



Sewer System Management Plan

2025 SSMP Update

WDID 4SSO10388

Glendale, CA

FINAL - April 11, 2025





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Attachments

ID	Title	SSMP Element
A1	Governing Board Approval of the 2025 SSMP Update	D.1 Goal and Introduction
A2	State Water Resources Control Board General Order for Sanitary Sewer Systems, Order WQ 2022-0103-DWQ	D.1 Goal and Introduction
A3	Sewer System Overview Map	D.1 Goal and Introduction
B	SSMP Program Implementation Organization Chart	D.2 Organization
C	<i>Not used - Reserved for future Legal Authorities Element attachments</i>	<i>D.3 Legal Authority</i>
D1	Level 1 Maintenance Hole Inspection Form	D.4 Operation and Maintenance Program
D2	Doran Pump Station Critical Spare Parts List Snapshot (March 2025)	D.4 Operation and Maintenance Program
E	Sanitary Sewer Manual and Standards (2009)	D.5 Design and Performance Provisions
F	Spill Emergency Response Plan	D.6 Spill Emergency Response Plan
G	<i>Not used - Reserved for future Sewer Pipe Blockage Control Program Element attachments</i>	<i>D.7 Sewer Pipe Blockage Control Program</i>
H	<i>Not used - Reserved for future System Evaluation, Capacity Assurance and Capital Improvements Element attachments</i>	<i>D.8 System Evaluation, Capacity Assurance and Capital Improvements</i>
I	<i>Not used - Reserved for future Monitoring, Measurement and Program Modifications Element attachments</i>	<i>D.9 Monitoring, Measurement and Program Modifications</i>
J	<i>Not used - Reserved for future Internal Audits Element attachments</i>	<i>D.10 Internal Audits</i>
K	<i>Not used - Reserved for future Communication Program Element attachments</i>	<i>D.11 Communication Program</i>



Acronyms

Acronym	Definition
ADWF	Average Dry Weather Flow
BWF	Base Wastewater Flow
CCTV	Closed Circuit Television
CIP	Capital Improvement Program
City	City of Glendale
CIWQS	California Integrated Water Quality System
CWEA	California Water Environment Association
d/D	Depth-to-Diameter
FM	Flow Monitor
FOG	Fats, Oils and Grease
FSE	Food Service Establishment
gdp	Gallons per Day
General Order	State Water Resources Control Board General Order for Sanitary Sewer Systems, Order WQ 2022-0103-DWQ
GIS	Geographical Information System
Greenbook	Standard Specifications for Public Works Construction
GWI	Groundwater Infiltration
I/I	Inflow and Infiltration
IDM	Inch-Diameter-Mile
LRO	Legally Responsible Official
LS	Lift Station
MGD	Million Gallons Per Day
MH	Maintenance Hole
NASSCO	National Association of Sewer Service Companies
O&M	Operations and Maintenance
PACP	Pipeline Assessment and Certification Program
PDWF	Peak Dry Weather Flow
PF	Peaking Factor
PM	Preventive Maintenance
PW	Public Works
PWWF	Peak Wet Weather Flow

Acronym	Definition
RDI/I	Rain-Dependent Inflow and Infiltration
SCADA	Supervisory Control and Data Acquisition
SERP	Spill Emergency Response Plan
SSMP	Sewer System Management Plan
SWRCB	State Water Resources Control Board
WWMP	Wastewater Master Plan



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1 Goal and Introduction

1.1 Regulatory Context

The City of Glendale has prepared this updated Sewer System Management Plan (SSMP) pursuant to the State Water Resources Control Board (SWRCB) December 6, 2022, Statewide Sanitary Sewer Systems General Order 2022-0103-DWQ (General Order). This SSMP provides a management plan for the City's collection system.

Table 1-1 summarizes the General Order requirements addressed by this SSMP¹. These requirements are defined by General Order specifications and associated General Order attachments. All agencies that own and operate collection systems greater than one mile in length must comply with these requirements.

Table 1-1: Summary of General Order Requirements

Specification	Description	Linkage to SSMP
5.2 SSMP Development and Implementation	Requires development and implementation of a SSMP	Entire SSMP
5.3 Certification of SSMP and Plan Updates	Requires the City to certify and upload the SSMP to CIWQS	Entire SSMP
5.5 Six-Year SSMP Update	Requires update of the SSMP every 6 years, at a minimum. Requires governing board approval of SSMP. Requires City to certify and upload SSMP to CIWQS.	Entire SSMP
5.6 System Resilience	Requires City to include and implement system-specific procedures to proactively prioritize operations and maintenance, condition assessments and repair and rehabilitation to address system resilience	D.4 Operations and Maintenance D.8 System Evaluation, Capacity Assurance and Capital Planning
5.10 System Capacity	Requires City to maintain system capacity to convey dry weather and forecasted wet weather flows	D.8 System Evaluation, Capacity Assurance and Capital Planning
5.19 Operation and Maintenance	Requires City to maintain in good working order and operate as design any facilities, treatment or control systems design to contain and convey sewer.	D.4 Operations and Maintenance D.8 System Evaluation, Capacity Assurance and Capital Planning

This document serves as the City's 2025 SSMP update approved by the City Council at a public meeting on April 29, 2025. Attachment A1 includes documentation of approval by the City Council. Attachment A2 includes the General Order.

A pdf copy of this SSMP is available on the internet at:

¹ Summarized from the SWRCB Order No. 2022-0103-DWQ *Statewide Waste Discharge Requirements General Order for Sanitary Sewer Systems*

<https://www.glendaleca.gov/government/departments/public-works/maintenance-services/sewer-system-management-plan>

1.2 SSMP Goal and System Management Objectives

The following SSMP has been developed by the City of Glendale (City) to comply with the General Order in each of these milestones. Moreover, the SSMP meets all requirements of the General Order while at the same time serving as a valuable reference tool for City staff. The City established the following goals during the development of this SSMP:

- Proper selection and training of personnel and safe execution of all maintenance activities.
- Eliminate preventable sanitary sewer spills that close beaches.
- Minimize preventable sanitary sewer overflows.
- Reduce gallons of sanitary sewage that contact water ways from preventable sanitary sewer spills.
- Optimize use of post-work inspection.
- Extend the system's useful life of the sewer system by proactively correcting structural deficiencies identified from assessment activities.
- Reduce reporting compliance errors to zero.

These SSMP goals are supported by documentation and modification procedures that will assist City staff as they implement the SSMP and complete the SSMP goals on a year-by-year basis. The goals are ambitious, but due to the pro-active and forward-looking management of the sewer system already practiced by the City, they mainly represent an enhancement in the documentation and review of sewer system management activities that are already performed by City staff. As such, these goals are appropriate and achievable.

These procedures will allow the sewer system to maintain reliability and capacity into the future, and enable the City to meet its strategic sewer system goals.

1.3 SSMP Update Schedule

Pursuant to the General Order, the City conducts program monitoring and triennial audits of its SSMP, prepares SSMP updates, and implements planned activities to achieve the City's collection system program objectives. This SSMP update was prepared upon completion of the most recent SSMP Program Audit dated October 30, 2024.

The schedule for auditing and updating this SSMP is provided in Table 1-2 and also discussed in SSMP Element 10, Section 10.1.



Table 1-2: SSMP Audit and Update Schedule

Activity	Due Date
2027 SSMP Audit	November 2, 2027
2030 SSMP Audit	November 2, 2027
2031 SSMP Update	May 2, 2031

The City plans to complete implementation of several significant initiatives addressing the prevention of sewer spills. Table 1-3 provides a schedule for incorporation of these activities into the City's SSMP program implementation.

Table 1-3: Planned SSMP Implementation Milestones Addressing Prevention of Sewer Spills

Element	Milestone	Milestone Due Date	Relevance to Spill Prevention
D.4 Operation and Maintenance	Phase 2 of CCTV Program	June 2026	Supports identification of maintenance and structural issues.
D.4 Operation and Maintenance	Phase 3 of CCTV Program	November 2027	Supports identification of maintenance and structural issues.
D.8 System Evaluation, Capacity Assurance and Capital Improvements	Utilize Engineering On-Call to address significant structural deficiencies.	November 2027	Removes structural deficiencies causing risk of potential sewer spill.

1.4 Sewer System Asset Overview

The collection system owned and operated by the City serves a population of approximately 200,000 and conveys wastewater via approximately 351 miles of gravity mains and 1 pump station. Table 1-4 provides a summary of the collection system assets for each collection system.

Table 1-4: Summary of Collection System Assets

Item	Value
Total Mains (miles)	350.75
Gravity Mains (miles)	350.6
Force Mains (miles)	0.15
Pump Stations (count)	1
Siphons	4 locations
Stormwater Diversions to Sewer (count)	None
Wastewater Conveyed	~13 Million Gallons per Day
Treatment Facility	Los Angeles-Glendale Water Reclamation Plant

Other relevant information regarding the City's collection systems and management program includes:

- **California Integrated Water Quality System (CIWQS) Wastewater Discharger Identification (WDID):** 4SSO10388
- **Population Served:** 201,614
- **Location:** Los Angeles County
- **Service Area Boundary:** Attachment A3 shows the geographic service area boundary of the City collection system.
- **Community Served:** Industrial, commercial and residential (get from community development office).
- **Data Management Systems:** Cityworks, GraniteNet, SmartCover, SCADA (Doran LS),
- **Lateral Ownership and Operational Responsibilities:** The City does not own any portion of the upper or lower lateral and does not perform maintenance on the lateral.
- **Breakdown of Service Connections:** The breakdown of services connections is roughly 76% residential, 23% commercial, and <1% industrial.
- **Unique Service Boundary Conditions and Challenges:**
 - A Cresenta Valley Water District sewer trunk runs through Glendale. The City may receive calls regarding issues in this pipeline and City crews must determine responsibility and pass the issue over to Cresenta Valley Water District.
 - Some pipes in hillside sewer easements cross between City of Los Angeles and City of Glendale causing similar issues for investigation and determination of responsibility when these pipelines are involved.



1.4.1 Up-to-Date Map

The City maintains an up-to-date map of the sewer system. Attachment A3 provides a system overview map. Maps are updated when new construction on the sewer system is completed. Wastewater Maintenance Crews also document markups to system mapping electronically using the Cityworks computerized maintenance management system.

State Water Board or Regional Water Board staff can gain access to system mapping by contacting a Legally Responsible Official for the City of Glendale, Dan Hardgrove or Roy Rodriguez, using the contract information provided in Section 2.2.

1.5 SSMP Overview

This SSMP complies with the General Order and meets the following General Order objectives:

- a) Properly fund, manage, operate and maintain, with adequately trained staffs and/or contractors possessing adequate knowledge, skills, and abilities as demonstrated through a validated certification program at all times, all parts of the collection system owned and/or operated by the discharger.
- b) Provide adequate capacity to convey base flows and peak flows, including flows during wet weather events, to the minimum design criteria as defined in the discharger's System Evaluation and Capacity Assurance Plan (a required component of the SSMP), for all parts of the collection system owned and/or operated by the discharger.
- c) Take all feasible steps to stop and mitigate the impact of spills in the collection system owned and/or operated by the discharger.

The City achieves these objectives by implementing a comprehensive sewer infrastructure asset management program that is documented in the following 11 SSMP elements:

1. Goal and Introduction
2. Organization
3. Legal Authority
4. Operation and Maintenance Program
5. Design and Performance Provisions
6. Spill Emergency Response Plan
7. Sewer Pipe Blockage Control Program
8. System Evaluation, Capacity Assurance and Capital Improvements
9. Monitoring, Measurement, and Program Modifications
10. SSMP Program Audits
11. Communication Program

2 Organization

This section identifies City staff responsible and integral for implementing the SSMP.

2.1 Authorized Representatives

The City has two Legally Responsible Officials (LROs) responsible to oversee the collection system pursuant to General Order Specification 5.1 Designation of a Legally Responsible Official. The primary and backup LRO are listed in Table 2-1.

Table 2-1: List of Authorized Representatives

Role	Contact Information
Primary LRO	Daniel Hardgrove Assistant Director of Public Works dhardgrove@glendaleca.gov (818) 548-3950
Backup LRO	Roy Rodriguez Wastewater Maintenance Superintendent rrodriguez@glendaleca.gov (818) 550-3413

2.2 Positions Responsible for Implementing Specific SSMP Elements

Table 2-2 provides a list of positions responsible for implementing specific SSMP elements.



Table 2-2: Positions Responsible for Implementing Specific SSMP Elements

Position	SSMP Element
Director of Public Works	D.1 Goal and Introduction D.2 Organization D.3 Legal Authority
Assistant Director of Public Works/ City Engineer	D.5 Design and Performance Provisions D.8 System Evaluation, Capacity Assurance and Capital Improvements D.9 Monitoring, Measurement and Program Modifications – Engineering Program Implementation Activities
Assistant Director of Public Works – Maintenance Services & Integrated Waste Management	D.9 Monitoring, Measurement and Program Modifications – Maintenance Program Implementation Activities D.10 Internal Audits D.11 Communication Program
Maintenance Services, Wastewater Maintenance Superintendent	D.4 Operation and Maintenance Program D.6 Spill Emergency Response Plan D.7 Sewer Pipe Blockage Control Program

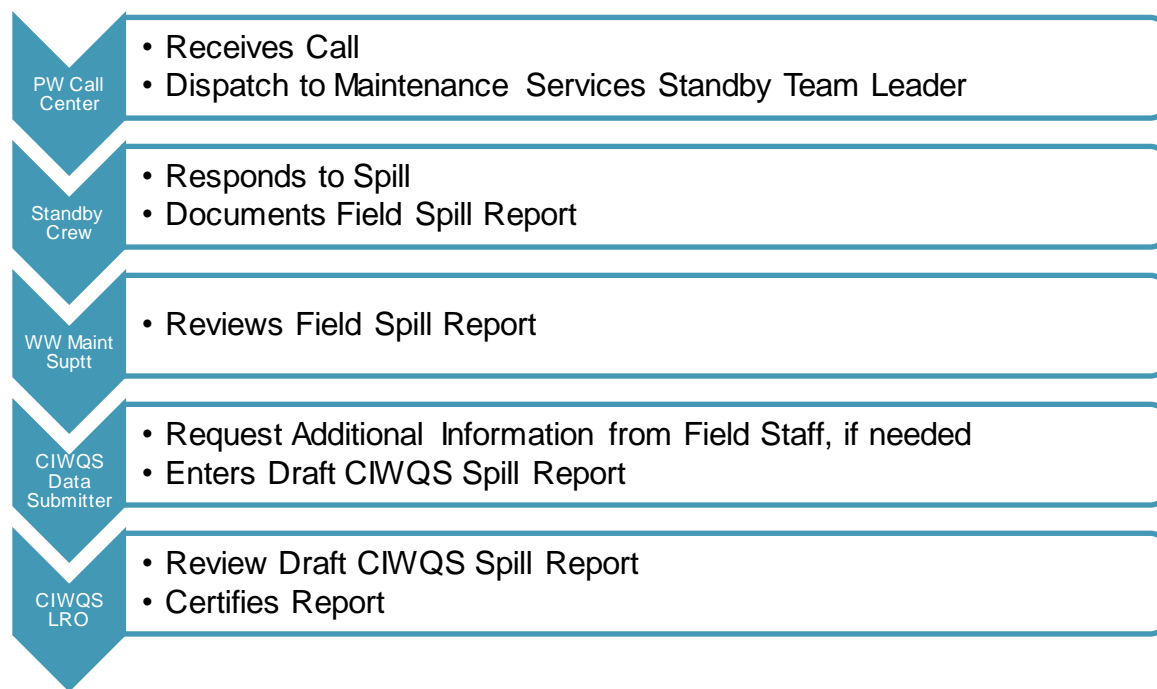
2.2.1 Lines of Authority

Attachment B includes an SSMP Program Implementation organization chart showing the lines of authority for the positions responsible for the management of the collection system and implementation of the SSMP.

2.3 Spill Reporting Chain of Communication

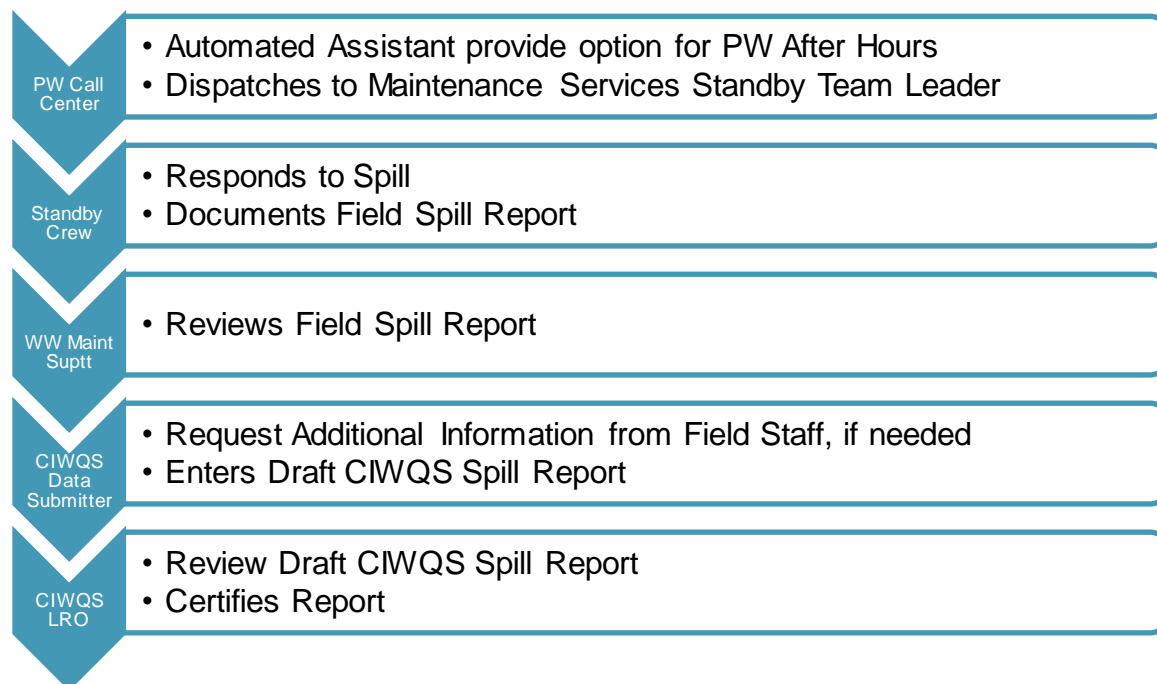
The City's Spill Emergency Response Plan, described in Element 6 and included in Attachment F, includes procedures for effective communication and reporting of spills from receipt of complaint, including the person responsible for reporting spills into the State Water Board's CIWQS database. The Spill Emergency Response Plan includes a flowchart and notification table providing clear step-by-step procedures for communication and reporting. Figure 2-1 summarizes the spill reporting chain of communication during normal business hours. Normal Business hours are Monday through Friday from 6:30 a.m. to 5:00 p.m. Figure 2-2 summarizes the spill reporting chain of communication during after hours.

Figure 2-1: Spill Reporting Chain of Communication – Normal Business Hours



*Normal Business hours are Monday through Friday from 6:00 a.m. to 4:30 p.m.

Figure 2-2: Spill Reporting Chain of Communication – After Hours



*After Hours are any hours that are not Normal Business Hours.



3 Legal Authority

The City's municipal code provide the City with the authorities required by the General Order. The City's legal authorities are found on the internet at:

<https://ecode360.com/43349591#43349591>

Table 3-1 provides references in the City's Municipal Code for the legal authorities required by the General Order in SSMP Element 3 – Legal Authority.

Table 3-2 provides references in the City's Municipal Code for the legal authorities required by the General Order in SSMP Element 7 – Sewer Pipe Blockage Control Program of the SSMP.

3.1 Authority to Obtain Easement Accessibility Agreements When Applicable

The City regularly accesses to all sewer maintenance holes and cleans all pipelines once every 18 to 24 months and does not currently have any easement access issues. If maintenance access is impeded, Maintenance Services will notify the owner to gain access. If necessary, Maintenance Services can elevate the issue to Code Compliance. The City is not aware of any existing sewer manholes or pipelines without easement accessibility or in needed of an agreement. If Maintenance Services becomes aware of any locations requiring an easement accessibility agreement, Maintenance Services will work with Land Development Services to create an agreement.

Table 3-1: Legal Authorities Summary for Authorities Required By General Order for Element 3 – Legal Authorities

Requirement	Reference in Municipal Code
Prevent illicit discharges into its sanitary sewer system from inflow and infiltration (I&I); unauthorized stormwater; chemical dumping; unauthorized debris; roots; fats, oils, and grease; and trash, including rags and other debris that may cause blockages	13.40.250 – Placing of certain materials prohibited. 13.34.020 – FOG discharge prohibition
Collaborate with storm sewer agencies to coordinate emergency spill responses, ensure access to storm sewer systems during spill events, and prevent unintentional cross connections of sanitary sewer infrastructure to storm sewer infrastructure	Maintenance Services is also responsible for stormwater system maintenance. These business units share resources and coordinate closely. The City notifies LA County Health Department of a spill to County storm drainage facilities within 15 minutes of reaching the County's stormwater infrastructure. The City's permit, design review, and construction inspection processes are the primary means for preventing unintentional cross connections.
Require that sewers and connection be properly designed and constructed	13.40.020 – Compliance. Sewer construction must follow City specifications. 13.40.060 – Permit required. Anyone connecting to the sewer system must obtain a permit and will be subject to the City's design review and inspection process.
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the Agency	The City does not own any portion of a private house connection (i.e., sewer lateral) constructed for the sole use of private property. 13.40.040 Connection maintenance. A private property owner is responsible for the entire lateral, including the wye or saddle connection to the sewer main. Ordinance 5606 – Relating to Obstructing, Impeding or Interfering with City Business. This is relevant for any City-owned laterals on City-owned properties.
Enforce any violations of its sewer ordinances, service agreements, or other legally binding procedures	Article III, Section 1 of Charter Section 13.34.080 – Notice of noncompliance Section 13.34.090 – Emergency suspension of services Section 13.34.100 – Recovery of imposed fines or penalties
Obtain easement accessibility agreements for locations requiring sewer system operations and maintenance, as applicable	The City regularly accesses to all sewer maintenance holes and cleans all pipelines once every 18 to 24 months and does not currently have any access issues. If maintenance access is impeded, Maintenance Services will notify the owner to gain access. If necessary, Maintenance Services can elevate the issue to Code Compliance.



Table 3-2: Legal Authorities Summary for Authorities Required by General Order for Element 7 – Sewer Pipe Blockage Control Program

Requirement	Reference in Municipal Code
Limit the discharge of FOG	Section 13.34.020 – FOG discharge prohibition
Requirements to install grease removal devices (such as traps or interceptors)	Section 13.34.040 – FOG pretreatment required
Design standards for the grease removal devices	All construction in the City requires a permit, including both new construction and building modifications. New construction and building modifications require review and sign-off by City. Grease removal equipment sizing is reviewed at this phase.
Maintenance requirements, BMP requirements, record keeping and reporting requirements for grease removal devices	Section 13.34.030 – Best management practices required Section 13.34.050 – Required maintenance of pretreatment devices Section 13.34.060 – Record maintenance required
Authority to inspect grease producing facilities	Section 13.34.070 – Inspection and right of entry

4 Operation and Maintenance Program

4.1 Up-to-Date Map of the Collection System

A comprehensive set of sewer maps show all the features of the City's sanitary systems. These maps have been converted to electronic GIS maps that are used in the field for locating pipelines, maintenance holes, service connections and other features of the City's system. These maps are maintained and kept up-to-date through an efficient workflow involving field crews, operations and maintenance staff, and GIS professionals. Crews use Cityworks on their iPads to access sewer maps and provide electronic markups when discrepancies are found. They capture screenshots, annotate them with marking tools, and email the updates to the Wastewater Crew Supervisor, who forwards them to the GIS team. A dedicated GIS professional then reviews and edits the maps to accurately reflect the changes, typically completing updates within a day or two. Once finalized, the updated maps are made available to staff, ensuring that the city's sewer infrastructure records remain current and reliable. When the sections sanitary sewer system are updated as part of a CIP, as-builts are used to update the GIS map in Cityworks.

4.1.1 Procedures for Maintaining and Providing Access to Water Boards Staff

State Water Board or Regional Water Board staff can gain access to system mapping by contacting a Legally Responsible Official for the City of Glendale, Dan Hardgrove or Roy Rodriguez, using the contract information provided in Section 2.2.

4.1.2 Procedures for Maintaining and Providing Access to City Field Staff

Collection system field staff have access to Cityworks on smart devices. For operation and maintenance, customized GIS datasets of the sewer system are used in work prioritization and decision-making processes. If any system defects are observed during routine maintenance checks, maintenance crews use Cityworks create electronic markups on devices in the field to communicate necessary updates to sewer mapping. All updates are performed by a GIS professional.

4.2 Preventative Maintenance Program

The City employs several sewer maintenance program strategies to manage the collection system, and uses of a computerized maintenance management system (CMMS) and Standard Operating Procedures, along with equipment-specific manuals, to guide the frequency of sewer cleaning and pump station maintenance. Task schedules are based on operational experience, past performance, manufacturer recommendations, and site-specific conditions.

The City's maintenance program includes preventive, proactive, and corrective maintenance, along with control. Table 4-1 outlines preventive operation and



maintenance activities, the three bullets specified in the General Order, and the scheduling and data collection system used. The following sections describe each preventive operation and maintenance activity in more detail.

Table 4-1: Summary of Operation and Maintenance Activities

Preventive Operation and Maintenance Activity	Inspection and Maintenance Activity	Higher-Frequency Activities of Problem Areas	Regular Visual and CCTV Inspections	Scheduling and Data Collection System
System-Wide Cleaning	✓			Cityworks
Trouble Spot Cleaning	✓			Cityworks
Restaurant Runs	✓	✓		Cityworks
Targeted Root Control	✓	✓		Cityworks
Manhole Inspection	✓			Cityworks
Cleaning Quality Control Inspections (Spot Checks)	✓	✓	✓	Cityworks
Investigative and Operational Support CCTV Inspection		✓	✓	Cityworks and GraniteNet
Street Resurfacing Capital Project CCTV Pre-Inspection	✓		✓	Cityworks and GraniteNet
CCTV Condition Assessment Program	✓		✓	Cityworks and GraniteNet

The City employs several sewer maintenance program strategies to manage collection system performance. These strategies include:

- **System-Wide Cleaning:** The City has organized its 360 miles of gravity sewer mains into 12 cleaning districts, with a goal of completing a full cleaning cycle every 18 months. To achieve this target, crews clean approximately 240 miles of sewer mains each year.
- **Trouble Spot Cleaning:** The City proactively identifies pipe segments with recurring issues and places them on a Trouble Spot list. These high-maintenance areas are cleaned at scheduled intervals of 2, 3, 4, 6, or 12-month flush intervals. To optimize internal resources, the City pauses Trouble Spot cleaning in December to focus on Restaurant Runs, described further below. Overall, the Trouble Spot cleaning program covers approximately 40 miles of sewer mains annually.
- **Restaurant Runs:** Each winter, the City conducts targeted cleaning of sewer pipelines prone to grease accumulation, particularly those receiving discharges from food service establishments (FSEs). This effort also includes other facilities that contribute to grease buildup, such as convalescent homes and adult daycare centers, ensuring the system remains free of blockages and operates efficiently.
- **Targeted Root Control:** The City has a list of pipe segments with known root intrusion issues and performs either mechanical root removal (i.e. Trouble Spot

cleaning) or chemical root control using contract root control application services. Chemical root control is performed in addition to sewer cleaning activities and is not used as the primary means to manage pipe segment performance. This work is performed using contract services with City staff providing contract management including planning, contractor oversight and contractor field support. Roots are causing approximately 70 percent of the City's sewer overflows. The City is using a combination of mechanical cleaning and chemical root control to manage pipelines with significant root intrusion issues. Additionally, the City takes a proactive approach by identifying pipelines prone to root intrusion and prioritizes them for repairs or rehabilitation, eliminating root-related issues at their source.

- **Manhole Inspection:** Each manhole is inspected at least once every 18 months. If Operations & Maintenance (O&M) staff or contractors identify issues such as a cracked rim or cover, a damaged shelf, or other structural concerns, they document the condition with photographs and notify the Engineering team via email. This notification initiates a Level 1 inspection, during which Engineering staff conduct a detailed assessment to determine the severity of the issue and recommend appropriate corrective actions. An example of the Level 1 Inspection Form is provided in Attachment D1.
- **Cleaning Quality Control Inspections (Spot Checks):** The City conducts CCTV inspections of recently cleaned pipe segments to assess cleaning effectiveness and identify opportunities for improving maintenance practices. This program is operator-driven, initiated when staff detect issues during routine system-wide cleaning. Pipes requiring further evaluation are referred for CCTV inspection to ensure proper maintenance and identify any necessary corrective actions.
- **Investigative and Operational Support CCTV Inspection:** The CCTV crew inspects issues identified by Wastewater Maintenance to determine the root cause of the issue. The results are used to determine the best course of action to address the issue, if an issue exists.
- **Street Resurfacing Capital Project CCTV Pre-Inspection:** The CCTV operation supports the Engineering Division's street resurfacing program with pre-work condition assessment of collection system assets located below streets designated for resurfacing. To minimize disruptions, most inspections are performed outside regular hours. Lower traffic streets are inspected during afternoon and evening shifts (typically 4:30PM – 9:30PM) without impacting day-shift productivity. High traffic streets are inspected between midnight and 6:00 AM, with the three-person crew continuing work until 11:00 AM the same morning. To manage workload, staff operates under a self-imposed limit of two early morning shifts per week, one of which must be Thursday midnight into Friday morning. This shift must be staffed by personnel who would typically be off that Friday, ensuring balanced scheduling between A- and B-week staff rotations.
- **CCTV Condition Assessment Program:** Multi-year project. The City is currently in the middle of a multi-year project to televise all 360 miles of the City's sewer pipelines. The project will be completed in the following three phases:
 - Phase 1 – 95 miles - COMPLETED



- Phase 2 – 169 miles. Started in January 2024 with planned completion by June 2025.
- Phase 3 – 96 miles. Planned start in July 2025 with planned completion by June 2027.

Once complete, the City will evaluate the CCTV data to identify the next set of pipe repairs and pipe segment rehabilitation and replacement projects to build into the 10-year CIP program. The City will coordinate these projects with the projects identified in the upcoming Sewer Master Plan update commencing in the 2026-2027 timeframe.

4.3 Training

Table 4-2 summarizes the collection system program training activities.

Table 4-2: Summary of Training Program

Training Type	Description	Recurrence
General Order Requirements	Internal review with staff.	Annual
Spill Emergency Response	All crews responsible for responding to sewer spills receive periodic table top spill response training, which includes response and reporting protocols, and volume estimation methods. After action reviews on spill response are conducted when a spill has occurred.	As needed
Spill Volume Estimation	All crews responsible for responding to sewer spills receive periodic table top spill response training, which includes response and reporting protocols, and volume estimation methods.	Annually
Electronic CIWQS Reporting	The primary method for electronic CIWQS reporting training is through on-the-job training with experienced data submitters showing new data submitters how to enter reporting data.	As needed
Safety	Safety tailgate twice a month. General safety meeting once per month. Near-miss discussion as needed.	Monthly
Equipment	Crews are initially trained in the proper operation and maintenance of all new major mobile equipment and facilities by the contractor/manufacturer.	During Onboarding and On-the-Job
SOPs	On-the-job and classroom training for standard operating procedures is provided for the following functions: Sewer Cleaning, CCTV, and Repair.	During Onboarding and On-the-Job. Additional trainings performed as-needed at tailgate trainings.

The City supports staff advancement through training and certification pathways:

- **Crew Training and Certification Paths** – The City maintains a list of the training completed by staff. Included is the length of service, volume of CWEA training completed, date of completion, and CWEA grade of each staff member.

The City is committed to reducing the impacts of spills on the community and environment and maintains spill response readiness through staff training.

- **Spill Response Training**– Improved maintenance practices have reduced spills since 2008. As a result, extended periods of time can pass between spill responses for any one of the City's three (3) standby response teams. In order to keep spill response practices refreshed with staff, Maintenance Services conducts periodic table-top spill response training. In addition, spill response activities are reviewed after every spill event to check conformance with the spill response procedure and to identify if any changes to the spill response plan are needed.

4.4 Equipment and Replacement Part Inventory

The City maintains spare parts for gravity sewer maintenance activities at the Maintenance Services Shop and Yard.

4.4.1 Doran Pump Station Critical Spare Parts

The City owns one pump station, Doran Pump Station, which conveys the majority of collected flows from the City and is a critical facility. The City has performed extensive analysis of Doran Pump Station components and maintains a critical spare parts list complete with identified critical items, desired number of components to keep on-hand, and the count of items on hand. The city keeps a critical spare parts cabinet stocked with the on-hand spare parts, including spare cables, relays, switches and two replacement pumps. Attachment D2 includes a snapshot of the critical spare parts list. Maintenance Services maintains an up-to-date list on the G:drive.



5 Design and Performance Provisions

5.1 Design and Construction Standards and Specifications

The City utilizes the City of Glendale's Sanitary Sewer Manual and Standards (2009), included as Attachment E. The Sanitary Sewer Manual provides guidance on sewer pipe sizing, material, slope, pipe class, joint type, house connection size, and sewer pipe bedding requirements. Chapter 7 - Pumping Plants and Force Main; describes the design standards and specifications for pump stations and force mains. These are developed by consultants as part of rehabilitation and upgrade design projects. The document references City of Los Angeles Bureau of Engineering Sewer Manual, Section F700 for general guidelines. Chapter 9 - Rehabilitation Design; describes rehabilitation design and construction specification standards consultants and contractors must comply with in accordance with City staff.

5.2 Procedures and Standards for Inspecting and Testing System Improvements

The City requires that all new sanitary sewer systems, pump stations and other appurtenances as well as the rehabilitation and repair of existing sewer facilities be designed and constructed in accordance with the City of Glendale Sanitary Sewer Manual and Standards, which references the Standard Specifications for Public Works Construction (Greenbook). This resource is used for procedures and specifications for inspecting and testing the installation of new sewers, pumps and other appurtenances and for inspection and testing of sewer system rehabilitation and repair projects.

5.2.1 Asset Information Requirements

Before a project can be accepted, the contractor must provide the following:

- Relevant Permit Applications
- Construction drawings prepared by a licensed Engineer and/or Architect
- Site plans depicting existing conditions
- Relevant project calculations
- Transportation analysis for applicable projects

6 Spill Emergency Response Plan

6.1 Proper Notification Procedure

The City has developed a Spill Emergency Response Plan (SERP) documenting response protocols from receipts of calls through clean-up and reporting. The City's SERP meets the requirements of the General Order. The SERP is updated with the current information on a regular, ongoing basis. The latest version is included as Attachment F of this SSMP.

6.2 Annual Review and Update

Every year the City reviews and assesses the effectiveness of the SERP and updates the plan as needed.



7 Sewer Pipe Blockage Control Program

Approximately 85 percent of spill events in the City's sewer system over the past three years are attributed to blockages caused by roots (17), debris (4) or grease (1). The City primarily manages root intrusion and debris sedimentation using a preventive maintenance sewer cleaning strategy. Grease accumulation is managed using both a source control strategy and a preventive maintenance sewer cleaning strategy.

7.1 Source Control Program Overview

The City of Glendale has over 600 food service establishments (FSEs) and has a goal to inspect each FSE at least once every 18 months. The City provides best management practices guidance to FSEs, reviews maintenance records for FSEs, and checks grease removal equipment for conformance with maintenance requirements (i.e., 25 percent rule). Each inspection requires approximately 45 to 60 minutes at the site. Additional time is required to process inspection documentation and resulting inspection findings in cases where FSEs fail an inspection. Minor non-conformances can usually be resolved with a follow-up phone call and transmittal of proof of compliance. Major non-conformances and violations typically require a return inspection.

The City's FOG Control Program demonstrates the City's pro-active approach to management of the sanitary sewer system, and helps reduce the amount of fats, oils and grease discharges to the sanitary sewer system, by including:

- A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area and a list of acceptable disposal facilities.
- Legal authority to prohibit discharges to the system and identify measures to prevent SSO's and blockages caused by FOG.
- Requirements to install grease removal devices, design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements.
- Authority to inspect grease producing facilities, enforcement authorities, and staff to inspect and enforce the FOG Ordinance.
- Identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section.
- Development and implementation of source control measures for sources of FOG discharged to the sanitary sewer system for each pipe segment found with grease accumulation.
- Implementation of a plan and schedule for a public education outreach program that promotes proper disposal of FOG.

7.2 Implementation Plan and Schedule for Public Outreach

7.2.1 Summary of Outreach Activities

The City has developed a public education program that promotes proper disposal of FOG. This program includes letters to customers on appropriate FOG disposal and letters to plumbing professionals describing adequate maintenance techniques to prevent fats, oils, grease, rags and debris from entering the City's sanitary sewer lines. To increase the amount of information available to customers, the City has developed an instructional mailer to be included in billing correspondence each year.

7.2.2 Industrial Waste Program

In 1996, the City consolidated the Industrial Waste Program with the Fire Departments hazardous material operation within the functions of the Environmental management Center. The objective of the industrial waste program is to prevent hazardous materials from discharging into the sanitary sewer system through comprehensive permitting, inspection and sampling. Industrial wastewater is regulated by Section 307 of the Federal Water Pollution Control (also known as the Clean Water Act) and the Glendale Municipal Code.

Beginning in early 2019, the Public Works Maintenance Services Division began administering Industrial Waste Permits for FSE's only. At this same time the permit application for FSE's was simplified to reflect the narrower range of constituent waste coming from an FSE. The City of Glendale Public Works Department administers the FOG Ordinance and inspects FSE's on an 18-month schedule to ensure compliance. Inspectors for the City of Glendale Public Works Department have the authority to enter food service facilities (FSE) to inspect flow and constituent control devices (including grease traps, hydro-mechanical devices and grease interceptors), and inspect maintenance records.

7.3 Plan and Schedule for Disposal of FOG within the Service Area

FSEs contract directly with grease haulers to collect grease from FSEs and to properly dispose the grease. The City requires grease to be disposed of properly. FSEs are required to record of all manifests, receipts and invoices of all cleaning, maintenance, grease removal from pretreatment devices, hauling and disposal of waste, and cleaning of pretreatment facilities, such as grease traps, by facility employees. The record must log the date and time of cleaning, the name of the employee who performed the cleaning and the volume removed. The City's

7.4 Authority to Prohibit FOG Discharges and Identify Measures to Prevent Blockages

Table 3-2 in Element 3 – Legal Authority provides references to the City of Glendale Municipal Code providing the City with the legal authority to prohibit discharges to the system and to identify measures to prevent spills and blockages.



7.5 FOG Program Requirements and Design Standards

7.5.1 Requirements to Install Grease Removal Devices

The Glendale Municipal Code, Section 13.08.100 Grease Traps – Required when, requires FSE's to install grease removal devices to help prevent grease build up within the system. It states:

Grease traps without bypasses to be installed on the discharge lines of every dishwashing sink, dishwashing machine and every fixed receptacle or plumbing fixture designed, intended or used for the purpose of washing dishes or cooking utensils on a restaurant, café, cafeteria, lunchroom, hotel kitchen, hospital kitchen, sanitarium kitchen and/or similar establishments that serve, or have capacity to serve, one hundred or more meals per day. The waste lines from these fixtures shall be connected to and shall drain or discharge into an approved grease trap. The determination of the meal serving capacity and capacity to serve one hundred (100) or more meals per day shall be based upon a serving or seating or seating capacity of fifteen (15) or more persons or patrons at any one time.

The City becomes aware of new potential FOG discharges through the permitting process and will require grease removal devices for new FSEs and FSEs requesting permits to modify existing facilities.

7.5.2 Design Standards for Grease Removal Devices

The Glendale Municipal Code, Section 13.08.105 Grease Traps – Design and Installation, ensures that all grease removal devices be installed according to specific standards to ensure maximum grease removal and consistency throughout the city. It states:

All grease traps or interceptors have an approved rate of flow of at least fourteen (14) gallons per minute. Inside grease traps shall be used only when it is impractical to install an outside trap. An inside grease traps shall be of ample capacity and designed with a maximum grease capacity of not less than six (6) pounds. An outside grease trap shall of fifty-five (55) gallon minimum capacity, made of impervious material and watertight. It shall be located not less than three (3) feet outside the foundation wall of the building and as close as possible to the fixture the trap serves. The design and installation of all grease traps shall be in accordance with the plumbing code and building code in force at the time the design is submitted for approval. Installations shall be inspected by the Glendale Building Department and/or the Glendale Public Works Director or his designee.

Maintenance Services will review and comment on design submittals of grease removal devices for sizing and configuration.

7.5.3 Maintenance Requirements

The Glendale Municipal Code, Section 13.08.110 Grease Traps and Interceptors – Maintenance, refers to the Grease Trap Operation, Maintenance, and Record Keeping

Requirements Brochure for requirements on maintenance, best management practices and recordkeeping for grease traps and interceptors. It states:

Where installed, all grease, oil and sand interceptors shall be maintained by the owner, at owner's expense, in continuously efficient operation at all times. Certain minimum operation and maintenance activities are required by the code and are specified in the Grease Trap Operation, Maintenance, and Record Keeping Requirements brochure which has been prepared by the Glendale Public Works Department, and which may be revised from time to time as deemed necessary. Operational standards include types of waste material and cleaning compounds that can and cannot be introduced into the grease trap as well as other operational requirements. Maintenance standards will include prescribed frequency of inspections and cleanings. They will also include instructions regarding the prevention of spills and methods of containing spills. Record keeping standards will include the record keeping form in use of the city of Glendale, the frequency with the form is to be updated, the location where the form is to be kept, and instructions regarding when and how to submit periodic reports to the city.

7.5.4 Best Management Practices Requirements

The City requires FSEs to post grease best management practices in the restaurant kitchen near sinks on the FSE discharge permit. Best Management Practice handouts are given to newly established FSE's along with a FOG binder for keeping and logging service records.

7.5.5 Record Keeping and Reporting Requirements

The Glendale Municipal Code, Section 13.34.060 Record Maintenance Required, states:

Every food service establishment shall maintain a compliance record of all manifests, receipts and invoices of all cleaning, maintenance, grease removal from pretreatment devices, hauling and disposal of waste, and cleaning of pretreatment facilities, such as grease traps, by facility employees. The compliance record must log the data and time of cleaning, the name of the employee who performed the cleaning and the volume removed. All compliance records must be retained on site by the food service establishment for a period of not less than three (3) years. The establishment shall, upon request, make the compliance record available to the director.

Maintenance Services will review grease removal devices cleaning records to determine if the FSEs has cleaned the grease removal device and if the grease has been disposed of properly.

7.6 Inspection and Enforcement Program

7.6.1 Authority to Inspect Grease Producing Facilities

The Glendale Municipal Code, Section 13.34.070 Inspection and Right of Entry, states:

- A. *When required... the food service establishment shall provide, operate and maintain safe and accessible monitoring facilities (such as suitable sampling port or manhole) at all times to allow observation, inspection, sampling and flow measurement of the building sewer or internal drainage systems. There shall be ample room in or near*



such monitoring facility to allow accurate sampling and preparation of samples for analysis.

- B. *Persons authorized by the director may inspect and sample the wastewater discharges of any food service establishment to ascertain whether the conditions of this chapter are being met and the discharger is complying with all requirements. Such authorized persons shall have access to any food service establishment's grease interceptor or pretreatment devices, reviewing the manifests, receipts and invoices relating to the cleaning and maintenance of pretreatment devices, and allow observation, inspection, sampling and flow measurement of the building sewer or internal drainage systems, in accordance with this chapter.*

7.6.2 Authority to Enforce

The City has the legal authority to enforce the City's municipal code. Table 3-1 summarizes all required legal authorities and provides a reference to the section of the Municipal Code.

7.6.3 Resource Plan to Inspect and Enforce

The City has one full time FOG inspector and one part-time FOG inspector. These resources are appropriate to accomplish the objectives of the Sewer Pipe Blockage Program.

7.7 Maintenance Program to Address FOG Issues

The City cleans all pipe segments in the City within an 18 to 24 month cycle. Pipe segments with known grease accumulation issues are assign a higher-frequency cleaning cycle In Cityworks and are cleaned more frequently and as necessary to reduce the risk of a sewer pipe blockage.

7.8 Implementation of Source Control Measures to Address FOG Issues

The City utilizes multiple strategies to address grease accumulation in pipelines:

- An 18 to 24-month cleaning cycle on all pipes in the sewer system
- More frequent cleaning of pipe segments with known issues, including grease accumulation, on a 1, 2, 3, 4, 6, 9, or 12-month cleaning cycle. The cleaning schedule for these pipes is managed using Cityworks.
- A FOG source investigation when grease accumulation is found on pipe segments within the vicinity of an FSE.
- FOG source control inspections on an 18 to 24-month inspection cycle to permit FSEs and maintain compliance with the Municipal Code for prevention and reduction of fats, oils and grease discharges by FSEs into the sewer system.

8 System Evaluation, Capacity Assurance and Capital Improvements

8.1 System Evaluation and Condition Assessment

8.1.1 Evaluation of Sanitary Sewer System Assets

The City uses the following procedures to evaluate sanitary sewer systems assets.

Sewer Pipelines: The City uses Closed-Circuit television (CCTV) inspection to evaluate sewer pipelines. The City has one in-house CCTV crew focused on investigative inspections and quality control inspections of sewer cleaning activities. The City is also performing CCTV inspection of all sewer pipelines over a 3-year period using contract CCTV services.

