelve (12) inches deep. Fill is defined as a deposit of earth or waste material placed by artificial means (Engineered fill is material placed according to the recommendations and under the observation of a geotechnical consultant). No portion of any drainfield shall be located within fifty (50) lateral feet of any fill placed on slopes of 35% or greater.

501.04 (c) (3) (k) Systems in sandy soils with percolation rates of one to five shall utilize enhanced treatment systems for nitrogen removal prior to discharge to the drainfield system. Details of the enhanced nitrogen removal system shall be submitted to and approved by the District Engineer prior to installation.

501 (05) No septic tank, cesspool or other private wastewater treatment or disposal system shall be permitted to discharge effluent to any natural outlet unless the applicant has complied with all applicable District regulations and obtained approval from any government agency having jurisdiction with respect to the discharge of such effluent.

501 (06) No septic tank, cesspool or other private wastewater treatment or disposal system shall be permitted to discharge effluent to any public sewer, unless otherwise authorized by a permit issued pursuant to Article VI of this Code.

501 (07) The owner shall operate and maintain the private wastewater disposal facilities in a sanitary manner at all times at no expense to the District.

## **SECTION 502. Grease, Oil and Sand Interceptors.**

502 (01) Except as provided in this Subsection (01), grease, oil and sand interceptors shall be provided whenever the District deems them to be necessary for the proper handling of wastewaters containing grease, flammable waste, sand and other harmful ingredients.



(a) Unless a waiver is granted pursuant to Article IX of this Code, all restaurants, cafeterias, cafes and other commercial and noncommercial enterprises engaged in the preparation, cooking and serving of foods, regardless of whether the foods are consumed on or off the enterprise's premises, shall be equipped with grease interceptors.

(b) Grease, oil and sand interceptors shall not be required for residential occupancies and uses, except that if a residential occupancy or use contains a food preparation and cooking areas serving the occupants of more than four dwelling units, a grease interceptor may be required.

502 (02) All interceptors shall be of a type and capacity approved by the District's engineering representative, and shall be located so as to be readily and easily accessible for cleaning and inspection.

502 (03) Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, water tight, and equipped with easily removable covers which when bolted in place shall be gas tight and water tight.

502 (04) All grease, oil and sand interceptors, where required, shall be properly operated and maintained by the owner, at the owner's expense, at all times.

### **SECTION 503. Prohibitions.**

503 (01) General Prohibitions. No person shall, and it shall be unlawful to, discharge wastes into the wastewater facilities which cause, threaten to cause, or are capable of causing, either alone or by interaction with other substances:

- (a) A fire or explosion;
- (b) Obstruction of flow, or injury to, the wastewater facilities, or any portion thereof;
- (c) Danger to life or safety of persons;
- (d) Conditions inhibiting or preventing the effective maintenance or operation of the wastewater facilities;
- (e) Strong or offensive odors, air pollution, or any noxious, toxic, or malodorous gas or substance, or gas-producing substances;
- (f) Interference with the wastewater treatment process, or overloading of the wastewater facilities, or excessive collection or treatment costs, or use of capacity in the wastewater facilities to which the person is not entitled.
- (g) Interference with any wastewater reclamation process may operate in conjunction with the wastewater facilities, or overloading, or a breakdown of such reclamation process, or excessive reclamation costs, or any product of the treatment process which renders such reclamation process impracticable or not feasible under normal operating conditions;
- (h) A detrimental environmental impact, or a nuisance wherever located, or a condition unacceptable to any public agency having regulatory jurisdiction over operation of the wastewater facilities;
- (i) Discoloration, or any other adverse condition in the quality of the effluent from the wastewater facilities such that receiving water quality requirements established by any statute, rule, regulation, ordinance, or permit condition cannot be met by the District or Authority;

(j) Conditions at or near the wastewater facilities, or any portion thereof, which cause, or may cause, the District or Authority to be in violation of the requirements of law.

503 (02) Storm Drainage and Ground Water. No person shall, and it shall be unlawful to discharge, cause to be discharged, or permit to be discharged, any storm water, ground water, rain water, street drainage, swimming pool drainage, subsurface drainage, or yard drainage, either directly or indirectly into the wastewater facilities, unless a permit therefor is issued by the District. The District may issue such permit only upon a finding that no reasonable alternative method of disposal of such water is available.

503 (03) Unpolluted Water. No person shall, and it shall be unlawful to, discharge, cause to be discharged, or permit to be discharged any unpolluted water, including, but not limited to, cooling water, process water, or blow-down water from cooling towers or evaporative coolers, either directly or indirectly into the wastewater facilities, unless a permit therefor is issued by the District.

503 (04) Garbage Grinders. No person shall, and it shall be unlawful to, discharge, cause to be discharged, or permit to be discharged waste from garbage grinders into the wastewater facilities, provided, however, that:

(A) Wastes generated in preparation of food normally consumed on the premises may be so discharged; or

(B) Such discharge is made pursuant to a permit issued by the District.

Garbage grinders from which wastes are permitted under either subparagraph (A) or subparagraph (B) above, shall be of a design and capacity to shred wastes used therein such that all waste particles shall be carried freely under normal flow conditions into and through the wastewater facilities.

503 (05) Direct Discharge. No person shall, and it shall be unlawful to, discharge, cause to be discharged, or permit to be discharged any wastes or wastewater, or any object, material, or other substance directly into a manhole or other opening into the wastewater facilities other than wastes or wastewater through an approved building sewer; provided, however, that wastes or wastewater may be discharged into the wastewater facilities by means other than through an approved building sewer pursuant to a permit therefor issued by the District.

503 (06) Holding Tank Waste. No person shall, and it shall be unlawful to, discharge, cause to be discharged, or permit to be discharged any holding tank waste into the wastewater facilities; provided, however, that:

(A) Such discharges may be made into facilities designed to receive such wastes and approved by the District; or

(B) Such discharge may be made pursuant to a permit issued therefor by the District. Unless otherwise provided by the District, a separate permit shall be required for each separate holding tank waste discharge.

503 (07) Radioactive Wastes. No person shall, and it shall be unlawful to, discharge, cause to be discharged, or permit to be discharged, any radioactive wastes into the wastewater facilities, provided, however, that:

(A) Persons authorized to use radioactive materials by the State Department of Health or other governmental agency empowered to regulate the use of radioactive materials may discharge, cause to be discharged, or permit to be discharged such wastes provided that such wastes are discharged in strict conformance with current California radiation control regulations (California Administrative Code, Title XVII, Ch. 5, Sub. Ch. 4, Group 3, Art. 5), and federal regulations and recommendations for safe disposal of such wastes; and

(B) The person so acting does so in compliance with all applicable rules and regulations of all other regulatory agencies.

503 (08) Wastewater Strength.

(A) Except as provided in Section 503 (10) below, no person shall, and it shall be unlawful to, discharge, cause to be discharged, or permit to be discharged any wastewater containing any of the following constituents in excess of the maximum allowable amounts respectively established therefor;

Facilities Which Discharge 10,000 Gallons Per Day and Above:

- (a) 0.1 mg/l arsenic;
- (b) 0.2 mg/l cadmium;
- (c) 2.0 mg/l copper;
- (d) 1.0 mg/l total cyanide;
- (e) 1.0 mg/l lead;
- (f) 0.01 mg/l mercury;
- (g) 1.0 mg/l nickel;
- (h) 0.2 mg/l silver;
- (i) 0.5 mg/l total chromium;
- (j) 3.0 mg/l zinc; or
- (k) 0.1 mg/l dissolved sulfides.

Facilities Which Discharge Below 10,000 Gallons Per Day

- (a) 0.0038 kg/day arsenic;
- (b) 0.0076 kg/day cadmium;
- (c) 0.076 kg/day copper;
- (d) 0.038 kg/day cyanide;
- (e) 0.038 kg/day lead;
- (f) 0.00038 kg/day mercury;
- (g) 0.038 kg/day nickel;
- (h) 0.15 kg/day silver;
- (i) 0.019 kg/day total chromium;
- (j) 0.11 kg/day zinc;
- (k) 0.0038 kg/day dissolved sulfides.

503 (09) Additional Limitations. No person shall, and it shall be unlawful to, discharge, cause to be discharged, or permit to be discharged any wastewater:

- (A) The temperature of which is higher than 150 degrees Fahrenheit (65 degrees Celsius);
- (B) Containing more than 300 mg/l of oil or grease of animal or vegetable origin;
- (C) Containing more than 100 mg/l of oil or grease of mineral or petroleum origin;
- (D) Having a pH lower than 6.0 or having a corrosive property capable of causing damage or hazard to structures or equipment of the wastewater facilities, or any portion thereof;
- (E) Having a pH high enough to cause alkaline encrustations on sewer walls or other damage to the wastewater facilities;
- (F) Containing in excess of 0.02 mg/l total identifiable chlorinated hydrocarbons, unless otherwise authorized by permit issued pursuant to Article VI;
- (G) Containing in excess of 1.0 mg/l phenolic compounds, unless otherwise authorized by permit issued pursuant to Article VI;
- (H) Containing in excess of 20.0 mg/l flouride compounds, unless otherwise authorized by permit issued pursuant to Article VI;
- (I) Containing any sand, grit, straw, metal, glass, rags, feathers, paper, tar, plastic, wood, leaves, garden clippings, manure, dead animals, offal, or any other solid or viscous substance capable of causing obstruction to the flow in the wastewater facilities, or which in any way interferes with the proper operation of the wastewater facilities.
- (J) Containing a toxic or poisonous substance not otherwise specifically prohibited in this Code in sufficient quantities to constitute a hazard to humans or animals, or to create a hazard in the wastewater facilities, or to injure or interfere with the operation thereof;
- (K) Containing suspended solids, not otherwise specifically prohibited under the provisions of this Code the characteristics or quantity of which require unusual attention, treatment, or expense in handling or treating such material in the wastewater facilities, or any portion thereof.

503 (10) Specific Customer Limitations. Notwithstanding the limitations upon the characteristics or quantity of wastewater discharged, caused to be discharged, or permitted to be discharged into the wastewater facilities pursuant to this Article, the District may, in connection with the issuance of permits pursuant to the provisions of Article VI, establish additional or different specific limitations on wastewater strength upon a finding by the District that:

- (A) The limitations set forth in this Article may not be sufficient to protect the operation of the wastewater facilities, or any portion thereof, or the waste or wastewater proposed to be discharged otherwise constitutes a hazard to, or an unreasonable burden upon, such operation; or otherwise causes or significantly contributes to violation of the Authority's National Pollutant Discharge Elimination System (NPDES) permit; or
- (B) The limitations set forth in this Article may be unreasonably restrictive when applied to a specific industry; and imposing a less stringent limitation will not cause or contribute to violation of any State or Federal requirement of law; or
- (C) Specific standards have been established by the State or Federal Government for a specific category of industrial customer which would supersede the limitations set forth in this Article with respect to such category.

503 (11) Protection from Damage. No unauthorized person shall break, damage, destroy, uncover, deface or tamper with any structure, appurtenance, or equipment which is part of the District's wastewater facilities.

503 (12) Discharge to Natural Outlet. It shall be unlawful to discharge to any natural outlet within the District, or in any area under the jurisdiction of the District, any wastewater, industrial wastes, or other polluted waters, except where suitable treatment has been provided in accordance with provisions of this Code.

## **ARTICLE VI** **PERMITS**

### **SECTION 600. Permit Required - Wastewater Discharges.**

No person shall do any of the following acts without having first obtained a written permit from the District:

600 (01) Construct or use any private wastewater disposal system;

600 (02) Uncover, make any connection with or opening into, use, alter or disturb any public sewer or appurtenance thereof;

600 (03) Reestablish use of any private wastewater disposal system where such use has been discontinued for a period of one (1) year or more;

600 (04) Reestablish service to any premises served by the public sewers, where use of the public sewers has been discontinued for a period of one (1) year or more;

600 (05) Increase the volume of discharge of wastewater from any premises into the public sewers or into a private wastewater disposal system beyond the volume authorized for such premises under any previously issued permit;

600 (06) Change the nature of the discharge of wastewater from any premises into the public sewers or into private wastewater disposal system beyond the nature of the discharge authorized for such premises under any previously issued permit.

600 (07) Do any other act for which a permit is required pursuant to this Code.

### **SECTION 601. Pre-existing Discharges.**

For the purposes of Subsections 600(05) and 600(06) above, premises which have been legally connected to the public sewers or to a private wastewater disposal system but as to which no connection permit has ever been issued shall be deemed to have been authorized the volume and nature of discharge which existed at the time of connection.

### **SECTION 602. Requirements Applicable to All Permits.**

No permit shall be issued until all of the following requirements have been satisfied:

602 (01) The applicant has submitted a properly completed application on a form supplied by the District, together with any other information, including plans and specifications, which may be required to enable the District to properly evaluate the application. Applications for Class 1 or Class 2 sewer permits may be filed with the District prior to approval of a building permit, but shall not be filed with the District until proof is made by the applicant that the County of San Mateo or City of Half Moon Bay, as the case may be, has completed the planning process for the project, including but not limited to (i) approval of any required subdivision, use permit, design review, variance, or coastal development permit, and (ii) expiration of the time for all appeals from such approvals. The requirement specified in the preceding sentence of this subsection shall not apply to an application for a sewer permit (or a variance or waiver therefrom) in the unincorporated area of the County of San Mateo on a nonconforming or antiquated parcel or for a residential unit not included in the County of San Mateo LCP buildout calculations, and such

an application may be filed with the District prior to or after the filing of an application for approval of any required subdivision, use permit design review, variance or coastal development permit from the County of San Mateo. (Ordinance No. 140)

602 (02) The County of San Mateo or the City of Half Moon Bay, as the case may be, has approved a building permit for the proposed project. (Ordinance No. 132)

602 (03) It has been determined by the District that:

602.03 (A) The real property to be served is in a service area within the District. (Ordinance No. 132)

602.03 (B) The proposed project is not prohibited or precluded by the regulations of the District or of any other government agency having jurisdiction over wastewater disposal within the District. The District Board shall not make the foregoing finding, or approve any application, for any sewer permit in the unincorporated area of the County of San Mateo sought for any nonconforming or antiquated parcel, or any proposed dwelling unit not included in buildout calculations under the County of San Mateo Local Coastal Program, including but not limited to any dwelling unit in the RM/CZ, COSC, and C-1 Zone District, if it determines that either:

602.03 (B) (i) the District does not have a final approved Coastal Development Permit authorizing sufficient improvements (including but not limited to piping or pumping capacity) to eliminate wet weather sewage overflows within the District; or

602.03 (B) (ii) it is reasonably foreseeable that provision of sewer service to the parcel which is the subject of the application would adversely affect the ability of the District to serve a conforming parcel in view of the applicable buildout limits in the County of San Mateo Local Coastal Program.

For purposes of this Section the following definitions shall apply:

Antiquated parcel is a parcel:

602.03 (B) (ii) (a) which is shown on a map first recorded prior to August 14, 1929 and the parcel has not subsequently been approved by a recorded final subdivision map, and it has not been lawfully created for land use purposes by having been the subject of a legal conveyance into ownership separate from all contiguous parcels; or

602.03 (B) (ii) (b) which is not shown on any recorded map, but is shown on a deed recorded prior to March 4, 1972, or the effective date of the first ordinance requiring approval of a minor land division by the County of San Mateo, whichever is earlier, but it has not been lawfully created for land use purposes by having been the subject of a legal conveyance into ownership separate from all contiguous parcels.

Nonconforming parcel is a legal parcel with an area, width and/or frontage that does not conform with the minimum building site area, width or frontage required by the zoning regulations currently in effect. This includes (but is not limited to):

(a) a parcel less than 5,000 square feet in the S-17 Zone District;

(b) a parcel less than 10,000 square ft in the S-9 Zone District; or any parcel which is less than the minimum parcel size for the Zone District in which it is located including any nonresidential Zone District which nevertheless allows residential development, including (but not limited to) RM/CZ or COSC;

602.03 (C) The District's wastewater facilities have the capacity to accommodate the quantity and quality of wastewater to be produced by the proposed project;

602.03 (D) No extension of the District's collection facilities is required to serve the proposed project or, if required, that the applicant has satisfied all requirements of the District for extending the collection facilities to the vicinity of the project site. All costs necessary for acquisition, construction, and installation of the facilities shall be borne by the applicant, provided, however, that the District may enter into reimbursement agreements with applicants on such terms as the District Board approves; and

602.03 (E) If required, any easements necessary for the District to operate and maintain public facilities installed in private property have been granted and accepted by the District.

602 (04) The applicant has paid all fees and charges imposed by the District to process and consider the application for the permit. If the District has established a process for determining exemption from any requirement of this Article, the applicant for such exemption determination shall first pay a fee established by the District Board to cover the administrative costs of the District to review and consider the application for exemption. (Ordinance No. 146)

### **Section 603. Other Conditions and Requirements of Permits**

603 (01) Where the interests of the District would be served, the District Board may, in its discretion:

(A) Impose additional requirements upon an applicant which must be satisfied before the permit will be issued;

(B) Authorize issuance of the permit subject to satisfaction of conditions subsequent; failure to satisfy such conditions is grounds for the Board to revoke the permit and discontinue any use authorized by the permit;

(C) Waiver or variance. Waive compliance or issue a variance as set forth below:

(i) Waive compliance by the applicant with requirements or conditions previously imposed, if the applicant qualifies for waiver under Article IX, Section 900 of the District Ordinance Code.

(ii) Issue a variance, only as to nonconforming parcels or residential units not included in buildout calculations, from the requirement of Section 602(03)(B) that the project not be precluded by the regulations of the District or any government agency having jurisdiction over wastewater disposal within the District.

(D) Require recordation of the sewer permit, including all conditions of approval for such permit in a manner satisfactory to the District.



**603 (02) Variance Applications: General Provisions**

(A) A variance application (or reapplication) may only be processed after payment of an application fee to the District in the amount established in the District Fee Resolution and submittal of a complete application containing all evidence relevant and necessary (whether or not supportive of variance approval) for the District Board to evaluate whether the required findings are supported by a preponderance of the evidence.

(B) Nothing in the District Ordinance Code shall require the District to grant any variance if the District Board determines that the required findings cannot be made.

(C) Recordation of the sewer permit may be required by the District Board, including all conditions of approval for such permit, or any variance issued, in a manner satisfactory to the District.

**603 (03) Nonconforming Parcels**

(A) A variance may only be issued for nonconforming parcels based on evidence submitted to the District Board which the District Board determines to be sufficient for it to make each of the following findings:

(i) Where the property is shown on a map first recorded prior to August 14, 1929 and has not been approved after March 4, 1972 by a recorded final subdivision map, it has been lawfully created for land use purposes by having been the subject of a legal conveyance into ownership separate from all contiguous parcels. Where a parcel is 4,750 square feet or greater in the S-17 or S3 Zoning Districts, or 8,800 square feet or greater in the S-9 Zoning District, a chain of title shall not be required to establish a basis for this finding unless determined to be necessary by the District Board.

(ii) Where the property is not shown on any recorded map, but is shown on a deed recorded prior to July 20, 1945, it has been lawfully created for land use purposes by having been the subject of a legal conveyance into ownership separate from all contiguous parcels. Where a parcel is 4,750 square feet or greater in the S-17 or S3 Zoning Districts, or 8,800 square feet or greater in the S-9 Zoning District, a chain of title shall not be required to establish a basis for this finding unless determined to be necessary by the District Board.

(iii) Where the property is in the Coastal Zone, it has not been conveyed into ownership separate from all contiguous parcels for the first time after the February 1, 1973 effective date of vested rights under the California Coastal Act without a Coastal Development Permit approving a land division for the creation of such parcel.

(iv) Unless a parcel is 4,750 square feet or greater in the S-17 or S-3 Zoning Districts, or 8,800 square feet or greater in the S-9 Zoning District, a Certificate of Compliance or Conditional Certificate of Compliance has been issued for the property, and if the property is in the Coastal Zone, a Coastal Development Permit process was conducted for the issuance of such Certificate, if required by law or regulation.

(v) There are no features of the property or the development proposed thereon which have the potential to have a greater than usual contribution to wet weather sewage overflow.

(vi) Provision of sewer service to the parcel which is the subject of the application would not significantly adversely affect the ability of the District to serve a conforming parcel in view of the applicable buildout limits in the County of San Mateo Local Coastal Program.

(vii) Granting of the variance would not constitute a special privilege not available to other property owners similarly situated.

(viii) The property owner has demonstrated by a preponderance of the evidence presented to the District Board that the parcel cannot be rendered conforming (without rendering any contiguous parcel nonconforming) by acquisition of one or more contiguous parcels by payment of fair market value for such contiguous parcel(s).

(ix) The component lots comprising the property do not qualify for merger or will be merged or rendered undevelopable as a condition of the issuance of the variance.

(x) The current property owner will not voluntarily accept a refund of fees, charges and/or assessments paid in exchange for agreement that the parcel will not ever be used to generate wastewater or garbage and there is no adopted District policy to unilaterally implement such a refund.

(xi) For parcels which are less than 4,750 square feet in the S-17 or S-3 Zoning Districts, and for parcels which are less than 8,800 square feet in size in the S-9 Zoning District, the variance application was considered at a semi-annual meeting of the District Board held to consider and grant a total of no more than one semi-annual variance from among such variance applications submitted during the preceding six months based on the comparative merits of such application.

#### **603 (04) Residential Units Not Counted in Buildout Calculations**

603.04 (A) A variance may only be issued for mixed use, caretaker and other residential units not included in County of San Mateo Local Coastal Program buildout calculations, based on evidence submitted to the District Board which the District Board determines to be sufficient for it to make each of the following findings:

(i) The size of such a residential unit does not exceed 35 percent of the square footage of the main building or 750 square feet, whichever is less

(ii) Those findings required in subsection (03) (v) through (vii) above have been met.

(iii) The variance application was considered at a semi-annual meeting of the District Board held to consider and grant a total of no more than one semi-annual variance from among such variance applications submitted during the preceding six months based on the comparative merits of such variance applications.

#### **SECTION 604. Types of Sewer Permits.**

There shall be three (3) classes of sewer permits as follows:

604 (01) Class 1 sewer permits are required for the following types of residential connections: permit type 1A for single family residences; permit type 1B for multiple-unit residences; permit type 1C for rooming houses or boarding houses; and permit type 1D for miscellaneous residential.

604 (02) The following described Class 2 sewer permits are required for the respective type of connections: (Ordinance No. 129)

Type of Use	Permit Designation
Commercial	Class 2A
Industrial	Class 2B
Institutional	Class 2C
Miscellaneous non-residential, not otherwise described herein	Class 2D
Mixed commercial and residential	Class 2M

604 (03) Class 3 sewer permits are required for the construction of sewer mains, pumping stations and other wastewater facilities to be dedicated to the District. A Class 1 or Class 2 permit required for the project may be issued concurrently with a Class 3 permit needed to serve the project. However, if the property to be served by the Class 1 or 2 permit lacks a sewer main or other Class 3 wastewater facilities required by the District, then the Class 1 or Class 2 permit shall contain a condition stating that the sewer system improvements constructed pursuant to the subject Class 3 permit must be approved by and dedicated to the District before the structure authorized under the Class 1 or Class 2 permit may connect and discharge into the District's wastewater facilities.

**SECTION 604.1 Use of Low-Flush Toilets Required For Issuance of Sewer Connection Permits.**

No sewer connection permit shall be issued for any new building to be constructed in the District unless each of the water closets, urinals and associated flushometer valves, if any, to be installed in the building comply with the requirements of California Health & Safety Code Section 17921.3, which Section mandates use of the low-flush versions of those plumbing fixtures in new construction. Each applicant for a sewer connection permit to which this section applies shall provide evidence satisfactory to the District that the provisions of subdivision (a) or, commencing January 1, 1992, Subdivision (b) of Section 17921.3 have been fully met, or if not, that one or more of the exceptions contained in Subdivision (c) , (d) or (e) of Section 17921.3 excuses compliance by the applicant.

**SECTION 605. Information Required by Type of Sewer Permit.**

(01) Class 1. The following information is required of all applicants for Class 1 Sewer Permits.

- (a) Legal description including street address, lot number, block number, name of subdivision, assessor's parcel number and the parcel volume and page number according to the parcel map.
- (b) Type of work to be done including the kind of building to be connected, whether it is a new connection, a repair or other type of work, and the building department plan check number.
- (c) The owner's name, address, and phone number.

- (d) The contractor's name, address, and phone number.
- (e) Any additional information which the District may require due to the nature of the project.
- (f) The signature of the applicant including the applicant's address and telephone number, if not owner or contractor.

(02) Class 2. The following information shall be required of all applicants for a Class 2 permit:

- (a) Applicant's business name.
- (b) Address of premises discharging wastewater, including the assessor's parcel number.
- (c) The standard industrial classification of applicant's business and the number of the classification.
- (d) The applicant's name, mailing address and telephone number.
- (e) The engineers/ contractor's name, address and telephone number.
- (f) The volume of wastewater proposed to be discharged.
- (g) Any additional information which the District may require due to the nature of the project.
- (h) The signature of the applicant.

(03) Class 3. The following information shall be required of all applicants for a Class 3 Sewer Permit:

- (a) The name of the owner or the owner's agent making application.
- (b) The location of the project.
- (c) The name and address of the engineer.
- (d) The name and address of the owner.
- (e) The name and address of the contractor.
- (f) Maps, plans, profiles and other information as required by the District. These maps, plans, profiles, etc. shall show the location and boundary lines of the property to be sewered and of each tract, lot, or parcel therein, together with existing and proposed streets, roads, highways, easements and rights-of-way within and immediately contiguous with the property, and shall show the proposed connections with the District's sewer system. The profile shall accurately show the proposed sewer or other proposed facilities, existing ground surface elevations and existing utilities (surface and subsurface) together with such changes as may result from subsequent grading, filling, road construction and the like.
- (g) A Negative Declaration or final Environmental Impact Report, whichever is applicable, as determined by the lead agency for the project pursuant to the California Environmental Quality Act.
- (h) The signature and address of the applicant.

**SECTION 606. Private Wastewater Disposal System Permit.**

Pursuant to Article V, Section 501, any person proposing to construct, connect to and operate a private wastewater disposal system shall first obtain a permit for such purpose from the District. The applicant shall submit such information as the District may require including written approval of the proposed system by the San Mateo County Department of Environmental Health. The permit shall provide that the District may inspect the work during construction and before any underground portions are covered.

**SECTION 607. Resumption of Permit Use.**

Any person seeking to reconnect to wastewater facilities when the premises have been disconnected for more than one year shall obtain a permit for that purpose. The applicant shall supply the information describing the applicant's use corresponding to the application that would be required if the applicant were applying for a new use and shall pay fees and charges required in Article VII including any additional connection charges imposed in Section 701(06).

**SECTION 608. Other Permits.**

Where any provision of this Code requires a permit be issued before action may be taken, but the requirements applicable to the permit are not established in this Article, the permit shall be subject to such requirements as may be established by the District Board.

**SECTION 609. Issuance of Permit**

Issuance of permits shall be authorized only upon action taken at a board meeting of the District Board, provided, however, the District Board may, by resolution duly adopted, delegate to one or more specified representatives the authority for the issuance of Class 1 and 2 sewer permits. If all applicable fees and charges are not paid within 30 days after authorization by the District Board or its specified representative, said approval shall expire without further action by the District, unless the District Board has otherwise specifically provided.”

**SECTION 610. Payment of Permit Fees.**

No permit shall be issued until all applicable fees and charges, including inspection fees, and, if applicable, connection charges established pursuant to this Code shall have first been paid.

**SECTION 611. Expiration, Lapse, Rescission or Cancellation of Permits.**

(01) A permit issued under this Division shall remain in effect for a period of two (2) years from the date it is issued. After that time, the permit shall expire automatically unless: (i) the action authorized by the permit has been completed; (ii) the permit has been extended by the District; or (iii) the applicant has obtained and is maintaining in effect all permits, including a building permit, and any other government approvals necessary for the applicant to pursue the proposed project to completion. If at any time, any of the other necessary permits or government approvals for the project to be served by the action authorized by the permit is revoked, rescinded, cancelled or expire or are allowed to lapse, the District's permit shall also be deemed lapsed automatically without any further action by the District or notice to the permittee. Fees and charges previously paid are only refundable as provided in subsection (03) below.

(02) If any permit issued by the District expires, is revoked, allowed to lapse, or if the District agrees to a permittee’s request that the permit be rescinded or canceled, the permittee may not proceed with the action authorized by the permit until a new permit is obtained from the District. The applicant shall satisfy all requirements and conditions which the District imposes on the new permit based on District regulations then in effect, including payment of application and inspection fees and other applicable charges.

(03) For any permit which expires, lapses or is rescinded or cancelled as described in subsections (01) and (02) above, the District Board shall refund the following fees upon written request by the permittee:

(a) 100 percent of the connection charges paid for the permit, less any staff or administrative costs associated with the application, issuance, revocation, lapse, rescission or cancellation of the permit. There shall be no refund of any previously paid application fees related to the permit.

**SECTION 612. Extension of Permits.**

The District Board may extend permits for additional periods of six (6) months upon a showing of good cause, and upon a determination by the District Board that: (1) sufficient capacity to serve the applicant's project continues to exist in the District's wastewater facilities; and (4) the District will not be adversely affected by the extension of the permit. No person shall be entitled to an extension to a permit as a matter of right. Extension for good cause will be granted only upon a showing that: (1) the applicant acted diligently to make use of the permit; (2) because of circumstances beyond the applicant's control and not reasonably foreseeable to the applicant, the permit could not be used within the time allotted; (3) the extension request is not in contravention of the District's policy against stockpiling of any rights authorized by the permit; and (4) that principles of fairness and equity will be served by granting the extension.

**SECTION 613. Transferability of Permits.**

(01) Class 1 and 2 sewer permits may be transferred from one applicant to another upon written notice to the District. The transferee of such a permit shall comply with requirements and conditions imposed by the District with respect to the permit. No other permits may be transferred from one person to another without approval of the District Board.

(02) A permit issued for use in connection with a particular premises or a particular project may not be transferred so as to be used in connection with other premises or another project.

(03) The District Board may revoke any permit purported to have been transferred in violation of this section.

(04) Any person who is the owner of a parcel of real property which has received an Entitlement under the LCP may offer to transfer the entitlement to the District or to an immediate family member owning title to a non-priority parcel for the benefit thereof, in accordance with this ordinance. For the purpose of this subsection, an immediate family member is the wife, husband, daughter, son, father, mother, brother or sister of the transferee. The mitigation fee set forth in Section. 1.05.04 shall be waived where the transferee under this subsection will be the owner/occupant of the residence benefited by the transfer. (Ord No. 118)

**SECTION 614. Development Agreements.**

614 (01) As an adjunct to the permitting procedures established in this Article, the District may enter into a development agreement with any person having a legal or equitable interest in real property located in the District for any or the following purposes having to do with the development of the property:

614.01 (a) To provide for the manner in which wastewater services shall be provided to the property.

614.01 (b) To provide for the construction of new wastewater facilities to be dedicated to the District for the purpose of serving the property.

614.01 (c) To provide for the manner in which the improvements to be constructed on the

property shall be connected to the District's wastewater system.

614 (02) A development agreement shall be authorized only upon approval of a resolution of the District Board.

614 (03) The District shall decline to entertain negotiations to enter into a development agreement unless at least one or more of the following characteristics of the proposed project are found to exist:

614.03 (a) The project will require issuance of a coastal development permit by the public agency having overall approval authority for the development.

614.03 (b) Due to size, nature and scope of the project, it will either (i) be undertaken in phases or stages requiring serial approvals from public agencies having jurisdiction over project, or (ii) the time needed to finalize plans, obtain permits and other government approvals and to complete construction will require more than three years from the date the development agreement is approved

614.03 (c) The project contemplates construction facilities to be dedicated to the District which will serve not only the property to be developed and properties which are adjoining or in close proximity to the property, but also other areas of the District.

614.03 (d) Discharges of wastewater from the property upon completion of development are projected to be equivalent to at least 10,000 gallons per day, average flow.

614.03 (e) Other characteristics of an unusual nature exist which distinguish the project from other developments subject to the District's permitting procedures and which make use of a development agreement beneficial to the District.

614 (04) A development agreement shall include the following elements:

614.04 (a) The identity of the contracting parties who are the owners of the real property and the description of the property to be developed.

614.04 (b) The purpose or purposes of the development agreement, corresponding to Subsection (01) above.

614.04 (c) The characteristic or characteristics of the justify use of a development agreement, project which corresponding to Subsection (03) above.

614.04 (d) The nature of the project and the specific uses of the property to be developed.

614.04 (e) The duration of the development agreement and any time schedules within which approvals must be obtained, permits must be issued, work must be completed or any similar activity or condition must be concluded or satisfied, and in this regard, the District may require periodic progress reports and inspection procedures to aid in determining compliance with time schedules and constraints.

614.04 (f) The manner in which applicable fees and charges shall be paid to the District; and in this regard, the District may as a condition of approving the development agreement, require the

contracting parties to reimburse the District for its costs to negotiate, consummate, administer and enforce the development agreement.

614.04 (g) Any other covenants, terms, conditions, restrictions and requirements necessary to fulfill the purposes of and implement the development agreement.

614 (05) Nothing contained in this Section shall be deemed to authorize a waiver or deviation from the application of any provisions of this Code, including provisions governing issuance of permits and imposition of fees and charges, unless such waiver or deviation would be permissible pursuant to Article IX of this Code, in which case the District Board shall, as to any such waiver or deviation, include the determinations required by Section 903 of Article IX in the resolution approving the development agreement.

614 (06) Nothing contained in this Section shall be deemed to require the District to enter into any proposed development agreement, and the question of whether or not to approve a particular development agreement shall be entirely within the discretion of the District Board. In determining whether or not to entertain negotiations for or to enter into a development agreement, the District Board may consider all relevant factors including whether the uses proposed to be developed are entitled to any priorities under applicable provisions of law, whether the District has adequate capacity in its wastewater facilities to serve the project and whether the effect of the agreement may be to inhibit the District's ability to serve other persons in the District.

#### **SECTION 615. Trees.**

(01) Definitions. Where used in this section:

(a) "Cut" means detaching or separating from a tree any limb, branch or root above, at or below ground level, excluding pruning as herein defined.

(b) "CBIT" means the circumference of the tree at breast height; measured at 4.5 feet above natural grade. In the case of multiple stemmed trees, the measurement shall be the sum of the diameters of all stems measured at CBH.

(c) "Prune" means removal of less than one-third of the crown or foliage of the tree, or less than one-third of the root system.

(d) "Excessive Pruning" means removal of more than one-third of the crown or foliage of the tree, or more than one-third of the root system.

(e) "Tree" means a woody plant which has the inherent capacity of producing naturally one main erect axis of at least 12 feet, continuing to grow for a number of years more vertically than the lateral area and characterized by having a single trunk of 19 inches CBH or more, or any street tree regardless of size.

(02) Additional Information Submitted with Applications. Each applicant for a sewer permit shall, in addition to other information required by the District Code, submit maps, plans, profiles and other information showing the location of the proposed sewer or other proposed sewer facilities, and the location of all existing trees, and trees proposed to be planted, within 50 feet of



the proposed sewer or other proposed sewer facilities. The following data shall be provided for each tree so identified:

- (a) Diameter and height;
- (b) Species;
- (c) General health-;
- (d) Whether the tree is to be moved, removed or cut, and if so, description of the method to be used;
- (e) Reasons for the proposed moving, removal or cutting of the tree;
- (f) Description of any tree planting program, including size of tree to be planted-;
- (g) Other pertinent information that may be required by the District Engineer.

(03) Factors Used to Determine Whether to Issue Permit. In considering applications for sewer permits, the Board shall determine the necessity to cut, move, remove or excessively prune trees in order construct the proposed sewer or sewer facilities. Alternative action, including relocation of the sewer or sewer facilities, shall be fully considered and every attempt shall be made to preserve as many trees as possible. In making its determination, the Board shall consider the following factors:

- (a) The condition of the trees with respect to disease, danger of falling and safety hazard;
- (b) The topography of the land and the effect of the proposed action on erosion, soil retention, diversion or increased flow of surface waters-;
- (c) The number of trees existing in the vicinity;
- (d) The number of trees which the particular parcel can adequately support to accepted arboricultural practice; and
- (e) The proposed replacement plantings.

(04) Approval Conditions. In approving any sewer permit as provided herein, the Board may attach reasonable conditions to insure compliance with the intent and purpose of this ordinance including, but not limited to the following:

- (a) For loss of each tree there shall be replacement with three or more trees as determined by the Board, using at least 15-gallon size trees. Replacement shall be on the subject property or an alternate site identified by the Board in order to mitigate the impacts associated with the permitted action.
- (b) Replacement trees for trees removed shall require a surety deposit for both performance (installation of tree, staking, and providing an irrigation system) and maintenance. Maintenance shall be required for no less than two years and no more than five years as determined by the Board.
- (c) Loss of any particular replacement tree prior to the termination of the maintenance period shall require the landowner at the landowner's expense to replace the lost tree. Under such circumstances, the maintenance period will be automatically extended for a period of two additional years.
- (d) Release of either the performance bond or maintenance surety shall only be allowed upon the satisfactory installation or maintenance and upon inspection by the District.

**SECTION 620. CEQA Compliance Regulations.**

The District hereby adopts the State CEQA Guidelines through incorporation by this reference including any subsequent amendments thereto. The District further adopts the following specific procedures or provisions which are necessary to tailor the general provisions of the State CEQA Guidelines to the specific operations of the District.

620.1. The approval of a sewer permit of any type in, on, crossing, or adjacent to a stream, riparian area, wetland, environmentally sensitive habitat area, trail, open space zone, and scenic or view corridor, of any kind shall require either:

- A. A negative declaration or environmental impact report prepared by a lead agency other than the District after notice to the District as a responsible agency, consultation with, and comment by the District General Manager or designee to said lead agency; or
- B. Consideration of assumption of the role of lead agency by the District pursuant to State CEQA Guideline Section 15052.

620.2. If the District assumes the role of lead agency pursuant to State CEQA Guideline Section 15052, in evaluating whether any categorical exemption applies, it shall consider all exceptions to exemptions established pursuant to State CEQA Guideline Section 15300.2, and with regard to the specific operations of the District shall also apply the below specified exceptions as follows:

- A. With regard to determination of whether a project has a cumulative effect, find such effect for any project (including but not limited to any sewer main or sewer lateral which is part of the project) to facilitate or be impacted by future development of nonconforming lots or residential units which were not counted in buildout calculations if successive projects of the same type in the same place, over time (considering all past, present and reasonably foreseeable future development) is significant.
- B. With regard to consideration of whether a project involves significant effect due to unusual circumstances, find such significant effect due to unusual circumstances if there is a reasonable possibility for the sewer main or sewer lateral which is part of the project to impact a stream, riparian area, wetland, environmentally sensitive habitat area, trail, open space zone, and scenic or view corridor, of any kind, or if a sewer main or sewer lateral which is part of the project will be located in, on, or crossing the same.

**ARTICLE VII**  
**FEES, RATES, AND CHARGES**

**SECTION 700. Sewer Service Charge.**

**700 (01) Purpose of Sewer Service Charge.** The purpose of the sewer service charge is to raise revenue for the costs of maintenance, operation, construction, and reconstruction of the District's wastewater facilities used for the collection, conveyance, treatment, and disposal of wastewater, including the District's share of the cost of construction, operation, and maintenance of the Authority's wastewater facilities, and for other expenditures deemed necessary by the District in order to conduct the business of the District, except to the extent prohibited by Sections 5471 and 6520.5 of the Health and Safety Code of the State of California.

**700 (02) Customers subject to Charge.** All premises connected to the District's wastewater system and all premises (unless exempt pursuant to Section 501(02) of Article V) which are able to connect to the system but are presently connected to a septic tank are subject to the sewer service charge. Those premises which are unable to make the connection are exempt from the sewer service charge. It is the sole responsibility of the premises owner to notify the District of the grounds for any claimed exemption.

**Section 700(03). Basis of Charge.** The principal basis of the sewer service charge is a flat annual rate for residential customers and a unit cost per hundred cubic feet of annual water usage for non-residential customers, computed to reflect costs of collection, treatment and disposal of wastewater.

**700(04). Residential Customers Sewer Service Charge.**

Residential Customer Rate. The flat rate sewer service charge for the fiscal years listed below, commencing July 1 of each year, will be as follows:

Flat Rate	FY 2010/11 Rate	FY 2011/12 Rate	FY 2012/13 Rate
Per Residence	\$365	\$383	\$402

The rate for FY 2012/13 of \$402 per residence shall continue in effect in subsequent fiscal years until this section is amended.

**700(05) Non-Residential Customers Sewer Service Charge.**

700(05) (A) Commercial User Rate. The sewer service charge for the fiscal years listed below, commencing July 1 of each year, will be as follows:

Rate per Hundred Cubic Feet (HCF) of Yearly Water Usage	FY 2010/11 Rate (per HCF)	FY 2011/12 Rate (per HCF)	FY 2012/13 Rate (per HCF)
Restaurant	\$6.77	\$7.10	\$7.46
Motel/Hotel	\$5.37	\$5.64	\$5.92
Office	\$3.01	\$3.16	\$3.32
Schools	\$3.06	\$3.21	\$3.37
Medical	\$3.24	\$3.41	\$3.58
Other Non-Residential	\$3.52	\$3.70	\$3.88

The rates for FY 2012/13 as stipulated in the table above shall continue in effect in subsequent fiscal years until this section is amended.

When charges are herein specified to be made in accordance with the use of water, such rates shall be computed on the basis of the water used during the preceding fiscal year. In no event shall an annual sewer service charge of less than the current year's Residential Customer Rate be charged to and collected from each of the above-described establishments.

These rates were developed to reflect typical water use, biochemical oxygen demand, and suspended solids concentration in the wastewater for various classes of commercial users. If the quality of discharge from any user is of such character that in the opinion of the District's Engineer such discharge shall impose a more than normal maintenance burden on District's system, the user contributing such discharge shall pay a service charge to be determined by the District to reflect the atypical characteristics of the user's waste.

700(05) (B) Industrial User Rate. The sewer service charge rate for each fiscal year commencing the first day of July for industrial users not listed above shall be as determined by the District on a case-by-case basis taking into account the volume of wastewater discharges, loading factors for biochemical oxygen demand, chemical oxygen demand, and suspended solids, and other relevant factors.

700(05) (C) For purposes of subsections 700(05)(A) and (B) above, the term "Annual Water Usage" is defined as the total metered water consumption for the user's premises (measured in hundreds of cubic feet) for the preceding 12-month period ending on March 30<sup>th</sup>, or such other 12-month period as determined by the District to be representative of the user's water consumption.

700(05) (D) Industrial User Rate. The sewer service charge rate for each fiscal year commencing the first day of July for industrial users shall be as determined by the District on a case-by-case basis taking into account the volume of wastewater discharges, loading factors for biochemical oxygen demand, chemical oxygen demand, and suspended solids, and other relevant factors.

700(05) (E) For purposes of subsections 700(05)(A) and (B) above, the term "Annual Water Usage" is defined as the total metered water consumption for the user's premises (measured in hundreds of cubic feet) for the preceding 12-month period ending on March 30<sup>th</sup>, or such other 12-month period as determined by the District to be representative of the user's water consumption.

700 (06) Non-residential Added Provisions. The following are additional provisions applicable to the computation of the service charge for non-residential customers:

700 (06) (A) In no event shall the non-residential sewer service charge be less than the flat rate sewer service charge for residential customers.

700 (06) (B) Upon application to the District by customers maintaining extensive irrigated landscaping or in other situations where it can be conclusively established that the metered water consumption is not a valid measure of the quantity of wastewater discharged, the

quantity of wastewater to be used in determining the yearly rate shall be determined by the District.

700 (06) (C) The District or the customer may require the installation of District-approved recording and sampling devices or sewage meters on the premises for use by the District at the customer's expense. Such devices or meters shall be available for inspection at any reasonable time. Recording devices shall be capable of recording instantaneous and accumulated flows, and sampling devices shall be automatic and capable of twenty-four hour storage and maintenance of temperature between 35 degrees and 40 degrees Fahrenheit and have a 5 gallon capacity as approved by the District. The customer shall be responsible for the maintenance, repair and replacement of all sampling or recording devices and equipment.

700 (07) Adjustments and Reimbursements. It is the intent of the District, in establishing differential sewer charges for different categories of customers, to reflect the benefit from such services to each customer so that those who receive greater benefits or those who impose a heavier burden upon the system because of higher flow or the quality of discharge, pay a higher charge. If, in respect to any customer the District should find that the charge is inequitable or unfair because of unusual circumstances, it may establish a special service charge for such customer, differing from those otherwise established, which will bear a closer relationship to the benefit received from use of the District System. Such special charge may be established by resolution or agreement, but may be revoked at any time.

700 (08) Vacancy. No credit, adjustment or refund shall be made to any customer because the premises or any part thereof are vacant, unless said premises are disconnected from the sewer system.

700 (09) Effective Date of Charges.

(A) Charges and rates established by this Section and subsequent amendments, as required, shall be effective upon the date specified by the District and shall apply to all premises then connected into the District's wastewater system. Premises which are connected to the system after the effective date shall be subject to the sewer service charge effective as of and prorated from the date of connection; such charge shall be billed directly in accordance with Subsection 700 (13) below.

(B) Notwithstanding the foregoing provisions of this Section or other provisions of this Code, no service charge shall be due or paid for a newly constructed building or dwelling until such building or dwelling is connected to the District's wastewater system

700 (10) Person Responsible. The owner of any premises is and shall be responsible for payment of any and all sewer service charges applicable to said premises. It shall be and is hereby made the duty of each owner to ascertain from the District the amount and due date of any such charge applicable to said premises and to pay such charge when due and payable. It shall also be and is hereby made the duty of all owners of all premises to inform the District immediately of all circumstances, and of any change or changes in any circumstances, which will in any way affect the applicability of any charge to said premises or amount of any such charge.

700 (11) Collection of Sewer Service Charges on Tax Roll.

(A) Pursuant to the provisions of Division 5, Part 3, Chapter 6, Article 4, of the Health and Safety Code of the State of California, subject to the provisions of this Section, the District hereby elects, as the procedure for the collection of sewer service and use charges prescribed or imposed by the provisions of this Section, to have all such sewer service charges for each fiscal year collected on the tax roll of the County of San Mateo in the same manner, by the same persons and at the same time as property taxes, assessments and other charges collected thereon.

(B) A written report shall be prepared and filed with the District Secretary setting forth a description of each parcel of real property, inside or outside the District, upon which is situated a premise which receives the sewer service and facilities of the District and the amount of charge for each parcel for said year, computed in conformity with the charges prescribed by this Section.

(C) The District Secretary shall cause notice of the filing of said report and of a time and place for hearing thereon to be published prior to the date set for hearing in a newspaper of general circulation published within the District. The publication of notice shall be once a week for two successive weeks. Publications shall be made with at least five days intervening between the respective publication dates not counting such publication dates. A minimum of two public notices shall be published in a newspaper circulated more than once a week. In newspapers which circulate once a week, the public notice shall be published in each circulation for two successive weeks. The period of notice commences upon the first day of publication and terminates at the end of the 14th day, including therein the first day.

(D) At the time stated in the above mentioned notice, the District shall hear and consider all objections or protests, if any, to said report referred to in said notice and may continue the hearing from time to time. If the District finds that protest is made by a majority of separate parcels of property described in the report, then the report shall not be adopted and the charges shall be collected separately from the tax roll and shall not constitute a lien against any parcel or parcels of land.

(E) Upon the conclusion of the hearing, the District may adopt, revise, change, reduce or modify any charge or overrule any or all objections, excepting objections from a majority as described above in Subsection 11 (D), and shall make its determination upon each charge as described in said report, which determination shall be final.

(F) On or before the 10th day of August of each year following such final determination, the District Secretary shall file with the Controller of the County of San Mateo a copy of said report with a statement endorsed thereon over his or her signature stating that the report has been finally adopted by the District in order that the Controller of the County of San Mateo shall be able to enter the amounts of the charges against the respective lots or parcels of land as they appear on the current assessment roll and in order that such charges may be collected on the tax roll in accordance with the provisions of Sections 5473.5 through 5473.11 of the Health and Safety Code of the State of California.

(G) Except as provided in Section 5473.8 of the Health and Safety Code of the State of California, the amount of the charges shall constitute a lien against the lot or parcel of land

against which the charge has been imposed as of the date prescribed by law as the lien for property taxes.

(12) Use of Revenues. Revenues derived under this Section shall be used only for the acquisition, construction or reconstruction, maintenance and operation of sanitation or sewage facilities of the District and to repay the principal and interest on bonds issued for the construction of such sanitary or sewage facilities and to repay the federal or state loans or advances made to the District for the construction or reconstruction of sanitary or sewage facilities; provided, however, that such revenue shall not be used for the acquisition or construction of new local street sewers or laterals, as distinguished from main truck, interceptor and outfall sewers.

(13) Direct Billing. If the full amount of sewer service charges for premises connected to or discharging wastewater into the District sewer system are, for any reason, not collected in accordance with the provisions of Subsection (11) above, the sewer service charges, or the portion thereof not appearing on the tax rolls, shall be collected by direct billing of the property owner, as provided in this Subsection (13). The provisions of this Subsection shall also apply to sewer service charges accruing after a new connection to the District's wastewater facilities, in which case the annual charge shall be prorated over the period of time from the date of the new connection to the end of the fiscal year.

(A) Billing. The District shall ascertain the amount of each sewer service charge applicable to such premises and shall mail to the owner and/or owner and lessee thereof, within sixty (60) days from and after the date of any sewer service charges become due and payable, a bill for the sewer service charges which are then due and payable. Such bill shall be mailed to the person or persons listed as the owners on the last equalized assessment role of the County of San Mateo at the address shown on the assessment role, or to the successor in interest and/or the lessee of such owner, if the name and address of each successor in interest or lessee is known to the District. Each bill so mailed shall contain a statement that a delinquency in payment for sixty (60) days shall constitute a lien against the lot or parcel against which the charge is imposed and that when recorded it shall have the force, effect and priority of a judgment lien for three (3) years unless sooner released or otherwise discharged. Failure of the District to mail any such bill or failure of owner to receive any such bill, shall not excuse the owner of any premises from the obligation of paying any sewer service charge for any premises owned by him.

(B) How Payable. Each sewer service charge to be collected by direct billing shall be due and payable in full at the time of billing; provided, however if in any fiscal year, a sewer service charge is payable for a period covering eight (8) months, or more, of the fiscal year, the sewer service charge shall be billed in two installments with the first installment covering the period for which a sewer service charge is owed covering the first six (6) months of the fiscal year, and the second installment covering the remaining six months of the fiscal year.

(C) Delinquency Date of Sewer Service Charges. Each sewer service charge shall be delinquent if not paid on or before the thirtieth (30th) day of the month following the date upon which such sewer service charge became due and payable.

(D) Where Payable. Sewer service charges collected by direct billing shall be payable at the administrative offices of the District, as noted in the billing.

(E) Penalties for Non-Payment of Sewer Service Charges-Lien. Whenever a delinquency shall occur for non-payment of sewer service charges, a penalty of ten (10) percent shall attach to such charges, and for each month that such charges remain delinquent a further penalty of one and one-half percent (1-1/2 percent) of said basic charge shall be added.

### **SECTION 701. Sewer Connection Charges.**

#### (01) Charges by Type of Connection.

##### (A) Residential Connections

Effective July 1, 2001, the residential connection charge for connection to the public sewer system shall be \$4,700.00 for each dwelling unit. For auxiliary residential structures, or additions to such structures (e.g. cabana, pool house), which require a separate connection to the District's wastewater facilities, the charge shall be fifty percent (50%) of the residential connection charge.

##### (B) Non-Residential Connection

Effective July 1, 2001, the non-residential connection charge shall be \$23.53 times the estimated volume of wastewater discharge measured in gallons per day, average daily flow. Payment of non-residential connection charge shall entitle the occupants to discharge up to the volume of wastewater purchased and no more. In no event shall the non-residential connection charge be less than \$4,700.00, except for a connection for a public restroom being installed by a public agency where the estimated average daily flow of wastewater discharged is less than 75 gallons per day, in which case the connection charge shall be waived.

In the event the District requires, or the property owner desires, more than one building sewer to be connected to the public system from one non-residential structure, the charge for the second and each subsequent connection shall be fifty percent (50%) of the minimum non-residential connection charge. Payment of such multiple sewer connection charge shall not result in an increase in the volume of wastewater the premises are entitled to discharge.

##### (C) Combined Residential and Non-Residential Connections.

In the event a parcel will have combined residential and nonresidential uses, the connection charge shall be \$4,700.00 times the number of living units plus \$23.53 times the estimated volume of wastewater to be discharged from the non-residential premises, measured in gallons per day, average daily flow. In no event shall the connection charge for the non-residential premises be less than \$4,700.00. A separate water meter serving the non-residential premises shall be required. (Ordinance No. 143)

#### (02) Basis of Charge.

No connection shall be made to any public sewer, or to any sewer flowing into a public sewer within the District, until there shall be paid to the District a sewer connection charge based upon the estimated volume of wastewater discharge from the premises to be connected. The connection charge shall be in addition to charges for permits, inspections or the other requirements of any other rule or regulation of the District. The connection charge shall be paid at the time the application for a Class 1 or Class 2 sewer permit is filed.

The residential and minimum non-residential sewer connection charge rate shall be reduced from \$6,220.00 to \$4,700.00 and this reduction shall be applied retroactively to properties for which a contingent assessment was purchased pursuant to any sewer permit issued after March 15,



2000 when sewer treatment utilizing expanded Sewer Authority Mid-Coastside capacity came on line. Said reduction is pursuant to the Ordinance approving Sewer Connection Charge Rates for 2001-2002 in the amount of \$4,700.00 for residential and minimum non-residential rates. (Ordinance No. 144)

(03)

(04) Persons Responsible.

The owner of the premises is and shall be responsible for payment of all connection charges applicable to said premises. It shall be and is hereby made the duty of each property owner to ascertain from the District the amount and due date of any connection charge applicable to said property and to pay said charge when due and payable. Each property owner shall be responsible to inform the District within a reasonable period of time of any changes in any circumstances which will result in a change in the amount of the charge.

(05) Increased Use of Sewers.

(A) No person shall cause or permit an increase in the wastewater discharge from any premises over the amount of the wastewater discharge entitlement for the premises without prior consent of the District and the payment of an additional sewer connection charge.

(B) The present wastewater discharge entitlement for any premises in the District shall be as follows:

(i) For premises not previously connected to the District's wastewater facilities, the entitlement shall be "O";

(ii) For premises previously legally connected without a sewer connection permit, the entitlement shall be determined in accordance with Section 601 of this Code.

