

**City of Redding  
Sewer System Management Plan**

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## **City of Redding Sewer System Management Plan**

### **Introduction**

The preparation of this Sewer System Management Plan (SSMP) was mandated by State Water Resources Control Board Order Number 2006-0003-DWQ, and is intended to ensure proper funding and management of the City of Redding's (City) sanitary sewer system. This SSMP includes provisions to provide proper and efficient management, operation, and maintenance of the sanitary sewer system, and inherently takes into consideration risk management and cost benefit analysis. Also, this SSMP contains a spill response plan that establishes minimum procedures for immediate response to any sanitary sewer overflows (SSOs) in a manner designed to minimize water quality impacts and nuisance conditions.

### **Section I-Goals**

This SSMP is intended to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help to achieve the following goals:

- Protect public health and the waterways of our community by the effective collection and treatment of wastewater.
- Comply with all applicable City, County, State and Federal regulations.
- Minimize the occurrence of SSOs with proactive operation and maintenance practices.
- Preserve and improve the wastewater collection system with effective maintenance, rehabilitation and replacement projects. Utilize thorough plan check and inspection procedures to insure that these projects adhere to all design and construction standards.
- Minimize the impact to public and private property as well as our waterways by rapid and effective response to customer service calls, interruptions of service, equipment alarms and SSOs.
- Ensure that the system has adequate capacity in all flow conditions to convey wastewater to the City's wastewater treatment plants without SSOs or disruption of service to our customers.
- Provide for sufficient staffing and funding to support our goals.
- Provide all employees with the necessary training, materials and equipment to allow them to perform their duties safely and effectively.
- Provide pertinent information to the general public, local leaders and the media regarding the wastewater collection system, including issues of system operation, maintenance, costs, improvement projects and utility programs.
- Promote a positive, ethical, and customer service oriented attitude among all employees.

## Section II-Organization

### 1. City Council

- Establishes policies under which the City operates and appoints a City Manager to administer the affairs of the city.

### 2. City Manager

- Hiring of city staff, preparation of the bi-annual budget, administration and coordination of the City's operations, general supervision over all property under the control of the City and enforcement of city ordinance and applicable laws.

### 3. Director of Public Works/ Assistant Public Works Director

- Ensure that the Wastewater Utility is adequately staffed and funded to service all the needs of the system and the public it serves.
- Assist in the procurement of funding for operations, maintenance and capital improvement projects (CIP).
- Oversee the development, maintenance, and implementation of design, construction, and inspection of new, repaired, and rehabilitated infrastructures.

### 4. Municipal Utility Manager, Wastewater

- Ensure the goals of the Wastewater Utility are met and continue to be relevant with respect to the safety and concerns of customers and the protection of local water quality.
- Schedule identified CIP projects and secure the funding needed to properly maintain the collection system, minimizing SSOs and protecting the public and the environment.
- Supervise the development, maintenance, and implementation of design, construction, and inspection standards for new, repaired, and rehabilitated infrastructures.
- Oversee the creation and maintenance of collection system hydraulic models, and assess the ability of the system to meet capacity demands.
- Assist in the biennial SSMP audit reports assessing overall department performance and make changes to goals and maintenance schedules as needed.
- Serves as the Responsible Representative per Section J of State Water Resources Control Board Order Number 2006-0003-DWQ and delegates reporting and signatory authority to duly authorized representatives such as the Wastewater Compliance Coordinator and Wastewater Collections Supervisor.

### 5. Wastewater Collections Supervisor

- Individual responsible for proper implementation of all SSO reporting as outlined in this SSMP and serves as a duly authorized representative of the Wastewater Utility Manager.
- Prioritize and schedule routine preventive maintenance activities based on condition assessment data and historical field observations.
- Develop a list of CIP projects and have involvement in the procurement of project funding.
- Monitor and assess the effectiveness of the preventive maintenance program.
- Maintain and implement an overflow emergency response plan (OERP) and educate all

- involved personnel on communication, reporting, and mitigation procedures regarding SSOs.
- Oversee maintenance and updating of the collection system mapping and record drawings for both internal and external engineering purposes.
- Recommend changes as needed to the Wastewater Utilities Manager regarding the effectiveness of current activities in meeting short and long term goals.

#### 6. Wastewater Collections Working Supervisor

- Maintain accurate records of maintenance, inspection work performed, and present relevant field data to the Collections Supervisor for review.
- Oversee the preventive maintenance and assist in scheduling of priority areas needing attention.
- Oversee all closed circuit televised (CCTV) inspection work and ensure current assessment condition methods are met.
- Organize appropriate training for maintenance workers to ensure all necessary tasks are completed.
- Understand and implement procedures related to the OERP for responding to, mitigating, and reporting SSOs.
- Maintain the system hot spot list and areas affected by fats oils and grease (FOG) related discharges.
- Maintain records and maps of SSOs and track any trends associated with them.
- Participate in and oversee infiltration and inflow monitoring and data collection, and forward this information to appropriate personnel for analysis.

#### 7. Lead Workers and Maintenance Workers

- Perform regularly scheduled maintenance activities within the wastewater collection system.
- Directly respond to customer inquiries and reports of SSOs, and relay any information promptly and accurately through the SSO chain of communication as necessary.
- Understand and implement procedures of the OERP for responding to, mitigating, and reporting SSO data.
- Identify and correct any FOG related issues within the collection system.
- Understand condition assessment reporting utilizing a quantitative rating system (such as NASSCO) when needed

#### 8. Code Enforcement

- Ensure that the Wastewater Utility has the necessary authority to adequately maintain and control its collection system.