Sewer Manholes: City cleaning crews open and visually inspect the upstream and downstream manhole when a sewer pipe segment is cleaned. When a significant structural defect is observed, the sewer cleaning crew will refer the manhole for repair. In addition, Engineering will inspect all manholes included within a sewer pipeline rehabilitation and replacement project to determine if sewer manhole repair, rehabilitation or replacement needs to be included within the project scope.

Doran Pump Station: Doran Pump Station is periodically inspected by third party contractors. Recent improvement to Doran: SCADA, pumps, emergency bypass, electrical approximately 2015. The station was overhauled in 2010-2011 and bypass piping was set up in 2015. The pump station has 2 spare pumps. Maintenance contracts are in place for pump repair and preventative maintenance checks.

8.1.2 Condition Assessment Strategy

The City is inspecting the entire sewer system over a 3-year period to document a baseline condition for all sewer pipelines. The City has divided baseline CCTV inspection into three phases: Phase 1 will inspect 95 miles, Phase 2 will inspect 169 miles, and Phase 3 will inspect 96 miles. All phases will be completed by June 2027. Once the initial baseline is completed, the City will be developing a re-inspection schedule for all pipelines based on current state condition. The re-inspection schedule for all pipelines will be developed and included in the next Sewer System Management Plan update in May 2031.

8.1.3 Inspection and Condition Assessment Prioritization

The primary driver of CCTV inspection prioritization includes past failure events, known maintenance issues, age, material, and district. The City included all pipes with past failure events and known maintenance issues in the 95 miles of Phase 1 CCTV inspection. Phase 2, which includes 196 miles of CCTV inspection, will inspect the older areas and materials within the City. Phase 3, which includes all remaining 96 miles of pipes in the sewer system, will include all of the newer pipelines.



The City will review the CCTV inspection data and will prioritize evaluation and planning activities on areas with pipe segments with past failure events, known maintenance issues, and significant structural issues.

All spills from the City's sewer system reaching the storm drainage system are conveyed directly to the Los Angeles River or to the Verdugo Wash and then to the Los Angeles River. Therefore, all pipelines in the system have a similar environmental impact if not intercepted and recovered.

8.1.4 Assessment of System Conditions

Engineering reviews CCTV inspection data for pipe segments with past failure events, known maintenance issues, and significant structural defects to identify sewer repair, rehabilitation and replacement needs.

The potential for subsurface leakage from the sewer system to the storm drainage system, Verdugo Wash or Los Angeles River is minimal. Storm drainage pipelines are constructed at a higher elevation than the City's sewer pipelines. The Verdugo Wash and Los Angeles River are concrete-lined drainage channels with no likelihood of subsurface leakage entering these waterways. Engineering will review the structural condition of pipe segments within 50 feet of these waterways and will identify repair, rehabilitation or replacement of pipe segments with severe structural defects with potential for subsurface leakage. Severe structural defects include NASSCO PACP Structural Grade 5 defects such as pipe collapse, broken void visible, broken soil visible, hole void visible, hole soil visible, and missing wall.

8.1.5 Inspection and Assessment Recordkeeping

CCTV inspection observations and videos are all maintained in GraniteNet. GraniteNet is a cloud-based CCTV software enabling City staff to access from any computer in the City. GraniteNet is also GIS-based, enabling results to be easily linked with the City's GIS-based computerized maintenance management system (i.e., Cityworks). Results from CCTV are easily accessed and viewed by staff.

8.1.6 Assessing Assets Vulnerable to Climate Change

The City performed a high-level review of assets vulnerable to climate change during the 2024 SSMP audit. The high-level review resulted in the following findings:

- **Sea level rise:** The City is several hundred feet above sea level and is not impacted by sea level rise.
- **Flooding:** The City does have some areas susceptible to flooding. A vulnerability exists if these manholes are opened during a flooding event.
- **Erosion Due to Intense Rain Events:** The City has built a robust storm drainage system and does not own any pipelines in canyons or near streams that are susceptible to erosion due to intense rain events.
- **Wildfires:** Wildfire is not an issue for the gravity sewer system. The location of Doran Pump Station is not susceptible to wildfire.

- **Power Disruption:** The Doran Pump Station is susceptible to power disruption. The City has mitigated this vulnerability with an backup power generator with 1,000 gallons of fuel providing 72 hours of power. The Doran Pump Station can be affected by power outages; however, the City keeps a 1000-gallon generator for backup power and is working towards a larger a backup power source.

8.2 Capacity Assessment and Design Criteria

In 2020, the City completed an update to their Wastewater Master Plan (WWMP), which included the development of a computerized hydraulic model for the City's wastewater system. This model was used to perform hydraulic analyses to assess the performance of the existing wastewater system under dry and wet weather conditions, evaluate the impact of future growth, and recommend improvements that may be needed to provide the needed capacity under both existing and future conditions. The goal of the hydraulic model development and system evaluation was to:

- Determine additional infrastructure requirements for resolving current model-predicted hydraulic capacity limitations,
- Evaluate the system under both dry weather and wet weather flows for the current conditions and future planning horizons, and
- Identify infrastructure needed to resolve limitations.

8.2.1 Procedures for Identifying and Addressing Hydraulic Deficiencies and Capacity Limits

Dry-Weather Peak Flow Conditions that Cause or Contribute to Spill Events

Existing average dry weather flow (ADWF) was determined by using flow monitoring data to analyze the dry days only. A dry day is defined as a day when no rainfall occurred 72 hours prior to that day and when there were no lingering effects from a previous rainfall. The average hourly dry-weather flow rate for each of the flow meters reflects the dominant LU that drains to each meter. ADWF diurnal patterns were derived from hourly flow data recorded by the City's permanent and temporary flow monitors or meters installed in the wastewater collection system as part of a flow monitoring program.

To calculate peak flows, ADWF was used and multiplied by an appropriate peaking factor (PF). The PF was established based on the data gathered during the conduct of the 2019 Wastewater Flow Monitoring Program. To create the PDWF scenario, which models the peak flow experienced in the collection system under dry conditions, the base wastewater flow (BWF) component is peaked to account for the variation in wastewater generation that occurs over the course of a typical day. This peaking is accomplished by applying diurnal curves to the BWF.

Appropriate Design Storm or Wet Weather Event Criteria

Evaluation of the City's wastewater collection system during dry and wet weather conditions involves evaluation of both capacity and general operational issues. The dry weather flow in the system is primarily controlled by population and significant commercial/ industrial dischargers. Operational issues that may lead to inadequate level



of service system performance include roots, fats, oils, and grease. The model evaluates the system as designed, assuming clean pipes. The hydraulic model is an important utility management tool to assist in identifying locations of capacity constraints or velocity concerns that may exist in the existing system, or are projected to arise under future dry or wet weather flows. The primary design criteria used to evaluate potential pipe capacity or operational problem areas are shown in Table 8-1.

Table 8-1. Pipe Design Criteria

Parameter	Value
Minimum Velocity	2 feet per second
Manning's Roughness Coefficient (N)	0.013
Minimum Pipe Size	8-inch
PWWF Depth/Diameter (d/D)	< 0.75 d/D: 18-inch and greater
	<0.6 d/D: smaller than 18-inch

Depth of flow in relation to pipe diameter, or depth-to-diameter (d/D) ratio is an element of the City's existing design criteria and is used to identify potential capacity problems within the system. It is important to note that the current state and federal regulations require wastewater agencies to accommodate the impact of wet weather events on their system through the development and use of a wet weather analysis. Design storms are primarily defined by their hyetograph, duration and the return period. The hyetograph is the representation of temporal variation of storm intensity. Duration is the amount of time over which a rain event occurs, where the return period is a measurement of the likelihood a particular event will occur. For example, a 5-year storm will theoretically occur once every 5 years.

Because the selection of the design storm can have a significant impact on determining the adequacy of system capacity, this design criteria driven level of service element of the Master Plan had careful consideration in this planning effort. To provide the City with the necessary information to make an appropriate decision, both 5- and 10-year design storms were discussed with the City. Based on discussions with City staff, the design storm selected to be incorporated in the hydraulic model simulation was a 10-year 24-hour event. A 10-year 24-hour design criterion is more conservative criteria than has been used in the past. This criterion is also being used by several agencies in southern California including the City of Los Angeles and the City of Santa Monica in their hydraulic capacity programs to contain peak wet weather flows in the sewer system to avoid spills.

Capacity of Key System Components

Under existing dry and wet weather flow conditions, a large majority of the City's wastewater collection system pipelines have excess or reserve capacity. The existing hydraulic modeling simulation identified less than two percent of the total wastewater pipeline system had d/D ratios greater than the system performance evaluation criteria.

This finding indicates the City's wastewater system has available capacity in the majority of the local wastewater system.

Similarly, the hydraulic analysis of the depth of wastewater within the maintenance hole (MH) structure indicated that the majority of these structures fell within the evaluation criterion for surcharge depths. Maintenance hole surcharge depths are calculated by the hydraulic model under both dry and wet weather conditions.

The results of the hydraulic analysis of the pipeline network under existing wet weather design storm conditions are shown in Table 8-2, and depicted graphically for d/D ratio and MH performance findings on **Figure 8-1** and **Figure 8-2**, respectively. Areas of potential high-risk surcharging are also reflected in **Figure 8-2**. As shown, the City's wastewater system operates well under current peak dry and peak wet weather conditions and has minimal areas of potential capacity limitations.

Table 8-2. Existing System – Summary of Hydraulically Limited Pipelines

Existing Diameter (inches)	Pipe Count	Length (ft.)
8	47	10,599
10	21	6,904
12	24	6,571
15	23	6,194
18	11	2,614
21	0	0
Total	126	32,882
Note: As discussed, this table does not include a minimal number of pipes with adverse slopes that would require capacity improvements.		



Figure 8-1. Existing Conditions Pipeline Results

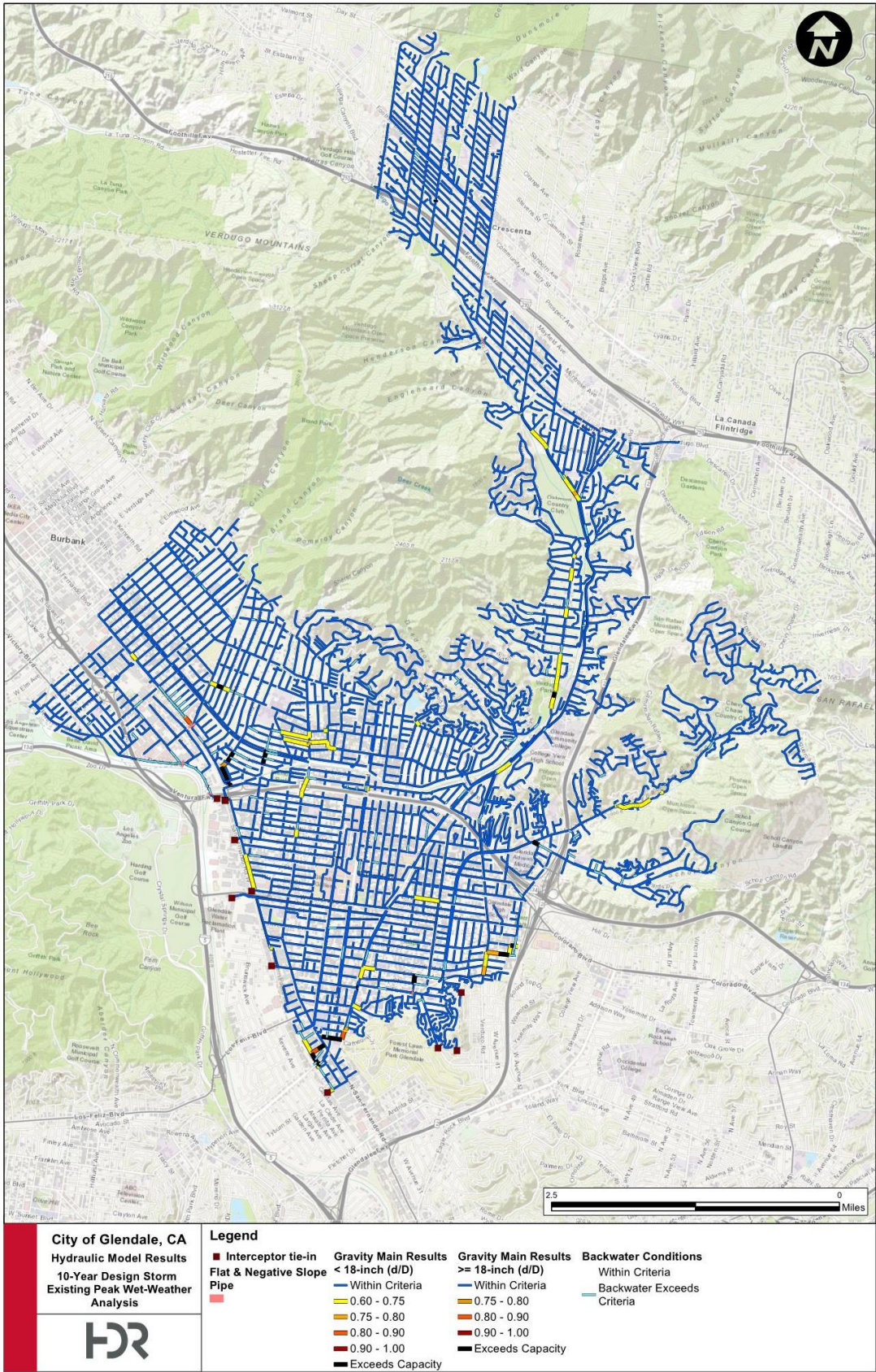
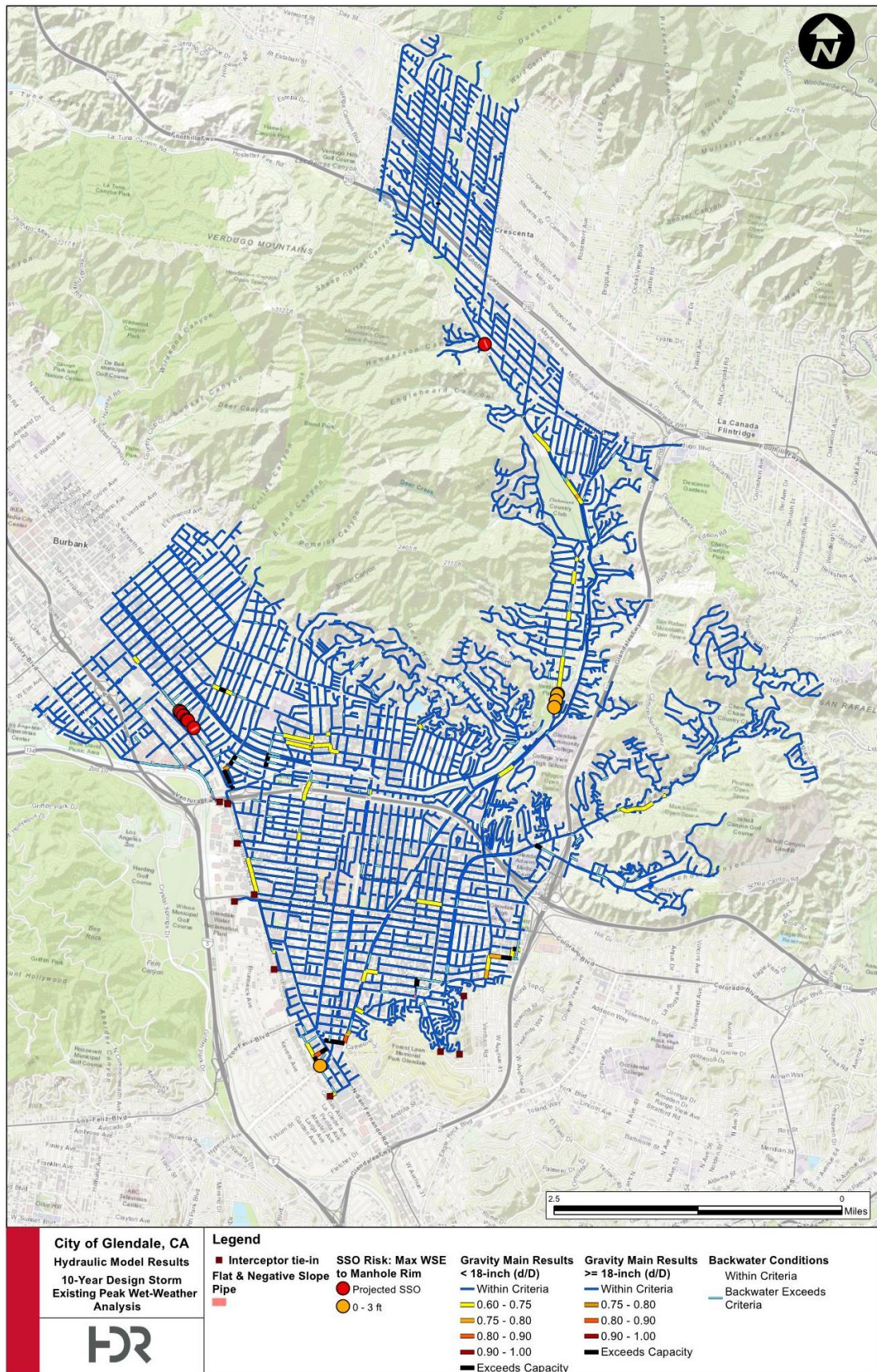


Figure 8-2. Existing Conditions Maintenance Holes Results

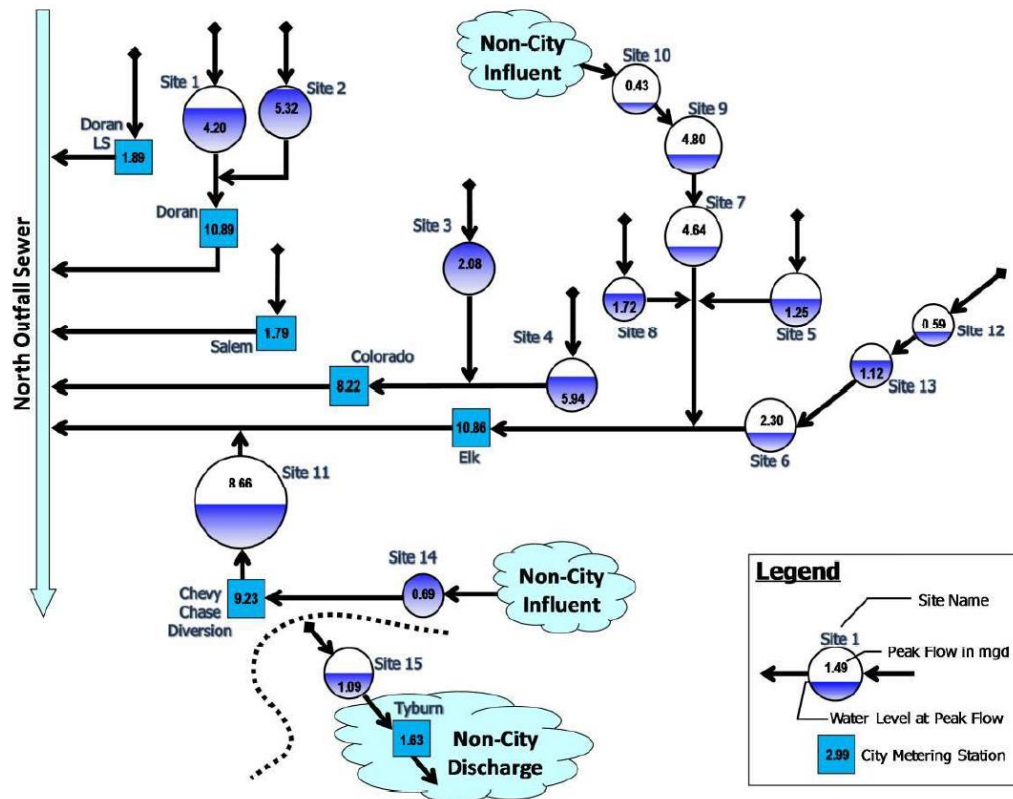




Major Sources Contributing to Peak Flows Associated with Sewer Spills

PWWF is estimated as PDWF plus RDI/I and BWI, combined as a single inflow/infiltration (I/I) value herein. RDI/I is stormwater that enters the wastewater collection system in direct response to the intensity and duration of individual rainfall events. RDI/I may recede gradually after a storm; however, any residual flow is considered to be a general increase in GWI. Figure 8-3 shows the peak measured flow schematic derived from the flow monitoring program.

Figure 8-3. Peak Measured Flow Schematic



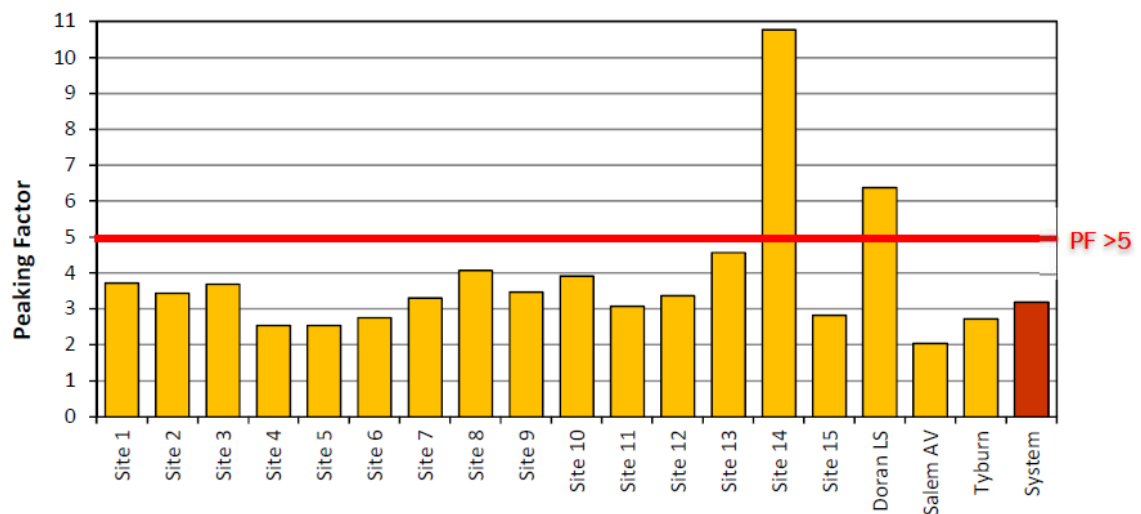
Based on the flow monitoring data collected from the various basins during the 2019 Wastewater Flow Monitoring Program, site-specific measured flows were obtained and new PFs were established. These findings are shown in Table 8-3.

Table 8-3. Peaking Factors

Site	Manhole	ADWF (MGD)	Peak Measured Flow (MGD)	Peaking Factor (PF)
FM1	110299	1.13	4.2	3.7
FM2	090828	1.55	5.32	3.4
FM3	080277	0.57	2.08	3.7
FM4	010018	2.35	5.94	2.5
FM5	061151	0.49	1.25	2.5
FM6	040400	0.83	2.3	2.8
FM7	061149	1.41	4.64	3.3
FM8	061150	0.42	1.72	4.1
FM9	060461	1.38	4.8	3.5
FM10	121191	0.11	0.43	3.9
FM11	010421	2.82	8.66	3.1
FM12	050498	0.18	0.59	3.4
FM13	050534	0.25	1.12	4.6
FM14	030413	0.06	0.69	10.8
FM15	010374	0.38	1.09	2.8

Note: Where Flow Monitor (FM) number is the Temporary Flow Monitoring station number

Figure 8-4. Site-specific Peaking Factors



As shown in Figure 8-4, Site 14 and Doran LS both have PF greater than 5, a value typically used to represent excessive peak flow conditions in Southern California. Because site 14 is a boundary connection was installed to measure non-City flows that enter into the City of Glendale, this calculated PF is not representative of the city-owned facilities downstream of this monitor. As such, the system average of 3.2 was used as



the PF for these downstream facilities. For the Doran LS, while the peaking values for this basin may be elevated due to the pump station operations, the observed PF for the Doran LS was used to promote a conservative assessment of the capacity of this facility in this Master Plan.

Flow monitoring basins are localized areas of a wastewater collection system upstream of a given location (often a flow meter), including all pipelines, inlets, and appurtenances. The basin refers to the ground surface area near and enclosed by the pipelines. A basin may refer to the entire collection system upstream from a flow meter or may exclude separately monitored basins upstream. I/I analysis was conducted on a basin-by-basin basis. For this study subtraction of flows was required to isolate the drainage areas of some flow monitoring basins. The flow monitoring basins and basin isolation equations used to define the limits of the basin boundaries are listed in Table 8-4.

Table 8-4. Isolated Flow Monitoring Basin Characteristics

Isolated Basin	Flow Isolation Calculation	Area (acres)	Pipe Length (IDM)
Basin 1	= Q_1	1,343	345.6
Basin 2	= Q_2	1,820	460.3
Basin 3	= Q_3	259	64.5
Basin 4	= Q_4	1,077	300.6
Basin 5	= Q_5	1,065	260.1
Basin 6	= $Q_6 - Q_{13}$	793	179.6
Basin 8	= Q_8	618	148.2
Basin 9	= Q_9	1,315	381.8
Basin 10	= Q_{10}	227	35.5
Basin 11	= $Q_{11} - Q_{14}$	1,071	337.5
Basin 12	= Q_{12}	482	97.1
Basin 13	= $Q_{13} - Q_{12}$	149	31.2
Basin 14	= Q_{14}	115	26.6
Basin 15	= Q_{15}	297	85.8
Basin Doran LS	= $Q_{Doran\ LS}$	603	128.7
Basin Salem	= Q_{Salem}	264	70.1
Basin Tyburn	= $Q_{Tyburn} - Q_{15}$	60	13.7
Glendale System Flows	= $Q_{ChevyChase} + Q_{Colorado} + Q_{Doran} + Q_{Elk} + Q_{DoranLS} + Q_{Salem} + Q_{15} + Q_{11} + Q_{14}$	11,160	3,000
Note: Total values are rounded. The Inch Diameter Mile (IDM) value based on City GIS pipe length and diameter data.			

An inch diameter mile (IDM) value is a common method of normalizing the wet weather responses among wastewater drainage basins with differing length and drainage areas. The peak I/I response and normalized storm event ranking for the areas monitored during the wet weather monitoring period is provided in the 2019 Flow Monitoring Report and is summarized in Table 8-5.

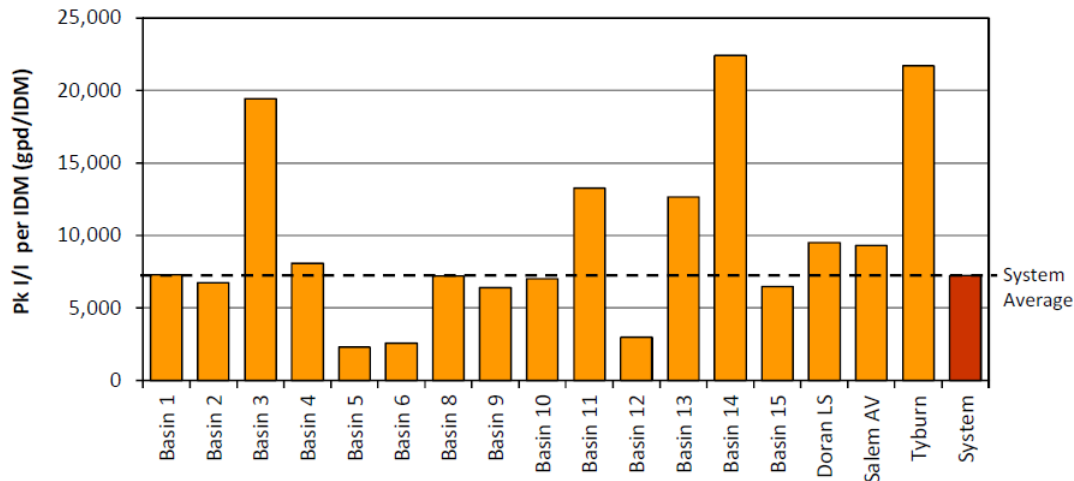


Table 8-5. Peak Isolated Basin Inflow/Infiltration Response

Basin	ADWF (MGD)	IDM	Inflow Rate (MGD)		Inflow per IDM (gpd/IDM) [Event Ranking]		Final Inflow Ranking
			Event 1	Event 2	Event 1	Event 2	
Basin 1	1.13	345.6	2.51	2.51	7,264 [9]	7,273 [10]	9
Basin 2	1.55	460.3	3.15	3.05	6,844 [12]	6,630 [13]	12
Basin 3	0.57	64.5	1.13	1.38	17,465 [3]	21,381 [3]	3
Basin 4	2.35	300.6	2.38	2.47	7,919 [8]	8,222 [7]	8
Basin 5	0.49	260.1	0.51	0.68	1,943 [17]	2,623 [17]	17
Basin 6	0.59	179.6	0.59	0.33	3,287 [16]	1,823 [16]	16
Basin 8	0.42	148.2	1.08	1.05	7,310 [10]	7,073 [12]	10
Basin 9	1.27	381.8	2.49	2.38	6,529 [14]	6,245 [11]	14
Basin 10	0.11	35.5	0.27	0.23	7,574 [11]	6,483 [14]	11
Basin 11	2.82	337.5	4.14	4.82	12,268 [4]	14,281 [4]	4
Basin 12	0.18	97.1	0.34	0.24	3,476 [15]	2,482 [15]	15
Basin 13	0.07	31.2	0.39	0.40	12,515 [5]	12,754 [5]	5
Basin 14	0.07	26.6	0.59	0.60	22,256 [1]	22,586 [1]	1
Basin 15	0.38	85.8	0.52	0.59	6,033 [13]	6,926 [9]	13
Doran LS	0.30	128.7	1.06	1.39	8,199 [6]	10,810 [8]	6
Salem	0.88	70.1	0.58	0.73	8,256 [7]	10,344 [6]	7
Tyburn	0.22	13.7	0.29	0.30	21,333 [2]	22,059 [2]	2
System	13.10	3,000	22.0	23.2	7,030	7,420	

Note: Total values may be rounded. Red shaded cells signify the top 4 inflow ranked basins; Events 1 and 2 are the rainfall events that occurred on Feb 2-6, 2019 and Feb 13-15, 2019.

Figure 8-5. Comparison of Peak I/I Response by Basin



As shown in Figure 8-5, Basins 3, 11, 14, and Tyburn had the highest normalized peaking I/I rates, an indicator of high inflow upstream of the flow monitoring site. As previously noted, basin 14 I/I values are derived from flows coming from the City of Los Angeles.

8.2.2 Capacity Assessment Considerations

Data from Existing Condition Assessments, Maintenance and Other Available Information

Engineering considers data from sewer pipeline condition assessments, system inspections, spill history and other available information during project planning and formation to bundle and prioritize CIP projects.

Capacity of systems subject to flooding and increased infiltration and inflow due to larger and/or higher-intensity storm events as a result of climate change

The City performed flow monitoring in 2019 and measured site-specific flows, including areas impacted by flooding or inflow and infiltration, to establish new peak flows within the sewer system. The City used these new peak flows to update and calibrate the City's hydraulic model, which was then used to perform system capacity analysis to identify potential capacity deficiencies documented in the 2020 Wastewater Master Plan.

Sewer System Vulnerability to Erosive Forces in Canyon and Streams

The City has built a robust storm drainage system and does not own any pipelines in canyons or near streams that are susceptible to erosion due to intense rain events.

8.3 Prioritization of Corrective Actions

Corrective actions are prioritized based on the following classes.

- **Capacity Projects:** These are capacity-related improvement projects identified in the Wastewater Master Plan. The City derived these projects using the hydraulic model



to evaluate the response of the wastewater system under existing and future peak wet weather conditions.

- **Pipeline Replacement and Renewal Projects:** These rehabilitation projects and programs are identified by Engineering to remediate pipelines with known condition deficiencies to establish a condition assessment and pipeline renewal program to promote long-term system reliability.

8.3.1 Sewer Pipeline Condition Remediation Prioritization

Engineering reviews sewer pipeline CCTV and assigns an A,B or C rating.

- An “A” rating is assigned to pipe segments with imminent issues such as deformed pipe, voids, or pipes with recurring failures.
- A “B” rating is assigned to pipe segments with significant structural issues such as step-up offsets that restrict flow or trap debris or broken pipe resulting in pipe wall movement or an irregular pipe cross-section.
- A “C” rating is assigned to structural defects that can be addressed at the City’s discretion. This includes low spots, pipe sags, and mismatched merging flows. These issues are managed using preventive maintenance until a long-term solution is delivered to remove these defects from the system.

8.3.2 Sewer Capacity Remediation Prioritization and Additional CIP Considerations

Potential capacity improvements identified under existing peak wet weather conditions have a higher priority than the additional pipelines that were adequate under existing conditions, but needed additional capacity to meet future system flow conditions. In addition to the individual prioritization of capacity-related projects, other key factors have been integrated in the overall prioritization process. While some of these factors are external to the performance of the City’s Wastewater Enterprise, they will influence the timing and potential cost aspects of the program’s implementation and have an influence on the level of community disruption and overall quality of life in Glendale.

These implementation elements include spatial demand triggers that link to CIP requirements and associated development projects, inclusion of a broader infrastructure management perspective by coordinating the CIP with other projects (e. g., underground utility and paving projects) to minimize community disruption, consideration for cost segregation so that growth pays an appropriate share of costs, and an effort to develop a leveled CIP to match the programmed improvements with capital budgeting and ratepayer affordability and acceptance. The important end-result of this planning effort is the identification of a comprehensive CIP that is:

- Time-phased to support needed budgetary considerations,
- Work plan based to confirm and field verify system facility data to maximize the use of available funds and attain operational concurrence,
- Flow-based to react to specific spatial triggers for implementing "just in time" design and construction,

- Holistic through the integration of broad community infrastructure management considerations including utility pipeline replacement efforts and programmatic street management services, and
- Affordable by matching the current program with the current level of capital funding and allocating these funds across the variety of improvement program activities.

By proceeding in the purposeful manner, the resulting CIP program provides the City with a proactive and adaptive plan for a reliable wastewater collection system.

8.4 Capital Improvement Plan

8.4.1 CIP Project Schedule and Funding Sources

Currently, the sewer CIP includes two upcoming projects to televised the remainder of the sewer system. Once completed, the CCTV data will be used to identify the next set of sewer repair, rehabilitation and replacement projects. The City is also planning to initiate an update to the Sewer Master Plan in late 2025.

Table 8-6: CIP Project Schedule and Funding Sources

CIP Project	Start	End	Fund
CCTV Sewer Project – Phase 2	January 2024	June 2025	Sewer Fund (5250)
CCTV Sewer Project – Phase 3	July 2025	June 2027	Sewer Fund (5250)

8.4.2 Joint Coordination on CIP Project Delivery

Engineering leads delivery of capital improvements projects and coordinates closely with Maintenance Services on any CIP projects involving or impacting the collection system. Engineering will also determine any impacts agencies, utilities and neighboring cities early in the project planning process and will coordinate with agencies, utilities and neighboring cities throughout the project delivery lifecycle to obtain permits, determine utility location, etc.



9 Monitoring, Measurement and Program Modifications

9.1 Overview of Performance Management System

The City uses adaptive management section to address Plan-implementation effectiveness and the steps necessary for Plan improvement, including:

- Maintaining relevant information, including audit findings, to establish and prioritize appropriate Plan activities; (Section 9.2)
- Identifying and illustrating spill trends, including spill frequency, locations and estimated volumes. (Section 9.3)
- Monitoring the implementation and measuring the effectiveness of each Plan Element; (Section 9.4)
- Assessing the success of the preventive operation and maintenance activities; (Section 9.5); and,
- Updating Plan procedures and activities, as appropriate, based on results of monitoring and performance evaluations (Section 9.6)

9.2 Maintenance of Information to Prioritize SSMP Activities

The City uses the following databases to capture and maintain the relevant information used to establish and prioritize appropriate SSMP activities:

- Geographical information system (GIS)
- Cityworks computerized maintenance management systems
- Reports and Studies

9.3 Identification and Illustration of Spill Trends

The City is continually tracking and communicating the performance of various sewer spill metrics such as spill count, spill cause, spill volume, spill locations, and sewer spills reaching surface waters.

9.4 Monitoring of Implementation and Effectiveness of the SSMP

The City tracks the location and cause of all sewer spills, blockages, and gravity main hot spots. The City maintains a database of all maintenance activities using Cityworks, which includes the location of pipes cleaned and inspected and any relevant remarks observed during the cleaning, as well as required follow up activities.

In order to monitor the implementation and measure the effectiveness of the SSMP, the City tracks the performance indicators shown in Table 9-1.

Table 9-1: SSMP Implementation Performance Indicators and Metrics

Performance Indicators	Measure
Spill Rate	Sewer spills per 100 miles of sanitary sewer -12 month moving average, past 60 months
Spill Location Trends	Locations of all spills over the past 60 months
Spill Volume to Waters of the State	Spill volume discharged to waters of the state past 60 months
Percentage of Spill Volume Captured	Volume of spill captured in relation to total volume of spills
Spill Cause Trends	SSOs by cause (top 3 categories, typically roots, grease and debris)
Chemical Root Production	Feet of pipelines treated with chemical root control
FOG Control Inspection Production	Number of FSE Inspections
Sewer Cleaning Production	Miles of gravity mains cleaned over the past 12 months
Maintenance Services Accidents	Number of recordable accidents experienced by Maintenance Services crews

The Wastewater Maintenance Superintendent is responsible to review the SSMP annually. In addition to tracking the above performance indicators, the Wastewater Maintenance Superintendent will review all sections of the SSMP for effectiveness and timeliness. Collection system personnel will also be consulted between internal audits to review the effectiveness of the SSMP and help identify potential areas for improvement.

9.4.1 Collection System Operational Weekly Report

Production report

General information covered includes report date and week, reporting personnel, and weather conditions. Covers pump station activity; run times, efficiency, peak flow observations, and total flow. Mentions any communication with regulatory agencies and coordination with City staff.

Spill Statistics – CIWQS Operational Report

The City tracks several performance indicators, including: the number of recordable accidents, spill rate, spill volume discharged to waters of the state, the volume of spills that was contained in relation to total volume of spills, the location of all spills, the miles of gravity mains cleaned annually, the miles of gravity mains inspected annually and the spills by cause.



9.4.2 Annual Program Performance Review

Every year the City conducts an annual program performance review during the budgeting and goal-setting process to ensure that its maintenance, monitoring, and compliance efforts are effective.

9.4.3 Program Audits

The City is required to conduct periodic internal audits, appropriate to the size of the system and the number of spills. At a minimum, these audits must occur every three years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP.

9.4.4 Course Correction Measures

Table 9-2: Program of Work and Typical Program Modifications Identified for Core SSMP Elements

SSMP Element	Program of Work	Typical Program Modifications
Operations and Maintenance Program	Sewer cleaning Sewer inspection Sewer repairs Pump plant operations and maintenance	Cleaning frequency changes Cleaning method changes Cleaning referrals Inspection referrals Sewer repairs and renewal identified
Overflow Emergency Response Plan	Spill Response and Reporting	After Action Review leads to lessons learned for response team
FOG Control Program	FOG inspections FOG enforcement Outreach	FOG investigations Targeted outreach
System Evaluation and Capacity Assurance	Primary basin planning Sewer Capacity Availability Request Watermark review Gauging	Problem areas identified Flow monitoring Capacity upgrades identified

9.5 Assessment of Preventative Maintenance Program

Routine preventive operation includes a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program includes a system to document conducted activities, including paper Sewer Line Maintenance and Inspection forms and an active mapping system maintained in the shop of City O&M Staff. Formal scheduling with work orders is being developed at the time of this update to the SSMP.

9.6 Approach to Program Modifications and Plan Updates

Program elements are updated as appropriate based on monitoring or performance evaluations. The main drivers of updates to SSMP program elements are program issues or opportunities identified through the following performance evaluation processes:

- Program issues identified because of sewer spill root cause analysis
- Program issues or opportunities identified through the course of the year and planned into the annual budgeting process
- Program issues or opportunities identified during the SSMP program audit

9.6.1 Monitoring and Audit-Driven Program Modifications

Every six years the SSMP document is updated. The update consists of:

- Reviewing the existing SSMP language and updating any outdated information. This includes updates to staff positions, names and organizational lines of authority that have changed, changes to system characteristics such as basin areas, etc.
- Updates to reflect new goals identified by Public Works.
- Incorporation of the adopted and implemented recommendations from previous SSMP program audits.
- Upon completion of the six-year SSMP update, the SSMP is provided to City Council with a request for approval. Upon acceptance by City Council, the updated SSMP is certified in the State Water Board CIWQS database and made publicly available on the City website.



10 SSMP Program Audits

The City uses the SSMP audit process to identify actions for improving how it manages, operates, and maintains the collection system. This process identifies the tasks and actions that are required to meet SSMP goals and defines and prioritizes them. Resourcing and planning for delivery of the actions identified in the SSMP audit are incorporated into Public Works workplans as described in Element 9 Monitoring, Measurement and Program Modifications.

10.1 Schedule of Program Audits and Updates

The City monitors the performance of the collection system on an on-going basis through monthly performance indicator reviews performed at the operating unit level, and annually during budget and goal setting. The City also performs a formal audit of its SSMP every three years in accordance with General Order requirements. Every six years, the City formally updates and recertifies the SSMP. Table 10-1 shows the anticipated schedule for SSMP audits and updates for the next six years.

Table 10-1: SSMP Audit and Update Schedule

Year	Audit
2027	Three-year self-audit planned in early 2027, complete by November 2, 2027
2030	Three-year self-audit planned in early 2030, complete by November 2, 2030
2031	6-year SSMP update planned in early 2031, complete by May 2, 2031

10.2 SSMP Audit Process

The City will conduct an internal audit of their SSMP every two years, and focus on the effectiveness of the SSMP and the City’s compliance with the SSMP requirements of Order No. WQ 2022-0103-DWQ. The audit will include, but may not be limited to, the following:

- Any significant changes to components of the SSMP.
- Any significant changes to the referenced documents, incorporated as attachments to the Sewer System Management Plan.
- SSMP implementation efforts over the past two years;
- A description of additions and improvements made the sanitary sewer collections system during the past two years;
- A description of the additions and improvements planned for the upcoming two years, with an estimated schedule for implementation.
- Strategies to correct deficiencies, if identified, will be developed by the responsible City division.

10.3 SSMP Audit Report

The findings from the SSMP audit are documented in an audit report. The audit report includes the following elements:

- Audit findings and recommended corrective actions;
- A statement that sewer system operators' input on the audit findings has been considered; and
- A proposed schedule to address identified deficiencies

Once the audit report is complete, a QC review of the audit report is performed, with a focus on consistency and completeness. The final audit report is reviewed by the City's LRO before final acceptance. Audit reports and related materials are maintained in a hard copy and an electronic document tracking and management system.

10.4 Audit Implementation and Tracking of Results

The SSMP program audit recommended corrective actions are incorporated into the annual budgeting and goal-setting process to provide the necessary resources to implement audit corrective actions and recommendations. Through that process, implementation progress is measured and reported on an ongoing basis to ensure timely completion of corrective actions. Deficiencies in meeting the schedule are identified or anticipated and mitigation measures developed and implemented to manage completion of the corrective actions from the audit. Each subsequent audit update begins with a review of the previous audit to determine if the corrective action remains relevant and, if so, to reiterate the program deficiency and recommended corrective action in the current SSMP audit report. As described in *Element 9 Monitoring, Measurement and Program Modifications*, identified program updates necessary to enhance SSMP effectiveness are included as a part of the following year's budgeting process and/or the formal SSMP program audit.



11 Communication Program

11.1 Procedures to Communicate with Public for Spills and Discharges

City of Glendale communicates with the public by posting warning signs on barricades along the area of potential public exposures. The Spill Emergency Response Plan includes the following protocol:

Post Community Warning Signs – If a spill is occurring where the public could possibly be exposed, post warning signs on barricades along the area of potential public exposure to sewage discharge.

11.2 Procedures to Provide Opportunities for Public Input on SSMP Development, Implementation and Update

The City will communicate on a regular basis with interested parties on the implementation and performance of this SSMP. The communication program allows interested parties to provide input as the program is developed and implemented. The City made a Draft version of the SSMP available to the public, allowed time for review, and invited public comments at a City Council meeting on April 29, 2025, thereby allowing for public input. Additionally, the City's website (www.glendaleca.gov) has an electronic copy of the SSMP including all appendices and includes a point of contact for the public to provide a continual means for collecting public input on the SSMP and SSMP implementation.

11.3 Procedures to Communicate with Collection Systems Connecting to City System

The City has contacts at each of the neighboring cities with connection to the City collection system and will contact these cities when issues become apparent. For example, since transferring oversight of FOG ordinance compliance to the Maintenance Services Division, the City has communicated with the City of Los Angeles regarding concerns about FOG introduced into Glendale's collection system at a location where Los Angeles' system connects to Glendale's at the Rock Glen Avenue at the 2 Freeway.

Attachment A1 – Governing Board Approval of the 2025 SSMP Update



Attachment A2 - State Water Resources Control Board General Order for Sanitary Sewer Systems, Order WQ 2022-0103-DWQ

STATE WATER RESOURCES CONTROL BOARD
1001 I Street, Sacramento, California 95814
ORDER WQ 2022-0103-DWQ
STATEWIDE WASTE DISCHARGE REQUIREMENTS
GENERAL ORDER FOR SANITARY SEWER SYSTEMS

This Order was adopted by the State Water Resources Control Board on December 6, 2022.

This Order shall become effective **180 days after the Adoption Date of this General Order**, on June 5, 2023.