(iii) For residential premises, the entitlement shall be determined by the number of dwelling units authorized to be connected, with each dwelling unit, regardless of size, being deemed to discharge the equivalent of 221 gallons per day, average daily flow.

(iv) For non-residential premises connected pursuant to a sewer connection permit based upon plumbing fixture units, the entitlement shall be determined by converting the fixture unit entitlement to gallons per day, average daily flow at the ratio of 1 fixture unit to 10 gallons per day, average daily flow.

(v) For non-residential premises connected pursuant to a sewer connection permit issued since the adoption of this Code the entitlement shall be the amount shown on the permit.

(C) For purposes of Subsections 700(05) (A) and (B) above, the term "Annual Water Usage" is defined as the total metered water consumption for the user's premises (measured in 100s of cubic feet) for a 12-month period determined as follows:

(i). For any premises which were connected to the District's wastewater system prior to July 1, 1996, the 12-month period shall be the interval from March 1996 to March 1997 unless the District determines that some other

12-month period ending prior to July 1, 1997 provides a more accurate representation of the user's water consumption during the preceding fiscal year, in which case the other 12-month period shall be used.

(ii). For any premises connected to the District's wastewater system on or after July 1, 1997, the 12-month interval shall be the 1997-98 fiscal year.

(06) Resumption of Use.

(A) Any person required to obtain a permit for resumption of a discontinued use pursuant to Section 607 of Article VI shall pay a supplemental connection charge computed in accordance with this Section.

(B) Subject to any credits which may be applicable, the amount of the supplemental connection charge shall be computed as provided in Section 701(01).

(C) Credit shall be given for any connection charges previously paid for the use which was disconnected. Credit shall also be given for the differential increase, if any, in connection charges which occurred from the time connection charges were originally paid to the time the original use was discontinued, but only if all sewer service charges levied against the premises during that interval were paid. In no event shall the amount of the credit exceed the amount of the connection charge computed as provided in Section 701(01).

(07) Wastewater Volume Determination.

(E) Each Hotel/Condominiums unit shall be presumed to discharge volumes of waste- water equivalent to 221 gallons per day, average daily flow. This presumption shall not be rebuttable regardless of the size of the respective hotel/condominium units and regardless of the fresh water used or supplied to the unit. The ERU's necessary for hotel/condominium projects shall be equivalent to the number of hotel/condominium units in the project.

(F) Each hotel unit equipped with a kitchenette shall be presumed to discharge volumes of waste water equivalent to 221 gallons per day, average daily flow. This presumption shall not be rebuttable regardless of the size of the respective hotel/condominium units and regardless of the fresh water used or supplied to the unit. In calculating the number of ERUs necessary for a hotel project, each kitchenette unit shall be separately counted as one ERU

(08) Repurchase of Capacity. Excess wastewater discharge entitlements for any premises may, upon the mutual consent of the District and the property owner, be repurchased by the District subject to the following conditions:

(A) The remaining wastewater discharge entitlement for the premises after repurchase shall be at least 221 gallons per day, average daily flow.

(B) The price to be paid by the District shall be 90% of the sewer connection charge rate in effect at the time the repurchase occurs.

(09) Administration of Connection Charges:

(A) The sewer connection charge rate may be revised only by an amendment to this Code approved by a two-thirds vote of the members of the District Board.

(B) The District Board shall review the sewer connection charge annually during the month of June to determine whether the connection charge rates should be adjusted. No permits for which a connection charge is payable shall be issued in the next fiscal year until the review has been completed.

(C) Nothing contained in this section shall be deemed to limit any rights or remedies of the District to collect sewer connection charges. In addition to any of the rights and remedies which are available, the District Board may, if it determines to do so, employ the procedures established in California Health & Safety Code Section 5474, et seq.

**SECTION 702. Fees for Application Processing and other Administrative Determinations.**

(01) The District Board shall adopt a Fee Resolution for fees for processing applications for permits and other administrative determinations. The Fee Resolution may be amended from time to time, in whole or in part, by the District Board.

(02) Extension of Permits.

(a) A non-refundable fee shall be imposed for the review and consideration of any extension request. No extension shall be effective until the fee is paid.

(b) The fee applicable to requests for extensions of permits issued prior to the effective date of Ordinance No. 57, and as to which the applicant is entitled to an extension of the permit as a matter of right shall be \$25.00.

(c) The fee applicable to all other requests for extensions of permits shall be \$150.00

(03) Time for Payment. Except as otherwise provided herein or by the District Board, all fees and charges required by in this Section shall be paid in advance.

(04) Excess expenses; fees for rescheduled, canceled and missed inspection fees. In addition to the permit fees, the applicant shall pay to the District all costs and expenses in excess of said fees which have been borne by the District to examine plans and inspect construction, and to test, sample and/or monitor wastewater discharge, said costs to be determined by the District. The fee for canceling or rescheduling an appointment for a lateral connection inspection shall be \$10.00. The fee for failing to appear at or to be ready for a lateral connection inspection at which an inspector is present shall be \$50.00

**SECTION 703. Sewer Relocation Charge.**

703 (01) Imposition of Charge. A sewer relocation charge shall be imposed by the District whenever all of the following conditions are found by the District Board to exist:

703 (01) (A) A government entity proposes to undertake a work of public improvement that will necessitate relocation, modification, or reconstruction of existing District wastewater facilities;

703 (01) (B) Except for the work of improvement, the wastewater facilities would not have required relocation, modification, or reconstruction at that time;

703 (01) (C) The District will be required to pay to the governmental entity all or some part of the relocation, modification or reconstruction of its facilities without reimbursement for all or some portion of the attendant costs; and

703 (01) (D) The work of improvement is primarily for the benefit of some of the premises within the District's boundaries, and not primarily for the general benefit of all premises within the District.

703 (02) Effect of General Benefit. If the Board makes all of the findings required by the above Subsection, it shall further determine to what extent, if any, there is some benefit to the District generally by reason of the relocation, modification, or reconstruction. To the extent the District Board determines that there is some general benefit to the District, that pro-rata share of the net cost, as defined in Subsection (04) below, shall be borne by the District from its general funds. In making the determination required by this Section, the Board shall consider all relevant factors including increased life of the wastewater facilities and benefits to wastewater facilities outside of the improvement project boundaries.

703 (03) Parcels Subject to Relocation Charge. The relocation charge, other than that allocated to the District generally, shall be levied against all parcels within the boundaries of the improvement project which are either connected to or able to connect to the District's wastewater facilities. Determination of whether a parcel is able to connect to the District's wastewater facilities is governed by Article V of this Code. Those parcels which are unable to connect are exempt from the relocation charge. If the government entity which has undertaken the improvement project has not established boundaries for the project, the District Board shall set the boundaries based upon a determination of which premises are benefited by the improvement project.

703 (04) Determination of Net Cost. The total amount to be allocated among the benefited premises as a relocation charge shall be the net cost to be borne by the District for all necessary expenses, after credit for any reimbursements to the District from sources other than the imposition of the relocation charge, and after credit for any grant funding to be received by the District. Necessary expenses include, without limitation: labor, material and equipment costs; fees for engineering, architectural, legal or other professional services; interest charges; bond or insurance premiums; and the like.

703 (05) Computation of Relocation Charge Payable by Each Premise. The amount of the relocation charge to be imposed against each parcel shall be computed according to the following formula:

$$RC = PSC/TSC * NDC$$

Where 'RC' is the relocation charge to be imposed against each premises; 'PSC' is the annual sewer service charge imposed by this Code and then in effect for the premises; 'TSC' is the total of all annual sewer service charges imposed on all benefited premises within the boundaries of the improvement project; and 'NDC' is the net District cost after taking into account any reduction by reason of the effect of a general benefit, pursuant to Subsection (02) above. In the event any premises are not presently subject to a sewer service charge, then in performing the computation, 'PSC' shall be the minimum annual sewer service charge rate, and 'TSC' shall be determined as if an annual minimum sewer service charge rate was in effect for the premises.

703 (06) Adoption of Resolution. The imposition of a relocation charge pursuant to this Section shall be established by a Resolution of the District Board and approved by a two-thirds vote of its members. The Resolution shall set out the following:

703 (06) (A) A schedule of the relocation charges to be imposed.

703 (06) (B) The description of all premises subject to the charge by Assessor's Parcel Number.

703 (06) (C) The provisions for payment and collection of the charge.

703 (06) (D) The time and place at which the District Board will hold a public hearing at which persons may appear and voice any and all objections they may have to the imposition of the charge.

(07) Use of Relocation Charge Revenue. Except as prohibited by Section 5471 and 6520.5 of the Health and Safety Code of the State of California, revenues derived from the imposition of the relocation charge may be used for any lawful purpose as determined by the District Board.

**SECTION 704. Solid Waste Collection and Disposal Charge.**

The charges for solid waste collection and disposal shall be established and revised from time to time, by resolutions duly adopted and approved by the District Board in accordance with Article III of this Code.

**SECTION 705. Environmental Impact Report and Negative Declaration -- Preparation or Review Fee.**

A charge shall be imposed upon and collected from applicants to defray costs for the preparation or review by the District of any environmental documents including an Environmental Impact Statement (EIS), an Environmental Impact Report (EIR), a Negative Declaration, or other similar statement, report or study for any projects (as defined in the California Environmental Quality Act of 1969) undertaken by any person other than the District, according to the following methods:

(01) If the preparation or review is made by District staff, the charge shall be the actual salary of the District employee for the time necessary for the preparation or review, times 1.75.

(02) If the preparation or review is made by District consultants engaged by the District, the charge shall be the actual cost billed to the District by consultants.

(03) Any other expenses incurred by the District for such preparation or review shall also be reimbursed by the applicant to the District.

**SECTION 706. Applications for Waivers**

A fee in the amount specified in the Fee Resolution will be paid by any applicant for a waiver pursuant to Article IX. (Ordinance No. 147)

**SECTION 707. Permit for Persons Not Participating in Mandatory Garbage Collection.**

Any person applying for a permit requesting relief from participation in mandatory garbage collection, or for other similar purposes, pursuant to Article III, Section 305, shall pay the fee in the amount specified in the Fee Resolution to the District at the time the application is submitted. (Ordinance No. 147)

## **ARTICLE VIII** **ENFORCEMENT**

### **SECTION 800. Responsibility.**

The primary responsibility for enforcement of the provisions of this Code shall be vested in the District; provided, however, that the District's representatives shall be, and are hereby authorized and empowered, to act as enforcement agents of the District with power to inspect and issue notices for violations of the provisions of this Code. Notwithstanding the foregoing, all actual prosecutions for violations of any of the provisions of this Code (including, without limitation, levying of fines, termination of service, revocation of permits, and civil and criminal court actions) shall be the exclusive responsibility of the District.

### **SECTION 801. Powers and Authority of Inspectors.**

The District's representatives bearing proper credentials and identification shall be permitted to enter upon all properties for the purpose of inspection, observation, measurement, sampling, and testing, in accordance with the provisions of this Code. The District's representatives are further empowered to ascertain the nature of such premises, the type of activities carried on therein, the number and type of plumbing fixtures situated therein, and any other facts and information reasonably necessary to carry out the provisions of this Code.

### **SECTION 802. Corrections of Violations.**

802 (01) Notification of Unauthorized Discharges. Every customer shall notify the District immediately upon discharging wastes or wastewater in violation of the provisions of this Code, or any permit issued pursuant to this Code. A customer who discharges, causes to be discharged, or permits to be discharged such wastes or wastewater shall, within 15 days of the occurrence thereof, submit a written report to the District describing the cause or causes of such unauthorized discharge, and measures taken, or proposed to be taken, to prevent future similar occurrences. Such report shall not relieve any customer of liability for any expense, loss, or damage suffered or incurred by the District or the Authority, directly or indirectly, by reason of such unauthorized discharge. Such report shall not relieve or absolve any person from civil liabilities, or imposition of civil or criminal penalties in any manner whatsoever.

802 (02) Notices to Employees Regarding Unauthorized Discharges. Every non-domestic customer shall prominently post a notice on the customer's premises advising of the requirement to notify the District of any unauthorized discharge, including the telephone number of the District to be called in the event of such discharge. The District may require any customer to inform and advise the customer's officers, agents, and employees of the provisions of this Code, or the provisions of any permit issued pursuant to this Code, or of other requirements of law, or of any other information which may be of assistance in ensuring compliance with said Code, permit, or other requirements of law.

802 (03) Cease and Desist orders. Upon a determination by the District that a discharge of waste or wastewater has occurred, or is occurring, or is about to occur, in violation of any provision of this Code, or of any provision of any permit issued pursuant to this Code, the District may issue an order to cease and desist such discharge, or any practice or operation likely to cause such discharge, and further order such person to:

802.03 (A) Comply forthwith with the provisions of this Code, or the provisions of any permit issued pursuant to this Code;

802.03 (B) Comply in accordance with a time schedule established by the District; and/or

802.03 (C) Take appropriate remedial or preventative action.

802 (04) Time Schedules. Upon a determination by the District that a discharge of waste or wastewater has occurred, or is occurring or is about to occur in violation of the provisions of this Code, or in violation of any provision of a permit issued pursuant to this Code, the District may require the person or customer having so discharged, or discharging, or about to discharge, to submit for approval, subject to such modifications, terms and conditions as the District reasonably deems necessary or appropriate, a detailed time schedule of specific actions which the person or customer shall take in order to eliminate or prevent such violation or violations.

802 (05) Damage to Wastewater Facilities or Emergency Corrections. In the event repairs, construction, or other public work is performed on any premises pursuant to any provision of law authorizing the emergency performance of public work and the expenditure of public funds therefor, or pursuant to any other provision of law authorizing public work on private property in order to correct, eliminate or abate a condition upon such premises which threatens to cause, causes, or caused damage to the wastewater facilities, or which otherwise threatens to cause, causes, or caused a violation of any provision of this Code, or of any other requirement of law, the customer responsible for the occurrence or condition giving rise to such work, the occupant and the owner of the premises shall be liable, jointly and severally to the District and/or the Authority for such public expenditures.

In order to enforce the provision of this Code, the District may correct any violation. The cost of such correction may be added to any sewer service charge payable by the person violating the Code or the owner or tenant of the property upon which the violation occurred, and the District shall have such remedies for the collection of such costs as it has for the collection of sewer service charges. The District may also petition the Superior Court for the issuance of a preliminary or permanent injunction, or both, as may be appropriate, restraining any person from the continued violation of this Code.

802 (06) Court Injunctions. Upon a determination by the District that a discharge of waste or wastewater has occurred, or is occurring, or is about to occur in violation of the provisions of the Code, or in violation of any provision of a permit issued pursuant to the Code, and further that the customer, occupant or owner of the premises has not complied with the provisions of a duly issued cease and desist order as prescribed in Subsection 802 (03) or has not complied with the terms and conditions of a time schedule as described in Subsection 802 (04), approved by the District, then the violation shall be reviewed by the District Board which may request a court injunction in order to compel the customer, occupant, or owner of said premises to do or to refrain from doing a specified act or acts in order to correct the violation.

### **SECTION 803. Termination of Service.**

In order to effect its powers and subject to the provisions of this Section, the District may terminate sanitary wastewater service to any premises from which wastes or wastewater have been discharged, are being discharged, or are threatened to be discharged in violation of any provision of this Code, or because of a delinquency in the payment of any charge or fee assessed by the District, or because of a violation of any other requirement of law or this Code.



803 (01) Notification/Hearing. Prior to termination of service, the District Board shall notify, in writing, the owner and tenant, if any, of such property that service is intended to be terminated, which notice shall state the date of proposed termination of service, the reason(s) therefor, and the date, time and place of a hearing to be held by the District Board upon the question of the termination. Such notice shall be mailed to the owner at the address shown on the records of the assessor of the County of San Mateo or as known to the District, and a copy shall be delivered to the tenant or posted conspicuously on the property. The hearing shall be held not less than ten (10) days after notice is given herein described.

Any owner, the customer, the tenant, the alleged violator, the District's representatives and any other person the District Board deems appropriate shall be heard at the hearing on the question of termination of service. The District Board shall make such order as it deems appropriate under the circumstances and in furtherance of the purposes and intent of this Code.

803 (02) Imminent Threat. Notwithstanding the foregoing, any unauthorized connection with or opening into the public sanitary wastewater system or appurtenance or discharge thereof into the wastewater facilities may be abated by the District without notice if such unauthorized connection or opening or discharge poses an imminent threat of damage to the District's wastewater facilities or of injury to the public health, safety and welfare.

803 (03) Public Hazard or Nuisance. In the event a disconnection from the wastewater facilities would create a public hazard or nuisance, the District's representatives may enter upon the premises for the purpose of doing such things as may be reasonably necessary to alleviate or remove such hazard or menace. The owner of such premises shall have a duty to reimburse the District for all expenses incurred by the District in disconnecting any such premises, or in doing other things authorized by this Section; and no reconnection shall be made until all such charges are paid.

#### **SECTION 804. Revocation of Permits.**

804 (01) Subject to the procedure set forth in Subsection (02) below, the District Board may revoke any permit issued pursuant to the provisions of this Code upon a determination by the District Board that:

804 (01) (A) The permittee has failed to factually report the wastewater constituents, characteristics, or volume of the permitted wastewater discharge;

804 (01) (B) The permittee has failed to report significant or substantial changes in the operations conducted upon the premises to which the permit pertains, or significant or substantial changes in wastewater constituents, characteristics, or volumes pertaining to said premises;

804 (01) (C) The permittee has refused, or failed to permit, reasonable access to the premises to which the permit pertains; or

804 (01) (D) The permittee has violated, caused to be violated, or allowed to be violated, any term, condition, or provision of the permit.

804 (02) Prior to revocation of the permit, the District Board shall notify, in writing, the owner and tenant, the customer and alleged violator that the permit is intended to be revoked,

which notice shall state the date of the proposed revocation, the reason(s) therefore, and the date, time and place a hearing shall be held by the District Board upon the question of revocation of the permit. Such notice shall be mailed to the owner at the address shown on the records of the assessor of the County of San Mateo, or as known to the District, and a copy shall be delivered to the tenant or posted conspicuously on the property. Such hearing shall not be held less than ten (10) days subsequent to the giving of notice as herein described.

Any owner, the customer, the tenant, the alleged violator, the District's representatives and any other person the District Board deems appropriate shall be heard at the hearing on the question of revocation of the permit. The District Board shall make such order as it deems appropriate under the circumstances and in furtherance of the purpose and intent of the permit and other provisions of the Code.

**SECTION 805. Public Nuisance.**

Any discharge or threatened discharge, or any condition which is in any manner in violation of the provisions of this Code, or of any permit issued pursuant to this Code, or of any order or directive of the District representative authorized by this Code, shall be, and the same is hereby declared to be, unlawful and a public nuisance. Such nuisance may be abated, removed, or enjoined, and damages assessed therefor, in any manner provided by law.

**SECTION 806. Criminal Penalties.**

Any person found to be violating any provision of this Code shall be guilty of a misdemeanor punishable by a fine of one thousand dollars (\$1,000.00), or imprisonment in the County jail for a period of one month, or both, for each violation committed. Each day in which any such violation shall continue shall be deemed a separate offense.

**SECTION 807. Remedies Cumulative.**

The remedies provided for in this Code shall be cumulative and not exclusive, and shall be in addition to any or all other remedies available to the District.

## ARTICLE IX WAIVERS

### **SECTION 900. Grants of Waivers.**

Subject to the provisions of this Article, the District Board may grant waivers from compliance with the provisions of this Code.

### **SECTION 901. Applications.**

Applications for waivers shall be submitted in writing and shall be considered and acted upon by the District Board at a regular or special meeting. The District Board may schedule a public hearing on such application, in which event the District Board shall cause notice of the public hearing to be given in such manner as it determines is adequate in the circumstances.

### **SECTION 902. Limitations on waivers.**

No waiver shall be granted if such action would result in a violation of any statute, regulation, order, or other provision of law promulgated or enacted by a Federal, State, or local government entity having jurisdiction over the matter in question.

### **SECTION 903. Necessary Determinations.**

A waiver may be granted only upon a determination by the District Board that:

- (01) In the absence of the waiver, the strict application of the provisions of this Code would result in a substantial hardship peculiar to the applicant and not generally applicable to other persons similarly situated;
- (02) Granting of the waiver is necessary for the preservation and enjoyment by the applicant of substantial personal and/or property rights possessed by other persons similarly situated;
- (03) Granting of the waiver will not constitute a special privilege of the applicant; and
- (04) Granting of the waiver will not be materially detrimental to the public health, safety and welfare, nor will it result in undue hardships to other persons.

If the District makes such a determination, it shall adopt a resolution granting the waiver which shall include therein findings of fact supporting the Board's determination.

### **SECTION 904. Burden of Proof.**

The burden of establishing facts to support the necessary determinations for a waiver shall be upon the applicant. The District Board may deny any application if the applicant fails to supply relevant information, including documents and records, required by the District Board in order to make the necessary determinations.

### **SECTION 905. Fees; Conditions.**

The District Board may impose, pursuant to the District Fee Resolution, reasonable fees and charges to cover the cost to the District of considering an application for a waiver, including the costs of giving notice to adopt a Fee Resolution for fees for processing applications for permits and other administrative determinations. The Fee Resolution may be amended from time to time, in whole or in part, by the District Board. (Ord. No 147.)

## **ARTICLE X - APPEALS**

### **SECTION 1001. Appeals.**

1001(01) Any customer, permittee, applicant, or other person aggrieved by any decision, action, finding, determination, order, or directive of the District Administrator or District representative specified by the Board, made or authorized pursuant to the provisions of this Code, or any permit issued pursuant to this Code or interpreting or implementing same, may file a written request with the District Administrator or District representative specified by the Board, as the case may be, for reconsideration thereof within ten days of such decision, action, finding determination, or order, setting forth in detail the facts supporting such request for reconsideration.

1001(02) Any customer, permittee, applicant, or other person aggrieved by the final determination of the District Administrator or District representative specified by the Board, may appeal such determination to the District Board within ten days of notification of the District Administrator's or District representative's final determination. Written notification of such appeal shall be filed with the Secretary of the District within ten days of notification of the final determination of the District Administrator or District representative, and shall set forth in detail the facts and reasons supporting the appeal. Hearing on the appeal shall be heard by the District Board within 30 days from the date of filing the notice of appeal. The appellant, the District Administrator or District representative, and such other persons as the District Board may deem appropriate, shall be heard at the hearing on such appeal. Upon conclusion of the hearing, the District Board may affirm, reverse or modify the final determination of the District Manager as the District Board deems just and equitable, and in furtherance of the provisions, purposes and intent of this Code. The District Board's determination on the appeal shall be final.

Appendix C  
Element 4 (Operations and Maintenance Program) Supporting Documents

RESOLUTION NO. 10-88

RESOLUTION ACCEPTING AND AUTHORIZING EXECUTION OF AGREEMENT  
RELATED TO THE MAINTENANCE AND OPERATION  
OF MEMBER AGENCY FACILITIES (GRANADA SANITARY DISTRICT)

RESOLVED, by the Board of Directors of the Sewer Authority  
Mid-Coastside, San Mateo County, California, that

WHEREAS, there has been presented to this Board an  
Agreement, by and between the Granada Sanitary District and  
this Authority entitled, "Agreement for Maintenance and  
Operation Services Between Granada Sanitary District and Sewer  
Authority Mid-Coastside" (herein "Agreement"), pursuant to  
which this Authority will operate and maintain said member  
agency's sewerage system;

NOW, THEREFORE, IT IS HEREBY FOUND, DETERMINED and ORDERED  
as follows:

1. Said Agreement is hereby approved and the Chairman is  
authorized and directed to execute same on behalf of this  
Authority and the Secretary is authorized and directed to  
countersign same.

2. The Secretary is hereby directed to transmit an  
executed copy of the Agreement to said member agency.

\* \* \* \* \*

I hereby certify that the foregoing is a full, true and correct copy of a resolution duly and regularly passed and adopted by the Board of Directors of the Sewer Authority Mid-Coastside at a regular meeting thereof held on the 25th day of April, 1988, by the following vote:

AYES: BEDESEM, OKONEK, SCHUETRUM, ERIKSEN, FOGLI, GIDDINGS

NOES: NONE.

ABSENT: PATRIDGE

ABSTAIN: NONE.

Helen R. Bedesem  
Chairman

COUNTERSIGNED:

Bonnie A. Maybury Okonek  
Secretary

AGREEMENT  
FOR MAINTENANCE AND OPERATION SERVICES  
BETWEEN  
THE GRANADA SANITARY DISTRICT  
AND  
SEWER AUTHORITY MID-COASTSIDE

This Agreement is made and entered into this 25 day of APRIL, 1988, by and between the Granada Sanitary District, a California public corporation (hereinafter referred to as "MEMBER AGENCY") and Sewer Authority Mid-Coastside, a California public entity (hereinafter referred to as "SAM").

WHEREAS, MEMBER AGENCY owns, and causes to be operated and maintained, a wastewater collection system, hereinafter referred to as the "Sewerage Collection System", which provides for the collection of sanitary sewage within MEMBER AGENCY boundaries, which sewage is then conveyed to interceptor, treatment and disposal facilities owned and operated by SAM; and

WHEREAS, MEMBER AGENCY has heretofore contracted with SAM, by agreement entitled "Agreement for Maintenance and Operation Services Between the Granada Sanitary District and Sewer Authority Mid-Coastside, dated November 8, 1983, whereby SAM operates and maintains MEMBER AGENCY's Sewerage Collection System on behalf of MEMBER AGENCY;

WHEREAS, MEMBER AGENCY desires to continue to contract with SAM for the provision of such operation and maintenance services, and SAM desires to continue to provide such services;

WHEREAS, the parties desire to enter into an agreement related thereto in place of the agreement referenced above.

WHEREAS, the public interest, convenience and necessity will be served thereby;

NOW THEREFORE, the parties do hereby agree as follows:

I

ENGAGEMENT

MEMBER AGENCY hereby engages SAM to provide the services herein described, and SAM agrees to provide said services, all upon the terms and conditions set forth herein.



## II

### FACILITIES TO BE MAINTAINED

The Sewerage Collection System to be operated and maintained by SAM consists of the entire wastewater collection system owned by the MEMBER AGENCY. If MEMBER AGENCY has not already done so, it shall provide SAM with maps delineating the Sewerage Collection System, and shall make available to SAM its past records, if any, related to the maintenance of the Sewerage Collection System in order to assist SAM in providing the services hereunder.

## III

### TERM OF AGREEMENT

SAM shall be obligated to provide the services herein described, and MEMBER AGENCY shall be obligated to compensate SAM for the same, commencing July 1, 1987, for Fiscal Year 1987-88; for fiscal years thereafter, such obligations shall commence for the fiscal year following written notice from MEMBER AGENCY to SAM that MEMBER AGENCY has approved, pursuant to Section V hereof, the annual budget for the fiscal year, and the delivery of written notice from SAM to MEMBER AGENCY stating that SAM is ready to commence providing the services specified.

This Agreement shall continue in full force and effect and shall govern all transactions between the parties hereto until terminated pursuant to Section IV or V of this Agreement.

## IV

### TERMINATION

This Agreement may be terminated by either party, either with or without cause, upon providing ninety (90) days written notice to the other party by registered mail. The effective date of termination shall be ninety (90) days from the date of mailing.

In the event of termination, SAM shall transfer to MEMBER AGENCY all inventoried collection system parts not used by SAM for the benefit of MEMBER AGENCY, subject to reimbursement to SAM at SAM's costs, for any such parts not yet paid for by MEMBER AGENCY. In addition, SAM shall make an accounting for services to be rendered to MEMBER AGENCY through the effective date of termination, MEMBER AGENCY to pay for services rendered through said date, with SAM refunding any advance payments for services not rendered as a result of the termination.

V

BUDGET APPROVAL

SAM shall, no later than March 31 of each year that this Agreement is in effect, submit a budget to MEMBER AGENCY which will outline the costs of, and under which SAM shall provide, the services described herein for the succeeding fiscal year. As soon as is practicable, but in no event later than the June 15 following receipt of the proposed budget, MEMBER AGENCY shall review and approve said budget. If either party shall fail to take the action described in this Section on or before the dates specified herein, then the other party may, upon one hundred twenty (120) days written notice, terminate this Agreement. During this one hundred twenty (120) day period, MEMBER AGENCY may elect to continue to receive service. In such event, such service shall be provided at the previous year level, and MEMBER AGENCY shall pay for such service at the previous year rate.

VI

SCOPE OF SERVICES

The services to be provided by SAM to MEMBER AGENCY shall be as set forth in "ATTACHMENT A" appended hereto, and may include such additional services as may be agreed upon in writing by the parties from time to time.

VII

COMPENSATION

Compensation paid to SAM by MEMBER AGENCY shall be in accordance with a fee schedule set forth in the budget for each fiscal year.

VIII

METHOD OF PAYMENT

SAM shall bill MEMBER AGENCY for its services in monthly installments, in advance, based upon the amount of compensation required under Section VII hereof. The amount set forth on a bill shall be due and payable by not later than the last day of the month (the "due date") for which the bill was rendered, and if its not paid in full by the due date, interest shall be payable on the unpaid portion thereof, such interest to be calculated from the due date in accordance with the Agreement Creating the Sewer Authority Mid-Coastside, dated February 3, 1976, as amended, but in no case shall interest paid exceed the rate prescribed by law.

Should unexpected expenses arise which exceed amounts budgeted, SAM shall obtain written authorization from MEMBER AGENCY prior to incurrence of such expenses. Should a cost savings be realized from amounts budgeted, MEMBER AGENCY shall be credited with said amount differential. Any such adjustments to compensation shall be agreed upon by the parties and billed or credited separately, in accordance with a separate payment schedule also to be agreed upon by the parties.

#### IX

#### AMENDMENT; WAIVER

This Agreement may be amended or modified only by written agreement signed by the parties hereto. Failure on the part of either party to enforce any provision of this Agreement shall not be construed as a waiver of the right to compel enforcement of such provision.

#### X

#### INDEMNIFICATION

SAM, at its sole cost and expense and at no cost or expense to MEMBER AGENCY, shall defend, indemnify and save MEMBER AGENCY, its officers, directors, agents, servants and employees, harmless from and against any and all liability, claims, damages, losses and expenses, arising out of or resulting from SAM's performance under this Agreement, provided that any such liability, claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death of any person, including but not limited to persons employed by SAM, or to injury to or destruction of real or personal property, including loss of use resulting therefrom; and (b) is caused in whole or in part by a negligent or intentional act or omission of SAM and anyone directly or indirectly employed by SAM, or by anyone for whose acts SAM may be liable.

SAM shall furnish evidence to MEMBER AGENCY that MEMBER AGENCY and its officers, directors, agents, servants and employees, are additional named insureds on all insurance obtained by SAM for services to be provided under this Agreement, which insurance shall, at a minimum, include workers' compensation coverage, public liability and property damage liability coverage of not less than \$500,000 for each person and \$1,000,000 for each incident, and thirty (30) days notice to MEMBER AGENCY of termination, cancellation, non-renewal, or change in said coverage, or change in the carrier.

In the event that SAM has duly notified MEMBER AGENCY of an item of maintenance, repair or replacement that is not within SAM's obligation to maintain, repair or replace under this Agreement or not within the monetary limits for which SAM is obligated to provide the maintenance, repair or replacement, then MEMBER AGENCY, at its sole cost and expense and at no cost or expense to SAM, shall defend, indemnify and save SAM, its officers, directors, agents, servants and employees, harmless from and against any and all liability, claims, damage, losses and expenses arising out of or resulting from MEMBER AGENCY's failure to timely perform such maintenance, repair or replacement or to otherwise provide the funds to SAM in order that SAM is able to perform such service on MEMBER AGENCY's behalf.

MEMBER AGENCY shall furnish evidence to SAM that SAM and its officers, directors, agents, servants and employees, are additional named insureds on all insurance obtained by MEMBER AGENCY related to its Sewage Collection System, which insurance shall, at a minimum, include public liability and property damage liability coverage of not less than \$500,000 for each person and \$1,000,000 for each incident, and thirty (30) days notice to SAM of termination, cancellation, non-renewal, or change in said coverage, or change in the carrier.

#### XI

#### ENTIRE AGREEMENT

This Agreement, including its attachments as referred to herein, embodies the whole agreement of the parties. This Agreement supersedes all previous communications, representations or agreements between the parties hereto, including that certain agreement, entitled "Agreement For Maintenance and Operation Services Between the Granada Sanitary District and Sewer Authority Mid-Coastside, dated November 8, 1983.

#### XII

#### PARTIAL INVALIDITY

If any part, term or provision of this Agreement is declared invalid or unenforceable by a court of competent jurisdiction, the validity of the remaining parts, terms or provisions shall not be affected, and the rights and obligations of the parties hereto shall be construed and enforced as if this Agreement did not contain the particular part, term or provision declared invalid or unenforceable.

XIII

INDEPENDENT OPERATIONS

The parties hereto expressly agree that the operation and maintenance by SAM of its wastewater interceptor, treatment and disposal system is independent of the operation and maintenance by SAM of MEMBER AGENCY's Sewerage Collection System.

XIV  
NOTICES

All notices shall be in writing and delivered in person or transmitted by certified mail, return receipt requested and postage prepaid.

Notices required to be given to MEMBER AGENCY shall be addressed as follows:

HONORABLE DISTRICT BOARD  
GRANADA SANITARY DISTRICT  
P.O. BOX 335  
EL GRANADA, CA 94018

Notices required to be given to SAM shall be addressed as follows:

SEWER AUTHORITY MID-COASTSIDE  
P. O. BOX 682  
HALF MOON BAY, CA 94019

In witness whereof, the parties have executed this Agreement as of the date first above written.

GRANADA SANITARY DISTRICT

SEWER AUTHORITY  
MID-COASTSIDE

BY *Viola Schuettram*  
President:

BY *Helin R. Bederson*  
Chairman

COUNTERSIGNED:

BY *Bonnie A. Maybury Skonek*  
Secretary:

COUNTERSIGNED:

BY *Bonnie A. Maybury Skonek*  
Secretary

## ATTACHMENT A

The services provided by SAM are divided into two categories: Basic Services and Extended Services, all as described below.

The MEMBER AGENCY shall continue to pay its own utility bills; such bills are not a part of the Agreement.

### BASIC SERVICES

#### Overview:

Basic Services are offered primarily as a preventative maintenance program for sewer lines and associated manholes. Basic Services include general inspection of lift stations but exclude detailed maintenance activity. Only minor repairs or replacement of defective parts (i.e., the entire cost of which, excluding overhead, is less than \$2,500.00 per occurrence) are included hereunder, unless the damage or defect is caused by negligent or poor workmanship of a SAM employee, in which case such dollar limit shall not apply. Any major repair or replacement (i.e., the entire cost of which is in excess of \$2,500.00) does not qualify as Basic Services. In addition, when the MEMBER AGENCY has exhausted the total funds budgeted for repairs, further non-emergency repairs do not qualify as Basic Services.

When a Basic Service repair is required under emergency conditions, SAM will make such repair immediately and inform the MEMBER AGENCY. MEMBER AGENCY shall, within 30 days upon SAM's rendering of an itemized billing therefor, reimburse SAM for all costs SAM has incurred in making such repair if the cost exceeds \$2,500.00 or the MEMBER AGENCY budgeted funds are exhausted.

The public sewer line maintenance crew will be available for emergency response on a seven-day week, 24-hour per day basis.

#### Scope of Services to be Provided:

1. Cleaning of all public sewer lines, at a minimum of one time per year, using a high-pressure cleaner.
2. Inspection and cleaning of manholes as required.
3. Servicing of areas identified by the parties to be "trouble areas" on a monthly basis.

4. Make emergency service repairs immediately, as required, and inform the MEMBER AGENCY. If cost exceeds \$2,500 limit or the MEMBER AGENCY'S budgeted funds are exhausted the MEMBER AGENCY will reimburse SAM for the repairs within 30 days upon SAM's rendering to the MEMBER AGENCY of an itemized billing therefore.
5. Respond to and unplug clogged public sewer lines, including lateral sections that are in public rights of way. Repairs and maintenance would be in conformance with MEMBER AGENCY'S regulations.
6. Under non-emergency conditions, SAM will not initiate, without MEMBER AGENCY'S prior, written approval, any sewer line or manhole maintenance, repair or replacement when the estimated costs for such exceeds \$2,500.00, or the MEMBER AGENCY'S budgeted amount is exhausted.
7. Respond to user complaints. Radio communication is available to provide ready contact to the Field Crew for response to user calls.
8. General inspection of lift and pump stations; performance of landscape maintenance to maintain the stations' acceptable appearances. Cursory inspection of lift and pump stations on a daily basis.
9. Reporting of maintenance and operation activities to each of the SAM member agencies on a monthly basis. Such activity reports will address the following items:
  - Feet of public sewer line cleaned for each member agency.
  - Manhole inspections.
  - Plugged sewer responses and disposition of each with location indicated.
  - User complaints, covering source of complaint, the nature of the complaint and the disposition of or recommendation for disposition of complaint.
  - Areas which cannot be inspected/cleaned.
  - Sewerline/manhole failures and repairs accomplished.



10. SAM will cooperate with the MEMBER AGENCY by supplying whatever information SAM has gathered in order to prepare recommendations to the MEMBER AGENCY, including emergency situations.
11. Notify the MEMBER AGENCY of any situation which comes to the attention of SAM, as a result of its provision of Basic Services under the Agreement, which needs the attention of the MEMBER AGENCY and is beyond the scope of the Basic Services to be provided by SAM under the Agreement.

#### EXTENDED SERVICES

##### Overview:

Extended Services are offered as a preventative and repair maintenance program for MEMBER AGENCY lift stations (which, for purposes hereof includes grinder pumps). Extended Services include all lift station maintenance, repairs and replacement tasks when the cost of such, except in the case of emergencies, does not exceed \$4,000.00, excluding overhead, up to the total budget amount. This program includes 24-hours per day, seven-days per week, emergency response coverage. Actual cost will be accounted for and charged against the MEMBER AGENCY, to be reconciled at the end of the then current fiscal year. At that time the respective balances will be reviewed. In the event there is a credit balance in favor of the MEMBER AGENCY, the MEMBER AGENCY may elect to be forthwith paid such balance or to have it carried forward as a credit against its budgeted amounts under this Agreement for the next fiscal year. In the event there is a debit balance in favor of SAM, it shall be forthwith paid by the MEMBER AGENCY upon billing thereof. SAM will continue to work with the MEMBER AGENCY, even if the cost exceeds \$4,000.00.

Extended Services, other than those spelled out and agreed to in the annual budget, may include administrative services to be rendered on behalf of member agencies by appending to the Agreement.

##### Scope of Services to be Provided:

1. Provision of preventative maintenance of lift stations according to factory recommended specifications. SAM will make available prepared written instructions and performance check-off lists. Verification that the work has been performed will take place as described in Paragraph 5 below.

2. Performance of all necessary repair and maintenance work necessary to keep each lift station operating at its current quality level, subject to the exceptions noted in Paragraphs 3 and 4 below. If the MEMBER AGENCY performs a capital improvement to a lift station, SAM will maintain the lift station to the new quality level.

3. Under non-emergency conditions, SAM will not initiate, without MEMBER AGENCY'S prior written approval, any lift station maintenance, repair or replacement when the estimated costs for such exceeds \$4,000.00, or the MEMBER AGENCY'S budgeted amount is exhausted.

4. When a lift station maintenance, repair or replacement is required under emergency conditions, SAM will make such maintenance, repair or replacement immediately and inform the MEMBER AGENCY. MEMBER AGENCY shall within thirty (30) days, upon SAM'S rendering of an itemized billing therefor, reimburse SAM for all costs it has incurred in making such maintenance, repair or replacement if the costs exceed \$4,000.00, or the MEMBER AGENCY'S budgeted amount is exhausted.

5. SAM will provide the following reports to each of the SAM member agencies:

(a) Immediate Action Report

This will be a notice to a member agency that a capital repair or replacement is necessary on a timely basis to prevent a major pump station failure. If the situation is urgent, this report will be preceded by immediate notification upon detection of the problem.

(b) Monthly Lift Station Maintenance Report

This report shall contain:

- (i) a balance sheet showing expenditures on behalf of member agency, year to date expenditures, total annual budget amount, and annual budget amounts unexpended, and a summary of intended repair expenses, for:
  - A. lift station parts.
  - B. lift station contractual services.
- (ii) a summary report for collection mechanic hours.

- (iii) an update of annual summary report for collection mechanic hours.
- (iv) an update of annual detail report of lift station maintenance hours specific for each member agency and each lift station.
- (v) a detail and summary reports for each member agency regarding:
  - A. incomplete work orders.
  - B. complete work orders.
  - C. part receipts.

(c) Annual Report

This report, at the end of each fiscal year, will provide to each member agency a summary of work performed. The summary will include a listing of all repair and replacement work performed, total man-hours spent in each member agency lift station, money spent in vendor services and parts purchased for the year.

(d) Other Reports

Other reporting includes a monthly Collection System Matters report to the Regional Board in the SAM Monthly NPDES Report and, in the event of a lift station overflow, Overflow Reports. In the case of an overflow, the member agency also will be immediately advised.

(e) Inventory Report

SAM will provide quarterly inventory reports describing common spares stocking and member agency specific stocking.

(f) Special Reports

By agreement between SAM and a member agency, a special report will be prepared by SAM and provided to the member agency in accordance with the terms and conditions of the Agreement.

6. Provision of administrative services on behalf of the MEMBER AGENCY. Such administrative services shall consist of the following; and shall be performed and charged for at the hourly rates as set forth in the annual Collection System Budget:

\*\* (a) Connection Permit Review

Review of sewer connection permit applicant's plans for proper identification of intended use and a review of MEMBER AGENCY'S collection system plans for availability of sewer service. Inspection of intended site location will be made for identification of appropriate conditions. All of the above will be summarized in a letter to the MEMBER AGENCY, with recommendations.

\*\* (b) Plan Review

Review of documents submitted by MEMBER AGENCY related to planning permit applications for review and recommended conditions of approval, and response to questions asked by the MEMBER AGENCY related thereto provided they are within the scope and ability of SAM to respond and under terms to be agreed upon by SAM and the MEMBER AGENCY.

\*\* (c) Connection Inspections

Provide inspection of those lateral sections and clean outs installed in public rights of way and all connections to the public sewer lines of the MEMBER AGENCY. Inspection would be for conformance with the rules and regulations of the MEMBER AGENCY.

(d) Other Administrative Services

SAM will, subject to supplemental agreement and budgeting therefor, undertake additional administrative services, such as the inspection of public sewer main extensions, under terms to be agreed upon by SAM and the MEMBER AGENCY.

7. Notify the MEMBER AGENCY of any situation which comes to the attention of SAM, as a result of its provision of Extended Services under the Agreement, which needs the attention of the MEMBER AGENCY and is beyond the scope of the Extended Services to be provided by SAM under the Agreement.

\*\* The services in 6(a), 6(b) and 6(c) above, apply only to Class 1 connection permits for residential occupancies.

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**GRANADA COMMUNITY SERVICES DISTRICT**  
**FISCAL YEAR 2016/17 SEWER DISTRICT BUDGET**

<b><u>SEWER - OPERATING REVENUES</u></b>	<b>FY 2016/17 <u>Budget</u></b>
1 . Property Tax Allocation (now allocated between sewer and parks)	\$175,000
2 . Annual Sewer Service Charges	\$ 1,296,000
3 . Reim. from A.D. - Salary and Overhead	\$34,000
4 . Recology of the Coast Franchise Fee	\$28,000
5 . Miscellaneous	\$2,000
<b>TOTAL REVENUES</b>	<b>\$1,535,000</b>

**Budget Revenue Assumptions:**

- 1 . 3,223 ERU's of sewer service charge at \$402 per ERU
- 2 . Property Tax Revenue now allocated between Sewer and Parks and Recreation departments

**GRANADA COMMUNITY SERVICES DISTRICT**  
**FISCAL YEAR 2016/17 SEWER DISTRICT BUDGET**

**SEWER - EXPENDITURES**

<b><u>SEWER - OPERATING EXPENSES</u></b>	<b>FY 2016/17 Budget</b>
1 . SAM General (Treatment and Admin.)	\$968,479
2 . SAM Collections	\$242,350
3 . Lateral Repairs	\$60,000
4 . CCTV	\$30,000
5 . Pet Waste Stations	\$1,000
6 . Plant Shortfall Debt Service (COP)	\$94,400
Sub-Total Operations Expenditures	\$1,396,229

<b><u>SEWER - ADMINISTRATIVE OPERATING EXPENSES</u></b>	<b>FY 2016/17 Budget</b>
1 . Accounting	\$30,000
2 . Auditing	\$10,000
3 . Copier Lease	\$7,000
4 . Directors' Compensation	\$11,000
5 . Education & Travel Reimbursement	\$2,000
6 . Employee Salaries	\$135,000
7 . Employee Medical, Payroll Taxes, and Retirement	\$58,000
8 . Engineering Services (General)	\$20,000
9 . Insurance	\$6,000
10 . Legal Services	\$65,000
11 . Memberships	\$10,000
12 . Newsletter	\$2,500
13 . Office Lease	\$50,000
14 . Office Maintenance and Repairs	\$2,500
15 . Office Supplies	\$6,000
16 . Professional Services - Other	\$65,000
17 . Publications & Notices	\$10,000
18 . Utilities	\$9,000
19 . Video Taping of Board Meetings	\$3,000
20 . Computers	\$2,000
21 . Miscellaneous	\$7,000
Sub-Total Administration Expenditures	\$511,000

**SEWER - TOTAL OPERATING EXPENDITURES                    \$1,907,229**

**SEWER - OPERATING NET TO/(FROM) RESERVES**

**(\$372,229)**



**GRANADA COMMUNITY SERVICES DISTRICT**  
**FISCAL YEAR 2016/17 SEWER DISTRICT BUDGET**

<b><u>SEWER - NON-OPERATING REVENUES</u></b>	<b>FY 2016/17 Budget</b>
1 . Interest on Reserves	\$17,500
2 . Connection Fees	\$30,000
3 . SAM Refund from Prior Year Allocation	\$5,000
4 . Repayment from Assessment District-Current FY	\$127,000
5 . Repayment from Assessment District-prior years	\$0
6 . ERAF Refund from Prior Year	\$260,000
<b>TOTAL NON-OPERATING REVENUES</b>	<b>\$439,500</b>

**Budget Revenue Assumptions:**

- 1 . 0.50% Interest on average yearly reserve
- 2 . 3 Connections at \$4700 per connection

**SEWER - CAPITAL PROJECTS AND RESERVE FUND BALANCE**

<b><u>SEWER - CAPITAL PROJECTS</u></b>	<b>FY 2016/17 Budget</b>
1 . Mainline System Repairs	\$10,000
2 . Sewer Main Replacement CIP	\$250,000
3 . Medio Creek crossing sewer re-alignment	\$350,000
4 . Update of Sewer System Management Plan	
5 . SAM - Capital Maintenance/Infrastructure Budget	\$214,338
<b>TOTAL CAPITAL IMPROVEMENT PROJECTS</b>	<b>\$824,338</b>

**SEWER - CAPITAL RESERVE FUND**

1 . Beginning Balance on July 1	\$4,385,000
2 . Capital Projects	(\$824,338)
3 . Transfer (to)/from Operating Budget	(\$372,229)
4 . Transfer (to)/from Non-Operating Revenues	\$439,500
<b>TOTAL RESERVE AT END OF FISCAL YEAR</b>	<b>\$3,627,933</b>

# GRANADA COMMUNITY SERVICES DISTRICT

## FISCAL YEAR 2016/17 PARKS AND RECREATION DISTRICT BUDGET

	<b>FY 2016/17</b>
	<b><u>Budget</u></b>
<b><u>PARKS AND RECREATION - OPERATING REVENUES</u></b>	
1 . Property Tax Allocation (now allocated between sewer and parks)	\$400,000
2 . Miscellaneous	\$0
<b>TOTAL REVENUES</b>	<b>\$400,000</b>
 <b><u>PARKS AND RECREATION - OPERATING EXPENDITURES</u></b>	
1 . Projects	\$75,000
2 . County staff time	\$15,000
3 . RCD	\$5,000
4 . Reimbursement to Half Moon Bay per Property Tax Agreement	\$50,000
<b>TOTAL EXPENDITURES</b>	<b>\$145,000</b>
 <b>NET TO/(FROM) PARKS AND RECREATION RESERVE</b>	 <b>\$255,000</b>
 <b><u>PARKS AND RECREATION - CAPITAL RESERVE FUND</u></b>	
1 . Beginning Balance on July 1	\$41,000
2 . Purchase of Property	(\$190,000)
3 . Transfer (to)/from Operating Revenues	\$255,000
<b>PARKS AND RECREATION RESERVE AT FYE</b>	<b>\$106,000</b>



Appendix D  
Element 5 (Design and Construction Standard) Supporting Documents

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**GRANADA SANITARY DISTRICT  
SAN MATEO COUNTY, CALIFORNIA**

**STANDARD SPECIFICATIONS  
FOR  
DESIGN AND CONSTRUCTION OF  
SANITARY SEWER COLLECTION AND  
CONVEYANCE FACILITIES**

**FEBRUARY 2003**

**Granada Sanitary District  
P.O. Box 335  
455 Avenue Alhambra #6  
El Granada, CA 94018  
(650) 726-7093**

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## **PART A**

### **GENERAL INFORMATION**

SECTION A1 - INTRODUCTION AND SCOPE

SECTION A2 - DEFINITIONS

## SECTION A1 - INTRODUCTION AND SCOPE

### A1.01 INTRODUCTION

The District's Standard Specifications have been prepared by the Granada Sanitary District to aid all persons engaged in the design or construction of sewerage facilities for the District. These specifications are periodically updated to reflect changes in the technology affecting the District's wastewater facilities.

The information contained herein is not intended to be used as a contract document either for contracts between the District and a contractor or for contracts between a subdivider or private person and a contractor. Rather, separate contract documents must be prepared for each project, with each such contract containing a "Special Provisions" section applicable to that particular project. In such contracts, construction details included herein may be included by reference.

The District Standard Specifications are divided into four parts, each of which is briefly described below:

1. Part A - General Information

Part A includes a general description of the intent and purpose of the District's Standard Specifications, a brief description of the District's Master Plan, and definitions of terms used herein.

2. Part B - Design Standards

Part B describes standards to be used in the design of all sewerage facilities for the District.

3. Part C - Construction Standards

Part C, written in the form of typical specifications, covers the District's construction standards. These standards must be followed in any work constructed for the District's acceptance, and may be included by reference in construction contracts.

4. Part D - Standard Drawings

Part D consists of twenty (20) standard drawings and details which must be followed where applicable, in any work done for the District's acceptance. Applicable standard details must be shown on construction drawings.

### A1.02 DISTRICT BOUNDARY

The boundary of the Granada Sanitary District is shown on the map on page A-04. All sanitary sewers constructed within that boundary come under the jurisdiction of the District and must comply with the standards set forth herein.

### A1.03 MASTER PLAN

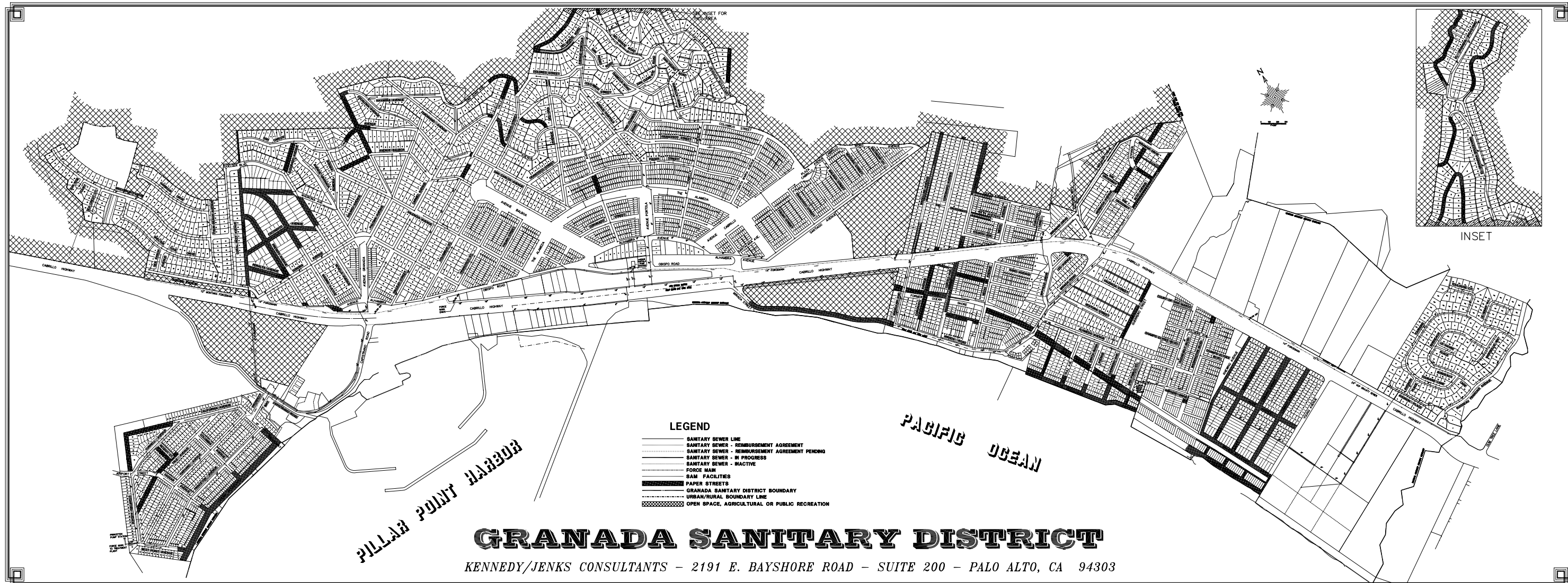
The District issued its "Master Plan" in 1979 which addressed the capacity of each sewer segment in the District. This Master Plan outlines the ability of the District to serve vacant lots in its service area and establishes a methodology for raising funds annually to meet future obligations. This document establishes also the method of charging connection fees to all potential users. Copies of the "Master Plan" are on file at the District's office for reference.

A1.04 LOCAL COASTAL PLAN (LCP)

In late 1980, the County Board of Supervisors and the California Coastal Commission approved San Mateo County's Local Coastal Plan (LCP). In April 1981, the County assumed responsibility for implementing the State Coastal Act in the unincorporated area of San Mateo County, including issuance of Coastal Development Permits.

All development in the Coastal Zone requires either a Coastal Development Permit or an exemption from Coastal Permit requirements. For a permit to be issued, the development must comply with the policies of the LCP and those ordinances adopted to implement the Plan. The project must also comply with other provisions of the County Ordinance Code, such as zoning, building and health regulations.