#### 9. Industrial Waste Division

- Maintain and implement FOG control standards and procedures, and verify FOG discharge compliance throughout the collection system through scheduled inspections.
- Ensure proper disposal of FOG wastes generated within the sanitary sewer system service areas.
- Investigation and enforcement of illicit FOG discharges.
- Require FOG pretreatment equipment during the Building Plan Check process.

- Inspect FOG pretreatment equipment during construction.
- Maintain FOG information in a database.
- Receive updated inspection lists and route maps from GIS.
- Oversee and conduct public education programs to reduce discharge materials that may clog or contaminate the sewer collection system, such as fats, oils, grease, disposable wipes etc.

#### 10. GIS

- Work with Underground Utility Locate Staff and Collections Staff to update sewer maps.

#### 11. Public Works Administration Manager

- Oversee and direct the work of The Storm Drain Division.
- Schedule and oversee the daily work schedule of administration staff.

#### 12. Administration staff

- Relay possible stoppage reports to Collections Division Staff.

#### 13. Storm Drain Division

- Assist with locating and identifying all storm drain inlets and piping.
- Assist with containment and mitigation of SSOs.

#### 14. Wastewater Compliance Coordinator

- Maintain regulatory compliance by ensuring that all necessary notification and documentation is completed. Ensures proper implementation of all SSO reporting and response as outlined in this SSMP, and serves as a duly authorized representative of the Wastewater Utility Manager.
- Assist with SSMP audits, assessing overall utility performance and making recommendations for changes in goals and maintenance needs to the Wastewater Utility Manager.

#### Related Documents

Appendix A- Organizational Chart

Appendix B- Employee Contact Information During Work Hours

### **III-Legal Authority**

The City derives the legal authority to construct, maintain and operate its sanitary sewer system from the City of Redding Municipal Code (Code), specifically Chapter 14.16. A discussion of the sections most pertinent to legal authority follows, and the entire Code can be found on the City of Redding Website at [www.cityofredding.org](http://www.cityofredding.org).

Section 14.16.100 of the Municipal Code details the City's authority to regulate or prohibit the discharge of waste to the City's sanitary sewer system. This section also allows for the establishment of limits, conditions, prohibitions, and best management practices that are enforceable and specifies the conditions such regulations will contain. Section 14.16.140 reserves for the City the right to establish more stringent standards or requirements on waste dischargers if deemed necessary.

Section 14.16.105 details the City's authority to deny or condition new or increased contributions of pollutants by industrial users. This includes the authority to sample industrial effluent, inspect industrial sites, and develop procedures to prevent accidental spills. Special requirements for industrial user permits are located in sections 14.16.400 through 14.16.495.

Section 14.16.140 of the Municipal Code states that the City "reserves the right to establish, by ordinance or in wastewater discharge permits, more stringent standards of requirements on discharges to the POTW if deemed necessary to comply with the objectives presented in Section 14.16.100 of this chapter or the prohibitions in Section 14.16.582 of this chapter".

Sections 14.16.300 through 14.16.380 lay out the regulations and standards pertaining to sewer construction and specify the provisions of permits for sewer connections.

Sections 14.16.500 through 14.16.590 specify the regulations pertaining to the general pretreatment of wastes, including restaurant FOG waste, to be discharged into the City's sanitary sewer system.

Sections 14.16.600 through 14.16.830 detail the authority of the City to enforce the conditions and regulations of Chapter 14.16, and the ability of the City to impose fines and penalties. Potential enforcement actions include Administrative Enforcement Actions, Judicial Enforcement Actions, and Supplemental Enforcement Actions.

Section 17.24.060 discusses the requirements for submittal of subdivision maps, and contains language that clearly states the need for developers to indicate the easements that will be provided for new public infrastructure, as well as access thereto.

Section 18.22 discusses the requirements for the provision of adequate public facilities, and lays out the method by which City staff verify that such facilities are provided, adequate and accessible.

## Section IV-Operation and Maintenance

### 4.1 Mapping

#### Collection System Mapping

The City of Redding currently utilizes both an online GIS map database as well as a hard copy atlas of the entire system. Copies of the atlas are kept in each Wastewater Collection and Storm Water division vehicle as well as pertinent work areas and offices. These atlases identify and show the location of all the sewer mains, trunk lines, interceptors, manholes, rodholes, siphons, lift stations, force mains and other structures that comprise the sanitary sewer system. They show the size, type and length of each pipe, property lines and street names. They also identify and show the location of the creeks, streams, river and other major surface waters within the City limits.

These atlases are utilized to help crews with all manner of maintenance, repair and rehabilitation operations. In the event of a sanitary sewer overflow, they are utilized to locate the source of the overflow and to formulate any needed containment and pumping of wastewater back into the system.

When additions are made to the system or discrepancies are discovered within the atlas, the Wastewater Collection Supervisor provides this information to the GIS Division which then makes the needed changes in the database. These changes are also incorporated into the atlas, ensuring that accurate information is always available as needed.

During plan review for potential new development or construction, the GIS map server is used to help determine pipe capacities, topography, easement issues and ultimate buildout concerns.