The Enrollee shall comply with the requirements of this Order upon the Effective Date of this General Order.

This General Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, protect the Enrollee from liability under federal, state, or local laws, nor create a vested right for the Enrollee to continue the discharge of waste.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the State Water Board on December 6, 2022.

AYE: Chair E. Joaquin Esquivel
Vice Chair Dorene D'Adamo
Board Member Sean Maguire
Board Member Laurel Firestone
Board Member Nichole Morgan

NAY: None

ABSENT: None

ABSTAIN: None



Jeanine Townsend for
Clerk to the Board

STATEWIDE SANITARY SEWER SYSTEMS GENERAL ORDER

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STATEWIDE SANITARY SEWER SYSTEMS GENERAL ORDER

1. INTRODUCTION

This General Order regulates sanitary sewer systems designed to convey sewage. For the purpose of this Order, a sanitary sewer system includes, but is not limited to, pipes, valves, pump stations, manholes, siphons, wet wells, diversion structures and/or other pertinent infrastructure, upstream of a wastewater treatment plant headworks. A sanitary sewer system includes:

- Laterals owned and/or operated by the Enrollee;
- Satellite sewer systems; and/or
- Temporary conveyance and storage facilities, including but not limited to temporary piping, vaults, construction trenches, wet wells, impoundments, tanks and diversion structures.

Sewage is untreated or partially treated domestic, municipal, commercial and/or industrial waste (including sewage sludge), and any mixture of these wastes with inflow or infiltration of stormwater or groundwater, conveyed in a sanitary sewer system. Sewage contains high levels of suspended solids, non-digested organic waste, pathogenic bacteria, viruses, toxic pollutants, nutrients, oxygen-demanding organic compounds, oils, grease, pharmaceuticals, and other harmful pollutants.

For the purpose of this General Order, a spill is a discharge of sewage from any portion of a sanitary sewer system due to a sanitary sewer system overflow, operational failure, and/or infrastructure failure. Sewage and its associated wastewater spilled from a sanitary sewer system may threaten public health, beneficial uses of waters of the State, and the environment.

This General Order serves as statewide waste discharge requirements and supersedes the previous State Water Resources Control Board (State Water Board) Order 2006-0003-DWQ and amendments thereafter. All sections and attachments of this General Order are enforceable by the State Water Board and Regional Water Quality Control Boards (Regional Water Boards). Through this General Order, the State Water Board requires an Enrollee to:

- Comply with federal and state prohibitions of discharge of sewage to waters of the State, including federal waters of the United States;
- Comply with specifications, and notification, monitoring, reporting and recordkeeping requirements in this General Order that implement the federal Clean Water Act, the California Water Code (Water Code), water quality control plans (including Regional Water Board Basin Plans) and policies;
- Proactively operate and maintain resilient sanitary sewer systems to prevent spills;
- Eliminate discharges of sewage to waters of the State through effective implementation of a Sewer System Management Plan;
- Monitor, track, and analyze spills for ongoing system-specific performance improvements; and
- Report noncompliance with this General Order per reporting requirements.

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An Enrollee is a public, private, or other non-governmental entity that has obtained approval for regulatory coverage under this General Order, including:

- A state agency, municipality, special district, or other public entity that owns and/or operates one or more sanitary sewer systems:
 - greater than one (1) mile in length (each individual sanitary sewer system);
 - one (1) mile or less in length where the State Water Board or a Regional Water Board requires regulatory coverage under this Order; or
- A federal agency, private company, or other non-governmental entity that owns and/or operates a sanitary sewer system of any size where the State Water Board or a Regional Water Board requires regulatory coverage under this Order in response to a history of spills, proximity to surface water, or other factors supporting regulatory coverage.

For the purpose of this Order, a sanitary sewer system includes only systems owned and/or operated by the Enrollee.

2. REGULATORY COVERAGE AND APPLICATION REQUIREMENTS

2.1. Requirements for Continuation of Existing Regulatory Coverage

To continue regulatory coverage from previous Order 2006-0003-DWQ under this General Order, **within the 60-days-prior-to the Effective Date of this General Order**, the Legally Responsible Official of an existing Enrollee shall electronically certify the Continuation of Existing Regulatory Coverage form in the online California Integrated Water Quality System (CIWQS) Sanitary Sewer System Database. The Legally Responsible Official will receive an automated CIWQS-issued Notice of Applicability email, confirming continuation of regulatory coverage under this General Order. All regulatory coverage under previous Order 2006-0003-DWQ will cease on the Effective Date of this Order.

An Enrollee continuing existing regulatory coverage is not required to submit a new application package or pay an application fee for enrollment under this General Order. The annual fee due date for continued regulatory coverage from previous Order 2006-0003-DWQ to this General Order remains unchanged.

A previous Enrollee of Order 2006-0003-DWQ that fails to certify the Continuation of Existing Regulatory Coverage form in the online CIWQS database by the Effective Date of this Order is considered a New Applicant, and will not have regulatory coverage for its sanitary sewer system(s) until:

- A new application package for system(s) enrollment is submitted per section 2.2 (Requirements for New Regulatory Coverage) below; and
- The new application package is approved per section 2.2.2 (Approval of Application Package (For New Applicants Only)).

2.2. Requirements for New Regulatory Coverage

No later than 60 days prior to commencing and/or assuming operation and maintenance responsibilities of a sanitary sewer system, a duly authorized representative that

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maintains legal authority over the public or private sanitary sewer system is required to enroll under this General Order by submitting a complete application package as specified below and as provided in Attachment B (Application for Enrollment Form) of this General Order.

Unless required by a Regional Water Board, a public agency that owns a combined sewer system subject to the Combined Sewer Overflow Control Policy (33 U.S. Code § 1342(q)), is not required to enroll, under this Order, the portions of its sanitary sewer system(s) that collects combined sanitary wastewater and stormwater.

2.2.1. Application Package Requirements

The Application for Enrollment package for new applicants must include the following items:

- **Application for Enrollment Form.** The form in Attachment B of this General Order must be completed, signed, and certified by a Legally Responsible Official, in accordance with section 5.1 (Designation of a Legally Responsible Official) of this General Order. If an electronic Application for Enrollment form is available at the time of application, a new applicant shall submit its application form electronically; and
- **Application Fee.** A fee payable to the “State Water Resources Control Board” in accordance with the Fee Schedule in the California Code of Regulations, Title 23, section 2200, or subsequent fee regulations updates.

The application fee for this General Order is based on the sanitary sewer system’s threat to water quality and complexity designations of category 2C or 3C, which is assigned based on the population served by the system. The current Fee Schedule for sanitary sewer systems is listed under subdivision (a)(2) at the following website: [Fee Schedule](https://www.waterboards.ca.gov/resources/fees/water_quality/) (https://www.waterboards.ca.gov/resources/fees/water_quality/).

2.2.2. Approval of Application Package (For New Applicants Only)

The Deputy Director of the State Water Board, Division of Water Quality (Deputy Director) will consider approval of each complete Application for Enrollment package. The Deputy Director will issue a Notice of Applicability letter which serves as approved regulatory coverage for the new Enrollee.

If the submitted application package is not complete in accordance with section 2.2.1 (Application Package Requirements) of this General Order, the Deputy Director will send a response letter to the applicant outlining the application deficiencies. The applicant will have 60 days from the date of the response letter to correct the application deficiencies and submit the identified items necessary to complete the application package to the State Water Board.

2.2.3. Electronic Reporting Account for New Enrollee

Within 30 days after the date of the Approval of Complete Application Package for System Enrollment, a duly authorized representative for the Enrollee shall obtain a CIWQS Sanitary Sewer System Database user account by clicking the “User Registration” button and following the directions on the [CIWQS Login Page](#)

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(<https://ciwqs.waterboards.ca.gov>). If additional assistance is needed to establish an online CIWQS user account, contact State Water Board staff by email at CIWQS@waterboards.ca.gov. The online user account will provide the Enrollee secure access to the online CIWQS database for electronic reporting.

2.3. Regulatory Coverage Transfer

Regulatory coverage under this General Order is not transferable to any person or party except after an existing Enrollee submits a written request for a regulatory coverage transfer to the Deputy Director, at least 60 days in advance of any proposed system ownership transfer. The written request must include a written agreement between the existing Enrollee and the new Enrollee containing:

- Acknowledgement that the transfer of ownership is solely of an existing system with an existing waste discharge identification (WDID) number;
- The specific ownership transfer date in which the responsibility and regulatory coverage transfer between the existing Enrollee and the new Enrollee becomes effective; and
- Acknowledgement that the existing Enrollee is liable for violations occurring up to the ownership transfer date and that the new Enrollee is liable for violations occurring on and after the ownership transfer date.

The Deputy Director will consider approval of the written request. If approved, the Deputy Director will issue a Notice of Applicability letter which serves as an approved transfer of regulatory coverage to the new Enrollee.

3. FINDINGS

3.1. Legal Authorities

3.1.1. Federal and State Regulatory Authority

The objective of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the waters of the United States (33 U.S.C. 1251). The Water Code authorizes the State Water Board to implement the Clean Water Act in the State and to protect the quality of all waters of the State (Water Code sections 13000 and 13160).

3.1.2. Discharge of Sewage

A discharge of untreated or partially treated sewage is a discharge of waste as defined in Water Code section 13050(d) that could affect the quality of waters of the State and is subject to regulation by waste discharge requirements issued pursuant to Water Code section 13263 and Chapter 9, Division 3, Title 23 of the California Code of Regulations. A discharge of sewage may pollute and alter the quality of the waters of the State to a degree that unreasonably affects the beneficial uses of the receiving water body or facilities that serve those beneficial uses (Water Code section 13050(l)(1)).

3.1.3 Water Boards Authority to Require Technical Reports, Monitoring, and Reporting

Water Code sections 13267 and 13383 authorize the Regional Water Boards and the State Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. Water Code section 13267(b), authorizes the Regional Water Boards to “require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region... or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of water within its region shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires...In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.” Water Code section 13267(f) authorizes the State Water Board to require this information if it consults with the Regional Water Boards and determines that it will not duplicate the efforts of the Regional Water Boards. The State Water Board has consulted with the Regional Water Boards and made this determination.

The technical and monitoring reports required by this General Order and Attachment E (Notification, Monitoring, Reporting and Recordkeeping Requirements) are necessary to evaluate and ensure compliance with this General Order. The effort to develop required technical reports will vary depending on the system size and complexity and the needs of the specific technical report. The burden and cost of these reports are reasonable and consistent with the interest of the state in protecting water quality, which is the primary purpose of requiring the reports.

Water Code section 13383(a) authorizes the Water Boards to “establish monitoring, inspection, entry, reporting, and recordkeeping requirements... for any person who discharges, or proposes to discharge, to navigable waters, any person who introduces pollutants into a publicly owned treatment works, any person who owns or operates, or proposes to own or operate, a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes, or proposes to use or dispose, of sewage sludge.” Section 13383(b) continues, “the state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.”

Reporting of spills from privately owned sewer laterals and systems pursuant to section 5.15 (Voluntary Reporting of Spills from Privately-Owned Sewer Laterals and/or Private Sanitary Sewer Systems) of this General Order is authorized by Water Code section 13225(c) and encouraged by the State Water Board, wherein a local agency may investigate and report on any technical factors involved in water quality control provided the burden including costs of such reports bears a reasonable relationship to the need for the report and the benefits to be obtained therefrom. The burden of reporting private spills under section 5.15 (Voluntary Reporting of Spills from Privately-Owned Sewer Laterals and/or Private Sanitary Sewer Systems) is minimal and is outweighed by the benefit of providing Regional Water Boards an opportunity to respond to these spills

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when an Enrollee, which in many cases has a contractual relationship with the owner of the private system, has knowledge of the spills.

3.1.4. Water Board Authority to Prescribe General Waste Discharge Requirements

Water Code section 13263(i) provides that the State Water Board may prescribe general waste discharge requirements for a category of discharges if the State Water Board finds or determines that:

- The discharges are produced by the same or similar operations;
- The discharges involve the same or similar types of waste;
- The discharges require the same or similar treatment standards; and
- The discharges are more appropriately regulated under general waste discharge requirements than individual waste discharge requirements.

Since 2006, the State Water Board has been regulating over 1,100 publicly owned sanitary sewer systems (See section 3.1.5 (Previous Statewide General Waste Discharge Requirements) of this General Order). California also has a large unknown number of unregulated privately owned sanitary sewer systems. All waste conveyed in publicly owned and privately owned sanitary sewer systems (as defined in this General Order) is comprised of untreated or partially treated domestic waste and/or industrial waste. Generally, sanitary sewer systems are designed and operated to convey waste by gravity or under pressure; system-specific design elements and system-specific operations do not change the common nature of the waste, the common threat to public health, or the common impacts on water quality. Spills of waste from a sanitary sewer system prior to reaching the ultimate downstream treatment facility are unauthorized and enforceable by the State Water Board and/or a Regional Water Board. Therefore, spills from sanitary sewer systems are more appropriately regulated under general waste discharge requirements.

As specified in Water Code sections 13263(a) and 13241, the implementation of requirements set forth in this Order is for the reasonable protection of past, present, and probable future beneficial uses of water and the prevention of nuisance. The requirements implement the water quality control plans (Basin Plans) for each Regional Water Board and take into account the environmental characteristics of sewer service areas and hydrographic units within the state. Additionally, the State Water Board has considered water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality, costs associated with compliance with these requirements, the need for developing housing within California, and the need to protect sources of drinking water and other water supplies.

3.1.5. Previous Statewide General Waste Discharge Requirements

On May 2, 2006, the State Water Board adopted Order 2006-0003-DWQ serving as Waste Discharge Requirements pursuant to Article 4, Chapter 4, Division 7 of the Water Code (commencing with section 13260) for inadvertent discharges to waters of the State. Order 2006-0003-DWQ prohibited discharges of untreated or partially treated sewage. Order 2006-0003-DWQ also required system-specific management, operation, and maintenance of publicly owned sewer systems greater than one mile in length.

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To decrease the impacts on human health and the environment caused by sewage spills, the previous Order required enrollees to develop a rehabilitation and replacement plan that identifies system deficiencies and prioritizes short-term and long-term rehabilitation actions. The previous Order also required enrollees to:

1. Maintain information that can be used to establish and prioritize appropriate Sewer System Management Plan activities; and
2. Implement a proactive approach to reduce spills.

The previous Order required Sewer System Management Plan elements for “the proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management.”

On July 30, 2013, the State Water Board amended General Order 2006-0003-DWQ with Order WQ 2013-0058-EXEC, Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

Many enrollees of Order 2006-0003-DWQ have already implemented proactive measures to reduce sewage spills. Other enrollees, however, still need technical assistance and funding to improve sanitary sewer system operation and maintenance for the reduction of sewage spills.

3.1.6. Existing Memorandum of Agreement with California Water Environment Association

The California Water Environment Association is a nonprofit organization dedicated to providing water industry certifications, training, and networking opportunities. The Association’s Technical Certification Program provides accredited sanitary sewer system operator certification for collection system operators and maintenance workers.

On February 10, 2016, the State Water Board entered into a collaborative agreement with the Association titled *Memorandum of Agreement Between the California State Water Resources Control Board and the California Water Environment Association - Training Regarding Requirements Set Forth in Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*. The Memorandum sets forth collaborative training necessary for regulated sanitary sewer system personnel to operate and maintain a well operating system and ensure full compliance with statewide sewer system regulations.

On March 15, 2018, the State Water Board and the California Water Environment Association amended the existing Memorandum of Agreement to include collaborative outreach and expand training needs associated with further updates to Water Board regulations for sanitary sewer systems. The State Water Board encourages further Agreement updates as necessary to support improved sewer system operations and the professionalism of collection system operators.

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3.2. General

3.2.1. Waters of the State

Waters of the State include any surface water or groundwater, including saline waters, within the boundaries of the state as defined in Water Code section 13050(e), and are inclusive of waters of the United States.

3.2.2. Sanitary Sewer System Spill Threats to Public Health and Beneficial Uses

Sewage contains high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease and other pollutants. Sewage spills may cause a public nuisance, particularly when sewage is discharged to areas with high public exposure such as streets and surface waters used for drinking, irrigation, fishing, recreation, or other public consumption or contact uses.

More specifically, sanitary sewer spills may:

- Adversely affect aquatic life and/or threaten water quality when reaching receiving waters;
- Inadvertently release trash, including plastics;
- Impair the recreational use and aesthetic enjoyment of surface waters by polluting surface water or groundwater;
- Threaten public health through direct public exposure to bacteria, viruses, intestinal parasites, and other microorganisms that can cause serious illness such as gastroenteritis, hepatitis, cryptosporidiosis, and giardiasis;
- Negatively impact ecological receptors and biota within surface waters; and
- Cause nuisance including odors, closure of beaches and recreational areas, and property damage.

Sanitary sewer system spills may pollute receiving waters and threaten beneficial uses of surface water and groundwater. Potentially threatened beneficial uses include, but are not limited to the following (with associated acronym representations as included in statewide water quality control plans and Regional Water Boards' Basin Plans):

- Municipal and Domestic Supply (MUN)
- Water Contact Recreation (REC-1) and Non-Contact Water Recreation (REC-2)
- Cold Freshwater Habitat (COLD)
- Warm Freshwater Habitat (WARM)
- Native American Culture (CUL)
- Wildlife Habitat (WILD)
- Rare, Threatened, or Endangered Species (RARE)
- Spawning, Reproduction, and/or Early Development (SPWN)
- Wetland Habitat (WET)
- Agricultural Supply (AGR)
- Estuarine Habitat (EST)

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- Commercial and Sport Fishing (COMM)
- Subsistence Fishing (SUB)
- Tribal Tradition and Culture (CUL)
- Tribal Subsistence Fishing (T-SUB)
- Aquaculture (AQUA)
- Marine Habitat (MAR)
- Preservation of Biological Habitats of Special Significance (BIOL)
- Migration of Aquatic Organisms (MIGR)
- Shellfish Harvesting (SHELL)
- Industrial Process Supply (PROC)
- Industrial Service Supply (IND)
- Hydropower Generation (POW)
- Navigation (NAV)
- Flood Peak Attenuation/Flood Water Storage (FLD)
- Water Quality Enhancement (WQE)
- Fresh Water Replenishment (FRSH)
- Groundwater Recharge (GWR)
- Inland Saline Water Habitat (SAL)

3.2.3. Proactive Sanitary Sewer System Management to Eliminate Spill Causes

Finding 3 of the previous Order, 2006-0003-DWQ, states: “Sanitary sewer systems experience periodic failures resulting in discharges that may affect waters of the state. There are many factors (including factors related to geology, design, construction methods and materials, age of the system, population growth, and system operation and maintenance), which affect the likelihood of an SSO [sanitary sewer overflow]. A proactive approach that requires Enrollees to ensure a system-wide operation, maintenance, and management plan is in place will reduce the number and frequency of SSOs within the state. This approach will in turn decrease the risk to human health and the environment caused by SSOs.”

Many spills are preventable through proactive attention on sanitary sewer system management using the best practices and technologies available to address major causes of spills, including but not limited to:

- Blockages from sources including but not limited to:
 - Fats, oils and grease;
 - Tree roots;
 - Rags, wipes and other paper, cloth and plastic products; and
 - Sediment and debris.
- Sewer system damage and exceedance of sewer system hydraulic capacity from identified system-specific environmental, and climate-change impacts, including but not limited to:

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- Sea level rise impacts including flooding, coastal erosion, seawater intrusion, tidal inundation and submerged lands;
 - Increased surface water flows due to higher intensity rain events;
 - Flooding;
 - Wildfires and wildfire induced impacts;
 - Earthquake induced damage;
 - Landslides; and
 - Subsidence.
- Infrastructure deficiencies and failures, including but not limited to:
 - Pump station mechanical failures;
 - System age;
 - Construction material failures;
 - Manhole cover failures;
 - Structural failures; and
 - Lack of proper operation and maintenance.
- Insufficient system capacity (temporary or sustained), due to factors including but not limited to:
 - Excessive and/or increased storm or groundwater inflow/infiltration;
 - Insufficient capacity due to population increase and/or new connections from industrial, commercial and other system users; and
 - Stormwater capture projects utilizing a sanitary sewer system to convey stormwater to treatment facilities for reuse.
- Community impacts, including but not limited to:
 - Power outages;
 - Vandalism; and
 - Contractor-caused or other third party-caused damages.

3.2.4. Underground Sanitary Sewer System Leakage

Portions of some sanitary sewer systems may leak, causing underground exfiltration (exiting) of sewage from the system. Exfiltrated sewage that remains in the underground infrastructure trench and/or the soil matrix, and that does not discharge into waters of the State (surface water or groundwater) may not threaten beneficial uses.

Underground exfiltrated sewage may threaten beneficial uses if discharged to waters of the State. Exfiltrated sewage that discharges to groundwater may impact beneficial uses of groundwater and pollute groundwater supply. Additionally, if in close proximity, exfiltrated sewage may enter into a compromised underground drainage conveyance system that discharges into a water of the United States, or into groundwater that is hydrologically connected to (feeds into) a water of the United States, thus potentially causing: (1) a Clean Water Act violation, (2) threat and impact to beneficial uses, and/or (3) surface water pollution.

3.2.5. Proactive Sanitary Sewer System Management to Reduce Inflow and Infiltration

Excessive inflow (stormwater entering) and infiltration (groundwater seepage entering) to sanitary sewer systems is preventable through proactive sewer system management using the best practices and technologies available. The efficiency of the downstream wastewater treatment processes is dependent on the performance of the sanitary sewer system. When the structural integrity of a sanitary sewer system deteriorates, high volumes of inflow and infiltration can enter the sewer system. High levels of inflow and infiltration increase the hydraulic load on the downstream treatment plant, which can reduce treatment efficiency, lead to bypassing a portion of the treatment process, cause illegal discharge of partially treated effluent, or in extreme situations make biological treatment facilities inoperable (e.g., wash out the biological organisms that treat the waste).

3.3. Water Quality Control Plans, Policies and Resolutions

The nine Regional Water Boards have adopted region-specific water quality control plans (commonly referred to as Basin Plans) that designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives. The State Water Board has adopted statewide water quality control plans, policies and resolutions establishing statewide water quality objectives, implementation programs and initiatives.

3.3.1. State Water Board Antidegradation Policy

On October 28, 1968, the State Water Board adopted Resolution 68-16, titled Statement of Policy with Respect to Maintaining High Quality of Waters in California, which incorporates the federal antidegradation policy. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings.

The continued prohibition of sewage discharges from sanitary sewer systems into waters of the State aligns with Resolution 68-16. A sewage discharge from sanitary sewers to waters of the State is prohibited by this Order. Therefore, this Order does not allow degradation of waters of the State. In addition, this Order: (1) further expands the existing prohibition of sewage discharges to include waters of the State, in addition to waters of the United States as provided in previous Order 2006-0003-DWQ, and (2) enhances the ability for Water Board enforcement of violations of the established prohibitions.

3.3.2. State Water Board Sources of Drinking Water Policy

On May 19, 1988, the State Water Board adopted Resolution 88-63 (amended on February 1, 2006), titled Sources of Drinking Water, establishing state policy that all waters of the State, with certain exceptions, are suitable or potentially suitable for municipal or domestic supply.

3.3.3. State Water Board Cost of Compliance Resolution

On September 24, 2013, the State Water Board adopted Resolution 2013-0029, titled Directing Actions in Response to Efforts by Stakeholders on Reducing Costs of

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Compliance While Maintaining Water Quality Protection. Through this resolution, the State Water Board committed to continued stakeholder engagement in identifying and implementing measures to reduce costs of compliance with regulatory orders while maintaining water quality protection and improving regulatory program outcomes.

3.3.4. State Water Board Human Right to Water Resolution

On February 16, 2016, the State Water Board adopted Resolution 2016-0010, titled Adopting the Human Right to Water as a Core Value and Directing its Implementation in Water Board Programs and Activities, addressing the human right to water as a core value and directing Water Board programs to implement requirements to support safe drinking water for all Californians.

On November 16, 2021, the State Water Board adopted Resolution 2021-0050 titled Condemning Racism, Xenophobia, Bigotry, and Racial Injustice, and Strengthening Commitment to Racial Equity, Diversity, Inclusion, Access, and Anti-racism. Among other actions, through Resolution 2021-0050, the State Water Board, in summary as corresponding to this General Order, reaffirms its commitment to its Human Right to Water resolution, upholding that every human being in California deserves safe, clean, affordable, and accessible water for human consumption, cooking, and sanitation purposes. Resolution 2021-0050 provides the State Water Board commitment to:

- Protect public health and beneficial uses of waterbodies in all communities, including communities disproportionately burdened by wastes discharge of waste to land and surface water;
- Restore impaired surface waterbodies and degraded aquifers; and
- Promote multi-benefit water quality projects.

Through Resolution 2021-0050, the State Water Board also commits to expanding implementation of its Climate Change Resolution to address the disproportionate effects of extreme hydrologic conditions and sea-level rise on Black, Indigenous, and people of color communities, prioritizing:

- The right to safe, clean, affordable, and accessible drinking water and sanitation;
- Sustainable management and protection of local groundwater resources;
- Healthy watersheds; and
- Access to surface waterbodies that support subsistence fishing.

On June 7, 2022, the State Water Board adopted a Resolution, titled Authorizing the Executive Director or Designee to Enter into One or More Multi-Year Contracts Up to a Combined Sum of \$4,000,000 for a Statewide Wastewater Needs Assessment, supporting the equitable access to sanitation for all Californians and implementation of Resolutions 2016-0010 and 2021-0050.

This General Order supports the State Water Board priority in collecting a comprehensive set of data for California's wastewater systems, including sanitary sewer systems. Data reported per the requirements of this Order will be used with data from other Water Boards' programs, to further develop criteria and create a statewide risk

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framework to prioritize critical funding and infrastructure investments for California's most vulnerable populations, including disadvantaged or severely disadvantaged communities with inadequate or failing sanitation systems and threatened access to healthy drinking water supplies.

3.3.5. State Water Board Open Data Resolution

On July 10, 2018, the State Water Board adopted Resolution 2018-0032, titled Adopting Principles of Open Data as a Core Value and Directing Programs and Activities to Implement Strategic Actions to Improve Data Accessibility and Associated Innovation, directing regulatory programs to assure all monitoring and reporting requirements support the State Water Boards' Open Data Initiative.

3.3.6. State Water Board Response to Climate Change

On March 7, 2017, the State Water Board adopted Resolution 2017-0012, titled Comprehensive Response to Climate Change, requiring a proactive response to climate change in all California Water Board actions, with the intent to embed climate change consideration into all programs and activities.

3.4. California Environmental Quality Act

The adoption of this Order is an action to reissue general waste discharge requirements that is exempt from the California Environmental Quality Act (Public Resources Code section 21000 et seq.) because it is an action taken by a regulatory agency to assure the protection of the environment and the regulatory process involves procedures for protection of the environment (Cal. Code Regs., Title 14, section 15308). In addition, the action to adopt this Order is exempt from CEQA pursuant to Cal. Code Regs., Title 14, section 15301, to the extent that it applies to existing sanitary sewer collection systems that constitute "existing facilities" as that term is used in sections 15301 and 15302, to the extent that it results in the repair or replacement of existing systems involving negligible or no expansion of capacity.

3.5. State Water Board Funding Assistance for Compliance with Water Board Water Quality Orders

The State Water Board, Division of Financial Assistance administers the implementation of the State Water Board financial assistance programs, per Board-adopted funding policies. Among other funding areas, the Division administers loan and grant funding for the planning and construction of wastewater and water recycling facilities per funding program-specific policies and guidelines. Applicants may apply for Clean Water State Revolving Fund low-interest loan, Small Community Wastewater grant funding assistance, and other funding available at the time of application, for some of the costs associated with complying with this General Order.

Funding applicants may obtain further information regarding current funding opportunities, and Division of Financial Assistance staff contact information at the following website: [Financial Assistance Funding - Grants and Loans | California State Water Resources Control Board](https://www.waterboards.ca.gov/water_issues/programs/grants_loans/).

(https://www.waterboards.ca.gov/water_issues/programs/grants_loans/)

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Section 13477.6 of the Water Code authorizes the Small Community Grant Fund. The Small Community Grant Fund allows the State Water Board to provide grant funding assistance to small, disadvantaged communities and small severely disadvantaged communities that may not otherwise be able to afford a loan or similar financing for projects to comply with requirements of this General Order. The State Water Board also considers loan forgiveness on a disadvantaged community-specific basis.

For disadvantaged communities' wastewater needs, the State Water Board places priority on the funding of projects that address:

- Public health;
- Violations of waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permits;
- Providing sewer system service to existing septic tank owners; and
- High priority public health and water quality concerns identified by a Regional Water Board.

3.6. Notification to Interested Parties

On January 31, 2022, the State Water Board notified interested parties and persons of its intent to reissue Sanitary Sewer Systems General Order 2006-0003-DWQ by issuing a draft General Order for a 60-day public comment period. State Water Board staff conducted extensive stakeholder outreach and encouraged public participation in the adoption process for this General Order. On March 15, 2022, the State Water Board held a public meeting to hear and consider oral public comments. The State Water Board considered all public comments prior to adopting this General Order.

THEREFORE, IT IS HEREBY ORDERED, that pursuant to Water Code sections 13263, 13267, and 13383 this General Order supersedes Order 2006-0003-DWQ, Order WQ 2013-0058-EXEC, and any amendments made to these Orders thereafter, except for enforcement purposes and to meet the provisions contained in Division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, the Enrollee shall comply with the requirements in this Order.

4. PROHIBITIONS

4.1 Discharge of Sewage from a Sanitary Sewer System

Any discharge from a sanitary sewer system that has the potential to discharge to surface waters of the State is prohibited unless it is promptly cleaned up and reported as required in this General Order.

4.2 Discharge of Sewage to Waters of the State

Any discharge from a sanitary sewer system, discharged directly or indirectly through a drainage conveyance system or other route, to waters of the State is prohibited.

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4.3. Discharge of Sewage Creating a Nuisance

Any discharge from a sanitary sewer system that creates a nuisance or condition of pollution as defined in Water Code section 13050(m) is prohibited.

5. SPECIFICATIONS

5.1. Designation of a Legally Responsible Official

The Enrollee shall designate a Legally Responsible Official that has authority to ensure the enrolled sanitary sewer system(s) complies with this Order, and is authorized to serve as a duly authorized representative. The Legally Responsible Official must have responsibility over management of the Enrollee's entire sanitary sewer system, and must be authorized to make managerial decisions that govern the operation of the sanitary sewer system, including having the explicit or implicit duty of making major capital improvement recommendations to ensure long-term environmental compliance. The Legally Responsible Official must have or have direct authority over individuals that:

- Possess a recognized degree or certificate related to operations and maintenance of sanitary sewer systems, and/or
- Have professional training and experience related to the management of sanitary sewer systems, demonstrated through extensive knowledge, training and experience.

For example, a sewer system superintendent or manager, an operations manager, a public utilities manager or director, or a district engineer may be designated as a Legally Responsible Official.

The Legally Responsible Official shall complete the electronic [CIWQS "User Registration" form](https://ciwqs.waterboards.ca.gov/ciwqs/newUser.jsp) (<https://ciwqs.waterboards.ca.gov/ciwqs/newUser.jsp>). A Legally Responsible Official that represents multiple enrolled systems shall complete the electronic CIWQS "User Registration" form for each system.

The Enrollee shall submit any change to its Legally Responsible Official, and/or change in contact information, to the State Water Board within 30 calendar days of the change by emailing ciwqs@waterboards.ca.gov and copying the appropriate Regional Water Board as provided in Attachment F (Regional Water Quality Control Board Contact Information) of this General Order.

5.2. Sewer System Management Plan Development and Implementation

To facilitate adequate local funding and management of its sanitary sewer system(s), the Enrollee shall develop and implement an updated Sewer System Management Plan. The scale and complexity of the Sewer System Management Plan, and specific elements of the Plan, must match the size, scale and complexity of the Enrollee's sanitary sewer system(s). The Sewer System Management Plan must address, at minimum, the required Plan elements in Attachment D (Sewer System Management Plan – Required Elements) of this General Order. To be effective, the Sewer System Management Plan must include procedures for the management, operation, and maintenance of the sanitary sewer system(s). The procedures must: (1) incorporate the

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prioritization of system repairs and maintenance to proactively prevent spills, and (2) address the implementation of current standard industry practices through available equipment, technologies, and strategies.

For an existing Enrollee under Order 2006-0003-DWQ that has certified its Continuation of Existing Regulatory Coverage, per section 2.1 (Requirements for Continuation of Existing Regulatory Coverage) of this General Order:

Within six (6) months of the Adoption Date of this General Order:

- The Legally Responsible Official shall upload the Enrollee's existing Sewer System Management Plan to the online CIWQS Sanitary Sewer System Database.

For a new Enrollee:

Within twelve (12) months of the Application for Enrollment approval date:

- The governing entity of the new Enrollee shall approve its Sewer System Management Plan; and
- The Legally Responsible Official shall certify and upload its Sewer System Management Plan to the online CIWQS Sanitary Sewer System Database.

5.3. Certification of Sewer System Management Plan and Plan Updates

The Legally Responsible Official shall certify and upload its Sewer System Management Plan and all subsequent updates to the online CIWQS Sanitary Sewer System Database.

5.4. Sewer System Management Plan Audits

The Enrollee shall conduct an internal audit of its Sewer System Management Plan, and implementation of its Plan, at a minimum frequency of once every three years. The audit must be conducted for the period after the end of the Enrollee's last required audit period. **Within six months after the end of the required 3-year audit period**, the Legally Responsible Official shall submit an audit report into the online CIWQS Sanitary Sewer System Database per the requirements in section 3.10 (Sewer System Management Plan Audit Reporting Requirements) of Attachment E1 of this General Order.

Audit reports submitted to the CIWQS Sanitary Sewer System Database will be viewable only to Water Boards staff.

The internal audit shall be appropriately scaled to the size of the system(s) and the number of spills. The Enrollee's sewer system operators must be involved in completing the audit. At minimum, the audit must:

- Evaluate the implementation and effectiveness of the Enrollee's Sewer System Management Plan in preventing spills;
- Evaluate the Enrollee's compliance with this General Order;
- Identify Sewer System Management Plan deficiencies in addressing ongoing spills and discharges to waters of the State; and

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- Identify necessary modifications to the Sewer System Management Plan to correct deficiencies.

The Enrollee shall submit a complete audit report that includes:

- Audit findings and recommended corrective actions;
- A statement that sewer system operators' input on the audit findings has been considered; and
- A proposed schedule for the Enrollee to address the identified deficiencies.

A new Enrollee of this General Order (that did not have a sanitary sewer system enrolled in the previous State Water Board Order 2006-0003-DWQ) shall conduct its first internal Sewer System Management Plan audit for the time period between the date of submittal of its certified Sewer System Management Plan and the third subsequent December 31st date. The audit report must be submitted into the online CIWQS Sanitary Sewer System Database **by July 1 of the following calendar year.**

See the following tables for clarification:

Initial Audit Period and Audit Due Date for New Enrollees

	Audit Period	Audit Due Date
New Enrollee	Certified Sewer System Management Plan Submittal Date through the third subsequent December 31 st date	July 1 st date after audit period
<i>Example</i>	<i>Certified Sewer System Management Plan Submittal Date of August 2, 2025 Audit Period of August 2, 2025 through December 31, 2027</i>	<i>July 1, 2028</i>

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Initial Audit Period for Transition from 2-Year Audit Required in Previous Order 2006-0003-DWQ to 3-Year Audit Required in this General Order

	Audit Period	Audit Due Date
An Enrollee previously regulated by Order 2006-003-DWQ	A 3-year period starting from the end of last required 2-year Audit Period	Within six months after end of 3-year Audit Period
<i>Example</i>	<i>Last required Audit Period start date of August 2, 2021; Audit Period of August 2, 2021 through August 1, 2024</i>	<i>February 1, 2025</i>

Three-Year Ongoing Audit Period

	Audit Period	Audit Due Date
Each Enrollee	A 3-year period starting from the end of last required Audit Period	Within six months after end of 3-year Audit Period

5.5. Six-Year Sewer System Management Plan Update

At a minimum, the Enrollee shall update its Sewer System Management Plan every six (6) years after the date of its last Plan Update due date. (For an Enrollee previously regulated by Order 2006-0003-DWQ, the six-year period shall commence on the due date identified in section 3.11 of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this Order. The Updated Sewer System Management Plan must include:

- Elements required in Attachment D (Sewer System Management Plan – Required Elements) of this Order;
- Summary of revisions included in the Plan update based on internal audit findings; and
- Other sewer system management-related changes.

The Enrollee's governing entity shall approve the updated Plan. The Legally Responsible Official shall upload and certify the approved updated Plan in the online CIWQS Sanitary Sewer System Database in accordance with section 3.11 (Sewer System Management Plan Reporting Requirements) of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order. During the time period in between Plan updates, the Enrollee shall continuously document changes to its Sewer System Management Plan in a change log attached to the Plan.

5.6. System Resilience

The Enrollee shall include and implement system-specific procedures in its Sewer System Management Plan to proactively prioritize: (1) operation and maintenance, (2) condition assessments, and (3) repair and rehabilitation, to address ongoing system resilience, as specified in Attachment D (Sewer System Management Plan – Required Elements) of this General Order.

5.7. Allocation of Resources

The Enrollee shall:

- Establish and maintain a means to manage all necessary revenues and expenditures related to the sanitary sewer system; and
- Allocate the necessary resources to its sewer system management program for:
 - Compliance with this General Order,
 - Full implementation of its updated Sewer System Management Plan,
 - System operation, maintenance, and repair, and
 - Spill responses.

5.8. Designation of Data Submitters

The Legally Responsible Official may designate one or more individuals as a Data Submitter for reporting of spill data. The Legally Responsible Official shall authorize the designation of Data Submitter(s) through the online [CIWQS database](https://ciwqs.waterboards.ca.gov) (<https://ciwqs.waterboards.ca.gov>) prior to the individuals establishing a [CIWQS user account](https://ciwqs.waterboards.ca.gov/ciwqs/newUser.jsp) (<https://ciwqs.waterboards.ca.gov/ciwqs/newUser.jsp>) and entering spill data into the online CIWQS Sanitary Sewer System Database.

The Legally Responsible Official shall submit any change to its Data Submitter(s), and/or change in Data Submitter contact information, to the State Water Board within 30 calendar days of the change, by emailing ciwqs@waterboards.ca.gov and copying the appropriate Regional Water Board as provided in Attachment F (Regional Water Quality Control Board Contact Information) of this General Order.

5.9. Reporting Certification

The Legally Responsible Official shall electronically certify, on the Enrollee's behalf, all applications, reports, the Sewer System Management Plan(s) and corresponding updates, and other information submitted electronically into the online CIWQS Sanitary Sewer System Database, as follows:

"I certify under penalty of perjury under the laws of the State of California that the electronically submitted information was prepared under my direction or supervision. Based on my inquiry of the person(s) directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete, and complies with the Statewide Sanitary Sewer Systems General Order. I am aware that there are significant penalties for submitting false information."

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Hardcopy submittals to the State Water Board must be accompanied by the above certification statement.

5.10. System Capacity

The Enrollee shall maintain the system capacity necessary to convey: (1) base flows during dry weather conditions, and (2) wet weather peak flows consistent with designated local historic storms. Design storms must take into account system-specific stormwater contributions via inflow and infiltration, and location-specific depth of groundwater and storm frequencies. The Enrollee shall implement capital improvements to provide adequate hydraulic capacity to:

- Meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance element of its Sewer System Management Plan; and
- Prevent system capacity-related spills, and adverse impacts to the treatment efficiency of downstream wastewater treatment facilities.

5.11. System Performance Analysis

The Enrollee shall include a running 10-year system performance analysis in its Annual Report. The analysis must include two CIWQS-generated graphs presenting the following information:

Graph 1 – Total Spill Volume per Year:

X axis: A 10-year period which includes the current calendar year and the nine previous calendar years;

Y axis: The total spill volume, per Spill Category, for each calendar year.

Graph 2 – Total Number of Spills per Year:

X axis: A 10-year period which includes the current calendar year and the nine previous calendar years;

Y axis: The total number of spills, per Spill Category, for each calendar year.

The current calendar year is the calendar year covered in the Annual Report.

The Enrollee shall generate the graphs in CIWQS, using the existing data in the online CIWQS Sanitary Sewer System Database at the following graph generation link: (https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=sso_operation_report).

5.12. Spill Emergency Response Plan and Remedial Actions

For Existing Enrollees (with regulatory coverage under Order 2006-0003-DWQ):

Within six (6) months of the Adoption Date of this General Order, the Enrollee shall update and implement its Spill Emergency Response Plan, per Attachment D, section 6 (Spill Emergency Response Plan) of this General Order.

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For New Enrollees:

Within six (6) months of the Application for Enrollment approval date, the Enrollee shall develop and implement a Spill Emergency Response Plan, per Attachment D, section 6 (Spill Emergency Response Plan) of this General Order.

The Enrollee shall certify, in its Annual Report, that its Spill Emergency Response Plan is up to date.

The Spill Emergency Response Plan shall include measures to protect public health and the environment. The Enrollee shall respond to spills from its system(s) in a timely manner that minimizes water quality impacts and nuisance by:

- Immediately stopping the spill and preventing/minimizing a discharge to waters of the State;
- Intercepting sewage flows to prevent/minimize spill volume discharged into waters of the State;
- Thoroughly recovering, cleaning up and disposing of sewage and wash down water; and
- Cleaning publicly accessible areas while preventing toxic discharges to waters of the State.

5.13. Notification, Monitoring, Reporting and Recordkeeping Requirements

The Enrollee shall comply with notification, monitoring, reporting, and recordkeeping requirements in Attachment E1 of this General Order.

5.13.1. Spill Categories

Individual spill notification, monitoring and reporting must be in accordance with the following spill categories:

- **Category 1 Spill**

A Category 1 spill is a spill of any volume of sewage from or caused by a sanitary sewer system regulated under this General Order that results in a discharge to:

- A surface water, including a surface water body that contains no flow or volume of water; or
- A drainage conveyance system that discharges to surface waters when the sewage is not fully captured and returned to the sanitary sewer system or disposed of properly.

Any spill volume not recovered from a drainage conveyance system is considered a discharge to surface water, unless the drainage conveyance system discharges to a dedicated stormwater infiltration basin or facility.

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A spill from an Enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill; the Enrollee shall report all Category 1 spills per section 3.1 of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order.

- **Category 2 Spill**

A Category 2 spill is a spill of 1,000 gallons or greater, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

A spill of 1,000 gallons or greater that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system, is a Category 2 spill.

- **Category 3 Spill**

A Category 3 spill is a spill of equal to or greater than 50 gallons and less than 1,000 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

A spill of equal to or greater than 50 gallons and less than 1,000 gallons, that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 3 spill.

- **Category 4 Spill**

A Category 4 spill is a spill of less than 50 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.

A spill of less than 50 gallons that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 4 spill.

5.13.2. Annual Report

The Enrollee shall submit an Annual Report (previously termed as Collection System Questionnaire in Order 2006-0003-DWQ) as specified in section 3.9 (Annual Report) of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order.

For new Enrollees: Within 30 days of obtaining a CIWQS account, a new Enrollee shall submit its initial Annual Report, as specified in section 3.9 (Annual Report) of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order.

5.14. Electronic Sanitary Sewer System Service Area Boundary Map

For continuing enrollees, starting on July 1, 2025, and no later than December 31, 2025:

For new enrollees – no earlier than July 1, 2025, or within 12 months of the Application for Enrollment approval date, whichever date is later:

The Legally Responsible Official shall submit, to the State Water Board, geospatial data detailing the locations of the Enrollee's sanitary sewer system service area boundary, per the required content and specifications in section 3.8 (Electronic Sanitary Sewer System Service Area Boundary Map) of Attachment E1 of this General Order, for each system identified by a WDID number.

An Enrollee of a disadvantaged community that may need assistance developing an electronic map to comply with this requirement, may contact State Water Board staff for assistance at SanitarySewer@waterboards.ca.gov.

5.15. Voluntary Reporting of Spills from Privately-Owned Sewer Laterals and/or Private Sanitary Sewer Systems

Within 24 hours of becoming aware of a spill (as described below) from a private sewer lateral or private sanitary sewer system that is not owned/operated by the Enrollee, the Enrollee is encouraged to report the following observations to the online CIWQS Sanitary Sewer System Database at the following link:

<https://ciwqs.waterboards.ca.gov>:

- A spill equal or greater than 1,000 gallons that discharges (or has a potential to discharge) to a water of the State, or a drainage conveyance system that discharges to waters of the State; **or**
- Any volume of sewage that discharges (or has a potential to discharge) to surface waters.

In the CIWQS module, the Enrollee is encouraged to identify:

- Time of observation;
- Description of general spill location (for example, street name and cross street names);
- Estimated volume of spill;
- If known, general description of spill destination (for example, flowing into drainage channel, flowing directly into a creek, etc.); and
- If known, name of private system owner/operator.

The CIWQS database will make the name and contact information of the entity voluntarily reporting a private spill, accessible to State and Regional Water Board staff only. The CIWQS database will only make information regarding the actual spill, accessible to the public.

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5.16. Voluntary Notification of Spills from Privately-Owned Laterals and/or Systems to the California Office of Emergency Services

Upon observing or acquiring knowledge of any of the following from a private sewer lateral or private sanitary sewer system that is not owned/operated by the Enrollee, the Enrollee is encouraged to notify the California Office of Emergency Services (as provided by Health and Safety Code section 5410 et. seq. and Water Code section 13271), or inform the responsible party that State law requires such notification to the Office of Emergency Services by any person that causes or allows a sewage discharge to waters of the State:

- A spill equal to 1,000 gallons or more that discharges (or has a potential to discharge) to waters of the State, or a drainage conveyance system that discharges to waters of the State; or
- A spill of any volume to surface waters.