The LCP outlines the ability of the District to serve vacant lots in the Coastal Zone and the District has to comply with these planning requirements. Copies of the "Local Coastal Plan" are on file at the Planning Department of San Mateo County and the District's office for reference.



## SECTION A2 - DEFINITIONS

### A2.01 DEFINITIONS

Terms which appear throughout these Standard Specifications shall have the following meanings:

1. APPLICANT shall mean the person making application for a permit for a sewer or plumbing installation and shall be the owner, or his authorized agent, of the premises to be served by the sewer for which a permit is requested.
2. BOARD shall mean the Board of Directors of said District.
3. BUILDING shall mean any structure used for human habitation or a place of business, recreation or other purposes.
4. BUILDING SEWER shall mean that portion of a side sewer beginning at the plumbing or drainage outlet of any building or industrial facility and running to the property line or to a private sewage disposal system.
5. COLLECTION SYSTEM shall mean all facilities owned or constructed by the District for collecting, pumping, treating, and disposing of sewerage (except private property).
6. CITY shall mean the City of Half Moon Bay, California.
7. COMBINED SEWER shall mean a sewer which was designed to receive both surface runoff and sewage.
8. COMMERCIAL USER AND/OR INDUSTRIAL USER (both private and public) shall mean any user of the sewage works of the District located on property or in structures not classified as a single family unit or multiple dwellings.
9. CONTRACTOR shall mean an individual, firm, corporation, partnership, or association duly licensed by the State of California who shall do work for the District's acceptance.
10. COUNTY shall mean the County of San Mateo, California.
11. DAY shall mean a calendar day of 24 hours.
12. DISTRICT shall mean the Granada Sanitary District (GSD). See the map showing the District boundaries in this section.
13. DISTRICT ENGINEER as used in these specifications shall be taken to designate the party or parties authorized or employed by the District to observe completed work, and to observe their general compliance with plans, specifications, design and planning concept. Kennedy/Jenks Consultants located at 2191 E. Bayshore Rd., Palo Alto, CA 94303 serves as the District Engineer.
14. DISTRICT MANAGER shall mean the person or persons appointed by the Board to administer and enforce the rules and regulations of the District.
15. DWELLING shall mean any house, duplex, apartment, commercial establishment, or any other building to be connected to a public or main sewer.
16. FORCE LATERAL shall mean that portion of pressurized side sewer located in a public street

connecting a building sewer to the main sewer.

17. GARBAGE shall mean solid wastes from the preparation, cooking, and dispensing of food and from the handling, storage, and sale of produce.
18. LATERAL SEWER (SERVICE LATERAL) shall mean the portion of a side sewer lying within a public street connecting a building sewer to the main sewer.
19. MAIN SEWER shall mean a public sewer designed to accommodate more than one lateral sewer.
20. MULTIPLE DWELLING shall mean a building containing two or more units for rental, lease, or similar legal instrument, for residential occupancy purposes, including, but not limited to the following: Hotels, Motels, Auto Courts, Trailer Courts, Mobil Home Parks, Apartment Houses, Duplexes, Rooming Houses, Boarding Houses, and Dormitories.
21. ORDINANCE shall mean Ordinance Number 57 adopted by the District in 1984, and amendment thereto. The Ordinance outlines procedures to be followed in the design, construction, and use of sewerage facilities for the Granada Sanitary District.
22. OUTSIDE SEWER shall mean a sanitary sewer beyond the limits of the District not subject to the control or jurisdiction of the District.
23. PERMIT shall mean any written authorization required pursuant to this or any regulation of the District for the installation of any sewerage works.
24. PERSON shall mean any human being, individual, firm, company, partnership, association and private or public and municipal corporation, the United States of America, the State of California, Districts, and all political subdivisions, governmental agencies and mandatories thereof.
25. PRIVATE SEWER shall mean that portion of a sewer serving an independent sewage disposal system not connected with a public sewer and which accommodates one or more buildings or industries.
26. PUBLIC NUISANCE shall mean continued habitation of any building or continued operation of any industrial facility in violation of the provisions the District's Ordinances, rules or regulations of the District.
27. PUBLIC SEWER shall mean a sewer lying within a street or easement, and which is controlled by or under the jurisdiction of the District.
28. SANITARY SEWER shall mean a sewer which carries sewage and to which storm, surface, and ground waters are not intentionally admitted.
29. SEWAGE shall mean a combination of water-carried wastes from residences, business buildings, institutions, and industrial establishments.
30. SEWAGE TREATMENT PLANT shall mean any arrangement of devices and structures used for treating sewage.
31. SEWAGE WORKS shall mean all facilities owned or controlled by the District for collecting, pumping, treating, and disposing of sewage (Except private sewers).
32. SEWER shall mean a pipe or conduit for carrying sewage.



33. SIDE SEWER shall mean the sewer line connecting any dwelling to a public sewer beginning at the foundation wall of any building and terminating at the main sewer and includes the building sewer and lateral sewer together.
34. SINGLE DWELLING UNIT. A single dwelling unit is defined to mean and refer to the place of residence, detached or attached unit, that can be legally owned by the occupant or occupants, including, but not limited to, condominiums, townhouses, houses or similar design.
35. STANDARD SPECIFICATIONS shall mean a set of documents containing design and construction standards for all sewerage works within the District (i.e., this set of documents).
36. STORM SEWER OR STORM DRAIN shall mean a sewer which carries storm and surface ground waters and drainage, but excludes sewage and polluted industrial wastes.
37. STREET shall mean any public highway, road, street, avenue, alley, way, public place, public easement, or right of way.
38. TRENCHLESS REPLACEMENT shall mean a method of sewer replacement in which existing sewers are replaced by means other than the conventional open-cut trench method.
39. USER shall mean any owner, possessor, tenant, occupier, inhabitant, holder or person owning or occupying premises which are connected directly or indirectly with the sewage works of the District.
40. WASTEWATER FACILITIES shall mean any part of the sewage collection, treatment, and disposal system of the District.

END PART A

**PART B**  
**DESIGN STANDARDS**

- SECTION B1 - GENERAL REQUIREMENTS
- SECTION B2 - GRAVITY SEWERS, FORCE MAINS, AND PUMPING STATIONS

## SECTION B1 - GENERAL REQUIREMENTS

### B1.01 SCOPE

This section covers the general design requirements and design criteria applicable to the sewerage system as a whole.

### B1.02 DESIGN CALCULATIONS

Design calculations submitted for District review shall be in a neat, acceptable form, and shall indicate the date, signature of the supervising engineer, and the engineer's State of California Engineering Registration Number and expiration date.

#### 1. When Required

Design calculations will be required for all mainline extensions including residential subdivisions, commercial and industrial sewers, or where, in the judgement of the District Engineer, they are necessary.

#### 2. Sewers and Pipelines

Design calculations for sewers and pipelines shall be presented in tabular form and shall include the following information for each section of sewer:

- a. Terminal manhole designations (Basin name followed by manhole number, for example – B32)
- b. Ground elevation at each manhole
- c. Invert elevation at each manhole
- d. Length of sewer run
- e. Sewer size
- f. Pipe size
- g. Pipe slope
- h. Pipe capacity
- i. Incremental and cumulative tributary area
- j. Incremental and cumulative tributary population
- k. Incremental average and maximum domestic sewage flow
- l. Incremental infiltration allowance
- m. Cumulative design flow
- n. Velocity at design flow

3. Pumping Stations

Design calculations for pumping stations shall include soils data, structural design calculations, hydraulic calculations including the basis for average and peak flows, calculations for wet well volume, curves indicating force main characteristics, and individual and combined pump head-capacity curves.

B1.03 UNIT DESIGN FACTORS

1. Population Densities

Population densities for determining ultimate tributary population shall be as indicated in the District's "Master Plan" of 1979 on file at the District's Office. Indicated densities shall be modified where conditions are known to be different. In the case of such modification, the applicant shall submit substantiating data.

2. Sewage Flow

- a. Per Capita Domestic Sewage Flow. The average dry weather per capita domestic flow shall be 90 gallons per day.
- b. Domestic Flow Per Single Family Dwelling. The average dry weather flow per single family dwelling and/or equivalent shall be 221 gallons per day.
- c. Ratio of Peak to Average Flow. The ratio of peak to average dry weather sewage flow is a function of the tributary population, and the tabulated values below shall be used.

<u>TRIBUTARY POPULATION</u>	<u>RATIO OF PEAK TO AVERAGE SEWAGE FLOW</u>
1,000 and less	2.50
2,000	2.25
3,000	2.15
4,000	2.05
5,000	1.98
10,000	1.82
20,000	1.68
50,000	1.55

- d. Acreage Flow - Unit loadings for special design guidance, subject to District review, are as follows:

	<u>AVERAGE FLOW GALLONS PER ACRE PER DAY</u>	<u>PEAK FLOW GALLONS PER ACRE PER DAY</u>
Commercial Areas	1,500	4,500
Industrial Areas	2,000	4,000

- e. Infiltration. The infiltration rate shall not exceed 500 gallons per day per inch diameter per mile of length for all new sewers.
- f. Inflow Sources. No inflow sources which include rainwater, stormwater, groundwater, street drainage, subsurface drainage, roof drainage, yard drainage, and water from yard fountains, ponds, lawn sprays or swimming pools or any other uncontaminated water shall be discharged into the public sewer.

## SECTION B2 - GRAVITY SEWERS, FORCE MAINS, AND PUMPING STATIONS

### B2.01 SCOPE

This section covers basic design criteria and standards relating to gravity sewers, force mains, and pumping stations.

### B2.02 GRAVITY SEWERS

#### 1. Minimum Size Main Sewer

The minimum diameter for main sewer shall be 6-inches.

#### 2. Minimum Size Side Sewer

The minimum diameter for side sewers shall be 4-inches. For side sewers serving commercial or industrial buildings, or multiple family living units having more than three units, the minimum diameter shall be 6-inches.

#### 3. Minimum Slopes

The minimum slope of side sewers shall be 2 percent for 4-inch sewers and 1 percent for 6-inch sewers. The minimum slope for main sewers shall be that required to obtain a velocity of 2 feet per second when the sewer is flowing full or one-half full. For the purpose of computing the velocity, the Manning's coefficient of roughness "n" shall be 0.013 for all sewers.

#### 4. Steep Slopes

Special design features may be required for main sewers installed on steep slopes. Depending upon conditions of the specific installation, such items as underdrains, check dams, special anchorage, or special pipe material may be required. Based upon data supplied, the District Engineer will assess each case and recommend certain special requirements.

#### 5. Minimum Depth

The minimum depth of cover for any public sewer shall be 3 feet. The standard depth of cover for any main sewer shall be 4 feet. If it is impossible to obtain the standard depth of cover, the depth of cover over the main shall be between the standard and minimum depths. If it is impossible to obtain the specified minimum depth, the sewer shall be constructed using pipe approved by the District Engineer or if approved by the District Engineer, covered by a concrete cap for the entire length shallower than 3.0 ft., as shown on District Standard Drawing No. 7 or constructed using pipe approved by the District Engineer, refer to Section C5 Pipelines and Sewers.

For side sewers, minimum depths of cover shall be as follows:

- a. At the property line - 3 feet.
- b. From property line to within eight feet of the building plumbing - 2.5 feet.
- c. At the building plumbing connection - 1.5 feet.

Where the minimum depths of cover listed above are impossible to obtain, the use of ductile iron or concrete caps shall be required.

6. Manholes

Manholes shall be provided at every line or grade change and at every point where the sewer changes size. In addition, manholes shall be provided at maximum intervals of 300 feet on sewers 21-inches in diameter and smaller, and 500 feet on sewers larger than 21-inches in diameter.

7. Flushing Inlets or Rod Holes

Flushing inlets or rod holes will be permitted upon approval by the District Engineer only on dead-end runs where the length of sewer downstream to the next manhole is less than 150 feet.

8. Types of Pipe Permitted

Complete specifications for all approved pipe materials are given in Article C5.02. Limitations on the use of specific pipe materials are listed below.

- a. Gravity Sewers. Corrugated metal, vitrified clay pipe, and reinforced concrete pipes will not be permitted except where specifically approved by the District Engineer. Asbestos cement pipe is not permitted.
- b. Force Mains. In general, any pressure pipe material listed in Article C5.02 may be used. Asbestos cement pressure mains are not permitted.

The District Engineer shall be the sole judge as to what types of pipe may or may not be used for each specific project.

9. Cleanouts

Each side sewer shall have a cleanout installed on the property within 5 feet of the property line, as shown on District Standard Drawing No. 10.

10. Backwater Overflow Device or Check Valve

Side sewers connecting houses having a finished floor elevation twelve (12) inches or less above the top elevation of the nearest upstream structure (manhole) shall have a Backwater Overflow Device installed on them at a suitable location next to the cleanout. When conditions exist where the sewage cannot overflow on the area surrounding such installation without damage to property, a Backwater Check Valve shall be installed at the property Owner's option and risk as shown on District Standard Drawing No. 16. This requirement applies to residential connections. Non-residential connections are not required to comply with this requirement.

B2.03 FORCE MAINS

Force mains shall be designed using a Hazen and Williams coefficient for roughness "C" of 100.

## B2.04 PUMPING STATIONS

Certain basic requirements for pumping station design are listed below.

### 1. Stand-by Power

Each pumping station must be equipped with a source of stand-by or emergency power which will automatically start upon the failure of external power. In special cases, this requirement may be waived by the District Engineer.

### 2. High Water/Power Failure Alarms

Each pumping station must be equipped with the necessary electrical equipment to transmit high water and/or power failure alarms over a leased telephone circuit to a remote location.

### 3. Architectural Considerations

Each pumping station must blend harmoniously with neighboring structures. Architectural considerations include superstructure, ornamental fence, and landscaping.

### 4. Standby Pumps

Each pumping station must have standby pumping capacity equivalent to the peak wet weather flow of the facility.

## B2.05 GREASE AND GRIT INTERCEPTOR

When the property requires grease and/or grit removal, the interceptor shall meet the requirements of the latest edition of the Uniform Plumbing Code, Appendix H, Table H-1. See Standard Detail No. 20.

END PART B



**PART C**

**CONSTRUCTION STANDARDS**

- SECTION C1 - SPECIAL CONDITIONS AND CONSTRUCTION REQUIREMENTS
- SECTION C2 - EARTHWORK
- SECTION C3 - CONCRETE WORK
- SECTION C4 - METALWORK
- SECTION C5 - PIPELINES AND SEWERS
- SECTION C6 - PAINTING
- SECTION C7 - RESURFACING
- SECTION C8 - SEWER LINE CLEANING
- SECTION C9 - SEWER FLOW CONTROL
- SECTION C10 - TELEVISION INSPECTION
- SECTION C11 - SMOKE TESTING
- SECTION C12 - PRIVATE PUMPING SYSTEMS

## SECTION C1 - SPECIAL CONDITIONS AND CONSTRUCTION REQUIREMENTS

### C1.01 ARRANGEMENT OF SPECIFICATIONS

The Construction Standards are arranged in sections covering various phases of the work as follows:

<u>SECTION NUMBER</u>	<u>TITLE</u>
C1	Special Conditions and Construction Requirements
C2	Earthwork
C3	Concrete Work
C4	Metalwork
C5	Pipelines and Sewers
C6	Painting
C7	Resurfacing
C8	Sewer Line Cleaning
C9	Sewer Flow Control
C10	Television Inspection
C11	Smoke Testing

### C1.02 STANDARD SPECIFICATIONS

Whenever Standard Specifications, codes, or regulations are referred to, they shall be the latest edition of those specifications, codes, or regulations, and they shall be considered to be a part of these standards insofar as they apply. Such documents from the following sources may be referred to herein:

- American Association of State Highway and Transportation Officials (AASHTO)
- American Concrete Institute (ACI)
- American Gas Association (AGA)
- American Institute of Electrical Engineers (AIEE)
- American Institute of Steel Construction (AISC)
- American Iron and Steel Institute (AISI)
- American National Standards Institute (ANSI)
- American Public Works Association (APWA)
- American Society for Testing and Materials (ASTM)
- American Society of Civil Engineers (ASCE)
- American Society of Heating, Refrigeration & Air Conditioning Engineers (ASHRAE)
- American Society of Mechanical Engineers (ASME)
- American Water Works Association (AWWA)
- American Welding Society (AWS)
- State of California, Department of Transportation (CALTRANS)
- State of California, Division of Occupational Safety and Health (CAL OSHA)
- Federal Environmental Protection Agency (EPA)
- Federal Specifications (Fed. Spec)
- National Electrical Code (NEC)
- National Electrical Manufacturers Association (NEMA)
- National Electric Safety Code (NESC)
- National Lumber Manufacturers Association (NLMA)
- Underwriter's Laboratories, Inc. (UL)
- Uniform Building Code (UBC)
- Uniform Plumbing Code (UPC)

C1.03 EXISTING UTILITIES

The Contractor shall maintain all water or sewer lines, lighting, power or telephone conduits, structures, house connection lines, and other surface or subsurface structures of any nature that may be affected by the work. Should it be necessary in the performance of the work to disconnect or reroute any underground utility, or should any such utility be damaged during construction, all expenses of whatever nature arising from such disconnection, rerouting, damage or replacement shall be borne by the Contractor.

The District reserves the right, if requested by the utility owner, to permit the Contractor to move or maintain any such conflicting utility at the Contractor's expense.

The right is reserved by the State, the County, the City or the District, and by owners of public utilities, to enter upon any street or road right-of-way, or easement for the purpose of maintaining their property and for making necessary repairs or changes caused by the work.

C1.04 DUST CONTROL

Reasonable means shall be provided to prevent a nuisance occurring due to dust from areas under construction. Such means shall include watering and sweeping, and in cases of extreme nuisance, light oiling of the affected surface.

C1.05 ENCROACHMENT PERMITS

Before any construction commences, the Contractor shall obtain and provide the District with a copy of any Encroachment Permit from the jurisdiction in which the work is located. All work done in City and County street shall be subject to the requirements of the City and/or County as included in the Encroachment Permit.

C1.06 WORK WITHIN RAILROAD AND HIGHWAY RIGHT-OF-WAYS

Construction within the Railroad and State Highway right-of-ways shall be subject to utility Encroachment Permits provided by the Railroad Company or CalTrans.

C1.07 WORK IN EASEMENTS

Before construction commences on an easement, the District must have in its possession a signed copy of the Deed of Easement. Should an area greater than that included in the easement be required for construction purposes, the Contractor shall negotiate for use of the additional area from the property owners. Fences, structures, and landscaping within the easement which are removed and damaged by the Contractor shall be restored as nearly as possible to their original condition at the Contractor's expense. Any damage caused by the Contractor's operations shall be the Contractor's responsibility.

C1.08 OPERATION OF EXISTING FACILITIES

Existing sewerage facilities shall be maintained in service at all times. The Contractor shall devise acceptable methods for maintaining continuity of service equal to that which existed prior to construction.

Existing sewer manholes to be abandoned shall be filled with sand, and their frames and covers shall be salvaged by the Contractor. These District owned frames and covers shall be delivered by the Contractor to a location within the District designated by the District Engineer.

The Contractor shall notify the District in writing at least two days in advance before a new sewer line is to be connected to an existing sewer.

To prevent dirt, rocks, and other debris from entering the sewerage system, the Contractor shall install and maintain an acceptable grit interceptor in a manhole designated by the District Engineer.

#### C1.09 SAFETY AND HEALTH PROVISIONS

The Contractor shall conform to all applicable occupational safety and health standards, rules, regulations and orders established by Federal and State Agencies.

All working areas utilized by the Contractor to perform work during the hours of darkness, shall be lighted to conform to the minimum illumination intensities established by California Division of Occupational Safety and Health Construction Safety Orders. (CAL OSHA).

All lighting fixtures shall be mounted and directed in a manner precluding glare to approaching traffic.

Specific attention is directed also to OSHA safety rules, regulations and precautions to be taken by the Contractor before entering sanitary sewer manholes and other manhole subsurface structures with respect to physical and chemical hazards which may be present. In addition the Contractor shall meet the following requirements.

1. All trenches, manhole pits, etc. shall be covered at the end of the day and made safe by the use of plates, barricades, etc.
2. No work will be performed within the drip-line of any tree without special authorization.
3. No noise levels shall be beyond the range allowed by the controlling jurisdiction.
4. When by-pass pumps are used, take all precautions possible to prevent harm to the public, i.e. fences, barricades.
5. No person shall enter a manhole without first sampling the air and providing all OSHA required protection.

Full compensation for conforming to the requirements of this section shall be considered as being included in the contract prices paid for the various items of work involved and no separate payment will be made therefore.

#### C1.10 HAZARDOUS MATERIALS

If the Contractor encounters material on the site which it reasonably believes may contain asbestos, polychlorinated biphenyl (PCB) or other suspected hazardous materials, the Contractor shall stop work in the affected area and shall notify the District. The Contractor shall proceed with analysis, removal, and disposal of the material according to applicable federal and state guidelines.

## SECTION C2 - EARTHWORK

### C2.01 SCOPE

Earthwork includes all plant, labor, equipment, appliances, and materials as required or necessary to clear and grub, sheet and shore, dewater, excavate, trench, fill, backfill, and grade for the construction of structures, sewers, and graded areas.

### C2.02 GENERAL REQUIREMENTS

#### 1. Control of Water

The Contractor shall furnish, install, and operate all necessary machinery, appliances, and equipment to keep excavations reasonably free from water during construction and he shall dispose of the water so as not to cause injury to public or private property, or to cause a nuisance or a menace to the public. He shall at all times have on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies and shall have available at all times competent mechanics for the operation of all pumping equipment.

The control of ground water shall be such that softening of the bottom of the excavation, or the formation of "quick" conditions or "boils" shall be prevented. Dewatering systems shall be designed to operate so as to prevent the removal of the natural soils.

During excavation, installation of sewers, placing of trench backfill, and the placing and setting of concrete, the excavation shall be kept reasonably free of water. When specified, the static water level shall be drawn down below the bottom of the excavation so as to maintain the undisturbed state of the natural soil and to allow the placement of backfill to the required density. The dewatering system shall be installed and operated so that the ground water level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property.

The release of ground water to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soil, prevent disturbances of compacted backfill, and prevent floatation or movement of structures and sewers.

#### 2. Excavated Material

Arrangements for disposing of excess excavated material unsuitable for backfill shall be made by the Contractor at his own expense. Excavated material suitable for backfill shall be stored temporarily in such a manner as will facilitate work under the contract.

#### 3. Shoring, Sheeting and Bracing

Pursuant to state law, all open excavations greater than four feet in depth shall be constructed with bracing, shoring, and steel sheeting or other equivalent methods designed to protect life and limb.

Where sheet piling, shoring, sheeting, bracing, or other supports are necessary, they shall be furnished, placed, maintained and removed by the Contractor. At all times the rules of the California Department of Industrial Relations, Division of Industrial Accidents, with respect to excavation and construction shall be strictly observed. Sheet piling and other supports shall be withdrawn in such a manner as to prevent subsequent settlement of the pipe, or additional backfill on sewer lines which might cause overloading.

The design, planning, installation, and removal of all shoring, sheeting, and bracing shall be

accomplished in such a manner as to maintain the required excavation and trench section and the undisturbed state of the soil adjacent to the trench and below the excavated trench bottom.

4. Removal of Obstructions

The Contractor shall remove, or cause to be removed, all trees, including stumps, fences, and all structures where the proper construction and completion of the work require their removal. The Contractor shall also remove all rock, stones, debris, and obstructions or whatsoever kind or character, whether natural or artificial, encountered in the construction of the work.

Material that is removed as hereinabove specified, and is not to be incorporated in the improvement being constructed, shall be disposed of according to applicable laws by the Contractor at his expense.

C2.03 EXCAVATION AND BACKFILL FOR STRUCTURES

1. Excavation

The site shall be cleared of all natural obstructions, pavement, utilities, and other items which will interfere with construction. Unless otherwise specified, any method of excavation may be employed which, in the opinion of the Contractor, is considered best.

Ground shall not be dug by machinery closer than 3 inches from any finished subgrade without the express approval of the District Engineer. The last 3 inches shall be removed without disturbing the subgrade. Should the excavation be carried below the required lines and grades because of the Contractor's operations, the Contractor shall refill such excavated space to the proper elevation in accordance with the procedure specified for backfill, or if under footings, the space shall be filled with concrete as directed by the District Engineer.

Where, in the opinion of the District Engineer, the undisturbed condition of the natural soil is not adequate to support the structure, the District Engineer shall direct the Contractor to overexcavate to adequate supporting soil and refill the overexcavated space. The quantity and placement of such material shall be as ordered by the District Engineer.

Excavation shall extend a sufficient distance from walls and footings to allow for placing and removal of forms, installation of services, and for inspection, except where concrete is authorized to be deposited directly against excavated surfaces or against existing concrete surfaces.

2. Backfilling

After completion of foundation footings and walls, and of other construction below the elevation of the final grade, all forms shall be removed and the excavation shall be cleaned of all debris. Substructure surfaces shall be waterproofed if required and as specified. Sheet piling shall not be removed until backfilling operations are completed.

Backfill shall be composed of clean natural material or imported material acceptable to the District Engineer. Backfill shall be placed in layers not exceeding 8 inches in loose depth and compacted by tamping or rolling. Jetting is not permitted.

Regardless of the method of compaction, the final density shall not be less than 90 percent of maximum density at optimum moisture as determined by AASHTO T180 or by California Test 216. The final relative density of the backfill shall be 95 percent in paved and/or traffic areas.

C2.04 EXCAVATION AND BACKFILL FOR SEWER LINES

1. Excavation

Unless otherwise indicated on the plans or in the special conditions, excavation for sewer lines shall be by open cut. Trenching machines may be used except where their use will result in damage to existing facilities. For sewers to be constructed in filled areas, the entire area fill shall be placed and compacted to at least five feet above the proposed sewer invert before the sewer trench is excavated.

Trenches shall be excavated at least 6 inches below the barrel of the pipe and the bottom refilled with select imported material of the type specified under Article C2.04 2a - Bedding Material.

The maximum allowable width of trench measured at the top of the pipe shall be the outside diameter of the pipe, exclusive of bells and collar, plus 24 inches, and such maximum width shall be inclusive of all trench timbers. A minimum of 6 inches shall be maintained between pipe and trench wall. Whenever the maximum allowable trench width is exceeded for any reason, the Contractor shall embed or cradle the pipe in a manner satisfactory to the District Engineer.

Excavation 5.0 feet and deeper shall be supported as set forth in the rules, orders and regulations of the California Department of Industrial Relations, Division of Industrial Accidents. Sheet piling and other timbers shall be withdrawn so as to prevent subsequent settlement of the pipe, or additional backfill that might overload the pipe. No sheeting will be withdrawn from below the top of the pipe after completion of backfill to that level.

2. Trench Backfill

a. Bedding Material. After the pipe has been properly laid and inspected, select backfill material shall be placed under and around the pipe to a depth of 12 inches above the top of the pipe and shall be thoroughly consolidated to a final density of at least 90 percent of maximum density as determined by AASHTO T180 or by California Test 216. Consolidation shall be obtained by mechanical means. The select material shall be free from organic matter, and of such size and gradation that the desired compaction can be readily attained. The size of gradation shall fall within the following limits.

Bedding Material: Granular Bedding Requirements (ASTM D448 Size #67 and California Test 202).

<u>SIEVE SIZE</u>	<u>PERCENTAGE PASSING SIEVE</u>
1 inch	100
3/4"	90-100
3/8"	20-55
No. 4	0-10
No. 8	0-5

b. Subsequent Backfill. Above the level of bedding material, the trench shall be filled with structural backfill material as designated on the Plans and Specifications. Backfill shall be placed in layers not exceeding 8 inches in loose depth and compacted by mechanical means to a density of not less than 95 percent maximum density at optimum moisture as determined by California Test 216 or 231 (Nuclear Gauge).

The size of gradation shall fall within the following limits:

¾" Class 2 AB  
(CalTrans Standard Specifications Paragraph 26-1.02 A)

<u>SIEVE SIZE</u>	<u>PERCENTAGE PASSING SIEVE</u>
1-1/2"	100
3/4"	80-100
No. 4	30-60
No. 30	5-35
No. 200	0-12

The finishing of the roadway (aggregate base and asphalt concrete) shall match the existing finishing and be constructed to the requirements of San Mateo County or the City, whichever requirements apply.

#### C2.05 CLEANUP

After completing all piping earthwork, the Contractor shall leave the site in a neat and clean condition, doing such grading as is required by the Drawings, or if not called for, to restore the site to its original shape and configuration. Any existing features, improvements, structures, and other facilities damaged or affected by the work shall be replaced, repaired, or restored to their original condition or better.



## SECTION C3 - CONCRETE WORK

### C3.01 SCOPE

Concrete work includes the construction of all manholes, footings, slabs, walls, supports, and other concrete items, complete with metal reinforcement.

### C3.02 MATERIALS

#### 1. Cement

Cement shall conform to ASTM C150 Type II. Only one brand of cement shall be used for exposed architectural concrete throughout one structure or composite element. Insofar as possible, all cement used in the work shall be taken from stock bins at the place of manufacture.

Cement brought to the site of the work shall at all times be suitably stored and protected from exposure to the atmosphere. In the event the cement shows signs of deterioration, it shall be removed from the work unless additional tests show that it conforms to the requirements stated above.

#### 2. Aggregate

Fine and coarse aggregate for concrete shall conform to ASTM C33 or to CalTrans Standard Specifications Section 90-2.02 "Aggregates" with the appropriate Test Methods designated therein. In reinforced concrete maximum size of aggregate shall be 1-1/2 inches except in slabs and walls 8 inches or less where 3/4 inch maximum aggregate shall be used.

#### 3. Water

Water shall be any potable water, clean and free from injurious amounts of oil, acid, alkali, and organic materials.

#### 4. Reinforcing Steel

Reinforcing steel shall consist of polyethylene-coated deformed bars and wire reinforcement. Steel shall conform to ASTM A615 Grade 60. Deformation shall conform to ASTM A615. Wire reinforcement shall conform to ASTM A185, with mesh and wire sizes as indicated on the plans.

#### 5. Waterstops

Waterstops embedded in the concrete shall be 6 inch polyvinyl chloride. A sample shall be submitted to the District Engineer for approval. Waterstops shall be installed in as long lengths as possible. Joining splices and corners shall be heat fused in accordance with manufacturer's recommendations. Waterstops shall be used around plastic pipes that penetrate concrete walls or manhole bases. Waterstops for each pipe type shall be as recommended by the pipe manufacturer.

#### 6. Joint Filler

Preformed joint fillers shall conform to ASTM D1751.

7. Joint Sealant

- a. General. For below ground installation or in areas not subject to architectural consideration, joint sealers shall be of the mastic type. For above ground installations or where architectural appearance is important joint sealers shall be of the rubber sealant type.
- b. Underground Sealant. For sealing non-moving underground joints, construction joints and grooves in slabs, the sealant shall be "Permapol RC-550 Sealant" as manufactured by Products Research and Chemical Corporation, Gloucester City, New Jersey, and distributed by Sherwin Williams Company, Emeryville, California, or equal. The product is a two-component, nonsag, elastomeric epoxy sealant. Color shall be black. Application shall be as recommended by the manufacturer.
- c. Aboveground Sealant. For sealing exterior joints subject to structural movement, and for weathertight joints between various materials the sealant shall be "PRC Rubber Caulk 7000 Sealant" as manufactured by Products Research and Chemical Corporation, Gloucester City, New Jersey and distributed by Sherwin Williams Company, Emeryville, California, or equal. The product is a one-part low-modulus, polysulfide elastomer. Color shall match material being applied to. Application shall be as recommended by the manufacturer.

C3.03 CONCRETE

1. Quality

Concrete shall be composed of cement, natural or crushed aggregate, and water proportioned and mixed as hereinafter specified. Pozzolan and water reducing air entraining agent shall be used when specified by the District Engineer. All concrete work shall be accomplished in compliance with ACI standards. The exact proportions of cement and aggregate shall be such as to produce a workable, strong, dense, impermeable concrete having approximate consistency and strength:

- a. Consistency. The quantity of water required for the proper consistency of the concrete shall be determined by the slump test, in accordance with ASTM C143. Slump allowances shall be as follows:

Vertical wall sections, columns: maximum slump, 4 inches plus or minus 1 inch tolerance.

Floor slabs, beams, and footings: maximum slump, 3 inches plus or minus 1/2 inch tolerance.

- b. Strength. Compressive strength shall be determined at the end of 28 days on standard 6 X 12 inch test cylinders in accordance with ASTM C39. The minimum compressive strength shall be 3,000 pounds per square inch.
- c. Tests. Test shall be made by the District Engineer of the materials and of the resulting concrete at such intervals as deemed necessary by the District Engineer. The concrete mix shall be changed whenever, in the opinion of the District Engineer such change is necessary or desirable to secure the required workability, density, impermeability, and strength.

2. Batching

Concrete batching equipment shall be provided to determine and to control accurately the relative amounts of cement, water, sand, and each individual size of coarse aggregate entering into the concrete. Sand, cement, and coarse aggregate shall be measured by direct weighing.

Water shall be determined by direct weighing or by volumetric measurement. Equipment and its operation shall be subject at all times to the approval of the District Engineer.

3. Mixing

When authorized by the District Engineer, concrete may be mixed in a batch mixer of approved type which will insure a uniform distribution of the materials throughout the mass, so that the mixture is uniform in color and homogeneous. The mixer shall be equipped with a suitable charging hopper, a water storage and water measuring device controlled from a case which can be kept locked and so constructed that the water can be discharged only while the mixer is being charged. The entire contents of the mixing drum shall be discharged before recharging. The mixer shall be cleaned at frequent intervals while in use. The volume of mixed material per batch shall not exceed the rated capacity of the mixer.

4. Transit Mixed Concrete

Transit mixed concrete shall be used, provided that all of the above requirements pertaining to batching, mixing, and placing are complied with, and provided further that the concrete shall be placed within 2 hours after water is first added to the batch. Transit mixed concrete shall comply with all provisions of ASTM C94.

C3.04 MORTAR AND GROUT

Mortar shall consist of 1 part by volume of cement and 1 1/2 parts by volume of sand. Grout shall consist of 1 part by volume of cement and 1 part by volume of sand.

Mortar and grout shall be mixed in a suitable mixer in a watertight mixing box. The material must be thoroughly mixed dry until the mass assumes a uniform color and then sufficient water added to bring the mixture to a workable consistency. No mortar or grout which has begun to set shall be used, and no retempering thereof will be permitted.

C3.05 PRECAST CONCRETE MANHOLES

Manholes shall be precast concrete and shall conform to the details shown on District Standard Drawing No. 3. Materials shall conform to ASTM C478, and CalTrans Standard Specifications Section 90-2 "Materials".

Pipe stubs for lateral sewers shall be built into the structures as required; the outer ends shall be sealed securely by a cap or stopper of the same material as the branch. In laying pipe up to the structures, the pipe shall not project beyond the inside of the wall of the structure and in no case shall the socket of a vitrified clay pipe be built into the wall of a structure.

Joints in precast manhole shafts shall be made by buttering with mortar the joint space previously laid. After placing the next section, excess mortar squeezed from joint shall be removed and the joint area troweled smooth. Special precautions shall be taken to see that the entire joint space is filled with mortar.

Joints for precast manhole pipe sections may also be sealed by using "Ram-Nek", a preformed plastic material manufactured by K.T. Snyder Co., Houston, Texas, following the company's recommendations and Federal Specification SS-S-00210 (GSA-FSS).

Where the vertical distance from the pipe invert to finished grade is less than 3 feet, the manhole shall be constructed from reinforced concrete in a manner acceptable to the District Engineer.

### C3.06 SPECIAL CONCRETE STRUCTURES

#### 1. Forms

Forms for concrete construction shall be of wood or steel. For surfaces not exposed to view, such as backfilled walls, the forms may be metal or smooth boards free from large or loose knots. For other surfaces, the forms shall be waterproof plywood, tongue and groove sheeting, or metal. All forms shall be true, rigid, tight, thoroughly braced, and sufficiently strong to carry all loads.

Bolts, rods, or single wires shall preferably be used for internal ties and if used shall be so arranged that when the forms are removed no metal shall be within 1 inch of any surface. Twisted wire ties will not be permitted in the forms for any wall later to be subject to water pressure. The Contractor shall take due precautions to prevent future leakage or seepage along ties in all walls which will be subject to water pressure. Ties used in all such walls shall be cut back into the face of the wall at least 1 inch and the resulting holes pointed up with 1:1 1/2 mortar, cement to sand by volume.

#### 2. Placing Reinforcing Steel

Reinforcing steel, before being positioned, shall be cleaned thoroughly of mill and rust scale or other coatings that will destroy or reduce the bond. Reinforcement appreciably reduced in section shall be rejected. Where there is delay in depositing concrete, reinforcement shall be inspected and, when necessary, cleaned. All bars shall be bent cold, shall be positioned accurately, and secured against displacement by using annealed iron wire or suitable clips.

#### 3. Inserts

Where pipes, castings, or conduits are to pass through concrete walls, the Contractor shall place such pipes or castings in the forms being poured in the concrete, or in special cases, with the express consent and approval of the District Engineer, shall build approved boxes in the forms to make cored openings for subsequent insertion of such pipes, castings, or conduits. To withstand water pressures and to insure watertightness around openings so formed, the boxes or cores shall be provided with continuous keyways with waterstops all around, and they shall have a slight flare to facilitate grouting and the escape of entrained air during grouting.

Additional reinforcement shall be provided around such openings, if large, to meet the approval of the District Engineer. The pipes, castings, or conduits, as specified, shall be grouted in place by pouring in grout under a head of at least 4 inches. The grout shall be poured and rammed or joggled into place to completely fill the space between the pipes, castings, or conduits, and the sides of the openings, so as to obtain the same watertightness as the wall itself. The grouting materials so placed shall be surfaced when the forms are removed to give a uniform appearance to the wall if such wall will be exposed to view.

The Contractor shall accurately set and hold in exact position the forms until the concrete is poured, and set all thimbles, special castings, or other metal parts that are to be embedded in the concrete. He shall furnish and accurately set all inserts and anchors or other bolts necessary for the attaching of piping, valves and equipment.

#### 4. Depositing Concrete

Concrete shall not be placed until the forms and reinforcements have been approved by the District Engineer.

5. Curing

Unformed concrete surfaces shall be covered with wet burlap mats as soon as the concrete has set sufficiently and shall thereafter be kept wet under burlap until backfilled or for 14 days after the concrete is placed. Formed surfaces, both interior and exterior, shall be similarly water-cured under burlap mats or by water sprays beginning as soon as the forms are stripped. At the option of the Contractor, concrete surfaces may be cured by the curing-compound method as defined below. Where wooden forms are used they shall be wetted immediately after concreting and shall be kept moist until removed, or may be treated with an approved form sealer before pouring.

Concrete curing compounds, if their use is permitted by the District Engineer, shall be of a nature and composition not deleterious to concrete, and thinned to a working consistency, either with a volatile solvent or by emulsification with water. The curing compound shall be of a standard and uniform quality ready for use as shipped by the manufacturer. At the time of use, the curing compound shall be in a thoroughly stirred condition. Curing compound shall not be diluted by the addition of solvent or thinners or be altered in any manner without the specific approval of and in a manner prescribed by the manufacturer.

The curing compound shall, when tested in accordance with ASTM C156, be effective in limiting the water loss in the concrete test specimens to 3 1/2 percent when applied at the coverage rate recommended by the manufacturer. Any compound proposed by the Contractor shall be tested by a recognized testing laboratory at the Contractor's expense, and 3 certified copies of the test report shall be furnished to the District Engineer.

Curing compound shall form a continuous, unbroken membrane which will adhere to moist concrete and which will not peel from the surface or show signs of such deterioration within 30 days after application under actual weather and working conditions.

The compound shall be sufficiently transparent and free from color so that there will be no permanent change in the color of the concrete. The compound shall contain however, a temporary hue of sufficient color to make the membrane clearly visible for a period of at least 4 hours after application.

6. Protection and Repair of Concrete Construction

All surfaces shall be protected against injury. During the first 72 hours after placing the concrete, wheeling, working, or walking on the concrete shall not be permitted. All slabs subject to wear shall be covered with a layer of sand or other suitable material as soon as the concrete has set. "Sisalcraft" paper or other similar tough waterproof paper may also be used, provided all joints between adjacent strips of paper are carefully sealed. This does not alter the requirements for proper curing as specified in Article C3.06.5, above.

No concrete shall be placed during rain period. All concrete placed within the preceding 12 hours of a rainstorm shall be protected with waterproof canvas or other suitable coverings.

All concrete construction shall be protected from excessive loadings. Installation of mechanical and electrical equipment shall be accomplished by employing shores, bearing places, frames, cranes, and temporary beams.

Immediately after the removal of forms all concrete shall be inspected, and all poor joints, rough sections, or rock pockets containing loose materials shall be repaired by cutting back to solid concrete and making an opening of such size and shape as will form a 1 inch key for cement mortar fill. All form tie holes and small imperfections shall be kept wet for 2 hours and then coated with neat cement paste. The fill for small imperfections and form ties shall consist of cement mortar composed of 1 part cement well mixed with 1 1/2 parts of fine aggregate by volume and just enough water so that the mortar will stick together on being molded into a ball by slight pressure of the

hands. This mortar shall be thoroughly compacted into place. Where the area and volume of defective concrete is large, it shall be repaired by reforming the surface and filling the opening with concrete. For such major repairs, the filling shall be reinforced and doweled securely to old concrete and shall be neatly finished to match the surface, color, and texture of the adjacent concrete. All patches shall be kept damp for 7 days.

Where the work requires concrete of existing structures to be removed, the existing concrete and steel shall be cut accurately to the lines required under the supervision of the District Engineer. The cutting shall be accomplished in a manner that preserves, free from cracks or other injuries, those parts of the existing structure that are to remain. Where the cut surface is to be left exposed, it shall be cleaned, sprayed with water, faced with 1:1 1/2 mortar, and finished to match adjacent surfaces.

7. Finished or Formed Surfaces

All finished or formed surfaces shall conform accurately to the shape, alignment, grades, and sections required. The finished surface shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth continuous hard surface. All sharp angles, shall be rounded or beveled, where required. Any formed surface to be painted shall be free of any material that will be detrimental to the paint.

## SECTION C4 - METALWORK

### C4.01 SCOPE

Metalwork includes the providing of pipe handrails, stair treads, grating, plating, seat angles, stop gates, manhole frames and covers, anchor bolts and all other structural steel, miscellaneous metalwork, and castings.

### C4.02 STRUCTURAL STEEL

#### 1. Material

Structural steel shall conform to ASTM A36, Structural Grade, or as specified in the Contract Drawings.

#### 2. Fabrication

Fabrication and workmanship shall be done in accordance with AISC "Specifications for Fabrication and Erection". Welding shall be done by welders who have been qualified by tests as prescribed by the American Welding Society in "Standard Qualification Procedure" to perform the type of work required. The quality of welding shall conform to "Code for Arc Welding in Building Construction", Section 4, Workmanship. Reinforcing rods to be welded shall be preheated to minimum of 212° F at a distance of 3 inches each side of the weld and then welded using a low hydrogen type welding rod.

#### 3. Galvanizing

Fabricated steel items such as brackets, hangers, seating angles, door protectors, housings, and similar small items shall be galvanized after fabrication. Large structural steel items such as roof trusses shall be galvanized only if specifically required. Steel work to be of the following standard specifications as applicable: ASTM A123, A384, A385 and A386.

#### 4. Bolted Connections

All bolted connections shall be AISC Standard "B" Series.

### C4.03 PIPE HANDRAIL

Pipe handrail shall be standard 1¼ inch black steel pipe made up by welding. Railing shall be shop fabricated into easily handled units and galvanized after fabrication. Filed joints shall be welded or ground smooth to match adjacent pipe and shall be coated with molten Galvo-Weld or approved equal.

Aluminum handrails shall be made from 1½ -inch diameter aluminum pipe Schedule 40, alloy 6063 – T6 temper handrail grade, or 6061 – T6 where required for bending. The fabricator and installer must be State Licensed in specialty welding of anodized architectural aluminum railings. Acceptable fabricators are:

- a. C.E. Toland, 2635 Peralta, Oakland, California (415) 834-1480.
- b. Meddco Metals, 31626 Hayman Street, Hayward, California 94544 (415) 489-4680
- c. Or Equal

The Contractor must obtain the approval of the engineer prior to initiating fabrication of the handrails.

C4.04 PIPE COLUMNS

Steel for pipe columns shall conform to ASTM A53, Grade B.

C4.05 FLOOR GRATES, PLATES AND SUPPORTS

Gratings and floor plates shall be galvanized steel or aluminum designed for the live load required. The minimum design live load shall be 100 pounds per square foot. Floor plates and grates shall be adequately stiffened or shall be of sufficient thickness so that the maximum deflection at the design load does not exceed 1/240 of the span. Gratings shall be completely banded, and both gratings and plating shall be field measured for proper cutouts and size. No single pieces of grating or floor plate shall weigh more than 100 pounds. Gratings and plating shall be supported on steel seats and shall be set flush with the floor. Gratings, plating, and seat angles shall be galvanized after fabrication in accordance with ASTM A386.

C4.06 SAFETY STAIR TREADS

All concrete steps shall have safety treads 4 inches wide and extending to 3 inches from each side of the step. Safety treads shall be American Abrasive Metals Company, Feralum Style A, or equal.

C4.07 ANCHOR BOLTS

Anchor bolts shall be fabricated as specified by the equipment manufacturer and, unless otherwise indicated, shall be galvanized. Anchor bolts shall be secured in place with the forms before pouring concrete.

C4.08 IRON CASTINGS

Iron castings shall be made from properly prepared patterns and molds and shall conform to ASTM A48. Small castings shall be galvanized. Large castings shall be galvanized only if specifically required.

C4.09 ALUMINUM SLIDE GATES

Aluminum for slide gates shall conform with American Society of Civil Engineers Specifications for Structures of Aluminum, Alloy 6061-T6. Gate guides shall be fabricated from standard aluminum shapes and shall also be Alloy 6061-T6. Aluminum to be in contact with concrete shall be coated with coal tar epoxy. Stems shall be of stainless steel ASTM A-276 Type 316 and guides shall be fitted with polyethylene bearing strips.



## SECTION C5 - PIPELINES AND SEWERS

### C5.01 SCOPE

Pipelines and sewers include the furnishing, installing, and testing of pipe, pipe supports, anchors, fittings, valves, special accessories, and all necessary appurtenances to make the work complete and operable.

Attention by the Contractor is directed to Article C 1.09 Safety and Health Provisions, of these Specifications with respect to CAL OSHA rules and regulations to follow before entering manholes.

### C5.02 MATERIALS

#### 1. Scope

All pipe materials which may be used are covered under this section. The inclusion of all acceptable material does not infer that any of the materials listed below may be used on any project for any set of conditions. Refer to Article B2.02 of these District Standard Specifications for limitations on the use of various types of pipe materials. In all cases, lateral sewers shall be of the same material as the main sewer to which they are connected.

#### 2. Vitrified Clay Pipe and Fittings

Vitrified Clay pipe (VCP) and fittings when permitted for use by the District Engineer shall be extra strength, unglazed, conforming to ASTM C700, and shall be furnished with bell and spigot ends or plain ends.

Pipe joints shall be of a mechanical flexible compression type. Joints for bell and spigot pipe shall be made of plasticized polyvinyl chloride compound, bonded to the pipe, molded, and cured to uniform hardness so as to form a tight coupling when assembled. Joints for bell and spigot pipe shall be Wedge Lock and Speed Seal Mainline. Joints for plain end pipe shall be rubber couplings secured with stainless steel bands. Joints for plain end pipe shall be Band Seal as manufactured by Mission Clay Products Company or equal. Rubber couplings are generally not allowed on mainlines unless approved by the District Engineer.

#### 3. Plastic Pipe

Plastic pipe, fittings and joint materials specified herein consist of Poly-Vinyl Chloride, hereinafter referred to as PVC and Polyethylene, hereinafter referred to as HDPE. All materials incidental to plastic pipe installations such as gaskets, joint lubricants, cement, etc., shall be supplied by the pipe manufacturer. All plastic pipe required in odd lengths shall be cut using a proper cutting tool and guide that insures true line cut on planes perpendicular to the pipe axis. No bevel cuts for pipeline alignments will be permitted.

The inside diameter of an installed section of plastic pipe shall not be allowed to deflect more than five (5%) percent. The pipe deflection shall be checked by means of the deflection gauge in the presence of the District Engineer after the placement of all trench backfills, aggregate subbase (if specified) but prior to installation of aggregate base and/or asphalt concrete.

#### Poly-Vinyl Chloride (PVC)

All PVC pipe and fittings shall, at a minimum, conform to the requirements of ASTM Designation D 3034 as they apply to type PSM SDR 26 PVC. Sewer Pipe shall be installed using an Elastomeric Gasket Joint in a bell and spigot assembly system. Rubber sealing gaskets shall meet the requirements of ASTM Designation D-1869. Alternate pipe types include AWWA C900 Class 150

PVC (SDR 18) and Class 200 PVC (SDR 14), which are required under special circumstances. No solvent cement joints will be permitted.

All PVC pipe entering or leaving a concrete structure shall have a rubber sealing gasket, as supplied by the pipe manufacturer, firmly seated perpendicular to the pipe axis, around the pipe exterior and cast into the structure base or near the structure wall center as a water stop. Said water stop may also consist of a manhole coupling with rubber sealing rings cast into structure base.

PVC pipe joining may occur at any convenient distance beyond and/or between structures.

PVC force-laterals shall be approved by the District Engineer.

Repairs to PVC pipe shall utilize double bell unions.

Polyethylene Pipe (HDPE)

Polyethylene pipe shall be HDPE SDR 17 and conform to the specifications of ASTM D 3350. The polyethylene pipe shall meet the PE345434C cell classification per ASTM 3350.

The polyethylene pipe shall provide leak-free, butt-fused connections suitable for the purpose intended. Polyethylene pipe fittings shall be fused to the pipe.

Force-lateral fittings to be used with 1.25” to 1.5” HDPE shall be the compression type, shall be of commercial quality, and shall be recommended by the pipe. Fittings shall have female sockets with an internal barb to provide a positive pipe-to-fitting connection that will not separate at the designed pressure.

A Certificate of Compliance for the polyethylene pipe shall be furnished to the District Engineer, upon request.

HDPE force-laterals shall be approved by the District Engineer.

Repairs for HDPE pipe shall utilize an electrofusion couplings on one or both ends and butt-fusing the other, as necessary.

4. Cast Iron and Ductile Iron Pipe

Cast iron pipe shall comply with ANSI A 21.6 (AWWA C106) for pipe cast in metal molds or ANSI A21.8 (AWWA C108) for pipe cast in sand-lined molds.

Ductile iron pipe shall comply with ANSI A21.51 (AWWA C151).

Cast and ductile iron pipe joints shall comply with the following requirements for the types specified on the plans or in the Specifications:

<u>Type of Joint</u>	<u>Specifications</u>
Rubber Gasket Push-on Joint	ANSI A21.11 (AWWA C111)
Mechanical Joint	ANSI A21.11 (AWWA C111)
Flanged Joint	ANSI B16.1, B16.2, and A21.10 (AWWA C110)

Flanged Joint (Threaded Flanges) ANSI B1.1

Flange gaskets shall be 1/16 inch for pipe 10 inches and less and 1/8 inch for large pipe. Flange assembly bolts shall be standard square head machine bolts with heavy, hot pressed, hexagon nuts. Threads shall conform to ANSI B1.1 coarse thread series, Class 2 fit. Bolt length shall be such that after joints are made up, the bolts shall protrude through the nut, but no more than 1/2 inch. Bolts for use in submerged services shall be 316 stainless steel.

Flexible couplings shall be Smith-Blair flexible steel coupling series 411 or Dresser style 38 with the stop removed on middle ring. Exposed metal surfaces shall receive a protective coating as specified in Section C6 - Painting.

All rubber gasket, push-on, mechanical and flanged joint fittings for cast iron or ductile iron water pipe shall be manufactured in accordance with ANSI A21.10 (AWWA C110).

Unless otherwise specified, the internal surfaces of cast iron and ductile iron pipe and fittings shall be lined with a uniform thickness of cement mortar then sealed with a bituminous coating in accordance with ANSI A21.4 (AWWA C104). The outside surfaces of cast iron and ductile iron pipe and fittings for general use shall be coated with a bituminous coating 1 mil (0.025mm) thick in accordance with ANSI A21.6 or ANSI A21.51. Exposed surface shall be coated as specified in Section C-6 Painting.

The manufacturer shall furnish a certified statement that the pipe has been manufactured and tested in accordance with these specifications.

Buried cast iron or ductile pipe shall be encased in polyethylene and installed in accordance with the requirements of ANSI A21.5 (AWWA C105).

5. Reinforced Concrete Sewer Pipe

Reinforced concrete sewer pipe when permitted for use by the District Engineer, shall conform in materials, design, manufacture, testing and inspection to the requirements of ASTM C76 for non-pressure type and of AWWA C302 for pressure pipe or non-pressure pipe. Class D-load shall be as required by the service.

Joints shall be of the rubber gasket type using either a bell and spigot joint design or a double spigot and joint sleeve design using a fiberglass reinforced collar. In either case, the joint shall be so designed that the gasket, or gaskets, shall not be required to support the pipe but shall keep the joint tight.

Fittings shall be fabricated of steel cylinders with cement mortar lining and coating and shall be equal in strength to the abutting pipe sections. The design of all fittings shall be approved by the District Engineer.

6. Manholes

Manholes shall be constructed of precast reinforced concrete pipe sections as specified in Article C3.05 of these specifications.

7. Backwater Overflows and Check Valves

The type of backwater overflow device or check valve shall be provided by the contractor. Detail drawings of such devices and the method of connection shall be submitted to the District Engineer for approval. Actual design shall conform with Standard Drawing No. 15.

## C5.03 INSTALLATION

### 1. Pipe Laying

Pipe laying shall include the installation and jointing of the pipe. Pipe shall be laid with uniform bearing under the full length of the pipe. In general, pipe laying shall proceed upgrade with the spigot ends of the bell and spigot pipe pointing in the direction of flow. Each piece shall be laid true to line and grade and in such manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets in the flow line. As the work progresses, the interior of the sewer shall be cleared of all dirt and debris. Where cleaning after laying is difficult because of small pipe size, a suitable swab or squeegee shall be kept in the pipe and pulled forward past each joint immediately after jointing has been completed. Pipe shall not be laid when the condition of the trench or the weather is unsuitable. At times when work is not in progress, open ends of pipe and fittings shall be closed.