### 4.2 Preventive Maintenance Program

#### A. Hydro-cleaning

The Wastewater Collection Division utilizes three separate hydro-cleaning machines to scour 6-inch through 18-inch sanitary sewer pipes. Priority is given to known problem areas, referred to as “Hot Spots”, which are scheduled for 3, 6 or 12 month interval cleaning. The “Hot Spot” list is made in conjunction with the FOG program instituted and maintained by the Industrial Waste Division. Hot spots are continually evaluated by closed circuit television inspection to determine the effectiveness of hydro-cleaning as well as if the frequency of cleaning schedule needs to be adjusted.

Routine cleaning of the rest of the system is prioritized and performed based on the size and age of the system’s sewer mains and trunk lines within a given drainage basin. Upon completion of the cleaning of the basins, maps and cleaning logs are documented and stored for future reference.

## B. Root control

The need for root control operations is determined from information obtained during hydro-cleaning and closed circuit television (CCTV) inspections as well as stoppage and SSO incidents. Roots that could create a stoppage and/or a SSO are immediately removed by hydro-cleaning equipped with a specialized root cutting nozzle. In instances of major root infiltration the exact location is verified utilizing the CCTV system and the pipe is excavated and repaired. Pipelines that have incurred root infiltration receive chemical root treatment to assist in the removal of roots and inhibit regrowth of the roots. Currently the City of Redding contracts out all chemical treatment processes, and hydro-cleaning and CCTV inspections are utilized to monitor the effectiveness the root removal effort.

## C. Remote manhole inspections

The City of Redding Wastewater Collection division has approximately 71 miles of sanitary sewer lines and 1850 manholes located out of the street right of ways. Identified as “ Remote Areas ” these systems are often located adjacent to creeks, streams and other sensitive riparian areas. Because of their locations these systems are susceptible to unauthorized entry and vandalism. To prevent this manholes have been retrofitted with specialized tamper proof hardware and are inspected in 1, 3 or 5 year intervals depending on the location and vulnerability of the system

### **4.3 Rehabilitation and Replacement Program**

The City of Redding currently budgets \$4,400,000 annually for replacing sewer mains. The sewer mains are selected for replacement based on data gathered by CCTV inspection and flow monitoring operations. Additionally, the City budgets \$1,400,000 annually to address Infiltration and Inflow (I & I). These funds are utilized in both flow monitoring and rehabilitation/I & I removal efforts.

### **4.4 Inspection Program**

The City of Redding Utilizes the CCTV system to inspect all new additions to the system prior to acceptance. All sewer lines that suffer stoppages or SSOs are immediately inspected with the CCTV system to determine the cause and the exact location of the stoppage. Other sewer lines are inspected based on data gathered from hydro-cleaning, flow monitoring, and smoke testing operations. This inspection data is collected on ITPipes software and stored in a dedicated software server.

### **4.5 Staff Training**

All Wastewater Collection personnel receive the following training:

- New employees receive Safety Orientation highlighting the Injury and Illness Prevention Program,
- HAZMAT First Responder, and the proper use of personal protection equipment (PPE)
- Confined Space Entry procedures including rescue operations
- Excavation, trenching, and shoring operations (Competent Person)
- CPR, First Aid and Automatic External Defibrillators

- Traffic control operations including flagging
- Forklift operations

Additionally Wastewater Collection personnel have developed a Sanitary Sewer Overflow Response Plan and Standard Operating Procedures (SOPs) for the following operation and maintenance procedures.

- Hydro-cleaning operations including the clearing of stoppages
- CCTV operations
- Manhole inspection including the remote manhole inspection program
- Use and updating of the sanitary sewer atlas system and the GIS
- Inspection, maintenance, alarm response, and emergency operations of lift stations
- SCADA system and it's use in monitoring lift station operations, flow rates, and equipment alarms
- Underground utility locating

#### **4.6 Equipment and Parts Inventory**

The Wastewater Collection Division stores a vast array of parts and materials for scheduled as well as emergency repairs to piping, manholes, lift stations and equipment. These materials are stored in the Wastewater Collection shop area and are readily available to all personnel. A complete list of the potential parts needed is stored in binder #4, located in the Wastewater SCADA office. As there is currently no inventory tracking program used, parts and equipment are ordered and replaced on an as-needed basis. Emergency parts and materials as well as equipment (large bypass pumps, standby generators, etc.) are stored at the Corporation Yard and additional needs can be obtained from local vendors who can be contacted seven days a week. Contact information with the phone numbers of these vendors is placed in the Master Binder located in the Wastewater SCADA office, and a copy is included as Appendix C.

## **Section V-Design and Performance**

### **5.1 Design Standards**

Additions to the system are required to meet the City of Redding Construction Standards, particularly sections 300.00, 300.20, and 301.00. This is reviewed during the plan check process and specifications are approved prior to construction. These standards are attached as Appendix D.

The City of Redding Construction Standards already contain design criteria for sewer pipe size, slope and minimum velocity. Also included is methodology for developing design flows. Recent investigation of design flow calculation methodologies used throughout California found that the City's design flow methodology is consistent with common engineering practice. City of Redding construction standards are revised on a bi-annual basis at which time refinement of criteria or methodologies may occur as necessary.

City of Redding Master Plans are used as the basis for identifying current or projected deficiencies in the existing pipe system. The Wastewater Utility Master Plan analysis methodology differs from the construction standard methodology due to the difference in extent of the system. Design for a single project does not necessitate analysis of the entire existing collection system because that analysis has already been performed with the Master Plan. Occasionally city staff performs parallel analysis to verify developer's engineers calculation of design flows. In most cases both methodologies resulted in very similar design flows.

City of Redding Master Plans are typically updated on ten year intervals. The current wastewater master plan update is in the initial phase which involves attempting to capture rainfall and flow data during a significant storm event.