5.17. Unintended Failure to Report

If an Enrollee becomes aware that they unintentionally failed to submit relevant facts in any report required in this General Order, the Enrollee shall promptly notify Regional Water Board and State Water Board staff. Regional Water Board contact information is included in Attachment F of this Order. State Water Board staff shall be contacted by email at SanitarySewer@waterboards.ca.gov for assistance in formally amending the corresponding report(s) in the online CIWQS Sanitary Sewer System Database.

5.18. Duty to Report to Water Boards

In accordance with Water Code section 13267 and/or section 13383, upon request by the State Water Board Executive Director (or designee) or a Regional Water Board Executive Officer (or designee), the Enrollee shall provide the requested information which the State or Regional Water Board deems necessary to determine compliance with this General Order.

5.19. Operation and Maintenance

To prevent discharges to the environment, the Enrollee shall maintain in good working order, and operate as designed, any facility or treatment and control system designed to contain sewage and convey it to a treatment plant.

6. PROVISIONS

6.1. Enforcement Provisions

The following enforcement provisions are based on existing federal and state regulations, laws and policies, including the federal Clean Water Act, the state Water Code and the State Water Board Enforcement Policy.

6.1.1. Enforceability of Clean Water Act and Water Code Violations

Noncompliance with requirements of this General Order or discharging sewage without enrolling in this General Order constitutes a violation of the Water Code and a potential

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violation of the Clean Water Act and is grounds for an enforcement action by the State Water Board or the applicable Regional Water Board. Failure to comply with the notification, monitoring, inspection, entry, reporting, and recordkeeping requirements may subject the Enrollee to administrative civil liabilities of up to \$10,000 a day per violation pursuant to Water Code section 13385; up to \$1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement. Discharging waste not in compliance with the requirements of this General Order or the Clean Water Act may subject the Enrollee to administrative civil liabilities up to \$10,000 a day per violation and additional liability up to \$10 per gallon of discharge not cleaned up after the first 1,000 gallons of discharge; up to \$5,000 a day per violation pursuant to Water Code section 13350 or up to \$20 per gallon of waste discharged; or referral to the Attorney General for judicial civil enforcement.

6.1.2. Monetary Penalties

The Water Code provides the State and Regional Water Boards the authority to pursue formal enforcement actions, including imposing administrative liability and civil monetary penalties, for non-compliance with the requirements of this General Order and violations of the Clean Water Act.

6.1.3. Falsifying or Failure to Report

The Water Code provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this General Order, or falsifying any information provided in the technical or monitoring reports is subject to administrative liability and civil monetary penalties. Any person who knowingly fails or refuses to furnish technical or monitoring program reports or falsifies any information provided in reports required by this General Order is subject to criminal penalties.

6.1.4. Severability of General Order

The provisions of this General Order are severable; if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.

6.1.5. Indirect Discharges

In the event that a spill enters into a drainage conveyance system, the Enrollee shall take all feasible steps to prevent discharge of sewage into waters of the State by blocking or redirecting the flow in the drainage conveyance system, removing the sewage from the drainage conveyance system, and cleaning the system in a manner that does not inadvertently impact beneficial uses of the receiving water body.

6.1.6. Water Boards' Considerations for Discretionary Enforcement

Consistent with the State Water Board Enforcement Policy, when considering Water Code section 13327 factors, the State Water Board or a Regional Water Board may consider the Enrollee's efforts to contain, control, clean up, and mitigate spills. In assessing the factors, the State Water Board or the applicable Regional Water Board will consider:

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- The Enrollee's compliance with this General Order with a focus on compliance with reporting requirements;
- The Enrollee's provision of adequate funding to implement the requirements of this General Order;
- The Enrollee's compliance with providing a complete and updated Sewer System Management Plan;
- The Enrollee's compliance with implementing its Sewer System Management Plan;
- The overall effectiveness of the Enrollee's Sewer System Management Plan with respect to:
 - System management, operation, and maintenance,
 - Adequate treatment facilities, sanitary sewer system facilities, and/or components with an appropriate design capacity, to reasonably prevent spills (e.g. adequately enlarging treatment or collection facilities to accommodate growth, infiltration and inflow, etc.),
 - Preventive maintenance (including cleaning, root grinding, and fats, oils, and grease control) and source control measures,
 - Implementation of backup equipment,
 - Inflow and infiltration prevention and control,
 - Appropriate sanitary sewer system capacity to prevent spills, and
 - The Enrollee's responsiveness to stop and mitigate the impact of the discharge;
- The Enrollee's compliance with identifying the cause of the spill;
- The Enrollee's use of available information and observations to accurately estimate the spill volume and identify the affected or potentially affected receiving waters;
- The Enrollee's thoroughness of cleaning up sewage in drainage conveyance systems after the spill(s);
- The Enrollee's use of water quality and biological monitoring and assessment to determine the short-term and long-term impacts to beneficial uses and the environment;
- The Enrollee's follow up actions to improve system performance;
- The Enrollee's implementation of feasible alternatives to prevent spills, such as:
 - Use of temporary storage or waste retention,
 - Reduction of system inflow and infiltration,
 - Collection and hauling of waste to a treatment facility,
 - Prevention of and/ or containment of spills due to a design storm event identified in the Enrollee's Sewer System Management Plan,

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- Implementation of available equipment, technologies, strategies, and recommended industry practices for maintaining and managing sewer systems to prevent spills, and contain and eliminate discharges to waters of the State; and
- The spill duration and factors beyond the reasonable control of the Enrollee causing the event.

6.1.7. Enforcement Discretion Based on Reporting Compliance

Consistent with the State Water Board Enforcement Policy, the State Water Board or a Regional Water Board may consider the Enrollee's efforts to comply with spill reporting requirements when determining compliance with Water Code section 13267 and section 13383. When assessing Water Code section 13227 factors, the State Water Board or the applicable Regional Water Board will consider:

- The Enrollee's diligence to comply with all reporting requirements in this General Order;
- The use of best available information for the Enrollee's reporting of spill start date and start time in which the release of sewage from the sanitary sewer system initiated;
- The Enrollee's reporting of spill end date, and end time to be the date and time in which the release of sewage from the sanitary sewer system was stopped;
- The Enrollee's diligence to accurately estimate and report spill volumes;
- The Enrollee's subsequent verification and/or updates to initial Draft Spill Reports in accordance with this General Order; and
- The Enrollee's timely certification of required spill reports.

Consistent with Water Code section 13267 and section 13383, the State Water Board or a Regional Water Board may require an Enrollee to report the results of a condition assessment of a specified portion of the Enrollee's sanitary sewer system.

6.2. Other Regional Water Board Orders

It is the intent of the State Water Board that sanitary sewer systems be regulated in a manner consistent with federal and state regulations. This Order will not be interpreted or applied:

- In a manner inconsistent with the federal Clean Water Act;
- To authorize a spill or discharge that is illegal under either the Clean Water Act, the Water Code, and/or an applicable Basin Plan prohibition or water quality standard;
- To prohibit a Regional Water Board from issuing an individual National Pollutant Discharge Elimination System (NPDES) permit or individual waste discharge requirements superseding an Enrollee's regulatory coverage under this General Order for a sanitary sewer system authorized under the Clean Water Act or Water Code;

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- To supersede any more specific or more stringent waste discharge requirements or enforcement orders issued by a Regional Water Board; or
- To supersede any more specific or more stringent state or federal requirements in existing regulation, an administrative/judicial order, or Consent Decree.

6.3. Sewer System Management Plan Availability

The Enrollee's updated Sewer System Management Plan must be maintained for public inspection at the Enrollee's offices and facilities and must be available to the public through CIWQS and/or on the Enrollee's website, in accordance with section 3.8 (Sewer System Management Plan Reporting Requirements) of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order.

6.4. Entry and Inspection

6.4.1. Entry and Availability of Information

The Enrollee shall allow State and Regional Water Board staff, upon presentation of credentials and other documents as may be required by law, to:

- Enter upon the Enrollee's premises where a regulated facility or activity is located or conducted, or where records are kept under the requirements of this General Order;
- Have access to and reproduce any records required to be maintained by this General Order;
- Inspect any facility and/or equipment (including monitoring and control equipment), practices, or operations required in this General Order; and
- Sample or monitor substances or parameters for assuring compliance with this General Order, or as otherwise authorized by the Water Code.

6.4.2. Pre-Inspection Questionnaire

The Enrollee shall provide pre-inspection information to State and Regional Water Board staff through the completion of a Pre-Inspection Questionnaire provided by Water Board staff.

ATTACHMENT A - DEFINITIONS

Annual Report

An Annual Report (previously termed as Collection System Questionnaire in Order 2006-0003-DWQ) is a mandatory report in which the Enrollee provides a calendar-year update of its efforts to prevent spills.

Basin Plan

A Basin Plan is a water quality control plan specific to a Regional Water Quality Control Board (Regional Water Board), that serves as regulations to: (1) define and designate beneficial uses of surface and groundwaters, (2) establish water quality objectives for protection of beneficial uses, and (3) provide implementation measures.

Beneficial Uses

The term “Beneficial Uses” is a Water Code term, defined as the uses of the waters of the State that may be protected against water quality degradation. Examples of beneficial uses include but are not limited to, municipal, domestic, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

California Integrated Water Quality System (CIWQS)

CIWQS is the statewide database that provides for mandatory electronic reporting as required in State and Regional Water Board-issued waste discharge requirements.

Data Submitter

A Data Submitter is an individual designated and authorized by the Enrollee's Legally Responsible Official to enter spill data into the online CIWQS Sanitary Sewer System Database. A Data Submitter does not have the authority of a Legally Responsible Official to certify reporting entered into the online CIWQS Sanitary Sewer System Database.

Disadvantaged Community

A disadvantaged community is a community with a median household income of less than eighty percent (80%) of the statewide annual median household income.

For the purpose of this General Order, there is no differentiation between a small and large disadvantaged community.

Drainage Conveyance System

A drainage conveyance system is a publicly- or privately-owned separate storm sewer system, including but not limited to drainage canals, channels, pipelines, pump stations, detention basins, infiltration basins/facilities, or other facilities constructed to transport stormwater and non-stormwater flows.

Enrollee

An Enrollee is a public, private, or other non-governmental entity that has obtained approval for regulatory coverage under this General Order, including:

- A state agency, municipality, special district, or other public entity that owns and/or operates one or more sanitary sewer systems:
 - greater than one (1) mile in length (each individual sanitary sewer system);
 - one mile or less in length where the State Water Resources Control Board or a Regional Water Quality Control Board requires regulatory coverage under this Order, or
- A federal agency, private company, or other non-governmental entity that owns and/or operates a sanitary sewer system of any size where the State Water Resources Control Board or a Regional Water Quality Control Board requires regulatory coverage under this Order in response to a history of spills, proximity to surface water, or other factors supporting regulatory coverage.

Environmentally Sensitive Area

An environmentally sensitive area is a designated agricultural and/or wildlife area identified to need special natural landscape protection due to its wildlife or historical value.

Exfiltration

Exfiltration is the underground exiting of sewage from a sanitary sewer system through cracks, offset or separated joints, or failed infrastructure due to corrosion or other factors.

Flood Control Channel

A flood control channel is a channel used to convey stormwater and non-stormwater flows through and from areas for flood management purposes.

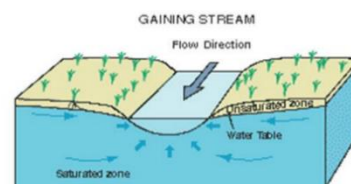
Governing Entity

A governing entity includes but is not limited to the following:

- A publicly elected governing board, council, or commission of a municipal agency;
- A Department or Division director of a federal or state agency that is not governed by a board;
- A governing board or commission of an organization or association; and
- A private system owner/manager that is not governed by a board.

Hydrologically Connected

Two waterbodies are hydrologically connected when one waterbody flows, or has the potential to flow, into the other waterbody. For the purpose of this General Order, groundwater is hydrologically connected to a surface water when the groundwater feeds into the surface water. (The surface waterbody in this example is termed a gaining stream as it gains flow from surrounding groundwater.)



Lateral (including Lower and Upper Lateral)

A lateral is an underground segment of smaller diameter pipe that transports sewage from a customer's building or property (residential, commercial, or industrial) to the Enrollee's main sewer line in a street or easement. Upper and lower lateral boundary definitions are subject to local jurisdictional codes and ordinances, or private system ownership.

A lower lateral is the portion of the lateral located between the sanitary sewer system main, and either the property line, sewer clean out, curb line, established utility easement boundary, or other jurisdictional locations.

An upper lateral is the portion of the lateral from the property line, sewer clean out, curb line, established utility easement boundary, or other jurisdictional locations, to the building or property.

Legally Responsible Official

A Legally Responsible Official is an official representative, designated by the Enrollee, with authority to sign and certify submitted information and documents required by this General Order.

Nuisance

For the purpose of this General Order, a nuisance, as defined in Water Code section 13050(m), is anything that meets all of the following requirements:

- Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property;
- Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and
- Occurs during, or as a result of, the treatment or disposal of wastes.

Private Sewer Lateral

A private sewer lateral is the privately-owned lateral that transports sewage from private property(ies) into a sanitary sewer system.

Private Sanitary Sewer System

A private sanitary sewer system is a sanitary sewer system of any size that is owned and/or operated by a private individual, company, corporation, or organization. A private sanitary sewer system may or may not connect into a publicly owned sanitary sewer system.

Potential to Discharge, Potential Discharge

Potential to Discharge, or Potential Discharge, means any exiting of sewage from a sanitary sewer system which can reasonably be expected to discharge into a water of the State based on the size of the sewage spill, proximity to a drainage conveyance system, and the nature of the surrounding environment.

Receiving Water

A receiving water is a water of the State that receives a discharge of waste.

Resilience

Resilience is the ability to recover from or adjust to adversity or change, and grow from disruptions. Resilience can be built through planning, preparing for, mitigating, and adapting to changing conditions.

Sanitary Sewer System

A sanitary sewer system is a system that is designed to convey sewage, including but not limited to, pipes, manholes, pump stations, siphons, wet wells, diversion structures and/or other pertinent infrastructure, upstream of a wastewater treatment plant headworks, including:

- Laterals owned and/or operated by the Enrollee;
- Satellite sewer systems; and/or
- Temporary conveyance and storage facilities, including but not limited to temporary piping, vaults, construction trenches, wet wells, impoundments, tanks and diversion structures.

For purpose of this Order, sanitary sewer systems include only systems owned and/or operated by the Enrollee.

Satellite Sewer System

A satellite sewer system is a portion of a sanitary sewer system owned or operated by a different owner than the owner of the downstream wastewater treatment facility ultimately treating the sewage.

Sewer System Management Plan

A sewer system management plan is a living document an Enrollee develops and implements to effectively manage its sanitary sewer system(s) in accordance with this General Order.

Sewage

Sewage, and its associated wastewater, is untreated or partially treated domestic, municipal, commercial and/or industrial waste (including sewage sludge), and any mixture of these wastes with inflow or infiltration of stormwater or groundwater, conveyed in a sanitary sewer system.

Spill

A spill is a discharge of sewage from any portion of a sanitary sewer system due to a sanitary sewer system overflow, operational failure, and/or infrastructure failure. Exfiltration of sewage is not considered to be a spill under this General Order if the exfiltrated sewage remains in the subsurface and does not reach a surface water of the State.

Training

Training is in-house or external education and guidance needed that provides the knowledge, skills, and abilities to comply with this General Order.

Wash Down Water

Wash down water is water used to clean a spill area.

Waste

Waste, as defined in Water Code section 13050(d), includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.

Waste Discharge Identification Number (WDID)

A waste discharge identification number (WDID) identifies each individual sanitary sewer system enrolled under this General Order. A WDID number is assigned to each enrolled system upon an Enrollee's approved regulatory coverage.

Waters of the State

Waters of the State are surface waters or groundwater within boundaries of the state as defined in Water Code section 13050(e), in which the State and Regional Water Boards have authority to protect beneficial uses. Waters of the State include, but are not limited to, groundwater aquifers, surface waters, saline waters, natural washes and pools, wetlands, sloughs, and estuaries, regardless of flow or whether water exists during dry conditions. Waters of the State include waters of the United States.

Waters of the United States

Waters of the United States are surface waters or waterbodies that are subject to federal jurisdiction in accordance with the Clean Water Act.

Water Quality Objective

A water quality objective is the limit or maximum amount of pollutant, waste constituent or characteristic, or parameter level established in statewide water quality control plans and Regional Water Boards' Basin Plans, for the reasonable protection of beneficial uses of surface waters and groundwater and the prevention of nuisance.

ATTACHMENT B – APPLICATION FOR ENROLLMENT

1. Enrollment Status: (Mark only one item)

☐ New Enrollee

☐ New Enrollee with previous regulatory coverage under Order 2006-0003-DWQ
(that failed to certify continuation of coverage in CIWQS per Order 2022-XXXX-DWQ)
Existing WDID Number: _____

2. Applicant Information:

Legally Responsible Official Submitting Application

First and Last Name: _____

Title: _____

Phone: _____

Email: _____

System Owner/Operator Name: _____

Mailing Address: _____

City, State, Zip: _____

County: _____

Sanitary Sewer System Name: _____

Regional Water Quality Control Board(s): _____

Signature and Date: _____

3. Applicant Type (Check one):

☐ City ☐ County ☐ State ☐ Federal ☐ Special District

☐ Government Combination ☐ Private ☐ Other Non-governmental Entity

4. Wastewater Treatment Plant Receiving Sanitary Sewer System Waste:

Wastewater Treatment Plant Permittee: _____

WDID No.: _____

5. Billing Information

Billing Address: _____

City, State, Zip: _____

Billing Contact Person and Title: _____

Phone and Email Address: _____

6. Application Fee:

The application fee, as required by Water Code section 13260, is based on the daily population served by the sanitary sewer system. See updated [Fee Schedule](https://www.waterboards.ca.gov/resources/fees/water_quality/).
(https://www.waterboards.ca.gov/resources/fees/water_quality/)

Check one of the following and enter fee amount:

☐ Population Served < 50,000 – Total Fee submitted: \$ _____

☐ Population Served ≥ 50,000 – Total Fee submitted: \$ _____

Make the fee payment payable to the State Water Resources Control Board and mail the complete application package to:

State Water Resources Control Board, Accounting Office

P. O. Box 1888

Sacramento, CA 95812-1888

Attention: Statewide Sanitary Sewer System Program

7. Application Submittal Certification

I certify under penalty of perjury under the laws of the State of California that to the best of my knowledge and belief, the information in the submitted application package is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Print Name: _____

Title: _____

Signature: _____ Date: _____

ATTACHMENT C - NOTICE OF TERMINATION

1. Enrollee Information

Enrollee Name: _____

WDID No: _____

Legally Responsible Official Requesting Termination of Coverage: _____

First and Last Name: _____

Title: _____

Phone: _____

Email: _____

Mailing Address: _____

City, State, Zip: _____

County: _____

Sanitary Sewer System Name(s) or Unique Identifier(s): _____

Regional Water Quality Control Board(s): _____

Signature and Date: _____

2. Basis of Termination

Explanation of termination, including subsequent regulatory coverage and subsequent owner/operator of enrolled sanitary sewer system, as applicable:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

3. Regulatory Coverage Termination Certification

I certify under penalty of perjury under the laws of the State of California that to the best of my knowledge: 1) the sanitary sewer system I officially represent is not required to be regulated under the Statewide Waste Discharge Requirements for Sanitary Sewer Systems Order 2022-XXXX-DWQ, and 2) the information submitted in this Notice of Termination is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I understand that the submittal of this Notice of Termination does not release sanitary sewer system agencies from liability for any violations of the Clean Water Act.

Print Name: _____

Title: _____

Signature: _____ Date: _____

For State Water Board Use Only

☐ Approved for Termination

☐ Denied and Returned to Enrollee

Deputy Director of Water Quality Signature: _____

Date: _____ Notice of Termination Effective Date: _____

ATTACHMENT D – SEWER SYSTEM MANAGEMENT PLAN – REQUIRED ELEMENTS

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ATTACHMENT D – SEWER SYSTEM MANAGEMENT PLAN – REQUIRED ELEMENTS

A Sewer System Management Plan (Plan) is a living planning document that documents ongoing local sewer system management program activities, procedures, and decision-making – at the scale necessary to address the size and complexity of the subject sanitary sewer system(s). This Plan may incorporate other programs and other plans by reference, to address short-term and long-term system resilience through:

- Proactive planning and decision-making;
- Local government ordinances;
- Updated operations and maintenance activities and procedures;
- Implementation of capital improvements;
- Sufficient local budget to support staff resources, contractors, equipment, and training; and
- Updated training of staff and contractors.

The Enrollee's development, update, and implementation of a Sewer System Management Plan addressing the requirements of this Attachment is an enforceable component of this General Order. As specified in Provision 6.1 (Enforcement Provisions) of this General Order, consistent with the Water Code and the State Water Board Enforcement Policy, the State Water Board or a Regional Water Board may consider the Enrollee's efforts in implementing an effective Sewer System Management Plan to prevent, contain, control, and mitigate spills when considering Water Code section 13327 factors to determine necessary enforcement of this General Order.

This Attachment includes the following required elements that the Enrollee shall address in its Plan and subsequent updates. The Enrollee shall identify any requirement in this Attachment that is not applicable to the Enrollee's sewer system and shall explain in its Plan why the requirement is not applicable.

1. SEWER SYSTEM MANAGEMENT PLAN GOAL AND INTRODUCTION

The goal of the Sewer System Management Plan (Plan) is to provide a plan and schedule to: (1) properly manage, operate, and maintain all parts of the Enrollee's sanitary sewer system(s), (2) reduce and prevent spills, and (3) contain and mitigate spills that do occur.

The Plan must include a narrative Introduction section that discusses the following items:

1.1. Regulatory Context

The Plan Introduction section must provide a general description of the local sewer system management program and discuss Plan implementation and updates.

1.2. Sewer System Management Plan Update Schedule

The Plan Introduction section must include a schedule for the Enrollee to update the Plan, including the schedule for conducting internal audits. The schedule must include milestones for incorporation of activities addressing prevention of sewer spills.

1.3. Sewer System Asset Overview

The Plan Introduction section must provide a description of the Enrollee-owned assets and service area, including but not limited to:

- Location, including county(ies);
- Service area boundary;
- Population and community served;
- System size, including total length in miles, length of gravity mainlines, length of pressurized (force) mains, and number of pump stations and siphons;
- Structures diverting stormwater to the sewer system;
- Data management systems;
- Sewer system ownership and operation responsibilities between Enrollee and private entities for upper and lower sewer laterals;
- Estimated number or percent of residential, commercial, and industrial service connections; and
- Unique service boundary conditions and challenge(s).

Additionally, the Plan Introduction section must provide reference to the Enrollee's up-to-date map of its sanitary sewer system, as required in section 4.1 (Updated Map of Sanitary Sewer System) of this Attachment.

2. ORGANIZATION

The Plan must identify organizational staffing responsible and integral for implementing the local Sewer System Management Plan through an organization chart or similar narrative documentation that includes:

- The name of the Legally Responsible Official as required in section 5.1 (Designation of a Legally Responsible Official) of this General Order;
- The position titles, telephone numbers, and email addresses for management, administrative, and maintenance positions responsible for implementing specific Sewer System Management Plan elements;
- Organizational lines of authority; and
- Chain of communication for reporting spills from receipt of complaint or other information, including the person responsible for reporting spills to the State and Regional Water Boards and other agencies, as applicable. (For example, county

health officer, county environmental health agency, and State Office of Emergency Services.)

3. LEGAL AUTHORITY

The Plan must include copies or an electronic link to the Enrollee's current sewer system use ordinances, service agreements and/or other legally binding procedures to demonstrate the Enrollee possesses the necessary legal authority to:

- Prevent illicit discharges into its sanitary sewer system from inflow and infiltration (I&I); unauthorized stormwater; chemical dumping; unauthorized debris; roots; fats, oils, and grease; and trash, including rags and other debris that may cause blockages;
- Collaborate with storm sewer agencies to coordinate emergency spill responses, ensure access to storm sewer systems during spill events, and prevent unintentional cross connections of sanitary sewer infrastructure to storm sewer infrastructure;
- Require that sewer system components and connections be properly designed and constructed;
- Ensure access for maintenance, inspection, and/or repairs for portions of the service lateral owned and/or operated by the Enrollee;
- Enforce any violation of its sewer ordinances, service agreements, or other legally binding procedures; and
- Obtain easement accessibility agreements for locations requiring sewer system operations and maintenance, as applicable.

4. OPERATION AND MAINTENANCE PROGRAM

The Plan must include the items listed below that are appropriate and applicable to the Enrollee's system.

4.1. Updated Map of Sanitary Sewer System

An up-to-date map(s) of the sanitary sewer system, and procedures for maintaining and providing State and Regional Water Board staff access to the map(s). The map(s) must show gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities within the sewer system service area boundaries.

4.2. Preventive Operation and Maintenance Activities

A scheduling system and a data collection system for preventive operation and maintenance activities conducted by staff and contractors.

The scheduling system must include:

- Inspection and maintenance activities;

- Higher-frequency inspections and maintenance of known problem areas, including areas with tree root problems;
- Regular visual and closed-circuit television (CCTV) inspections of manholes and sewer pipes.

The data collection system must document data from system inspection and maintenance activities, including system areas/components prone to root-intrusion potentially resulting in system backup and/or failure.

4.3. Training

In-house and external training provided on a regular basis for sanitary sewer system operations and maintenance staff and contractors. The training must cover:

- The requirements of this General Order;
- The Enrollee's Spill Emergency Response Plan procedures and practice drills;
- Skilled estimation of spill volume for field operators; and
- Electronic CIWQS reporting procedures for staff submitting data.

4.4. Equipment Inventory

An inventory of sewer system equipment, including the identification of critical replacement and spare parts.

5. DESIGN AND PERFORMANCE PROVISIONS

The Plan must include the following items as appropriate and applicable to the Enrollee's system:

5.1. Updated Design Criteria and Construction Standards and Specifications

Updated design criteria, and construction standards and specifications, for the construction, installation, repair, and rehabilitation of existing and proposed system infrastructure components, including but not limited to pipelines, pump stations, and other system appurtenances. If existing design criteria and construction standards are deficient to address the necessary component-specific hydraulic capacity as specified in section 8 (System Evaluation, Capacity Assurance and Capital Improvements) of this Attachment, the procedures must include component-specific evaluation of the design criteria.

5.2. Procedures and Standards

Procedures, and standards for the inspection and testing of newly constructed, newly installed, repaired, and rehabilitated system pipelines, pumps, and other equipment and appurtenances.

6. SPILL EMERGENCY RESPONSE PLAN

The Plan must include an up to date Spill Emergency Response Plan to ensure prompt detection and response to spills to reduce spill volumes and collect information for prevention of future spills. The Spill Emergency Response Plan must include procedures to:

- Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner;
- Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State;
- Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders;
- Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained;
- Address emergency system operations, traffic control and other necessary response activities;
- Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system;
- Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State;
- Remove sewage from the drainage conveyance system;
- Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters;
- Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery;
- Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event;
- Conduct post-spill assessments of spill response activities;
- Document and report spill events as required in this General Order; and
- Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.

7. SEWER PIPE BLOCKAGE CONTROL PROGRAM

The Sewer System Management Plan must include procedures for the evaluation of the Enrollee's service area to determine whether a sewer pipe blockage control program is needed to control fats, oils, grease, rags and debris. If the Enrollee determines that a program is not needed, the Enrollee shall provide justification in its Plan for why a program is not needed.

The procedures must include, at minimum:

- An implementation plan and schedule for a public education and outreach program that promotes proper disposal of pipe-blocking substances;
- A plan and schedule for the disposal of pipe-blocking substances 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 substances generated within a sanitary sewer system service area;
- The legal authority to prohibit discharges to the system and identify measures to prevent spills and blockages;
- Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, best management practices requirements, recordkeeping and reporting requirements;
- Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the fats, oils, and grease ordinance;
- An identification of sanitary sewer system sections subject to fats, oils, and grease blockages and establishment of a cleaning schedule for each section; and
- Implementation of source control measures for all sources of fats, oils, and grease reaching the sanitary sewer system for each section identified above.

8. SYSTEM EVALUATION, CAPACITY ASSURANCE AND CAPITAL IMPROVEMENTS

The Plan must include procedures and activities for:

- Routine evaluation and assessment of system conditions;
- Capacity assessment and design criteria;
- Prioritization of corrective actions; and
- A capital improvement plan.

8.1 System Evaluation and Condition Assessment

The Plan must include procedures to:

- Evaluate the sanitary sewer system assets utilizing the best practices and technologies available;

- Identify and justify the amount (percentage) of its system for its condition to be assessed each year;
- Prioritize the condition assessment of system areas that:
 - Hold a high level of environmental consequences if vulnerable to collapse, failure, blockage, capacity issues, or other system deficiencies;
 - Are located in or within the vicinity of surface waters, steep terrain, high groundwater elevations, and environmentally sensitive areas;
 - Are within the vicinity of a receiving water with a bacterial-related impairment on the most current Clean Water Act section 303(d) List;
- Assess the system conditions using visual observations, video surveillance and/or other comparable system inspection methods;
- Utilize observations/evidence of system conditions that may contribute to exiting of sewage from the system which can reasonably be expected to discharge into a water of the State;
- Maintain documents and recordkeeping of system evaluation and condition assessment inspections and activities; and
- Identify system assets vulnerable to direct and indirect impacts of climate change, including but not limited to: sea level rise; flooding and/or erosion due to increased storm volumes, frequency, and/or intensity; wildfires; and increased power disruptions.

8.2. Capacity Assessment and Design Criteria

The Plan must include procedures to identify system components that are experiencing or contributing to spills caused by hydraulic deficiency and/or limited capacity, including procedures to identify the appropriate hydraulic capacity of key system elements for:

- Dry-weather peak flow conditions that cause or contributes to spill events;
- The appropriate design storm(s) or wet weather events that causes or contributes to spill events;
- The capacity of key system components; and
- Identify the major sources that contribute to the peak flows associated with sewer spills.

The capacity assessment must consider:

- Data from existing system condition assessments, system inspections, system audits, spill history, and other available information;
- Capacity of flood-prone systems subject to increased infiltration and inflow, under normal local and regional storm conditions;

- Capacity of systems subject to increased infiltration and inflow due to larger and/or higher-intensity storm events as a result of climate change;
- Increases of erosive forces in canyons and streams near underground and above-ground system components due to larger and/or higher-intensity storm events;
- Capacity of major system elements to accommodate dry weather peak flow conditions, and updated design storm and wet weather events; and
- Necessary redundancy in pumping and storage capacities.

8.3. Prioritization of Corrective Action

The findings of the condition assessments and capacity assessments must be used to prioritize corrective actions. Prioritization must consider the severity of the consequences of potential spills.

8.4. Capital Improvement Plan

The capital improvement plan must include the following items:

- Project schedules including completion dates for all portions of the capital improvement program;
- Internal and external project funding sources for each project; and
- Joint coordination between operation and maintenance staff, and engineering staff/consultants during planning, design, and construction of capital improvement projects; and Interagency coordination with other impacted utility agencies.

9. MONITORING, MEASUREMENT AND PROGRAM MODIFICATIONS

The Plan must include an Adaptive Management section that addresses Plan-implementation effectiveness and the steps for necessary Plan improvement, including:

- Maintaining relevant information, including audit findings, to establish and prioritize appropriate Plan activities;
- Monitoring the implementation and measuring the effectiveness of each Plan Element;
- Assessing the success of the preventive operation and maintenance activities;
- Updating Plan procedures and activities, as appropriate, based on results of monitoring and performance evaluations; and
- Identifying and illustrating spill trends, including spill frequency, locations and estimated volumes.

10. INTERNAL AUDITS

The Plan shall include internal audit procedures, appropriate to the size and performance of the system, for the Enrollee to comply with section 5.4 (Sewer System Management Plan Audits) of this General Order.

11. COMMUNICATION PROGRAM

The Plan must include procedures for the Enrollee to communicate with:

- The public for:
 - Spills and discharges resulting in closures of public areas, or that enter a source of drinking water, and
 - The development, implementation, and update of its Plan, including opportunities for public input to Plan implementation and updates.
- Owners/operators of systems that connect into the Enrollee's system, including satellite systems, for:
 - System operation, maintenance, and capital improvement-related activities.

**ATTACHMENT E1 – NOTIFICATION, MONITORING, REPORTING AND
RECORDKEEPING REQUIREMENTS**

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ATTACHMENT E1– NOTIFICATION, MONITORING, REPORTING AND RECORDKEEPING REQUIREMENTS

The Notification Requirements (section 1), Spill-specific Monitoring Requirements (section 2), Reporting Requirements (section 3) and Recordkeeping Requirements (section 4) in this Attachment are pursuant to Water Code section 13267 and section 13383, and are an enforceable component of this General Order. For the purpose of this General Order, the term:

- Notification means the notifying of appropriate parties of a spill event or other activity.
- Spill-specific Monitoring means the gathering of information and data for a specific spill event to be reported or kept as records.
- Reporting means the reporting of information and data into the online California Integrated Water Quality System (CIWQS) Sanitary Sewer System Database.
- Recordkeeping means the maintaining of information and data in an official records storage system.

Failure to comply with the notification, monitoring, reporting and recordkeeping requirements in this General Order may subject the Enrollee to civil liabilities of up to \$10,000 a day per violation pursuant to Water Code section 13385; up to \$1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement.

Water Code section 13193 et seq. requires the Regional Water Quality Control Boards (Regional Water Boards) and the State Water Resources Control Board (State Water Board) to collect sanitary sewer spill information for each spill event and make this information available to the public. Sanitary sewer spill information for each spill event includes but is not limited to: Enrollee contact information for each spill event, spill cause, estimated spill volume and factors used for estimation, location, date, time, duration, amount discharged to waters of the State, response and corrective action(s) taken.

1. NOTIFICATION REQUIREMENTS

1.1. Notification of Spills of 1,000 Gallons or Greater to the California Office of Emergency Services

Per Water Code section 13271, for a spill that discharges in or on any waters of the State, or discharges or is deposited where it is, or probably will be, discharged in or on any waters of the State, the Enrollee shall notify the California Office of Emergency Services and obtain a California Office of Emergency Services Control Number as soon as possible **but no later than two (2) hours** after:

- The Enrollee has knowledge of the spill; and
- Notification can be provided without substantially impeding cleanup or other emergency measures.

The notification requirements in this section apply to individual spills of 1,000 gallons or greater, from an Enrollee-owned and/or operated laterals, to a water of the State.

1.2. Spill Notification Information

The Enrollee shall provide the following spill information to the California Office of Emergency Services before receiving a Control Number, as applicable:

- Name and phone number of the person notifying the California Office of Emergency Services;
- Estimated spill volume (gallons);
- Estimated spill rate from the system (gallons per minute);
- Estimated discharge rate (gallons per minute) directly into waters of the State or indirectly into a drainage conveyance system;
- Spill incident description:
 - Brief narrative of the spill event, and
 - Spill incident location (address, city, and zip code) and closest cross streets and/or landmarks;
- Name and phone number of contact person on-scene;
- Date and time the Enrollee was informed of the spill event;
- Name of sanitary sewer system causing the spill;
- Spill cause or suspected cause (if known);
- Amount of spill contained;
- Name of receiving water body receiving or potentially receiving discharge; and
- Description of water body impact and/ or potential impact to beneficial uses.

1.3. Notification of Spill Report Updates

Following the initial notification to the California Office of Emergency Services and until such time that the Enrollee certifies the spill report in the online CIWQS Sanitary Sewer System Database, the Enrollee shall provide updates to the California Office of Emergency Services regarding substantial changes to:

- Estimated spill volume (increase or decrease in gallons initially estimated);
- Estimated discharge volume discharged directly into waters of the State or indirectly into a drainage conveyance system (increase or decrease in gallons initially estimated); and
- Additional impact(s) to the receiving water(s) and beneficial uses.

2. SPILL-SPECIFIC MONITORING REQUIREMENTS

2.1 Spill Location and Spread

The Enrollee shall visually assess the spill location(s) and spread using photography, global positioning system (GPS), and other best available tools. The Enrollee shall document the critical spill locations, including:

- Photography and GPS coordinates for:
 - The system location where spill originated.
For multiple appearance points of a single spill event, the points closest to the spill origin.
- Photography for:
 - Drainage conveyance system entry locations,
 - The location(s) of discharge into surface waters, as applicable,
 - Extent of spill spread, and
 - The location(s) of clean up.

2.2 Spill Volume Estimation

To assess the approximate spill magnitude and spread, the Enrollee shall estimate the total spill volume using updated volume estimation techniques, calculations, and documentation for electronic reporting. The Enrollee shall update its notification and reporting of estimated spill volume (which includes spill volume recovered) as further information is gathered during and after a spill event.

2.3. Receiving Water Monitoring

2.3.1. Receiving Water Visual Observations

Through visual observations and use of best available spill volume-estimating techniques and field calculation techniques, the Enrollee shall gather and document the following information for spills discharging to surface waters:

- Estimated spill travel time to the receiving water;
- For spills entering a drainage conveyance system, estimated spill travel time from the point of entry into the drainage conveyance system to the point of discharge into the receiving water;
- Estimated spill volume entering the receiving water; and
- Photography of:
 - Waterbody bank erosion,
 - Floating matter,
 - Water surface sheen (potentially from oil and grease),

- Discoloration of receiving water, and
- Impact to the receiving water.

2.3.2. Receiving Water – Water Quality Sampling and Analysis

For sewage spills in which an estimated 50,000 gallons or greater are discharged into a surface water, the Enrollee shall conduct the following water quality sampling no later than **18 hours** after the Enrollee's knowledge of a potential discharge to a surface water:

- Collect one water sample, each day of the duration of the spill, at:
 - The DCS-001 location as described in section 2.3.4 (Receiving Water Sampling Locations) of this Attachment, if sewage discharges to a surface water via a drainage conveyance system; and/or
 - Each of the three receiving water sampling locations in section 2.3.4 (Receiving Water Sampling Locations) of this Attachment;

If the receiving water has no flow during the duration of the spill, the Enrollee must report "No Sampling Due To No Flow" for its receiving water sampling locations.

The Enrollee shall analyze the collected receiving water samples for the following constituents per section 2.3.3 (Water Quality Analysis Specifications) of this Attachment:

- Ammonia, and
- Appropriate bacterial indicator(s) per the applicable Basin Plan water quality objectives, including one or more of the following, unless directed otherwise by the Regional Water Board:
 - Total Coliform Bacteria
 - Fecal Coliform Bacteria
 - *E-coli*
 - Enterococcus

Dependent on the receiving water(s), sampling of bacterial indicators shall be sufficient to determine post-spill (after the spill) compliance with the water quality objectives and bacterial standards of the California Ocean Plan or the California Inland Surface Water Enclosed Bays, and Estuaries Plan, including the frequency and/or number of post-spill receiving water samples as may be specified in the applicable plans.

The Enrollee shall collect and analyze additional samples as required by the applicable Regional Water Board Executive Officer or designee.

2.3.3. Water Quality Analysis Specifications

Spill monitoring must be representative of the monitored activity (40 Code of Federal Regulations section 122.41(j)(1)).

Sufficiently Sensitive Methods

Sample analysis must be conducted according to sufficiently sensitive test methods approved under 40 Code of Federal Regulations Part 136 for the sample analysis of pollutants. For the purposes of this General Order, a method is sufficiently sensitive when the minimum level of the analytical method approved under 40 Code of Federal Regulations Part 136 is at or below the receiving water pollutant criteria.

Environmental Laboratory Accreditation Program-Accredited Laboratories

The analysis of water quality samples required per this General Order must be performed by a laboratory that has accreditation pursuant to Article 3 (commencing with section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code. (Water Code section 13176(a).) The State Water Board accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).

2.3.4. Receiving Water Sampling Locations

The Enrollee shall collect receiving water samples at the following locations.

Sampling of Flow in Drainage Conveyance System (DCS) Prior to Discharge

Sampling Location	Sampling Location Description
DCS-001	A point in a drainage conveyance system before the drainage conveyance system flow discharges into a receiving water.

Receiving Surface Water Sampling (RSW)¹

Sampling Location	Sampling Location Description
RSW-001 Point of Discharge	A point in the receiving water where sewage initially enters the receiving water.
RSW-001U: Upstream of Point of Discharge	A point in the receiving water, upstream of the point of sewage discharge, to capture ambient conditions absent of sewage discharge impacts.

Sampling Location	Sampling Location Description
RSW-001D: Downstream of Point of Discharge	A point in the receiving water, downstream of the point of sewage discharge, where the spill material is fully mixed with the receiving water.

¹ The Enrollee must use its best professional judgment to determine the upstream and downstream distances based on receiving water flow, accessibility to upstream/downstream waterbody banks, and size of visible sewage plume.

2.4. Safety and Access Exceptions

If the Enrollee encounters access restrictions or unsafe conditions that prevents its compliance with spill response requirements or monitoring requirements in this General Order, the Enrollee shall provide documentation of access restrictions and/or safety hazards in the corresponding required report.

3. REPORTING REQUIREMENTS

All reporting required in this General Order must be submitted electronically to the online [CIWQS Sanitary Sewer System Database](https://ciwqs.waterboards.ca.gov) (<https://ciwqs.waterboards.ca.gov>), unless specified otherwise in this General Order. Electronic reporting may solely be conducted by a Legally Responsible Official or Data Submitter(s) previously designated by the Legally Responsible Official, as required in section 5.8 (Designation of Data Submitters) of this General Order.

The Enrollee shall report any information that is protected by the Homeland Security Act, by email to SanitarySewer@waterboards.ca.gov, with a brief explanation of the protection provided by the Homeland Security Act for the subject report to be protected from unauthorized disclosure and/or public access, and for official Water Board regulatory purposes only.

3.1. Reporting Requirements for Individual Category 1 Spill Reporting

3.1.1. Draft Spill Report for Category 1 Spills

Within three (3) business days of the Enrollee's knowledge of a Category 1 spill, the Enrollee shall submit a Draft Spill Report to the online CIWQS Sanitary Sewer System Database.

The Draft Spill Report must, at minimum, include the following items:

1. Contact information: Name and telephone number of Enrollee contact person to respond to spill-specific questions;
2. Spill location name;
3. Date and time the Enrollee was notified of, or self-discovered, the spill;
4. Operator arrival time;

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5. Estimated spill start date and time;
6. Date and time the Enrollee notified the California Office of Emergency Services, and the assigned control number;
7. Description, photographs, and GPS coordinates of the system location where the spill originated;
 - If a single spill event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation field;
8. Estimated total spill volume exiting the system;
9. Description and photographs of the extent of the spill and spill boundaries;
10. Did the spill reach a drainage conveyance system? If Yes:
 - Description of the drainage conveyance system transporting the spill;
 - Photographs of the drainage conveyance system entry location(s);
 - Estimated spill volume fully recovered from the drainage conveyance system;
 - Estimated spill volume remaining within the drainage conveyance system;
11. Description and photographs of all discharge point(s) into the surface water;
12. Estimated spill volume that discharged to surface waters; and
13. Estimated total spill volume recovered.

3.1.2. Certified Spill Report for Category 1 Spills

Within 15 calendar days of the spill end date, the Enrollee shall submit a Certified Spill Report for Category 1 spills, to the online CIWQS Sanitary Sewer System Database. Upon completion of the Certified Spill Report, the online CIWQS Sanitary Sewer System Database will issue a final spill event identification number.

The Certified Spill Report must, at minimum, include the following mandatory information in addition to all information in the Draft Spill Report per section 3.1.1 (Draft Spill Report for Category 1 Spills) above:

1. Description of the spill event destination(s), including GPS coordinates if available, that represent the full spread and reach of the spill;
2. Spill end date and time;
3. Description of how the spill volume estimations were calculated, including at a minimum:
 - The methodology, assumptions and type of data relied upon, such as supervisory control and data acquisition (SCADA) records, flow monitoring or other telemetry information used to estimate the volume of the spill discharged, and the volume of the spill recovered (if any volume of the spill was recovered), and
 - The methodology(ies), assumptions and type of data relied upon for estimations of the spill start time and the spill end time;

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4. Spill cause(s) (for example, root intrusion, grease deposition, etc.);
5. System failure location (for example, main, lateral, pump station, etc.);
6. Description of the pipe material, and estimated age of the pipe material, at the failure location;
7. Description of the impact of the spill;
8. Whether or not the spill was associated with a storm event;
9. Description of spill response activities including description of immediate spill containment and cleanup efforts;
10. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the spill, and a schedule of major milestones for those steps;
11. Spill response completion date;
12. Detailed narrative of investigation and investigation findings of cause of spill;
13. Reasons for an ongoing investigation (as applicable) and the expected date of completion;
14. Name and type of receiving water body(s);
15. Description of the water body(s), including but not limited to:
 - Observed impacts on aquatic life,
 - Public closure, restricted public access, temporary restricted use, and/or posted health warnings due to spill,
 - Responsible entity for closing/restricting use of water body, and
 - Number of days closed/restricted as a result of the spill.
16. Whether or not the spill was located within 1,000 feet of a municipal surface water intake; and
17. If water quality samples were collected, identify sample locations and the parameters the water quality samples were analyzed for. If no samples were taken, Not Applicable shall be selected.