### 2. Pipe Jointing

- a. Vitrified Clay Pipes. For vitrified clay pipe with flexible compression joints, the mating surfaces shall be wiped clean of dirt and foreign matter, and an approved lubricant as recommended by the pipe manufacturer shall be applied to the joint surfaces. The spigot shall then be positioned inside the bell and the joint shoved home. For small diameter pipe this operation may be done by hand, but on large diameter pipe a lever attachment, or a bar cushioned with a wooden block, shall be used to shove the joint into place.

Rubber Band-Seal joints shall be made in accordance with the manufacturers' instructions and only installed where permitted by the District Engineer.

- b. PVC Pipes. PVC gaskets on the bell ends shall be wiped clean and lubricated with a lubricant acceptable to the manufacturer. Spigot ends shall be clean, free of burrs and marked at the point of full penetration. The spigot joint shall be inserted inside the bell to the point marked on the spigot end.
- c. HDPE Pipes. HDPE pipe requires extra care during the pipe laying stage to ensure a consistent and accurate slope. HDPE pipe is typically fused prior to pipe laying. Fusing HDPE pipe shall be done in accordance with the manufacturer's recommendations.
- d. Cast Iron and Ductile Iron Pipe. For mechanical pipe (joint), the bell and spigot shall first be cleaned thoroughly, and then the mating surfaces shall be brushed with soapy water. With the gland and the gasket on the spigot end, the pipe shall be seated into the bell. The gasket shall be pressed firmly and evenly into the bell and the gland positioned. When tightening the bolts, the gland shall be brought up evenly at all points around the bell flange.

For rubber gasket joints, the gasket and bell shall be thoroughly cleaned before inserting the gasket into the bell. After the gasket is positioned, a thin film of approved lubricant shall be applied to the exposed surface of the rubber gasket. After wiping the spigot clean, it shall be shoved home into the bell. If pipe is field cut, the spigot end shall be tapered with a file to about 1/8 inch back at an angle of 30 degrees with the centerline of the pipe.

- e. Reinforced Concrete Pipe. Rubber gaskets for reinforced concrete pipe shall be lubricated with an approved lubricant and carefully positioned in the gasket groove on the spigot. After the pipe is shoved home, the position of the rubber gasket shall be verified with a special feeler gauge. If the pipe is elliptically reinforced, special care shall be taken to insure the pipe is installed with the marked vertical axis in a vertical position.

C5.04 CONNECTIONS TO EXISTING MANHOLES

Pipe connections to existing manholes shall be made in such a manner that the finished work shall conform as nearly as practicable to the applicable requirements specified for new manholes, including all necessary concrete work, cutting, and shaping. Pipe penetrations shall match existing flowlines in the manhole base.

C5.05 CONNECTIONS TO EXISTING PIPES

Fittings or adapters required to connect new pipe to existing pipe shall be provided by the Contractor. Detail drawings of such fittings or adapters and the method of connection shall be submitted to the District Engineer for approval. New pipe shall be the same pipe type as existing pipe for mainline extensions.

C5.06 SIDE SEWER CONNECTIONS TO MAIN SEWERS

1. Concurrent Construction

Where side sewers are constructed concurrently with main sewers, connections shall be made with regularly manufactured wye or tee branches. The ends of the side sewer shall be securely stopped with plugs or caps which can easily be removed without damage to the pipe end. The ends of the side sewers shall be marked with a 2 x 4 redwood stake extending from the sewer invert to finished grade. In the case of new subdivision work, curbs shall be imprinted with a "s" directly over the side sewers.

2. Side Sewer Connection to Existing Main Sewer

Side sewer connections to existing sewers shall be made at a wye or tee branch. Where, in the opinion of the District Engineer it is impractical to connect to an existing wye or tee branch, the connection shall be made by the use of special fittings as described below.

a. Vitrified Clay Pipe Main Sewer. Connections to existing vitrified clay main sewer shall be made by one of the two following alternative methods:

- i. Cut out a section of the main sewer and install a plain-end wye branch using banded rubber seal sleeves with stainless steel bands. This method shall be used whenever the side sewer is the same size as the main sewer. Concrete encase the banded rubber sleeves.
- ii. Core a neat trim opening in the upper portion of the main sewer and install a special drilled fitting (i.e., "tap tight") to complete the side sewer connection.

b. PVC Main Sewer. Connections to existing PVC main sewer shall be made by one of the following alternative methods:

- i. Core a neat trim opening in the upper portion of the main sewer and install a special drilled fitting (i.e., "tap tight" or "inserta-tee") to complete the side sewer connection.
- ii. Cut out a section of the main sewer and install a wye branch with plain-end stub-outs and use double bell unions to connect to the main. This method shall be used whenever the side sewer is the same size as the main sewer.

c. HDPE Main Sewer. Connections to existing PVC main sewer shall be made by one of the following alternative methods:

- i. Side-fuse a nipple to the main sewer and butt-fuse the lateral to the nipple.
  - ii. Use a double-banded saddle with wide straps around the main sewer. Silicon seal the saddle to the main sewer to prevent leaks.
  - iii. Cut out a section of the main sewer and fuse a prefabricated TEE. This method may be used whenever the side sewer is the same size as the main sewer.
- d. Reinforced Concrete Main Sewer. Side sewer connections to reinforced concrete main sewer shall be made as indicated on District Standard Drawing No. 12.

#### C5.07 BORING AND JACKING

Where permitted by the District Engineer, highway or railroad crossing may be made by boring or jacking.

If installed by boring, the bored hole shall be not greater than 2 inches in diameter larger than the largest outside diameter of the pipe to be installed.

If installed by jacking, sufficient jacking capacity shall be provided to insure a successful operation.

If the sewer is to be installed in a bored or jacked conductor pipe, it shall be subject to all material and jointing requirements hereinbefore specified. The sewer shall be installed true to line and grade on wood blocks, or rails, secured to the invert of the conductor pipe. After installation of the sewer, the ends of the conductor pipe shall be sealed with an approved casing seal. After installation of the sewer, the annular space between the casing and sewer pipe shall be filled with sand or grout and the ends of the casing pipe sealed with an approved casing seal.

#### C5.08 PIPEBURSTING METHOD AND EQUIPMENT

The Contractor shall be licensed by and pay all royalties to holder of the patent, if any, for the trenchless replacement system used by the Contractor. The Contractor shall hold the District harmless in any legal action resulting from patent infringements.

The method approved for replacement of existing sanitary sewers by pipebursting and installation of new polyethylene pipe is pneumatic bursting, static bursting, or equal.

The main components of a pipe bursting system consists of a pipe bursting tool or head, to which the new pipeline is connected, and a pulling machine or a pulling winch. The bursting head is inserted into the sewer section to be replaced, and is pulled by a pulling machine or pulling winch located in the pulling pit, located at a certain distance along the alignment of the sewer section under consideration, away from the device insertion location. The bursting head shall pull behind it the new sewer pipe to be placed along the same horizontal and verticals alignments of the existing sewer. The backside of the bursting head shall be firmly connected to the new sewer pipe to be pulled into place of the existing sewer.

For gravity-type wastewater pipeline applications (12-inches in diameter or smaller) where reception excavations are either impractical or undesirable, the winching system shall be installed within a standard manhole so as to receive the bursting head and the new replacement pipe.

Upon commencement, pipe insertion shall be continuous and without interruption from one manhole to another, except as approved by the District.

##### 1. BURSTING HEAD

The pipebursting head shall be designed and manufactured to force its way through existing pipe materials by fragmenting the pipe and compressing the old pipe sections into the surrounding soil

as it progresses. The bursting unit shall provide smooth, controlled power to burst and compact the existing pipe. Vibrations from the bursting equipment shall not damage the surroundings utilities structure. Follow manufacturer's specifications for what size tool should be used in what diameter of pipe, as well as parameters of tool size when upsizing pipe.

- a. The design and shape of the head shall be such that the existing pipe will be broken into many small fragments.
- b. The method of connection of replacement pipe to the unit shall be such that stresses transmitted to the replacement pipe are not damaging to the pipe and will not exceed the tensile capacity of the pipe.
- c. Provisions shall be made in the equipment to remotely start and stop the unit should it become necessary to temporarily cease operation
- d. Measures shall be taken to ensure that the pipe does not become separated from the bursting head.
- e. The bursting head shall incorporate a shield/expander to prevent collapse of the hole ahead of PE pipe insertion.

## 2. WINCH OR PULLING UNIT

The winch shall be attached to the front of the bursting unit. The winch or pulling unit shall be operated to provide constant pull to the bursting unit in order that it may operate in an efficient manner with a minimum of recoil. It shall directionally stabilize the bursting head by keeping it in line with the unit.

- a. The winch shall be constant tension, variable speed type fitted with a direct reading load gauge to measure the winch load.
- b. For static bursting, the winch shall be fitted with a device to automatically disengage the winch when loading exceeds a preset maximum load, or the rated pressure of the bursting head.
- c. The bursting head shall be connected to a pipe known as the "weak link" which will break before the maximum load on the replacement pipe is reached.
- d. Contractor shall supply sufficient cable in one continuous length so that the pull may be continuous between winching points.
- e. The winch, cable and cable drum shall be provided with safety cage supports.
- f. The Contractor shall provide a system of guide pulleys and racing at each manhole to minimize contact of cable with the existing sewer between manholes.
- g. Supports to the trench shoring in the insertion pit shall remain completely separate from the pipe support system and shall be so designed that neither the pipe nor the winch cable shall be in contact with them.
- h. Proper clearance shall be provided below the existing pipe to allow for the proper use of a winch.

3. TREATMENT OF PIPE

a. At intermediate manholes

When the pipes pass through an intermediate manhole, it shall be cut in an approved manner so that 2 inches protrudes into the manhole. The pipe shall be cut out using a small compressed air disc cutter or other similar suitable tools. At existing manholes, existing pipe shall be chipped out of the manhole prior to inserting the new sewer pipe to protect the manhole from the stresses caused by the trenchless replacement method. The invert of the manhole shall be broken out to a depth of 1½ inches and rebenched using concrete.

b. At upstream and downstream manholes

At the upstream and downstream manholes the ends of the pipe shall be cut in an approved manner so that 2 inches protrudes into the manhole. The invert of the manhole shall be suitably prepared such that a smooth transition shall be made from the existing pipework to the new pipe. The existing pipe shall be chipped out of the manhole prior to the new sewer pipe being installed to protect the manhole from the stresses caused by the trenchless replacement method, as necessary.

c. Relaxation period

The Contractor shall allow the pipe to “relax” for the manufacture’s recommended amount of time, but not less than four (4) hours for pneumatic bursting or twelve (12) hours for static bursting, after trenchless replacement has been completed. A minimum of 2 feet of pipe shall remain in the manhole during the relaxation period.

d. Sealing pipe in manhole

Following the relaxation period, to seal the PE pipe in the manholes at the entry and exit points, the ends of the pipe shall be surrounded in non-shrink grout, which forms part of the manhole base after water stops are installed.

e. Insertion and pulling pits

The size, location and method of excavation and shoring of all pits on site shall be determined prior to the start of the project. In considering locations for access pits, the contractor shall consider the size of the sewer, locations, obstructions and services, pulling distances, traffic conditions, and locations of utilities and sewer laterals. When possible, intermediate access excavations can coincide with building service connection excavations or critical obstructions in the sewer. The locations of the excavation pits should be such as to minimize traffic disruption.

The insertion pit shall be large enough to allow the new pipe to enter the existing pipeline alignment on-grade. The pipeline shall not enter the existing pipeline alignment at an angle.

The end of the launch pit on which the pulling forces are exerted shall be supported using beams or plates of sufficient surface area to allow the forces to be dissipated into the surrounding soil.

4. PIPE INSERTION

- a. The installation forces on the pipe shall be kept to a minimum. Maximum force to be within stress limits of the pipe.



- b. Rollers shall be provided at the insertion pit so that no pipe drags along the ground surface.
- c. A roller or rub shoe shall be installed at pipe entry to prevent pipe chatter as the pipe enters the existing line.
- d. Where a device is employed to exert force on the rear of the inserted pipe lengths, the force applied to the inserted pipe shall be evenly distributed around the wall of the pipe.
- e. Where lengths of pipe are jointed and a device is employed to exert force to the rear of the inserted pipe lengths, precautions shall be taken by the Contractor to ensure that no bucking, crushing or twisting of the pipe occurs.
- f. Lubrication may be used as recommended by the manufacturer.

5. MAINTENANCE SEWER SERVICE

The Contractor shall be responsible for maintaining all flows within the system. He shall bypass the flows around the sections of the pipe to be replaced. The Contractor shall comply with the bypassing guidelines listed in Section C9.04.

6. PIPE JOINING

Pipe shall be butt welded in accordance with ASTM D2657. The joints shall be leakproof, thermal, butt joints. Threaded or solvent-cement joints and connections are not permitted.

All fusing shall be done using tools recommended by the pipe supplier and approved by the District Engineer. Operators shall be certified by the pipe manufacturer and/or fusing equipment supplier.

The butt-fused joint shall be true alignment and shall have uniform rollback beads resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removal of pressure. The fused joint shall be watertight and shall have tensile strength equal to that of the pipe. Joints shall be smooth on the inside and internal protection beads shall be greater than 3/16-inch.

All joints shall be subject to acceptance by the District Engineer prior to insertion. All defective joints shall be cut out and replaced at no cost to the District. A specimen of pipe cut across the butt fusion joints shall be tested in accordance with ASTM D638.

A copy of the required butt fusion parameters listed below shall be kept at the job site so that the temperatures and pressures of the jointing process are known and can be checked on site. Specific information includes the following:

- a. The temperature at the surface of the heating plate (the fusion temperature);
- b. The pressure used to push the pipe against the heating plate;
- c. The time when the pipe ends are in contact with the heating plate but no pressure is being applied (soak time);
- d. The pressure used to push the pipe ends together after heating ( the fusion pressure);
- e. The time of application of this butt fusion pressure ( fusion cooling time);

f. Allowable bead height and width range.

7. LATERALS

All lateral connections will be located by the Contractor, disconnected prior to bursting, and then permanently reconnected to the new pipe after bursting has been completed.

The Contractor shall expedite the reconnection of services so as to minimize any inconvenience to the customers.

Reconnection of laterals shall be accomplished from the ground surface by excavating a small opening and utilizing appropriate shoring so the connections can be made safely. The finished connection shall be made flush with the new sewer and shall provide a smooth transition to the existing lateral pipework.

The Contractor shall connect laterals using sidewall saddle fusion. The following steps must be followed.

- a. Rough up area on pipe and end of fitting to be fused with sandpaper and wipe off with clean rag.
- b. Preheat iron to 500 degrees and place on pipe. Hold on pipe until melt pattern is achieved, Place fitting on iron and hold for 90 seconds. After 90 seconds, pop fitting off iron and then remove iron from pipe.
- c. Drill out service connection
- d. Deburr

Three (3) feet of the existing lateral shall be replaced when the lateral is reconnected. The new section of lateral shall be constructed of the same type of material as the new mainline. One non-shear type coupling with stainless steel bands shall be used to connect the new lateral to the existing vitrified clay pipe lateral. The root treatment system shall be applied to both joints of the coupling attached to an existing lateral. Couplings are NOT allowed on the mainline.

8. EXCAVATION AND BACKFILL

Insertion trenches shall be prepared and backfilled in accordance with sound bedding practices ASTM D2774 and ASTM D2321.

C5.09 CONCRETE THRUST BLOCKS

Concrete thrust blocks shall be provided on all force main bends having a deflection angle of 11 degrees or more. Thrust blocks shall have a sufficient bearing area on undisturbed soil to withstand the maximum force to be exerted.

C5.10 ACCEPTANCE TESTS

All gravity sewers, including manholes, shall be tested for leakage and inspected for obstructions (Clean and TV inspection), pipe deformation (mandrel), and alignment problems (visually). All side sewers shall be tested for leakage and inspected for obstructions and alignment problems. All force mains shall be tested for leakage and inspected for obstructions, deformation, and alignment. These are minimum test requirements. The District Engineer reserves the right to require additional testing, if he deems it

necessary. The Contractor shall provide all labor, tools, equipment, waste disposal, and utilities necessary to meet the acceptance test requirements.

1. Obstructions

After backfilling and compacting, but before repaving, all main sewers shall be cleaned and TV inspected for obstructions. If the televised line appears to be deformed the Contractor shall test for specification conformance by the sewer ball method. Means shall be provided for intercepting all grit, rocks, and other flushed debris to keep debris from entering the existing sewerage system.

2. Leakage

The program of testing shall fit the conditions as mutually determined by the District Engineer and the Contractor. The Contractor shall take all necessary precautions to prevent any joint from opening while the pipeline and its appurtenances are being tested. The Contractor shall, at his own expense, correct any excess leakage resulting from or caused by this test. Where the actual leakage exceeds the allowable, the Contractor shall discover the cause and remedy it before the test is accepted. If the leakage is less than the allowable and leaks are observed, such leaks shall be repaired at the District Engineer's direction.

- a. Main Sewers: After main sewers have been inspected and cleared of obstructions and following backfill, but prior to repaving, they shall be tested for leakage. Each section of the sewer shall be tested between successive manholes by closing the lower end of the sewer to be tested and the inlet sewer of the upper manhole with stoppers. At the Contractor's option either the hydrostatic or air test may be used.

Hydrostatic Test - Fill the pipe and manhole with water to a point four feet below the ground surface of the upper manhole, but in no case less than four feet above the pipe invert. If ground water is present, the water surface in the upper manhole shall be at least four feet above the level of the ground water. The line shall be filled at least one hour prior to testing and shall be tested at least 2 hours by maintaining the head specified above with measured additions of water. The sum of these additions of water in the two-hour period shall be the leakage amount for the test period.

The maximum allowable head of water above any portion of sewer being tested shall be 15 feet. Where the difference in elevation between successive manholes exceeds 15 feet a test tee shall be installed between manholes, and testing shall be carried on between the tee and the manhole.

The allowable leakage shall not exceed 0.1 gallons per minute per inch diameter, per 1000 feet of main line sewer being tested.

Where media other than water is used for testing, the allowable leakage shall be as mutually agreed to be between the District Engineer and Contractor.

Air Test - Air test shall be applied to each length between adjacent manholes, and the procedure shall be as follows:

Pressurize the test section to 3.5 p.s.i. and hold above 3.0 p.s.i. for not less than 5 minutes. Add air if necessary to keep the pressure above 3.0 p.s.i. At the end of this 5 minute saturation period, note the pressure (must be 3.0 p.s.i. min.) and begin the timed period. If the pressure drops 0.5 p.s.i. in less than the time given in the following table the section of pipe has not passed the test.

<u>SIZE</u>	<u>MINIMUM TIME IN SECONDS</u>
4"	125
6"	185
8"	245
10"	310
12"	370
15"	460
18"	555

<u>SIZE</u>	<u>TIME IN MINUTES</u>
21"	10
24"	12
27"	14
30"	16
36"	18
42"	20
48"	23
54"	26

If the time for the pressure to drop 0.5 p.s.i. is 125% or less of the time indicated, the line shall immediately be repressurized to 3.0 p.s.i.g. and the test repeated. If, during the 5 minute saturation period, the pressure drops less than 0.5 p.s.i. after the initial pressurization and air is not added, the section undergoing the test shall have passed.

If the test is not passed, the leak shall be found and repaired to the satisfaction of the District Engineer, and the section retested.

When the prevailing ground water is above the line being tested, air pressure shall be increased 0.43 p.s.i. for each foot the water table is above the invert of the line.

The pressure gauge used shall be supplied by the contractor, shall have minimum divisions of 0.10 p.s.i., and shall have an accuracy of 0.04 p.s.i. Accuracy and calibration of the gauge shall be certified by a reliable testing firm when requested by the District Engineer, or at six (6) month intervals.

- b. Manhole Testing - After completion of manhole construction, all manholes shall be tested for leakage. The Contractor shall furnish all labor, tools, and equipment necessary to make the tests and to perform any work incidental thereto. He shall, at his own expense, correct any excess leakage and repair any damage to the pipe and its appurtenances or to any structures resulting from or caused by these tests.

The Contractor shall, at his own expense, correct any excess leakage and repair any damage to the pipe and its appurtenances or to any structures resulting from or caused by these test. Each manhole shall be tested using the water test or vacuum test method.

Water Test – Each manhole shall be tested by inserting inflatable plugs in all sewer inlets and outlets of the manhole, and filling the manholes with water to a point six inches below the base of the manhole frame.

The manhole shall be filled at least one hour in advance of the official test period to allow time for absorption. The loss of water may be determined by measuring additions

of water required to maintain the specified water level, but the level shall not be allowed to fall more than 25% of the manhole depth.

The allowable leakage shall be determined by the following formula:

$$E_m = .0002 \times L \times \text{square root } H$$

where  $E_m$  = amount of allowable leakage in gallons per minute.  
 $L$  = depth of manhole from top to bottom. (feet)  
 $H$  = head of water in feet, as measured from the sewer line invert or from prevailing ground water against outside of manhole barrel.  
 The lesser height governs.

**Vacuum Test** – Each manhole shall be tested by inserting inflatable plugs in all sewer inlets and outlets of the manhole and using a vacuum test apparatus. The vacuum test apparatus shall be sized to seal no more than the top 6” of the manhole measured from finished grade and capable of pumping out a manhole to -10 in Hg.

Pump out the manhole to -10 in Hg. If the vacuum does not drop in excess of 1 in Hg over the specified time in the table below, the manhole passed the test.

Manhole Depth-Feet	DIAMETER INCHES		
	48	60	72
4	10 sec.	13 sec.	16 sec.
8	20 sec.	26 sec.	32 sec.
12	30 sec.	39 sec.	48 sec.
16	40 sec.	52 sec.	64 sec.
20	50 sec.	65 sec.	80 sec.
24	<b>(A)</b> 60 sec.	<b>(B)</b> 78 sec.	<b>(C)</b> 96 sec.
* Deeper than 24 ft	<b>(A')</b> 5.0 sec.	<b>(B')</b> 6.5sec	<b>(C')</b> 8.0 sec.
<p><b>*Test time=A, B or C respectively + (MH Depth - 24) x 1/2 x A', B' or C'.respectively.</b>                      (The values listed above have been extrapolated from ASTM designation C924-85)</p>			

Where the actual leakage in a manhole exceeds the allowable, the Contractor shall discover the cause, remedy it, and retest the manhole before the manhole is accepted. If the leakage is less than allowable and leaks are observed, such leaks shall be repaired.

As an alternative to the above procedures, the Contractor may fill the manhole with water prior to backfill and repair all visible leaks provided there is no ground water above the manhole base. Any visible leaks into or out of a manhole shall be repaired. Alternative methods of manhole testing will be considered by the District Engineer.

Where media other than water is used for testing, the allowable leakage shall be as mutually agreed to by the District Engineer and Contractor.

- c. Side Sewers: Side sewers shall be tested before being connected to the main sewer. The side sewer shall be plugged at its end and filled with water through the cleanouts. The water level in the cleanouts shall be maintained throughout the test period as high as possible. One hour after filling the pipe with water, the entire line shall be visually examined for leakage. All leaks shall be repaired in an acceptable manner. The trench shall not be backfilled until the complete inspection has been made. Following approval by The District Engineer, the plug shall be removed, the water disposed of, and the connection at the main sewer completed.
  
- d. Force Mains: Force mains shall be tested for leakage in conformance with applicable portions of Section 13, American Water works Association C600, for test pressure of 150 percent of the specified working pressure for the pipe. The test shall last at least one hour at the required pressure measured at the test pump. The allowable leakage shall be computed by the following formula:

$$L = \frac{ND(P)^{1/2}}{1850}$$

where

- L = allowable leakage, gallons per hour
- N = number of joints in test section
- D = nominal pipe diameter, inches
- P = average test pressure, pounds per square inch.

## SECTION C6 - PAINTING

### C6.01 SCOPE

Painting shall include the furnishing of all labor, equipment, appliances and material, and the performing of all operation in connection with the preparation of surfaces, application of all paint or other materials, and the manufacture of paints, paint materials, and miscellaneous materials incidental thereto. Surface to be painted shall receive the treatment and the number of coats prescribed in the Painting Schedule.

Attention by the Contractor is directed to Article C1.09, Safety and Health Provisions, of these Specifications with respect to CAL OSHA rules and regulations to follow before entering manholes.

### C6.02 STANDARD PRODUCTS

All materials, supplies, and articles furnished shall, whenever practicable, be the standard product of a recognized, reputable manufacturer. The standard products of manufacturers other than those specified will be acceptable when it is proved to the satisfaction of the District Engineer that all paint materials comply fully with the specification.

Precautions concerning the handling and the application of paint shall be shown on the label of paint and solvent containers in accordance with the Construction Safety Orders and General Industry Safety Orders of the State of California.

### C6.03 CLEANING AND PREPARATION OF SURFACES

Surfaces to be painted shall be clean before applying paint or surface treatments. Oil, grease, dirt, rust, loose millscale, old weathered paint, and other foreign substances shall be removed except as herein after specified. The removal of oil and grease shall, in general, be accomplished by blast cleaning. Minor amounts of grease and oil contaminants will be tolerated on the surface prior to blast cleaning, provided that abrasive is not reclaimed and reused.

Clean cloths and clean fluids shall be used in solvent cleaning to avoid leaving a thin film of greasy residue. Cleaning and painting shall be so programmed that dust or spray from the cleaning process will not fall on wet, newly painted surfaces. Hardware and similar accessories shall be removed or suitably masked during preparation and painting operations, or shall otherwise be satisfactorily protected.

In all cases, the recommendations of the paint manufacturer shall be rigidly followed.

### C6.04 PAINT APPLICATION

#### 1. Workmanship

In general all painting shall be done as specified herein and as set forth in CalTrans Standard Specifications Section 59 "Painting" applicable provisions.

All work shall be done in a workmanlike manner so that the finished surfaces will be free from runs, drops, ridges, waves, laps, and unnecessary brush marks. All coats shall be applied in such manner as to produce an even film of uniform thickness completely coating all corners and crevices. All painting shall be done by thoroughly experienced workman. Care shall be exercised during spraying to hold the nozzle sufficiently close to the surface being painted to avoid excessive evaporation of the volatile constituents and loss of materials into the air, or the bridging over of crevices and corners.

Spray equipment shall be equipped with mechanical agitators, pressure gauges, and pressure regulators. Nozzles shall be of proper size. Floors, roofs, and other adjacent areas and installations shall be satisfactorily protected by drop cloths or other precautionary measures. All overspray shall be removed by approved method or the affected surface repainted.

2. Atmospheric Conditions

Except as specified or required for certain water-thinned paints, paints shall be applied only to surfaces that are thoroughly dry and only under such combination of humidity and temperature of the atmosphere and surfaces to be painted as will cause evaporation rather than condensation. In no case shall any paint at all be applied during rainy, misty weather, or to surfaces upon which there is frost or moisture condensation without suitable protection as approved by the District Engineer. Where painting is permitted during damp weather, or when the temperature is at or below 50 degrees fahrenheit, the surface shall be heated to prevent moisture condensation thereon. Bare metal surfaces, except those which may be warped by heat, may be dehydrated by flame-heating devices, immediately prior to paint application. While any painting is being done, the temperature of the surfaces to be painted and of atmosphere in contact therewith, shall be maintained at or above 50 degrees fahrenheit, except where paints are being used which dry solely by evaporation, in which case temperature of the air and surface may be 35 degrees fahrenheit or as approved by the District Engineer. All paint when applied shall be approximately the same temperature as that of the surface on which it is applied.

3. Protection of Painted Surfaces

Where protection is provided for paint surfaces, such protection shall be preserved in place until the paint film has properly dried, and the removal of the protection is approved. Items which have been painted shall not be handled, worked on, or otherwise disturbed until the paint coat is completely dry and hard. After delivery at the site, all shop coated metalwork shall be repainted or retouched from time to time with specified paint whenever, in the opinion of the District Engineer, it becomes necessary to maintain the integrity of the film.

4. Method of Paint Application

The specified primer or first coat of paint shall be applied by brush to ferrous surfaces which have not been blast cleaned, except as hereinafter specified. All subsequent coats for all ferrous surfaces may be brushed or sprayed. All coats for miscellaneous ferrous metal surfaces may be either brush or spray applied.

5. Coverage and Film Thickness

The actual surface area covered per gallon of oil or varnish vehicle paint for various types of surfaces shall not exceed those listed in the following table. The first coat on metal surfaces refers to the first full paint coat and not to conditioning or other pretreatment applications. Bituminous type coating shall be applied to the thickness and in accordance with instructions contained elsewhere in these specifications. Specified coverage rates do not include spraying and other losses of material resulting from the conditions under which coating is applied.



On atmosphere exposed steel and other metal surfaces:

1st coat	500 sq ft/gal
2nd coat	500 sq ft/gal
3rd coat	550 sq ft/gal
4th coat (where required)	550 sq ft/gal

In no case shall the average total thickness (dry) of the completed protective coating system on exposed metal surfaces be less than 1.25 mils per coat as determined by G. E. film thickness gauge. The minimum thickness at any point shall not deviate more than 25 per cent from the required average.

6. Continuity

In testing for continuity about welds, projections, such as bolts and nuts, and crevices, the District Engineer shall determine the minimum conductivity for smooth areas of like coating where the dry mil thickness has been found adequate. This conductivity shall then be taken as the minimum required for these rough, irregular areas. All pin holes and holidays shall be repainted to the required coat coverage. All ferrous metal surfaces shall meet minimum continuity requirements.

C6.05 PAINT MATERIALS

Specifications of primers, washcoats, and paints are as follows:

1. Paints for Metal

IDENTIFICATION  
NUMBER

PAINT SPECIFICATION

P1	CALTRANS STD. SPECS. SEC. 91-2.07; Pretreatment, Vinyl Wash Primer (State Specification 8010-31A-27) For application prior to painting clean aluminum, galvanized surfaces, or blast-cleaned steel.
P2	CALTRANS STD. SPECS. SEC. 91-2.10; Vinyl Primer, Red Iron Oxide Type (State Specification 8010-31A-23) For use on metal surfaces treated with Vinyl Wash Primer, P1, above.
P3	CALTRANS STD. SPECS. SEC. 91-2.22; White Tintable Vinyl Finish Coat (State Specification 3010-31A-35) For use on metal surfaces, treated with Vinyl Wash Primer, P1, above; primarily for spray application.
P4	CALTRANS STD. SPECS. SEC. 91-2.08; Aluminum Paint, Finish Coat (State Specification 8010-31A-45) For use as a finish coat on steel, above and below water.

## 2. Paints for Wood

- P5 CALTRANS STD. SPECS. SEC. 91-3.01; Wood Primer, Latex-Base (Federal Specification TT-P-001984, Latest Revision)  
For use on unpainted wood.
- P6 CALTRANS STD. SPECS. SEC. 91-3.02; Paint, Latex-Base for Exterior Wood, White and Tints (Federal Specification TT-P-96D)  
For wood subject to outside exposures, previously treated with wood primer, P5, above.

## 3. Miscellaneous Paints

- P7 SHERWIN-WILLIAMS CO., CLEVELAND, OHIO; Coal Tar Epoxy C-200; or RUST-OLEUM CORP., VERNAN HILLS, ILLINOIS; Coating No. 9578 Coal Tar Epoxy; or equal.  
Two-coat application on iron and steel exposed underground and/or to moisture or sewage.
- P8 CALTRANS STD. SPECS. SEC. 91-4.05; Paint, Acrylic Emulsion Exterior White and Light and Medium Tints (Federal Specification TT-P-19)  
For use on exterior masonry.
- P9 SHERWIN-WILLIAMS CO., CLEVELAND, OHIO; Enamel, Gloss, Industrial (No. 1354).  
For use where high gloss enamel is desired, for exterior and interior primed wood and metal surfaces.

## C6.06 PAINTING SCHEDULE

The previous Article C6.05 indicated the types of surfaces to be covered by each paint. In general, the following items shall be painted: exposed iron and steel surfaces in underground pipelines; iron and steel surfaces in above ground pipelines; exterior woodwork; all visible surfaces of equipment, bolts, nuts, hangers, clamps and similar metal devices; and all galvanized surfaces, except gratings and floor plates.

### Notes:

1. For exposed iron and steel surfaces in underground pipe installation prime coat may be brush applied in shop. Touch up prime coat as required in field. Prime shall be allowed at least 72 hours drying time in good weather before recoating. All coats may be brush or spray applied. Allow at least 2 days for drying between coats.
2. For iron and steel surfaces in above ground pipe installation the surface shall be blast cleaned. Apply paint with brush or spray. Mil thickness for first two coats, 1.2 mils per coat and 1.0 mil per coat for last two coats. Second and third coats to be tinted.
3. For exterior woodwork, apply paint with brush or spray.
4. For iron and steel exposed to moisture or sewage apply coal tar epoxy a minimum of two brush coats to give a minimum of 25 mils total film thickness. Brush each coat perpendicular to strokes of

preceding coat. Drying time between coats shall be as recommended by the manufacturer.

C6.07 TESTING

Testing will be conducted in accordance with the latest test methods of American Society of Testing Materials and of the Federal Test Method Standard No. 141, as applicable.

## SECTION C7 - RESURFACING

### C7.01 SCOPE

Resurfacing includes the furnishing and installation of all materials, equipment, and labor necessary for the replacement and restoration of all streets, roads, highways, sidewalks, curbs, gutters, driveways, and similar surfaces.

### C7.02 GENERAL

Any concrete or bituminous paved surface that is broken, removed, or damaged by the Contractor's operations shall be restored at least to the condition existing prior to beginning work. Notwithstanding the provisions of this section, all work will be subject to the requirements of the entity having jurisdiction over the affected area.

The Contractor shall familiarize himself with the requirements of said entity and shall comply in all respects with these requirements. Wherever there is a conflict between the requirements of the entity having jurisdiction and the requirements of this Section C7, the more restrictive of the two shall be the requirement with which the Contractor shall comply.

### C7.03 MATERIALS

#### 1. Concrete

Concrete shall be as hereinbefore specified in Section C3.

#### 2. Aggregate Base Course

Aggregate base course shall conform to the requirements of CalTrans Standard Specifications, Section 26 and shall be  $\frac{3}{4}$ " Class 2 AB maximum size.

#### 3. Prime Coat

Prime coat shall conform to the requirements of CalTrans Specifications, Section 39. Liquid asphalt grade for prime coat shall be as specified in the Special Conditions.

#### 4. Asphalt Concrete Surfacing

Asphalt concrete surface shall conform to the requirements of CalTrans Specifications, Section 39, and shall be Type B, 1/2 inch maximum size. Paving asphalt shall conform to the provisions in Section 92 and shall be of the penetration range specified in the Special Conditions.

### C7.04 PREPARATION OF SUBGRADE

After backfill has been properly placed in the trench and other affected areas, in accordance with the provisions of Section C2.04 of these standard specifications, the surface shall be rolled or tamped until the subbase is firm and unyielding. Mud or other soft or spongy material shall be removed and the space filled with gravel and rolled or tamped in layers not exceeding 4 inches in thickness. The edges of all existing surfaces shall be saw cut and square prior to placement of the base course and final surface.

### C7.05 BASE COURSE

In the absence of any requirements to the contrary by an agency having jurisdiction over the pavement replacement, the base course shall consist of a lean concrete base. Lean concrete base shall conform to the provisions of Section 90 of CalTrans Standard Specifications except that the cement content shall be not less

than 2 1/2 and not more than 3 1/2 sacks per cubic yard.

Concrete base shall be placed to a depth of 6 inches (minimum) and shall extend six inches (minimum) outside of the trench line.

Aggregate base may be used for a base course at the following locations:

1. When the trench is entirely within the shoulder, gutter, or sidewalk on a public street.
2. When the trench is located in a paved area which is not a public street. Aggregate base course shall be placed to a compacted thickness equal to that which existed prior to construction or to a minimum compacted depth of 6 inches. Spreading and compacting shall be in accordance with the applicable portions of CalTrans Standard Specification, Section 26.

#### C7.06 CONCRETE SURFACES

Reconstruction of concrete curbs, gutters, driveways, and sidewalks shall be of the same kind of material and in not less than the same dimensions as the overall work. In the case of concrete slabs, the minimum thickness shall be 4 inches. Repairs shall be made by removing and replacing the entire portions between joints or scores and not merely by refinishing the damaged part. All work shall match the appearance of the existing improvements as nearly as practicable.

#### C7.07 ASPHALTIC SURFACES

After the base course has been compacted, plant-mix surfacing shall be applied to a minimum depth of 2 inches, but in no case less than the thickness of the existing pavement. Before placing the plant-mix surfacing, a prime coat of asphaltic emulsion shall be applied over the area to be resurfaced. Proportioning, mixing, spreading, and compaction of asphalt concrete shall conform to applicable portions of CalTrans Standard Specification, Section 39, except that a self-propelled mechanical spreading and finishing machine need not be used.

#### C7.08 SURFACE TREATMENTS

If special surface treatment such as seal coat, armor coats, or fog seal are required by the jurisdictional authority, they shall be done to the requirements of the authority.

#### C7.09 RESTORATION OF SURFACE MARKERS

Traffic markers or other surface markings painted on the roadway surface, which have been damaged or destroyed shall be replaced in strict accordance with the requirements of the jurisdictional authority. Traffic loops when damaged by the construction shall be replaced as soon as possible after damaging. The Contractor must notify the District, Police Department and Fire Department immediately after damage occurs. The Contractor shall replace the damaged loops in strict accordance with the requirement of the jurisdictional authority.

## SECTION C8 - SEWER LINE CLEANING

### C8.01 INTENT

The Contractor should understand the purpose and intent of any sewer line cleaning specified in the contract in relation to the degree of cleaning and inspection required. Attention by the Contractor is directed to Article C1.09, Safety and Health Provisions, of these Specifications with respect to CAL OSHA rules and regulations to follow before entering manholes.

Examples of cleaning purposes and associated cleaning requirements follow.

1. **Removal of Blockages:** This is usually emergency cleaning. The requirement is to remove or relieve a particular blockage and prevent sewage back-up, overflow, and property damage.
2. **Routine Maintenance:** This often involves moderate root removal or the removal of light to heavy debris preventing adequate flow. The intent is to prevent blockages and restore the sewer to near-full capacity and self-scouring velocity. Cleaning requirements are not usually stringent if the purpose appears to have been achieved.
3. **Cleaning Prior to TV Inspection:** Cleaning in preparation for TV inspection must be performed more thoroughly than for routine maintenance. Pipe walls must be clean enough for the camera to discern structural defects, misalignment and points of infiltration. Small amounts of debris left on the sewer invert, such as sand, stone or sewage solids, may not interfere with effective inspection.
4. **Cleaning in Preparation for Sewer Pipe Joint Sealing or Pipe Lining:** Cleaning must be much more thorough than for sewer maintenance. All sand, rocks, gravel, grease, mud, sludge and other debris must be removed from the sewer invert to permit operation of a sealing packer. Roots usually enter the top portion of the pipe and should be removed to the extent necessary to effectively seal the joints.

It is usually desirable to perform the cleaning immediately prior to joint sealing or pipe lining operations to preclude the buildup of materials from infiltration and inflow sources and the shoaling of wastewater debris.

### C8.02 MATERIALS TO BE REMOVED

The bulk of sewer cleaning is involved with the removal of sludge, mud, sand, gravel, rocks, bricks, grease, and roots from pipes, manholes, and wet well. Other material may be found in combined sewers. Removal of bricks, pieces of tile and clean sand or soil indicates structural problems such as broken or collapsed pipe (see Cleaning Precautions, Article 8.09 of these specifications).

### C8.03 SEWER CLEANING PROCEDURES

Sewers are generally cleaned downstream starting at the upstream manhole section of the area to be cleaned. Selection of equipment and methods often depends on the conditions at the time the work commences. The equipment should be capable of removing dirt, grease, rocks, sand, and other materials and obstructions from the sewer lines and manholes. If cleaning of an entire section cannot be successfully performed from one manhole, the equipment may be set up on the other manhole and cleaning again attempted. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire manhole section, it may be assumed that a major blockage exists and the cleaning effort should be terminated. The Contractor should make note of the indicated location (footage) of the blockage in anticipation of excavation which may be required. The Contractor should make note of the sewage flow and determine if the blockage is causing a

sewage back-up which requires near-term or emergency action by the District. The Contractor should immediately report the need for appropriate action to the District.

#### C8.04 PIPE DAMAGE PREVENTING CLEANING OPERATIONS

The Contractor should recognize that there are some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished or where damage would result if cleaning were attempted or continued. Should such conditions be encountered, the Contractor should not be required to clean those specific manhole sections. The Contractor should be knowledgeable of and alert for any conditions which warrant termination of cleaning activities.

Example: The removal of large quantities of fresh soil with a jet cleaner may indicate broken or collapsed pipe.

Example: The removal of bricks from a brick sewer with a bucket machine may indicate more harm is being done than good.

#### C8.05 DEBRIS REMOVAL

Sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation should be removed at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section, which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, should not be permitted by the Contractor.

#### C8.06 CLEANING TASKS

The Primary tasks performed in sewer cleaning are:

1. Dislodge materials.
2. Transport materials to a point of access.
3. Remove materials from the sewer system.
4. Transport materials to a disposal site.

Most cleaning techniques require access for men and equipment at the downstream manhole where materials are to be removed. Some cleaning techniques require equipment access to both ends of a manhole section. Access to manholes may be a source of difficulty to the Contractor. The District Engineer can often play an important part in helping the Contractor gain the required access by interfacing with the District and/or property owner to overcome problems such as terrain, undergrowth, trees, fences, easements, etc.

#### C8.07 CLEANING METHODS

The Contractor should be familiar with the methods and techniques generally used with each type of sewer cleaning equipment.

##### 1. Rodding Machine

Rotating-rod sewer cleaning equipment is practical and useful for returning clogged sewers to service. The rods are generally 3/8- to 1/2-inch in diameter and may be sectional or continuous. Rods are made of high-strength, oil-tempered spring steel.

A sewer rodding machine can push the rod through a sewer for a distance as great as 800 feet. It can

also be used in curved sections.

The rodding machine should be set up in close proximity to the downstream manhole and positioned so that the flexible rod guide (containing the rotating rod) makes a gentle curve from the machine to the entrance of the sewer pipe at the bottom of the manhole. The rod is usually pushed upstream so that the flow will help bring the debris back toward the machine.

The rod can be fitted with a variety of tools. To open a line that is completely plugged, the operator can place a small spear or a corkscrew device on the end of the rod. The rodding machine will push and rotate the rod into the blockage to make an opening large enough to permit wastewater to start flowing.

The operator can then replace the corkscrew with an auger. Augers are spiral-shaped cutting devices with diameters smaller than that of the pipe to be cleaned. The rodding machine rotates the rod and the auger, forcing the auger upstream into the sewer to grab as much of the clogging material as it can, and then retrieves the rod, pulling the debris back downstream.

The operator should set the footage meter on the machine to zero before pushing the rod up the sewer. This zero setting indicates how far the cleaning tool is into the line.

The operator can move the rod forward without rotating it, but it should be rotated in larger pipes or if debris is encountered to prevent buckling the rod. If the line is fairly clean, the rotating rod can be moved quickly and easily. When cleaning becomes difficult, increasing hydraulic system pressure and the sound and speed of the machine alert the operator. Cleaning can continue if the hydraulic pressure is within limits, but the forward speed should be reduced and the rod rotation speed maintained. The machine must have a pressure (or mechanical) overload device to prevent the rod from being twisted off if the tools should stop rotating in the sewer.

If the rod and the cutter appear to be making no forward progress and high hydraulic system pressure is indicated, the cutter probably has encountered a heavy mass of roots or other obstruction. The operator should reverse the rotation, retrieve the rod and cutter, clean the cutter of entangling roots, and then run the rod and cutter back to again attack the obstruction.

The rod can be pulled back without rotating, but in general it should not be. Spring-blade cutters can be attached at the upstream manhole and pulled back with the cutter rotating at maximum speed.

Many cleaning tools can be used by rodding machines. Among them are:

- Root saws.
- Expandable cutters with two or three knife blades that can adjust to the diameter of the sewer being cleaned.
- Sand cups are rubber discs designed to permit passage of a portion of the wastewater flow through holes in the disc, thereby creating jets which flush the debris toward the downstream manhole.



## 2. Bucket Machine

Bucket machines are strong, powerful pieces of equipment. They can open heavily blocked sewers clogged with large masses of roots, sand, or clay. When a crew completes its cleaning using this type of machine, the sewer should be in good flowing condition, unless it contains broken pipe.

The crew must first thread the cable through the length of sewer to be cleaned. One method is to float or flush a light rope through the pipe, assuming that the flow is sufficient and there are no blockages or root curtains. A more positive method is to pull the cable through using a rodding machine or jet cleaner.

A bucket machine setup consists of two powered winches, each equipped with sufficient steel cable to reach between two manholes, generally not over 750 feet. The cleaning crew will center the machines over the two manholes.

A specially designed bucket serves as the connecting link between the two cables permitting the machines to pull the bucket in either direction. The bucket is designed so that one end opens and closes. One of the machines pulls the bucket into the sewer with the bucket end open. When the bucket is full, the other machine pulls it back. When the bucket is pulled back, the "clam shell" end automatically closes.

Most models can draw the bucket completely out of the manhole and, by use of a swinging boom or chute, discharge the debris into a dump truck.

After the operators have removed the bulk of the debris from the sewer line, they can replace the bucket with a "porcupine". This is a cleaning tool with stiff wire cables protruding outward. By drawing it back and forth in the sewer, the operator can remove roots and grease deposits. For a final, wiped-clean finish, the operator can replace the porcupine with a rubber "squeegee".

## 3. High-Velocity Jet Machine

High-velocity jet sewer cleaning using water pressure can produce excellent results. Under favorable conditions, jet cleaning has demonstrated the ability to clean a line faster and with greater efficiency than any of the other methods.

There are many advantages. Operation is at street level without requiring the crew to enter the manhole. Little time is required for setup. An operator can quickly and thoroughly clean a small-diameter sewer 500 feet long.

Although the method uses water at high pressure, tests have shown that the water jets do not harm pipe joints. A jet cleaner can clean curved lines where buckets and rotary cutters would harm the pipe.

The cleaning unit carries a supply of water, generally 1000 to 2000 gallons. The pump usually has a capacity of 50 to 100 gpm delivering water at a pressure of 1000 to 2000 psi. The cleaner usually is supplied with 500 to 600 feet of high-pressure hose.

The nozzle provides the cleaning action. The nozzle has a backward spray that propels the hose up the sewer to be cleaned. When the operator retrieves the hose, the water jets scour the sewer and move the debris to the downstream manhole.

#### 4. Hydraulically Propelled Equipment

##### (a) Cleaning Ball:

Over the years, the use of a rubberized ball to clean flowing sewers has proved its effectiveness. An experienced operator will hold back the ball to permit wastewater to pass around its lower perimeter, thus flushing the debris ahead to the downstream manhole.

To use sewer balls, a crew should be equipped with:

- At least 600 feet of 0.5-inch synthetic-fiber rope mounted on a winch. For balls over 15 inches in diameter, steel cable is preferred.
- A swivel and clevis that serves to attach the rope or cable to the ball.
- 400 feet of fire hose and a gate valve fitted with connections to attach to a hydrant.
- A downhole roller having a free-running wheel to be fitted into the upstream manhole for the rope or cable.
- Rubber buckets, appropriate shovels, boots, and safety harnesses for use when crew members enter the manhole.

The downhole roller is placed in the upstream manhole and set firmly in place. The wheel should be above and opposite the outgoing sewer opening which serves as the entry point for the ball. This wheel location permits the cleaning crew to insert the ball into the downstream pipe.

An elbow trap is placed in the outgoing pipe of the downstream manhole to confine debris flushed out by the ball and permit passage of wastewater downstream. The rope or cable is passed under the roller and secured to the ball. The ball is then inserted into the outgoing pipe. Finally, hydrant water is introduced at an upstream manhole to raise the level in the upstream manhole to a depth of approximately 3 feet.

A few tugs on the rope, permitting some water to escape around the perimeter of the ball, will start the ball moving. Most of the water will escape around the lower surface of the ball since the ball's buoyancy will hold it against the top of the pipe. The static head will then force the ball to move downstream. The operator must keep the rope or cable tight to prevent it from overriding the ball if the ball is not inflated to a snug fit.

The ribbed ball flutters, rather than spins, in the pipe. It will develop about 6 inches of turbulent water on the downstream side, and this water will lift the debris and flush it toward the downstream manhole, where it can be shoveled out or removed by debris removal equipment.

If the ball stops moving, it is pulled back, increasing the flow around the ball, which levels the debris and allows the ball to proceed.

In general, the ball is inflated with enough air to make it fit snugly in the pipe, although some conditions can require the ball to be underinflated. The operators must learn through experience how much inflation is required.

The cross-sectional area of a cleaning ball increases with the square of its diameter. Thus, a 30-inch ball has four times the area of a 15-inch ball. With the same head of water behind

it, the 30-inch ball will have four times the propulsive force of a 15-inch ball and nine times the force of a 10-inch ball. Large cleaning balls are hard to control and difficult to handle.

(b) Hinged-Disc Cleaner:

The hinged-disc cleaner operates in a manner similar to that of the ball. The device is inserted into the outgoing sewer line. Flow is reduced and the resulting head causes the machine to roll down the pipe until debris is encountered. The scooter will then stop, causing the water to rise upstream. A cable attached to the device is then pulled back, causing the upper half of the disc to rotate backward and release the accumulated head. The velocity of the released water is generally several times the normal velocity of the sewage and washes the debris downstream, where it is removed at the next manhole.

When heavy debris is encountered, the device is pulled back, causing the flushing action, and then released. This operation results in a completely clean pipe.

The hydraulic force available increases with the square of the pipe diameter, while the amount of debris increases in proportion to the diameter. As a consequence, the scooter's ability and efficiency increase in larger pipe, but a large amount of water is required.

5. Plain Flushing

Plain flushing is a simple technique that can be justified only in flat areas where solids tend to settle out and become septic. Flushing requires only a hose connected to an upstream hydrant. The technique gives no assurance of good cleaning between manholes.

C8.08 CLEANING EQUIPMENT

There are five types of cleaning equipment:

- a. Rodding machines
- b. Bucket machines
- c. High-velocity jet machines
- d. Hydraulically propelled equipment
- e. Debris removal equipment (including combination machines)

Cleaning equipment is available with characteristics ranging from light to heavy duty. Each type of equipment can utilize special attachments, tools, and methods to expand its capabilities. Cleaning equipment will be evaluated here with emphasis on its primary application.

The Contractor should not be concerned with the type of equipment used provided that the specified results are obtained, unless the Contractor's equipment is likely to cause pipe damage, flooding of private property, or unless the type is specified in the contract.

The applications, advantages and limitations of each type of sewer cleaning equipment are summarized on the following pages.

1. Rodding Machines

Materials removed:

Most effective for dislodging roots and relieving blockages.

Applicable for dislodging and transporting sludge, mud, and grease using appropriate accessory tools and adequate flushing water.

Pipe size range:

Generally 6-inch to 18-inch pipes due to the limited pulling power and the tendency of the rod to bend in larger pipes.

Technique advantages:

Access to the downstream manhole only is required.

Can be used at the upstream manhole under surcharge conditions.

Threading the sewer line is not necessary; often used for threading sewer lines for other cleaning or inspection equipment.

Fast response to emergency stoppages.

Technique limitations:

Generally ineffective for cleaning heavy solids.

A large quantity of water is required for "brush and flush" cleaning.

Does not provide for removal of materials from the manhole.

Rod and/or tool can be broken off in the sewer line.

Operation is moderately hazardous.

2. Bucket Machines

Materials removed:

Most effective for dislodging, transporting and removing heavy solids such as gravel, rocks, bricks, and roots.

Applicable for dislodging and transporting mud, sand, and grease.

Pipe size range:

Generally 18-inch to 36-inch pipes make the best use of the available power although 8-inch to 15-inch pipes can be cleaned.

Technique advantages:

Provides the "iron and power" for removal of large amounts of heavy solids and roots.

Effective in large-diameter pipe.

Various buckets, scrapers, brushes, and squeegees are available.

Can remove materials from the manhole.

Technique limitations:

Access to both manholes is required.

Threading the sewer line is necessary.

Time consumed is longer than for other methods for light cleaning.

Uses heavy tools and has the power to damage the pipe.

Curved pipe, structurally damaged pipe, off-set joints, and intruding service connections can preclude the use of bucket machine tools.

Bucket machines are hazardous to transport, set up and operate.

3. High Velocity Jet Machines (capabilities depend on size of machine)

Materials removed:

Most effective for cleaning pipes of light solids such as sludge, mud, sand, and gravel.

Applicable for dislodging and transporting rocks and grease.

Capable of cutting light root growth by using special tools in pipes generally up to 12 inches in diameter. Some larger tools are available.

Effective for cleaning manholes using a scouring gun.

Pipe size range:

Most effective in 6-inch to 18-inch pipes. The effectiveness in larger pipes is reduced, especially on grease.

Materials can be cleaned from the invert of larger pipes by using a weighted nozzle.

Technique advantages:

Access to the downstream manhole only is required.

Threading the sewer line is not necessary; often used for threading sewer lines for other cleaning or inspection equipment.

Setup is fast.

Fast method for light cleaning and removal of blockages.

Operation is comparatively easy.

Effective for final cleaning prior to rehabilitation work.

Low pipe damage potential except in badly deteriorated pipe.

Few operator safety hazards are involved.

Jet cleaning provides ventilation when the upstream manhole cover is removed.

Technique limitations:

Water must be available reasonably near the work site.

Least effective on large and heavy materials such as roots, rocks, bricks.

Can cause cavitation of backfill outside broken pipe.

Does not provide for removal of materials from the manhole.

4. Hydraulically Propelled Equipment (cleaning ball, hinged-disc cleaner)

Materials removed:

Most effective for cleaning pipes of light solids such as sludge, mud, and sand.

Fair applicability for dislodging and transporting gravel, rocks, and grease.

Pipe size range:

Generally 8-inch to 36-inch pipes.

Best in intermediate sizes, with extreme caution required in large pipes (see Cleaning Precautions, Section 8.09 of these Specifications).

Technique advantages:

Crew access only to upstream and downstream manholes.

Minimum equipment requirements.

Operation is easy.

Few safety hazards are involved, except manhole entry.

Technique limitations:

A large quantity of water is required at or upstream of the site.

Basement flooding is a real possibility; may be used only where head in sewer will not exceed basement drain elevations.

Not applicable for removal of blockages .. sewer must be flowing.

Does not provide for removal of materials from the manhole.

Caution is required when using hydraulically propelled devices in large pipes due to the large propulsive force and the possibility of getting the equipment stuck in the sewer line with dig-up becoming the only solution.