### **5.2 Inspection and Testing Standards**

City of Redding Construction Standards, particularly sections 300.00, 300.10, 300.50, address the procedures for required cleaning, air testing and mandrelling of sewer lines as well as the vacuum testing of manholes. The City also has standard operating procedures for CCTV inspections, and also guidelines for major and minor lift stations. These standards are attached as Appendix D.

## **Section VI-Overflow Emergency Response Plan**

During the incidence of an overflow, the following procedures will be used to ensure a timely and effective response.

### Notification

A person who observes a sanitary sewer overflow (SSO) and seeks to report it to the Wastewater Utility can do so by calling 224-6068; this is the number listed in the local phone book and City Website for Municipal Utilities and the Wastewater Division. The resulting process varies by time of day as follows:

- During normal working hours, the report information is taken by Redding Municipal Utilities (RMU) Administrative staff located at the Corporation Yard at 20055 Viking Way. RMU Staff immediately attempt to contact the Wastewater Collection Supervisor, Working Supervisor or any available Wastewater Collection personnel utilizing an existing list of cell phone and radio call sign numbers.
- After normal working hours, the report information is taken by our telephone answering service personnel. They utilize the call-out information, provided by the Wastewater Collection Supervisor and updated every 2 weeks, which provides the home and cell phone numbers of the Wastewater Collection staff. On the weekends, one member of the Wastewater Collection staff is assigned as the Stand By Person insuring that someone is always available to respond to the report.

In addition to public notification, the City or Redding's sanitary sewer system is protected by a series of alarms at key locations throughout the system. An equipment alarm from one of the City's 17 lift stations could indicate a situation that could result in a SSO and must therefore be responded to as if it were a reported SSO. All of these facilities have appropriate equipment alarm systems that are continuously monitored by contract alarm company (currently California Safety) staff. During normal working hours, Cal Safety staff contact RMU Administrative staff and report the alarm. After normal working hours, Cal Safety staff contact the telephone answering service personnel as specified in the procedures for after-hours public reporting of overflows.

The Wastewater Collection personnel assigned to the response must be in a position to respond immediately or, at the least, as soon as possible. Radio and/or telephone communications can and should take place between personnel involved with the response to ensure the quickest response with the appropriate personnel, equipment and materials.

### Response

After receiving the SSO report information, the contact person, whether it is the Supervisor, Working Supervisor or Collections system staff, will ensure that a minimum of a 2-person Wastewater Collection crew is immediately dispatched to the SSO. Whenever possible one of our "hydrocleaning" crews will be the first to be dispatched as they will be in the best position to relieve

an SSO and provide any needed flushing/clean up water. The responding personnel will proceed to the reported location as quickly as possible, treating the event as their highest priority, and perform the following:

- Determine if an SSO is actually occurring and, if so, what category of SSO would it qualify as.
- Upon arrival to the site and the confirmation of an SSO, Wastewater Collection personnel will immediately determine the amount and the category of the SSO and proceed as listed below under Reporting and Notification.
- Locate and eliminate the cause of the SSO.
- Contain any wastewater that has overflowed from the system and, if at all possible, return this wastewater back into the system.
- Keep the Supervisor apprised of the situation so the Supervisor can assist in providing additional personnel, equipment and materials as needed for traffic control, confined space entry, flushing, pumping, clean up, posting, sampling, etc..
- Ensure that personnel involved adhere to all pertinent safety rules and regulations and appropriate Standard Operating Procedures (SOP's) for wastewater collection operations.
- Complete a "stoppage" report and provide accurate data to facilitate the creation of any needed reports to the appropriate regulatory agencies.
- If the SSO affects private property, staff will contact the City of Redding Risk Management Division to evaluate health and safety needs and assess potential property damage.
- If SSO enters a waterway, determine the need for sampling and contact Industrial Waste staff.

### Reporting

Once the category of the SSO has been determined, the Supervisor or, if the Supervisor is not available, other most senior responding staff, will determine the appropriate reporting and notification procedures. As soon as possible, responding personnel will prepare and communicate a stoppage report to the Wastewater Collection Supervisor and Wastewater Compliance Coordinator. A flow chart detailing these reporting procedures is included as Appendix E. Also, all Wastewater Collection and Storm Drain vehicles contain a copy of the City's Agency Notification Instructions. These instructions shall be used by City staff to ensure that all pertinent public agencies are contacted in the event of a SSO; a copy of the instructions is included as Appendix H.

A Private Lateral Sewage Discharge (PLSD) is a discharge from a private lateral or other private facility which is not caused by a blockage in the public sanitary sewer. All PLSDs must be reported to the Wastewater Collection Supervisor. The Supervisor may file a voluntary electronic report with the CIWQS reporting system. All efforts must be made by the Wastewater Collection crew in the field, the Supervisor and RMU staff to notify the responsible party as soon as possible and ensure public health and safety are maintained. Code enforcement division is notified for repeat or non-compliant offenders.

A category 3 SSO is a sewage discharge is any discharge not classified as a category 1 or 2.

A category 2 SSO is a sewage discharge from the public sanitary sewer system of 1,000 gallons or greater that does not reach surface waters, a drainage channel or the storm drain system, unless the entire SSO discharged to the storm drain system is fully recovered. All category 2 SSOs must be reported to the Supervisor along with a stoppage report as soon as possible. The Supervisor must file an electronic report with the CIWQS reporting system within 3 business days.