3.1.3. Spill Technical Report for Individual Category 1 Spill in which 50,000 Gallons or Greater Discharged into a Surface Water

For any spill in which 50,000 gallons or greater discharged into a surface water, **within 45 calendar days** of the spill end date, the Enrollee shall submit a Spill Technical Report to the online CIWQS Sanitary Sewer System Database. The Spill Technical Report, at minimum, must include the following information:

1. Spill causes and circumstances, including at minimum:
 - Complete and detailed explanation of how and when the spill was discovered;

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- Photographs illustrating the spill origin, the extent and reach of the spill, drainage conveyance system entrance and exit, receiving water, and post-cleanup site conditions;
 - Diagram showing the spill failure point, appearance point(s), the spill flow path, and ultimate destinations;
 - Detailed description of the methodology employed, and available data used to calculate the discharge volume and, if applicable, the recovered spill volume;
 - Detailed description of the spill cause(s);
 - Description of the pipe material, and estimated age of the pipe material, at the failure location;
 - Description of the impact of the spill;
 - Copy of original field crew records used to document the spill; and
 - Historical maintenance records for the failure location.
2. Enrollee's response to the spill:
- Chronological narrative description of all actions taken by the Enrollee to terminate the spill;
 - Explanation of how the Sewer System Management Plan Spill Emergency Response Plan was implemented to respond to and mitigate the spill; and
 - Final corrective action(s) completed and a schedule for planned corrective actions, including:
 - Local regulatory enforcement action taken against an illicit discharge in response to this spill, as applicable,
 - Identifiable system modifications, and operation and maintenance program modifications needed to prevent repeated spill occurrences, and
 - Necessary modifications to the Emergency Spill Response Plan to incorporate lessons learned in responding to and mitigating the spill.
3. Water Quality Monitoring, including at minimum:
- Description of all water quality sampling activities conducted;
 - List of pollutant and parameters monitored, sampled and analyzed; as required in section 2.3 (Receiving Water Monitoring) of this Attachment;
 - Laboratory results, including laboratory reports;
 - Detailed location map illustrating all water quality sampling points; and
 - Other regulatory agencies receiving sample results (if applicable).
4. Evaluation of spill impact(s), including a description of short-term and long-term impact(s) to beneficial uses of the surface water.

3.1.4. Amended Certified Spill Reports for Individual Category 1 Spills

The Enrollee shall update or add additional information to a Certified Spill Report within **90 calendar days** of the spill end date by amending the report or by adding an attachment to the Spill Report in the online CIWQS Sanitary Sewer System Database. The Enrollee shall certify the amended report.

After **90 calendar days**, the Enrollee shall contact the State Water Board at SanitarySewer@waterboards.ca.gov to request to amend a Spill Report. The Legally Responsible Official shall submit justification for why the additional information was not reported within the Amended Spill Report due date.

3.2. Reporting Requirements for Individual Category 2 Spill Reporting

3.2.1. Draft Spill Report for Category 2 Spills

Within three (3) business days of the Enrollee's knowledge of a Category 2 spill, the Enrollee shall submit a Draft Spill Report to the online CIWQS Sanitary Sewer System Database.

The Draft Spill Report must, at minimum, include the following items:

1. Contact information: Name and telephone number of Enrollee contact person to respond to spill-specific questions;
2. Spill location name;
3. Date and time the Enrollee was notified of, or self-discovered, the spill;
4. Operator arrival time;
5. Estimated spill start date and time;
6. Date and time the Enrollee notified the California Office of Emergency Services, and the assigned control number;
7. Description, photographs, and GPS coordinates of the system location where the spill originated;

If a single spill event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation field;

8. Estimated total spill volume exiting the system;
9. Description and photographs of the extent of the spill and spill boundaries;
10. Did the spill reach a drainage conveyance system? If Yes:
 - Description of the drainage conveyance system transporting the spill;
 - Photographs of the drainage conveyance system entry location(s);
 - Estimated spill volume fully recovered from the drainage conveyance system;
 - Estimated spill volume remaining within the drainage conveyance system;

- Estimated spill volume discharged to a groundwater infiltration basin or facility, if applicable; and

11. Estimated total spill volume recovered.

3.2.2. Certified Spill Report for Category 2 Spills

Within 15 calendar days of the spill end date, the Enrollee shall submit a Certified Spill Report for the Category 2 spill, to the online [CIWQS Sanitary Sewer System Database](https://ciwqs.waterboards.ca.gov) (<https://ciwqs.waterboards.ca.gov>). Upon completion of the Certified Spill Report, the online CIWQS Sanitary Sewer System Database will issue a final spill event identification number.

The Certified Spill Report must, at minimum, include the following mandatory information in addition to all information in the Draft Spill Report per section 3.2.1 (Draft Spill Report for Category 2 Spills) above:

1. Description of the spill event destination(s), including GPS coordinates if available, that represent the full spread and reach of the spill;
2. Spill end date and time;
3. Description of how the spill volume estimations were calculated, including at a minimum:
 - The methodology, assumptions and type of data relied upon, such as supervisory control and data acquisition (SCADA) records, flow monitoring or other telemetry information used to estimate the volume of the spill discharged, and the volume of the spill recovered (if any volume of the spill was recovered), and
 - The methodology(ies), assumptions and type of data relied upon for estimations of the spill start time and the spill end time;
4. Spill cause(s) (for example, root intrusion, grease deposition, etc.);
5. System failure location (for example, main, pump station, etc.);
6. Description of the pipe/infrastructure material, and estimated age of the pipe material, at the failure location;
7. Description of the impact of the spill;
8. Whether or not the spill was associated with a storm event;
9. Description of spill response activities including description of immediate spill containment and cleanup efforts;
10. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the spill, and a schedule of major milestones for those steps;
11. Spill response completion date;
12. Detailed narrative of investigation and investigation findings of cause of spill;
13. Reasons for an ongoing investigation (as applicable) and the expected date of completion; and

14. Whether or not the spill was located within 1,000 feet of a municipal surface water intake.

3.2.3. Amended Certified Spill Reports for Individual Category 2 Spills

The Enrollee shall update or add additional information to a Certified Spill Report within **90 calendar days** of the spill end date by amending the report or by adding an attachment to the Spill Report in the online CIWQS Sanitary Sewer System Database. The Enrollee shall certify the amended report.

After **90 calendar days**, the Enrollee shall contact the State Water Board at SanitarySewer@waterboards.ca.gov to request to amend a Spill Report. The Legally Responsible Official shall submit justification for why the additional information was not reported within the Amended Spill Report due date.

3.3. Monthly Certified Spill Reporting for Category 3 Spills

The Enrollee shall report and certify all Category 3 spills to the online CIWQS Sanitary Sewer System Database within 30 calendar days after the end of the month in which the spills occurred. (For example, all Category 3 spills occurring in the month of February shall be reported and certified by March 30th). After the Legally Responsible Official certifies the spills, the online CIWQS Sanitary Sewer System Database will issue a spill event identification number for each spill.

The monthly reporting of all Category 3 spills must include the following items for each spill:

1. Contact information: Name and telephone number of Enrollee contact person to respond to spill-specific questions;
2. Spill location name;
3. Date and time the Enrollee was notified of, or self-discovered, the spill;
4. Operator arrival time;
5. Estimated spill start date and time;
6. Description, photographs, and GPS coordinates where the spill originated:
 - If a single spill event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation field;
7. Estimated total spill volume exiting the system;
8. Description and photographs of the extent of the spill and spill boundaries;
9. Did the spill reach a drainage conveyance system? If Yes:
 - Description of the drainage conveyance system transporting the spill;
 - Photographs of the drainage conveyance system entry locations(s);
 - Estimated spill volume fully recovered from the drainage conveyance system; and

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- Estimated spill volume discharged to a groundwater infiltration basis or facility, if applicable.
- 10. Estimated total spill volume recovered;
- 11. Description of the spill event destination(s), including GPS coordinates, if available, that represent the full spread and reaches of the spill;
- 12. Spill end date and time;
- 13. Description of how the spill volume estimations were calculated, including, at minimum:
 - The methodology and type of data relied upon, including supervisory control and data acquisition (SCADA) records, flow monitoring or other telemetry information used to estimate the volume of the spill discharged, and the volume of the spill recovered (if any volume of the spill was recovered), and
 - The methodology and type of data relied upon to estimate the spill start time, on-going spill rate at time of arrival (if applicable), and the spill end time;
- 14. Spill cause(s) (for example, root intrusion, grease deposition, etc.);
- 15. System failure location (for example, main, pump station, etc.);
- 16. Description of the pipe/infrastructure material, and estimated age of the pipe/infrastructure material, at the failure location;
- 17. Description of the impact of the spill;
- 18. Whether or not the spill was associated with a storm event;
- 19. Description of spill response activities including description of immediate spill containment and cleanup efforts;
- 20. Description of spill corrective actions, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the spill, and a schedule of the major milestones for those steps; including, at minimum:
 - Local regulatory enforcement action taken against an illicit discharge in response to this spill, as applicable, and
 - Identifiable system modifications, and operation and maintenance program modifications needed to prevent repeated spill occurrences at the same spill event location, including:
 - Adjusted schedule/method of preventive maintenance,
 - Planned rehabilitation or replacement of sanitary sewer asset,
 - Inspected, repaired asset(s), or replaced defective asset(s),
 - Capital improvements,
 - Documentation verifying immediately implemented system modifications and operating/maintenance modifications,
 - Description of spill response activities,

- Spill response completion date, and
- Ongoing investigation efforts, and expected completion date of investigation to determine the full cause of spill;

21. Detailed narrative of investigation and investigation findings of cause of spill.

3.4. Monthly Certified Spill Reporting for Category 4 Spills

The Enrollee shall report and certify the estimated total spill volume exiting the sanitary sewer system, and the total number of all Category 4 spills to the online CIWQS Sanitary Sewer System Database, within 30 calendar days after the end of the month in which the spills occurred.

3.5. Amended Certified Spill Reports for Category 3 Spills

Within 90 calendar days of the certified Spill Report due date, the Enrollee may update or add additional information to a certified Spill Report by amending the report or by adding an attachment to the Spill Report in the online CIWQS Sanitary Sewer System Database. The Enrollee shall certify the amended report.

After 90 calendar days, the Legally Responsible Official shall contact the State Water Board at SanitarySewer@waterboards.ca.gov to request to amend a certified Spill Report. The Legally Responsible Official shall submit justification for why the additional information was not reported within the 90-day timeframe for amending the certified Spill Report, as provided above.

3.6. Annual Certified Spill Reporting of Category 4 and/or Lateral Spills

For all Category 4 spills and spills from its owned and/or operated laterals that are caused by a failure or blockage in the lateral and that do not discharge to a surface water, the Enrollee shall:

- Maintain records per section 4.4. of this Attachment;
The Enrollee shall provide records upon request by State Water Board or Regional Water Board staff.
- Annually upload and certify a report, in an appropriate digital format, of all recordkeeping of spills to the online CIWQS Sanitary Sewer System Database, by February 1st after the end of the calendar year in which the spills occurred.

A spill from an Enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill; the Enrollee shall report all Category 1 spills per section 3.1 of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of this General Order.

3.7. Monthly Certification of “No-Spills” or “Category 4 Spills” and/or “Non-Category 1 Lateral Spills”

If either (1) no spills occur during a calendar month or (2) only Category 4, and/or Enrollee-owned and/or operated lateral spills (that do not discharge to a surface water) occur during a calendar month, the Enrollee shall certify, within 30 calendar days after

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the end of each calendar month, either a “No-Spill” certification statement, or a “Category 4 Spills” and/or “Non-Category 1 Lateral Spills” certification statement, in the online CIWQS Sanitary Sewer System Database, certifying that there were either no spills, or Category 4 and/or Non-Category 1 Lateral Spills that will be reported annually (per section 3.6 of this Attachment) for the designated month.

If a spill starts in one calendar month and ends in a subsequent calendar month, and the Enrollee has no further spills of any category, in the subsequent calendar month, the Enrollee shall certify “no-spills” for the subsequent calendar month.

If the Enrollee has no spills from its systems during a calendar month, but the Enrollee voluntarily reported a spill from a private lateral or a private system, the Enrollee shall certify “no-spills” for that calendar month.

If the Enrollee has spills from its owned and/or operated laterals during a calendar month, the Enrollee shall not certify “no spills” for that calendar month.

3.8. Electronic Sanitary Sewer System Service Area Boundary Map

The Legally Responsible Official shall submit, to the State Water Board, an up-to-date electronic spatial map of its sewer system service area boundaries. The map must be in accordance with section 5.14 (Electronic Sanitary Sewer System Service Area Boundary Map) of this General Order and the specification provided on the statewide Sanitary Sewer Systems program website. The map must include the location of wastewater treatment facility(ies) that treats the sewer system waste, if in the same sewer service boundary.

By the Effective Date of this General Order, specifications for the electronic sanitary sewer service area boundary map format will be provided on the statewide Sanitary Sewer Systems Order program website.

3.9. Annual Report (Previously termed as Collection System Questionnaire in General Order 2006-0003-DWQ)

A new Enrollee shall complete and submit its first certified Annual Report into the online CIWQS Sanitary Sewer System Database, **within 30 days of obtaining a CIWQS account**; Subsequent Annual Reports are due by April 1 of each year.

All enrollees shall update their previous year’s Annual Report, **by April 1 of each year after the Effective Date of this General Order**, for each calendar year (January 1 through December 31).

The Annual Report must be entered directly into the online CIWQS Sanitary Sewer System Database. The Enrollee’s Legally Responsible Official shall certify the Annual Report as instructed in CIWQS;

The Annual Report must address, and update as applicable, the following items:

- Population served;

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- Updated sewer system service area boundary map, if service area boundary has changed from original map submitted per section 5.14 (Electronic Sanitary Sewer System Service Area Boundary Map) of this General Order;
- Number of system operation and maintenance staff:
 - Entry level (less than two years of experience),
 - Journey level (greater than two years of experience),
 - Supervisory level, and
 - Managerial level;
- Number of operation and maintenance staff certified as a certified collection system operator by the California Water Environmental Association (CWEA), with:
 - Corresponding number of certified collection system operator grade levels (Grade I, II, III, IV, and V);
- System information:
 - Miles of system gravity and force mains,
 - Number of upper and lower service laterals connected to system,
 - Estimated number of upper and lower laterals owned and/or operated by the Enrollee,
 - Portion of laterals that is Enrollee's responsibility,
 - Average age the major components of system infrastructure,
 - Number and age of pump stations, and
 - Estimated total miles of the system pipeline not accessible for maintenance;
- Name and location of the treatment plant(s) receiving sanitary sewer system's waste;
- Name of satellite sewer system tributaries;
- Number of system's gravity sewer above or underground crossings of water bodies throughout system;
- Number of force main (pressurized pipe) above or underground crossings of water bodies throughout system;
- Number of siphons used to convey waste throughout the sewer system;
- Miles of sewer system cleaned;
- Miles of sewer system video inspected, or comparable (i.e., video closed-circuit television or alternative inspection methods);
- System Performance Evaluation as specified in section 5.11 (System Performance Analysis) of this General Order;
- Major spill causes (for example, root intrusion, grease deposition);

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- System infrastructure failure points (for example, main, pump station, lateral, etc.);
- Ongoing spill investigations; and
- Actions taken to address system deficiencies.

3.10. Sewer System Management Plan Audit Reporting Requirements

The Enrollee shall submit its Sewer System Management Plan Audit and other pertinent audit information, in accordance with section 5.4 (Sewer System Management Plan Audits) of this General Order, to the online CIWQS Sanitary Sewer System Database **by six (6) months after the end of the 3-year audit period.**

If a Sewer System Management Plan Audit is not conducted as required: the Enrollee shall:

- Update the online CIWQS Sanitary Sewer System Database and select the justification for not conducting the Audit; and
- Notify its corresponding Regional Water Board (see Attachment F (Regional Water Quality Control Board Contact Information)) of the justification for the lapsed requirements.

The Enrollee's reporting of a justification for not conducting a timely Audit does not justify non-compliance with this General Order. The Enrollee shall:

- Submit the late Audit as required in this General Order; and
- Comply with subsequent Audit requirements and due dates corresponding with the original audit cycle.

3.11. Sewer System Management Plan Reporting Requirements

For an Existing Enrollee previously regulated by Order 2006-0003-DWQ: **Within every six (6) years after the required due date of its last Plan Update**, the Legally Responsible Official shall upload and certify a local governing entity-approved Sewer System Management Plan Update to the online CIWQS Sanitary Sewer System Database. If the electronic document format or size capacity prevents the electronic upload of the Plan, the Legally Responsible Official shall report an electronic link to its updated Sewer System Management Plan posted on its own website.

Order 2006-0003-DWQ required each enrollee to develop its initial Sewer System Management Plan per the following schedule, with required Plan updates at a frequency of 5-years thereafter:

Systems serving populations: Greater than 100,000: May 2, 2009

Between 100,000 and 10,000: August 2, 2009

Between 10,000 and 2,500: May 2, 2010

Less than 2,500: August 2, 2010

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This Order carries forth the previously-required Plan Update schedule per Order 2006-0003-DWQ. Per the six-year Plan Update frequency required in this Order, the Enrollee shall upload and certify its first Plan Update, to the online CIWQS Sanitary Sewer System Database by the following due dates, with subsequent Plan Updates at the frequency of six years thereafter:

Systems serving populations: Greater than 100,000: May 2, 2025

Between 100,000 and 10,000: August 2, 2025

Between 10,000 and 2,500: May 2, 2026

Less than 2,500: August 2, 2026

For a New Enrollee: **Within twelve (12) months of its Application for Enrollment Approval date**, the Legally Responsible Official of a new Enrollee shall upload and certify a local governing entity-approved Sewer System Management Plan to the online CIWQS Sanitary Sewer System Database. If electronic document format or size capacity prevents the electronic upload of the Plan, the Legally Responsible Official shall report an electronic link to its Sewer System Management Plan posted on its own website. The due date for subsequent 6-year Plan updates, is six (6) years from the submittal due date of the new Enrollee's first Sewer System Management Plan.

4. RECORDKEEPING REQUIREMENTS

The Enrollee shall maintain records to document compliance with the provisions of this General Order, and previous General Order 2006-0003-DWQ as applicable, for each sanitary sewer system owned, including any required records generated by an Enrollee's contractor(s).

4.1. Recordkeeping Time Period

The Enrollee shall maintain records of documents required in this Attachment, including records collected for compliance with this General Order, and records collected in accordance with previous General Order 2006-0003-DWQ, for five (5) years.

4.2. Availability of Documents

The Enrollee shall make the records required in this General Order readily available, either electronic or hard copies, for review by Water Board staff during onsite inspections or through an information request.

4.3. Spill Reports

The Enrollee shall maintain records for each of the following spill-related events and activities:

- Spill event complaint, including but not limited to records documenting how the Enrollee responded to notifications of spills. Each complaint record must, at a minimum, include the following information:
 - Date, time, and method of notification,

- Date and time the complainant first noticed the spill, if available,
- Narrative description of the complaint, including any information the caller provided regarding whether the spill has reached surface waters or a drainage conveyance system, if available,
- Complainant's contact information, if available, and
- Final resolution of the complaint;
- Records documenting the steps and/or remedial action(s) undertaken by the Enrollee, using all available information, to comply with this General Order, and previous General Order 2006-0003-DWQ as applicable;
- Records documenting how estimate(s) of volume(s) and, if applicable, volume(s) of spill recovered were calculated;
- All California Office of Emergency Services notification records, as applicable; and
- Records, in accordance with the Monitoring Requirements in this Attachment.

4.4. Recordkeeping of Category 4 Spills and Non-Category 1 Lateral Spills

An Enrollee must maintain the following records for each individual Category 4 spill and for each individual non-Category 1 Enrollee-owned and/or operated lateral spill, and report in accordance to section 3.6 (Annual Certified Spill Reporting of Category 4 and/or Lateral Spills) of this Attachment.

Recordkeeping of Individual Category 4 Spill Information:

1. Contact information: Name and telephone number of Enrollee contact person to respond to spill-specific questions;
2. Spill location name;
3. Description and GPS coordinates for the system location where the spill originated;
4. Did the spill reach a drainage conveyance system? If Yes:
 - Description of drainage conveyance system location,
 - Estimated spill volume fully recovered within the drainage conveyance system, and
 - Estimated spill volume remaining within the drainage conveyance system;
5. Estimated total spill volume exiting the sanitary sewer system;
6. Spill date and start time;
7. Spill cause(s) (for example, root intrusion, grease deposition, etc.);
8. System failure location (for example, main, pump station, etc.);
9. Description of spill response activities including description of immediate spill containment and cleanup efforts;
10. Description of how the volume estimation was calculated, including, at minimum:

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- The methodology and type of data relied upon, including supervisory control and data acquisition (SCADA) records, flow monitoring or other telemetry information used to estimate the volume of the spill discharged, and the volume of the spill recovered (if any volume of the spill was recovered), and
- The methodology and type of data relied upon to estimate the spill start time, on-going spill rate at time of arrival (if applicable), and the spill end time;

11. Description of implemented system modifications and operating/maintenance modifications.

Recordkeeping of Individual Lateral Spill Information:

1. Date and time the Enrollee was notified of, or self-discovered, the spill;
2. Location of individual spill;
3. Estimated individual spill volume;
4. Spill cause(s) (for example, root intrusion, grease deposition, etc.); and
5. Description of how the volume estimations were calculated.

Total Annual Spill Information:

1. Estimated total annual spill volume;
2. Description of spill corrective actions, including at minimum:
 - Local regulatory enforcement action taken against the sewer lateral owner in response to a spill, as applicable, and
 - System operation, maintenance and program modifications implemented to prevent repeated spill occurrences at the same spill location.

4.5. Sewer System Telemetry Records

The Enrollee shall maintain the following sewer system telemetry records if used to document compliance with this General Order, and previous General Order 2006-0003-DWQ as applicable, including spill volume estimates:

- Supervisory control and data acquisition (SCADA) system(s);
- Alarm system(s);
- Flow monitoring device(s) or other instrument(s) used to estimate sewage flow rates, and/or volumes;
- Computerized maintenance management system records; and
- Asset management-related records.

4.6. Sewer System Management Plan Implementation Records

The Enrollee shall maintain records documenting the Enrollee's implementation of its Sewer System Management Plan, including documents supporting its Sewer System Management Plan audits, corrections, modifications, and updates to the Sewer System Management Plan.

4.7. Audit Records

The Enrollee shall maintain, at minimum, the following records pertaining to its Sewer System Management Plan audits, and other internal audits:

- Completed audit documents and findings;
- Name and contact information of staff and/or consultants that conducted or involved in the audit; and
- Follow-up actions based on audit findings.

4.8. Equipment Records

The Enrollee shall maintain a log of all owned and leased sewer system cleaning, operational, maintenance, construction, and rehabilitation equipment.

4.9. Work Orders

The Enrollee shall maintain record of work orders for operations and maintenance projects.

ATTACHMENT E2 – SUMMARY OF NOTIFICATION, MONITORING AND REPORTING REQUIREMENTS

This Attachment provides a summary of notification, monitoring and reporting requirements, by spill category, and for Enrollee-owned and/or operated laterals as required in Attachment E1 of this General Order, for quick reference purposes only.

Table E2-1

Spill Category 1: Spills to Surface Waters

Spill Requirement	Due	Method
Notification	<p>Within two (2) hours of the Enrollee's knowledge of a Category 1 spill of 1,000 gallons or greater, discharging or threatening to discharge to surface waters:</p> <p>Notify the California Office of Emergency Services and obtain a notification control number.</p>	<p>California Office of Emergency Services at: (800) 852-7550</p> <p>(Section 1 of Attachment E1)</p>
Monitoring	<ul style="list-style-type: none"> Conduct spill-specific monitoring; Conduct water quality sampling of the receiving water within 18 hours of initial knowledge of spill of 50,000 gallons or greater to surface waters. 	<p>(Section 2 of Attachment E1)</p>
Reporting	<ul style="list-style-type: none"> Submit Draft Spill Report within three (3) business days of the Enrollee's knowledge of the spill; Submit Certified Spill Report within 15 calendar days of the spill end date; Submit Technical Report within 45 calendar days after the spill end date for a Category 1 spill in which 50,000 gallons or greater discharged to surface waters; and Submit Amended Spill Report within 90 calendar days after the spill end date. 	<p>(Section 3.1 of Attachment E1)</p>

Table E2-2**Spill Category 2: Spills of 1,000 Gallons or Greater That Do Not Discharge to Surface Waters**

Spill Requirements	Due	Method
Notification	<p>Within two (2) hours of the Enrollee's knowledge of a Category 2 spill of 1,000 gallons or greater, discharging or threatening to discharge to waters of the State:</p> <p>Notify California Office of Emergency Services and obtain a notification control number.</p>	<p>California Office of Emergency Services at: (800) 852-7550</p> <p>(Section 1 of Attachment E1)</p>
Monitoring	Conduct spill-specific monitoring.	(Section 2 of Attachment E1)
Reporting	<ul style="list-style-type: none"> • Submit Draft Spill Report within three (3) business days of the Enrollee's knowledge of the spill; • Submit Certified Spill Report within 15 calendar days of the spill end date; and • Submit Amended Spill Report within 90 calendar days after the spill end date. 	(Section 3.2 of Attachment E1)

Table E2-3**Spill Category 3: Spills of Equal or Greater than 50 Gallons and Less than 1,000 Gallons That Does Not Discharge to Surface Waters**

Spill Requirements	Due	Method
Notification	Not Applicable	Not Applicable
Monitoring	Conduct spill-specific monitoring.	(Section 2 of Attachment E1)
Reporting	<ul style="list-style-type: none"> Submit monthly Certified Spill Report to the online CIWQS Sanitary Sewer System Database within 30 calendars days after the end of the month in which the spills occur; and Submit Amended Spill Reports within 90 calendar days after the Certified Spill Report due date. 	(Section 3.3 and 3.5 of Attachment E1)

Table E2-4**Spill Category 4: Spills Less Than 50 Gallons That Do Not Discharge to Surface Waters**

Spill Requirements	Due	Method
Notification	Not Applicable	Not Applicable
Monitoring	Conduct spill-specific monitoring.	(Section 2 of Attachment E1)
Reporting	<ul style="list-style-type: none"> If, during any calendar month, Category 4 spills occur, certify monthly, the estimated total spill volume exiting the sanitary sewer system, and the total number of all Category 4 spills into the online CIWQS Sanitary Sewer System Database, within 30 days after the end of the calendar month in which the spills occurred. Upload and certify a report, in an acceptable digital format, of all Category 4 spills to the online CIWQS Sanitary Sewer System Database, by February 1st after the end of the calendar year in which the spills occur. 	(Section 3.4, 3.6, 3.7 and 4.4 of Attachment E1)

Table E2-5**Enrollee Owned and/or Operated Lateral Spills That Do Not Discharge to Surface Waters**

Spill Requirements	Due	Method
Notification	<p>Within two (2) hours of the Enrollee's knowledge of a spill of 1,000 gallons or greater, from an enrollee-owned and/or operated lateral, discharging or threatening to discharge to waters of the State:</p> <p>Notify California Office of Emergency Services and obtain a notification control number.</p> <p>Not applicable to a spill of less than 1,000 gallons.</p>	<p>California Office of Emergency Services at: (800) 852-7550</p> <p>(Section 1 of Attachment E1)</p>
Monitoring	Conduct visual monitoring.	(Section 2 of Attachment E1)
Reporting	<ul style="list-style-type: none"> • Upload and certify a report, in an acceptable digital format, of all lateral spills (that do not discharge to a surface water) to the online CIWQS Sanitary Sewer System Database, by February 1st after the end of the calendar year in which the spills occur. • Report a lateral spill of any volume that discharges to a surface water as a Category 1 spill. 	(Sections 3.6, 3.7 and 4.4 of Attachment E1)

ATTACHMENT F – REGIONAL WATER QUALITY CONTROL BOARD CONTACT INFORMATION

This Attachment provides a map, list of counties, and contact information to assist the Enrollee in identifying the corresponding Regional Water Quality Control Board office, for all Regional Water Board notification requirements in this General Order.



Region 1 -- North Coast Regional Water Quality Control Board:

Del Norte, Glenn, Humboldt, Lake, Marin, Mendocino, Modoc, Siskiyou, Sonoma, and Trinity counties.

RB1SpillReporting@waterboards.ca.gov or (707) 576-2220

Region 2 -- San Francisco Bay Regional Water Quality Control Board:

Alameda, Contra Costa, San Francisco, Santa Clara (Northern most part of Morgan Hill), San Mateo, Marin, Sonoma, Napa, Solano counties.

RB2SpillReports@waterboards.ca.gov or (510) 622-2369

Region 3 -- Central Coast Regional Water Quality Control Board:

Santa Clara (most of Morgan Hill), San Mateo (Southern portion), Santa Cruz, San Benito, Monterey, Kern (small portions), San Luis Obispo, Santa Barbara, Ventura (Northern portion) counties.

CentralCoast@waterboards.ca.gov or (805) 549-3147

Region 4 -- Los Angeles Regional Water Quality Control Board:

Los Angeles, Ventura counties (small portions of Kern and Santa Barbara counties).

rb4-ssswdr@waterboards.ca.gov or (213) 576-6600

Region 5 -- Central Valley Regional Water Quality Control Board:

Rancho Cordova (Sacramento) Office: Colusa, Lake, Sutter, Yuba, Sierra, Nevada, Placer, Yolo, Napa, (North East), Solano (West), Sacramento, El Dorado, Amador, Calaveras, San Joaquin, Contra Costa (East), Stanislaus, Tuolumne counties.

RB5sSpillReporting@waterboards.ca.gov or (916) 464-3291

Fresno Office: Fresno, Kern, Kings, Madera, Mariposa, Merced, and Tulare counties, and small portions of San Benito and San Luis Obispo counties.

RB5fSpillReporting@waterboards.ca.gov or (559) 445-5116

Redding Office: Butte, Glen, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Tehama counties.

RB5rSpillReporting@waterboards.ca.gov or (530) 224-4845

Region 6 -- Lahontan Regional Water Quality Control Board:

Lake Tahoe Office: Alpine, Modoc (East), Lassen (East side and Eagle Lake), Sierra, Nevada, Placer, El Dorado counties.

RB6sSpillReporting@waterboards.ca.gov or (530) 542-5400

Victorville Office: Mono, Inyo, Kern (East), San Bernardino, Los Angeles (North East corner) counties.

RB6vSpillReporting@waterboards.ca.gov or (760) 241-6583

Region 7 -- Colorado River Basin Regional Water Quality Control Board:

Imperial county and portions of San Bernardino, Riverside, San Diego counties.

RB7SpillReporting@waterboards.ca.gov or (760) 346-7491

Region 8 -- Santa Ana Regional Water Quality Control Board:

Orange, Riverside, San Bernardino counties.

RB8SpillReporting@waterboards.ca.gov or (951) 782-4130

Region 9 -- San Diego Regional Water Quality Control Board:

San Diego county and portions of Orange and Riverside counties.

RB9Spill_Report@waterboards.ca.gov or (619) 516-1990

End of Order 2022-0103-DWQ

Attachment A3 – Sewer System Overview Map

Sanitary Sewer System

City of Glendale



Legend

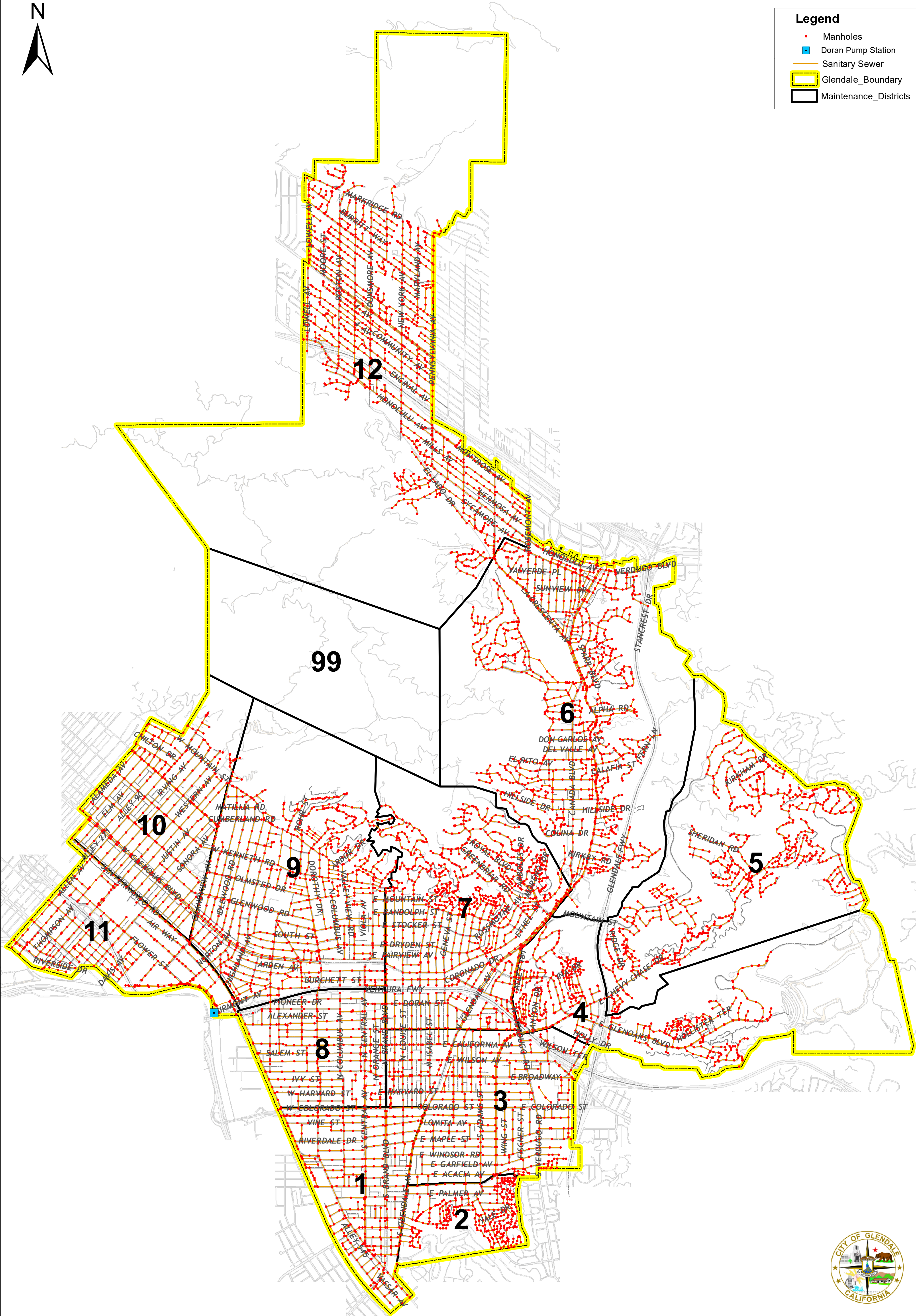
Manholes

Doran Pump Station

Sanitary Sewer

Glendale_Boundary

Maintenance_Districts



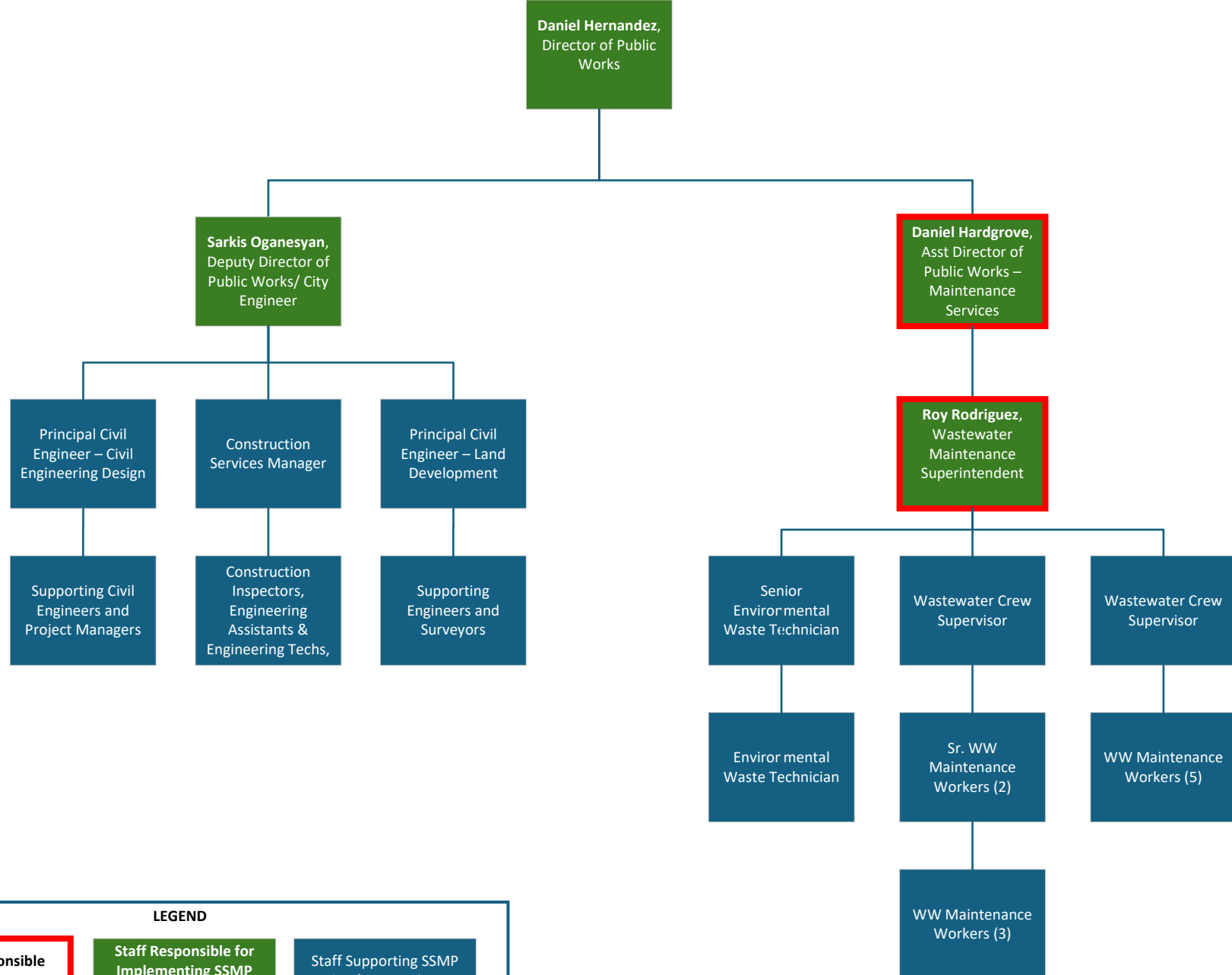


Attachment B – SSMP Program Implementation Organization Chart



City of Glendale

SSMP Program Implementation Organization Chart



Attachment D1 – Level 1 Maintenance Hole Inspection Form

Sewer Maintenance Hole Inspection Form



Sewer Manhole Number:		Tape/CD No:	
Manhole Depth to the Invert:		Date of Inspection:	
Location (Street, Intersection):		Time of Inspection:	
Cross Street:		Inspected by:	
Thomas Book Page No:		Approximate Depth of Sewage Flow:	

SEWER MANHOLE SHAFT		
Construction Material & Type (Place a check mark next to Type of Material)	Concrete	
	Brick	
	Precast Concrete	
	Drop Manhole	
Condition of Manhole (Mark the best choice)		
Shaft Walls*	No Cracks	
	Slight Cracks	
	Moderate Cracks	
	Severe Cracks	
Comments and Observation		
Shaft Shelf/Base	Good	
	Fair	
	Poor	
	Need Repair	
Comments and Observation		
Shaft Steps	Material	
	Observed Number of Steps	
	Number of Missing Steps	
	Number of Steps Needed to be Replaced	
Comments and Observation		

MANHOLE FRAME AND COVER SET		
Size of Manhole Frame (Place a check mark next to the size)	24"	
	27"	
	30"	
	Other Size	
Condition of Manhole Frame and Cover Set (Mark the best choice)		
Frame and Cover	Good	
	Worn Out	
	Covered with Asphalt Pvm.	
	Need Replacement	
Comments and Observation		

RECOMMENDED REHABILITATION

*Slight Cracks-Short minor hairline cracks
Moderate Cracks-Horizontal or transverse cracks that do not appear to cause any problem
Severe Cracks-Cracks maybe causing infiltration problems or may eventually develop into a major structural damage



Attachment D2 – Doran Pump Station Critical Spare Parts List Snapshot (March 2025)

Maintenance Services maintains an up-to-date list on the G:drive.

Doran Lift Station - Critical Spares

PW Wastewater

Updated March 2025

Item Description	Used	Bin	Desired	On-Hand
Analog voltage input A-B #1769-1F8	DLS	A		1
C440 electronic overload EATON #C440A020SF1	DLS	A		1
Circuit breaker 3A CBI-Electric #QY-1(13)	DLS	A		3
Circuit breaker 5A CBI-Electric #QZ-1(13)-D	DLS	A		2
Circuit breaker 15A CBI-Electric #QL-1(13)	DLS	A		1
Circuit breaker 5A CBI-Electric #QL-1(13)	DLS	A		1
Circuit breaker 10A CBI-Electric #QL-1(13)	DLS	A		1
Circuit breaker 10A CBI-Electric #QZ-1(13)-D	DLS	A		1
Circuit breaker 3A CBI-Electric #QZ-1(13)-D	DLS	A		2
Reduced voltage soft starter EATON #S811-N66N35	DLS	A		1
240w 1 phase power supply EATON #PSG240E	DLS	A		1
CUI door mounting kit EATON #EMA69A	DLS	A		1
Power supply 90W 85-264 input IDEC #PS5R-SE24	DLS	A		1
Digital input module 16 input A-B #1769-IA16	DLS	A		1
Analog output module 4+20mA A-B #1769-OF8C	DLS	A		1
Digital output module 16AC output A-B #1769-OA16	DLS	A		1
Pump sealminder scan module ABS inc #61240170	DLS	A		1
Power supply 120 VAC input 4A A-B #1769-PA4	DLS	A		1
Hard drive A-B #6189V-25HDDS540 2816	DLS	A		1
Pneumatic Timer EATON # C320PT2	DLS	G	6	6
Soft Starter EATON # S811+N66N35	DLS	G	1	1
Motor Circuit Protector Type HMCP & HMCP5 EATON # HMCP100R3C	DLS	G	1	1
Power Supply 240W single phase EATON # PSG240E24SMB	DLS	G	1	1
Plug-in Relay EATON # D2PF4AA	DLS	G	6	6
Reset Button EATON # 10935H3	DLS	G	2	2
Hand Off Auto switch EATON # 10250T21TKB	DLS	G	1	1
Memory card 64MB A-B #1784-CF64	DLS	A		1
Repair kit SULZER #61705055	DLS	B		1
Repair kit SULZER #61705091-NG2	DLS	B	2	1
Fastening kit SULZER #62306250M2	DLS	B		1
Annunciator generator CUMMINS #300-5929-02	DLS	B		1
10amp relay 120 VAC coil IDEC #RU2S-A110	DLS	A		2
10amp relay 24 VDC coil IDEC #RU2S-D24	DLS	A		2
Starter motor Cummins Gen/DLS #3971615	DLS	H		1
Water pump Cummins Gen/DLS #2881804	DLS	H		1
Injection pump Cummins Gen/DLS #5256607NX	DLS	H		1
Gasket set Cummins Gen/DLS #4955356 outside the bin in oem box	DLS	H		2
Siemens electromagnetic flow sensor 7ME65204VJ132LA2	DLS	F		1
Sulzer fastening kit Wurth 62306017M2	DLS	J		1
Oil filter Cummins Gen/DLS 3937736	DLS	L		6
Element air cleaner (filter) Cummins Gen/DLS #0140-4046	DLS	L		1
Belt v Ribbed Cummins Gen/DLS #3979344	DLS	L		2
Front seal kit Cummins Gen/DLS #3804899	DLS	L		2
Oil seal Cummins Gen/DLS #3937111	DLS	L		2
Valve cover gasket Cummins Gen/DLS #4899228	DLS	L		2

Attachment E – Sanitary Sewer Manual and Standards (2009)

CITY OF GLENDALE, CALIFORNIA

SANITARY SEWER MANUAL AND STANDARDS



March 2009

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION
633 EAST BROADWAY, ROOM 205
GLENDALE, CA 91206-4388
TELEPHONE: (818) 548-3945 FACSIMILE: (818) 242-7087

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CITY OF GLENDALE SANITARY SEWER DESIGN MANUAL AND STANDARDS

1.0 BACKGROUND AND GENERAL INFORMATION

1.1 BACKGROUND

The City of Glendale (The City) is a Charter City located northeast of the City of Los Angeles in the San Gabriel Mountains. Glendale's population of approximately 200,000 resides in over 75,000 dwelling units within a 30.6-square-mile area. The City's current planning efforts estimate that Glendale's population is projected to reach approximately 225,000 by the year 2030.

The City of Glendale's existing wastewater collection system is comprised of four types of facilities. These facilities are:

1. Wastewater collection system pipelines,
2. Permanent wastewater monitoring metering stations,
3. One wastewater pump station, and
4. Co-ownership in a wastewater treatment facility.

The existing wastewater collection system within Glendale contains approximately 360 miles of underground wastewater pipelines. These pipelines range from 8 inches to 36 inches in diameter, with approximately 87% of the system being 8-inch. Wastewater collected in these facilities is conveyed primarily by gravity through a "trunk" wastewater pipeline system to regional interceptors for treatment at the Hyperion Treatment Plant (HTP) or the LAGWRP (Los Angeles Glendale Water Reclamation Plant), with sludge discharged to the Hyperion System.