5. Debris Removal Equipment (including combination machines)

Vacuum machines are primarily used for catch-basin cleaning and are often used for removal of materials from manholes when other cleaning equipment is used to dislodge and transport the materials to the access point. Some vacuum machines can remove heavy materials such as bricks. Most machines can separate solid materials from cleaning water and transport the debris to a dump site.

Note: A vacuum machine in combination with a jet machine is called a "combination machine."

Trash pumps are frequently used to remove sludge, mud, sand, and gravel from manholes.

Trailers (sometimes containing pumps, tanks and settling baffles) are frequently used to separate solid materials from cleaning water and to transport the debris to a dump site.

C8.09 CLEANING PRECAUTIONS

The Contractor should be aware of several precautions to be taken during cleaning operations.

Eroded, corroded, or otherwise structurally deteriorated pipe may collapse during cleaning operations. Visible inspection must be used to ascertain the advisability of cleaning. Sometimes a television inspection must be made prior to cleaning in such situations.

Clean soil and pieces of broken tile observed in a manhole trough are strong indications of broken, crushed, or collapsed pipe in the upstream section. Exercise due caution.

Full gage cleaning tools are subject to getting "hung up" on off-set joints, intruding service connections, root masses, and other obstructions. A tag cable and winch should be used when practical to retrieve cleaning tools and devices.

Pipe damage is possible any time powerful cleaning equipment is used. Cleaning equipment and tools should be matched to both the job and pipe conditions to avoid pipe damage.

When bucket machines are used, downhole cable rollers should always be employed. Properly installed, the lower "V" of the roller should be just below the top of the sewer pipe so the cable does not rub or catch on the entrance to the pipe. The roller must be high enough to permit free passage of the bucket into and out of the sewer pipe.

When hydraulically propelled cleaning tools (which depend on water pressure to provide their cleaning force) or any equipment which retards the flow in the sewer is used, a real possibility of a sewage back-up resulting in flooding and property damage exists. When a hydraulically propelled cleaning tool stops moving downstream for any reason (e.g., stopped by a roller in a downstream manhole), a sewage back-up starts to take place, especially if water is being added from an upstream hydrant. The Contractor should be on the lookout for such a situation.

#### C8.10 DISPOSAL OF MATERIALS

Solids or semisolids resulting from the cleaning operations should be removed from the site and disposed of at a site designated by the District. All materials should be removed from the site at the end of each workday. The Contractor may be allowed to accumulate debris at the work site beyond the stated time in enclosed containers and as approved by the District.

#### C8.11 ROOT REMOVAL

Roots should be removed in the designated sections where root intrusion is a problem. Special attention should be used during the cleaning operations to assure almost complete removal of roots from the joints prior to joint sealing. Roots which could prevent the seating of the packer or could prevent the proper application of chemical sealants must be removed. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters, root saws, porcupines, and jet machines equipped with hydraulically driven cutters.

#### C8.12 CHEMICAL ROOT TREATMENT

To aid in the control of roots, manhole sections that have root intrusion may be treated with an Environmental Protection Agency (EPA) registered herbicide. The application of the herbicide to the roots should be done in accordance with the manufacturer's recommendations and in such a manner to preclude damage to surrounding vegetation. Damaged vegetation shall be replaced by the Contractor at no additional cost to the District. Safety precautions as recommended by the manufacturer should be adhered to concerning handling and application of the herbicide.

#### C8.13 CHEMICAL ROOT TREATMENT METHODS

With the following application methods, roots absorb the killing agent and inhibitor. Soil in the sewer joints absorbs the inhibitor allowing it to be effective for as much as three years in open joints.

The material may be applied by the "soak" method by plugging the lower end of the line to be treated, filling it with a 1 percent fumigant solution for an hour or longer, and then allowing the solution to flow downstream to the next manhole section to be treated.

The preferred method of treating roots with a foam fumigant is as follows: The foam generator is set up at the downstream manhole. The fumigant hose is pulled through the sewer to the upstream manhole. The foam generator is then started and run until foam shows at the upstream manhole. The hose is then retrieved at a rate given on a chart provided by the equipment supplier (approximately 0.7 foot per second or 42 feet per minute in an 8-inch pipe). Foaming is terminated when foam appears at the downstream manhole. No plugs need to be used as the sewage will flow under the foam and does not rapidly wash it away. The foam tends to cling to the upper portion of the sewer giving the roots time to absorb the fumigant.

#### C8.14 FINAL ACCEPTANCE

Acceptance criteria for sewer line cleaning shall be as specified in the contract. The District Engineer should be satisfied that the degree of cleaning is adequate for the purpose and intent of the contract. Acceptance of sewer cleaning shall be made upon the successful completion of the television inspection if specified in the contract. If TV inspection shows the cleaning to be unsatisfactory, the Contractor should reclean and reinspect the sewer line until the cleaning is shown to be satisfactory. If internal sealing is to follow the television inspection, particular attention should be given to the adequacy of the cleaning to insure that proper seating of the sealing packer can be achieved.



#### C8.15 VARIABLES WHICH AFFECT THE DIFFICULTY OF SEWER CLEANING

The Contractor should be familiar with the many variables which may have impact on his performance, production and cost on any particular sewer cleaning job. Some variables apply to each manhole section to be cleaned.

1. Locating, exposing, removing manhole covers.
2. Access to manholes, terrain, traffic control requirements.
3. Condition of the manholes -- steps, cleanliness, structure.
4. Depth of the sewer -- difficulty of entry and debris removal.
5. Size of the pipe.
6. Depth and velocity of sewage flow.
7. Structural integrity of the pipe.
8. Off-set joints, intruding service connections, curved pipe.
9. Availability of hydrant water at or upstream of the site.
10. Depth of deposition in the pipe.
11. Type of solid materials to be removed, arranged in order of increasing difficulty -- sludge, mud, sand, gravel, rocks, grease, bricks and roots. Roots are difficult to remove completely and may be a significant factor.
12. Degree of cleanliness required -- see Intent, Article C8.01 of these specifications.
13. Productivity differences in cleaning successive vs. random manhole sections.
14. Requirements for transportation and disposal of solid materials and distance to the disposal site.

## SECTION C9 - SEWER FLOW CONTROL

### C9.01 INTENT

Most cleaning, inspection, joint testing, joint sealing, sewer lining and excavation operations require minimal, or at least acceptable, depth of flow in order to be performed effectively. The Contractor should be aware that excessive depth of flow will inhibit and may even prevent some cleaning, inspection and rehabilitation procedures. The Contractor should know the provisions, requirements, specifications and responsibilities for sewer flow control (if any) that are contained in the contract. Attention by the Contractor is directed to Article C1.09, Safety and Health Provisions, of these Specifications with respect to CAL OSHA rules and regulations to follow before entering manholes.

### C9.02 DEPTH OF FLOW

For effective television inspection, joint testing and/or sealing operations, the depth of flow at the upstream manhole of the manhole section being worked should (where practical) be within the recommended limits given below:

Recommended Maximum Depth of Flow for Television Inspection:

6" - 10"	Pipe	20% of pipe diameter
12" - 24"	Pipe	25% of pipe diameter
27" & up	Pipe	30% of pipe diameter

Recommended Maximum Depth of Flow for Joint Testing/Sealing:

6" - 12"	Pipe	25% of pipe diameter
15" - 24"	Pipe	30% of pipe diameter
7" & up	Pipe	35% of pipe diameter

When depth of flow is greater than recommended for television inspection, joint testing and/or sealing, the flow may be reduced by operation of pump stations, plugging, or by pumping and bypassing of the flow.

### C9.03 PLUGGING

A sewer line plug may be installed upstream of the section being worked. The plug should be designed to permit a portion of the sewage to be released. After the work has been completed, sewage flow should be restored to normal.

Sewer plugs are always installed in the upstream (incoming) pipe of a manhole. It is desirable that the plug be equipped with an airhose to permit deflation from above ground. A strong rope should be attached to enable the plug to be quickly pulled out of the manhole. Care must be taken to prevent a plug from being pushed into the outgoing pipe when the backed-up sewage is released.

C9.04 PUMPING AND BYPASSING

When pumping and bypassing is required, pumps, conduits, and other equipment are needed to bypass the flow of sewage around the manhole section in which work is to be performed. The bypass system should have sufficient capacity to handle the existing flow plus additional flow that may occur.

C9.05 FLOW CONTROL PRECAUTIONS

When the flow in a sewer line is reduced, plugged, or bypassed, precautions must be taken to insure that the operations do not cause flooding or damage to public or private property. The Contractor should closely monitor sewer surcharging upstream of the manhole section being worked and be alert for situations such as residential flooding that would be likely to occur, particularly where there are steep sewers serving houses with basements having floor drains or toilet facilities.

## SECTION C10 - TELEVISION INSPECTION

### C10.01 EQUIPMENT AND TV PICTURE QUALITY

The TV camera shall be specifically designed for sewer inspection: small, rigged, and waterproof. The camera shall have its own light source suitable to provide a clear picture of the entire periphery of the pipe and defects. The camera shall be able to rotate and look directly into the laterals, providing clear sharp images.

The camera, television monitor, and other components of the video system shall be capable of producing a picture quality which is adequate for the purpose of inspection as stated in the contract.

Attention by the Contractor is directed to Article C1.09, Safety and Health Provisions, of these Specifications with respect to CAL OSHA rules and regulations to follow before entering manholes.

### C10.02 TV INSPECTION PROCEDURES

Clean the designated sewer lines prior to conducting closed circuit television inspections.

The camera shall be moved through the line in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer condition. For a detailed inspection, the camera shall not travel a speed greater than 30 feet per minute. Manual winches, power winches, TV cable power rewinds, self-propelled cameras or other approved methods shall be used to move the camera through the sewer line.

Conduct a television inspection of each designated sewer line to determine obstructions, pipe deficiencies, infiltration locations, lateral locations, and any other abnormalities. At each such location pan the camera to the side to view the area in more detail. Also take a still digital photo of each problem area.

Each photographic image shall be saved in a JPEG file format and named with the footage of the event to the nearest tenth of a foot without a decimal point followed by an abbreviation indicating the type of event.

The files shall be stored within file folders named for the upstream manhole numbers. Make a general assessment of the general conditions of each sewer section, and each manhole used for setup, relative to other sewer sections and manholes.

Contractor shall provide a video log of each section of pipe televised stating the date televised, direction of camera, pipe size and type, manhole inverts, conditions of manholes and pipe and commentary on findings. Locate where still photographs were taken on the logs.

Contractor will provide digital images on CDs.

Contractor will provide labeled videotapes of the inspections in VHS-format.

If, during the inspection operation, the television camera will not safely pass through the entire sewer section, the Contractor shall set up his equipment so that the inspection can be performed from the opposite manhole. If, again the camera fails to pass through the entire sewer section, the inspection of the sewer section is considered complete for purposes of payment.

### C10.03 DISTANCE MEASUREMENTS

The Contractor shall record reasonably accurate distance measurements for the purpose of locating defects. Distance measurements shall be made above ground by means of a meter device (footage meter) on the TV cable. The footage meter shall have an error not to exceed +/-2% or 2 feet per 100 feet.

The Contractor shall check that the crew sets the footage meter to indicate the distance from the center of the near manhole to the pipe location which is in clear focus on the television monitor. This shall be done by the following procedure:

1. Measure the length of the pipe to the first or second joint outside the manhole.
2. Move the camera into the pipe and secure the TV cable roller in place.
3. Take the slack out of the TV cable and move the camera into the pipe until the measured joint appears in clear view and focus on the television monitor.
4. Add the radius of the manhole (usually 2 feet) to the measured joint distance and set this initial number on the footage meter.

The Contractor shall check the accuracy of the distance measurements when corrective action or a dig-up may be required by the District. The accuracy of the footage meter shall be checked by taking a reading at the entrance to the away manhole and comparing with a surface measurement made with steel tape or walking meter (Roll-A-Tape).

#### C10.04 DOCUMENTATION

Documentation of television inspection by the Contractor shall be performed in accordance with the specifications. The documentation (entering data on inspection logs) shall be properly, accurately and legibly done during (not after) the TV inspection of each manhole section. TV reports can be assembled elsewhere, but documentation must be done in the field.

The following methods of documentation shall be used in combination:

1. Television Inspection Logs: Written records show the location in relation to an identified manhole of each infiltration point observed during inspection. In addition, other points of significance such as locations of building sewers, unusual conditions, roots, storm sewer connections, broken pipe, presence of scale and corrosion, and other discernible features are recorded and a copy of the records is supplied to the District.
2. Videotape and Digital Photos Recordings: The purpose of tape recording and Digital Photos is to obtain a visual and audio record of the pipe conditions that may be replayed at a later time.

TV inspection logs should contain the following information:

- District's name
- Inspector's Name
- Crew Chief's Name
- Date
- From MH No. \_ located at \_
- To MH No. \_ located at \_
- Direction of Flow
- Type of Pipe
- Type of Joints, if apparent
- Joint Spacing
- Cleanliness
- Manhole Conditions
- Section Length
- Pipe Size
- Depth of Pipe

- Direction of Inspection (camera movement)
- Locations where digital photos were taken.

Pipe defects shall be located by footage and clock reference and shall be described using the following terms:

Cracked Pipe-	crack lines visible, pieces still in place
Open Crack-	crack openings visible, pieces still in place
Broken Pipe-	pieces displaced, some pieces may be missing
Crushed Pipe-	extensively broken and out-of-round pipe
Collapsed Pipe-	all structural integrity lost, pipe flattened
Circumferential Defect-	a circular defect
Longitudinal Defect-	parallel to the pipe axis
Erosion-	pipe worn away by the flow, generally at the bottom
Corrosion-	pipe deteriorated by acid attack, generally at the top
Dip-	a divergence in the alignment of pipes
Misalignment-	a divergence in the alignment of pipes
Offset Joint-	the spigot is not concentric with the bell
Off-set Lateral	
Separated joint-	longitudinal displacement of pipes
Plugged or Broken Lateral	
Infiltrating Joint-	groundwater entering pipe at joint

C10.05 TERMS USED IN INSPECTION REPORTS

The Contractor shall be familiar with the terms used to describe and document sewer construction and pipe conditions, at least to the extent required for adequate and accurate interpretation of reports by the District. Generally accepted terminology follows:

Manhole Components:

Aprons (bench) -	standing room at the bottom of the manhole, containing the trough
Base-	the structural foundation of the manhole
Corbel-	that portion of a manhole structure which slopes upward and inward from the barrel of the manhole to the manhole frame

Depth of Invert-	the distance from the top of the manhole ring (street surface) to the sewer invert
External Drop-	incoming sewage drops to the trough in a vertical pipe outside the manhole wall
Internal Drop-	incoming sewage free-falls in the manhole to the trough
Invert-	the floor, bottom or lowest point of a conduit (sewer)
Invert Elevation-	the height above sea level of the sewer invert
Manhole Ring (frame)-	usually an iron casting used to top off the manhole and to act as the base for the cover
Trough-	the channel at the bottom of the manhole through which sewage flows
Walls-	the vertical (usually cylindrical) portion of the manhole

#### C10.06 TYPES OF PIPE (Abbreviations)

Acrylonitrile-butadiene-styrene (ABS)  
 Asbestos-Cement (AC)  
 Brick Pipe (BP)  
 Cast Iron Pipe (CIP)  
 Concrete Pipe (CP)  
 Corrugated Metal Pipe (CMP)  
 Polyethylene (PE)  
 Polyvinyl Chloride (PVC)  
 Reinforced Concrete (RC)  
 Reinforced Plastic Mortar (RPM)  
 Steel Pipe (SP)  
 Vitrified Clay Pipe (VCP)

#### C10.07 TYPES OF SEWER PIPE JOINTS

Asphaltic/Bituminous  
 Cement Mortar  
 Compression Gasket (e.g. O-ring, molded elastomeric seal)  
 Solvent Weld (e.g. ABS & PVC pipe)  
 Thermal Weld (e.g. Polyethylene pipe)

#### C10.08 TYPES OF SERVICE CONNECTIONS

Intruding Service Connection – is a building sewer pipe inserted into the street sewer (often through a hole broken through the side of the street sewer) which intrudes into the sewer

Saddle Tap– is a device used for a cut-in connection.

Tee– manufactured pipe fitting, enters pipe at 90° angle.

Wye– manufactured pipe fitting, enters pipe at less than 90° angle.

C10.09 VARIABLES WHICH AFFECT THE DIFFICULTY OF TV INSPECTION

The Contractor should be familiar with the many variables which may have impact on his performance. Some variables applying to each manhole section to be inspected are as follows:

1. Locating, exposing, removing manhole covers.
2. Access to manholes, terrain, traffic control requirements.
3. Condition of the manholes, steps, cleanliness, structure.
4. Depth of the sewer, difficulty and safety of entry.
5. Depth and velocity of sewage flow.
6. Availability of water for threading the sewer line.
7. Plugging requirements--ability to plug, necessity to bypass.
8. Presence of explosive gas or combustible liquid.
9. Off-set joints, intruding joint materials, intruding service connections, curved pipe, crushed pipe and other obstructions which could prevent the passage of the camera.
10. Cleanliness of the pipe and the presence of root curtains or grease, which could foul the camera lens.
11. Size of the pipe, 6 and 8-inch pipe is tight and may involve equipment clearance problems; 10 to 21-inch pipe is best for inspection; 24 to 36-inch pipe may require special illumination and skids.
12. Production is sensitive to the number of setups required; it is possible to televise 1000 feet in one direction from a single location when inspecting successive manhole sections. Random inspection of single manhole sections is more time-consuming.
13. Requirements for documentation by means of monitor photographs and videotape recording.
14. Weather conditions--rain affects the production rate.



## SECTION C11 - SMOKE TESTING

### C11.01 EQUIPMENT

The Contractor shall provide a portable blower designed and built specifically for the use of smoke testing. The blower shall be self-contained and powered by a minimum three (3) horsepower (HP) gasoline engine and be capable of producing a minimum of 1800 cubic feet of air per minute. In addition to the blower, the Contractor shall provide all other equipment and tools and incidentals required to perform smoke testing as required by these specifications.

Attention by the Contractor is directed to Article C1.09, Safety and Health Provisions, of these Specifications with respect to CAL OSHA rules and regulations to follow before entering manholes.

### C11.02 SMOKE BOMB

The smoke bombs shall produce a chemical reaction generating white gray smoke, leaving no residue, and shall be non-toxic and non-explosive. Each bomb shall be capable of producing 100,000 cubic feet of smoke within five (5) minutes.

Manufacturer's literature on the smoke bombs to be used in this project shall be provided by the Contractor for review by the District Engineer prior to commencement of any work.

### C11.03 PERSONNEL

The Contractor's employees performing the smoke testing under the provisions of these Specifications shall be properly trained in the use of the equipment and procedures. As a minimum, they shall have at least five (5) days of previous testing experience. The five (5) days of experience shall have been acquired within a maximum of six (6) months prior to the date of award of this contract, unless specifically waived by the District. A list of employees to be used shall be provided to the District upon request.

### C11.04 PROCEDURE

Upon award of the Agreement by the District and PRIOR TO COMMENCING ANY WORK, the Contractor shall provide a complete WORK SCHEDULE to the District Engineer for review and approval. The Work Schedule shall be typed and shall indicate the planned progress for the proposed work.

The Work Schedule shall indicate the following:

- a. Street Name (In easements – the names of the abutting streets).
- b. Street Limits (Cross streets or property addresses).
- c. Upstream and Downstream Manhole Numbers (from District Maps).
- d. Date of Testing.
- e. Starting Time.
- f. Ending Time.

The Contractor shall not commence testing before 8 a.m. and shall terminate testing no later than 4 p.m. each day. If the Contractor wishes to test before 8 a.m. in commercial areas of the District, such testing shall be shown on the submitted WORK SCHEDULE and is subject to the approval of the District Engineer. Smoke Testing shall not be performed on weekends or holidays without prior approval of the District Engineer.

Once the WORK SCHEDULE is approved by the District Engineer, the Contractor shall not make any revisions or modifications to it without the WRITTEN APPROVAL of the District Engineer.

The Contractor shall not perform smoke testing on days that, in the opinion of the District Engineer, will hinder the results of the test.

#### C11.05 NOTIFICATION AND PUBLIC INFORMATION

1. The Contractor shall notify all providers of emergency service by phone daily of the area to be tested the next day of work. Notification shall be 24 hours in advance of the testing.

Providers of emergency services shall include the police, fire and medevac agencies which serve the area being smoke tested.

It shall be the Contractor's responsibility to keep adequate records of all notifications to emergency services and to produce them upon request by the District. Failure to comply with this requirement may be cause for the District to suspend the Contractor's operations until compliance is achieved.

2. The Contractor shall notify, by hand delivery of a notification letter to each address, all RESIDENCES AND BUSINESSES in the area to be tested 48 hours in advance of the testing.
3. The Contractor shall require all personnel to demonstrate good judgement in performing the testing. The Contractor shall take appropriate action to insure that his employees are polite to the public in all aspects of the work and that immediate assistance is provided to property owners if needed.

#### C11.06 RECORDS

1. The Contractor shall prepare and submit 2 bound report copies of the smoke testing to the District Engineer. The report shall contain a typed log that clearly identifies each sewer main tested. For each sewer main tested, the log shall identify each point of smoke exfiltration from:
  - a. Roof gutters
  - b. Sewer Cleanouts
  - c. Leakage in house laterals
  - d. Patio or area drains
  - e. Storm drain cross connections
  - f. Any other source not stated above
2. The points of exfiltration, as identified above, shall be referenced to permanent landmarks and/or house or lot numbers. Record the magnitude and locations of smoke emissions using a laser measuring system, digital camera and field work sheets.

All smoke testing information shall be accurately and neatly recorded on field worksheets and on 200 scale maps (1 in. = 200 ft.) or other maps of suitable scale as provided by the District. The form of the field worksheet shall be approved by the District Engineer prior to the commencement of work by the Contractor.

Provide two (2) complete copies of a bound report including a copy of the photographs, descriptions of the smoke emissions and maps showing the location of each emission. Also provide digital images on CDs.

C11.07 SAFETY

The Contractor and his personnel shall be aware of and follow all Federal, State and Local safety laws and regulations. Specific attention is directed to Article C1.09 Safety and Health Provisions of these specifications.

Prior to placing any smoke bombs into a manhole, the Contractor shall first evacuate the system with a blower.

The area of work shall at all times be protected by means of an adequate number of cones, barricades, flags or whatever means is necessary to properly and safely protect both vehicular and pedestrian traffic.

Any condition deemed to be an unsafe condition shall be immediately corrected by the Contractor. The failure of the District Engineer or its representatives to bring a potentially dangerous situation to the Contractor's attention shall not relieve the Contractor from his responsibility for providing a safe work area.

## SECTION C12 - PRIVATE PUMPING SYSTEMS

### C12.01 SCOPE

Private pumping systems include the furnishing, installing, and testing of pumps, pumping appurtenances, supports, anchors, fittings, valves, specials, and all necessary appurtenances to make the work complete and operable.

### C12.02 MATERIALS

#### 1. Scope

Pumping materials that may be used are covered under this section. The inclusion of all acceptable material does not infer that any of the materials listed below may be used on any project for any set of conditions.

This section covers materials for a complete factory-built and tested Grinder Pump Station(s). Each station consists of grinder pump(s) suitably mounted in a basin constructed of fiberglass or high density polyethylene (HDPE), electrical quick disconnect (NEMA 6), pump removal system, shut-off valve, anti-siphon valve, and check valve assembled within the basin, electrical alarm/disconnect panel, and all necessary internal wiring and controls.

#### 2. Grinder Pump System

Private grinder pumps shall be semi-positive displacement pumps that allow predictable flows and tolerance of widely varying system pressures. Also, pumps shall allow quick and easy servicing and reliable service.

The pump shall have a single mechanical seal. The rotor shall be through hardened, highly polished stainless steel. The stator shall be of a specifically compounded ethylene propylene synthetic elastomer enclosed in cast iron suction housing for durability. Buna N is not an acceptable stator material. The material shall be suited for domestic wastewater service. Its physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, exceptional aging properties, and outstanding wear resistance.

Grinder pumps shall meet the following minimum design characteristics:

- 0' TDH @ 15 gpm
- 138' TDH @ 9 gpm (60 psig)

The pump shall be capable of running at negative total dynamic head without overloading the motor. Under no conditions shall inline piping or valving be used to create a false apparent head.

#### A. Grinder:

The grinder shall be capable of reducing all components in normal domestic sewage. This includes a reasonable amount of "foreign objects", such as paper, wood, plastic, glass, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1-1/4" diameter discharge piping. All components must be of durable materials to withstand shock loading from grinding of solid objects.

B. Electric Motor:

At a minimum, the motor shall be a 1 HP, 1725 RPM, 240 Volt 60 Hertz, 1 Phase, capacitor start, ball bearing, squirrel cage induction type with a low starting current not to exceed 30 amperes and high starting torque of 8.4 foot pounds. Running current at maximum head is not to exceed 8.0 amps.

C. Tank & Integral Accessway:

The tank shall be made of high density polyethylene of a grade selected for environmental stress cracking resistance. Corrugated sections are to be made of a double wall construction with the internal wall being generally smooth to promote scouring. Corrugations of outside wall are to be of minimum amplitude of 1 1/2" to provide necessary transverse stiffness. Any incidental sections of a single wall construction are to be a minimum .250 inch thick. All seams created during tank construction are to be thermally welded and factory tested for leak tightness. Tank wall and bottom must withstand the pressure exerted by saturated soil loading at maximum burial depth. All station components must function normally when exposed to maximum external soil and hydrostatic pressure at burial depth.

The station shall have all necessary penetrations molded in and factory sealed. No field penetrations shall be acceptable.

All discharge piping shall be constructed of 304 Series Stainless Steel and terminate outside the accessway bulkhead with a stainless steel, 1 1/4 inch female NPT fitting. The discharge piping shall include a stainless steel ball valve rated for 200 psi WOG. The bulkhead penetration shall be factory installed and warranted by the manufacturer to be watertight.

The accessway shall include a single NEMA 6 electrical quick disconnect for all power and control functions, factory installed with accessway penetrations for electrical cable warranted by the manufacturer to be watertight. The accessway shall also include a 2-inch PVC vent to prevent sewage gases from accumulating in the tank. The tank shall have a lockable cover.

D. Check Valve:

The pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve built into the stainless steel discharge piping. The check valve will provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow. Working parts will be made of a 300 series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A non-metallic hinge shall be an integral part of the flapper assembly providing a maximum degree of freedom to assure seating even at a very low backpressure. The valve body shall be an injection-molded part made of glass filled PVC.

Each grinder pump station shall also include one separate check valve for installation in the 1 1/4" service lateral between the grinder pump station and the sewer main, see District Standard Detail No. 18.

E. Core Unit:

The Grinder Pump Station shall have cartridge type easily removable core assemblies containing pump, motor, grinder, all motor controls, check valve, anti-siphon valve, electrical quick disconnect and wiring. The watertight integrity of each core unit, shall be established by 100% factory test at a minimum of 5 PSIG.

F. Controls:

All necessary controls shall be located in the top housing of the core unit. The top housing will be attached with stainless steel fasteners.

Non-fouling waste water level detection for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral air-bell level sensor connected to a pressure switch. The level detection device shall have no moving parts in direct contact with the wastewater.

High-level sensing will be accomplished in the manner detailed above by a separate air-bell sensor and pressure switch of the same type.

To assure reliable operation of the pressure sensitive switches, each core shall be equipped with a breather assembly, complete with a suitable means to prevent accidental entry of water into the motor compartment.

The grinder pump will be furnished with a length of 6 conductor 14 gauge, type SJOW cable, pre-wired and watertight to meet UL requirements.

G. Alarm/Disconnect Panel:

Each grinder pump station shall include a NEMA 3R, UL listed alarm/disconnect panel suitable for wall or pole mounting. The NEMA 3R enclosure shall be manufactured of thermoplastic to assure corrosion resistance. The enclosure shall include a hinged, pad lockable cover, secured dead front and component knockouts. The enclosure shall not exceed 7.5"W x 8.75"H x 3.75"D.

For each core, the panel shall contain one (1) - 15 amp, double pole circuit breaker for the power circuit and one (1) 15 amp single pole circuit breaker for the alarm circuit. The panel shall contain terminal blocks, integral power bus, push to run feature and a complete alarm circuit.

The alarm/disconnect panel shall include the following features: audio & visual alarm, push to run switch, and high level (redundant) pump starting control.

The alarm sequence is to be as follows:

1. *When liquid level in the sewage wet-well rises above the alarm level, visual and audio alarms will be activated. The contacts on the alarm pressure switch will close. The redundant pump starting system will be energized.*
2. *The audio alarm may be silenced by means of the externally mounted, push-to-silence button.*
3. *Visual alarm remains illuminated until the sewage level in the wet-well drops below the "off" setting of the alarm pressure switch.*

The visual alarm lamp shall be inside a red fluted lens at least 2 5/8" in diameter and 1 11/16" in height. Visual alarm shall be mounted to the top of the enclosure in such a manner as to maintain NEMA 3R rating. For duplex units, in addition to the above, two high-level indicator lights shall be mounted behind the access cover. During a high level alarm condition the appropriate light will illuminate to indicate which pump core requires servicing.

The audio alarm shall be a printed circuit board in conjunction with an 86 dB buzzer with quick mounting terminal strip mounted in the interior of the enclosure.

The audio alarm shall be capable of being de-activated by depressing a push-type switch, which is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure.

The entire Alarm/Disconnect Panel as manufactured, shall be listed by Underwriters Laboratories, Inc.

H. Serviceability:

The grinder pump core unit shall have two lifting hooks complete with nylon lift-out harness connected to its top housing to facilitate easy core removal when necessary. All mechanical and electrical connections must provide easy disconnect accessibility for core unit removal and installation. A push to run feature will be provided for field trouble shooting. All motor control components shall be mounted on a readily replaceable bracket for ease of field service. A stainless steel ball valve handle in the open position shall envelop the core stainless steel discharge piping to require valve to be closed before core can be removed.

I. Factory Test:

Each grinder pump shall be submerged and operated for 5 minutes (minimum). Included in this procedure will be the testing of all ancillary components such as, the anti-siphon valve, check valve, discharge line, level sensors and each unit's dedicated controls. All factory tests shall incorporate each of the above listed items. Actual appurtenances and controls, which will be installed in the field, shall be particular to the tested pump only. A common set of appurtenances and controls for all pumps will not be acceptable. Certified test results shall be available upon request showing the operation of each grinder pump at two (2) different points on its curve, with the maximum pressure no less than 60 psi.

All completed stations shall be factory leak tested to assure the integrity of all joints, seams and penetrations. All necessary penetrations such as inlets, discharge fittings and cable connectors shall be included in this test along with their respective sealing means (grommets, gaskets etc.).

J. Manufacturer:

The grinder pump system shall be manufactured by Environment One or equal.

3. Piping

Laterals shall be constructed of HDPE SDR 11 or Schedule 80 PVC.

C12.03 INSTALLATION

Earth excavation and backfill are specified under Section C2, but are also to be done as a part of the work under this section, including any necessary sheeting and bracing. The Contractor shall be responsible for handling ground water to provide a firm, dry subgrade for the structure, and shall guard against flotation or other damage resulting from general water or flooding. The Grinder Pump Stations shall not be set into the excavation until the Engineer has approved the installation procedures and excavation.

The basin will be supplied with a standard 4" inlet grommet (4.50" OD) for connecting the incoming sewer line. Appropriate inlet piping must be used. The basin may not be dropped, rolled or laid on its side for any reason.

Installation shall be accomplished so that 1" to 4" of accessway, below the bottom of the lid, extends above the finished grade line. The finished grade shall slope away from the unit. The diameter of the hole must be large enough to allow for the concrete anchor.

A 6" inch (minimum) layer of naturally rounded aggregate, clean and free flowing, with particle size of not less than 1/8" or more than 3/4" shall be used as bedding material under each unit. A concrete anti-flotation collar, as detailed on the drawings, and sized according to the manufacturer's instructions, shall be required and shall be pre-cast to the grinder pump or poured in place. Each Grinder Pump Station with its

precast anti-flotation collar shall have a minimum of three (3)-lifting eyes for loading and unloading purposes. The unit shall be leveled, and filled with water, to the bottom of the inlet, to help prevent the unit from shifting while the concrete is being poured. The concrete must be manually vibrated to ensure there are no voids. If it is necessary to pour the concrete to a level higher than the inlet piping, an 8" sleeve is required over the inlet prior to the concrete being poured.

The electrical enclosure shall be furnished, installed and wired to the Grinder Pump Station. An alarm device is required on every installation, there shall be NO EXCEPTIONS. It will be the responsibility of the Contractor and the Engineer to coordinate with the individual property owner(s) to determine the optimum location for the "Alarm/disconnect Panel."

Mount the alarm device in a conspicuous location, as per national and local codes. The Alarm/disconnect Panel will be connected to the Grinder Pump Station by a length of six-(6) conductor 12 gauge TC type cable as shown on the contract drawings. The power and alarm circuits must be on separate power circuits.

#### C12.04 START-UP AND FIELD TESTING

All equipment and materials necessary to perform testing shall be the responsibility of the Contractor. This will include, as a minimum, a portable generator (if temporary power is required) and water in each basin.

Testing shall be done per the County or City requirements.

Upon completion of the installation, the following test is recommended on each station:

1. *Make certain the discharge shut-off valve is fully open. This valve must not be closed when the pump is operating. In some installations, there may be a valve(s) at the street main that must also be open.*
2. *Turn ON the alarm power circuit.*
3. *Fill the wet well with water to a depth sufficient to verify the high level alarm is operating. Shut off water.*
4. *Turn ON pump power circuit. Initiate pump operation to verify that the automatic "on/off" control is operative. Pump should immediately turn ON. Within one (1) minute alarm light will turn OFF. Within three (3) minutes the pump will turn OFF.*

END PART C



**PART D**  
**STANDARD DRAWINGS**

STD. NO.

1	MANHOLE FRAME AND COVER
2	PRESSURE TYPE MANHOLE FRAME AND COVER
3	STANDARD MANHOLE
4	MANHOLE STEP
5	MANHOLE DROP INLET
6	STANDARD BACKFILL DETAIL
7	CONCRETE CAP
8	SERVICE LATERAL UTILITY CROSSING
9	FLUSHING INLET OR LAMP HOLE
10	TYPICAL SERVICE LATERAL CLEANOUT
11	LATERAL RECONNECTION DETAIL NEW SEWER MAIN CONSTRUCTION
12	LATERAL CONNECTION TO VCP MAIN TYPE 1 & TYPE 2
13	LATERAL CONNECTION TO EXISTING VCP MAIN TYPE 5
14	LATERAL CONNECTION
15	BUILDING CLEANOUT AND BACKWATER OVERFLOW DEVICE
16	BACKWATER CHECK VALVE AND SHUTOFF SYSTEM
17	TYPICAL GRINDER PUMP INSTALLATION
18	GRINDER PUMP SYSTEM CONNECTION TO COMMON FORCE MAIN
19	GRINDER PUMP SYSTEM CONNECTION TO GRAVITY MAIN SYSTEM
20	GREASE & SAND INTERCEPTOR

"G.S.D." OR  
"SANITARY  
SEWER"

ONE MAN BLIND  
PICK HOLE

SANITARY  
SEWER

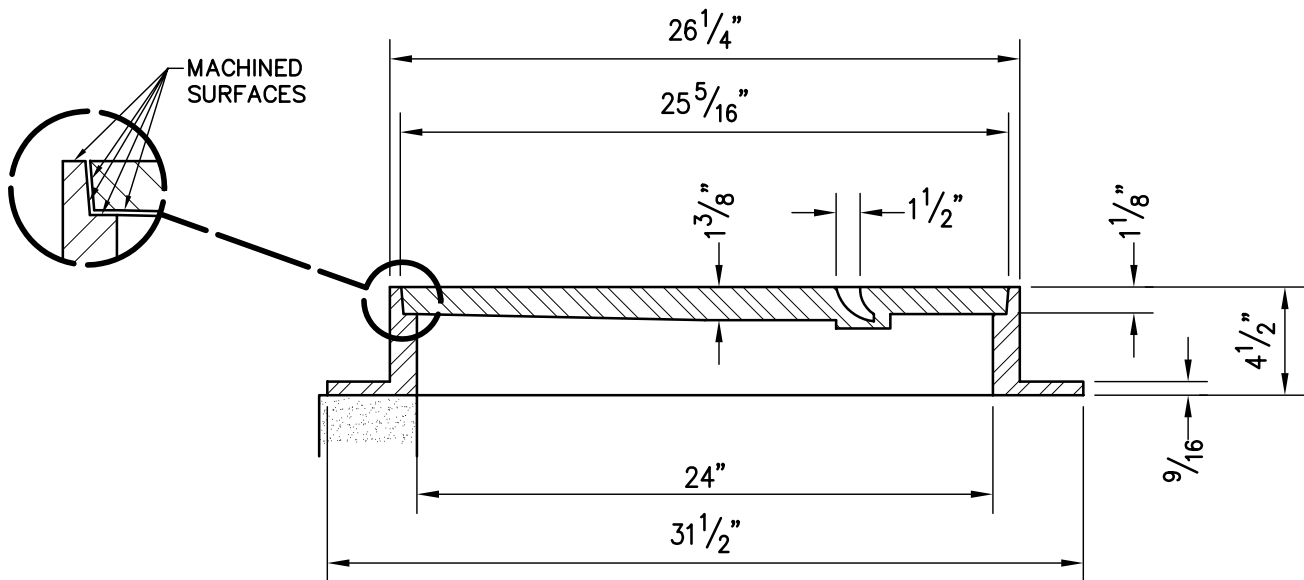
ASTM GRID  
PATTERN

$\frac{1}{8}$ "  
 $\frac{1}{8}$ "

GROUT HOLE  
4 - EQUALLY  
SPACED

$3\frac{1}{2}$ "

PLAN



SECTION

SCALE:  $1\frac{1}{2}$ " = 1'-0"

NOTE:

1. FRAME AND COVER SHALL BE D&L SUPPLY A-1024M, PHOENIX IRON WORKS P-1090 R/G, OR EQUAL.
2. FRAME AND COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF AASHTO H-20 LOADING.

APPROVED BY:

..... HOWARD L. HOFFMAN .....

DATE: .. FEBRUARY 2003 .....

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**MANHOLE FRAME AND COVER**

STANDARD No.

**1**

"G.S.D." OR  
"SANITARY SEWER"

4-1/2" HEX-HEAD  
STAINLESS STEEL  
BOLTS

ONE MAN BLIND  
PICK HOLE

G.S.D.

ASTM GRID  
PATTERN

GROUT HOLE  
4-EQUALLY  
SPACED

1/8"  
1"

2"

3 1/2"

PLAN

MACHINED  
SURFACES  
SAME AS D-1

26 1/4"

25 5/16"

1 3/8"

1 1/2"

1 1/8"

1/4" DIA. NEOPRENE  
"O" RING SEAL

4 1/2"

4-5/8" CINCH  
ANCHORS

24"

MANHOLE

3 1/2"

SECTION

SCALE: 1 1/2" = 1'-0"

NOTES:

1. MAXIMUM ALLOWABLE PRESSURE SHALL BE 10 P.S.I.
2. FRAME AND COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF AASHTO H-20 LOADING.
3. FRAME AND COVER SHALL BE D&L SUPPLY E-1928, PHOENIX IRON WORKS P-1002, OR EQUAL.

APPROVED BY:

HOWARD L. HOFFMAN

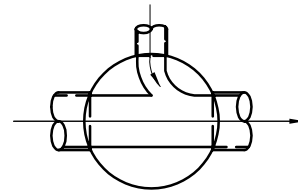
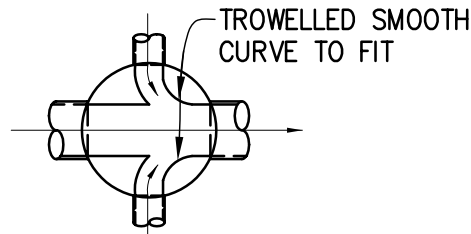
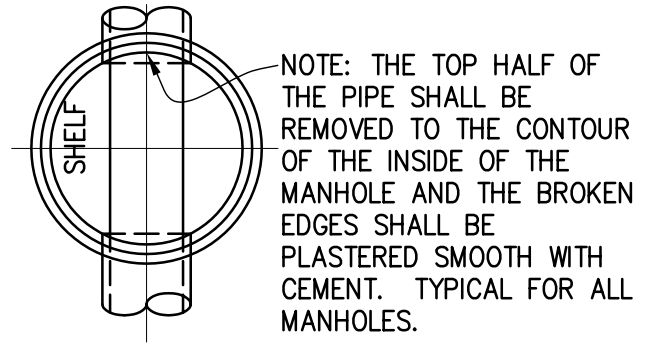
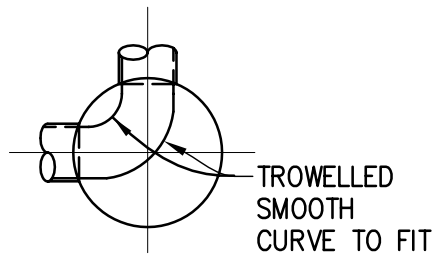
GRANADA SANITARY DISTRICT  
STANDARD DETAIL

STANDARD No.

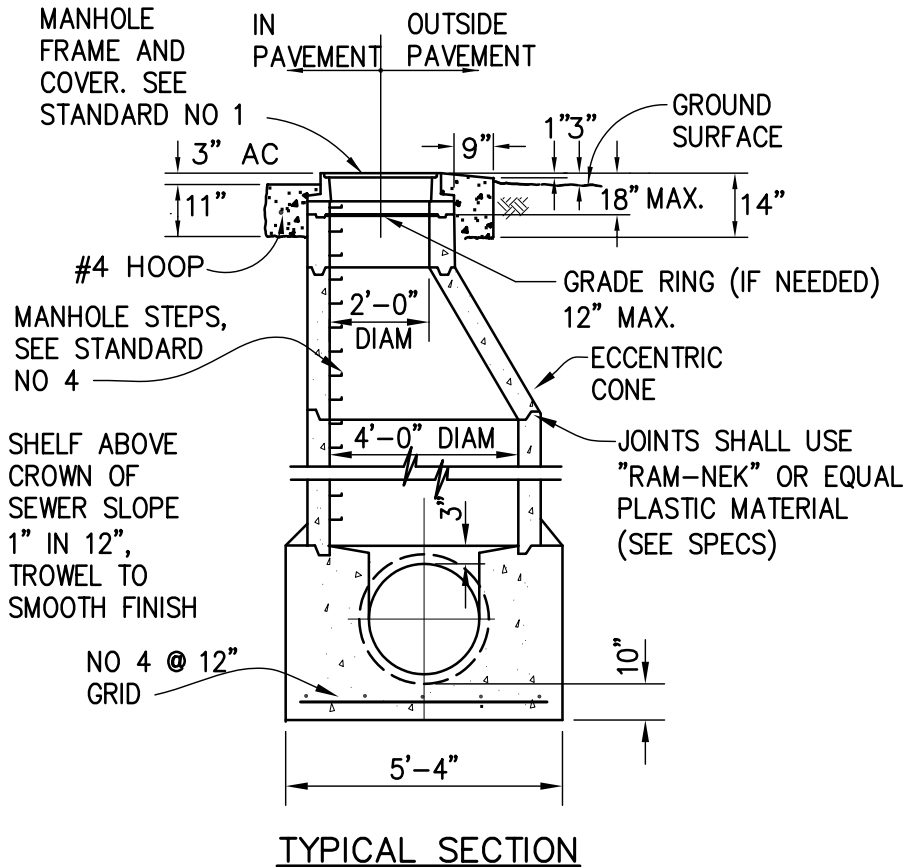
**PRESSURE TYPE  
MANHOLE FRAME AND COVER**

**2**

DATE: FEBRUARY 2003



**TYPICAL CHANNEL CONFIGURATION PLANS**



**NOTES:**

1. ALL STEEL TO BE 3" CLEAR.
2. MANHOLE SHELF SHALL BE MORTARED TO A SLOPE OF 1"/FT.
3. PREFORMED PLASTIC SEALING GASKET SHALL BE "RAM-NEK" OR APPROVED EQUAL.
4. STANDARD WATER STOPS SHALL BE INCORPORATED INTO THE MANHOLE BASE FOR ALL PENETRATIONS INTO THE MANHOLE.
5. MANHOLE THROAT LOCATION TO BE OPPOSITE THE LARGEST SHELF AREA OR AS DIRECTED BY THE ENGINEER.
6. CONCRETE SHALL BE 3/4" CLASS A.

NOT TO SCALE

APPROVED BY:

... HOWARD L. HOFFMAN ...

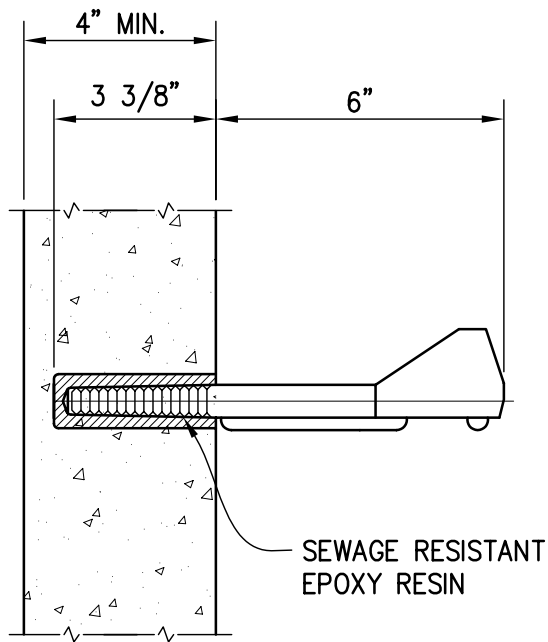
DATE: FEBRUARY 2003

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

STANDARD No.

**STANDARD MANHOLE**

**3**



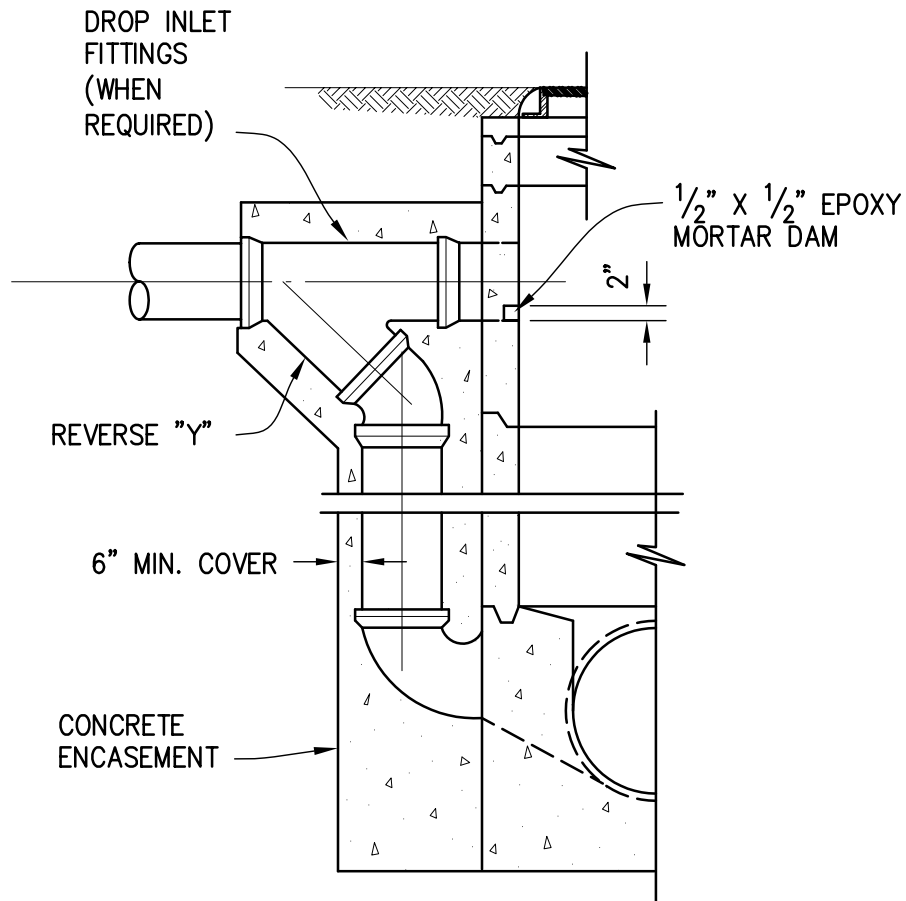
INSTALLATION DETAIL

NOTES:

1. MANHOLE STEPS SHALL BE POLYPROPYLENE, AND CONFORM TO THE REQUIREMENTS OF A.S.T.M. D4101, TYPE II. THE STEEL USED IN MANUFACTURING SHALL BE DEFORMED 1/2" REINFORCING ROD GRADE 60. CONFORM TO ALL REQUIREMENTS OF A.S.T.M. A.615.
2. MANHOLE STEPS SHALL BE UNIFORMLY SPACED AT A MAXIMUM OF 12". THE LOWEST STEP SHALL BE PLACED NOT LESS THAN 8" OR MORE THAN 18" ABOVE THE CONCRETE SHELF.
3. FOR MANHOLES 4 FEET OR LESS DEPTH (RIM TO PIPE INVERT), MANHOLE STEPS ARE NOT REQUIRED.
4. STEPS TO BE CAST IN PLACE DURING MANUFACTURE OF PRECAST PIPE RINGS OR ANCHORED WITH SEWAGE RESISTANT EPOXY RESIN.

NOT TO SCALE

APPROVED BY:	GRANADA SANITARY DISTRICT STANDARD DETAIL	STANDARD No.
DATE: FEBRUARY 2003		<b>MANHOLE STEP</b>
HOWARD L. HOFFMAN 		



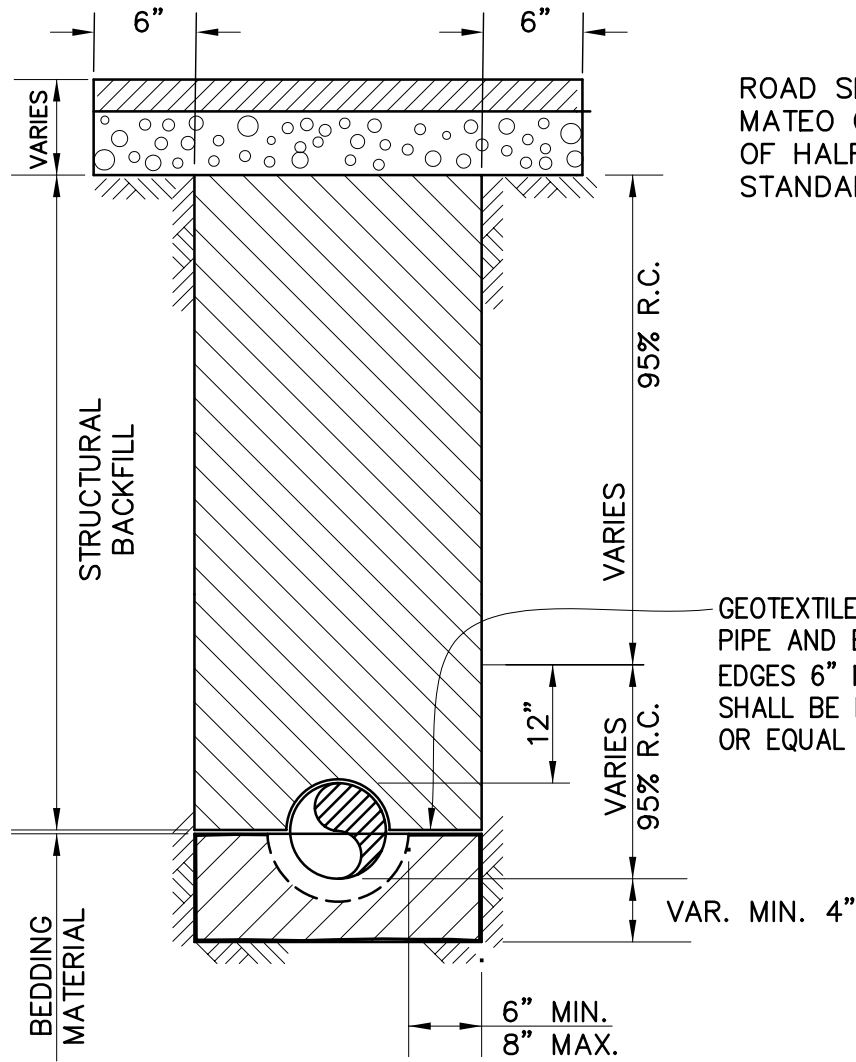
WITH DROP INLET

NOTE:

USE DROP INLET WHEN THE DISTANCE BETWEEN THE OUTLET PIPE CROWN AND THE INLET PIPE INVERT IS GREATER THAN 12 INCHES.

NOT TO SCALE

APPROVED BY: ... HOWARD L. HOFFMAN ...  DATE: ... FEBRUARY 2003 ...	GRANADA SANITARY DISTRICT STANDARD DETAIL  <b>MANHOLE DROP INLET</b>	STANDARD No.  <b>5</b>
--	---	------------------------------



ROAD SECTION PER SAN MATEO COUNTY OR CITY OF HALF MOON BAY STANDARDS

GEOTEXTILE: ENCAPSULATE PIPE AND BEDDING. OVERLAP EDGES 6" MIN. GEOTEXTILE SHALL BE MIRAFI 600X OR EQUAL

**TYPICAL TRENCH SECTION**

STRUCTURAL BACKFILL

STRUCTURAL BACKFILL REQUIREMENTS (CALTRANS CALIF. TEST 202) MIN. SAND EQUIVALENT OF 20.

SIEVE SIZES	PERCENTAGE PASSING
1-1/2"	100
3/4"	80-100
#4	30-60
#30	5-35
#200	0-12

BEDDING MATERIAL

GRANULAR BEDDING MATERIAL REQUIREMENTS (ASTM D448 SIZE #67)

SIEVE SIZES	PERCENTAGE PASSING
1"	100
3/4"	90-100
3/8"	20-55
#4	0-10
#8	0-5

NOT TO SCALE

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... HOWARD L. HOFFMAN ...