A category 1 SSO is a sewage discharge from the public sanitary sewer system of any volume that either reaches surface waters, reaches a drainage channel that flows to surface waters, or that reaches the storm drain system and is not fully recovered. In the event of a category 1 SSO, the Wastewater Collection Supervisor is to be contacted immediately and the proper reporting procedures are to be carried out as specified below. Additionally, the Wastewater Collection Supervisor shall contact the Wastewater Utility Manager, the Wastewater Compliance Coordinator as well as Industrial Waste staff for sampling. The severity and location of the SSO may necessitate contacting the Assistant Public Works Director or the City Manager.

In the case of a category 1 SSO greater than or equal to 1,000 gallons, the California Office of Emergency Services (CalOES) and the Shasta County Division of Environmental Health must be notified as soon as possible but **no later than two (2) hours** after being made aware of the discharge. Finally, **within three (3) calendar days** of the incident, the Supervisor shall submit a draft report of the incident to the CIWQS reporting system. **Within 15 calendar days** of the incident, this initial draft report must be updated as necessary and certified using the CIWQS reporting system.

SSOs reaching waterways that can be accessed by the general public shall have warning signs posted along the waterway accordingly, at common public entry points. In addition, a “Public Service Announcement” may need to be prepared and sent to the proper media outlets in the event of significant SSOs. Such public relations decisions shall be made only after providing all pertinent data to and consulting with the Wastewater Utility Manager.

In addition to the aforementioned notification requirements, the following notification procedures shall also be used:

- If the SSO comes into contact with the Storm Drain system, the Supervisor of that Division will be contacted. Storm Drain personnel can assist in the tracking, capturing and pumping back into the system of the SSO.
- If the SSO appears to have caused damage to private property then the City’s Risk Management Office will need to be notified.
- If the SSO comes into contact with surface waters then the Department of Fish and Wildlife shall be notified.
- If it appears that the SSO would come into contact with the Sacramento River, the Supervisor and/or staff at the Foothill Water Treatment Plant shall be notified. In addition the Supervisor and/or Staff at the Bella Vista Water District may need to be notified.

## Mitigation

Once the SSO has been eliminated and the notification and reporting procedures have been properly addressed the following measures must be taken to prevent a recurrence:

- Collection crews will utilize the hydrocleaner to completely clean the sewer main where the SSO occurred. In the event of an SSO caused by grease or gravel, the sewer main upstream and downstream of the SSO should also be cleaned.

- Any wastewater that has overflowed and has been captured or contained will be put back into the system by Collection crews utilizing portable pumps or vacuum system. Caution must be taken not to put materials into the system that would restrict the flow or create an SSO.

- Collection crews may use water to further wash down an area. This water will also be returned to the system. In addition, rakes and other hand tools may be used to assist in returning sewage debris to the system. In some cases this debris may have to be collected in plastic bags or other containers and removed from the site. These materials will be taken to the Wastewater Treatment Plant for proper disposal. All tools, pumps and vacuum systems will be cleaned, flushed and disinfected after use.

- City of Redding Risk Management will take the lead in the event of a SSO that damages private property. Wastewater Collection personnel will provide any pertinent data to Risk Management as needed.

- Priority shall be placed on performing a (CCTV) evaluation of the system to inspect the sewer main to verify the cause and determine the exact location of the SSO. This process will also assist in determining any needed cleaning, rehabilitation or repair work that might be needed.

- The Wastewater Collection Supervisor, working in conjunction with the Wastewater Compliance Coordinator, the RWQCB and the Shasta County Environmental Health Division, may determine that land areas and/or surface waters need to have samples taken and tested for total and fecal coliform and ammonia. In addition, these same areas may need to have additional public health warning signs posted. An example of these public health warning signs is included as Appendix F.

# REPORT OF SANITARY SEWER OVERFLOW OR LIFT STATION EQUIPMENT ALARM



# City of Redding Wastewater Collections Spill Response Standard Operating Procedure

1. Key Information Notes Required
  - a. Time of call received
  - b. Time of arrival on scene
  - c. Approximate GPM and amount of spill
  - d. Time stoppage relieved and cause
  - e. Contact with storm drain or waterway
  - f. Status of Cleanup (returned or un-captured) Estimated Gallons
2. Immediate action taken
  - a. Prevent contamination of waterways by whatever means necessary
  - b. Evaluate and relieve stoppage
  - c. Take pictures if practical
3. Notifications (If required)
  - i. Josh Vandiver- Supervisor - 530-224-6069/530-209-1012
  - ii. Josh Keener- Compliance - 530-224-4122/530-524-2420
  - iii. Ryan Bailey – Director – 530-224-6029/530-227-4264
  - iv. Chris Carmona – Risk Management – 530-225-4387/530-524-2626
  - v. Matt Cervenka – Storm Drains – 530-224-2435/530-339-0284
  - vi. Tracy Wyhlidko – Industrial Waste - 530-224-4319/530-356-4623
  - vii. Dave Guadagni – Water Distribution - 530-224-6033/530-604-5138
  - viii. Conrad Tona – Water Treatment - 530-225-4175/530-227-4124
  - ix. Randy Campbell – Streets - 530-224-6077/530-227-2862
4. Coordinating efforts
  - a. Evaluate assistance level required and call for backup
    - i. Personnel
    - ii. Equipment (Pumps, sandbags, Vac-Con, traffic control, de-chlorinator/diffuser ect)
    - iii. Contact Storm Drains in the event of contact to their system
    - iv. Contact Industrial Waste if commercial industry is involved
5. Clean up procedures and follow up required
  - a. Flush and Pump –Collections crew/Storm Drains
  - b. Erosion control if needed–Collections crew/Storm Drains
  - c. Post area if waters are contacted–Collections crew/Storm Drains– Industrial Waste -
  - d. Pictures of completed cleanup–Collections crew/Storm Drains
  - e. Make sure affected customer is informed and satisfied. Provide contact information for Chris Carmona and Josh Vandiver. –Collections crew/Storm Drains
6. Detailed report with pictures and all hand written notes turned in to Working Foreman office.
7. Provide follow-up recommendations
  - a. TV mainline–Collections crew/Storm Drains
  - b. Sampling areas– Industrial Waste -
  - c. Locations of signs– Industrial Waste -
  - d. Repairs needed–Collections crew/Storm Drains