The City of Glendale's existing wastewater system conveys wastewater in a southerly and southwesterly direction to the Los Angeles North Outfall Sewer (NOS), located along the Los Angeles River. Glendale's topography, in combination with the physical configuration of the piping and pumping system, has divided the City into seven major drainage basins or tributary areas.

Wastewater flows are accumulated by the wastewater pipeline system in seven district drainage basins and then measured at prescribed locations prior to final discharge to the NOS, the primary trunk line owned and operated by the City of Los Angeles to convey flow to the HTP and the Los Angeles-Glendale Water Reclamation Plant. In the last few years, the City installed permanent inline flow metering facilities to replace the permanent flume facilities that had served the City for 30 to 40 years. These metering stations provide ongoing flow data for billing considerations with the City of Los Angeles and are used as the basis of existing flow conditions for developing the Wastewater Master Plan Update by Kennedy-Jenks Consultants (K/J) (See Figure 2-2 for basin designations and outfall locations).

The majority of the City's wastewater collection system is composed of vitrified clay pipe (VCP) sewer lines. VCP is a commonly used sewer pipeline material and is generally considered to provide reliable service for over 80 years. As one of the older municipalities in its region, the City's wastewater system contains many older pipelines. In fact, approximately half of the wastewater system is over 75 years old.

The City owns, operates, and maintains one wastewater pumping station, the Doran Street Wastewater Pumping Plant (lift station) that lifts sewage from an existing 18" trunk sewer passing under the Verdugo Wash Flood Control Channel. This facility was originally constructed sometime around 1930 as a below ground, bi-level facility. The last major reconstruction of this lift station was in 1982 when upper level and ground level structures were added. The lift station is located at 987 W. Doran Street on the western edge of Glendale City limits and adjacent to the southeast corner of the confluence of the Verdugo Wash Flood Control Channel and the Los Angeles River.

1.2 GENERAL INFORMATION

1.2.1 PURPOSE OF MANUAL

The City of Glendale Sanitary Sewer Design Manual and Standards shall be cited routinely in the text as the "COG SS Manual" or just "SS Manual". The City of Glendale shall be cited as either the City or COG.

The purpose of the COG SS Manual is to provide a consistent policy under which certain physical aspects of sanitary sewer design will be implemented. The COG SS Manual shall govern all construction and upgrading of all public and private sanitary sewer facilities and applicable work within its service areas in the COG.

The permanent sanitary sewer facilities shall be provided to all property (legal lots of record created by a partitioning or subdivision of land per the City's Municipal Code). All new development shall provide for an extension of public sewer to upgradient properties.

The COG SS Manual cannot provide solutions for all situations. It is not intended to unreasonably limit any innovative or creative effort, which could result in better quality, cost savings, or both. Any proposed departures from the SS Manual will be judged on the likelihood that such variance will produce a compensating or comparable result, in everyway adequate for the user and resident.

Following from the above purpose, the SS Manual has the objective of developing a sanitary sewer system which will:

1. Be consistent with the City of Glendale General Plan, and the Sanitary Sewer Master Plan;
2. Be consistent with the City's Policies and Codes;
3. Be of adequate design to carry the expected flow, within their design life, and at sufficient depth to serve adjacent properties;
4. Have sufficient structural strength to resist all external loads which may be imposed;
5. Be of materials resistant to both corrosion and erosion through its design life;
6. Be economical and safe to build and maintain; and,
7. Prevent infiltration and/or inflow of ground and surface waters.

Alternate materials and methods will be considered for approval on the basis of these objectives.

1.2.2 REVISIONS TO THE SS MANUAL

It is anticipated that revisions to the COG SS Manual will be made from time to time. The date appearing on the title page of the COG SS Manual is the date of the latest revision. Users should use the latest issue for the work contemplated.

The design of the following are considered special problems and are not covered in detail in the SS Manual:

1. Sewage Pump Stations
2. Force Mains
3. Treatment Plants
4. Outfall Sewers
5. Regulating Devices
6. Flow Measurement Devices
7. Hydrogen Sulfide and/or Hazardous Gasses

Review and approval of the above special problems by the City Engineer shall be required. When requested by the City, full design calculations shall be submitted for review prior to approval.

1.2.3 REFERENCES

1. City of Glendale Municipal Code (CGM), Public Services-Title 13, Sewer System Title - 13.40
2. City of Glendale, CIP Specifications
3. City of Glendale Kennedy/Jenks Updated Wastewater Master Plan, July 2007
4. City of Los Angeles, Bureau of Engineering, Sewer Manual, June 1992
5. WEF Manual of Practice No. FD-5, Gravity Sanitary Sewer Design and Construction 1982, Water Pollution Control Federation, Washington, D.C. This is also available as ASCE Manual No. 60, ASCE, New York, New York.
6. Guidelines for the Implementation of the California Environmental Quality Act of 1970, City of Los Angeles, Revised 1-27-81.
7. WEF Manual of Practice No. 1, Safety and Health in Wastewater Systems 1983, Water Pollution Control Federation, Washington, D.C.
8. WEF Manual of Practice No. 7, Operation and Maintenance of Wastewater Systems, 1980, Water Pollution Control Federation, Washington, D.C.

1.2.4 STANDARD SPECIFICATIONS

Except where the SS Manual provides other directions Design and Construction shall be done in accordance with:

1. City of Glendale Municipal Code.
2. City of Glendale Specifications, General Conditions.
3. City of Glendale Standard Plans.
4. Standard Plans for Public Works Construction, latest edition
5. Standard Specifications for Public Works Construction, latest approved edition and supplement, Building News, Inc., Los Angeles, California.
6. Council Approved Conditions.

1.2.5 SEWER CONSTRUCTION PLANS

The sanitary sewer plans are identified with a number "3" followed by hyphen 3 or 4-digit number (3-XXXX). The number shall be taken from the Sewer Book Binder, next number in order after the last one recorded in the Book.

1.2.6 DIGITAL SEWER CONSTRUCTION PLANS

Most (but not all) of the construction sewer plans are available as a digital file. The images can be found at:

\\germ3\Images

Located within "Images" are folders named (actually numbered) corresponding to the type of plan found within, i.e. 1 for 1-xxx street plans, 2 for 2-xxx alley plans, 3 for 3-xxx sewer plans, etc.

Most of these images were converted into TIFF images from microfilm. Any new or missing plans are scanned as PDFs.

In order to map the City's utilities using the GIS system, the City has been divided into 189 GIS tiles. The electronic Sewer Atlas was created by mapping all 189 GIS tiles. The plans/GIS files can be accessed at:

U:\GISLib\Mapping PDFs\Sewer PDFs\24x36\24x36\TILE XXXX

1.2.7 DEFINITIONS AND TERMS

Abbreviation	Definition
AAF	annual average flow
ac	acre
ADD	average day demand
ADWF	average dry weather flow
APN	assessor parcel number
AWWF	average wet weather flow
BMP	Best Management Practices
BOD	biochemical oxygen demand
cf	cubic foot
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIP	Capital Improvement Program
D/d	depth to diameter
dia.	Diameter
DSP	Downtown Specific Plan
DU	dwelling unit
DU/ac	dwelling units per acre
EPA	U.S. Environmental Protection Agency
EADWF	Existing Average Dry Weather Flows
FADWF	Future Average Dry Weather Flows
FEMA	Federal Emergency Management Agency

FPDWF	Future Peak Dry Weather Flows
FPWWF	Future Peak Wet Weather Flows
fps	feet per second
GIS	geographic information system
gpad	gallons per acre day
gpcd	gallons per capita per day
gpm	gallons per minute
hcf	hundred cubic feet
HGL	hydraulic grade line
hp	horsepower
HTP	Hyperion Treatment Plant
I&I	Infiltration and inflow: The wastewater component caused by rainfall-dependent infiltration/inflow (RDI/I) and groundwater infiltration (GWI).
IWPP	industrial waste pretreatment program
JPA	Joint Powers Agreement
K/J	Kennedy/Jenks Consultants
KWH	kilowatt hours
LA	City of Los Angeles
PDWF	peak dry weather flow consists of peak sewage flows plus GWI.
PWWF	peak wet weather flow consists of PDWF plus RDI/I.
PF	Peak Factor is PDWF/ADWF.
RDI	rainfall dependent Infiltration consists of rainfall that enters the collection system through GWI.
RDI/I	rainfall dependent Infiltration/inflow RDI/I consists of rainfall that enters the collection system through both RDI (infiltration) and SWI (inflow) sources.
SERVICE LIFE:	The operational life of a sewage facility which should exceed the design period of the facility provided it is designed, constructed and maintained properly.
STORMWATER INFLOW (SWI):	SWI consists of rainfall runoff that enters the system through direct connections such as catch basins, downspouts and area drains.
TRIBUTARY AREA:	The tributary area of a sewage system consists of all areas which contribute flow to the sewer by gravity and/or force main discharges. Those include sanitary sewer as well as I/I flows.

2.0 DETERMINATION OF DESIGN FLOW

2.1 PROJECTION OF FLOWS

Planning for the economical development of a sewer system requires information on current flows and forecasts of future flows. A sanitary sewer has two main functions: (1) to carry the peak discharge for which it is designed, and (2) to transport suspended solids so that deposits in the sewer are kept to a minimum. Therefore, it is essential that the sewer has adequate capacity for the peak flow and that it functions properly at minimum flows.

The peak flow determines the hydraulic capacity of sewers, pump stations and treatment plants. Minimum flows must be considered in design of sewers and siphons to insure reasonable cleansing velocities.

The elements required to determine the design flow in a sanitary sewer are as follows:

1. Tributary Area
2. Design Period
3. Population Estimate
4. Land Use
5. Per Capita Flows
6. Residential Flows
7. Commercial Flows
8. Industrial Flows
9. Major Point source Discharges
10. Infiltration/Inflow

The Wastewater System Master Plan prepared by Kennedy/Jenks Consultants for the City in 1998, and updated in 2007 (Updated Wastewater System Master Plan) evaluated each of the required elements. The Master Plan analyzed the City's existing wastewater system making recommendations for upgrades to handle future growth and development within the existing urban growth boundary. In the process, flow design criteria were established to meet future system demands.

2.2 DESIGN CRITERIA

Based on the inputs from various City Departments, recommendations provided in the Updated Wastewater System Master Plan prepared by K/J Consultants for the City, and general standards for the wastewater system design, the following parameters are the basis for design of the wastewater system in the City of Glendale:

2.2.1 TRIBUTARY AREA

The City has been divided into the seven major drainage areas. They are:

Colorado Flume
Chevy Chase Flume
Doran Pump Station Basin
Doran Flume
Elk Flume
Salem/San Fernando Flume
Tyburn Flume

For the sewer main to be designed, the drainage basin must first be identified. Superimpose the land use map on the drainage basin boundary, and determine the tributary areas of the specific land use located within the drainage basin.

Go to <http://www.ci.glendale.ca.us/qmc/Maps> for zoning maps.

2.2.2 DESIGN PERIOD

The design period is that length of time the capacity of the sewerage facility is anticipated to be adequate to service its tributary area. It must be determined before design of the facility is commenced. In general, the design aim is to have the system flow capacity period equal to the structural life of the pipe. VCP lasts 75 -100 years, however, the planning/zoning horizon is typically 20 - 30 years.

2.2.3 POPULATION AND LAND USE PROJECTIONS

Current zoning or projected land use classifications (as presented on the City's Zoning Map) shall be used in estimating projected sanitary sewage flow. A sewer flow coefficient has been calculated for each zone i.e. per land use classification. A sewer coefficient was derived by converting future wastewater flow projections for projected population and employment occupying the different zones per City's Zoning Map.

2.2.4 PER CAPITA FLOW

A. Existing Wastewater Flows

The City has installed seven permanent flow meters in the collection system to measure the volume of wastewater as it leaves the City, and is collected by facilities owned and operated by the City of Los Angeles (except for the Los Angeles-Glendale Wastewater Reclamation Plant which is owned 50% by Glendale). Based on wastewater flows and rainfall data gathered at

these metering stations, average dry weather flow (ADWF), peak dry weather flow (PDWF), and peak wet weather flow (PWWF) factors were developed for each metering station and drainage basin.

B. Future Wastewater Flows

Future wastewater flow projections are derived by developing unit wastewater flow factors under current conditions and applying these factors to the population and employment projections developed by the City, provided in the Traffic Zone Area (TAZ) analysis data set, and as presented on the zoning map. (Downtown Specific Plan and General Plan).

The City's existing average annual flow in year 2007 is approximately 17 MGD. The City's total average annual wastewater is projected to increase to approximately 22 MGD by the year 2030, an increase of approximately 28%.

2.2.5 AVERAGE DRY WEATHER FLOW

Average Dry Weather flow (ADWF) includes average daily sewage flows and GWI. ADWF is the basis for calculation of PDWF.

$$Q_{ADWF} = Q_{ave}$$

$$Q_{ave} \text{ (cfs)} = \text{Area (Acre)} \times \text{Sewer Flow Coefficient (cfs/Acre)} \quad \text{Eq. (1)}$$

2.2.6 SEWER FLOW COEFFICIENT

Sewer Flow Coefficients can be found in the [SewerDesignCalculationTemplate](#), Appendix A of this Manual.

2.2.7 PEAKING FACTOR

A new peaking factor equation for the City was developed in the Updated Wastewater System Master Plan by KJJ and is provided as follows:

$$\text{Peaking Factor (PF)} = -0.1815 \ln(Q_{ave}) + 1.76, \text{ (Q in mgd)} \quad \text{Eq. (2)}$$

"Peak Factors" are the relationship between average daily dry weather flow and the highest dry weather peak of the year. As flows increase, the peak factor decreases.

2.2.8 PEAK DRY WEATHER FLOW

The Peak Dry Weather Flow (PDWF) includes peak sewage flows and GWI. PDWF is the basis for selecting a pipe size.

PDWF is determined by multiplying ADWF times a peaking factor.

$$Q_{peak} = (PF) \times Q_{ave} \quad \text{Eq. (3)}$$

2.2.9 DESIGN CRITERIA FOR SEWER PIPE

The criteria for design of sewer pipe includes type/size sewer line, design period, design depth of flow and PDWF.

TYPE/SIZE SEWER LINE	DESIGN DEPTH OF FLOW ^a (d/D)
Trunk, interceptor, outfall and relief sewers - sewers 18-inch diameter and greater.	0.67
Lateral sewers - sewers 15-inch diameter and smaller.	0.5

^aDepth of flow in the pipeline is based on (PDWF)

D = depth of flow

d = Pipe diameter

^aThrough the creation of the 2007 Master Plan Update, the City adopted new sewer design criteria. The two components of the new criteria are **depth to diameter criteria (D/d)**: all pipelines 18-inches and greater should not exceed **.67 D/d** under future peak wet weather conditions, and pipelines less than 18-inch should not exceed **.5 D/d**. These recommendations are based on the need to meet new State regulations for the use of a wet weather design criteria, the goal is to minimize potential sanitary sewer overflows (SSO's).

2.3 HYDRAULIC DESIGN

2.3.1 TYPES OF FLOW

(Also Refer To LA BOE SS Manual-Section F 240)

This section on hydraulics of sewers deals only with uniform flow employing the Manning Equation. Standard hydraulic handbooks should be consulted for special conditions. Since the flow characteristics of sewage and water are similar, the surface of the sewage will seek to level itself when introduced into a channel with a sloping invert. This physical phenomenon induces movement known as gravity flow. Most sewers are of this type. The flow in a pipe with a free water surface is defined as open channel flow.

Steady flow means a constant quantity of flow and uniform flow means a steady flow in the same size conduit with the same depth and velocity. Although these conditions seldom occur in practice, it is necessary to assume uniform flow conditions in order to simplify the hydraulic design.

There are times when sewers become surcharged, encounter obstacles requiring an inverted siphon or pumping. Under these conditions, the sewer line will flow full and be under head or internal pressure.

Three distinct slope lines are commonly referred to in hydraulic design of sewers:

1. The Slope of the Invert of the Sewer. This is fixed in location and elevation by construction. Except in rare cases, the invert slopes downstream in the direction of flow.

2. The Slope of the Hydraulic Gradient (H.G.). This is sometimes referred to as the water surface. In open channel flow, this is the top surface of the liquid flowing in the sewer. Except for a few cases, the hydraulic gradient slopes downstream in the direction of flow.

3. The Energy Gradient (E.G.). This is located above the hydraulic gradient, a distance equal to the velocity head which is the velocity squared divided by two times the acceleration due to gravity ($v^2/2g$). This slope is always downstream in the direction of flow. For uniform flow, the slope of the energy gradient, the slope of the hydraulic surface and the slope of the invert are parallel to one another but at different elevations.

2.3.2 SUPERCRITICAL AND SUBCRITICAL FLOW **(Also Refer To LA BOE SS Manual-Section F 242)**

In the sewer system, the hydraulic study and flow type determination is important to meet the following hydraulic requirements:

1. The velocity must be sufficiently high to prevent the deposition of solids in the pipe but not high enough to induce excessive turbulence. The minimum scouring velocity is 2 feet per second (fps). Clay pipe is being used successfully where velocities exceed 20 feet per second.

2. Careful consideration should be given in the design of sewers to avoid hydraulic jumps. The rapid decrease in flow velocity across the jump may result in deposition of solids in the downstream conduit and the turbulence causes the release of sulfide gases held in solution.

3. Where changes are made in the horizontal direction of the sewer line, in the pipe diameter, or in the quantity of flow, invert elevations must be adjusted in such a manner that the change in the energy gradient elevation allows for the head loss.

4. Sanitary sewers through 15-inch diameter are normally designed to run half-full at peak flow and larger sewers are designed to run up to two-thirds full at peak flow.

In general, the design of sanitary sewers shall be based on steady uniform flow analysis employing the Manning Equation. The Engineer shall be able to identify flows type: supercritical, subcritical and critical flows. Because flows within 10 to 15 percent of critical depth are likely to be unstable they should be avoided. Computation of "critical depth" is necessary to determine whether flow may be supercritical or subcritical. Normal flow depth is compared with critical depth to determine if flow is supercritical or subcritical. If normal flow depth is above critical depth, the flow is subcritical. If normal flow depth is below critical depth, the flow is supercritical.

2.3.3 CALCULATION OF PIPE SIZE

After the design criteria have been determined the required pipe size may be calculated using Manning's formula.

$$Q = \frac{1.486 A R^{2/3} S^{1/2}}{n}$$

where,

Q = Flow, cfs

A = Area of flow, sq. ft

R = Hydraulic radius (A/P), ft

n = Roughness factor

The pipe size is rounded up to the nearest standard size. To account for the discrepancy in the design period, pipes are sized to minimum 2 size diameters larger than the existing pipe and/or one additional pipe size is added. The minimum pipe size is 12" diameter for new installations.

2.3.4 MANNINGS ROUGHNESS COEFFICIENT "n"

A Manning's roughness coefficient of "n" = 0.013 shall be used for sizing gravity sewers. This Manning's roughness coefficient shall be used regardless of the type of pipe specified.

2.3.5 MINIMUM VELOCITY

Gravity sewers shall be designed for a minimum velocity of (2) two fps using the PDWF that exists at the time the pipe is placed into service.

2.3.6 MINIMUM SLOPE

The minimum scouring velocity is two fps (recommended three fps). The City Engineer approval must be obtained to use lower design velocities, except in the extreme upper reaches of the system with a few connections. In these cases, 8-inch diameter minimum pipe size and 0.0044 ft/ft minimum slope will govern except for the last upstream reach to a terminal maintenance hole where 0.0060 ft/ft minimum slope will govern.

Slope Rates -All grades for sewer pipe shall be given to a thousandth of one percent or slope to five decimal places.

Tabulated Values -Standard Minimum Grades

Diameter (Inches)	Minimum Grade (per cent)	Diameter (Inches)	Minimum Grade (per cent)
6	2.00 (H.C. only)	15	0.19
8	0.40 minimum	18	0.12
8	1.00 desirable	21	0.10
10	0.33	24	0.08
12	0.26		

When it is necessary to provide flatter grades than the standard minimum, pre-approval is required.

2.3.7 INVERT DROPS ACROSS MAINTENANCE HOLES (ALL PIPES THE SAME SIZE)

For straight through flow, the invert drop shall be computed by multiplying the diameter of the MH in feet times the average slope of the inlet and outlet sewers. When possible to attain, the minimum invert drop across a MH should be 0.10 foot.

For side inlet flow into the MH the invert drop across the MH shall be computed by multiplying the diameter of the MH times the average slope of the side inlet and outlet sewers and adding 0.10 foot. When possible to obtain, the minimum invert drop between the side inlet and the outlet should be 0.200 foot.

2.3.8 INVERT DROPS ACROSS MAINTENANCE HOLES (OUTLET PIPE IS LARGER THAN THE INLET PIPE) (same as the City of LA)

For straight through flow the drop across the invert of the MH shall be computed by multiplying the diameter of the MH times the average slope of the inlet and outlet sewers and adding the additional drop as shown in Table F255 of the City of LA Sewer Manual Bureau of Engineering.

ADDITIONAL INVERT DROPS ACROSS MAINTENANCE HOLE WHEN THE OUTLET SEWER IS LARGER THAN THE INLET SEWER PIPE SIZES 8-INCH THRU 15-INCH

TABLE F255 (in Foot)

Diameter Outlet Sewer (in inches)	Diameter Inlet Sewer (in inches)			
	6	8	10	12
8	0.08	-	-	-
10	0.17	0.08	-	-
12	0.25	0.17	0.08	-
15	0.38	0.29	0.13	0.13

In the above table the sewers are assumed to be flowing with the depth (D) to diameter (d) criteria, $D/d = 0.50$ and water surfaces at the same level. If the inlet pipe is 15-inch and smaller ($D/d = 0.50$) and the outlet pipe is 18-inch and larger ($D/d = 0.67$), a depth point of both pipelines shall be at the same level as shown in Figure F255. (This approximates maintaining the same hydraulic energy gradient from the inlet to the outlet pipe.

The maximum invert drop across MHs for sewers 15-inch and smaller shall be 0.60 foot for straight through flow and 1.00 foot for side inlet flow. When drop exceeds 26" for 8" vitrified clay pipe, a standard drop MH shall be constructed.

2.3.9 DROP SEWER MAINTENANCE HOLE

Drop sewer MHs may be specified when there is a junction of two or more sewers at a MH and there is a vertical difference of at least 2 feet between the sewer inverts. Parabolic vertical

curves are preferable to make such connections. However, when such a curve is not feasible, a drop sewer MH may be specified. Inlet sewer size into the drop sewer MH shall be limited to 12 inches.

2.3.10 GRAVITY SEWER DESIGN COMPUTATION SHEET

Use The Sewer Design Calculation Template Computation Sheet Found in The Common File.

U:\Engineering\Design\Common Files\Project Management Sample Documents\2.3 Design Aids-Calcs\SEWER\SewerDesignCalculationTemplate.

For step-by-step procedure go to Appendix A, Example of Design Flow Calculation.

3.0 LOCATIONS AND ALIGNMENT OF SEWERS

3.1 LOCATIONS

- 3.1.1 **Streets** -Sewers shall be located usually along the center line of the street. When the line serves one side of the street only, it shall be located not closer than three (3) feet from the existing or proposed curb face. Sewers shall not be located between the curb and property line except in extreme cases where surface or subsurface obstruction will not permit another location.
- 3.1.2 **Alleys** -Sewer manholes shall not, as a rule, be located closer to the property line than three (3) feet, nor closer to the center line of alley than three (3) feet. Generally, sewer manholes shall not be located within three (3) feet of the alley flow line. If it is unavoidable, "pressure type" manhole F&C must be used.
- 3.1.3 **Double Lines** -Where street widths, street cross fall or underground obstructions cause design or construction problems, sewers may be built to serve each side of the street separately, or the sewers may be placed in adjacent alleys. The relative cost of the two methods shall be considered in determining the location.
- 3.1.4 **Minimum Distance from Substructure** -Approval will be required for any sewer located less than three (3) feet from an existing or proposed pipe or conduit, except water mains, where the minimum distance shall be approved first by the water utility. In case of unavoidable interference with any existing utility pipe or conduit, arrangements with the utility owner shall be made for the supporting or moving of same at the earliest possible time. County Health Department approval may be required in the case of a water line.
- 3.1.5 **Right of Way** -In order to avoid the difficulties experienced in maintaining sewers located in Rights-of-Way, designers will use every effort within reason to locate sewers in streets or alleys, even though a greater depth is required. Usual conditions will rise where it will be necessary to deviate from this practice.
- 3.1.6 **Angles in Easement** -All angles on a proposed right-of-way sewer line shall be shown, except where proper ties to known points are shown sufficient for checking and stating the sewer location. When there is a difference between the measured and the calculated or recorded angle, the measured angle shall be used.

- 3.1.7 **Plotting House Connections** -House connections shall be plotted perpendicularly to the main sewer, if possible.
- 3.1.8 **House Connection Stations** -The location of all house connections shall be indicated by stationing with reference to the main sewer to which they will be connected. When the main sewer turns an angle and a house connection extends beyond a structure, indicate by light dotted black line the extension of the main sewer along which the stationing is taken, to its intersection with a dotted line perpendicular thereto, and meeting the curb line at the location given for the house connection sewer. When a house connection is at a skew to the main line, give two stations, one to the main line and one where the house connections meets the property line.
- 3.1.9 **House Connection Length** -On curved streets where the house connections extend to the curb line or the property line, the length shall be determined to the nearest foot, accurately scaling it from the plan and the length shall be shown along the line which defines the house connection sewer.
- 3.1.10 **Stubs** -The position and size of all stubs shall be shown on the plans.
- 3.1.11 **Skew Crossings** -Avoid long skew crossings under existing or proposed substructures.
- 3.1.12 **Storm Drain Crossings** -Plot storm drain in profile when paralleling or crossing sewer. Plot and callout elevations of sewer, house connections and storm drain at crossing points.
- 3.1.13 **Plot Utility Crossings** -except house services on profiles

3.2 MANHOLE SPACING

Sewer Pipe Size	Standard Spacing	Maximum Spacing
8" to 18"	300'	500'
21" to 36"	400'	700'
Over 36"	600'	800'

3.3 HORIZONTAL AND VERTICAL ALIGNMENT

Refer to LA BOE Sewer Manual, Section F32D and F321.41. A straight line alignment between MHs is proffered.

3.4 CURVED SEWER

3.4.1 Curved sewers should be used

1. To avoid crossing utility lines or crossing utility lines at too slight an angle
2. To reduce the number of manholes on curved streets
3. To minimize difficult construction problems

Special provisions governing the use of curved sewers

- a. The sewer alignment must be based on a center line survey showing all angles, curve data and tangent distances with ties to control points.
- b. On a sewer 27 inches or smaller in diameter, the following will be permitted between two manholes: one simple curve, either horizontal or vertical, curves need not begin or end at a manhole, but it is preferred.
- c. On a sewer 30 inches or larger in diameter, compound curves or a combination of curves and tangents may be used. Special attention shall be given to the numbers and location of manholes on such sewers to ensure normal maintenance operations.

3.4.2. No curve radius, vertical or horizontal, shall be less than 150 feet for pipe 15 inches in diameter or less, unless special lengths of pipe is specified on the plans. Larger pipe shall be beveled to fit the particular alignment shown on the plan. Pipe lengths will be delineated on all curves.

3.4.3. Manholes shall be arranged in such a manner that a survey crew can retrace the sewer main with reasonable accuracy without ties, using the center of the manhole ring and covers as a control points.

3.4.4. Plans of proposed curved sanitary sewers shall have the following note in a conspicuous place on the plans:

"All curved sewer lines shall be 'balled out' by the contractor in the presence of the City Engineer or his authorized representative before final acceptance of the completed line by the City. Should this procedure indicate an obstruction or break in the pipe, it shall be the Contractor's sole responsibility to locate the obstruction or break and to repair and repeat 'balling out' until this test indicates to the satisfaction of the City Engineer that the line is clear and unbroken.

3.5 SEWER DEPTHS

3.5.1 **Mainline and House Connections Depths** -Except as influenced by other considerations, main line sewers shall be designed for an 8 foot depth to secure house connection sewer depths of 6 feet at the curb line or property line, whichever controls.

3.5.2 **House Connection Depths** -The figure in a circle on the plans adjacent to a house connection station indicates the depth in feet below the existing curb to which the invert of the upper end of the house connection shall be constructed. If no depth is indicated, the invert of the upper end of each house connection shall be built to the elevation shown on the profile, or if no such elevation is shown, to a depth of 6 feet below the top of existing or future curb, provided, however, that a minimum 2% fall towards the sewer main is maintained along the entire connection.

3.5.3 **Open cut, Tunnel, or Jacking** -All sewers shall be designed in open cut, except when conditions warrant the use of tunneling or jacking such as congested traffic, utility interference, excessive depth, sewer Rights-of-Way to avoid interference, or under railway tracks where it is impossible to use a trenching machine.

4.0 SEWER MATERIALS AND STRUCTURES

4.1 TYPE AND CLASS OF PIPE

1. **Clay pipe** -Unless otherwise specified on the plan or the profile, sewers shall be constructed of high strength clay pipe in accordance with Section 207-8 of Standard Specifications for Public Works Construction.
2. **Cast Iron Pipe, Ductile Iron Pipe** -Cast iron pipe or ductile iron pipe may be specified where it would not be satisfactory to use clay pipe due to unusual conditions.
3. **Plastic Pipe**-The use of plastic pipe is subject to the City's Engineer approval.

4.2 SEWER PIPE JOINTS

All sewer pipe and box joints shall be rootproof, gasproof and watertight. Unless otherwise provided for on the plans or Special Provisions, the joints shall be as per SSPWC.

Type "D" Joint-Type D shall be used for 6" plain end VCP with maximum deflection less than 2 1/2 degree.

Type "G" Joint- Type G shall be used for Bell and Spigot (B&S) VCP.

Type "Z" Joint -Type Z shall be used for VCP field closures and to adapt pipes of different materials or pipes having different outside diameters. It shall be applied to 4"-12" diameter pipe only.

4.3 SEWER MAINTENANCE HOLE (MH)

Unless otherwise specified on the plans or Special Provisions, MHs shall be as per SPPWC.

New precast concrete MHs shall be lined on the interior surfaces with a plastic or an approved protective coating. The standard test to determine the coating's resistance to corrosion may be found in Subsection 210-2.3.3 of the SSPWC.

4.4 SEWER MAINTENANCE HOLE FRAME AND COVER (MHF&C)

A minimum size 27 inch maintenance hole frame and cover (MHF&C) shall be installed on every new sewer MH. The size (MHF&C) shall vary with the maximum pipe size connected to the MH as indicated in Table F 462.

A 36-inch MHF&C may be used to provide a large access cover when necessary for maintenance (e.g. very shallow MHs). Because of the weight issue, 36-inch MHF & C shall consist of two concentric rings (24-inch ring within 36-inch.) Most local supplier carries these MHF & Cs.

Pressure MHF&C shall be required when the hydraulic grade line of the sewer may rise to within 1 foot of the top of the maintenance hole.

4.5 SEWER MAINTENANCE HOLE SIZE

The MH size is dependent on the largest pipe size connected to the MH. Table below lists the minimum required MH inside diameter with respect to pipe sizes connected to the MH. The Engineer may increase the MH to the next largest size upon his discretion with the approval of the City Engineer.

Sewer Pipe Size (Inches)	Min. MH Inner Dia.	Size Frame & Cover (Inches)
8" to 15"	4 feet	Standard 27"
18" to 30"	5 feet	Standard 36"
Over 33"	6 feet	Large 36"

Min. MH Inner Dia.	MH Depth
5 feet	Over 20'
6 feet	Over 30'

Because of the weight issue, 36-inch MHF & C shall consist of two concentric rings (24-inch ring within 36-inch.) Most local supplier carries these MHF & Cs.

4.6 SEWER CONNECTION (CORE DRILLING)

On occasion, it may be necessary to connect a smaller sewer to an existing larger sewer pipe at a location other than an existing maintenance hole for economic reasons. If the connection cannot be made directly at a maintenance hole, the opening in the existing sewer shall be made with a core drill. The connection shall be made using "Tap-N-Tee" saddle or approved equal. (See SSPWC under "Connections, Junctions, Branches, and Spurs").

4.7 BLANKET PROTECTION FOR PIPES

When conduits or other facilities are to be constructed above and in close proximity to existing sewers, there is some probability and concern that the proposed excavation or construction will damage the sewer line and thus, shall be protected by a concrete blanket for the full width of the excavation. SPPWC shows concrete blankets for pipes. Also, see SPPWC "House Connection Remodeling".

4.8 TUNNELING, JACKING, MICROTUNNELING AND DIRECTIONAL DRILLING

Tunnels, jacked casings, microtunneling and directional drilling are usually, but not always, more complex and expensive than open trench construction. See SSPWC in conjunction with such work. Also, see applicable sections of the California Code of Regulations (CCR), Title 8, Industrial Relations, Chapter 4, Division of Industrial Safety, Subchapter 20, Tunnel Safety Orders for additional requirements. For purposes of the CCR, jacking installations are considered the same as tunnels. California State law governs when there is a conflict between it and City policies and requirements.

4.9 TUNNEL CLASSIFICATION

After the decision to construct a tunnel or a jacked casing has been made, the Engineer shall submit all data necessary for submittal to the California Occupational Safety and Health Administration (CalOSHA) in accordance with the CCR.

Data to be submitted includes, but is not limited to:

1. Plans and Specifications
2. Geologic Report
3. Test hole and soil analysis log along the tunnel alignment
4. The possibility of encountering flammable gases or vapors and recommendations if they are expected to be encountered

CalOSHA will review the submittal and designate the proposed tunnel as one of the following classifications:

1. Nongassy
2. Potentially gassy
3. Gassy
4. Extra hazardous

CalOSHA's classification shall be included on the Plans or in the specifications.

4.10 SEWAGE GAUGING AND METERING STATION

In the last few years, the City installed permanent, continuous inline flow metering facilities. Some of these electronic flow measuring devices were installed in existing Parshall Flumes that have been serving the City for 30 to 40 years. These metering stations provide ongoing flow data for billing considerations with the City of Los Angeles.

The existing flow in year 2007 and future flow as described in the section "Per Capita Flow" is summarized in table below:

Metering Location	Existing WW (Year 2007)		Future WW (Year 2030)		Wet Flow (5 Year) I & I (MGD) (b)
	ADWF (MGD)	PDWF (MGD)	ADWF (MGD/%)	PDWF (MGD/%)	
Colorado Flume	4.07	6.06	6.01 (148%)	8.60 (142%)	2.50
Chevy Chase Flume	3.25	5.14	3.61 (111%)	5.52 (107%)	1.40
Doran Pump Station Basin	0.62	1.15	1.76 (284%)	2.94 (255%)	0.20
Doran Flume	4.00	6.04	4.29 (107%)	6.48 (107%)	1.70
Elk Flume	3.50	5.39	3.76 (107%)	5.73 (106%)	3.70
Salem/San Fernando Flume	1.10	1.47	1.60 (146%)	2.29 (156%)	0.60
Tyburn Flume	0.76	1.38	0.84 (110%)	1.51 (109%)	0.80
Total Flows	17.30	26.62	21.87 (126%)	33.07 (124%)	10.90

Notes: Percent increase is the increase in flow per basin going from existing to future conditions.

Information relative to the types of the current flow measurement devices, including sewage gauging data, may be obtained from the Public Works Environmental Section. In 2005, during recurring rains, flows at the flumes were measured and compared to dry weather flows. This information allowed for I&I flows to be determined for each drainage basin.

4.11 HOUSE CONNECTIONS

House Connections (HC) conveys sewage from the property line to the main line sewer. HCs serve residential, commercial and industrial facilities. The entire HC is under the jurisdiction of the property owner as controlled through the permit process. The segment located on private property is under the jurisdiction of the Building and Safety Department; and within the public right-of-way by P.W. Engineering.

When not constructed as part of a project, HCs are installed under a permit in conformance with The City of Glendale Municipal Code (CMG), Public Services-Title 13, Sewer System Chapter 13.40.

The minimum size of an HC shall be 6 inches. The maximum size of an HC shall not exceed a diameter 2 inches less than the diameter of the main line to which it is being connected. HCs shall be designed for the Peak Dry Weather Flow (PDWF) from the lots connected. For single family residences, smaller apartment buildings and some commercial and industrial facilities (single lots) a 6 inch HC is adequate and the application may be submitted without supporting calculations and details.

HCs for large facilities (commercial/industrial size or more than a single lot) shall be designed in detail by a registered civil engineer. Complete plans and supporting data shall be submitted with the application for review and approval. Flow capacity in the main line and downstream collectors, interceptors and outfall sewers shall be checked. No permit shall be issued if there is inadequate flow capacity in existing sewers. If additional sewer flow capacity is necessary, the permittee shall be required to assume all or part of the costs for constructing such sewers. The City's Engineer office maintains "As-Built" HC data on the Sewer Maps in the Sewer Atlas.

1. **Minimum Grade for House Connection** -The standard grade for a house connection shall be 2% but a grade of 1% may be permitted in exceptional cases.
2. **Rise of "Y" and 1/8" Bend** -The normal rise of the "Y" and "1/8" bend for house connection sewers above the main sewer shall be as follows:

Main sewer Size in Inch	"Y" & "1/8" Bend - Rise in Ft	Main Sewer Size in Inch	"Y" & "1/8" Bend - Rise in Ft
8	0.9	18	1.6
10	1.0	21	1.8
12	1.2	24	2.1
15	1.4		

When maximum depth of house connection is required, the "Y" and "1/8" bend may be laid flat, in which case the flow line of the "1/8" bend will be the difference in radii plus 1/4" above the main sewer line.

3. **"Y" Location and Data** -Number and Standard Location -One "Y" shall be provided for the short frontage of each lot and in general, One "Y" to every fifty (50) feet of unsubdivided frontage. Two "Y's" shall be provided for the long frontage of a lot.

Unless there is a specified reason to do otherwise, one "Y" shall be provided, on each side and directly in front of the terminal structure of any sewer extension.

4. **Saddle Connections**-Whenever a connection is required, and a "Wye" or "Tee" spur for the connection does not exist, a saddle connection shall be constructed (type "Tap-N-Tee" or approved equal). Saddles specified on a City's project shall be installed by the City's contractor. Saddles installed under the permit (CMG, Public Services-Title 13, Sewer System Chapter 13.40 shall be installed by the permittee's contractor only after the existing sewer has been adequately exposed by the permittee's contractor and inspected by the City's PWD Construction Inspector.

4.12 TRENCH EXCAVATION, BEDDING AND BACKFILL

See Construction requirements for trench excavation, bedding and backfill in the applicable sections of the SSPWC and as shown on the LA Standard Plan S-251. Usually, these requirements are adequate. Where special conditions warrant, additional details may be shown on the project plans, or the Special Provisions may include such special requirements. Slurry backfill may be required in arterial roadways.

4.12.1 BEDDING REQUIREMENTS FOR VCP

Bedding requirements for VCP shall be in accordance with Figure F 490.1 "Bedding Requirements for Clay Pipe in Trenches". When the graph indicates that reinforcement is required, the plans shall call for construction of the appropriate bedding as shown on the LA Standard Plan S-251 "Pipe Laying in Trenches".

4.12.2 BEDDING REQUIREMENTS FOR PIPES OTHER THAN VCP

If a situation arises to install the pipe of different material than VCP, bedding requirements will be considered on a case-by-case basis.

4.13 TRENCH RESURFACING

Temporary and permanent resurfacing shall be per SSPWC and per the City's Standard Plan No. 25-153.

5.0 PREPARATION OF PLANS

5.1 PLAN LAYOUT

1. **Drawing Size & Plan Material** -Sewer Plans shall be drawn with waterproof ink on polyester base film with outside dimensions of 24" X 36".
2. **Standard Title Block** -The City of Glendale Standard Title Block shall be located in the lower right hand corner of the first sheet. Job limits description in the title shall be referenced to the nearest intersecting street or streets.
3. **Plan and Profile Direction** - Keep the northerly or easterly end of the profile and plan at the right hand end of drawing.
4. **Vicinity Map** -A vicinity map shall be shown on the first sheet of the plans with nearby streets indicated so that the location of the project may be easily determined. If a subdivision is involved with the sewer plans, its boundary and tract number shall also be shown on the vicinity map.
5. **Plan Number** -Plan numbers shall be assigned by the City Engineer to the drawing when the initial check is made.
6. **Sheet Numbers** -The individual sheets in a set of sewer plans shall be numbered.
7. **Profile Stations and Elevations** -Each 100-foot vertical line shall be numbered by stations, and each 10-foot horizontal line shall be numbered by the elevations which pertain to the particular profile. Stationing shall continue from existing stationing on file in the office of the City Engineer.
8. **Dimensions** -All streets and alleys adjoining the proposed sewer work shall be shown, giving the name and width of each. All lots, or other subdivisions, along the proposed sewer, including tract names, block and lot numbers, shall be shown.
9. **Scales** -The horizontal scale shall be 1" = 20', or 1" = 40' and the vertical scale 1"= 4', except for steep hillside areas, where the vertical scale 1"= 8' may be used.
10. **Street Names** -Street names shall be shown on the plan.
11. **Bench Mark** -The elevation, location and referenced must appear on every plan.
12. **North Arrow** -North arrow shall be large enough to be seen immediately and point up or to the right.
13. **Registered Civil Engineer's Signature** -The signature and R.E. number of the Registered Civil Engineer under whose direction plans were prepared shall appear on all the plans.
14. **City Council's Adoption and Approval (City Projects)**
15. **Engineer's cost estimate with unit prices and quantities** - For bonding use. (Private Projects)

18. **Copy of topographic survey or ALTA survey** – Provide copy of survey of existing utilities for cross reference.

5.2 EXISTING IMPROVEMENTS

1. **Existing Utilities** -All existing utilities shall be indicated on the street, in accordance to records in the office of the City Engineer and field survey information. Reference plan numbers shall be shown.
2. **Existing Improvements** -All surface and subsurface features which are in the R.O.W. and those adjacent to the R.O.W. that will affect the sewer construction shall be delineated on the plan.
3. **Existing Elevations** -All existing elevations determined by surveying shall be bracketed when used on the plan or the profile. Lines showing existing elevations on profile shall be indicated as dashed lines.
4. **Field Checks** -All sewer plans will require field checks, whether designed by this office or by a private engineer.
5. **Field Data Preference** -Data for calculations shall be taken from field books in preference to recorded figures and angles, and all calculations shall be checked.
6. **Curbs** -All curbs along the sewer line shall be shown, with the distance out from the center line, and be labeled existing or proposed.
7. **Ground Line** -The ground line over the proposed sewer shall be indicated by a dashed line. Where a fill is known to have been made, the earliest known ground line also shall be shown and labeled with the date of the survey.

6.0 SEWER CONSTRUCTION AND INSPECTION

6.1 GENERAL

Except for permit projects (Private Projects), City sewers shall be constructed by a contractor(s) under contract with the City, i.e. the Public Works Department. The contract shall be awarded to the lowest responsive bidder in competitive bidding procedures conducted by the PW Department. Upon award of the contract, PW Department shall be responsible for construction management and inspection. The contractor is responsible for the construction staking and survey through the entire project.

The Engineer is essentially a technical adviser and coordinator during construction. Design and plan change orders needed during construction remain the responsibility of the Engineer. Other agencies, including City agencies, may be involved during construction. Good public relations, coordination and liaison shall be a requisite in the Engineer's duties during construction. The Engineer in the SSPWC implies the City Engineer. During construction the Project Engineer represents the City Engineer.

6.2 CONSTRUCTION INSPECTION

PWD Construction Inspectors are responsible for inspecting services provided by the City. A Inspector shall be present during any activities related to the project to verify that material and construction are meeting specifications.

The Construction Inspector shall at minimum perform the following duties:

1. Monitor work progress and performance testing as deemed desirable by the Engineer
2. Inform the Engineer of all proposed plan changes, material changes, stop work orders, or errors or omissions in the approved plans or specifications as soon as practical
3. Maintain a Construction Project Book
4. Submit a Daily Construction Report to the Engineer

Daily Construction Report shall address at minimum:

1. Project Name Number (Specifications No.)
2. Date and time of site visit
3. Weather conditions
4. Description of construction activity
5. Statement of directions to change plans, specifications, stop work, rejection of materials or other work quality actions
6. Public agency contacts
7. Perceived problems and actions taken
8. General remarks related to construction activities
9. Record all material, soil and compaction tests
10. Citizen contact or complaints

5. Report at the end of each month the amount of work completed to enable Engineer to create a progress payment to pay the Contractor.
6. Assure that the contractor notifies police, fire, school bus, and public transportation officials of proposed street closures or traffic detouring or disruption
7. Verify that traffic control signing is in place prior to the start of construction, and in compliance with the City approved traffic control plan.
8. Verify grade and alignment of sewer a minimum of once for each run between manholes.
9. Verify pipe size and class of bedding, backfill, manhole, and that material and construction meet specifications.
10. Be present at air test and supply City with copy of air test results
11. Be present at compaction testing of trenches and supply City with copy of results
12. Be present at pavement resurfacing of trenches
13. Monitor CCTV video inspection
14. Obtain a Daily Contractor Report
15. Be present at the Final Project Inspection

6.3 MATERIAL INSPECTION AND APPROVAL

Materials shall be in compliance with the requirements of SSPWC and/or General and Special Provisions of the City's Specifications. The City's Specifications shall prevail over the requirements of SSPWC. Refer to General Provision of the City's Specifications (Article 8-Material and Article 9-Submittals) for material requirements.

Geotechnical inspection of trench stability and backfill compaction is performed by the City's contracted private geotechnical consultant.