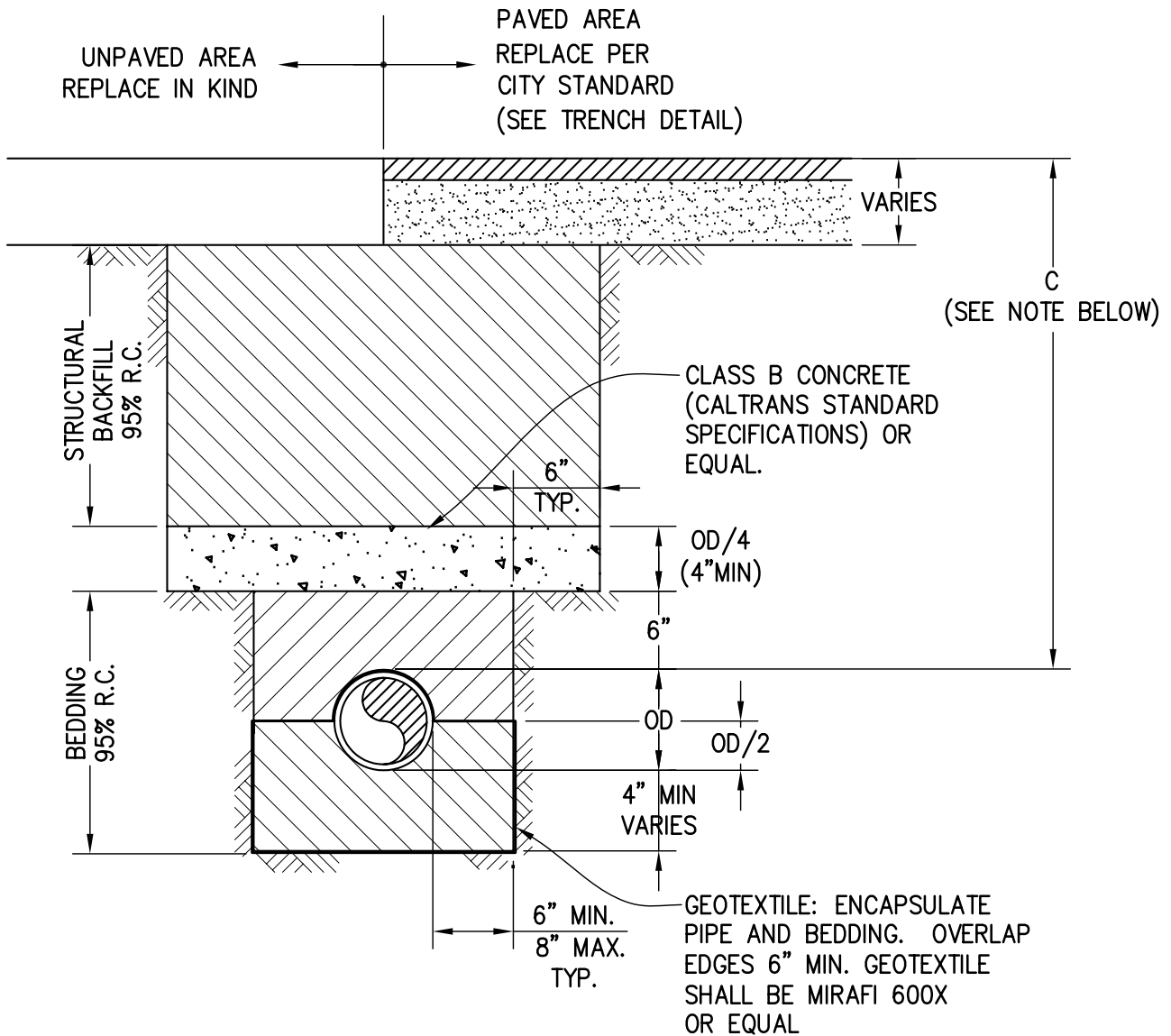
DATE: ... FEBRUARY 2003 ...

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**STANDARD BACKFILL DETAIL**

STANDARD No.

**6**



NOTES:

1. THIS DETAIL APPLIES WHERE COVER "C" IS LESS THAN 3 FEET AND SHALL ONLY BE USED WHERE APPROVED BY DISTRICT ENGINEER.
2. PIPE MATERIAL SHALL BE POLYETHYLENE WRAPPED DUCTILE IRON. CONCRETE CAPS SHALL NOT BE USED OVER PLASTIC PIPE.
3. BEDDING MATERIAL SHALL BE COMPACTED PRIOR TO CONCRETE PLACING.
4. SEE STANDARD TRENCH DETAIL, STANDARD No.6 FOR BEDDING AND BACKFILL MATERIAL REQUIREMENTS.
5. DISCONNECT THE PIPE BEDDING EACH 200 FT± OR MIDWAY BETWEEN MANHOLES, AND PLACE 5 FT OF COHESIVE SOIL TO STOP WATER FLOW ALONG THE TRENCH THROUGH THE BEDDING.

NOT TO SCALE

APPROVED BY:

... HOWARD L. HOFFMAN ...

DATE: FEBRUARY 2003

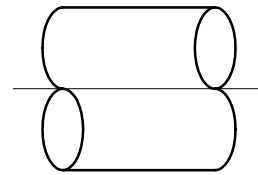
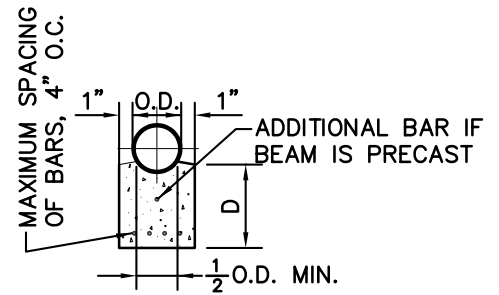
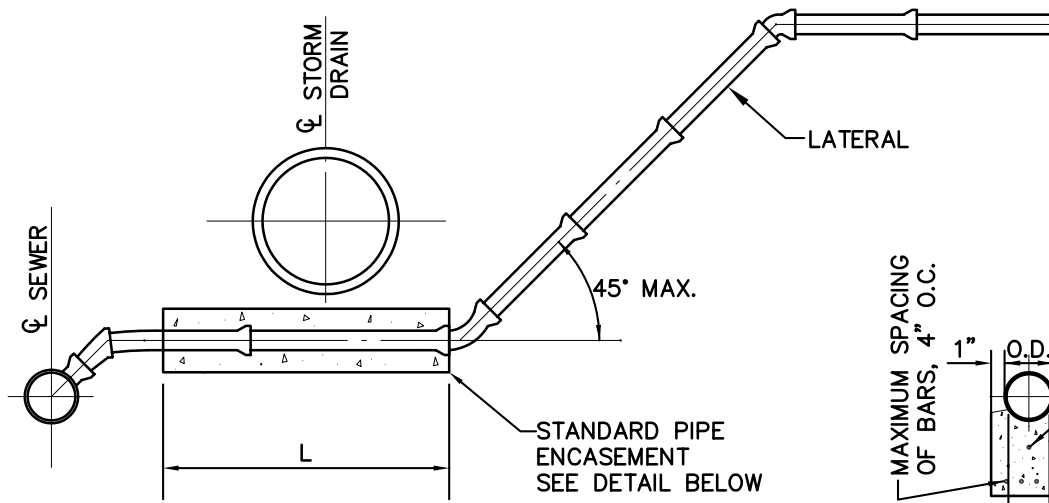
GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**CONCRETE CAP**

STANDARD No.

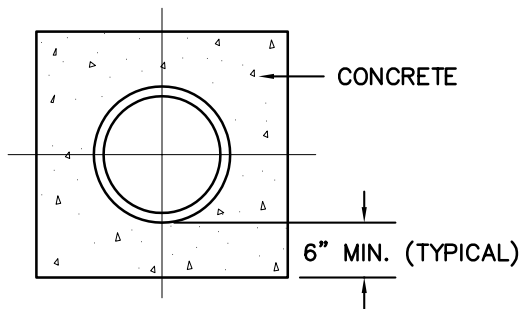
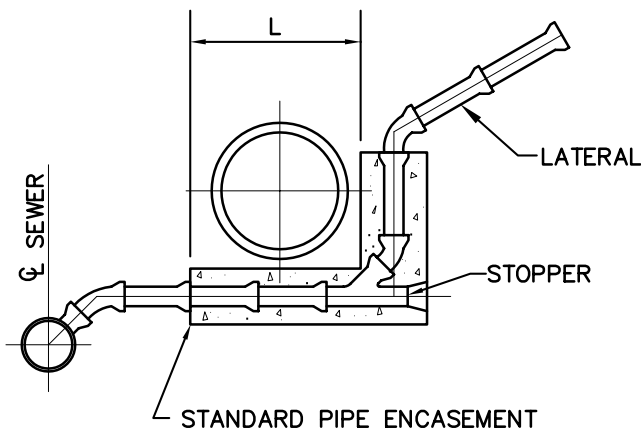
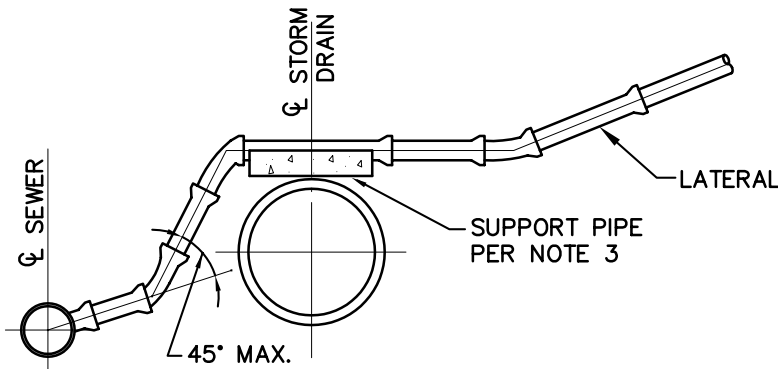
**7**





DIMENSIONS OF REINFORCED CONCRETE BEAM

	Depth of Cover			
	0' to 8'		8'-1" to 16'	
	D	Bar No.	D	Bar No.
4'	8"	4	8"	4
5'	8"	4	9"	5
6'	8½"	5	10½"	5
7'	9"	5	11½"	6
8'	10"	5	12½"	6
9'	11"	6	13½"	6
10'	12"	6	15"	7



STANDARD PIPE ENCASEMENT

**NOTES:**

1. THIS DETAIL APPLIES WHEN CONSTRUCTION OF A NEW STORM DRAIN INTERFERES WITH AN EXISTING SEWER LATERAL.
2. MINIMUM SLOPE FOR 4-INCH LATERAL SHALL BE 1/4" PER FOOT.
3. L=WIDTH OF STORM DRAIN TRENCH PLUS EXTENSION AT BOTH SIDES TO FIRST PIPE JOINT AT OR BEYOND TRENCH.
4. SUPPORT PIPE ON CONCRETE BEAM ACROSS TRENCH PLUS 2' ON EITHER SIDE OF TRENCH.

NOT TO SCALE

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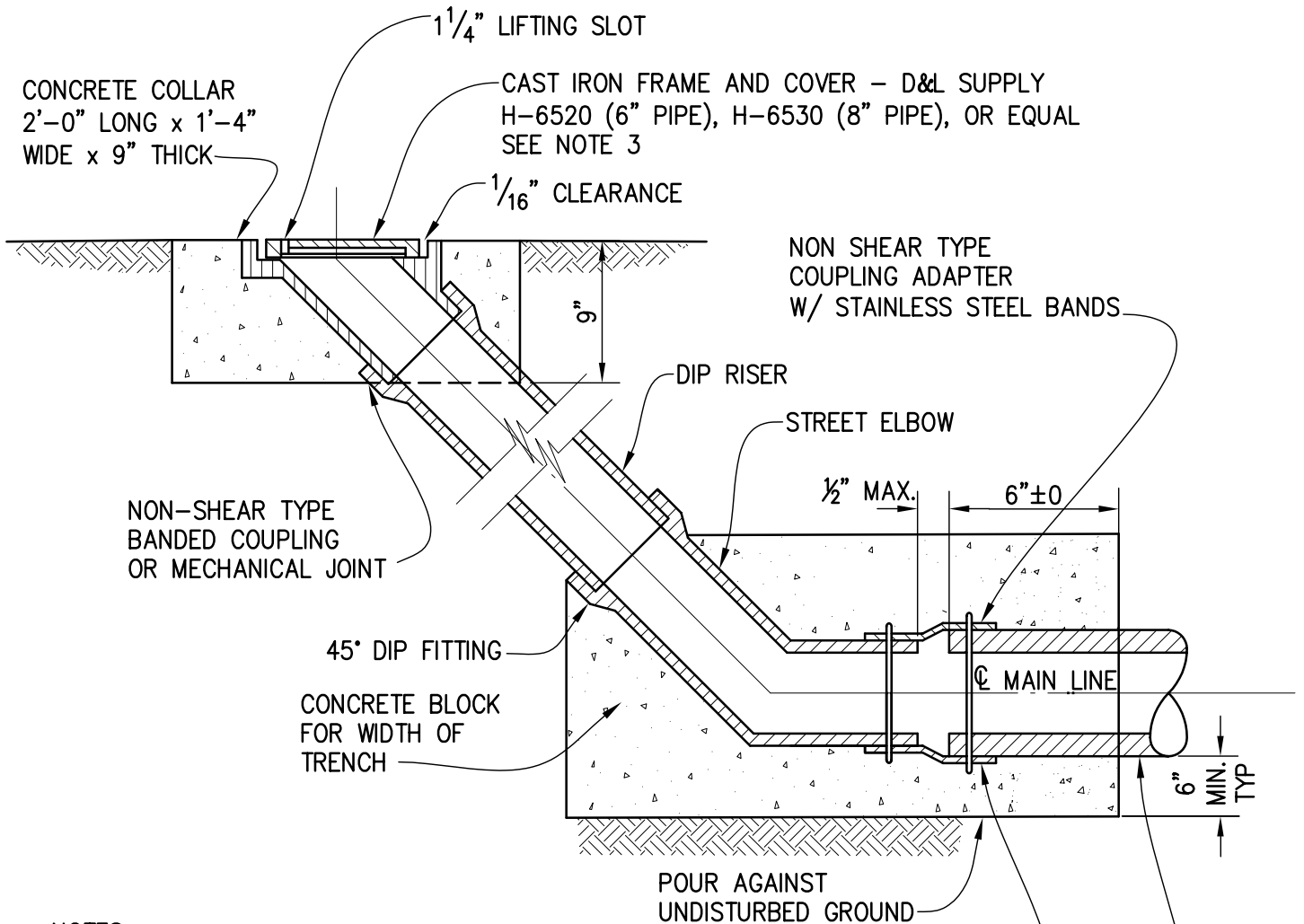
DATE: FEBRUARY 2003

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**SERVICE LATERAL UTILITY CROSSING**

STANDARD No.

**8**



NOTES:

1. MAINLINE FLUSHING INLET OR LAMPHOLE SHALL ONLY BE USED WHERE APPROVED BY DISTRICT ENGINEER.
2. CONCRETE ENCASE BANDED COUPLINGS 6" MIN.
3. COVER SHALL BE MARKED WITH "SEWER".
4. COAT CUT DUCTILE IRON PIPE ENDS WITH AN EPOXY SEALER.

SEE NOTE 4

SEWER MAIN MATERIAL VARIES

NOT TO SCALE

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... HOWARD L. HOFFMAN ...

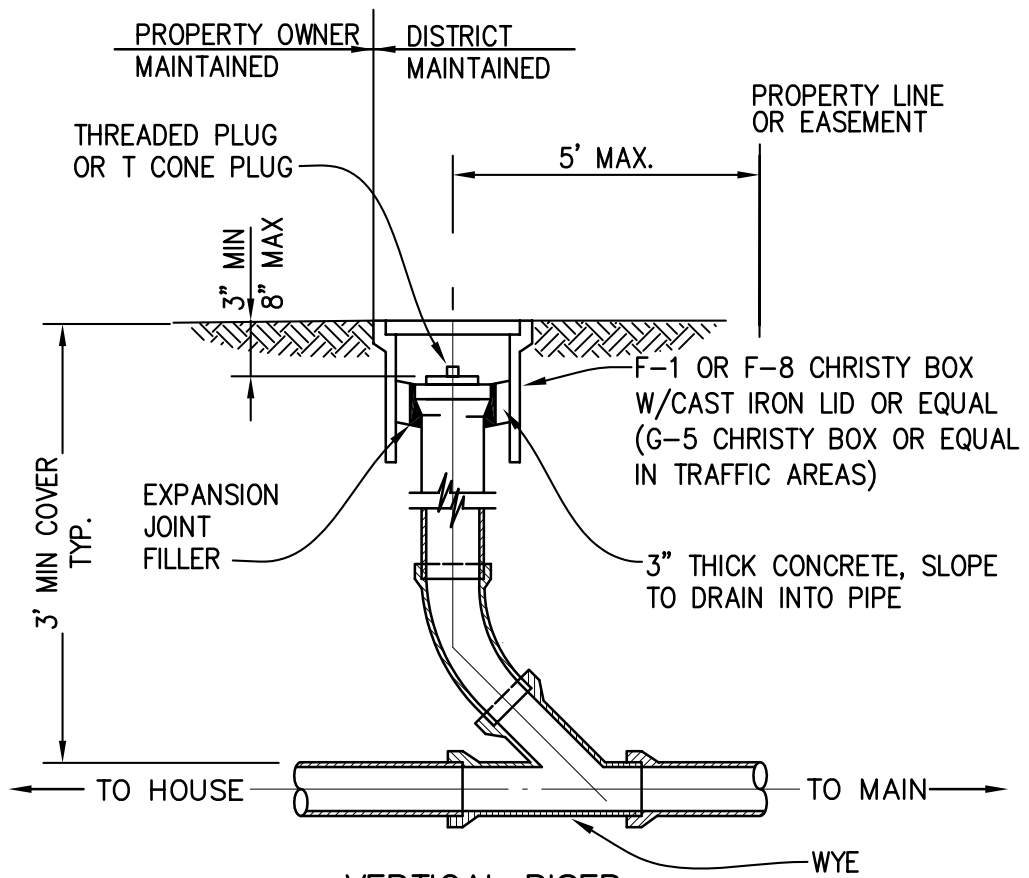
DATE: ... FEBRUARY 2003 ...

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**FLUSHING INLET OR LAMPHOLE**

STANDARD No.

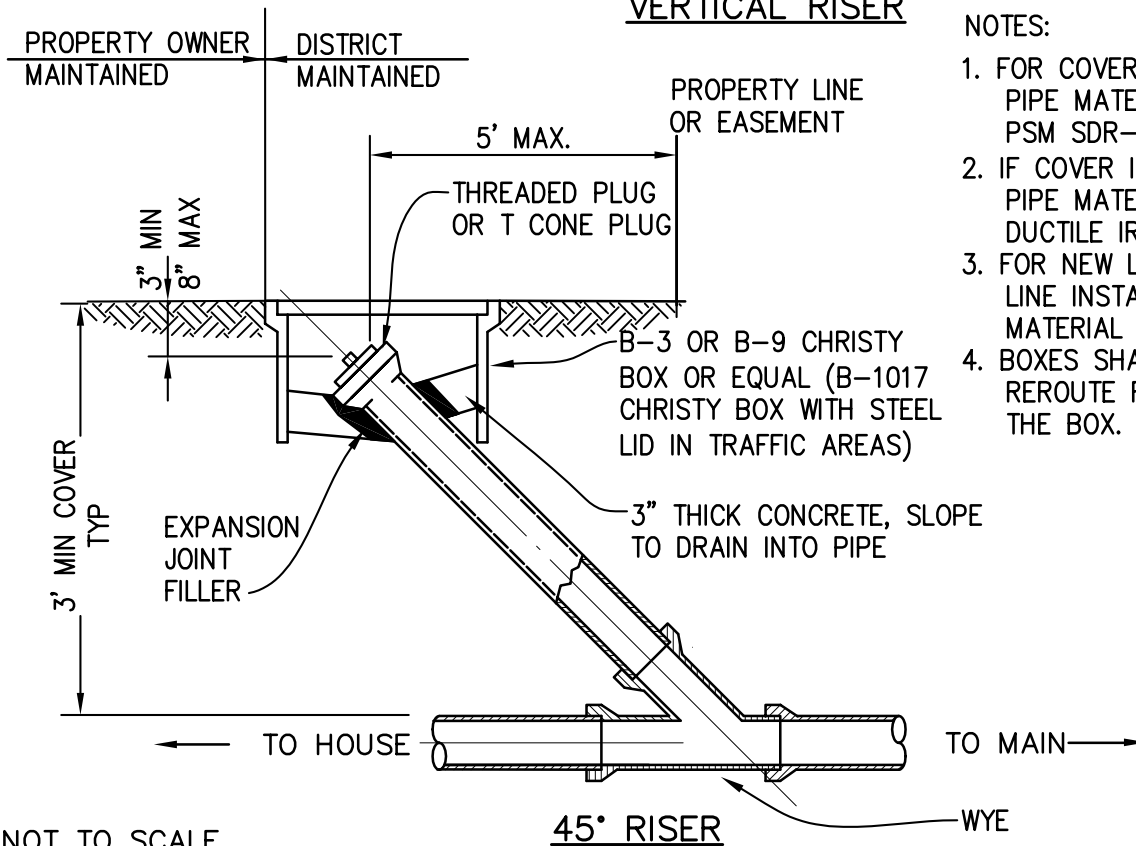
**9**



**VERTICAL RISER**

**NOTES:**

1. FOR COVER 3' AND GREATER, PIPE MATERIAL SHALL BE PVC PSM SDR-26 OR HDPE SDR-17.
2. IF COVER IS LESS THAN 3', PIPE MATERIAL SHALL BE DUCTILE IRON.
3. FOR NEW LATERAL AND MAIN LINE INSTALLATIONS, PIPE MATERIAL SHALL BE THE SAME.
4. BOXES SHALL BE RAISED TO REROUTE RUNOFF AROUND THE BOX.



**45° RISER**

NOT TO SCALE

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... HOWARD L. HOFFMAN ...

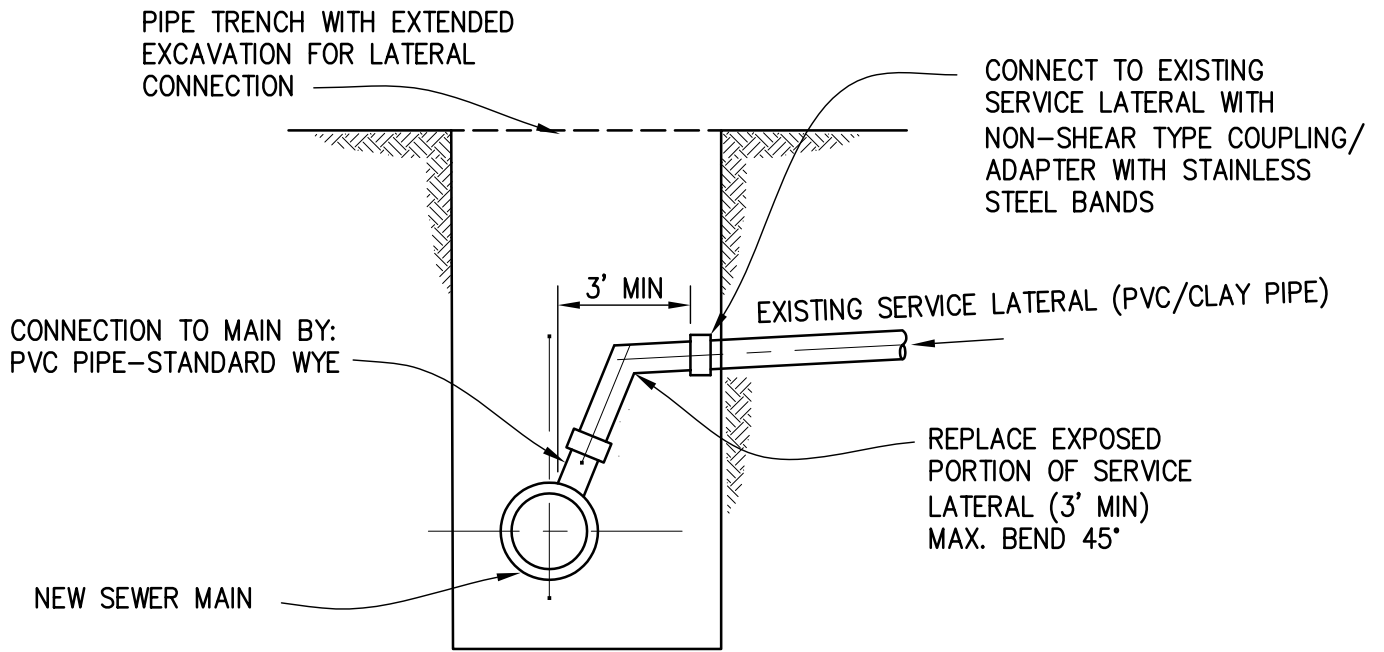
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GRANADA SANITARY DISTRICT  
STANDARD DETAIL

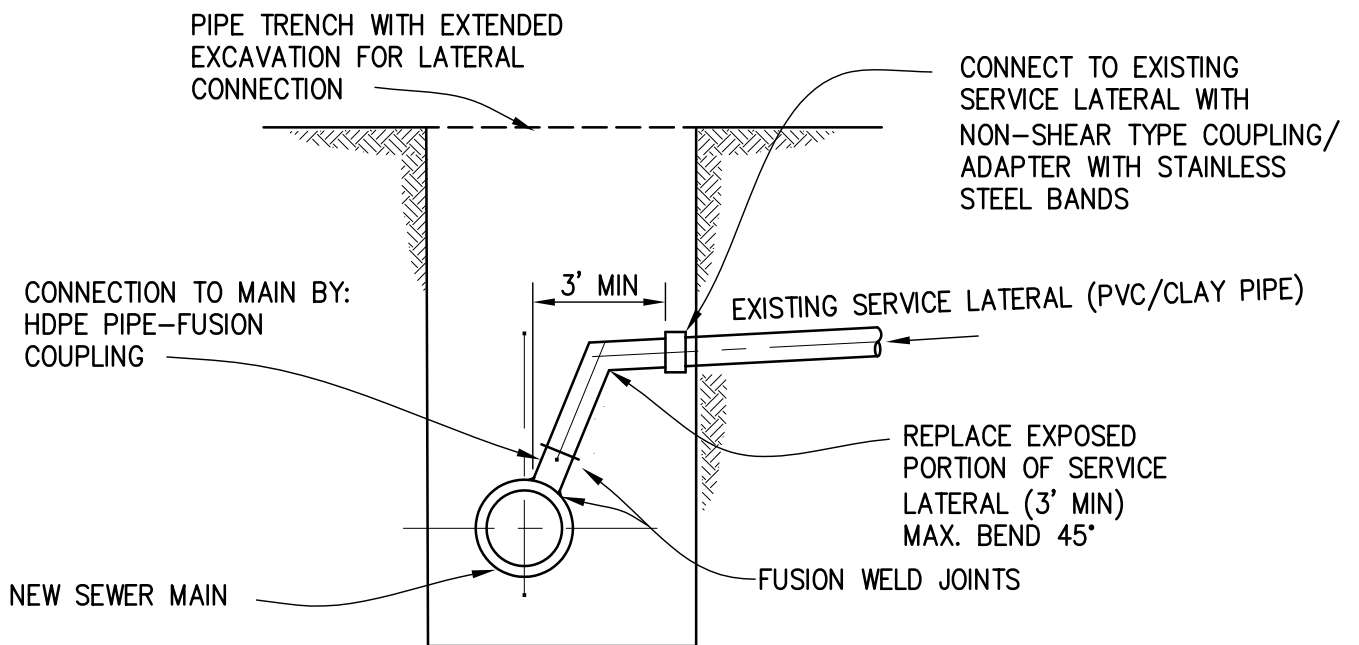
**TYPICAL  
SERVICE LATERAL CLEANOUT**

STANDARD No.

**10**



**PVC PIPE LATERAL CONNECTION**



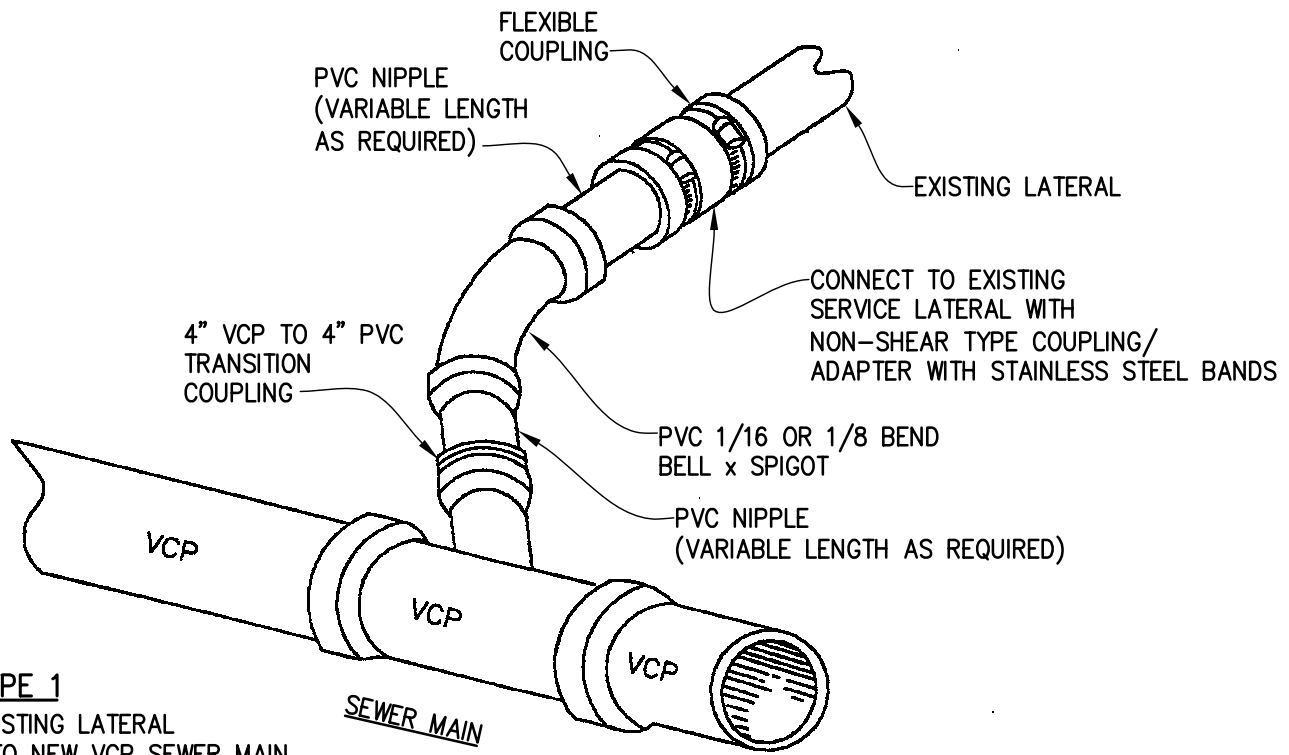
**NEW MAIN LINE HDPE LATERAL CONNECTION**

**NOTES:**

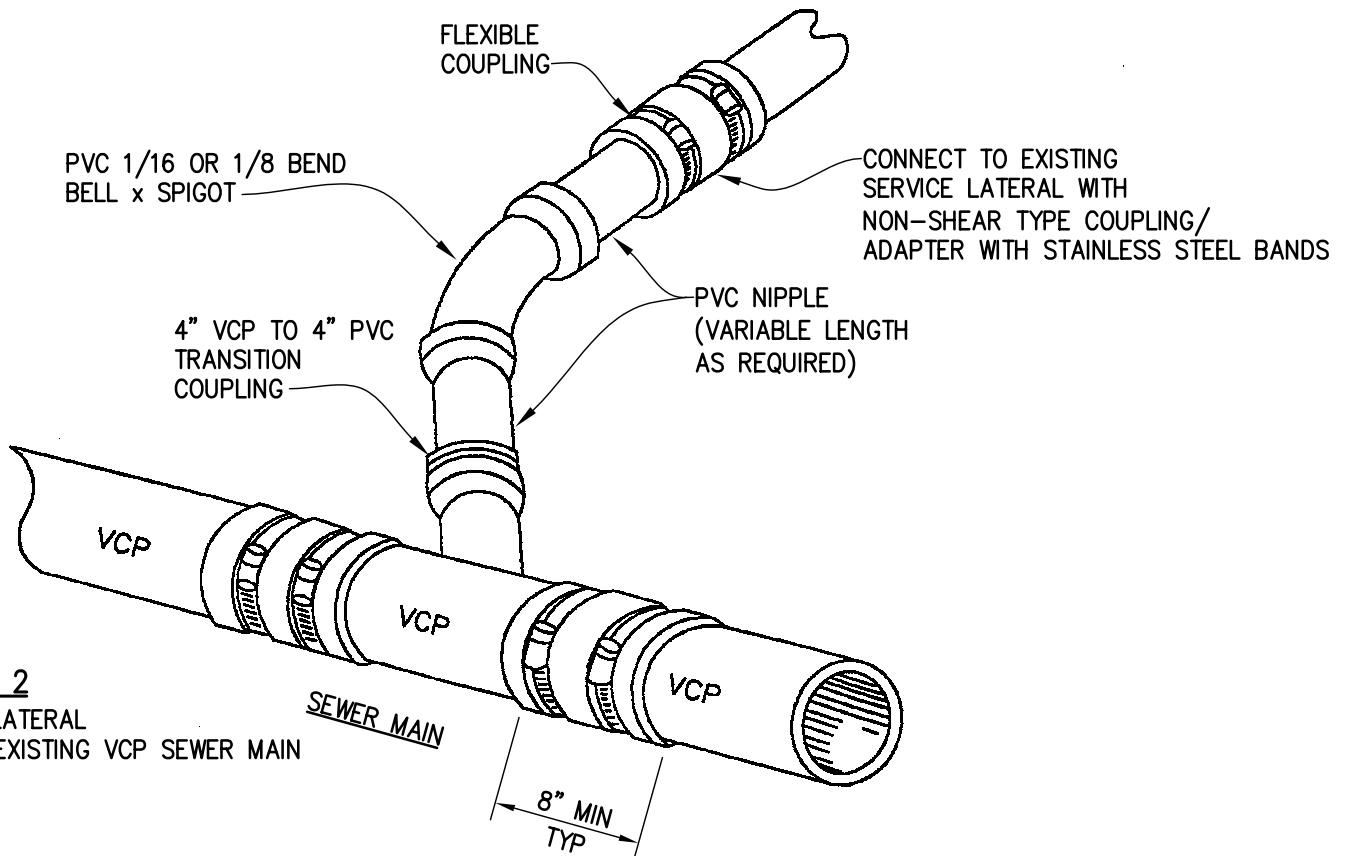
1. REPLACEMENT SERVICE LATERALS SHALL BE SAME MATERIAL AS MAIN.
2. ROOT CONTROL SHALL BE APPLIED TO JOINTS AT NEW/EXISTING SERVICE LATERAL CONNECTION PER SPEC SECTION C5.
3. PVC - MAXIMUM GAP BETWEEN PIPES AT COUPLINGS 1/2".

NOT TO SCALE

APPROVED BY:	GRANADA SANITARY DISTRICT STANDARD DETAIL	STANDARD No.
DATE: ... FEBRUARY 2003 .....		



**TYPE 1**  
EXISTING LATERAL  
INTO NEW VCP SEWER MAIN



**TYPE 2**  
NEW LATERAL  
INTO EXISTING VCP SEWER MAIN

NOT TO SCALE

APPROVED BY:

HOWARD L. HOFFMAN

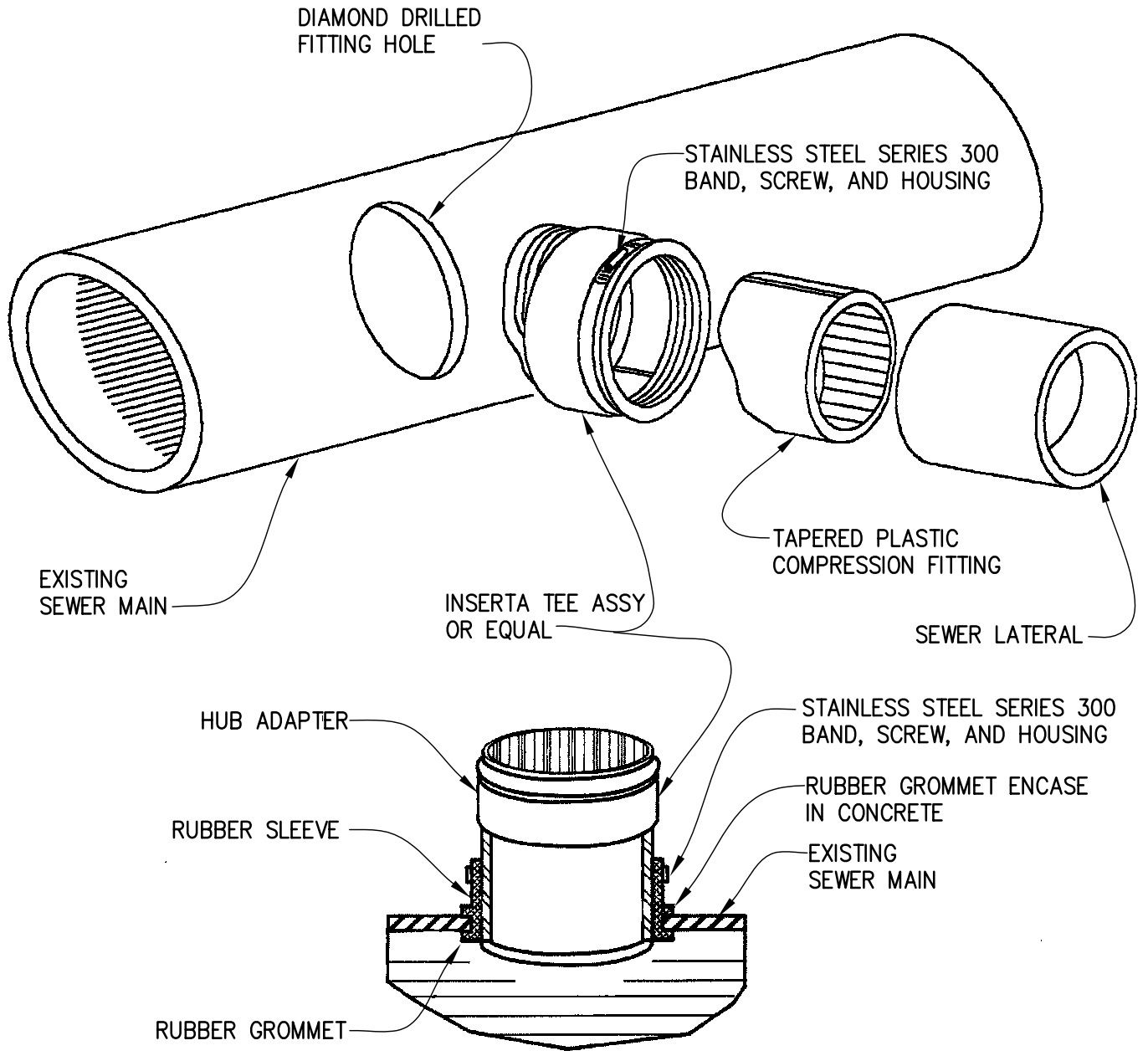
DATE: FEBRUARY 2003

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**LATERAL CONNECTION TO  
VCP MAIN - TYPE 1 & TYPE 2**

STANDARD No.

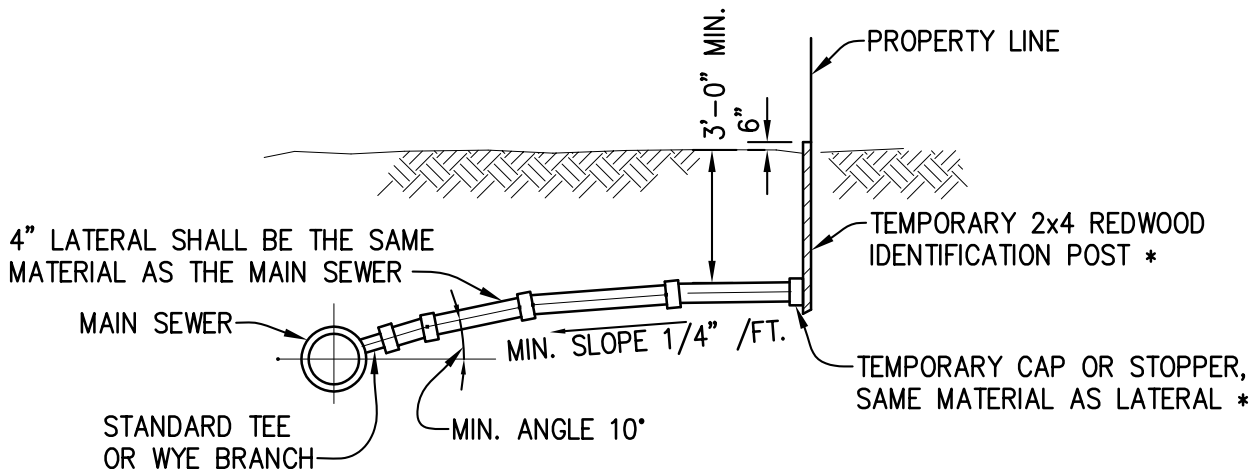
12



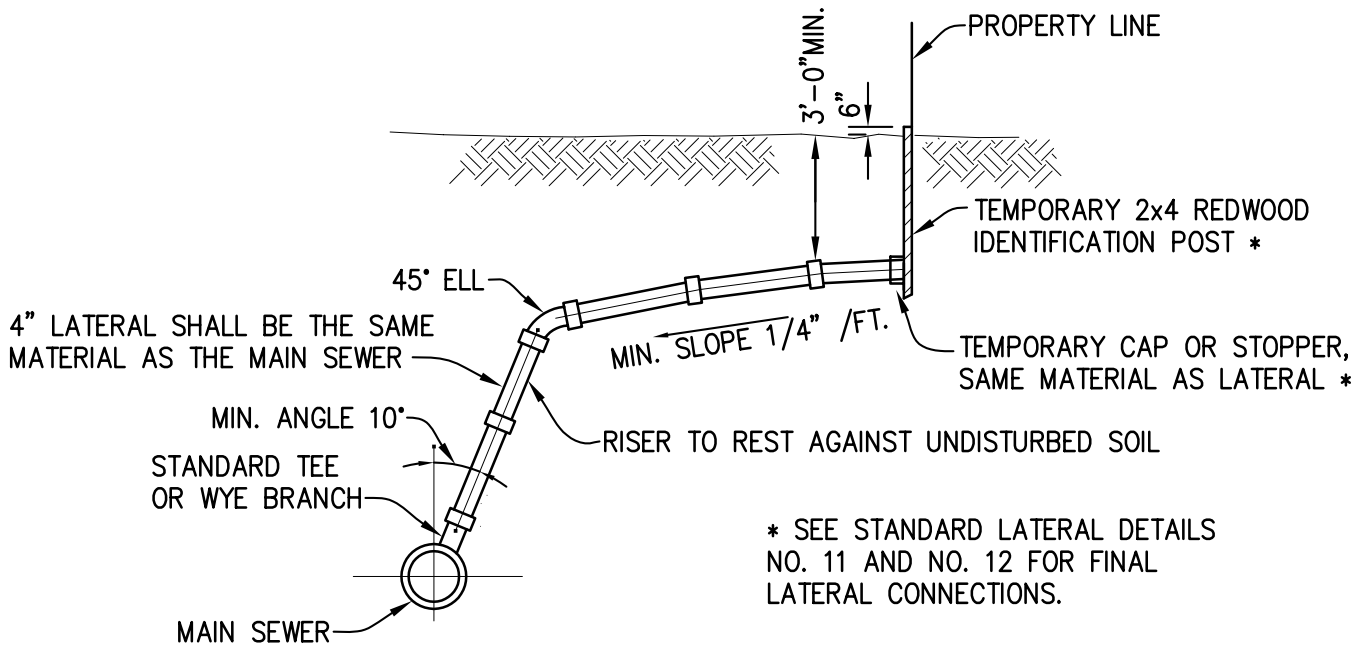
- NOTES:
1. THIS CAN ONLY BE USED WITH THE PRIOR APPROVAL OF THE DISTRICT ENGINEER
  2. ENCASE RUBBER GROMMET 6" ALL AROUND IN CLASS A CONCRETE

NOT TO SCALE

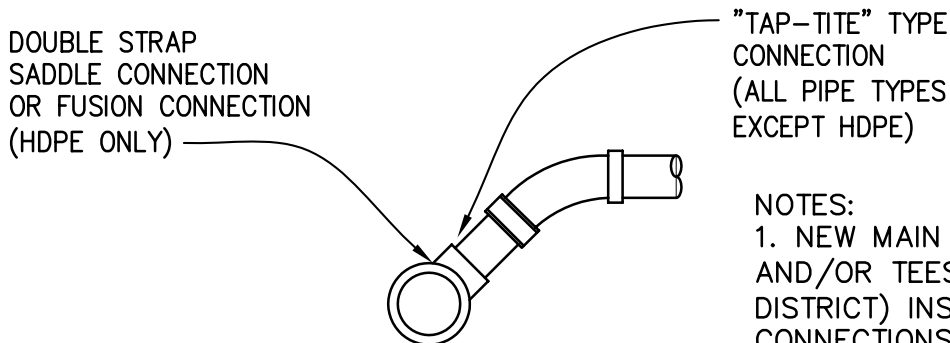
APPROVED BY:	GRANADA SANITARY DISTRICT STANDARD DETAIL	STANDARD No.
..... HOWARD L. HOFFMAN .....	<b>LATERAL CONNECTION TO EXISTING VCP MAIN – TYPE 5</b>	<b>13</b>
DATE: .. FEBRUARY 2003 .....		



**SHALLOW SEWER – 10' AND LESS**



**DEEP SEWER – GREATER THAN 10'**



**CONNECTION TO EXISTING MAIN**  
TO BE USED UNLESS OTHERWISE

- NOTES:
1. NEW MAIN SEWERS SHALL HAVE WYES AND/OR TEES (AS APPROVED BY DISTRICT) INSTALLED FOR LATERAL CONNECTIONS.
  2. ENCASE ALL COUPLINGS OR SADDLE CONNECTIONS IN CLASS A CONCRETE 6" ALL AROUND AND BEYOND ENDS.

NOT TO SCALE

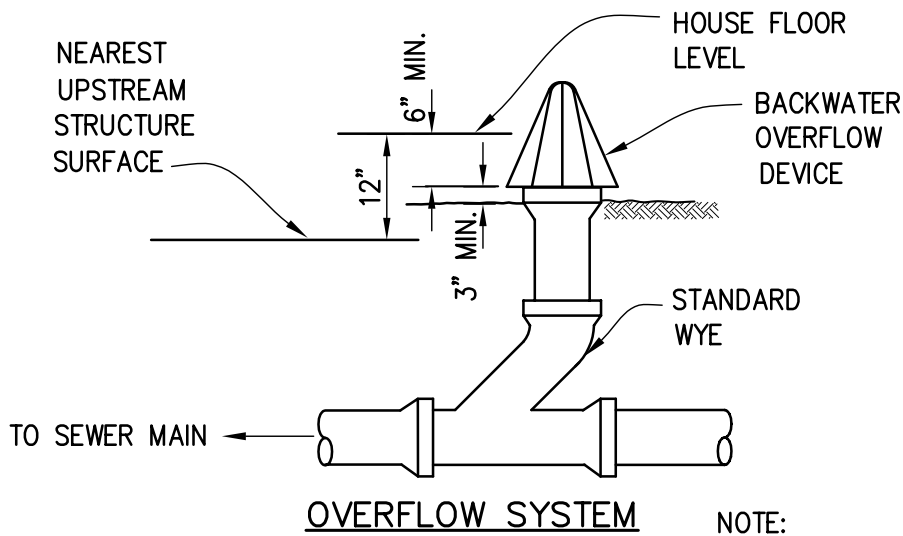
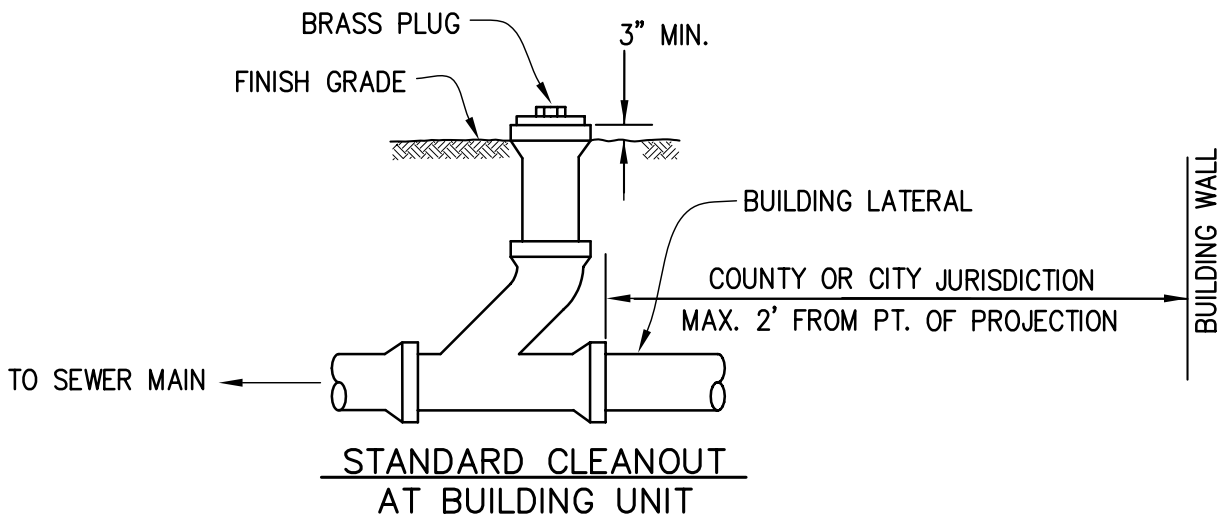
APPROVED BY:  
.....HOWARD L. HOFFMAN.....  
DATE: FEBRAURY 2003.....

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

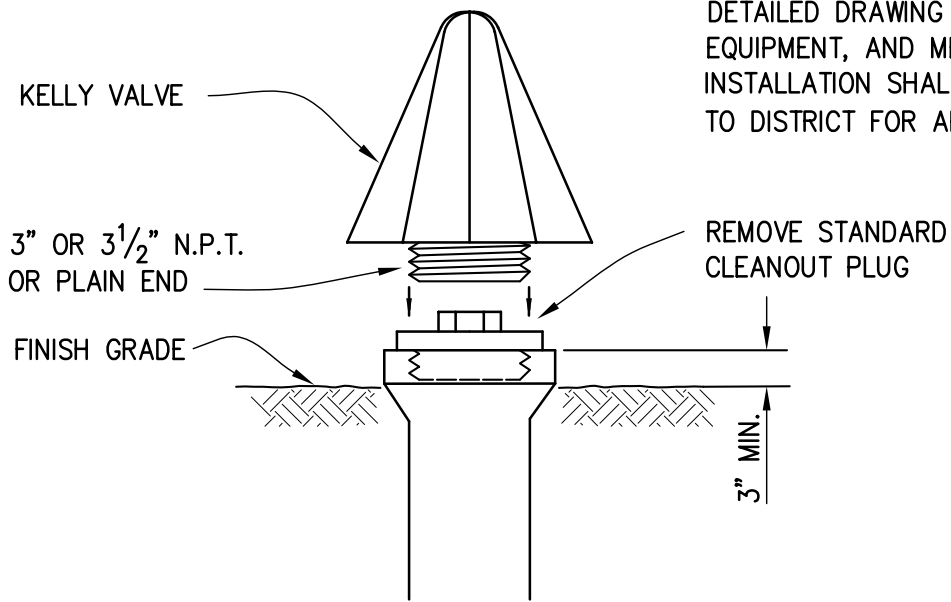
**LATERAL CONNECTION**

STANDARD No.

**14**



NOTE:  
DETAILED DRAWING OF LOCATION,  
EQUIPMENT, AND METHOD OF  
INSTALLATION SHALL BE SUBMITTED  
TO DISTRICT FOR APPROVAL.



**BACKWATER OVERFLOW DEVICE**

NOT TO SCALE

APPROVED BY:

...HOWARD L. HOFFMAN...

DATE: ...FEBRUARY 2003...

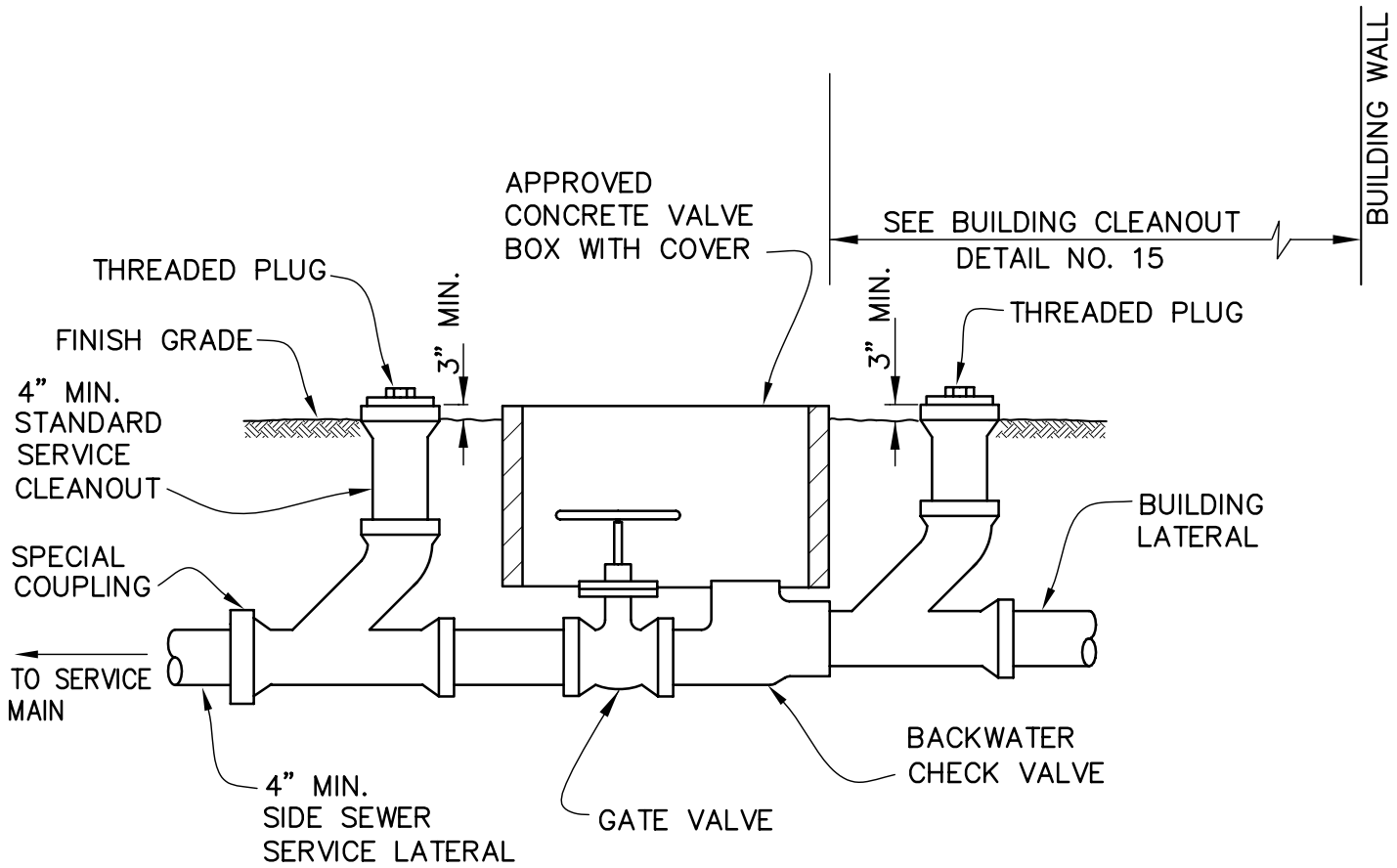
GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**BUILDING CLEANOUT AND  
BACKWATER OVERFLOW DEVICE**

STANDARD No.