## SANITARY SEWER OVERFLOW (SSO) SAMPLING PROCEDURE

### 1. INTRODUCTION

Sanitary sewer overflows can be a significant source of surface water contamination. For SSO's that reach surface water, immediate sampling is required to determine impacts to the waterway and potential public health issues. Fecal and Total Coliform testing using Standard Methods 9221 B, C and E, the Multiple Tube Fermentation (MTF), 25 tube (5 dilution) method is used to determine the Most Probable Number (MPN) of organisms in a 100 ml sample. Also bottles for Ammonia 4500-NH3-C should be kept on hand at all times.

### 2. SAMPLE CONTAINERS AND SAMPLING PROCEDURES

Enough sample containers for coliform sampling from the City's contract lab to sample each location in duplicate should be kept on hand at all times. Containers must hold at least 120 ml of sample and are specified for microbiological sampling. Obtain sterile containers from the lab **that do not contain** a de-chlorination agent (sodium thiosulfate or other) unless a chlorinated source is to be sampled. Sewage and surface waters are generally not considered to be chlorinated, however if a chlorinated site is suspected, the appropriate de-chlorinating agent is required. Staff involved in sampling shall be familiar with biological sampling techniques and Chain of Custody documentation. Review Standard Methods Sampling Procedures 9060(3)(f). Samples collected for Ammonia 4500-NH3-C can be collected in 500ml or larger bottles. Always wash hands thoroughly prior to sampling, particularly after using restroom facilities.

### 2. DETERMINE UPSTREAM AND DOWNSTREAM SAMPLING SITES

Once notified of the location of the SSO, print a map from the City's map server that includes the manhole or section of pipe from which the spill occurred. Include storm drain features, particularly catch basins, creeks or streams. Send a request (email or other) to the GIS division for a map of the area to be sampled. Let them know the date of the spill and that sample locations will be added after sampling has occurred. Name the SSO event (i.e. Jenny Creek, Sophy Place, etc.) and create a directory with that name in the shared drive S:\SSO's.

Avoid locations with steep, treacherous banks or cliffs. Use a pencil to circle rough sampling locations on the map as follows:

- A) one site at least 50 feet upstream of the location where the spill entered the waterway (U-1)
- B) one additional upstream site that appears to have reasonable site access (U-2)
- C) one site within 50 feet downstream of the location where the spill entered the waterway if possible (D-1)
- D) two more downstream sites (D-2 and D-3) that appear to have reasonably easy access, (i.e. bridge abutments).
- E) If other significant streams enter the stretch of the stream being sampled, choose an additional site upstream of the confluence on the side stream (U-3, etc.). This should be done to eliminate identify sources of coliform not related to the spill.
- F) If possible, contact the Regional Water Quality Control Board (RWQCB) to discuss locations and initial sampling frequency. This should not delay sampling, and should be done following

the sampling if not beforehand.

Name the sample sites prior to going into the field if possible. Use simple names to reduce time labeling bottles and completing Chain of Custody (COC) information. As a suggestion, use the name of the SSO or stream name, i.e. Jenny Crk U1 for Jenny Creek Upstream 1 or Sophy Plc D1 for Sophy Place Downstream 1. The actual locations can be added to the map during sampling.

### **3) PREPARE SAMPLING EQUIPMENT**

The lab will need two 120 ml bottles and one 250ml bottle of sample for each sample location; one for fecal coliform and one for total coliform. Double check the number of bottles packed and bring an extra set or two of bottles in the event additional sampling sites are desired once in the field. Place coliform bottles in a zip lock bag(s) in an ice chest. Bring a second ice chest with blue ice. Also bring gloves, safety vest, COC forms, pens, paper towels, waders, wading shoes, cell phone, camera, flag tape, signs, stakes, and a mallet or hammer. See the checklist and log sheet at the end of this document.

Contact the contract lab as soon as possible after the spill to let them know we will be bringing in samples from an SSO for Total and Fecal Coliform. Give the lab a rough idea of the number of samples to be collected and an estimate of the number of sampling events that will occur in the next week so they can prepare media for the test, ensure staff are able to handle the workload and that adequate incubator space is available. Call Basic Laboratories at 243-7234 and leave an Emergency Message with a call back number.

Find another staff person to assist with sampling. There are often safety hazards lurking in the field, and it is helpful if more than one person is familiar with the sample locations. The second person can post the public warning signs.