6.4 REVISION OF PLANS

Revisions to plans become necessary due to unforeseen conditions occurring during construction. All problems occurring during construction shall be investigated and resolved to the satisfaction of all affected parties before revising the plans. The revisions shall be coordinated by the Project Engineer in conformance with change order procedures.

6.5 SHEET ADDITIONS, DELETIONS AND SUBSTITUTION

Refer to LA BOE Section F 684 SHEET ADDITIONS OR DELETIONS and Section F 684.3 SHEET SUBSTITUTION for procedure when it becomes necessary to do so during construction phase.

7.0 PUMPING PLANTS AND FORCE MAIN

The City owns, operates, and maintains one wastewater pumping station, the Doran Street Wastewater Pumping Plant (lift station) that lifts sewage from an existing 18" trunk sewer passing under the Verdugo Wash Flood Control Channel. The City's Wastewater Maintenance Services is responsible for operation and maintenance of the plant. This plant is in the process of a comprehensive rehabilitation and expansion.

Since the design of pumping plants and force mains is a complex activity which requires the expertise of various design disciplines, design of an upgrade of the pumping station shall be done by outside consultants.

For general guidelines, references and design standards refer to the **LA BOE-Sewer Manual, Section F700.**

8.0 PROCEDURE FOR EMERGENCY SEWER REPAIR

8.1 MAINTENANCE AND OPERATIONS

Continued inspection, maintenance and rehabilitation of the wastewater collection and pumping system are integral components of a utility operation and are required to extend the useful life of infrastructure facilities and prevent system failures. Ongoing and proactive maintenance and operations (M & O) must be performed to limit the City's liability from system backups into private property and to protect the environment from overflows and spillage.

8.2 SEWER COLLECTION SYSTEM MANAGEMENT

The City's Public Works Maintenance Services Section (Maintenance Services) is responsible for the day-to-day M & O of the City's owned wastewater facilities (excluding LAGWRP) and the local storm drainage system. The Public Works Maintenance Services is comprised of:

1. Wastewater Maintenance Superintendent (MS)
2. Sewer Crew Supervisors (SCS)
3. Sewer Maintenance Workers (SMW) (typically three two-man crew).

8.3 OPERATIONS

The primary M & O activity of the City's Maintenance Services is:

1. Wastewater Pipeline Cleaning
2. Wastewater Pipeline Video Inspection
3. Wastewater Flow Monitoring
4. Wastewater Pump Station Inspections and Routine Maintenance
5. Wastewater Service Calls & Emergency Response
6. Storm Drainage Pipeline Cleaning and Inspection
7. Storm Drainage Service Calls & Emergency Response

The wastewater pipeline cleaning & video inspection comprise the majority of field O & M activities throughout the 12 sewer maintenance districts. The City has established an annual ongoing video inspection program, Cleaning and Video Inspection of Sewer Main Lines. The program has been funded through the various CIP projects. Upon completion of video-inspection in the assigned district and identification of the lines in need of repair, the sewer repair is addressed through another annual CIP project "Miscellaneous Sewer Repair". In general, the costs associated with the City's Maintenance Services section activity and CIP projects are borne by the City's Sewer Fund.

8.4 EMERGENCY SEWER REPAIR WORK

The City is in the process of executing contractual agreements with a number of private contractors that will be utilized to respond to emergency sewer repair work. Additionally, emergency sewer repair work is added to underground contracts. In both cases, the City requests quotes from 2 to 4 contractors to ensure a cost effective repair.

Sewage Spill Telephone Notification:

Should a sewage spill occur, the incident shall be immediately reported to either one of these two City Divisions:

- | | |
|------------------------------------|----------------|
| 1. Sewer Maintenance Services | (818) 548-3950 |
| 2. Fire Department Dispatch Center | 911 |

9.0 REHABILITATION DESIGN

Refer to LA BOE-Sewer Manual, Section F900

This section provides guidelines and procedures to assist in the investigation and design to improve sewer system performance through rehabilitation.

Except as modified by the SSPWC and the City's CIP Specifications, Special Provisions, Section-Pipeline System Rehabilitation, U:\Engineering\Design\Common Files\CIP Project Specifications\Standard Specifications - August 2007 Update) materials and method referenced in the LA BOE-Sewer Manual, Section F900 shall be submitted to the Engineer for the approval prior the use in the City.

Table of Contents of Section 900 can be found in Appendix A as a reference.

APPENDIX A

Tables and Graphs

EXAMPLE SS-1

SANITARY SEWER PROJECTED FLOW CALCULATION

Step 1:

Define the basin(s) boundary which contributes flow to the sewer to be designed.

Use existing GIS file maps (U:\Engineering\Design\Common Files\AutoCAD Files\Tiles From GIS) to draw property lines, street lines, sewer mains, laterals and manholes, building, etc. Sewer pdf maps from Sewer Atlas can be used for determining flow direction, sewer size and slope. Use "As-Built" drawings and any other pertinent information to support and verify gathered/downloaded information.

Step 2:

Define land designation (zoning) within a drainage basin by superimposing the land use map on the drainage basin(s) boundary. Starting at the upper end, start adding areas of the same land use (zoning). Determine total tributary area for each specific zoning area for the sewer under review. Area shall be expressed in acres.

The latest zoning map can be downloaded from the City's site:

<http://www.ci.glendale.ca.us/gmc/Maps>

Step 3:

Determine the Average Dry Weather Flow (ADWF) for the sewer.

ADWF is obtained by multiplying a total tributary area of each specific zone by a sewer flow coefficient.

$$ADWF = Q_{ADWF} = Q_{ave}$$

$$Q_{ave} \text{ (cfs)} = \text{Area (Acre)} \times \text{Sewer Flow Coefficient (cfs/Acre)} \quad \text{Eq. (1)}$$

Each zoning area has assigned sewer flow coefficient. Go to Appendix A, Table SS-1 to find a sewer flow coefficient for different zones.

Starting at the upper end of the sewer under review, add projected average flows.

Step 4:

Determine the Peak Dry Weather Flow (PDWF)

As the projected average flows from each drainage area are totaled, multiply it by the appropriate peaking factor to determine the peak flow for each reach of the line.

$$\text{Peaking Factor (PF)} = -0.1815 \ln(Q_{ave}) + 1.76, \text{ (Q in mgd)} \quad \text{Eq. (2)}$$

$$Q_{peak} = (PF) \times Q_{ave} \text{ (cfs)} \quad \text{Eq. (3)}$$

These values (Q_{peak}) are the design capacities for the proposed sewer.

Note: Q_{avg} expressed in cfs in equation (1) should be converted to mgd to be used in Peaking Factor equation (2).

$$1 \text{ cfs} = 0.64632 \text{ mgd}$$

See Sample of Flow Estimating Calculations (TABLE SS-2).

(Go to U:\Engineering\Design\Common Files\Project Management Sample Documents\2.3 Design Aids-Calcs\SEWER\SewerDesignCalculationTemplate)

Area 01 average flow is totaled and converted to Q_{pk} in Manhole A (MH No. 020349). Area 2 is added at MH B (No. 010334). Area 3 is added at MH C (No. 010351) and so on. The areas are also served by a number of house connection sewers directly tributary to the study sewer all along the Drainage Area. To simplify calculations the flow from the areas contributing to the line under review, can be lumped together and added at one point (outfall MH I).

If a relief sewer was proposed that would intercept a portion of this Study Area the average flow from Drainage Areas or parts of Drainage Areas tributary to the new line would be added to the relief line and subtracted from the existing line.

Design Requirements

After flow estimates have been prepared, and the layout of the system has been determined, the next step is to establish the slope for each line. The profile sheets show the surface elevations, subsurface structures and any other control points, such as house connections and other sewer connections.

Using the profile sheet, a tentative slope of the sewer is determined beginning at the lower end and working upstream between street intersections or control points. The slope is obtained by drawing a preliminary profile showing control points, such as, sewers to be intercepted, major sub-structures, ground lines, outlet or following the slope of the existing sewer pipe, etc. The slope is located as shallow as possible to serve the adjacent area and tributary areas with consideration to street grade, depth requirements and any control points or obstructions.

Selecting the Sizes for the New Sewer Line

Knowing the peak flow and the tentative slope, a tentative pipe size can be selected for each reach. Using the Manning's Equations and design criteria (slope, minimum velocity, depth to diameter ratio (D/d)), a final pipe size can be selected.

For small pipe up through 15-inch diameter, $D/d=0.5$ (pipe is flowing half full at peak flow). For pipes 18-inch and larger sizes, $D/d=0.67$ (pipe is flowing two-thirds full at peak flow).

As a final check, plot the pipe lines on the profile, set the outlet elevation and work upstream through each confluence, making sure there is adequate clearance for substructures, and that the line meets all other controls. The pipe size will have to be rechecked if the slope has been changed for any reason.

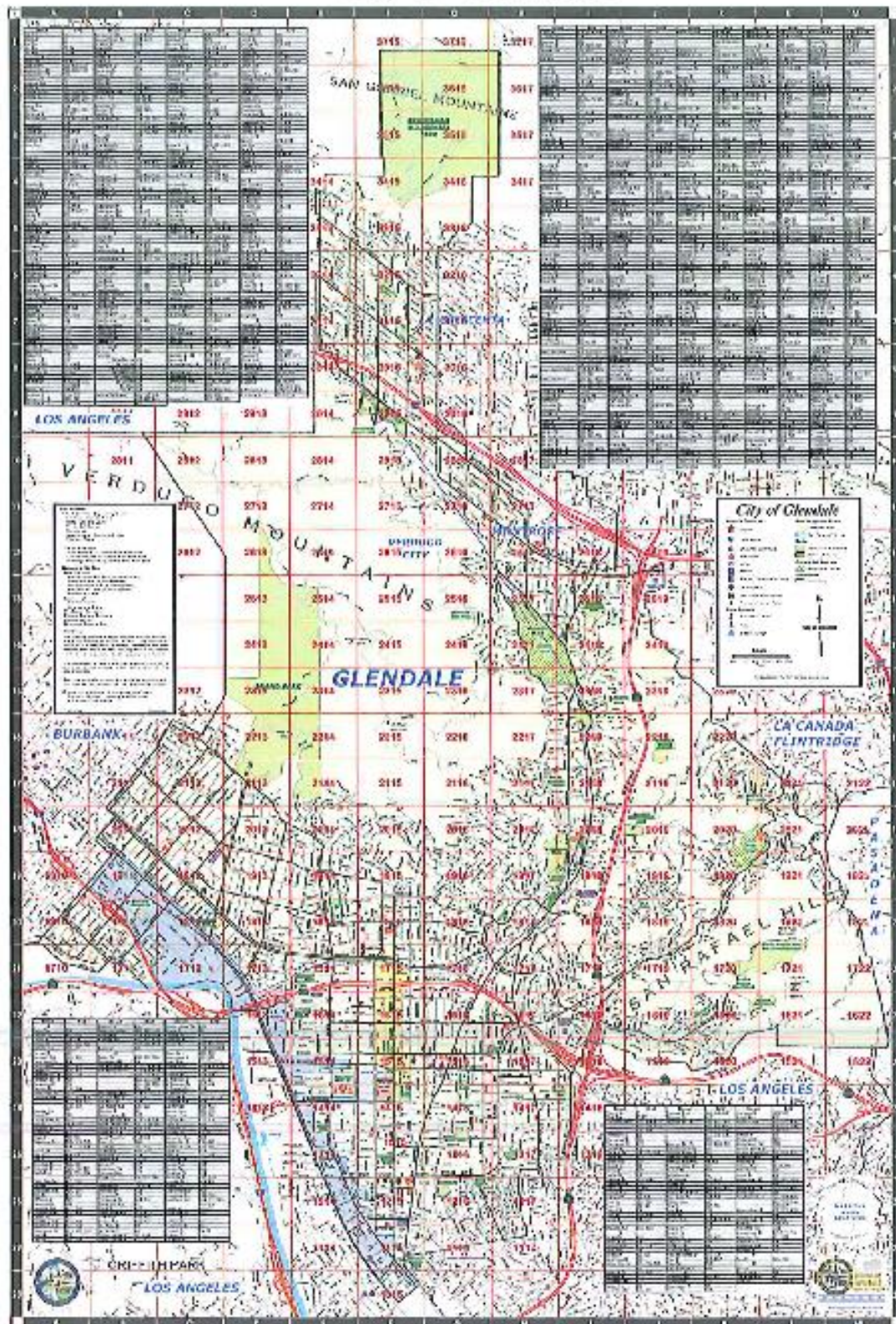
Knowing the quantity of flow and the pipe size, the velocity can be calculated using the Manning Equation. (Go to U:\Engineering\Design\Common Files\Project Management Sample Documents\2.3 Design Aids-Calcs\SEWER\SewerDesignCalculationTemplate)

The velocity head can be calculated to give the Energy Gradient. In many cases, especially with large diameter sewers, it is necessary to carefully plot the energy gradient of the sewer to determine that the hydraulic design requirements are met.

In these cases, start at the downstream end of the profile and mark the energy gradient at that point. Where the flow enters another sewer it will be the energy gradient of that sewer. A line to represent a tentative location for the energy gradient for the first section of sewer being designed is then drawn upstream following the available surface slope to the next control point on the profile. This could be a point where flow is added, a street intersection, an abrupt change in surface slope or other control points. Care must be taken to see that the final design of the sewer provides adequate cover and that the sewer clears all subsurface obstructions. The profile can now be finalized.

After the final size and grade are established, the Engineer can transfer data to sheet as shown on Figure F256 to summarize design flows including ADWF and PDWF, resulting velocities, normal and critical depth. The sheet includes identification of MHs by number and station. It also shows sewer characteristics including length, slope, pipe size and fall.

City of Glendale



Proposed New City Sanitary Sewer Coefficients

TABLE SS-1

Based on Kennedy-Jenks Coefficients & Adjustments to old 1972 City Coefficients

Zone	Old City Coef (cfs/Ac)	K-J Coef (cfs/Ac)	K-J Coef (cfs/Ac)	% K-J City	K-J Coef Extended	Proposed 2007 City Coefficients	Current Zoning http://www.ci.denver.co.us/ordinances
G1	0.008				0.0056	0.008	Neighborhood Commercial
G2 (K-Office)	0.008				0.0056	0.008	Community Commercial
G3	0.008	2332	0.0036	45.10%	0.0056	0.008	Commercial Services
R1R	0.005	758	0.0012	41.18%	0.0021	0.0021	Reduced Residential
R1	0.005	1398	0.0021	70.48%	0.0021	0.0024	Low Density Residential
RMU	0.013				0.0091	0.010	Residential Mixed Use
R500D	0.015	2710	0.0042	82.25%	0.0091	0.008	Medium Density Residential
R220D	0.015	4881	0.0075	57.88%	0.0091	0.009	Medium Density Residential
R160D	0.013	6187	0.0095	73.84%	0.0091	0.010	Medium High Density Residential
R120D	0.013	6910	0.0135	105.16%	0.0091	0.014	High Density Residential
CS						0.008	Commercial General
CAOS						0.008	Comm. Auto/Comm. General
CCMS						0.008	Comm. Gar/Med. Services
CAOS						0.008	Comm. Auto/Comm. Specialty
CAO						0.008	Comm. Auto/Office
CRD						0.008	Comm. Neighborhood/Design/Develop.
SRMU						0.01	Comm./Res. Mixed Use
ND						0.008	Industrial
IMU						0.008	Industrial/Comm. Mixed Use
IMUR						0.008	Industrial/Comm. Res. Mixed Use
For a new entry						0	If no entry, delete row
CCR	0.006				0.0066	0.006	Not on Zoning Map
CMU	0.006				0.0066	0.006	Not on Zoning Map
M2		1571	0.0024		0.0000	0.0024	Not on Zoning Map
CEM						0.0024	Cemetery
SR	0.003				0.0021	0.0024	Special Recreation
T						0.006	Transportation
Alex Theater	0.015		0.006		0.0106	0.011	
Civic Areas	0.02		0.007		0.0140	0.014	
Broadway Central	0.038		0.032		0.0672	0.080	
Downtown Mixed	0.03		0.01		0.0210	0.026	
East Broadway	0.025		0.008		0.0175	0.018	
Galleria	0.03		0.01		0.0210	0.021	
Gateway	0.120		0.042		0.0882	0.100	
Orange Central	0.051		0.02		0.0427	0.050	
Town Center	0.03		0.01		0.0210	0.026	

Notes:

1. Named Zones are per the Downtown Specific Plan. City Coefficients for these areas are a variation of the old City coefficient of 0.040, adjusted by allowed building height in the current zoning.
2. Percentage adjustment of City coefficients to K-J coefficients is 70% based on average difference of high density residential zone comparison (R120D thru R500D).
3. All proposed coefficients are variation of City coefficients based on Kennedy-Jenks differences, since old City coefficients are per 1972, and significant water conservation measures have reduced overall flows.
4. Denries's infiltration is accounted for in coefficients, and additionally with reduction of peak sewer flow depth reduction to 0.57 from 0.75.
5. Town Center was 0.021 for Colorado SS calc, adjusted for standard based on K-J Town Center flow calc (see below). Colorado SS was adjusted - no sizing impact.

	Area Slope	gpd/ac	cfs/ac		
Town Center per K-J	0.013	18718.6118	0.0258		

TABLE SS-2

TYBURN SEWER TRUNK LINE CAPACITY IMPROVEMENT

SANITARY SEWER PROJECTED FLOW CALCULATION		Glendale Ave. (East Ln)				Glendale Ave. (East Ln)				Glendale Ave.				San Fernando Rd.			
		From Upcast Kennedy Ave. to Kennedy Ave. (East Ln)				To Kennedy Ave.				From Kennedy Ave. to Kennedy Ave.				From Kennedy Ave. to Kennedy Ave.			
Kennedy Janka Collection 1997 Master Plan (12 in. 300' Dia. at 1.043 s/s) and 10' Dia. 5' Interpolated for 1997 build up		Kennedy Janka Line 7848				Kennedy Janka Line 7834				Kennedy Janka Line 7825				Kennedy Janka Line 7821			
Eq. (1)	Qave (MGD)	0.017		0.021		0.021		0.022		0.021		0.020		0.019			
	Velocity (ft/s) for Q ave	2.304		2.598		2.598		2.321		2.315		2.158		2.036			
O peak Analysis		Feet		Inches		Feet		Inches		Feet		Inches		Feet		Inches	
		Existing Pipe		Proposed Pipe		Existing Pipe		Proposed Pipe		Existing Pipe		Proposed Pipe		Existing Pipe		Proposed Pipe	
Flow		0.01	8	1.00	12	0.01	8	1.00	12	0.01	8	1.25	15	0.01	8	1.50	18
Radius		0.33	4	0.50	6	0.33	4	0.50	6	0.33	4	0.40	Y6	0.30	4	0.36	6
O ₂ Actual Flow Depth for Q peak		0.43	5.1	0.36	4.3	0.36	4.3	0.36	4.3	0.36	4.3	0.36	4.3	0.36	4.3	0.36	4.3
Angle in Degrees for Q peak		0.89		0.89		0.89		0.89		0.89		0.89		0.89		0.89	
Pipe Cross Section Area, A		0.375		0.375		0.375		0.375		0.375		0.375		0.375		0.375	
Partial Factor, K		1.20		1.20		1.20		1.20		1.20		1.20		1.20		1.20	
Hydraulic Radius, R		0.180		0.180		0.180		0.180		0.180		0.180		0.180		0.180	
Flow		0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01	
Eq. (1)		0.021		0.021		0.021		0.021		0.021		0.021		0.021		0.021	
	Velocity (ft/s) for Q peak	2.775		2.775		2.775		2.775		2.775		2.775		2.428		2.324	
Final Design Pipe Size		12				12				12				12			
Kennedy Janka Proposed Pipe Size (Ultimate)		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Eq. (2)		10				10				10				10			
Eq. (2)		10				10				10				10			
Eq. (2)		10				10				10				10			
Eq. (2)		10				10				10				10			
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Eq																	

Eq. (1) Flow Factor (F) = 0.017 (12 in. 300' Dia. at 1.043 s/s) and 10' Dia. 5' Interpolated for 1997 build up

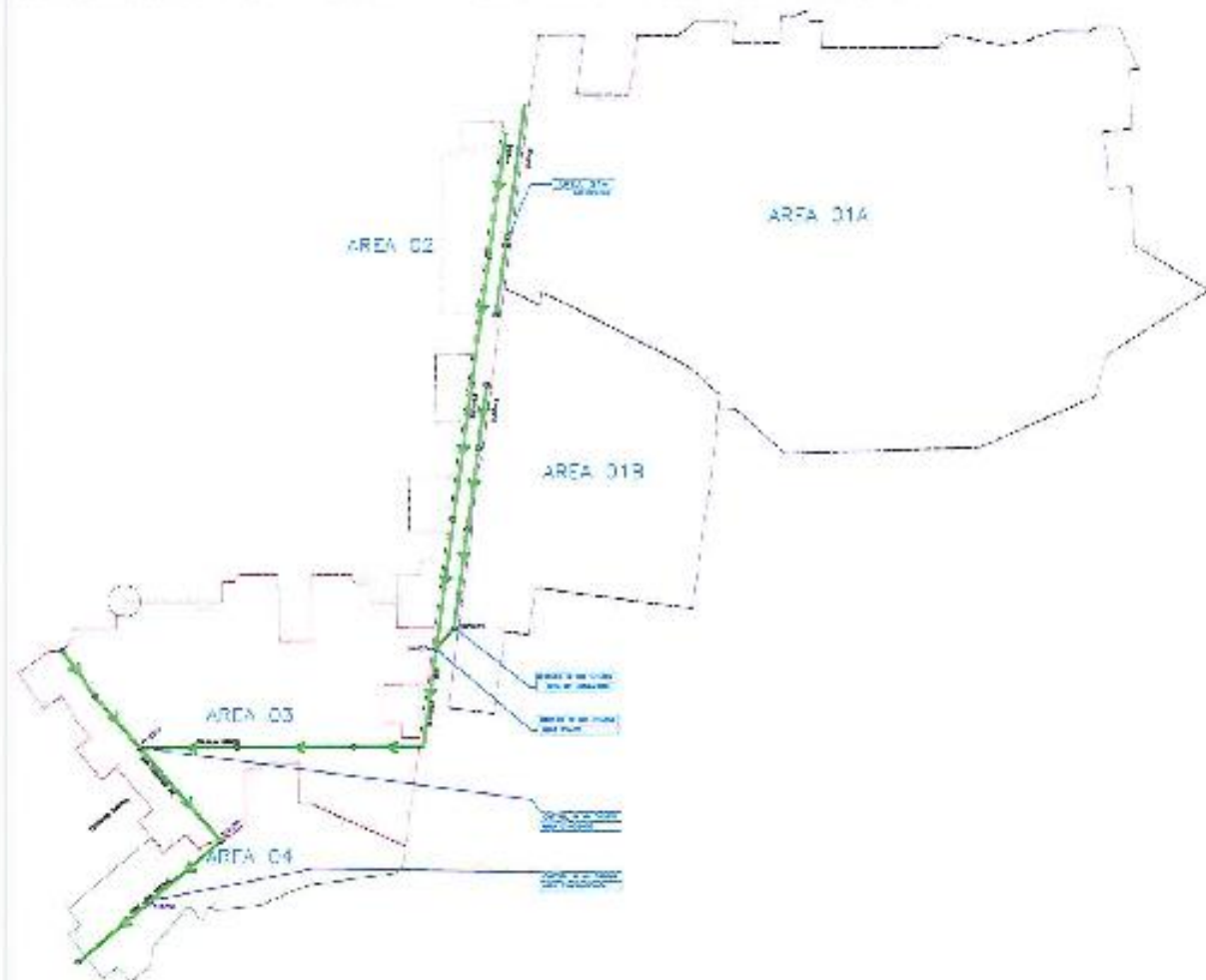
Eq. (2) Depth (D) = 0.43

Eq. (3) Q = 0.017 (12 in. 300' Dia. at 1.043 s/s) and 10' Dia. 5' Interpolated for 1997 build up

R = Hydraulic Radius for circular conduits flowing partially full

*** This is a Trial Method: Every Actual Flow Depth (D) will have its own K value as shown in Eq. (1)

TYBURN SEWER TRUNK LINE CAPACITY IMPROVEMENT



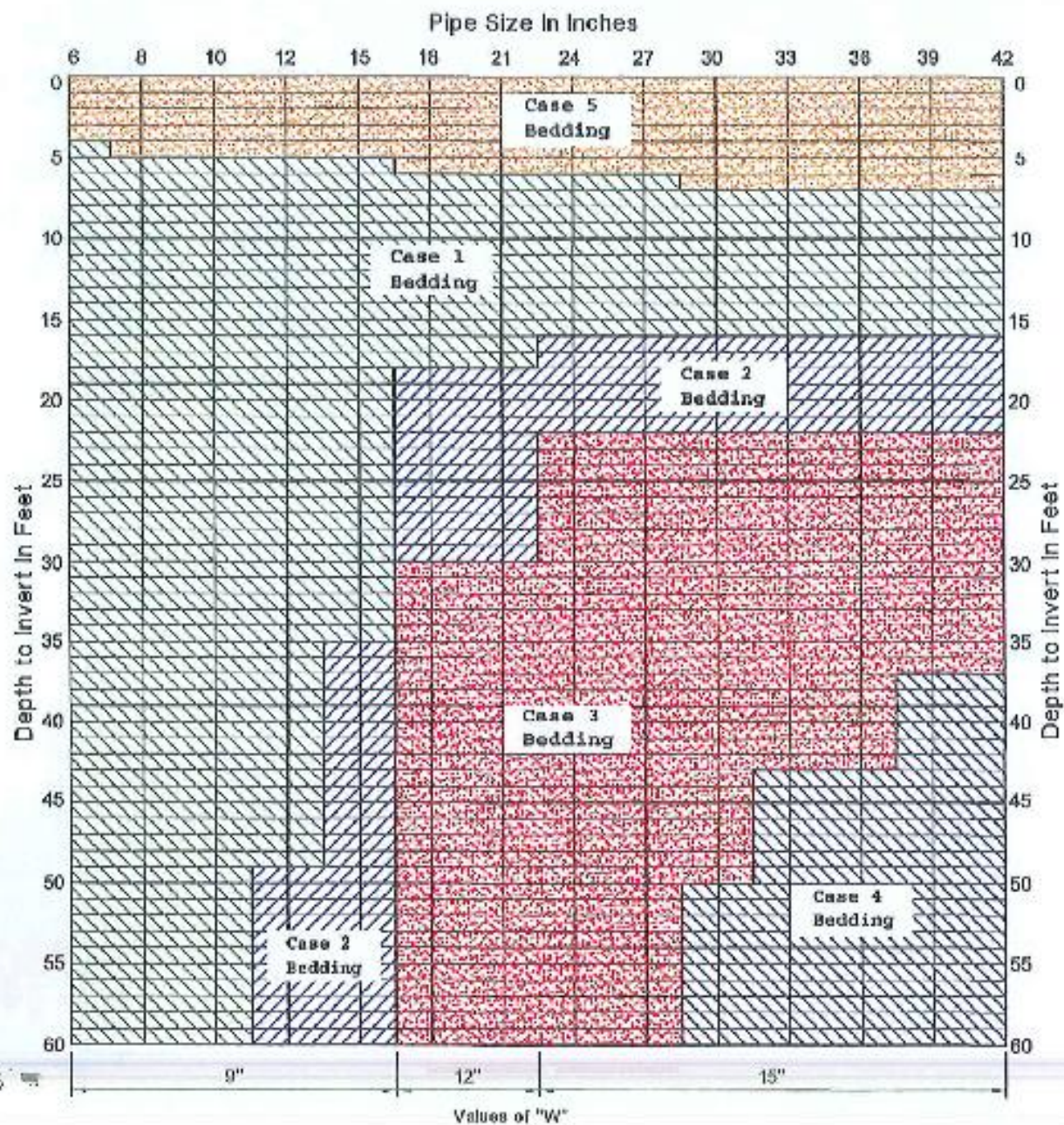
Date _____
Project _____

- a. ADWF = Average Dry Weather Flow
- b. PDWF = Peak Dry Weather Flow
- c. Pipe size based on $d/D = 0.5$ at PDWF
- d. Minimum velocity of flow required (based on PDWF)
- e. d_c = Critical Depth
- f. d_n = Normal depth

Figure F256

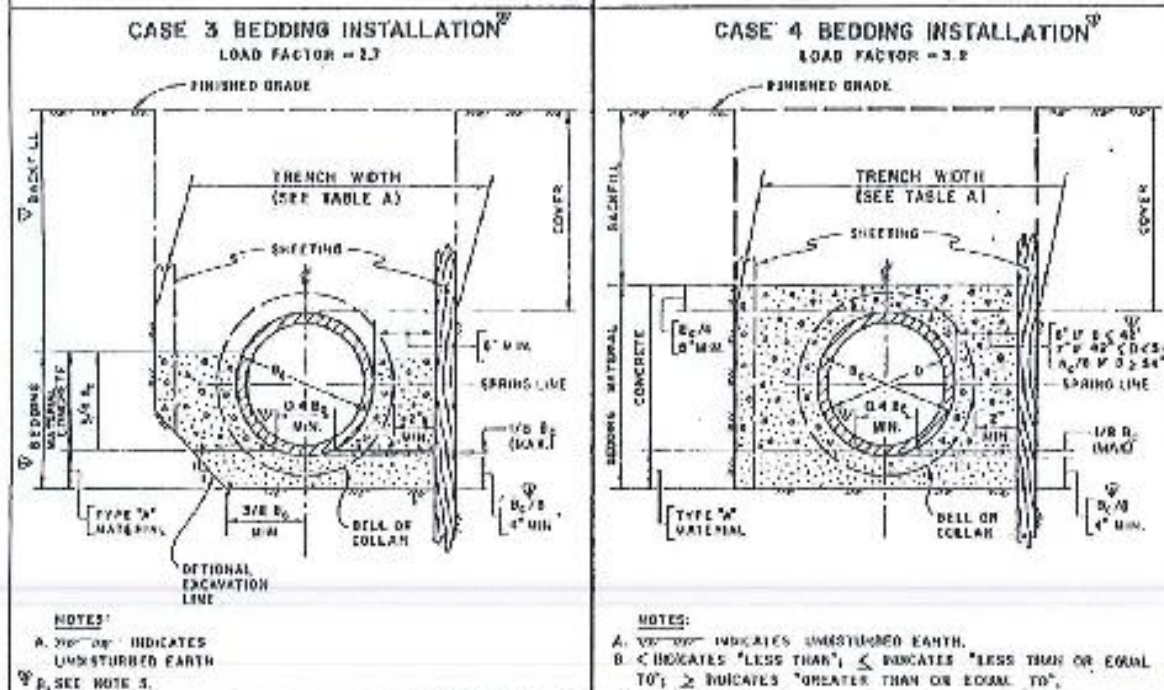
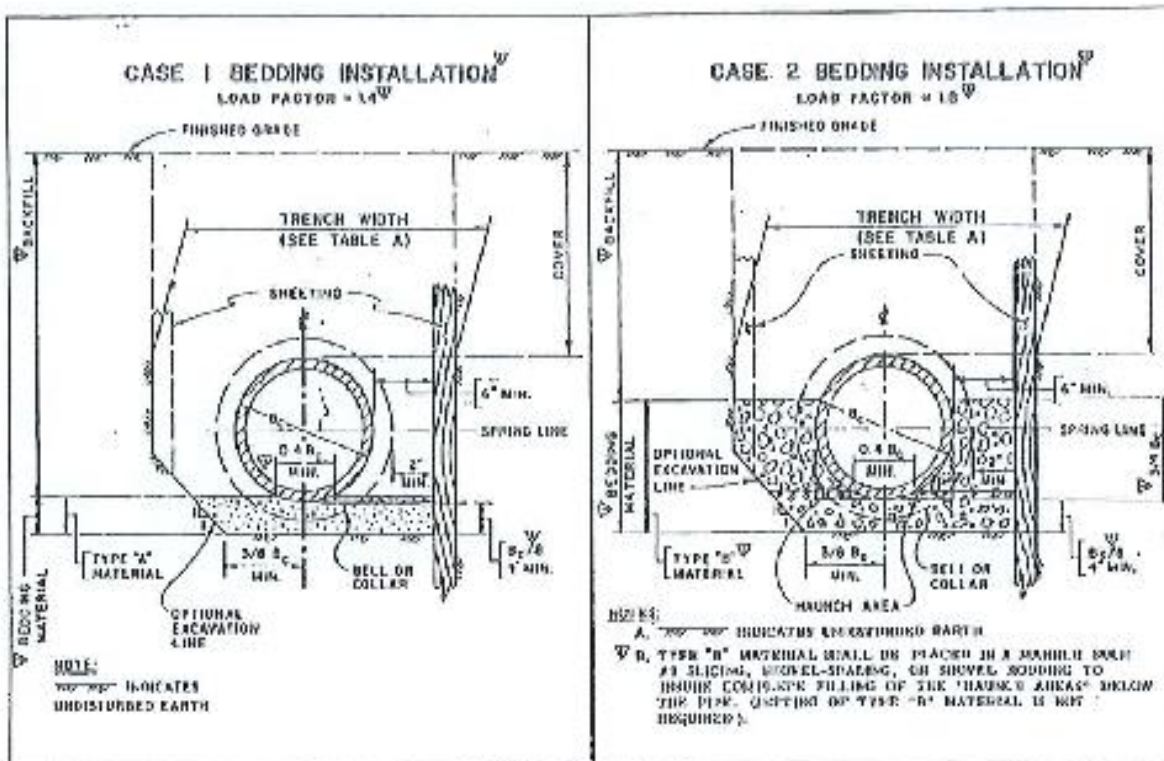
APPENDIX B

Plans



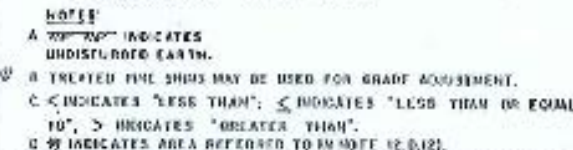
See Table "A" On Standard Plan Titled "Pipe Laying in Trenches"

Bedding Requirements for Clay Pipe In Trenches
Figure F490.1



BUREAU OF ENGINEERING		DEPARTMENT OF PUBLIC WORKS		CITY OF LOS ANGELES	
PIPE LAYING IN TRENCHES				STANDARD PLAN S-251-1	
SUBMIT TO: Dec. 25, 1973 By: <i>P. G. L. H. Brown</i> Title: <i>City Engineer</i>	NO. DATE: 2-7-77	DIVISION: DESCRIPTION: <i>PIPE LAYING IN TRENCHES</i>	OFF. NAME: <i>P. G. L. H. Brown</i>	CITY ENGINEER	SUPPLEMENTED: REFERENCES:
APPROVED: <i>James J. 1974</i> <i>Donald J. Brown</i> City Engineer					
ATTACHED TO: <i>Sheet No. 1</i> OF <i>2</i> SHEETS A. HARRIS, R. PARRAN, D. J. PARRAN					

LOAD FACTOR = 4.5



GARDIAN: A LOVABLE TRENCH WORM

[illegible]

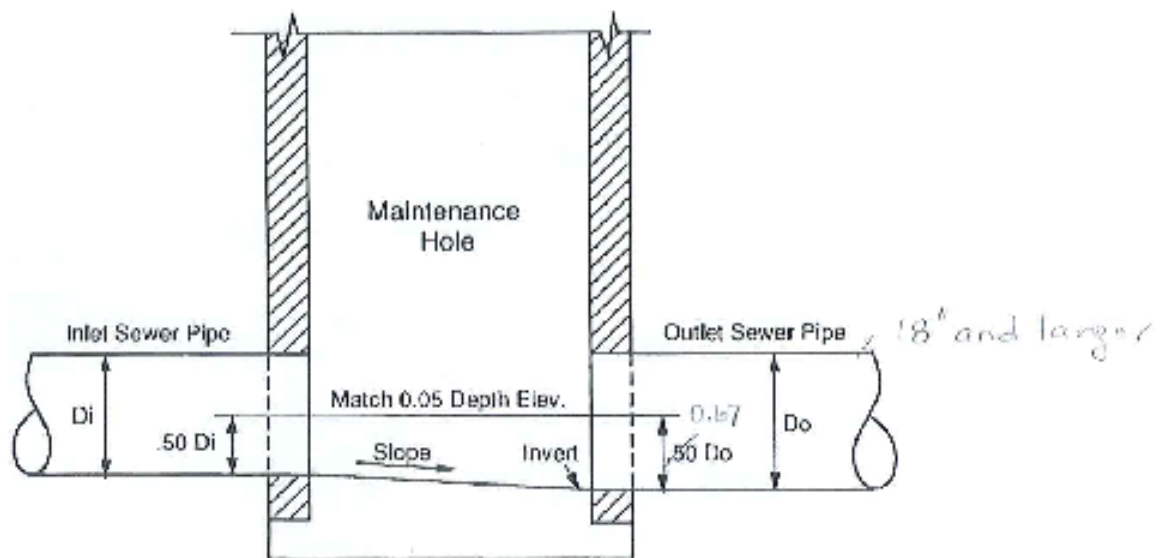
WARRANTY/INSTALLATION
(APPLICABLE TO ALL PIPE SIZES)

[illegible]

NOTE 3 A. SEE NOTE 1.
B. CASE - INSTALLATION CASE SPECIFIED ON THE PLANS.
C. COVER - IF COVER BRACKETS DO NOT SUBSTITUTE SHALL BE AS ORDERED BY THE ENGINEER.
D. SIGNAL - CONTRACTOR SHALL CONTRIBUTE SPECIAL, AS INDICATED BY THE ENGINEER.

bioRxiv preprint doi: <https://doi.org/10.1101/2017.05.05.134009>; this version posted May 5, 2017. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under aCC-BY-NC-ND 4.0 International license.

- [illegible]



Invert Drop across Maintenance Holes
Pipe Sizes 18-inches and Greater
Figure F255

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Attachment F – Spill Emergency Response Plan



Spill Emergency Response Plan

Glendale Public Works – Maintenance Services

WDID 4SSO10388

Glendale, California
March 30, 2025



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05	SSMP Spill Emergency Response Flow Chart – March 2025
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08	MSSOP Sewer Spill Narrative and Follow-up Procedures
09	WWSOP Street Cleaning Post-SSO

Acronyms

Acronym	Definition
NPDES	National Pollutant Discharge Elimination System
SERP	Spill Emergency Response Plan
CIWQS	California Integrated Water Quality System
SSO	Sanitary Sewer Overflow
PLSD	Private Lateral Sewage Discharge
EOLSD	Enrollee-owned Lateral Sewage Discharge
LACHD	Los Angeles County Health Department
CCTV	Closed Circuit Television



1 Authority

As part of the Clean Water Act, the U.S. Environmental Protection Agency implemented the National Pollutant Discharge Elimination System (NPDES) program to reduce contamination of the nation's surface waters. Issued in 1996 and renewed in 2001 and 2012, the Los Angeles Regional Water Quality Control Board issued a Municipal Storm Water Permit to the County of Los Angeles and 84 co-permittees which includes the City of Glendale. The City of Glendale has developed this Spill Emergency Response Plan (SERP) to fulfill the National Pollutant Discharge Elimination System (NPDES) requirement. This plan also fulfills the requirement of State Water Resources Control Board Order WQ 2022-103-DWQ Statewide Waste Discharge Requirements General Order for Sanitary Sewer Systems, Attachment D - Sewer System Management Plan, Section (6) Spill Emergency Response Plan.

2 Introduction to Sanitary Spills

2.1 Sanitary Sewer Spills:

The Spill Emergency Response Plan (SERP) is designed to ensure that every report of a sewage spill is immediately dispatched to the appropriate crews so that the effects of the spill can be minimized with respect to impacts to public health and the environment.

This document outlines the spill response procedure to be followed by sewer maintenance employees and other responders when responding to a potential or actual sewage spill.

A spill is a discharge of sewage from any portion of a sanitary sewer system due to a sanitary sewer system operational failure, and/or infrastructure failure. Exfiltration of sewage is not considered to be a spill under the General Order if the exfiltrated sewage remains in the subsurface and does not reach a surface water of the State.

The Public Works Division shall act upon every reported sewage spill directly affecting or potentially affecting public or private property within the City of Glendale.

Table 2-1: Spill Categories and Definitions

Spill Category	Definition
Category 1	<p>A Category 1 spill is a spill of any volume of sewage from or caused by a sanitary sewer system regulated under this General Order that results in a discharge to:</p> <ul style="list-style-type: none"> • A surface water, including a surface water body that contains no flow or volume of water; or • A drainage conveyance system that discharges to surface waters when the sewage is not fully captured and returned to the sanitary sewer system or disposed of properly. <p>Any spill volume not recovered from a drainage conveyance system is considered a discharge to surface water, unless the drainage conveyance system discharges to a dedicated stormwater infiltration basin or facility.</p> <p>A spill from an Enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill; the Enrollee shall report all Category 1 spills per section 3.1 of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of the General Order.</p>
Category 2	<p>A Category 2 spill is a spill of 1,000 gallons or greater, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.</p> <p>A spill of 1,000 gallons or greater that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system, is a Category 2 spill.</p>
Category 3	<p>A Category 3 spill is a spill of equal to or greater than 50 gallons and less than 1,000 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.</p> <p>A spill of equal to or greater than 50 gallons and less than 1,000 gallons, that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 3 spill.</p>
Category 4	<p>A Category 4 spill is a spill of less than 50 gallons, from or caused by a sanitary sewer system regulated under this General Order that does not discharge to a surface water.</p> <p>A spill of less than 50 gallons that spills out of a lateral and is caused by a failure or blockage in the sanitary sewer system is a Category 4 spill.</p>

*Source: State Water Resources Control Board WQ-2022-103-DWQ

Table 2-2: Other Spill Types

Other Spill Type	Definition
Private Lateral Sewage Discharge (PLSD)	Discharges of untreated or partially treated wastewater resulting from blockages or other problems within privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be voluntarily reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.
Enrollee-owned Lateral Sewage Discharge (EOLSD)	<p>Discharges of untreated or partially treated wastewater resulting from blockages or other problems within enrollee owned sewer lateral connected to the enrollee's sanitary sewer system or from other enrollee owned sewer assets that do not reach surface waters. EOLSDs that the enrollee becomes aware of must be reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.</p> <p>A spill from an enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill.</p>

*Source: State Water Resources Control Board WQ-2022-103-DWQ



2.2 Objectives

The primary objectives of the SERP are to protect public health, to protect the environment, to satisfy regulatory agencies and waste discharge requirement conditions which address procedures for managing sewer spills, and to minimize risk of enforcement actions against the City of Glendale due to violations.

Additional objectives include:

- Provide excellent customer service.
- Protect private and public property from damage.
- Maintain a proper recordkeeping system to track problematic areas as well as to fulfill regulatory requirements.

2.3 General Order Requirements for a Spill Emergency Response Plan

The Plan must include an up-to-date Spill Emergency Response Plan to ensure prompt detection and response to spills to reduce spill volumes and collect information for prevention of future spills. The Spill Emergency Response Plan must include procedures to:

- Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner;
- Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State;
- Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders;
- Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained;
- Address emergency system operations, traffic control and other necessary response activities;
- Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system;
- Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State;
- Remove sewage from the drainage conveyance system;
- Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters;

- Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery;
- Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event;
- Conduct post-spill assessments of spill response activities;
- Document and report spill events as required in this General Order; and
- Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.

2.4 Post Spill Response

For every sewer spill or potential sewer spill on public or private property coming from the city's sewer system, the following guidelines shall be followed.

- Immediate dispatch to appropriate crews upon receipt of report of a spill.
- The first responder on scene shall do a visual assessment of the area to determine the nature, location, and type of problem. The first responder on scene shall confirm the existence of a spill and if other than the Standby Team Leader, will confirm the existence of a spill to a Standby Team Leader.
- The Standby Team Leader shall direct responding crew members to bring needed equipment to appropriate locations to recover spilled sewage and to relieve the cause of the spill.
- The responding crew members shall contain the spill, correct the cause of the spill and clean up the spill site in a timely manner.
- Proper documentation, and notification(s) shall be completed as soon as possible, including notification of the County Health Department within 15 minutes of the first responder's arrival on scene and the California Office of Emergency Services (Cal OES) within two (2) hours of becoming aware of a Category 1, 2, or enrollee owned lateral Spill greater than 1000 gallons.
- After every spill the City must do an assessment and review of all the previous spill response steps.

2.5 Record Keeping and Tracking

All Service Requests will be documented by Maintenance Services using the City Works software.

Any actual sanitary sewer spill will be documented on the **Sewer Spill Field Worksheet** which is part of the **Stoppage Report**. The Worksheet will be completed in the field by one of the responding crew members. The Stoppage Report will be completed in the Wastewater Shop. The Stoppage Report will be forwarded directly to the Wastewater Superintendent, as soon as the Draft Report has been created in the California Integrated Water Quality System (CIWQS) Database. The Wastewater Superintendent



will then use the Stoppage Report in the process of readying the Draft Report for certification.

3 Standard Spill Response Procedure

The following decisions and procedures are summarized for reference in the City of Glendale's Sewer Spill Emergency Response Flowchart.

3.1 Handling the Service Request/Complaints:

A spill may be detected by City employees or by others (e.g., general public). The Public Works Call Center is the primary recipient of telephone calls from the public regarding possible sewer spills from the sanitary collection system. The Maintenance Services Division-Wastewater Section is responsible for responding to and mitigating spills.