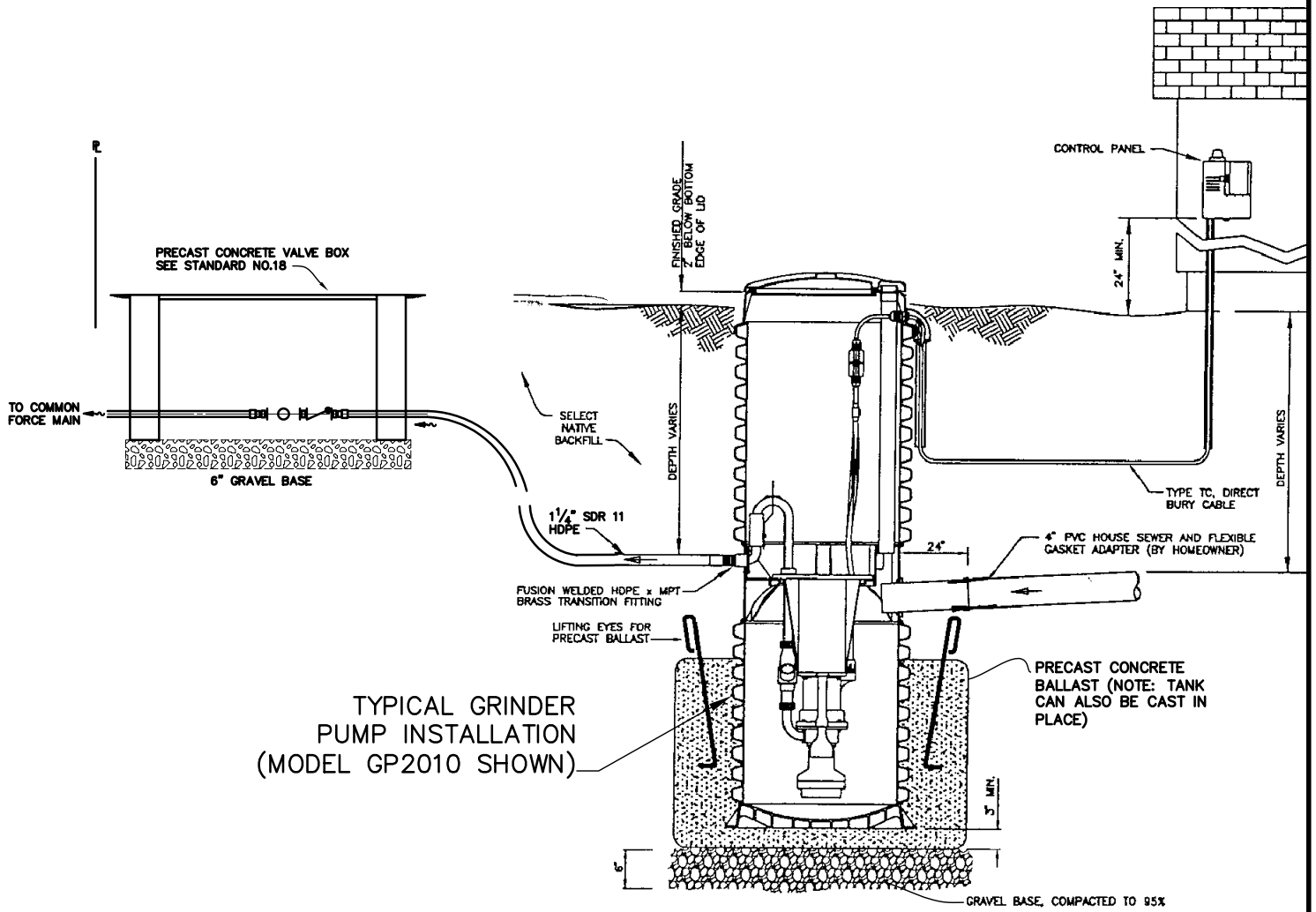
**15**





NOT TO SCALE

APPROVED BY: .....HOWARD L. HOFFMAN.....  DATE: .....FEBRUARY 2003.....	GRANADA SANITARY DISTRICT STANDARD DETAIL <b>BACKWATER CHECK VALVE AND          SHUTOFF SYSTEM</b>	STANDARD No.  <h1>16</h1>
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TYPICAL GRINDER  
PUMP INSTALLATION  
(MODEL GP2010 SHOWN)

NOT TO SCALE

APPROVED BY:

... HOWARD L. HOFFMAN ...

DATE: FEBRUARY 2003

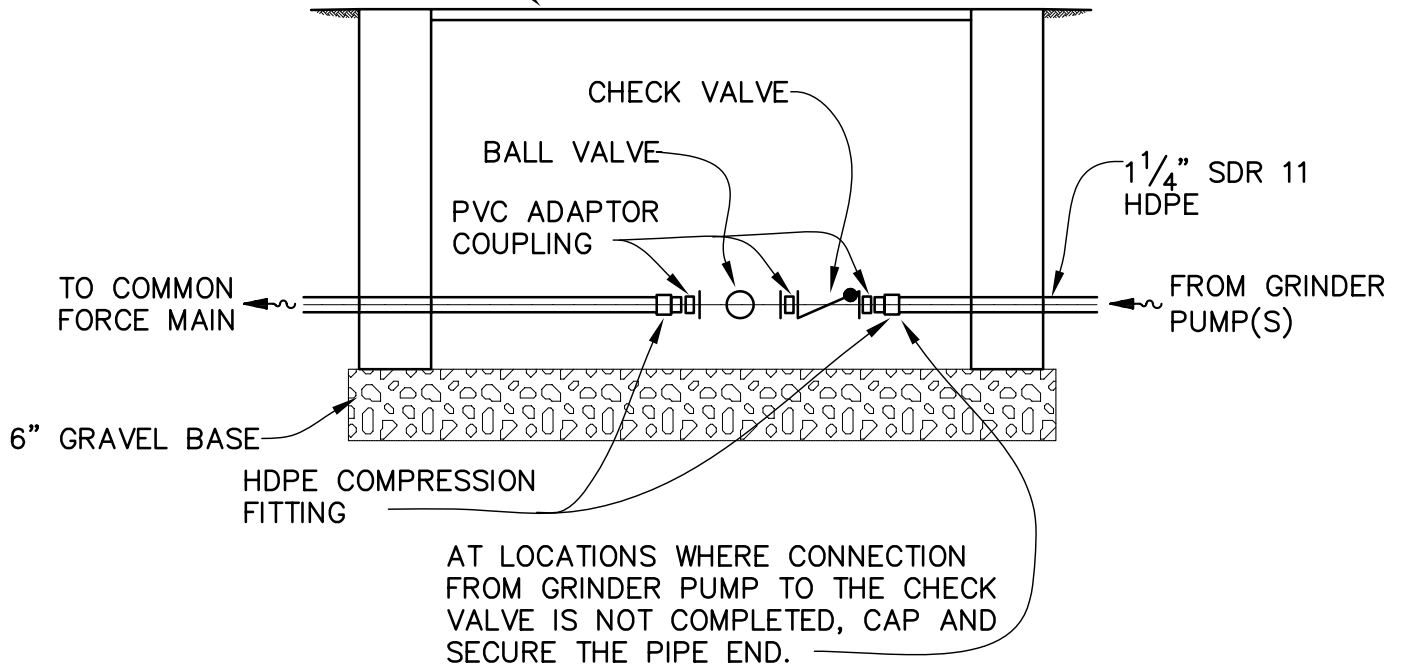
GRANADA SANITARY DISTRICT  
STANDARD DETAIL

TYPICAL  
GRINDER PUMP INSTALLATION

STANDARD No.

17

PRECAST CONCRETE VALVE BOX WITH  
REMOVABLE TRAFFIC LID, DESIGNED  
FOR H<sub>2</sub>O LOADING.



NOT TO SCALE

APPROVED BY:

...HOWARD L. HOFFMAN...

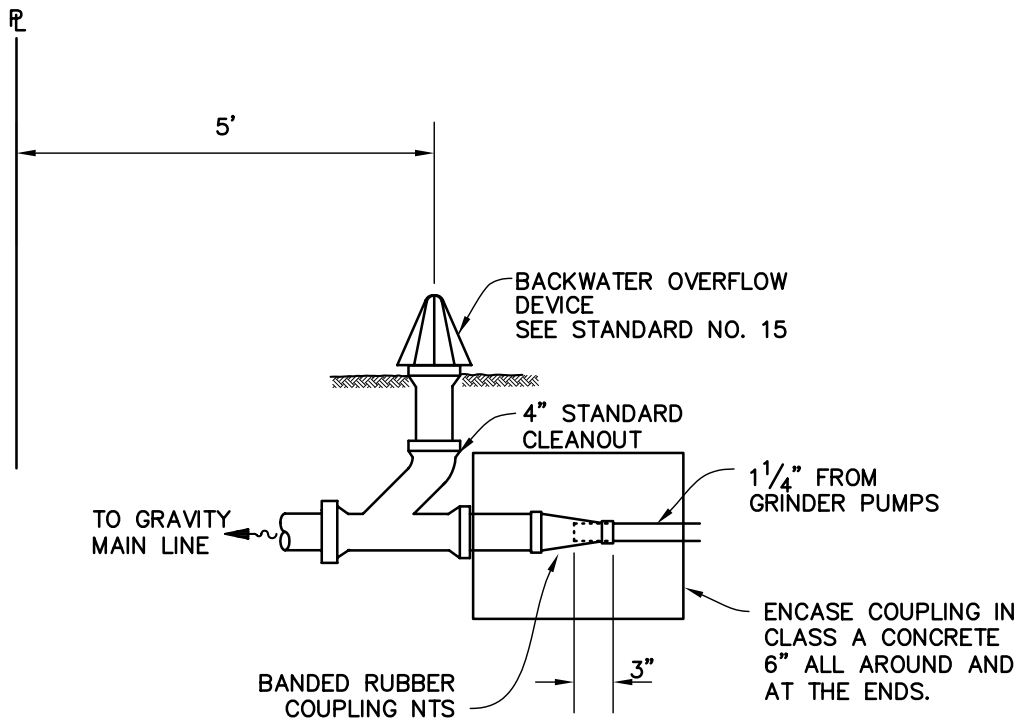
DATE: ...FEBRUARY 2003.....

GRANADA SANITARY DISTRICT  
STANDARD DETAIL

**GRINDER PUMP SYSTEM  
CONNECTION TO  
COMMON FORCE MAIN**

STANDARD No.

**18**



NOT TO SCALE

APPROVED BY:

... HOWARD L. HOFFMAN ...

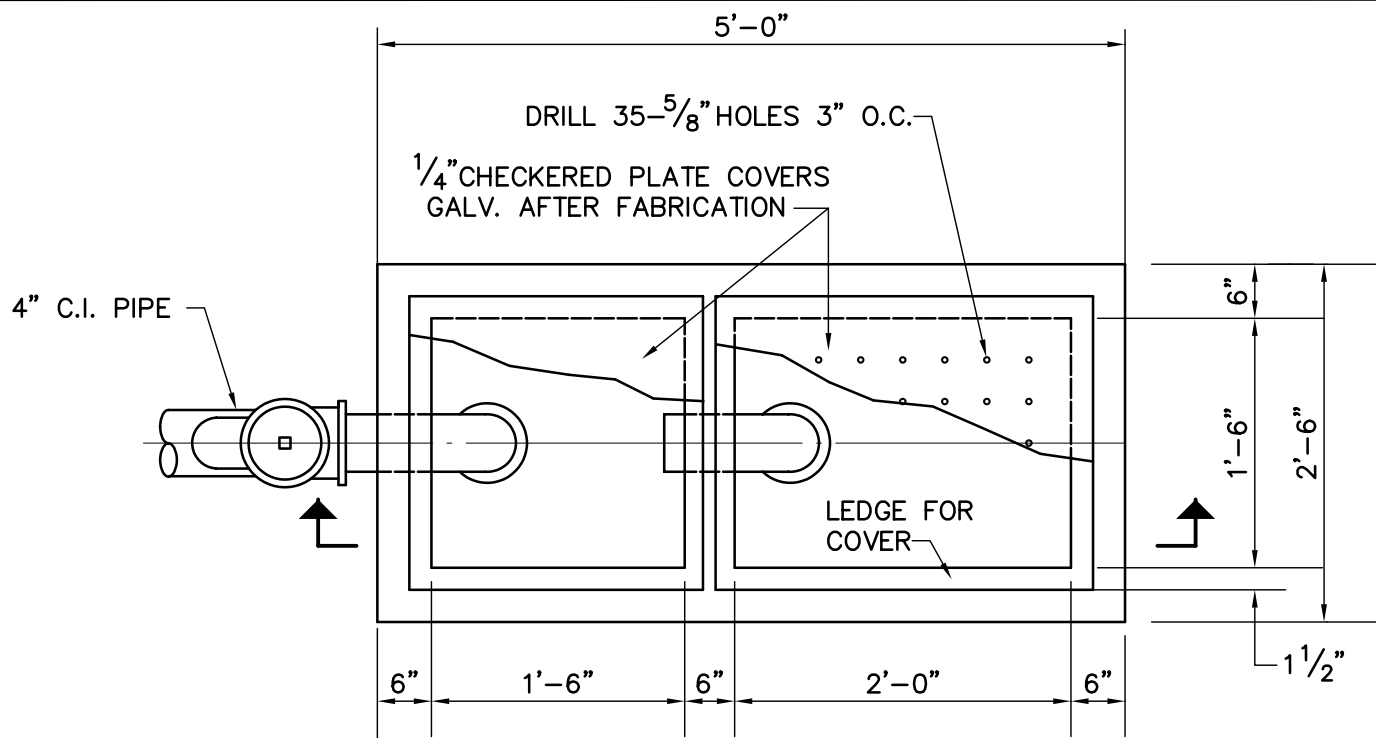
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GRANADA SANITARY DISTRICT  
 STANDARD DETAIL

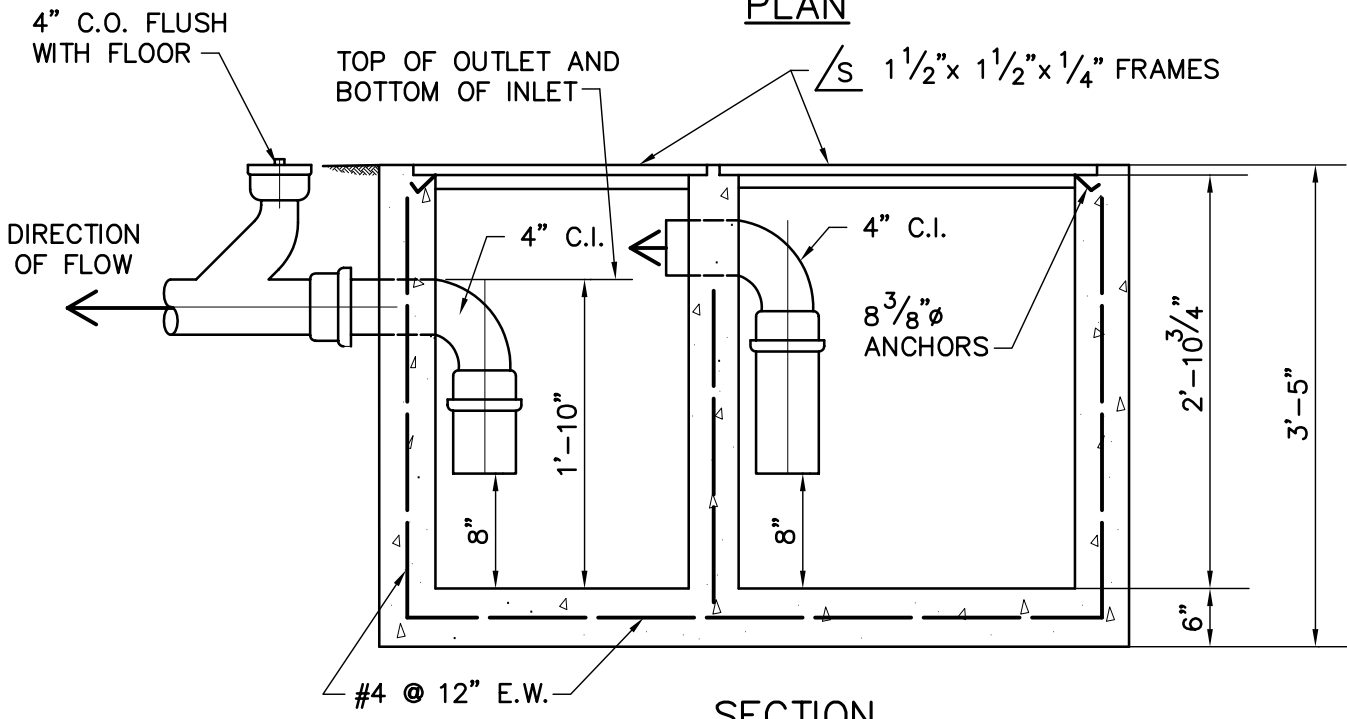
**GRINDER PUMP SYSTEM  
 CONNECTION TO  
 GRAVITY MAIN SYSTEM**

STANDARD No.

**19**



**PLAN**



**SECTION**

NOTE:

THE SIZE OF THE INTERCEPTOR SHALL BE DETERMINED BY THE UNIFORM PLUMBING CODE APPENDIX H TABLE H-1. THE UNIT SHOWN IS THE MINIMUM RESIDENTIAL UNIT.

NOT TO SCALE

APPROVED BY:  
 .....HOWARD L. HOFFMAN.....  
 DATE: .....FEBRUARY 2003.....

GRANADA SANITARY DISTRICT  
 STANDARD DETAIL  
**GREASE & SAND INTERCEPTOR**

STANDARD No.  
**20**

Appendix E  
Element 6 (Overflow Emergency Response Plan) Supporting Documents

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# OVERFLOW EMERGENCY RESPONSE PLAN

Granada Community Services District  
Updated March 2017

Prepared by



V.W. HOUSEN  
—  
& ASSOCIATES



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## Appendices

### Appendix OERP-A

- SSO Report Form (under development by SAM)
- SSMP and First Responder Contact List

### Appendix OERP-B

- SSO Volume Estimation Methods
- Residential Sewage Contamination Flyer
- Sewer Backup Summary Report
- Example SSO Notification Sign(s)

### Appendix OERP-C

- Failure Analysis Form
- Water Quality Monitoring Program
- Template for SSO Technical Report

## LIST OF ACRONYMS

BACWA	Bay Area Clean Water Agencies
CCTV	Closed-Circuit Television
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
CDFW	California Department of Fish and Wildlife
EHS	San Mateo County Health Services Agency, Environmental Health Division
FOG	Fats, Oils and Grease
FSE	Food Service Establishment
GCSD	Granada Community Services District (also “District”)
GPM	Gallons per Minute
HMB	City of Half Moon Bay
I&I	Inflow & Infiltration
IPS	Intertie Pipeline System
LRO	Legally Responsible Official
MGD	Million Gallons per Day
MRP	Monitoring and Reporting Program
MWSD	Montara Water and Sanitary District
NASSCO	National Association of Sewer System Companies
NPDES	National Pollution Discharge Elimination System
OERP	Overflow Emergency Response Plan
OES	California Office of Emergency Services (Previously Cal-EMA)
PACP	Pipeline Assessment and Certification Program
RWQCB	Regional Water Quality Control Board
SAM	Sewer Authority Mid-Coastside
SCADA	Supervisor Control and Data Acquisition
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
WDR	General Waste Discharge Requirements

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## LIST OF TERMS

Bay Area Clean Water Association (BACWA) – Association comprised of Bay Area wastewater treatment and collection system agencies. BACWA represents the interests of public wastewater agencies in regulatory matters and to support the exchange of information.

Website: <http://www.bacwa.org>

Blockage – An object that partially or fully hinders flow through a sewer pipeline. The blockage can be caused by debris in the sewer, grease buildup, root intrusion, or a partial or full collapse of the pipeline. Also known as a stoppage.

California Integrated Water Quality System (CIWQS) – A computer system used by the State and Regional Water Quality Control Boards to track information about SSOs, among other information. CIWQS is the tool used for online submittal of SSO details, which are then made available to the public. Website: <http://www.swrcb.ca.gov/ciwqs/>

Enrollee – The legal public entity that owns a sanitary sewer system, as defined by the Statewide WDR. Also known as a sewer system agency or wastewater collection system agency.

FOG Control Program – Program implemented at the discretion of the agency, based on the identified causes of sewer overflows, to reduce the discharge of fats, oils and grease into the sewer system.

Infiltration – The seepage of groundwater into a sewer system, including service connections. Seepage frequently occurs through defective or cracked pipes, pipe joints, connections or manhole walls and joints.

Inflow – Water discharged into a sewer system from such sources as roof leaders, cellars, yard and area drains, foundation drains, through holes in manhole covers, cross connections from the storm system or street wash waters. Inflow differs from infiltration in that it is a direct discharge into the sewer rather than a leak through defects in the sewer.

Lateral or Private Lateral – The privately-owned sewer pipeline that conveys wastewater from the premises of a user to SAM's sewer system. The upper lateral extends from the building to property line (or easement line). The lower lateral extends from the property or easement line to the connection to the pipe.

Monitoring and Reporting Program - The program used by SAM to monitor, maintain records, report issues and complete needed public notifications.

Overflow Emergency Response Plan – This document identifies measures that are needed to respond to sanitary sewer overflows in a way that maximizes the protection of public health and the environment.

Preventive Maintenance (PM) – Regularly scheduled servicing of machinery, infrastructure or other equipment using appropriate tools, tests, and lubricants.

San Francisco Bay Regional Water Quality Control Board – Also known as Region 2 or RWQCB. This regulatory agency preserves, enhances and restores the quality of California's water resources, and ensures their proper allocation and efficient use for the benefit of present and future generations. Website: <http://www.waterboards.ca.gov/sanfranciscobay>

Sanitary Sewer Overflow (SSO) – Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system, including overflows or releases that reach waters of the United States, overflows or releases that *do not* reach water of the United States, and backups into buildings and/or private property caused by conditions within the publicly owned portion of the sewer system.

Sanitary Sewer System – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the wastewater treatment plant.

Sewer System Management Plan – A series of written programs that address how a collection system owner/operator conducts daily business. Each SSMP is unique for an individual discharger. The plan includes provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit.

State Water Resources Control Board – Also called the State Board. This agency developed and passed the Statewide Waste Discharge Requirements for collection systems and maintains the SSO reporting web site.

Statewide Waste Discharge Requirements – The Statewide General Waste Discharge Requirements for Sanitary Sewer Systems was adopted by the SWCRB in 2006 to provide a structure and guidance for SSMP development. Also known as Order No. 2006-0003-DWQ.

Wastewater Collection System – See Sanitary Sewer System.

## Chapter 1 Introduction

The Granada Community Services District (GCSO or District) Bay Overflow Emergency Response Plan (OERP) provides guidelines for responding to, cleaning, containing, and reporting SSOs that occur during the collection system service area.

### 1.1 OERP Goals

The District's goals with respect to responding to SSOs are as follows:

- Respond quickly to minimize the volume of the SSO
- Eliminate the cause of the SSO
- Contain the spilled wastewater to the extent feasible
- Minimize public contact with the spilled wastewater
- Mitigate the impact of the SSO
- Meet regulatory reporting requirements

The contents of this OERP are consistent with the information that is provided in the District's Sewer System Management Plan (SSMP, updated March 2017), and the Sewer Authority Mid-Coastside (SAM) SSMP and OERP, both updated May 2014.

SAM provides overflow emergency response to the District by contract.

### 1.2 Regulatory Requirements

On May 2, 2006, the State Water Resources Control Board (SWRCB) issued a directive through Order No. 2006-0003-DWQ to require all public wastewater collection system agencies in California with greater than one mile of sewers to be regulated under General Waste Discharge Requirements (Statewide WDR). Portions of this Order related to monitoring and reporting were amended by Order No. 2013-0058-EXEC, dated July 30, 2013.

The requirements for the Overflow Emergency Response Plan element of the SSMP are as follows:

The District shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
- A program to ensure appropriate response to all overflows;
- 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 Statewide 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 WDR or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;

- Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the emergency response plan and are appropriately trained;
- Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- 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.

## Chapter 2 SSO Categories

The responsibilities of the SSO response team depend on the volume and location of an incident. Three categories of SSOs are defined by the SWRCB.

### 2.1 Category 1 SSO

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 municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).

### 2.2 Category 2 SSO

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 municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.

### 2.3 Category 3 SSO

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

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## Chapter 3 Notification Procedures

The District, via SAM, has adopted service call/SSO response procedures that assure rapid response to minimize or eliminate impacts resulting from the SSO. These procedures are described below.

### 3.1 Notification by Field Staff or the Public

The District is most often notified by the public or field staff of an SSO. The public contacts the District, and is redirected to contact the SAM telephone number, which is **(650) 726-0124 day or night**. SSOs may also be reported in person at the District or SAM offices, or via 9-1-1. The SAM telephone number is included in the phone book and on SAM's website, which can be accessed through the url: [http://www.samcleanswater.org/phone\\_numbers.htm](http://www.samcleanswater.org/phone_numbers.htm).

Figures 3-1 and 3-2 at the end of this Chapter present flowcharts showing SAM's chain of communication, beginning with SSO notification from the public, during normal working hours and non-working hours.

During normal working hours, SAM collection system maintenance staff are the First Responder and complete the first section of the Sanitary Sewer Overflow Report Form that is included in Appendix OERP-A. During non-business hours, notification is routed to the designated SAM First Responder, who deploys collection SAM system maintenance staff as needed for first response.

#### 3.1.1 Response During Normal Working Hours

During normal open office hours, which include Monday through Friday from 8:00 a.m. to 4:30 p.m., except holidays, the SAM staff member that receives the call, or other recipient, dispatches the call directly to the Lead Collection System Worker. The Lead Collection System Worker deploys collection system maintenance staff for SSO investigation and response, and informs the SAM Supervisor of Operations and SAM General Manager.

If the spill is a Category 1 SSO, the Sam Supervisor of Operations makes the initial (2-hour) notification and also notifies the GCSO General Manager.

#### 3.1.2 Response Outside of Normal Working Hours

After normal working hours, the caller calls SAM's main number and is directed to press "1". The caller is directed to leave a message and told that the Authority will call them back. The caller is directed to leave their name, address, telephone number, and a description of the problem.

The voice mail notification system rolls over to a back-up cell phone number after 15 minutes of trying to contact the First Responder, to the SAM Supervisor of Operations after 15 minutes of trying to contact the back-up number, and then cycles back through this list until a person is reached.

After hours, SAM's First Responder is usually the on-duty treatment plant/lift station operator.

The plant is staffed every day, including weekends and holidays. SAM also designates and pays on-call staff after hours, weekends, and holidays. The SAM First Responder retrieves the message remotely, and may call the caller for additional information.

After the call is received by the First Responder, back-up on call staff, and/or Supervisor of Operations, SSO response and reporting proceed in the same manner as during normal working hours.

SAM's general voice mail box is checked at the beginning of each working day to ensure that all calls received during the prior off-hours period have received a response.

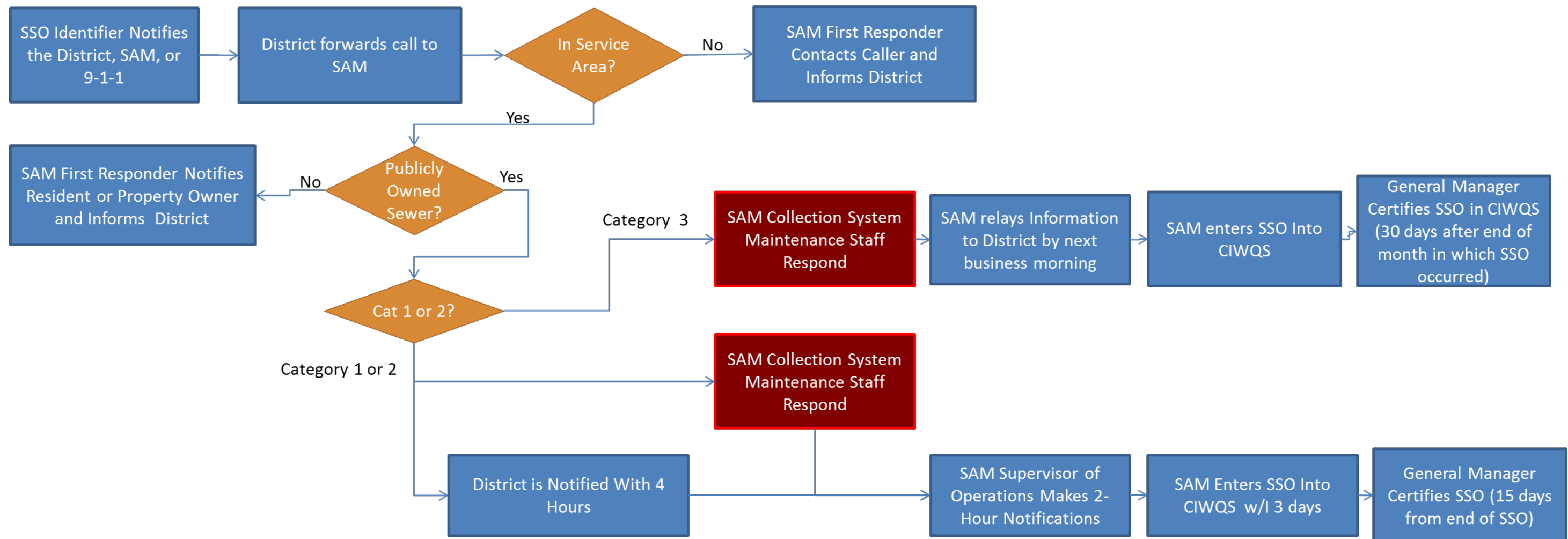
### **3.2 Notification from Pump Station SCADA Alarms**

The District's three pump station alarms are conveyed to SAM via auto-dialer. Alarm conditions and other pump station issues are monitored and response is provided by SAM collection system maintenance staff and mechanics following the same process that is deployed for sewer system SSOs. When the alarm condition indicates a non-emergency response situation, SAM discusses the course of action with the GCSD General Manager, and a Work Order to address the issue is created.

### **Appendix OERP-A**

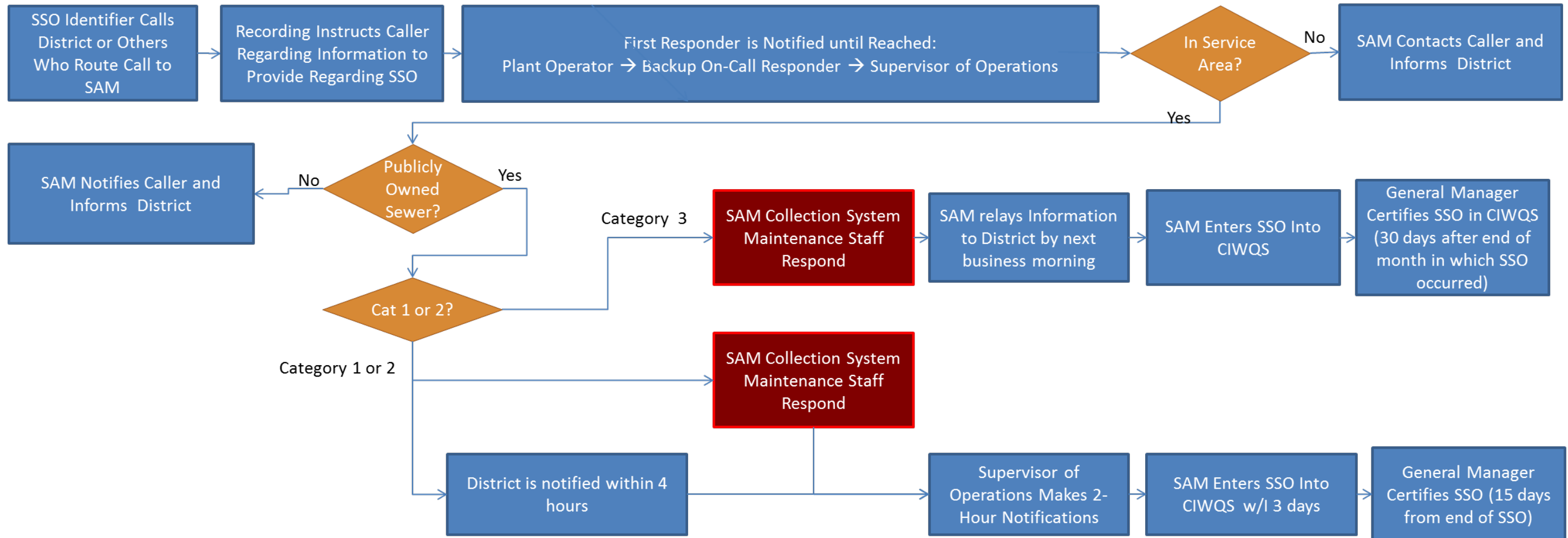
- SSO Report Form (under development by SAM)
- SSMP and First Responder Contact List

**Figure 3-1 SSO Response Chain of Communication (Business Hours)**



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**Figure 3-2 SSO Response Chain of Communication (Non-Business Hours)**





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## Chapter 4 SSO Response Program

The following staff are responsible for responding to SSOs:

- First Responder to SSOs: Lead Collection System Maintenance Worker during normal work hours; designated First Responder outside of work hours
- First Responder to Pump Station Failures: Operations Staff during normal working hours, designated First Responder outside of working hours
- Claims Processing: General Manager, GCSD

### 4.1 First Responder Priorities

The first responder's priorities are as follows:

- To follow safe work practices, including those related to traffic control, confined space, and employee and public safety
- To respond promptly with the appropriate equipment
- To evaluate the cause of spill and determine responsibility
- To restore the flow as soon as possible
- To contain the spill whenever feasible
- To minimize public access to and/or contact with the spilled sewage

### 4.2 Available Equipment

The District, via SAM, has a variety of equipment available for clearing blockages and impact mitigation and cleanup activities, including the following:

- Combination vacuum/hydrojet truck
- Hydrojet truck
- Cameras
- Hand-held GPS unit
- Trash pump and hoses
- Vacuum trailer
- Disposable cameras

Equipment is stored at the SAM Wastewater Treatment Plant, located at 1000 North Cabrillo Highway, Half Moon Bay, CA.

### 4.3 Initial Response

Figure 4-1 provides a flowchart that shows the steps involved in initial SSO response. The First Responder reports to the location within 60 minutes of the initial SSO report with the objective of minimizing and/or eliminating an overflow. The appropriate response measure varies based on the circumstances and nature of the SSO and the information provided by the caller. Actions related to external and internal SSOs are summarized below.

SAM is developing an SSO Report Form that will be included in Appendix OERP-A to

document the contact and response for each SSO that occurs.

#### 4.3.1 External SSO

Upon arrival at the site, the First Responder should complete the following:

- Note arrival time at spill site, and include the time in the SSO Field Report Form. Record basic incident information on site, and complete the form after finishing the response.
- Verify the existence of the SSO
- Field verify the address and nearest cross street, and confirm that the SSO is part of the District's sewer/conveyance system
- Conduct visual monitoring to determine immediate actions, starting with documentation of SSO volume using the methods discussed below and included in Appendix OERP-B.
- Contain, mitigate, and minimize impacts from the SSO, and restore flow. Flow restoration involves using appropriate cleaning tools and setting up downstream of the blockage. Hydro-clean upstream from a clear manhole. Observe to ensure that the blockage does not recur downstream.
- If the blockage cannot be cleared within a reasonable time, or sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping. If assistance is required, immediately contact other employees, contractors, and equipment suppliers. Contact information is included in Appendix OERP-A.
- Identify and clearly assess the affected area and extent of spill, including possible impacts on surface water. Where it is safe and practical, visually inspect surface water in the vicinity of the SSO & record observations on the SSO Field Report Form. Signs of receiving water impacts include clear signs of sewage (solids, grease, paper), abnormal color, fish kills, etc.
- The California Department of Fish and Wildlife (CDFW) should be notified in the event an SSO impacts any creeks, cullies, or natural waterways. CDFW will provide guidance associated with cleanup. Cleanup should proceed quickly, and any water used in the process should be dechlorinated prior to use.
- Notify the SAM Supervisor of Operations and the GCSD General Manager if the spill appears to be large (over 1000 gallons), has entered a waterway or storm drain, is in a sensitive area, may imminently and substantially endanger human health, results in fish kills, or if there is doubt regarding the extent, impact, or how to proceed, or if additional help is needed for line cleaning or repair, containment, recovery, lab analysis, and/or site cleanup.
- Where safe and feasible, take necessary water quality samples at the point of discharge and at upstream and downstream locations. Use best judgment and consult with the SAM Supervisor of Operations and GCSD General Manager if uncertain. Water quality

monitoring is not given precedence over stopping the SSO or protecting public health. However, if sufficient personnel are available, monitoring is conducted in parallel with these activities or with the cleanup effort.

- Comply with all safety precautions (traffic, confined space, etc.)
- Contact caller, if time permits. Identify SSO cause, including conducting CCTV inspection as appropriate.
- Document all activities through photos and written documentation

The First Responder should provide the completed SSO Field Report to the Supervisor of Operations, who inputs the data into the CIWQS SSO database and also provides the information to the GCSD General Manager.

#### 4.3.2 Internal SSO

Upon arrival at the location of a spill into a house or a building, the First Responder should evaluate and determine if the spill was caused by a blockage in the lateral or in the District-owned sewer main. If a blockage is found in a property owner's lateral, it should be clearly communicated that response and repair of private laterals is not the District's responsibility. The homeowner is responsible for clearing any blockage in the home's plumbing system or private lateral and for any resulting flood damage to the structure. The homeowner is also responsible for damage that happens because a lateral was not properly installed.

If a backup in the District's main line is found to have caused the SSO in a house or building, the First Responder should take steps to address the issue as described above. The First Responder should provide a copy of the residential sewage contamination flyer that is included in Appendix OERP-B to the property owner, and instruct the property owner to follow the following guidelines:

- Keep all family members and pets away from the affected area
- Place towels, rags, blankets, etc. between areas that have been affected and areas that have not been affected, and move any uncontaminated property away from the overflow area
- Move any uncontaminated property away from the overflow area. Do not remove any contaminated items.
- Turn off the HVAC system

The First Responder should follow the following steps to assist the homeowner:

- Gather information and fill out the Sewer Backup Summary Report, located in Appendix OERP-B.
- Call a restoration company as described below (contact numbers are included in Appendix OERP-A), and wait for the restoration firm to arrive
- Forward incident reports and related documents to SAM Supervisor of Operations and GCSD General Manager

#### 4.3.3 Pump Station SSO

Alarm events from the District's pump stations are transmitted by auto-dialer to the SAM First Responder and Supervisor of Operations. Alarm conditions include equipment failure, power failure, and high wet well level.

The First Responder to a potential pump station or forcemain failure should determine whether flow can be restored within a reasonable time. If it appears that flow cannot be restored within a reasonable time or if the conveyance system facility requires construction and/or repairs, then the First Responder should employ SSO response measures which may include containment, bypass pumping, and contractual assistance<sup>1</sup>. In addition, other sewer response activities discussed above should be implemented where applicable.

#### 4.4 Containment and Bypass

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 available equipment and materials to contain the spill, where feasible. 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 using dike/dam or sandbags
- Pump around the blockage/pipe failure/pump station or vacuum flow from upstream of the blockage and dispose of downstream of the blockage to prevent further overflow
- If an SSO reaches a water body, follow the requirements below for posting and SSO notification signage. Also conduct water quality sampling as discussed above.

#### 4.5 Sewage Estimation

Use the methods outlined in Appendix OERP-B to estimate the volume of the spilled sewage.

Some spills may occur in locations where the wastewater can seep into the ground or flow away from the spill location. In such conditions, consider when the spill was first detected and observations from bystanders in order to determine the total spill volume.

#### 4.6 Water Quality Sampling for SSOs less than 50,000 gallons

Water quality sampling and testing is required whenever the spilled sewage enters a water body. The purpose of testing is to determine the extent and impact of the SSO. The following guidelines must be followed:

- The First Responder should arrange for collection of samples. Samples should be

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<sup>1</sup> SAM currently does not have a formalized emergency contingency plan for the pump stations, and will develop this plan in 2013.

collected as soon as possible after the discovery of the SSO event.

- For spills less than 1,000 gallons, at a minimum, water quality samples should be collected at the discharge point, 100 feet upstream, and 100 feet downstream
- If a spill is more than 1,000 gallons, additional sites should be sampled, following the requirements of the San Mateo County Health Services Agency, Environmental Health Division (EHS) and the District's Water Quality Monitoring Program, which is described in Chapter 5 and included in Appendix OERP-C.
- The water quality sampling procedures should follow EHS procedures as follows:
  - Keep the sterile collection bottle closed until it is to be filled. Do not contaminate inner surface of the lid or bottle rim.
  - Collect water sample just below the surface in knee deep water, approximately 3 feet deep (full arm's length), without rinsing. If needed, extend the sampling pole to the fullest length to reach deeper water depth. Minimize contact with bank or beach bed as water fouling may occur.
  - Remove cap and hold the bottle near its base and plunge it, neck downward, below the surface.
  - Turn bottle until neck points slightly upward and mouth is directed toward the current. Fill bottle leaving about 1 inch of air to allow lab to mix by shaking. Collect a minimum of 100 mL. (If applicable, insert sterile collection bottle into the holder on the sample pole. Extend the sample pole and plunge bottle end into the water, bottle opening downward.)
  - Immediately place cap securely on bottle to avoid leaks and contamination.
  - Dry the bottle.
  - Label container with distinctive sample site name, date, and time collected.
  - Complete the laboratory requisition slip with requested information (site, bottle number, collector, date and time of collection, type of sample, test requested, name and phone number of responsible person for reporting purposes, and deliverer name). Note any field observations that may have occurred during the sampling.
  - Samples should be tested for fecal coliform, total coliform and enterococcus (note: Ammonia sampling is also required for SSOs greater than or equal to 50,000 gallons).
  - Samples should be stored and shipped by placing the water sample bottle in a cooler with frozen blue ice. Water sample must be kept cool. Ice may be used but care must be taken so water samples are not contaminated or diluted by the ice.

Water samples may be taken to the **County of San Mateo Public Health Laboratory at 225 W. 37th Avenue, Room No. 113, San Mateo, CA 94403, (650) 573-2500**. The water samples must be brought to the laboratory within 8 hours of collection, before 3:00 pm, for processing.

If the County laboratory is closed, an alternate testing laboratory should be designated. SAM is

currently in the process of identifying a backup laboratory.

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.

#### 4.7 SSO Notification Signage

Barriers shall be installed to prevent the public from having contact with the sewage. Signs should be posted to keep vehicles and pedestrians away from contact with spilled sewage. A sample warning sign is included in Appendix OERP-B.

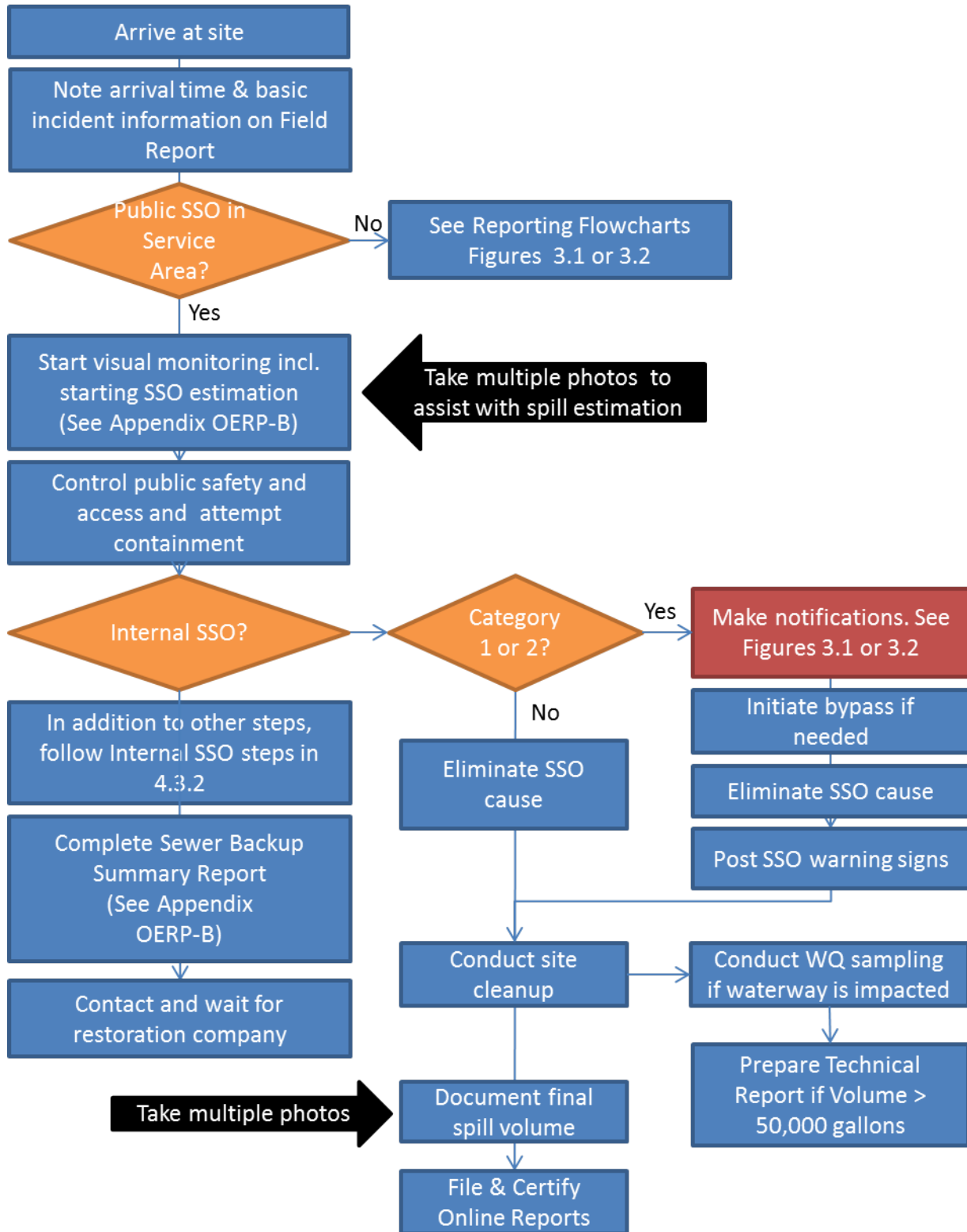
If a creek, stream and/or beach have been contaminated as a result of an SSO, notifications should be posted at visible access locations until the risk of contamination has subsided to acceptable background levels. The warning signs, once posted, should be checked every day to ensure that they are still in place. “Closed” signs should be posted at the outfall and a minimum of 100 feet upstream and 100 feet downstream of the discharge. If there is a large volume of sewage, more signs must be posted downstream.

Signs must remain posted until the removal of signs is approved by EHS and the County Public Health Officer.

#### Appendix OERP-B

- SSO Volume Estimation Methods
- Residential Sewage Contamination Flyer
- Sewer Backup Summary Report
- Example SSO Notification Sign(s)

**Figure 4.1 SSO Response Activities**





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## Chapter 5 Regulatory Reporting

This chapter describes the requirements that have been established for reporting of SSOs to the regulatory agencies.

### 5.1 Multiple Appearance Points – Single SSO

For reporting purposes, if one SSO event of any category results in multiple appearance points in a sewer system, a single SSO report is required in CIWQS which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and descriptions of the locations of all other discharge points associated with the single SSO event.

### 5.2 2-Hour Notification to Regulatory Agencies of SSOs

Cal OES is to be notified of a Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water. In addition, both the County Health Officer and EHS are to be contacted. During regular business hours, the Health Officer can be reached at (415) 473-3707 and the main EHS phone number to call is (415) 473-6907. During evenings/weekends, call the Sheriff Communication Center at (415) 479-2311.

The First Responder is responsible for reviewing field data for reporting to regulatory agencies. If it is determined that the criteria for OES notification was met, than the First Responder must notify OES of the event no later than two (2) hours after:

1. The District has knowledge of the SSO;
2. Notification is possible; and
3. Notification can be provided without substantially impeding cleanup or other emergency measures.

The OES phone number is (800) 852-7550.

The First Responder is responsible for obtaining an OES Control number. Following the initial notification to OES and until the SSO report is certified in the SWRCB online SSO Database, the LRO will provide updates (or provide direction for updates to be provided) to OES regarding substantial changes to estimated volume of untreated or partially treated sewage discharged and any substantial changes to known impact(s).

### 5.3 Detailed Reporting Requirements

Table 5-1 provides detail on the District's regulatory reporting requirements, which are also described in the paragraphs following Table 5-1.

**Table 5-1. SSO Reporting Requirements**

If SSO	Then Notify
<ul style="list-style-type: none"> <li>Category 1 – SSO of any volume that reaches surface water and/or a drainage channel tributary to surface water, or reaches a municipal separate storm sewer system and not fully captured.</li> </ul>	<ul style="list-style-type: none"> <li><b>2-Hour Notification to CalOES:</b> (800) 852-7550. Ask for an OES Control Number (for RWQCB). County Health Officer (650) 372-6200 should also be contacted. During evenings/weekends, call the County Sheriff’s Office at (650) 216-SMSO (7676).</li> <li><b>Within 3 Business Days</b> of Notification report to SWRCB using CIWQS</li> <li><b>Within 15 Calendar Days</b> of Conclusion of Response certify by LRO using CIWQS</li> <li><b>Within 45 Calendar Days of Conclusion of Response</b> submit SSO Technical Report via CIWQS online database</li> <li><b>Additional Notification as Needed</b> – California DFW: (707)-944-5523</li> </ul>
<ul style="list-style-type: none"> <li>Category 2 SSO: SSO of 1,000 gallons or greater that does not reach surface water, a drainage channel, or a municipal separate storm sewer system, or is otherwise fully recovered and disposed of properly.</li> </ul>	<ul style="list-style-type: none"> <li><b>Within 3 Business Days</b> of Notification report to SWRCB using CIWQS</li> <li><b>Within 15 Calendar Days</b> of Conclusion of Response certify by LRO using CIWQS</li> </ul>
<ul style="list-style-type: none"> <li>Category 3 – All other SSOs</li> </ul>	<ul style="list-style-type: none"> <li><b>Within 30 Calendar Days</b> past End of Month with SSO Event report to SWRCB and certify by LRO using CIWQS</li> </ul>
<ul style="list-style-type: none"> <li>Negative Reporting (no SSOs in month)</li> </ul>	<ul style="list-style-type: none"> <li><b>Within 30 Calendar Days</b> past End of Month report by LRO to SWRCB using CIWQS</li> </ul>
<ul style="list-style-type: none"> <li>Agency Contacts</li> </ul>	<ul style="list-style-type: none"> <li>Tim Costello, Supervisor of Operations for SAM: (650) 726-0124</li> <li>Chuck Duffy, General Manager for Granada Community Services District: (760) 522-4419 (cell)</li> </ul>
<ul style="list-style-type: none"> <li>Collection System Questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>Update and certify every 12 months</li> </ul>
<ul style="list-style-type: none"> <li>In the event that CIWQS is not available, the LRO or their designee will fax all required information to the RWQCB office in accordance with the time schedules identified above. In such event, SAM will submit the appropriate reports using CIWQS as soon as practical. The San Francisco Bay RWQCB (Region 2) Fax number is (510) 622-2460.</li> </ul>	

**SSO Reporting for Category 1 SSOs**

- Cal OES and EHS shall receive notification of Category 1 SSOs greater than or equal to 1,000 gallons, as stated earlier in this Section.
- The Data Submitter must then submit the initial draft report to the SWRCB’s CIWQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs> within 3 business days of becoming aware of the SSO.
- Within 15 calendar days of the SSO end date, the LRO must review and certify the report in the CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>

### SSO Reporting for Category 2 SSOs

- Within 3 business days of becoming aware if the SSO, the District Manager must submit the initial report to the SWRCB's CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.
- Within 15 calendar days of the SSO end date, the LRO must review and certify the report in the CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

### SSO Reporting for Category 3 SSOs

- Within 30 calendar days of the end of the calendar month in which the SSO occurred, the LRO must submit and certify a report to the SWRCB's CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

### No Spill Certification (Monthly)

- Within 30 calendar days of the end of a calendar month that there are no SSO's, the LRO must submit and certify a "No Spill" certification to the CIWQS online SSO database.

### CIWQS Not Available

In the event that the CIWQS online SSO database is not available, the LRO will fax or e-mail all required information to the RWQCB office at (510) 622-2460 in accordance with the time schedules identified above. In such an event, the District will submit the appropriate reports using the CIWQS online SSO database when the database becomes available. A copy of all documents that certify the submittal in fulfillment of this section shall be retained in the SSO document file.

### Amending SSO Reports

The LRO is responsible for amending SSO reports. Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date. After 120 days, the District must contact the State SSO Program Manager to request to amend an SSO report along with a justification for why the additional information was not available prior to the end of the 120 days. The SWRCB SSO Program Manager contact information is as follows:

Gil Vazquez, P.E.  
State Water Resources Control Board  
Division of Water Quality  
1001 I Street 15<sup>th</sup> Floor  
Sacramento, CA 95814  
E-mail: [Gil.vazquez@waterboards.ca.gov](mailto:Gil.vazquez@waterboards.ca.gov) / Phone: (916) 322-1400

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## Chapter 6 Follow-up Activities

The recovery and clean up phase begins when the flow has been restored and the spilled sewage has been contained to the extent possible. Spilled sewage shall be vacuumed or pumped and discharged to the extent possible back into the sanitary sewer system.

### 6.1 Clean Up and Disinfection

Clean up and disinfection 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. Clean up should proceed quickly in order to minimize negative impact. Any water that is used in the cleanup process should be de-chlorinated prior to use.