### **4) SAMPLE COLLECTION & SIGN POSTING**

Note each actual sampling location on the map, or note the GPS coordinates on the log sheet. Take gloves, sample bottles, paper towels and a pen to the sample site. Do not wear gloves when accessing the sample location. Take precautions to eliminate touching items with potential contamination with microbiological sources (i.e. plants, railings, pets and pet wastes, etc.). If the stream is small (<5 feet across) or there is adequate flow near the bank in a larger stream, sampling can be done from the bank. Select a site where water is moving downstream if possible. Do not disturb the water upstream of the sampling site and select a location that is deep enough to avoid collecting sediment in the sample bottle. Don gloves, open the bottle and hold the cap, hold the bottle at the base, invert the bottle over the water surface, dip down and turn the bottle upright under the water surface so the opening of the bottle is facing upstream. If the water is not flowing, move the in the direction of the bottle opening. If sampling is being done from a boat or using waders, collect the sample on the upstream side. Cap the bottles, dry them and label with the sample ID, date, time, tests required and sampler's initials.

If the stream or river is large, consider using waders to obtain samples if this can be done safely and sampling from the bank will not give representative results.

Place samples in the ice chest with blue ice. Do not freeze the samples. Keep filled sample bottles separate from empty sample bottles to prevent contaminating the outside of surface of the empty bottles. Do not reuse gloves for more than one sample site. Remove and dispose of gloves after collecting a sample.

Tie tape flag on a branch or stake above each sample location. Take a photo of each sample location.

Post signs at locations where the public might access the waterway to warn of possible sewage contamination. Locations at the end of roads, under bridges or near trails should be posted. Note the locations of signs on the map or record a GPS coordinate for each sign. These signs will later be picked up after RWQCB approval.

## **5) SAMPLE CUSTODY AND TRANSPORTATION**

Complete the Chain of Custody (COC) forms for the appropriate lab. Request the 25 tube MPN test, as well as the Ammonia 4500-NH<sub>3</sub>-C. Make sure the sample locations on the bottles match the names on the COC. Record date and time of sampling. Note any anomalies at the sampling sites (i.e. rain, presence of waterfowl, homeless camps, etc.) on either the COC or the log sheet. Complete the information regarding the names of the persons conducting the sampling at the bottom of the form. Request "Rush" data reports. Data should be sent to the following email addresses: 1) the person conducting the sampling, 2) [iwaste@cityofredding.org](mailto:iwaste@cityofredding.org), 3) the Wastewater Compliance Coordinator (Josh Keener [jkeener@cityofredding.org](mailto:jkeener@cityofredding.org)) and 4) the RWQCB (Stacy Gotham [sgotham@waterboards.ca.gov](mailto:sgotham@waterboards.ca.gov)).

Samples should be transported to the lab as soon as possible. The regulatory holding time is 24 hours, however 6 hours is recommended.

## **6) SAMPLING FOLLOW-UP**

Transmit information regarding the actual sampling and sign locations to the GIS division. Once the map is received, review and request any necessary changes in the location of the spill or sampling locations. If the map is too large to be emailed (>5MB), request a second map without aerial imagery to reduce the size.

Email or download photos to the S:\SSO folder. Rename the photos with the sample location ID.

For spills over 1000 gallons that reach surface waters, it is city policy to sample a second time within 48 hours of the first sampling event. Two rounds of sampling is generally sufficient prior to receiving lab results.

Review data immediately upon receipt from the lab. Make sure data was sent to all parties requested on the COC. Contact the RWQCB to discuss the need to add sample locations and agree on the next sampling day or days. Save the data report attachment (pdf) to the appropriate folder in the S:\SSO folder with a name containing the sampling date. Charge the work to the Collection System Division using JO Number 5310-43 for the lab invoice and JO Number 5310-12 for staff time (sampling and map reviews, etc.).

If additional sample locations are needed, add them to the map and request an updated map from GIS. This should be saved to the appropriate directory on the S:\ drive with a new file name. Once the changes are approved, the old map should be deleted so there is no confusion over the correct version. If the impacted area is very large and two maps are needed to cover the area, give the areas and maps two distinct names.

When fecal coliform levels have dropped to <50 MPN/100 ml (or background levels), contact the RWQCB to determine if further sampling is necessary.

And finally, remove all of the posted signs with approval from the RWQCB!



## **Section VII-Fats, Oils & Grease (FOG) Control Program**

### **7.1 Legal authority for FOG Program**

Redding Municipal Code sections which relate to FOG removal at food service facilities are as follows: RMC 14.16.504 B requires installation of grease, oil and sand interceptors. Oil and Grease Interceptors (OGI's) or Sand and Oil Interceptors (SOI's) are required at facilities that generate excessive amounts of grease, oil or sand. Sections 14.16.530, 532, 534, 536, 540, 5 and 940 regulate design, installation and maintenance of interceptors.

### **7.2 FOG Program specifics**

The FOG Program consists of preparing an Industrial Waste Survey (IWS-2) during the Building Plan Check process to determine whether new construction or tenant improvements require FOG pretreatment. Facilities that require pretreatment must submit plans including the size and location of the pretreatment device. Facilities are then inspected by the Industrial Waste Division during construction. Upon final inspection, the facility is entered into the Industrial Waste database. GIS maps and inspection routes are continually updated, and inspections of all facilities are conducted at least annually. Monthly reports from grease pumping companies detail the addresses and volumes of waste pumped. This information is entered into the database to track interceptor maintenance.

## VIII-System Evaluation and Capacity Assurance Plan

The 2012 Wastewater Utility Master Plan (WUMP) included nine tasks to generate a plan for providing sanitary sewer system capacity through the year 2030 and projecting improvements necessary through ultimate community buildout. The tasks were: develop sewer demand projections, develop a computer model of the collection system, analyze the existing collection system and future demands on existing system, identify capacity problems, recommend improvements, prioritize improvements, integrate WWTP projects, develop Capital Improvement Plan, and prepare financial plan.