The telephone operator/dispatchers should obtain all relevant information available regarding the spill including:

- Time and date call was received.
- Specific location.
- Description of problem.
- Any reference to a possible earlier start time for the event prior to the call time noted in 1. above.
- Caller's name and phone number.
- Observations of the caller (e.g., odor, duration, back or front of property); and
- Any other relevant information that will enable the responding investigator and crews, if required, to quickly locate, assess and stop the spill.

Note: Reference the Maintenance Services Division Standard Operating Procedure- **Sanitary Sewer Spill Narrative and Talking Points** which is an attachment to this Spill Emergency Response Plan.

Based on the service request information, and location of the problem, a crew will be dispatched.

3.2 Dispatch of Appropriate Crews to Site of Reported Sewer Spill

Failure of any element within the wastewater collection system that threatens to cause a sewer spill triggers an immediate response to isolate and correct the problem. Dispatch of crews to any site of a reported sewer spill shall be done immediately. The report of a sanitary sewer spill should always be dispatched to the Standby Team Leader. While a Wastewater Crew Supervisor may or may not be available on any given day there is always an assigned Standby Team Leader.

3.3 Spill Correction, Containment, and Clean-up

The following procedures shall be followed in response to sewage spills within the City of Glendale.

1. Site Assessment and initial response (performed by first person on scene).
 - a. Do a visual assessment of the area .
 - b. If the visual assessment reveals other than a sewer-related problem, attempt to contact the service requestor for further information. Call-off other Wastewater Section personnel in route to the scene and if possible, determine the nature of the problem and relay the matter to the appropriate response group within the City.
 - c. If the visual assessment reveals a sewer spill, observe direction/location of spill flow or ponding, and determine if additional personnel or special equipment will be needed.
 - d. Call the Los Angeles County Health Department (LACHD) – within 15 mins of first responders' arrival on scene. Phone number on the **Sewer Spill Field Worksheet**.

Special Notification Notes:

- If the spill is outside City limits, Section representatives shall notify the appropriate agency as soon as possible. See agency phone numbers attached.
 - If the spill has the potential to impact students at a school, the Standby Team leader shall inform the Maintenance Services Division office and identify the affected school(s). The office personnel shall contact the school principal by telephone to inform the school of the potential health risks and ask that students and staff be advised to stay away from posted area. Proper signage must be posted warning of possible health effects.
2. Begin Initial Containment of the Sewage Spill – Possible options:
 - a. Direct the flow into a nearby manhole.
 - b. Build a sandbag dike in the gutter line.
 - c. Vacuum truck recovery once combination flusher unit on site.
 3. Set Up Traffic Control – Ensure that delineation is appropriate for the street speed and configuration of the work area.

Simultaneously:

4. Relieve the Stoppage– The responding crews will attempt to relieve the problem.
 - a. Identify the boundaries of the problem area.
 - b. Set a trapping device in the manhole downstream of the blockage.



- c. Hydro-jet the sewer line experiencing the blockage using the most appropriate tool.
 - d. If the crew is unable to relieve the blockage within a reasonable amount of time, the crew leader shall:
 - i. Keep supervision informed.
 - ii. Consider bypassing the section with the blockage.
(See Note 2 at the end of this section)
5. Continue Containment Efforts
 - a. Direct the flow into a nearby manhole to return sewage back to the sewage system.
 - b. If necessary, plug a catch basin and direct the flow into catch basin.
 - c. Recover impounded sewage in catch basins or behind dikes with a vacuum truck.
 - d. If prolonged spill conditions are expected, a bypass pump operation is put in place.
6. Recover Downstream – As quickly as practicable, move to a point downstream in the receiving storm drainage conveyance system and attempt to recover as much of the sewage that entered the storm drainage conveyance system as possible.
7. Post Community Warning Signs – If a spill is occurring where the public could possibly be exposed, post warning signs on barricades along the area of potential public exposure to sewage discharge.
8. Clean-up Operations – Spill sites are to be thoroughly clean after a spill. No identifiable residue shall remain.
 - a. Cleaning products and other chemicals are not to be introduced to spill areas and drainage conveyance systems.
 - b. Disinfect all areas where people can be exposed to sewage. Use the **Street Bleaching S.O.P.** attached to this plan.
 - c. Thoroughly wash-down the area. Spilled sewage and wash-down water shall be vacuumed-up and disposed of in the sanitary sewer.
 - d. Remove sandbags, plugs, traffic control equipment, etc.
9. Inspect the next manhole downstream to ensure that the blockage has not reoccurred.
10. Estimation of Spill Volume – The volume of the spill (in gallons) shall be estimated as soon as possible, so that spill notification procedures can be initiated.
11. Make Agency Calls:
 - a. California Office of Emergency Services (Cal OES) – within 120 mins of becoming aware of a spill. Phone number on the Sewer Spill Field Worksheet.

- b. City of Long Beach Health Department if sewage discharged to the Los Angeles River drainage is equal to or greater than 5,000 gals. Phone number on the Sewer Spill Field Worksheet.
- 12. Determine if sampling is needed - Required for greater than 50,000 gals released to surface waters.
- 13. Complete the Sewer Spill Field Worksheet. (See copy attached to this plan.)
- 14. Complete the **Spill Report Checklist** (8 Pt. Report) and forward by e-mail to the Wastewater Superintendent. Find on pg. 5 of the Sewer Spill Field Worksheet.
- 15. Prepare the stoppage report.
- 16. Determine the Cause of the Spill – The crew leader will identify the cause of the spill (i.e., grease, roots, owner's problem, rain surcharge, etc.) to the best of his ability. A CCTV inspection will be used to confirm this assessment and will be performed within two (2) working days of the event.
- 17. Prepare the draft CIWQS Report in accordance with the time frames in Table 3-1
- 18. Certify the CIWQS Report in accordance with the time frames in Table 3-1



Table 3-1: Notification, Monitoring, Reporting and Record Keeping Requirements

Element	Requirement	Method
Notification (See appendix E-2 Summary of Notification, Monitoring and Reporting Requirements)	Within two (2) hours of Enrollees knowledge a Category 1, 2 or Enrollee owned and/or operated lateral spill that does not discharge to surface waters of 1,000 gallons or greater , notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.	Call Cal OES at (800) 852-7550
Monitoring (See appendix E-2 Summary of Notification, Monitoring and Reporting Requirements)	Category 1 <ul style="list-style-type: none"> Conduct spill-specific monitoring. Conduct water quality sampling of the receiving water within 18 hours of initial knowledge of spill of 50,000 gallons or greater to surface waters. Categories 2, 3 and 4 <ul style="list-style-type: none"> Conduct spill-specific monitoring. Enrollee owned and/or operated lateral spill that does not discharge to surface waters <ul style="list-style-type: none"> Conduct visual monitoring. 	Section 2 of Attachment E-1
Reporting (See appendix E-2 Summary of Notification, Monitoring and Reporting Requirements)	<ul style="list-style-type: none"> For Draft, Certified, Technical and Amended Report time frames for all categories See Table 3. “No Spill” Certification: Enrollee shall certify that no spills occurred within thirty (30) calendar days of the end of the month during which there were no spills. Annual Report (Previously termed Collection System Questionnaire in General Order 2006-0003-DWQ) All enrollees shall update their previous year’s Annual Report by April 1 of each year after the effective date of the reissued order, June 5, 2023, for each calendar year (January 1 through December 31) 	Enter data in the CIWQS Online Spill Database (http://ciwqs.waterboards.ca.gov/), Certified by enrollees Legally Responsible Official(s).
Record Keeping	The enrollee shall maintain records to document compliance with the provisions of the reissued General Order and the previous General Order 2006-0003-DWQ as applicable, for each sanitary sewer system owned including any required records generated by an enrollee’s contractor(s) for a period of five (5) years. Includes: <ol style="list-style-type: none"> Individual spill event records. Sewer system telemetry records. Sewer System Management Plan implementation and audit records. Equipment records. Work orders.	Section 4 of Attachment E-1 Self-maintained records shall be available during inspections or upon request.

*Source: State Water Resources Control Board WQ-2022-103-DWQ

Notes:

- Preliminary Assessment of Damage to Property – The response crew must use discretion in assisting the property owner/occupant. Be aware that the City of Glendale could face increased liability for any further damages done to private property during such assistance. The response crew should not enter private property if not necessary to assess damage, especially without permission of the owner/occupant. Take appropriate still photographs and video footage, if possible, of the outdoor area of the sewer overflow.
- Equipment Exercise in Support of Bypass Readiness – The Wastewater Maintenance Section conducts regular operational checks of all utility pumps that could conceivably be used for bypass operations. The schedule of checks for the current calendar year, Wastewater Maintenance Check Calendar YYYY, is a working document that is posted in the Crew Office in the Wastewater Maintenance shop. Scheduled checks are documented with initials of individuals assigned to oversee checks, typically on working Fridays. The template document can be found at G:\1-WASTEWATER\YYYY\Crew Supervisor & Supt. Shared



Table 3-2: Spill Reporting Timeframes

Spill Type	Draft Spill Report	Certified Spill Report	Technical Report	Amended Spill Report
Category 1	Within three business days of knowledge of the spill	Within 15 calendar days of spill end date	For 50,000 gallons or greater: Within 45 calendar days spill end date	Within 90 calendar days after the spill end date
Category 2	Within three business days of knowledge of the spill	Within 15 calendar days of spill end date	N/A	Within 90 calendar days after the spill end date
Category 3	N/A	Within 30 calendar days after the end of the month in which spill occurred	N/A	Within 90 calendar days after the Certified Spill Report due date
Category 4 & Enrollee-owned/operated Laterals	N/A	Within 30 calendar days after the end of the month in which individual spills occurred, Or Upload and certify by February 1 after the end of the calendar year in which spills occurred	N/A	N/A

4 Hazardous Material Response

4.1 Handling Suspected Hazardous Materials When Responding to a sewer Spill

Upon arrival at the scene of a sewer spill, should a suspicious substance (e.g., oil sheen, discoloration) be found on the ground surface, or should a suspicious odor (e.g., gasoline) not common to the sewer system be detected, the sewer investigator or response crew shall immediately contact the supervisor for guidance before taking further action.

Should the supervisor determine the need to alert the hazardous material response team, the sewer investigator or crew shall await the arrival of the Fire Department for assistance. The crew may attempt to contain and abate the spill if safe and if the substance is known but must observe caution until assistance arrives. Proper personal protective equipment must be used.

Upon arrival of the Fire Department, the sewer crew will take direction from the Fire Department Representative with the lead authority. When determined safe and appropriate, the sewer investigator and crew shall proceed under this SERP with the containment, clean-up activities and correction.

4.2 Handling Suspected Hazardous Waste Spills Encountered During Other Field Work

Background: Occasionally Public Works Staff are asked to assist with clean-up of various spills of liquid materials on City streets or elsewhere within the public right of way. Materials most often encountered include spilled paint, slurry from concrete washout bins at construction sites, lubricating oil or hydraulic fluid from vehicles, and infrequently spills of fuels, gasoline, and diesel.

General Precautions: Public Works Staff will typically rely on the vehicle driver's knowledge of what the material is and handle the materials appropriately. Without knowledge of what the material is staff will assume the materials are hazardous and secure the area pending identification via testing for hazardous waste characteristics. Public Works Staff will not get involved with the clean-up of any unknown substance and those known to be hazardous, such as gasoline, will be referred to hazmat trained personnel at the Glendale Fire Department.

Recovery: Typically, granular absorbents are used to soak-up as much of the liquid as possible and they are manually recovered by crews with push brooms. Used absorbents that are lightly soaked will be recovered and used again. Heavily soaked materials are bagged for transport to The Fire Prevention Bureau's hazardous waste recovery facility on Flower Street for disposal.



5 Contractor-Related Spills Procedures

Important Note: Contractors and property owners will be held responsible for spills determined to be caused by their activities. However, a timely response to the spill is critical, regardless of responsibility, the spill response crews shall be prepared to perform all spill response procedures necessary to mitigate the spill.

Spill-Response Crew's Responsibilities: If requested, response crews shall assist the contractor in his/her efforts to mitigate the spill by following these procedures:

- (1) Perform Standard Spill Response – Perform procedures as per this Response Plan, until the point at which it becomes clear that the spill may be related to nearby contractor activity and the contractor has the on-site capability to mitigate the spill.
- (2) Consult with Contractor, if Possible – If the contractor is on site, the crew leader will approach the contractor's foreman to determine/coordinate spill response efforts. The contractor may be able to resolve the spill with assistance. If the contractor requests, the responding crew will assist in relieving the problem. If the stoppage cannot be relieved by the responding crew, the crew leader shall contact the Wastewater Superintendent and explain the situation while the crew continues its efforts to resolve the situation.
- (3) Take Action When Contractor Cannot be Located – If the contractor is not on site, the responding crew will assess the situation and determine the best approach for mitigating the spill. They shall proceed with spill response activities as needed. The following additional procedures also apply:
 - (a) Notification to Contractor – The timing for this notification should be as early as possible for major events and may be later for minor events that are resolved before the contractor can respond.
 - (b) Clean Up of the Area – This includes returning contained sewage to the collection system using the vacuum truck or a pump, removal of sandbags or plugs, cleaning and flushing the area and/or the catch basin and packing up equipment and supplies. Disinfect according to policy. See the street bleaching S.O.P. attached to this document.
 - (c) Spill Occurring Due to a Contractor-Related Problem – When a private residence has been impacted by a spill occurring due to a contractor-related problem, the contractor is obligated to provide clean-up services.
 - (d) Documentation Required – Wastewater Maintenance crew leader to render the following:
 - (i) Sewer Spill Volume Estimating Worksheet
 - (ii) Sewer Spill Field Worksheet
 - (iii) Sewer Stoppage Report.
 - (e) CityWorks documentation of sewer line maintenance performed in Response to the stoppage.

6 Spills from Private Laterals

Should the spill not be the responsibility of the City of Glendale but there is imminent danger to public health, public property, or the waters to the State/U.S., then the City of Glendale will take prudent emergency action until the responsible party assumes responsibility and takes over.

Sewer crew may choose to jet the main line to determine whether the blockage is caused by the City line.

1. If it is determined that the blockage is from the City line, start containment, correction and clean-up operations.
2. Once a private lateral spill has been confirmed the responding crew shall attempt to notify the owner/occupant to restrict usage of their water until the blockage has been cleared.
3. If the blockage is in the lateral line, the owner/occupant shall be notified to address the blockage as soon as possible.
4. At the discretion of the crew leader, the owner/occupant may be given up to 24 hours to begin repairs.
5. If the repairs and clean-up are not completed within the agreed amount of time or the occupant continues to use water, the water may be shut off until the repairs are made.
6. Glendale Water and Power should be called to shut off the water.
7. Any clean-up activities due to repeat offenses may be billed to the responsible private party.



7 Spills from Enrollee-Owned and Operated Laterals

Enrollee Owned and Operated Lateral: A lateral that transports sewage from City owned buildings and facilities to the City's Sanitary Sewer System.

Enrollee Owned and Operated Lateral Spill - is a sewage spill caused by a blockage in a lateral connecting a City owned building or facility to the City's sanitary sewer system and which does not reach surface waters. Enrollee owned and operated lateral spills that reach surface waters automatically become category one spills.

1. The responding crew will take action as necessary to block the flow of sewage from reaching a drainage conveyance system inlet (Ex. A storm drain catch basin inlet).
2. Once an enrollee owned and operated lateral spill is confirmed, the responding crew shall notify the Facilities Maintenance Division to address the blockage.
3. Facilities Maintenance Staff will relieve the blockage causing the spill as quickly as possible and will coordinate securing of water to the building (s) as necessary to perform repairs. If water shutoff becomes necessary, Glendale Water and Power (GWP) staff should be called to shut off the water.
4. Wastewater Maintenance Section staff will continue to assist with containment until the spill is stopped and then will perform clean-up of the affected area.

8 Sewage Spill Notification and Documentation

Documentation Required:

The Wastewater Superintendent or his designee is to render the following sewer reports (when applicable) to the event:

- Sewer Spill Volume Estimation Worksheet.
- Sewer Spill Field Worksheet.
- Sewer Stoppage Report (PWS-22).
- Completed Cityworks Service Request documenting response to the spill event.
- Cityworks sewer line maintenance record for line-cleaning work performed to relieve any blockage causing the stoppage.

When Agency Notification is Required:

The State Water Resources Control Board (SWRCB) must be notified no less than once a month of any and all spills that occur, as well as when no spills have occurred. The amount of time and the process in which the SWRCB must be notified is best referred to in Table 3-1 and Table 3-2.



ATTACHMENT 1 – AGENCY CONTACT LIST

AGENCY PHONE NUMBERS

VERIFIED: 04/02/25

- | | |
|---|----------------|
| 1. Department of Fish and Wild Life | (951) 443-2944 |
| 2. Director Public Works | (818) 548-3900 |
| 3. Federal Hazardous Response Center | (800) 424-8802 |
| 4. Glendale Unified School District
(Hagop Kassabian, Glendale Unified Director
of Facility and Support Operations) | (818) 242-0003 |
| 5. Los Angeles County Flood Control District | (818) 896-0594 |
| 6. City of Los Angeles Department of Public Works | (888) CLEAN-LA |
| 7. Los Angeles Regional Water Quality Control Board | (213) 576-6600 |
| 8. Safety Section (Margaret Agus) | (818) 550-4358 |
| 9. California Emergency Management Agency (Cal-EMA) | (800) 852-7550 |
| 10. Verdugo Fire Communication Center
(Hazardous Materials) | (818) 548-4030 |

ATTACHMENT 2 – SEWER SPILL VOLUME ESTIMATING SPREADSHEET

G:\1-WASTEWATER\Training Program Materials\Sanitary Collection System and Maintenance\03 Sewer Spill Volume Estimating Worksheet.doc

Sewer Spill Volume Estimating Worksheet (page 2)

H. Estimated average depth of wetted floor in inches = _____
(in.)

Note: If can't actually measure, make a reasonable assumption 1/4" - 1/2".

I. Convert depth in inches to ft. $H. / 12$ = _____
(ft.)

J. Estimated Spill Volume (Building or Residence) = $G. \times I.$ = _____
(ft³)

K. Convert Estimated Spill Volume (Building or Residence) to gals.

$J. \times 7.48$ = _____
(gals.)

Step 3. Determine Total Estimated Spill Volume

L. Total Estimated Spill Volume = $E. + K.$ = _____
(gals.)

Step 4. Determine Estimated Volume of Spill Vacuum Recovered

M. Estimated Vacuum Recovery Start date/time: _____
MM/DD/YY Time 24 hr

N. Total Vacuum Recovery Time in minutes $B. - M.$ = _____
(mins.)

O. Est. Volume of Spill Vacuum Recovered = _____ X _____ = _____
N. D. (gals.)

Step 5. Estimated volume of spill that reached surface water, drainage channel, or not recovered from storm drain conveyance system:

P. [Est. Spill Volume to Street] – [Est. Volume of Spill Vacuum Recovered] – [Est. Spill Volume Captured] =

$E. - O. - \text{Volume Captured (below)}$ = _____
(gals.)

Determine Wetted Street Volume or Other Volume Captured

1. Attach copy of sketch from stoppage report.

Depth Information in Ft.

1/8" = 0.01 FT

Length (L) = _____ ft.

1/4 " = 0.021 FT

Width (W) = _____ ft.

3/8" = 0.031 FT

Depth (D) = Average Observed (in.) = _____ / 12 = _____ ft.

wetted street volume = _____ X _____ X _____ = _____ ft.³ X 7.48 = _____
L W D Gals.



ATTACHMENT 3 – SEWER SPILL FIELD WORKSHEET

City of Glendale California
Wastewater Maintenance Section
Rev. 1/11/24
Sewer Spill Field Worksheet

Location of Spill: _____/_____/_____
(closest street address to spill/cross street/zip code)

Date and time sanitary sewer system agency was notified or discovered spill:

(Time Maintenance Services was informed)

MM/DD/YY Time 24 hr

Estimated spill start date/time:

MM/DD/YY Time 24 hr

(If you have no reliable information of actual start time back-up 20-30 mins from agency notification or discovery time for Estimated spill start time and until you have time to further investigate)

Estimated operator arrival date/time:

MM/DD/YY Time 24 hr

Spill appearance point (Check all that apply):

- ☐ Building or structure
- ☐ Force main or pressure sewer
- ☐ Gravity sewer
- ☐ Manhole
- ☐ Other sewer system structure
- ☐ Pump station
- ☐ Other (Specify) _____.

(circle one)
Yes/No

Private lateral spill?

If **no** – move on Enrollee Owned Lateral Spill:

If **yes** - move on to County Health Department notification if private lateral spill reached public right of way. No further notification is required. Clean-up sewage on public right of way. Notify property owner/resident of requirement to correct or risk water shutoff. Private lateral spills are NOT Sewer Spills as of this revision.

(circle one)
Yes/No

Enrollee Owned lateral spill?

If **no** – Move on to estimated spill volume end date and time:

If **yes** – Did lateral spill discharge to surface waters.

(circle one)
Yes/No

If **no** – move on to County Health Department notification if enrollee owned lateral spill reached public right of way. No further notification is required, unless greater than 1,000 gals., in which case report within 2 hrs to CalOES. Clean-up sewage on public right of way.

If **yes** – Treat as a category 1 spill

Note: Enrollee owned lateral spills become Category 1 Sewer Spills if they reach surface waters.

Estimated spill end date/time:

MM/DD/YY Time 24 hr

Sewer Spill Field Worksheet (page 2)

Health Department notified within 15 mins of arrival on scene? (circle one) **Yes/No**

24 Hour Number (213) 974-1234

Note: Health Dept. Notification required for all spill's even if they never make it to a public right of way.

Time County Health Department notified: _____

Operator # _____ Ticket # _____ MM/DD/YY Time 24 hr

Required Locating Photographs:

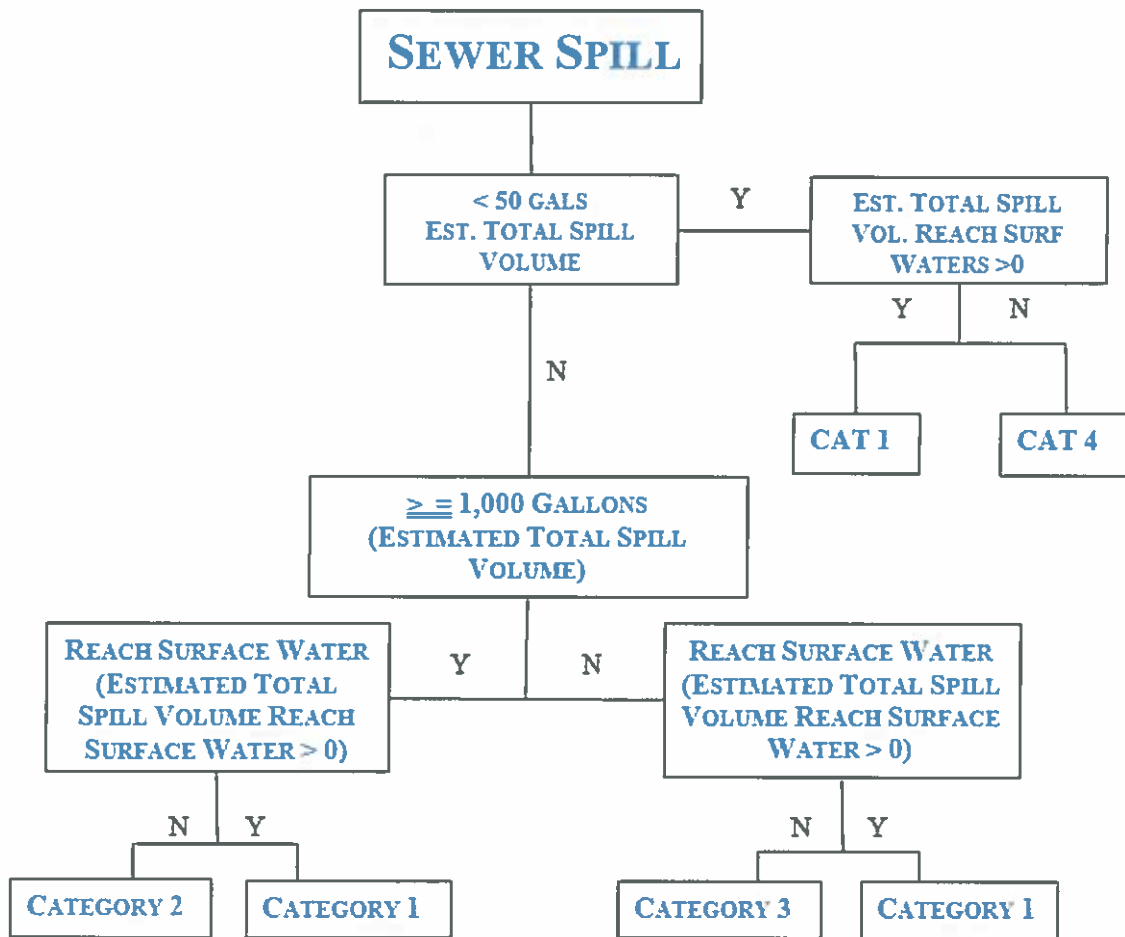
- ☐ Spill origination point (Ideally before stoppage relieved).
- ☐ Location of entry to a drainage conveyance system.
- ☐ Location of entry to surface waters.
- ☐ Waterbody bank erosion at entry to surface waters.
- ☐ Floating matter in receiving surface waters.
- ☐ Extent of spill spread (may require several photos to capture).
- ☐ Location of Cleanup.

Spill response activities (Check all that apply):

- ☐ Cleaned-up (mitigated effects of spill)
- ☐ Contained all or a portion of spill.
- ☐ Inspected sewer using CCTV to determine cause.
- ☐ Restored flow.
- ☐ Returned all or a portion of the spill to the sanitary sewer system.
- ☐ Other (Specify)_____.

Sewer Spill Field Worksheet (page 3)

Category Determining Chart



(Attach Calculations)

Estimated total spill volume exiting the system: **A.** _____gallons

Estimated spill volume recovered before entry to drainage conveyance system: **B.** _____gallons

Estimated spill volume entering drainage conveyance system.
A.-B. = C. _____gallons

Estimated spill volume fully recovered from drainage conveyance system.
D. _____gallons

Estimated spill volume remaining in the drainage conveyance system.
C.-D. = E. _____gallons

Sewer Spill Field Worksheet (page 4)

Estimated total spill volume recovered: **B.+D. = F.** _____gallons

Estimated total spill volume discharged to surface waters:
A. - F. = G. _____gallons

Note : G.= E.

Final spill destination(Check all that apply):

- ☐ Building or structure
- ☐ Other paved surface
- ☐ Storm drain
- ☐ Street/curb and gutter
- ☐ Surface water
- ☐ Unpaved surface
- ☐ Other (Specify)_____.

Is Spill a Cat. I, II or Enrollee Owned Lateral Spill and greater than > 1000 gals?

(circle one)
Yes/No

If **Yes call CAL EOS within 2 hrs. of time agency notified or discovered spill.**

CAL OES Phone # 1-800-852-7550

OES Control # _____ Time OES notified: _____
MM/DD/YY Time 24 hr

Is the estimated total spill volume discharged to the Los Angeles River drainage greater than or equal to 5000 gals?

(circle one)
Yes/No

If **Yes call The City of Long Beach Health Department as soon as possible**

During normal working hours contact the Water Quality Supervisor (562) 570-4129

After normal working hours contact Non-Emergency Fire Dispatch (562)-570-9400
Let them know you are trying to reach Environmental Health-Water.

You can also send an e-mail notification to environmentalhealth@longbeach.gov
If any doubt about reaching Long Beach staff always follow-up with an e-mail.

(page 5)

MM/DD/YY Time 24 hr

MM/DD/YY Time 24 hr

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ATTACHMENT 4 – SEWER STOPPAGE REPORT



City of Glendale
PUBLIC WORKS • MAINTENANCE SERVICES
SEWER STOPPAGE REPORT

Date: _____ Time: _____ District #: _____

Location: _____

Cause: _____

Damage to City Property? ☐ Yes ☐ No Type of Damage: _____

Equipment Number /Hours: _____

Employee(s) Names /Hours: _____

Date of Last Main Cleaning /Inspection: _____

Damage to Private Property? ☐ Yes ☐ No Type of Damage: _____

Location: _____

Remarks: _____

Signed: _____



City of Glendale
PUBLIC WORKS • MAINTENANCE SERVICES
SEWER STOPPAGE REPORT

Date: _____ Time: _____ District #: _____

Location: _____

Cause: _____

Damage to City Property? ☐ Yes ☐ No Type of Damage: _____

Equipment Number /Hours: _____

Employee(s) Names /Hours: _____

Date of Last Main Cleaning /Inspection: _____

Damage to Private Property? ☐ Yes ☐ No Type of Damage: _____

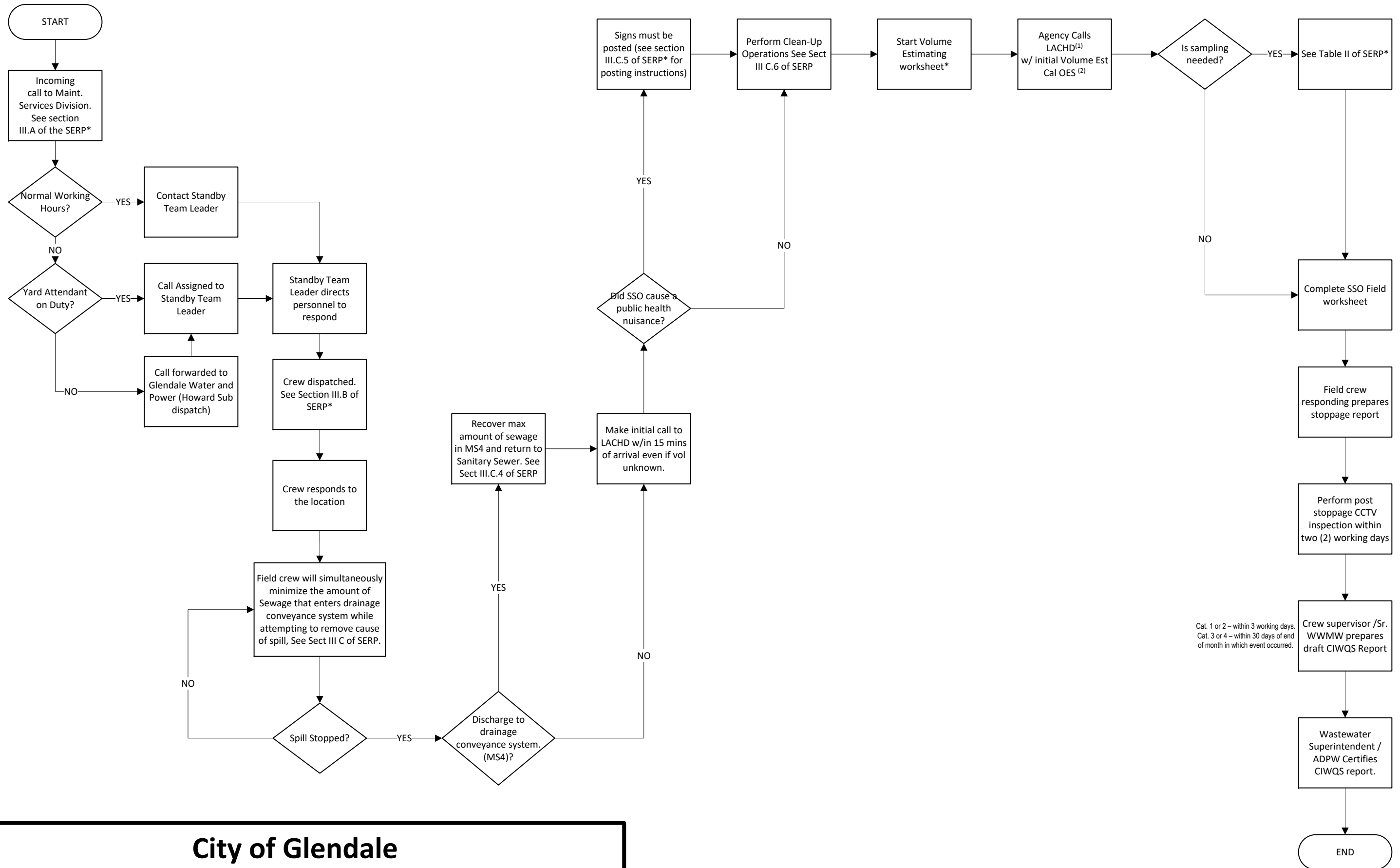
Location: _____

Remarks: _____

Signed: _____



**ATTACHMENT 5 – SSMP OVERFLOW EMERGENCY RESPONSE FLOWCHART
(MARCH 2025)**



City of Glendale

Sewer Spill Emergency Response Flowchart

Revised: 4/3/2025

(1) Within 15 minutes of arrival on scene if sewage reached a storm drain conveyance.
(2) Within 120 minutes of becoming aware.

G:\1-WASTEWATER\WDR\SSMP Component Pieces\SSMP Appendix B\ 06_Spill Emergency Response Flowchart (Apr 2025)

**ATTACHMENT 6 – EXAMPLE PROJECT SPECIFICATION FOR CONTRACTOR
BYPASS SPILL RESPONSE COORDINATION**

Acacia Ave Wastewater & Street Improvement Project
Spec 3405R
Bypass Spill Response and Communication Plan
(Rev. 6/7/13)

Project Team

24 Hr. Phone

Contractor Proj. Mgr. (<u>Sully-Miller</u>)	<u>Gary Downey</u>	<u>(714) 578-9604 -Office</u>
Site Foreman (<u>Sully-Miller</u>)	<u>Rueben Valenzuela</u>	<u>(714) 720 -7415- Cell</u>
Construction Inspector (<u>City of Glendale</u>)	<u>Art Warren</u>	<u>(818) 649-4350- Cell</u>
Project Manager (<u>City of Glendale</u>)	<u>Jasmina Zigic</u>	<u>(818) 937-8255-Office</u>

Operations & Maintenance Coordinators

WW Maintenance Crew Supervisor (C of G)	<u>Roy Rodriguez</u>	<u>818-807-6078- Cell</u>
WW Maintenance Superintendent (C of G)	<u>John Hicks</u>	<u>818-262-6799- Cell</u>

Sewer System Overflows

1. Flows of raw sewage from pipes within a construction trench that do not leave the trench are NOT considered SSO's.
2. Any discharge of raw sewage from the collection system to the street, a sidewalk or right of way IS considered an SSO and must be reported to the State by the City.
3. Should an SSO occur do your best to contain it at the site to prevent entry into the storm drain system. Have an adequate supply of containment materials on site at all Times.
4. **Who to call:**

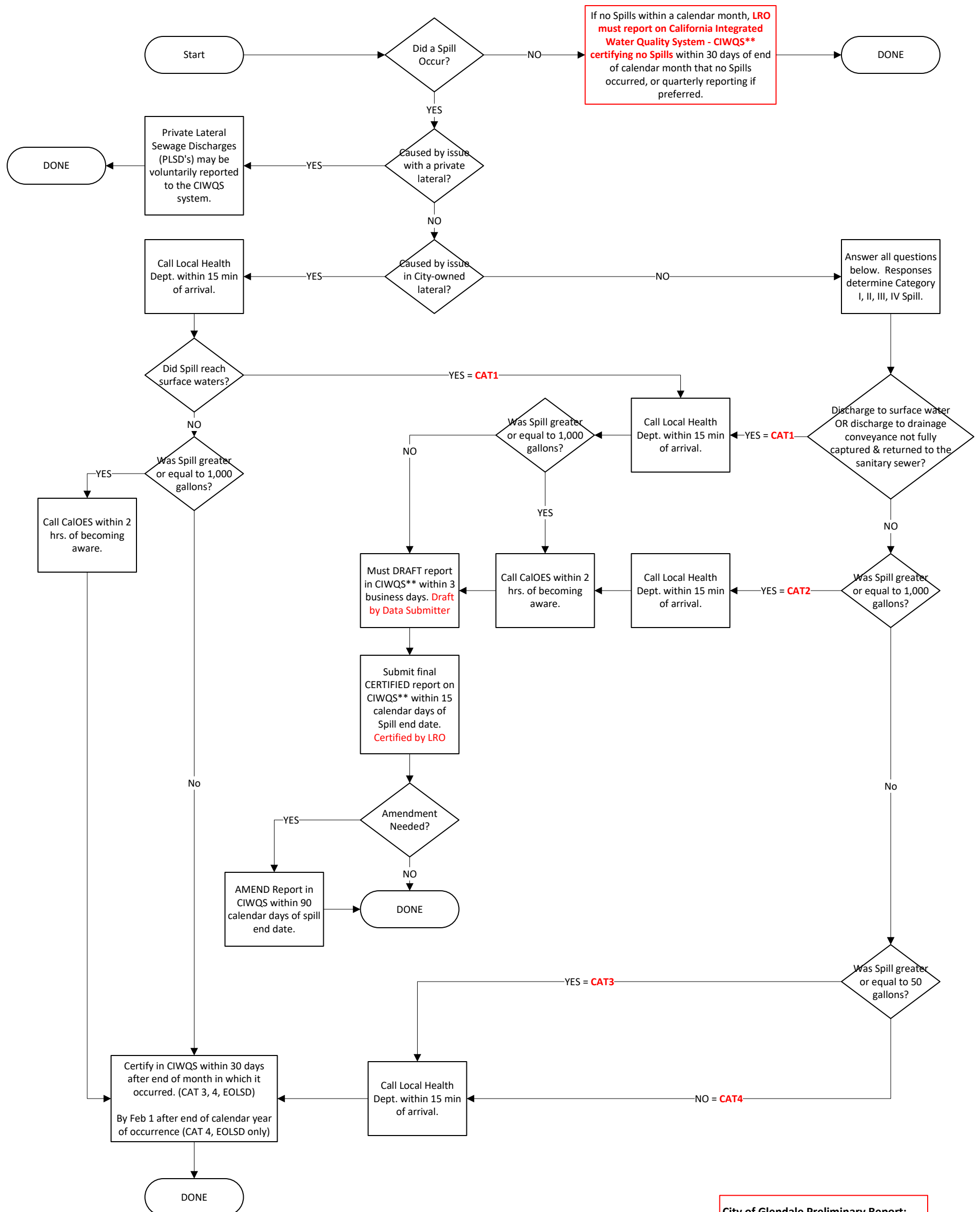
Time Frame	For City Personnel This Is	Who to Call
Normal Working Hours	M-Th 6:30 AM to 4 PM Fri 6:30 AM to 3PM	PW Maintenance Services Dispatch 818-548-3950
After Normal Working Hours	All other times including Holidays	Wastewater Section Standby Team Leader Changes Monday at 6:30 AM. Phone number

https://hdrinc.sharepoint.com/teams/GlendaleSSMPAudit/Shared Documents/2025 SSMP Update/SSMP Attachments/Attachment Source Files/Attachment F - SERP/06_Acacia Ave Wastewater & Street Improvement Project_Spec 3405R_Bypass Spill Response Coord.doc



**ATTACHMENT 7 – SPILL REPORTING FLOWCHART
(MARCH 2025)**

Spill Notification and Reporting Flow Chart*



City of Glendale Preliminary Report:

Asst. Director Public Works - ADPW
Director of Public Works - DPW
Principal Civil Engineer - P.C.E.
Senior Civil Engineer - NPDES Compliance

* These reporting requirements do not preclude other emergency notification requirements and time-frames mandated by other regulatory agencies (local County Health Officers, local Director of Environmental Health, Regional Water Boards, or Office of Emergency Services (OES) or California law.

** If CIWQS is not available, you must FAX to RWQCB in accordance with time schedules identified above and enter all required information in to CIWQS as soon as practical.

Los Angeles RWQCB Phone: (213) 576-6600, Fax: (213) 576-6640

**ATTACHMENT 8 – MSSOP SEWER OVERFLOW NARRATIVE AND FOLLOW-UP
PROCEDURES**

PUBLIC WORKS DEPARTMENT
MAINTENANCE SERVICES DIVISION
STANDARD OPERATING PROCEDURE
REV. 1/4/2024

Title: Sanitary Sewer Spill Narrative and Talking Points for All City Dispatchers

Purpose: Provide talking points for those who receive calls about potential sanitary sewer spills within the City of Glendale.

Importance: Sanitary sewer spill occurrences result in direct public health threats to residents of Glendale, to those who access the Los Angeles River, and the beaches where the river discharges at Long Beach. Spills in Glendale can actually result in beach closures. Furthermore, spills can cause extensive damage to private property and expose the City to significant fines. For these reasons, it is imperative that reports of spills be followed-up on immediately, responded to promptly and reported to the authorities in accordance with established timelines.

Background: There are four (4) primary places where the public will observe an spills

Figure 1. A sewer manhole within the street



Figure 2. A sewer manhole located off the street in a right of way.



PUBLIC WORKS DEPARTMENT
MAINTENANCE SERVICES DIVISION
STANDARD OPERATING PROCEDURE
REV. 1/4/2024

Figure 3. A cleanout for a private lateral



Figure 4. Plumbing Fixtures inside a building (ex. shower pan drain, toilet, bathtub)



PUBLIC WORKS DEPARTMENT
MAINTENANCE SERVICES DIVISION
STANDARD OPERATING PROCEDURE
REV. 1/4/2024

Occasionally leaks coming from potable water fixtures are mistakenly identified as spills.

Figure 5. Water valve in street



Figure 6. Residential Water Meter Box



PUBLIC WORKS DEPARTMENT
MAINTENANCE SERVICES DIVISION
STANDARD OPERATING PROCEDURE
REV. 1/4/2024

The attached worksheet contains the key talking points for those speaking with individuals who are reporting what they believe to be a sewer system spill.

1. Conduct the interview outlined on the attached worksheet, gathering the information as completely as possible.
2. Dispatch the Maintenance Services Wastewater Crew by calling the **Standby Team Leader** given on the Standby Weekly Schedule Change distributed every Tuesday AM.
3. Email the information or scan the filled-out worksheet to pwstreets@glendaleca.gov.

The Public Works Call Center will create a service request for the event making sure the information in the worksheet is included.

PUBLIC WORKS DEPARTMENT
MAINTENANCE SERVICES DIVISION
STANDARD OPERATING PROCEDURE
REV. 1/4/2024

SR# _____
(Public Works Only)

Title: Sanitary Sewer Spill Narrative and Talking Points -Dispatchers Worksheet

Call Received Date/ Time : _____ / _____ AM/PM

Person Reporting (PR): _____ PR Phone #: _____

Dispatcher Taking Call: _____ Dispatcher Phone #: _____

Please cover the following with the Person Reporting:

1. Where is the overflow occurring? [Circle All that Apply].

On-street Off- Street Inside a Residence or Business

2. What is the address associated with or closest to the overflow?

[Number] [Street or Intersection] / [Cross Street]

3. Which of the following are overflowing or backing up?
[Check all that apply]:

a. **If outside:**

- i. manhole cover _____
- ii. sewer cleanout _____

b. **Inside:**

- i. shower pan drain _____
- ii. toilet _____
- iii. tub drain _____

c. Are any other properties (units) affected? Yes No Uncertain
[Circle one]

5. To the best of your knowledge:

a. **When did the overflow start?** Date/ Time: _____ / _____ AM/PM

b. **Are you aware of anyone who has information about a possible earlier start time?** Yes No [Circle One-If yes attempt one of the following]:

- i. Obtain contact information for Public Works follow-up:
Name: _____
Phone No. _____ () _____

- ii. Ask Person Reporting to attempt confirmation of possible earlier start time AND call back as soon as possible.

Earlier Start Time: Date/ Time _____ / _____ AM/PM

6. GFD/GPD/ GWP or GPW Dispatcher have you forwarded this information to
pwstreets@glendaleca.gov



ATTACHMENT 9 – WWSOP STREET CLEANING POST-SSO

STANDARD OPERATING PROCEDURE

STREET CLEANING POST SEWER SPILL

REV. 11/29/2023

Purpose: How to properly clean and sanitize hardscapes contaminated by a sanitary sewer spill.

Background: Sanitary sewer spills that impact hardscapes, typically streets and sidewalks but occasionally driveways and other private hardscapes need to be cleaned and sanitized before responding Wastewater Section Crews depart the scene

Special Tools:

- P.P.E.-Tyvek suit, gloves and chemical safety goggles.
- Traffic Cones or delineators and caution tape to keep the public safe while bleach being applied to surfaces. .

General Procedure: Set Up

MINOR STREET CLEANING POST SSO

- Locate manhole cover that was overflowing.
- Pour disinfectant (Bleach) around outer perimeter of overflowing manhole cover.
- Remove manhole cover from ring and position cover beside the ring.
- Use flusher vehicle hose at low to medium pressure and wash spill area down, back into the manhole.
- Return all solids back to collection system and dispose of waste properly.
- Return manhole cover back into place.

MAJOR STREET CLEANING POST SSO

- Locate manhole cover that was overflowing.
- Set up a combo-truck downstream from overflowing manhole cover closest/before storm drain. If necessary, use a plug to block storm drain from overflow.

- Position vacuum tube(s) in gutter line, along sidewalk. Build a dike with sandbags around the vacuum tube that will be used for recovery of the wash-up water. Leave combo-truck vehicle at idle mode.
- Park flusher truck next to overflowing manhole cover placed in the path of the overflow.
- Pour disinfectant (Bleach) around outer perimeter of overflowing manhole cover.
- Alert combo-truck crew that you will start washing down in their direction.
- Use the hose from the flusher truck at low to medium water pressure and wash area affected by the spill in the direction of the combo-truck. Move flusher truck slowly in the direction of the combo-truck so you do not overwhelm the combo-truck vacuum capacity.
- Return all solids back to collection system and dispose of waste properly.