Where cleanup is beyond the capabilities of SAM response staff, the SAM Supervisor of Operations should work with the GCSD General Manager to contact a cleanup contractor to complete the work.

Spills inside houses or buildings should be cleaned by a professional cleaning company. Contact information for professional cleaning companies can be found in the “Water Damage Restoration” section of the Yellow Pages. Claims by homeowners should be forwarded to the GCSD General Manager.

On **hard surface areas**, collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Take reasonable steps to contain and vacuum up the wastewater. Disinfect all areas that were contaminated from the SSO using an approved disinfectant solution where appropriate. When disinfectant is applied, use minimal amounts of the disinfectant solution using a hand sprayer. Document the volume and application method of disinfectant that is employed. Allow area to dry. Repeat the process if additional cleaning is required.

On **landscaped or unpaved areas**, collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Allow the area to dry. Repeat the process if additional cleaning is required.

If the SSO has reached the **storm drain system**, a vacuum excavation truck should be used to vacuum/pump out the catch basin and any other portion of the storm drain that may contain sewage. In the event that an overflow occurs at night, the location should be re-inspected as soon as possible the following day. The operator should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

### 6.2 Claims for Backups into a Building

The responder to a sewer backup into a house or building should complete the following:

- Gather information and fill out the Sewer Backup Summary Report included in Appendix OERP-B
- Notify the SAM Supervisor of Operations and GCSD General Manager of the incident

- Wait for restoration firm to arrive
- Forward incident reports and related documents to the SAM Supervisor of Operations and GCSD General Manager. For potential claims, follow the SAM claims management process.

### 6.3 Impact to Waters of the United States

If an SSO is confirmed to have entered waters of the United States<sup>2</sup>, the SAM Supervisor of Operations and GCSD General Manager must be immediately notified. The response team should then proceed with the following additional activities:

- Determine the extent of the SSO by investigating downstream until there is no evidence of sewage or debris along the creek or water body
- Conduct Water Quality Sampling, following the process described below. If the SSO is 50,000 gallons or greater, collect water quality samples within 48 hours of becoming aware of the SSO
- Perform daily water quality sampling (or sampling per EHS) until compliance is achieved
- Immediately post contaminated water sign(s) and protect the water body from public access on all sides
- Photograph sign placement and evidence of the overflow in and around the water body to the farthest point reached by the sewage
- Determines if the water body is safe to enter. During the winter storm season, cleaning the water body may not be feasible due to high water flows.
- If feasible, block the water body downstream of the affected area in a location that is safe to enter and is accessible to set up a pump or utilize other sewer cleaning equipment
- To the extent feasible, recover and return contaminated water to the collection system
- Perform follow-up sampling until the area shows no water quality impairment and the posted signs can be removed. The GCSD General Manager, as advised by EHS, ultimately determines when this happens and makes any follow up calls to affected agencies.

### 6.4 Water Quality Monitoring Plan

A Water Quality Monitoring Plan must be implemented immediately upon discovery of any Category 1 SSO of 50,000 gallons or more in order to assess impacts from SSOs to surface waters. Water quality testing must be completed within 48 hours of the District becoming aware of the SSO.

The District's SSO Water Quality Monitoring Program is included in Appendix OERP-C, and includes the following:

---

<sup>2</sup> **40 CFR 230.3(s)** defines the term "waters of the United States." This term includes all lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, or natural ponds, or waters that could be used for recreational or other purposes.

- 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.)
- Requirement for water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory
- Requirement for 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

## 6.5 SSO Technical Report

If 50,000 gallons or greater from an SSO reaches surface waters, an SSO Technical Report must be prepared and submitted to the CIWQS online SSO database within 45 calendar days of the SSO end date. The SSO Technical Report must include, at a minimum, the following:

1. Causes and Circumstances of the SSOs
2. Complete and detailed explanation of how and when the SSO was discovered
3. Diagram showing the SSO failure point, appearance point(s), and final destination(s)
4. Detailed description of the cause(s) of the SSO
5. Copies of the original field crew records used to document the SSO
6. Historical maintenance records for the failure location
7. Response to SSO
  - a) Chronological narrative description of all actions taken to terminate the SSO
  - b) Explanation of how the OERP was implemented to respond to and mitigate the SSO
  - c) Final corrective action(s) completed and/or planned to be completed, including a schedule or actions not yet completed
8. Water Quality Monitoring:
  - a) Description of all water quality sampling activities conducted including analytical results and evaluation of the results
  - b) Detailed location map illustrating all water quality sampling points

The SAM Supervisor of Operations must work with the GCSD General Manager to develop the report. The GCSD General Manager will certify and submit the SSO Technical Report. An outline for the SSO Technical Report is included in Appendix OERP-C.

## 6.6 Failure Analysis

For each SSO event greater than 1,000 gallons, all participants involved in the response, from the person who received the call to the last person to leave the site, should meet as soon as feasible after the event to review and evaluate the incident and SAM's response procedures. The objective of the post-SSO debrief is to determine actions necessary, if any, to reduce the recurrence and better mitigate the effects of SSOs.



## Appendix OERP-C

- Failure Analysis Form
- Water Quality Monitoring Program
- Template for SSO Technical Report

## Chapter 7 Communications with the Public

A sewer backup is a stressful event and may include interactions with an irate residential property owner or resident. Professional presentation is important, as a homeowner will likely become unhappy if it is perceived that response staff are indifferent, uncaring, unresponsive, and/or incompetent.

### 7.1 General Communications

Effective management of a sewage backup situation is critical to avoid the potential for a costly, prolonged process with the property owner. The property owner should feel assured that the District and SAM are responsive and that their best interest is the District's top priority.

How you communicate, whether on the phone, in writing, or in person, is how you will be perceived. Good communication with the homeowner results in greater confidence in the District and SAM's ability to address the problem satisfactorily, and a greater chance that the property owner will be cooperative as SAM completes response and follow-up activities.

When interacting with an affected homeowner, consider the following:

- The homeowner needs ample time to explain the situation. Show interest in what the homeowner has to say. It does not matter if you have heard the story before or already understand the problem.
- As soon as possible, let the homeowner know that you will determine if the source of the sewer backup is in the sewer main and, if it is, will have it corrected as quickly as you can
- State that you understand their concern and then explain what can be done to address the issue, either by SAM if applicable, or an outside contractor
- Do not admit fault. The determination of fault is handled by management staff. If it is determined that the District is at fault, the property owner has the right to file a claim for any reasonable repairs or losses resulting from the incident.
- Keep the homeowner informed on what is being done and will be done to correct the problem
- Keep focused on getting the job done in a very professional manner. Small talk and blame are not appropriate during the response activities.

### 7.2 Public Notification of Spills that do not Reach Public Waters

For spills that are contained and do not release unrecovered sewage into a storm drain, stream or a surface water body, notification to the public shall be accomplished through the use of signs at the location of the spill.

### 7.3 Public Notification of Spills that Reach Waters of the United States

If sewage reaches a Waters of the United States, EHS will determine if a field investigation of the discharge site and potentially affected areas is required. If possible, verify the extent of the contamination in the field before the water body closure decision is made.

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. “Closed” signs shall be posted at the outfall and a minimum of 100 feet upstream and 100 feet downstream of the discharge. If there is a large volume of sewage, more signs must be posted downstream.

Signs must remain posted until at least two consecutive days of samplings meet the Public Beach Sanitation and Ocean Water-Contact Sports standards, or as otherwise determined by EHS. EHS has the authority to close and re-open the beaches and water bodies for public water contact. The water bodies affected are determined by the following parameters and best professional judgment:

- The volume of sewage discharged
- Parameters affecting flow of sewage to the water bodies
- Direction of current
- Tides
- Past experience in the area; and/or
- Any other pertinent information.

## Chapter 8 SSO Documentation

This chapter summarizes the documentation that is prepared and retained in response to an SSO.

### 8.1 Internal Documentation of SSOs

The First Responder prepares the SSO Field Report, any needed work orders, and in the case of a residential backup, the Sewer Backup Summary Report that is included in Appendix B. The SAM Supervisor of Operations oversees preparation of a file for each individual SSO. The file includes the following information when available:

- Initial service call information
- SSO Report Form
- Copies of the certified CIWQS report forms including volume estimate
- Closed-Circuit Television (CCTV) inspection if completed
- Water quality sampling and test results, if applicable
- Results from the failure analysis investigation, if applicable
- Technical Report if prepared

The Statewide WDR requires that individual SSO records be maintained by the District for a minimum of five years from the date of the SSO. SAM maintains these records on the District's behalf. The retention period may be extended when requested by a RWQCB Executive Officer. All records shall be made available for review upon SWRCB, RWQCB, or EPA staff's request. In addition to the abovementioned records, the following additional records shall be retained for all SSOs where applicable:

- All original recordings for continuous monitoring instrumentation
- Service call records and complaint logs of calls received by the District for the previous five years
- Work orders, work completed, and any other maintenance records from the previous five years that are associated with SSOs
- Documentation of performance and implementation measures for the previous five years

### 8.2 Failure Analysis Investigation

The objective of the failure analysis investigation is to determine the cause of the SSO and to identify corrective action(s) needed that will reduce or eliminate future potential for the SSO to recur. When this investigation is deemed necessary, the investigation includes reviewing all relevant data to determine appropriate corrective action(s). The investigation typically includes:

- Reviewing and completing the SSO Report Form
- Reviewing past maintenance records
- Conducting a CCTV inspection to determine the condition of the line segment immediately following the SSO
- Interviewing staff who responded to the spill.

The product of the failure analysis investigation should be the determination of the root cause and the identification of the corrective actions. The Collection System Failure Analysis Form (Appendix

OERP-C) can be used to document the investigation.

## Chapter 9 Training

All District and SAM personnel and contractors who may have a role in responding to, reporting, and/or mitigating a sewer system overflow receive training on the contents of this OERP. All new employees also receive training before they are placed in a position where they may have to respond. Current employees receive regular refresher training on the SSMP and OERP.

Records are kept of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event include date, time, place, content, name of trainer(s), and names of attendees.

**Appendix OERP-A  
SSO Report Form (to be added by SAM)  
SSMP and First Responder Contact List**

SSO Report Form is under development and will be added by SAM



**Granada Community Services District  
SSMP and OERP Contact List**

**SSO REPORTING AND EMERGENCY CONTACT INFORMATION**

Agency	Phone Number
Sewer Authority Mid-Coastside (Maintenance and SSO Response) Tim Costello, Supervisor	650-726-0124 (24 hours)
City of Half Moon Bay	650-726-7177
Montara Water and Sanitary District	650-728-3545
CA Office of Emergency Services	800-852-7550
San Mateo County Environmental Health	650-372-6200
San Mateo County Sheriff Dispatch	650-216-SMSO (7676)
San Mateo County Public Health Laboratory	650-573-2500
CA Department of Fish and Wildlife	707-944-5523
SWRCB SSO Program Manager: Russell Norman, P.E.	916-323-5598

Title	Name	Contact #
General Manager	Chuck Duffy	Cell: 760-522-4419
District Administrator	Delia Comito	Office: 650-726-7093 Cell: 650-766-6715
Legal Counsel	Jonathan Wittwer	831-429-4055
District Engineer	John Rayner	Cell: 650-483-5301
Sewer Authority Mid-Coastside (Maintenance and SSO Response)	Tim Costello, Supervisor	650-726-0124 (24 hours)

**ADJACENT SEWER SERVICE AREAS**

Agency	Phone Number
City of Half Moon Bay	650-726-7177
Montara Water and Sanitary District	650-728-3545

**Appendix OERP-B**

SSO Volume Estimation Methods  
Residential Sewage Contamination Flyer  
Sewer Backup Summary Report  
Example SSO Notification Signs

### Sewer Maintenance Spill Calculation and Estimation Methods

Outlined in this document are three methods that are most often employed for estimating the volume of sanitary sewer spill. The City staff preparing the estimate should utilize the most appropriate method for the sewer overflow in question and use the best information available.

#### Method 1: Eyeball method

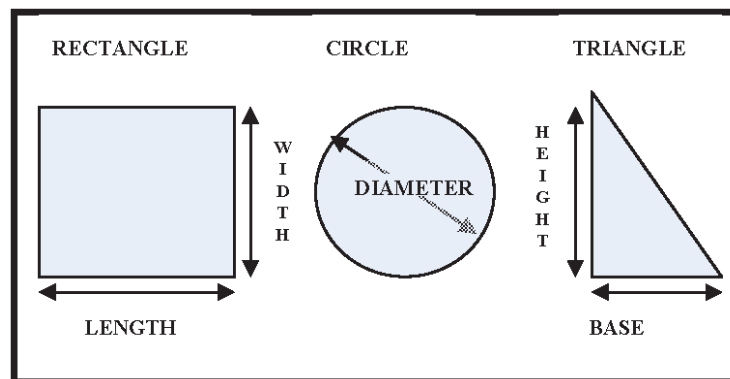
The volume of small spills can be estimated using an “eyeball estimate”. To use this method imagine the amount of water that would spill from a container listed on the table below. A jug contains 1 gallon, a bucket contains 5 gallons, and a drum contains 55 gallons. If the spill is larger than 55 gallons, try to break the standing water into 55 gal drums and then multiply by 55 gallons. This method is useful for contained spills up to approximately 220 gallons.

Size of container	How many of this size?	Size Multiplier (gal)	Total Volume Estimated (gal)
Water jug		X 1	
Bucket		X 5	
55 gal drum		X 55	
<b>Total volume estimated</b>			

#### Method 2: Measured Volume

The volume of most small spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

### Common Shapes and Dimensions



#### Steps for Volume Calculation

- Step 1 Sketch the shape of the contained sewage (see figure above).
- Step 2 Measure or pace off the dimensions.
- Step 3 Measure the depth at several locations and select an average.
- Step 4 Convert the dimensions, including depth, to feet.
- Step 5 Calculate the area in square feet using the following formulas:

Rectangle: Area = length (feet) x width (feet)

Circle: Area = diameter (feet) x diameter (feet) x 0.785

Triangle: Area = base (feet) x height (feet) x 0.5

- Step 6 Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.
- Step 7 Multiply the volume in cubic feet by 7.5 to convert it to gallons

#### **Method 3: Duration and Flowrate**

Calculating the volume of larger spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made of the duration of the spill and the flowrate. The methods of estimating duration and flowrate are:

##### **Duration**

The duration is the elapsed time from the time the spill started to the time that the flow was restored.

Start Time: The start time is sometimes difficult to establish. Here are some approaches:

1. Local residents can be used to establish start time. Inquire as to their observations. Spills that occur in rights-of-way are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.
2. Changes in flow on a downstream flowmeter can be used to establish the start time. Typically the daily flow peaks are “cut off” or flattened by the loss of flow. This can be identified by comparing hourly flow data during the spill event with flow data from prior days. This method will likely only be effective with consistent weather.
3. Conditions at the spill site change over time and can be used to establish the start time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process. This method is valid for spills that have been occurring for a long time and may be used in conjunction with either of the above methods.
4. It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.

End Time: The end time is usually much easier to establish. Field crews on-site observe the “blow down” that occurs when the blockage has been removed. The “blow down” can also be observed in downstream flowmeters.

### **Flow Rate**

The flowrate is the average flow that left the sewer system during the time of the spill. There are three common ways to estimate the flowrate:

1. **The San Diego Manhole Flowrate Chart:** This chart, included as at the end of this appendix, shows sewage flowing from manhole covers at a variety of flowrates. The observations of the field crew can be used to select the appropriate flowrate from the chart. If possible, photographs are useful in documenting basis for the flowrate estimate.

2. **Flowmeter:** Changes in flows in downstream flowmeters can be used to estimate the flowrate during the spill.

3. **Counting Connections:** Once the location of the spill is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or 8 to 10 gallons per hour per connection.

For example:        22 upstream connections \* 9 gallons per hour per connection  
                             = 198 gallons per hour / 60 minutes per hour  
                             = 3.3 gallons per minute

### Spill Volume

Once duration and flowrate have been estimated, the volume of the spill is the product of duration (hours or days) and the flowrate (gallons per hour or gallons per day).

For example: Spill start time = 11:00

Spill end time = 14:00

Spill duration = 3 hours

3.3 gallons per minute x 3 hours x 60 minutes per hour

= 594 gallons



**Estimating Gallons per Minute from Sewer Manhole Overflows**



Photos provided by City of San Diego Water Department during a demonstration using water from a hydrant.

## General Precautions for Sewage Contamination on Residential Property

### **If a sewer backup causes flooding in your home:**

- ✓ Keep people and pets away from the affected area(s).
- ✓ Do not attempt to clean it yourself.
- ✓ Turn off central heat and air-conditioning systems and prevent flow from reaching floor vents by using towels or blankets as a berm. You can also remove the vent cover and stuff a towel in the opening to help prevent the flow from entering.
- ✓ Leave items in the affected area for the experts to handle.

### **Homeowner responsibilities**

The homeowner is responsible for clearing any blockage in the home's plumbing system or private lateral and for any resulting flood damage to the structure. The homeowner is also responsible for damage that happens because a lateral was not properly installed. If the sewage flooding was caused by blockage in your private lateral:

- ✓ Call an experienced restoration company for cleanup and removal of affected surfaces.
- ✓ Report a claim to your homeowner's insurance carrier.
- ✓ If you had recent plumbing work, contact your plumber or contractor.
- ✓ If the sewage flooding was caused by a blockage in the public sewer main, the agency may be responsible for the damage. If you have a claim, file your claim as soon as possible. SAM and/or its insurance carrier will arrange for a restoration company.

*Note: This information is provided to assist residents who experience an overflow of sewage on their property. It is not inclusive of events involving severe flooding, which can cause additional structural damage.*

**To report a sewage spill, contact SAM at (650) 726-0124 day or night.**

**\*\* See "Water Damage Restoration" section of the Yellow Pages for a list of restoration contractors\*\***

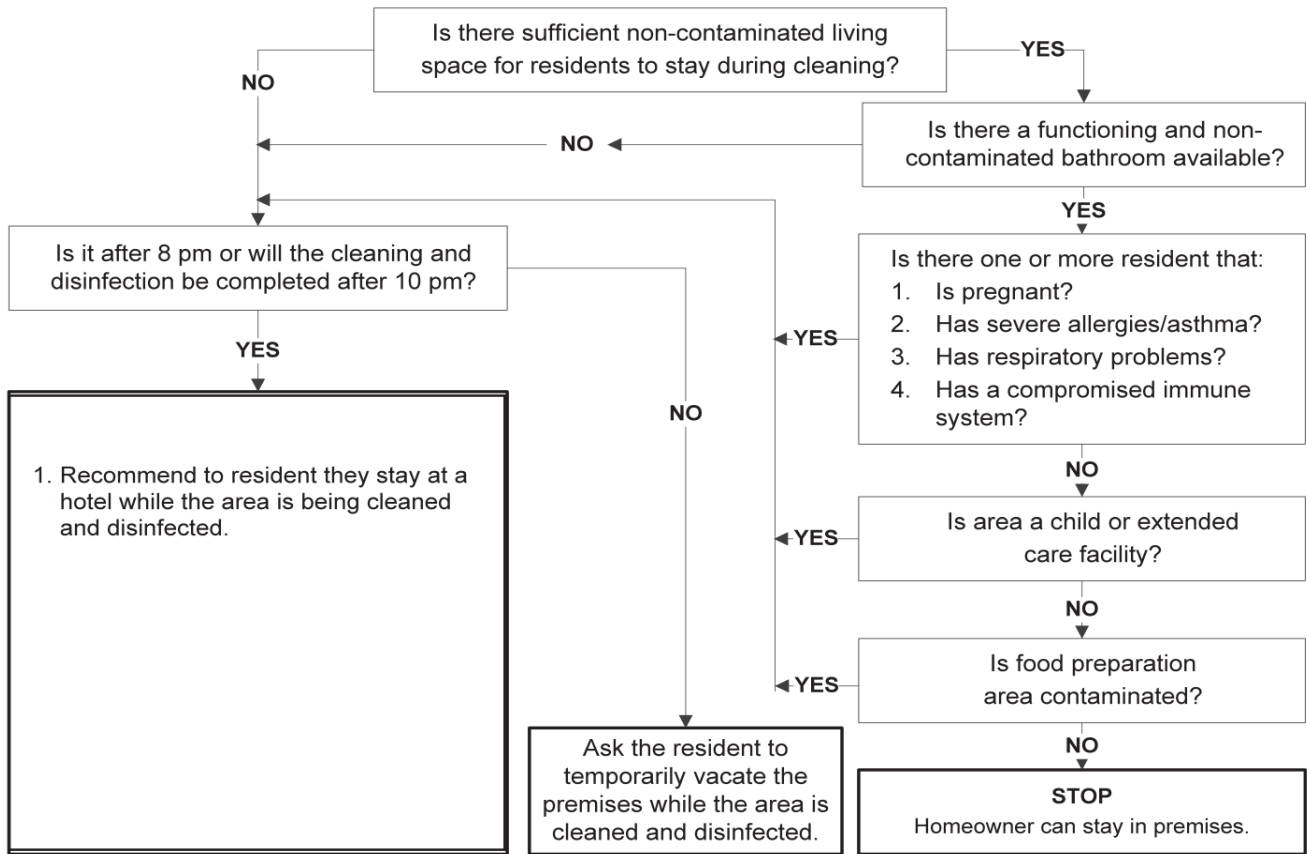


## Sewer Backup Summary Report

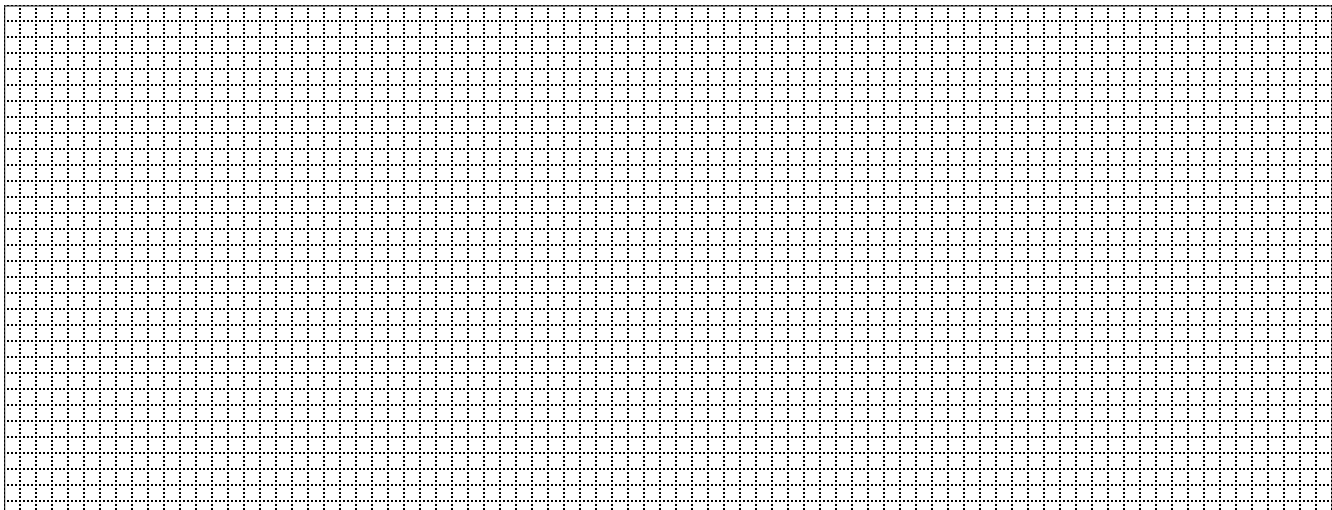
District's Site Arrival Time: _____		Time Cleaning Contractor Called: _____	
<b>Section A</b>			
Date:	Time:	Employee Name:	
Resident:		Property Manager (s):	
Street Address:		Street Address:	
City, State and Zip:		City, State and Zip:	
Phone:		Phone:	
Cause of Flooding:			
Location/Sewer:	<input type="checkbox"/> Street	<input type="checkbox"/> Rear Easement	<input type="checkbox"/> Manhole # _____ to # _____
	<input type="checkbox"/> Mainline	<input type="checkbox"/> Service Line	<input type="checkbox"/> Double-Wye
Damage:	<input type="checkbox"/> Black Water	<input type="checkbox"/> Grey Water	<input type="checkbox"/> Fresh Water
# of People Living at Residence:			
Comments:			
Cleaning Services:		<input type="checkbox"/> Requested by Owner - Wait for Cleaning Contractor to Arrive	
		<input type="checkbox"/> Declined by Owner	
<b>Section B</b>			
Approximate Age of Home:	# of Bathrooms:	# of Rooms Affected:	
Approximate Amount of Spill:		(Gallons)	
Approximate Time Sewage Has Been Sitting:		(Hours/Days)	
Number of Pictures Taken: _____		Digital or Film? _____	
Does the Customer Have a Backflow Prevention Device (BPD)?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, Was the BPD Operational at the Time of the Overflow?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have There Been Any Previous Spills at this Location?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
Type of Flooring in the Room Affected:			
<input type="checkbox"/> Tile	Condition of Tile and Seams (Cracking, Visible Open Spaces, Etc.)		
<input type="checkbox"/> Carpet			
<input type="checkbox"/> Wood	Condition of Flooring and Joints (Cracking, Visible Open Spaces, Etc.)		
<input type="checkbox"/> Other	Please Identify: _____		
Has the Resident Had Any Plumbing Work Done Recently?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
If Yes, Please Describe: _____			
Are There Baseboards:		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Baseboard Material: _____	
Condition of Baseboards:			
<input type="checkbox"/> Baseboard Bottom has Tight Seal with Wall			
<input type="checkbox"/> Baseboard Top has Tight Seal with Wall			
<input type="checkbox"/> Baseboard Has Space Between Bottom and Floor			
<input type="checkbox"/> Baseboard Has Space Between Baseboard and Wall			

# Sewer Backup Summary Report

## Section C: Livability Assessment



Please Diagram the Rooms Affected (Shade the Areas Most Heavily)



## Section D: Cleaning Contractor

Company Name:

Phone:

Arrival Time:

Comments

# WARNING

RAW SEWAGE SPILL.

AREA CLOSED, NO ENTRY.

Contaminated water, do not ingest, wade, swim, fish or come into contact.

Keep children and pets out of the area.

Questions concerning exposure, posting and clean-up should be directed to:

**COUNTY OF SAN MATEO  
HEALTH SERVICES AGENCY**

**(650) 363- 4305**

**Monday through Thursday 7:00 AM - 7:00 PM**

**Appendix C**  
Failure Analysis Form  
Water Quality Monitoring Program  
Template for SSO Technical Report

## Sanitary Sewer Overflow Collection System Failure Analysis Form

CIWQS Event ID:		Prepared By:	
<b>SSO/Backup Information</b>			
Event Date/Time:		Address:	
Volume Spilled:		Volume Recovered:	
<b>Cause:</b>			
<b>Date</b>	<b>Cause</b>	<b>Date Last Cleaned</b>	<b>Crew</b>
Records Reviewed By:		Record Review Date:	
<b>Summary of CCTV Information:</b>			
CCTV Inspection Date:		Tape Name/Number:	
CCTV Tape Reviewed By:		CCTV Review Date:	
Observations:			
<b>Recommendations:</b>			
No Changes or Repairs Required <input type="checkbox"/>			
Maintenance Equipment			
Maintenance Frequency			
Repair (Location and Type)			
Add to Capital Improvement Rehab/Replacement List <input type="checkbox"/> YES <input type="checkbox"/> No			
Technical Services Supervisor			
Review Date:			
General Manager			
Review Date:			

## Water Quality Monitoring Program

### Introduction

This Water Quality Monitoring Program provides the Granada Sanitary District's (District) response activities and standard operating procedures to be utilized in the Overflow Emergency Response Plan (OERP), in the event a sanitary sewer overflow (SSO) exceeds 50,000 gallons. The District contracts with Sewer Authority Mid-Coastside (SAM) for operational and maintenance support – including water quality monitoring. As such, this program is consistent with SAM's program. This program is reviewed periodically and may be updated as necessary.

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:

### **SSO WDR Section D. Water Quality Monitoring Requirements**

To comply with subsection D.7(v) of the SSS WDRs, the enrollee shall develop and implement an SSO Water Quality Monitoring Program to assess impacts from 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:

1. Contain protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
3. Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. 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.
5. 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 which may include total and fecal coliform, enterococcus, and e-coli.

Additionally, for spills greater than 50,000 gallons, an SSO Technical Report is required and must be submitted within 45 calendar days from the SSO end date. The SSO Technical Report requirements are described in Element VI of the OERP.

## **Safety**

Be aware of safety issues and do not subject personnel to unsafe conditions in order to comply with this Water Quality Monitoring Plan. Scenarios where monitoring may not be possible may include, but are not limited to, heavy rain/storm events where access points have been compromised, flooding around low level areas, fast-moving water or wave action. Employ the buddy system as required to maximize employee safety when sample collection is required.

## **Estimation of Spill Travel Time**

The follow methods are recommended to estimate spill travel time and direction:

- Method-1; use a velocity probe if available to determine the rate of flow in the surface water or
- Method-2; take visual ft/sec measurement from above, based on floating debris, to estimate the number of feet the debris has traveled in seconds.

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

## **Water Quality Sampling Procedures**

- In the event an SSO reaches a surface water or (flowing) drainage channel tributary, take samples for spills less than 50,000 gallons as appropriate and within 48 hours for spills greater than 50,000 gallons. The purpose of water quality sampling is to determine the nature and extent of the impact of the SSO.
- When sampling an SSO, take a minimum of three separate sample sets as conditions allow. Water quality sampling should not be given precedence over stopping the spill or protection of public health.
- One sample shall be located approximately 100' upstream of the discharge location. The second sample shall be taken at the downstream location. A third sample shall be taken at the discharge location. Actual distances from the discharge location will depend on the nature of the SSO and must consider safety and access.
- Sample for Fecal Coliform and Ammonia as a minimum.
- Additional follow-up samples are recommended to confirm the extent that the impact reverts back to baseline levels. Follow-up samples may be used to determine if posting of warning signs should be discontinued (if signs were posted).
- Collaboration with the County Health Department should continue until closure is obtained.
- Take into account Spill Travel Time.

## Water Quality Sampling Equipment

The following list describes equipment that should be stocked and readily available for each water quality sampling event.

- Personnel protective equipment including latex/nitrile gloves and eye protection
- 3 – 120 mL sterile plastic containers for coliform analysis.
- 3 – 500 mL Poly containers preserved with H<sub>2</sub>SO<sub>4</sub> for Ammonia analysis.
- 3 – sterile funnels
- 1 – Sample Collection Container
- Cooler with ice packs
- Chain of Custody forms

Ensure that there are adequate quantities of sample containers-kits if there are more than three sample locations.

## Water Quality Sampling Equipment

1. Put on all required protective equipment including latex/nitrile gloves and eye protection
2. Use the 120 mL sterile container for coliform, and 120mL poly container for ammonia. Ammonia sample requires preservation with H<sub>2</sub>SO<sub>4</sub>.
3. Collect three sets of samples for each incident:
  - a. 100 feet upstream
  - b. 100 feet downstream
  - c. At the SSO entry point
4. Collect all grab samples approximately 3' - 6" below the surface (or if shallower, as close as possible to this depth) to avoid sampling debris or scum from the surface.
5. Collect the sample in a safe manner in the middle of the flow, against the direction of water flow.
6. Rinse the sample collection container.
7. Collect sample in sample collection container and photo-document the locations.
8. Transfer sample from sample collection container to individual sample bottle(s).
9. Leave approximately one inch of head space in individual sample bottles. Do not overfill.
10. Once the lid is opened for the individual sample bottle, do not touch the inside surface of the bottle or lid.
11. For the sample bottles that contain a preservative, take care to keep the preservation material in the container.
12. Immediately place all sample bottles on ice.
13. Complete Chain of Custody form and take samples to contracted environmental laboratory as described in the OERP.



Following are allowable hold times for the sample bottles:

- Ammonia - 28 days (preserved and cooled)
- Bacterial Indicator (enterococcus or fecal/total coliform) - 8 hours (preserved and cooled)

## ON LETTERHEAD

### Date

State Water Resources Control Board  
1001 I Street  
Sacramento, CA 95814

Subject: Technical Report for Sanitary Sewer Overflow Greater than 50,000 Gallons  
Event ID: XXXXXX

This submittal comprises the Sanitary Sewer Overflow (“SSO”) Technical Report (“Report”) that is required by State Water Resources Control Board (“SWRCB”) Order No.WQ 2013-0058-EXEC (“Order”). The Order requires each enrollee to submit an SSO Technical Report in the California Integrated Water Quality System (“CIWQS”) online SSO database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters.

This Report comprises the following sections:

1. Causes and Circumstances of the SSO
2. Granada Community Services District (GCSD) Response to SSO
3. Water Quality Monitoring

### **1.0 CAUSES AND CIRCUMSTANCES OF THE SSO**

A. Description of how and when the SSO was discovered.

B. Figure 1 shows the SSO failure point, appearance point(s), and final destination(s).

C. Methodology and data used to calculate the volume of the SSO and any 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 are included at the end of this Report.

F. The Order requests historical maintenance records for the failure location. The associated pipe segment cleaning and CCTV history is provided in Table 1.

**Table 1. Maintenance Results for Pipe Segment XXXXX-XXXX**

Date	Action: Clean or CCTV	Summary of Findings

## **2.0 GCSD RESPONSE TO SSO**

A. The following presents a chronology of all actions taken to terminate the SSO.

B. The actions described in 2A, above, followed the agency’s Sewer System Management Plan (“SSMP”) Overflow Emergency Response Plan. Specifically, the activities related to initial response, reporting, notifications and posting, and corrective measures were followed. GCSD completed water quality sampling within 48 hours after the end of the SSO, and submitted these samples for bacteriological and ammonia testing as required by the Order.

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

### **3.0 WATER QUALITY MONITORING**

A. Water quality sampling activities conducted, including analytical results and evaluation of the result, are as follows.

B. Figure 2 shows a location map showing water quality sampling points.

If you have further questions or would like additional information about this Technical Report, please contact me by phone at (xxx) xxx-xxxx or by email at xxx@xxx.

Sincerely,

Chuck Duffy,  
General Manager

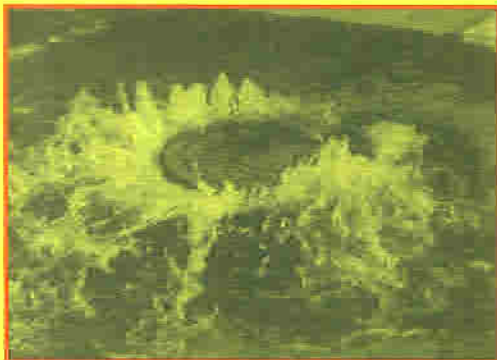
Appendix F  
Element 7 (FOG Control Program) Supporting Documents

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# Warning!! Grease

was removed from sewer lines  
in your area

Cooking oil and grease stick to the insides of  
your sewer pipes. Over time, grease buildup can  
clog the entire sewer line.



## Prevent sewer overflows!

Keep fats, oils and greases out of your drains

Turn this over to learn how



**Pouring grease or used  
cooking oil into your  
sink is prohibited!**

## DON'T

Don't pour cooking oil,  
grease or greasy food  
down the drain.



Don't use hot water and  
soap to wash grease  
down the drain! It will  
cool and harden in the  
sewer line.



## DO

Pour cooled grease into  
disposable containers  
or directly into the  
garbage if it's solidified.



Wipe away any residual  
grease or oil on dishes,  
pots or pans with a  
paper towel before  
washing them.



**For more information:**



Sewer Authority Mid-Coastside (SAM)  
1000 North Cabrillo Highway  
P.O. Box 3100  
Half Moon Bay, CA 94019  
(650) 726-0124

On the web at: [www.samcleanswater.org](http://www.samcleanswater.org)

Appendix G  
Element 8 (System Evaluation and Capacity Assurance) Supporting Documents



Appendix H  
Element 9 (Monitoring, Measurement & Modifications  
Placeholder for Future Supporting Documents

Appendix I  
Element 10 (SSMP Program Audits) Supporting Documents

## Granada Community Services District SSMP Audit Report Form

Audit Period Covered: **Month day, Year** through **Month day, Year**

Audit completed by: **Name of firm or person** on **MM/DD/YYYY**

Introduction		Yes	No
Is the current system description complete and up to date? Are all infrastructure statistics current and complete?			
Discussion:			
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 Contact Information current?		
B	Is the Sanitary Sewer Overflow Responder List current?		
C	Is the Organization Chart in Figure 2-1 of the SSMP current?		
D	Are the position descriptions an accurate portrayal of staff responsibilities?		
E	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?		
Discussion:			

<b>Element 3 – Legal Authority</b>		<b>Yes</b>	<b>No</b>
Does the SSMP contain current references to the District’s Code documenting its 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 the lateral owned or maintained by the District?		
D	Limit discharges of fats, oil and grease?		
E	Enforce any violation of its sewer ordinances?		
F	Were any changes or modifications made in the past year or since the last SSMP audit to District Ordinances, Regulations, or standards?		
Discussion:			

<b>Element 4 – Operations and Maintenance</b>		<b>Yes</b>	<b>No</b>
<b>Collection System Maps</b>			
A	Does the SSMP reference the current process and procedures for maintaining the District’s sanitary sewer system maps?		
B	Are the District’s wastewater collection system maps complete, current, and sufficiently detailed?		
<b>Prioritized Preventive Maintenance</b>			
C	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?		
D	Based upon the SSO information in CIWQS and the Annual SSO Report, are the District’s preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?		

<b>Element 4 – Operations and Maintenance</b>		<b>Yes</b>	<b>No</b>
<b>Rehabilitation and Replacement Program</b>			
E	Is there an ongoing condition assessment program sufficient to rank the condition of sewer pipes and schedule rehabilitation? Are the current components of this program documented in the SSMP?		
F	Does the rehabilitation and replacement plan include a capital improvement plan that addresses proper management and protection of the infrastructure assets? Does the plan 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?		
<b>Contingency Equipment and Replacement Inventory</b>			
G	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system?		
H	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?		
<b>Training</b>			
I	Are the training records current?		
J	Does the SSMP document current training expectations and programs?		
Discussion:			

<b>Element 5 – Design and Performance Standards</b>		<b>Yes</b>	<b>No</b>
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:			

<b>Element 6 – Overflow and Emergency Response Plan (OERP)</b>		<b>Yes</b>	<b>No</b>
A	Does the District’s OERP contain proper notification procedures so that the primary responders and regulatory agencies are informed of all sanitary sewer overflows (SSOs) as required by the WDR and MRP?		
B	Does the OERP have a program to ensure an appropriate response to all overflows?		
C	Does the OERP contain procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities of all SSOs that potentially affect public health or reach waters of the State in accordance with the MRP? Does the SSMP identify the officials who will receive immediate notification of such SSOs?		
D	Are staff and contractor personnel aware of and appropriately trained on the procedures of the OERP?		
E	Does the OERP contain procedures to address emergency operations such as traffic and crowd control and other necessary response activities?		
F	Does the OERP ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge?		
G	Considering SSO performance data, is the OERP effective in handling SSOs in order to safeguard public health and the environment?		
H	Is the Water Quality Monitoring Plan current and has it been trained on and practiced by staff that would be involved in a SSO of large volume?		
I	Was sampling conducted within 48 hours for all SSOs greater than 50,000 gallons and were results entered for these SSOs through the CIWQS website?		
J	Has the District prepared a Technical Report for all SSOs larger than 50,000 gallons? Have all Technical Reports been filed on the CIWQS website as required?		
Discussion:			

<b>Element 7 – Fats, Oils, and Grease (FOG) Control Program</b>		<b>Yes</b>	<b>No</b>
A	Does the Fats, Oils, and Grease (FOG) Control Program include a description of public education outreach efforts that promote proper handling and disposal of FOG?		
B	Does the FOG program include a plan for the disposal of FOG generated within the sewer system service area?		
C	Does the District have sufficient legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG?		
D	Are there requirements to install grease removal devices (such as traps or interceptors), best management practices (BMP) requirements, record keeping, maintenance requirements and reporting requirements established in the District’s FOG Control Program?		
E	Does the District have authority to inspect grease producing facilities and have sufficient staff to inspect and enforce the FOG ordinance?		
F	Does the FOG control program identify sections of the collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?		
G	Does the FOG control program implement source control measures for all sources of FOG discharged to the collection system?		
H	Is the current FOG program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?		
Discussion:			



<b>Element 8 – System Evaluation and Capacity Assurance Plan</b>		<b>Yes</b>	<b>No</b>
A	Does the System Evaluation and Capacity Assurance Plan evaluate hydraulic deficiencies in the system and provide estimates of peak flows associated with conditions similar to those causing overflow events, if applicable?		
B	Does the District’s capital improvement program (CIP) 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 accomplishment?		
C	Does the District take steps needed to establish a short and long-term CIP to address hydraulic deficiencies, including prioritization, alternatives analysis, and schedules? Are repair and replacement projects developed based upon condition assessment and/or field maintenance results?		
Discussion:			

<b>Element 9 – Monitoring, Measurement, and Program Modifications</b>		<b>Yes</b>	<b>No</b>
A	Does the District maintain relevant information that can be used to establish and prioritize appropriate SSMP activities?		
B	Does the District monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP?		
C	Does the District assess the success of the preventive maintenance program?		
D	Does the District update program elements, as appropriate, based upon monitoring or performance evaluations?		
E	Does the SSMP identify and illustrate SSO trends, including frequency, location and volume of SSOs?		
Discussion:			

<b>Element 10 – SSMP Audits</b>		<b>Yes</b>	<b>No</b>
A	Does the audit focus on the effectiveness of the SSMP? If not, what needs to be changed to increase the effectiveness of the overall collection system program?		
B	Were the audit results shared with the District Board? And the public, via the District website?		
C	Will the SSMP Audit be completed, reviewed, and filed as an Appendix to the SSMP on a biennial basis?		
D	Do any proposed changes to the SSMP require District Board approval as they have a substantial change in the policies and procedures for collection system operations and maintenance?		
Discussion:			

<b>Element 11 – Communication Program</b>		<b>Yes</b>	<b>No</b>
A	Does the District communicate on a regular basis with the public and other agencies about the development and implementation of the SSMP? Does the communication system provide the public the opportunity to provide input as the program is developed and implemented? Were annual progress reports and metrics of implementation of the SSMP provided to the District Board?		
Discussion:			

<b>Change Log</b>		<b>Yes</b>	<b>No</b>
A	Is the SSMP Change Log current and up to date?		
Discussion:			





Appendix J  
Element 11 (Communication Plan) Supporting Documents

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# Be Sewer Savvy:

Notes, tips & tricks to help keep your sewer pipes in tip-top shape.

- ✓ Protect your home
- ✓ Protect your business
- ✓ Avoid costly repairs



And prevent  
water pollution,  
too!



# Be Sewer Savvy!

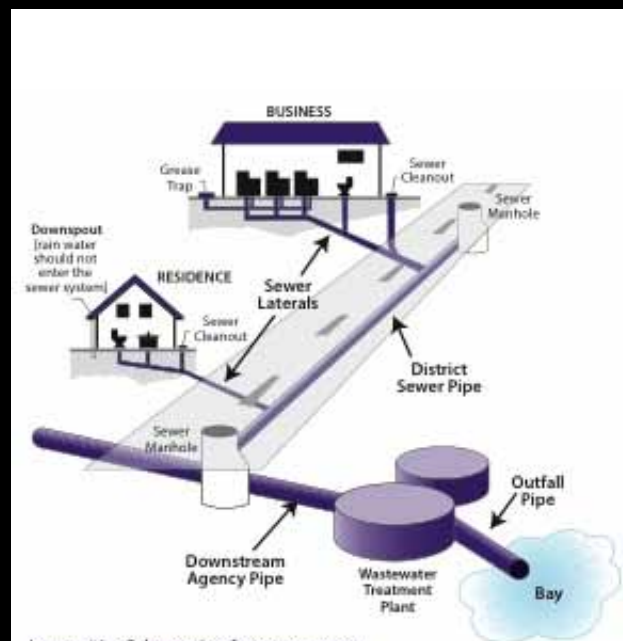
As homeowners, renters, or business owners and employees in San Mateo County, we all depend on a well functioning sewer system. Invisible to most of us, this complex array of underground pipes carries away raw sewage to its destination at the sewage treatment plant, keeping our communities healthy and free of odor, and protecting the environment.

But the sewer system is also vulnerable to damage that impairs its ability to work properly. The consequence: sewer pipe backups and overflows that can put humans and animals at risk of disease, damage private property, and harm the environment. Cleanups and repairs are usually costly and can lead to increased sewer service rates for everybody.

This booklet offers best practices to prevent some of the most common causes of sewer overflows, and help you keep your sewer pipes in tip-top shape.

As a property owner, you own—and are responsible for maintaining—the sewer lateral (pipe) that connects your house to the sanitary sewer mains in the street or on the easement. See schematic at right.

Sewer pipes are designed to carry only three types of waste: wastewater, human body wastes, and toilet paper. If it ain't one of these, it doesn't belong in the sewer!



*The wastewater goes through the pipes in your house or business, then flows into a sewer lateral and drains into the district sewer pipes (typically located in the street or an easement). It travels from the district sewer pipes to the pipes maintained by the city or town located between the district and the treatment plant. Eventually, the wastewater flows into a wastewater treatment plant to have harmful chemicals removed before being discharged into the Bay.*



# Sewer Pipe Hazard #1: Tree Roots

## What's the problem?

Tree roots can be very aggressive in their search for moisture, especially during dry weather. Often sewer pipes are the nearest source of water. Tree roots are attracted by water vapor that escapes from the pipes to the cold soil surrounding them, especially near small cracks and loose joints. Once the roots have pried their way into the sewer system, they can fill pipes completely with hair-like root masses. Tissue paper, grease and other debris in the sewage get caught in the roots, eventually leading to a complete obstruction or even breakage of the sewer pipe. Severe cases of root damage require costly replacements.



## Sewer Savvy Practices

- Be aware of the location of the sewer pipe laterals on your property. Before planting any trees or hedges near the sewer pipes, consult with an arborist or a local gardening center about suitable choices based on the plants' expected root growth.
- Choose piping materials that are more resistant to roots entering the pipe, such as concrete or polyvinylchloride (PVC) pipe. PVC also has the advantage of fewer joints, reducing the risk of root intrusion.
- Schedule regular inspections and cleanings of your sewer pipes. Professional plumbing companies can video your sewer lateral to determine the condition and if any repairs are needed.
- Tools commonly used to remove tree roots from sanitary sewer pipes include augers, root saws and high-pressure flushers. Contact a local plumbing company for more information.



### SEWERprising fact:

As a general rule, tree roots will extend up to 2.5 times the height of the tree, some species even 5 to 7 times.

## Sewer Pipe Hazard #2: Fats, Oils and Grease (FOG)

### What's the problem?

Fats, Oil and Grease are not just a problem for your arteries and your waistline: they're bad for sewers, too!

Fats, Oils and Grease come from:

- Meats
- Lard
- Cooking oil
- Shortening
- Butter and margarine
- Food scraps
- Baked goods
- Sauces and gravy
- Dairy products

Fats, oil and grease can get into the plumbing system. Over time, they can build up inside the pipes, even blocking the pipes entirely. This build-up can lead to sewer overflows, which create health hazards, damage your home, and threaten the environment.

### First Signs of a Sewer Pipe Problem

Are you noticing gurgling noises from toilet bowls and wet areas forming around floor drains after you've completed the laundry? These first signs may indicate that your sewer pipes are obstructed or otherwise impaired and need your attention.

Doing this...



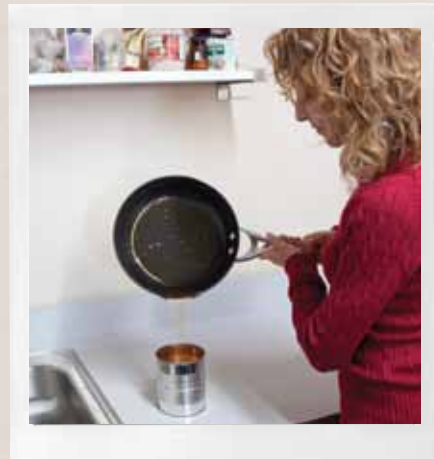
can lead to this!



# Be Sewer Savvy and Stop the FOG!

The answer to the Fats, Oils and Grease (FOG) problem is to keep it out of the drains:

1. Never pour Fats, Oils or Grease down your sink or tub drains or into toilets.
2. Scrape grease and food scraps from trays, plates, pots, pans, utensils, grills and cooking surfaces into a container and put it in the garbage. Or, if your area has a curbside compost collection program, you can wipe the grease with napkins or paper towels, then put the towels and grease into your compost cart. Do not put containers of FOG into your compost cart.
3. Do not put grease down garbage disposals. Put baskets/strainers in sink drains to catch food scraps and other solids, and empty the drain baskets/strainers into the garbage.
4. Tell your family, friends, and neighbors about not putting Fats, Oils and Grease in the drains.
5. Call your local Sewer District if you have any questions.



Pour grease into a can and when full, toss the jar into the trash.



Let bacon grease and other fats harden.



Wipe the grease off with paper towels and discard the towels in the trash or food scrap bin.

## For Commercial Property Owners

Restaurants, large commercial buildings such as apartment complexes, and other commercial properties must have grease traps or interceptors that keep grease out of the sewer system. For a grease trap or interceptor to work correctly, it should be properly designed, installed and maintained.

### Need help?

There are many companies in the Bay Area that will come and service your traps and interceptors and recycle the oil for bio-fuel. Check with your local recycling program.



See [www.recycleworks.org/recycled\\_oil.html](http://www.recycleworks.org/recycled_oil.html) for more details.

# Sewer Pipe Hazard #3: Water Inflow & Infiltration\*

\*That's just a fancy way of saying rain and groundwater can leak or seep into the sewer system.

## What's the problem?

Our sanitary sewer systems are designed to transport wastewater to the treatment facility. Separate from the sewer pipes, storm drains are meant to capture rainwater, which doesn't need treatment. However, rainwater can enter the sewage system through illegally connected downspouts, damaged or uncapped lateral cleanouts and defective manholes. This is called "inflow." In addition, groundwater can seep into the sewer system through cracks, joints and voids in the pipes, known as "infiltration."

Although sanitary sewer systems are designed to accommodate some excess water, too much of it can overwhelm the systems, especially when it is raining. This can cause sewage overflows that back up into homes and businesses without backflow prevention devices, and spill into roads, creeks and onto beaches. Cleanup costs as well as increased operational costs from pumping and treating the additional water can lead to higher sewer service charges. Excess water also deteriorates the sewer system, potentially causing pipe collapses and sinkholes in your neighborhood.

## SEWERprising fact:

Plumbing companies use remotely controlled camera "tractors" to film sewer pipes from the inside. The footage reveals defects such as cracks, root intrusions and leaky joints.

inflow: water entering sewer pipes



through cracks and loose connections



sewer overflow due to infiltration

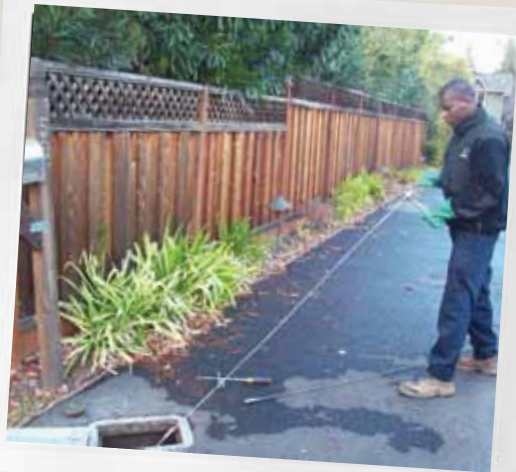
If you see an overflowing sewer manhole cover like this, please notify us immediately!

CALL 650-363-4100

## Sewer Savvy Practices:

### Preventing Inflow & Infiltration

- Check your gutters and drains to ensure they are not connected to the sanitary sewer system. If they are, contact a plumber to disconnect the gutter and/or drain from the sanitary sewer system.
- Keep your lateral cleanout caps tightly closed and replace any missing caps.
- Avoid planting trees and shrubs over sewer pipes, as roots can damage the pipes.
- Schedule regular inspections and cleanings of your sewer pipes. Professional plumbing companies can use various methods including video and dye testing to determine the condition of your sewer lateral and if any repairs are needed.
- Replace any broken, leaky or problem sections of your sewer lateral (pipe).



A qualified contractor can use various methods to inspect and clean your sewer pipes.

## Sewer vs. Storm Drains: Do You Know the Difference?



The **Sanitary Sewer System** is designed to collect wastewater from plumbing systems inside buildings, such as toilets, showers, sinks, washing machines and floor drains. Pipes transport the wastewater to a treatment plant for processing, before releasing the treated water into San Francisco Bay or the ocean.



The **Storm Drain System** is designed to collect rainwater from the street, driveways, building roofs and foundation drains to prevent flooding in urban areas. Anything that flows or is discharged into the storm drain system goes directly into local creeks or San Francisco Bay without any treatment.

Inside this edition...

# Be Sewer Savvy:

Notes, tips & tricks to help you avoid costly repairs.

(And, prevent water pollution, too!)



**REPORT SEWER OVERFLOWS!**  
CALL 650-363-4100  
**Please notify us immediately!**

## HELPFUL PHONE NUMBERS & WEBSITES

### Sewer Districts..... 650-363-4100

- Burlingame Hills Sewer Maintenance District
- Crystal Springs County Sanitation District
- Devonshire County Sanitation District
- Edgewood Sewer Maintenance District
- Emerald Lake Heights Sewer Maintenance District
- Fair Oaks Sewer Maintenance District
- Harbor Industrial Sewer Maintenance District
- Kensington Square Sewer Maintenance District
- Oak Knoll Sewer Maintenance District
- Scenic Heights Sewer Maintenance District

### Building and Planning—County Code Compliance Enforcement ..... 650-363-4825

### Environmental Health—Toxics and Hazardous Waste..... 650-372-6200

### Sheriffs Office—Non Emergencies, Report Illegal Dumping ..... 650-363-4911

### Sewer Smart ..... [www.sewersmart.org](http://www.sewersmart.org)

### California Association of Nurseries and Garden Centers..... [www.cangc.org](http://www.cangc.org)

**IMPORTANT INFORMATION**  
**ABOUT YOUR SEWER SERVICES.**  
Your help is needed to protect the Bay, and prevent costly repairs to the sewer system.  
Please read and keep this handy guide for future reference.

County of San Mateo  
Sewer Maintenance Districts  
555 County Center, 5th Fl.  
Redwood City, CA 94063  
[www.co.sanmateo.ca.us/sewers](http://www.co.sanmateo.ca.us/sewers)