The 2003 WUMP had determined that the appropriate platform for modeling the collection system was a model called Hydra. Hydra is a computer model based on the computational engine provided by the U.S. Environmental Protection Agency computer model EPA-Net. The purpose of the model was to incorporate simulated dry weather flow, groundwater infiltration, and direct storm water inflow and infiltration into a hydraulic analysis of the collection system pipe network. Results of the analysis would then be used to determine necessary pipe sizes and lift station capacities to convey the required flows. Prior to updating the 2003 WUMP the Utility evaluated current computer model platforms and decided that a more GIS friendly platform was more appropriate and converted the Hydra Model to InfoSWMM.

The WUMP included independent analysis for each of the City of Redding's two collection systems and treatment plants (Clear Creek and Stillwater). The Clear Creek collection system includes approximately 125 miles of collection system pipe ranging in size from 6 to 72 inches in diameter serving 25 square miles. Stillwater collection system model includes 95 miles of collection system pipes serving 18 square miles. Improvements necessary to resolve existing hydraulic deficiencies and prepare for projected population growth for both collection systems were then prioritized and folded into the Capital Improvement and Financing plan components of the studies.

Planning time frames for the 2012 WUMP were the years 2012, 2015, 2020, 2030 and ultimate build out (UBO). Land use was analyzed in detail and dry weather flow models developed and calibrated based on flow records at lift stations and treatment plants. Wet weather models were developed based on a 10-year 24-hour storm and calibrated using available meteorological data and flow recordings at lift stations and monitoring stations in the collection system.

Improvements identified for the existing collection system included 16 miles of pipes and upgrades to eight lift stations. The future planning periods included improvements to the collection system based on projected population growth. Population growth geographical distribution was determined using the Shasta County RTPA Traffic Zone models. The magnitude of growth was projected by a consultant employed under contract by Redding Electric Utility. Improvements needed between 2016 and 2020 were 15 miles of pipe, upgrades to two lift stations. Improvements called for from 2021 to 2030 were 47 miles of pipe and upgrades to a lift station. The final planning period (UBO or Ultimate Buildout) was developed based on General Plan land use designations. Projected improvements were limited to those associated with replacement of aging and deteriorating pipes. The Master Plan also incorporated projects recommended by facilities plans for both wastewater treatment plants. Facilities plans for both treatment plans are incorporated into the 2012 Master Plan

effort by reference.

The wastewater collection system model remains in the custody of the City of Redding to use for planning and the basis for more detailed analysis. The WUMP is a planning level document intended for scheduling and long range fiscal planning of capital improvement construction. The level of detail and accuracy contained in the original analysis is not necessarily appropriate for detailed design.

The Info SWMM model is currently used for two purposes, as the framework or basis for refined analysis in the process of designing new infrastructure, and to verify whether a project that is proceeding in advance of the WUMP time frames will exceed capacity of existing downstream pipes.

## **Section IX- Monitoring, Measurement, and Program Modifications**

The purpose of this section is to describe the process by which the City of Redding will monitor the effectiveness of the SSMP elements and provide for ongoing modifications in order to keep current, accurate and available data for any future audits. It is the City of Redding's intention that the SSMP remain a regularly updated, living document.

The City of Redding utilizes both computer based programs as well as hard copy data storage systems. The current computer based systems, Cartegraph, ITPipes, and ArcMaps, are located on the computers located in the Wastewater Collection Supervisor and GIS offices. The Wastewater Utilities Division has implemented a computerized maintenance management system program that is used by other City of Redding utilities in order to standardize data.

The purpose of the collection, utilization and evaluation of data is to assist in maintaining the collection system in order to prevent and reduce the number of SSOs, assist in prioritization of the CIP, and to ensure compliance with the Wastewater Discharge Requirements. A number of performance indicators are tracked to evaluate the long-term effectiveness of the SSMP elements described in this plan. An example would include the correlation of the number of blockages compared to the total distances of sewer lines cleaned as part of the City's preventive maintenance program outlined in Section 6 of this SSMP.

Updates to this plan will continue to be ongoing as programs, organizational changes, updated regulatory requirements, and other changes occur. Attached as Appendix G is a matrix of potential performance indicators that will assist in evaluating progress under this SSMP.

## Section X-SSMP Audits

Applicable Waste Discharge Requirements require the City to develop appropriate audit procedures to evaluate the effectiveness of this SSMP. These audits will ensure that all programs associated with the SSMP are being implemented and managed appropriately, and will identify deficiencies and include steps to correct any such deficiencies.

Audits shall be performed every two years, and shall include a written report that will be kept on file as part of this SSMP. The audits may include whatever areas of review are deemed necessary, but should at a minimum include a review of such areas as:

- \* Document Control- A review of document handling, review, and maintenance procedures.
- \* Training- A review of training programs necessary to ensure that the specifics of this SSMP are being implemented and the procedures for maintaining and reviewing records related to this training.
- \* Targets and Objectives- A review of the progress made toward the goals and objectives specified in this SSMP, including a discussion of additional goals and objectives that have been identified.
- \* Data Management- A review of the management of appropriate information needed to determine the progress towards goals and objectives, including the consideration of ways to better utilize data to implement benchmarks and other management tools.

**This SSMP shall also be updated every five years, starting with the initial due date of June 16, 2014, and these updates must include any significant program changes. Recertification by the City Council is required if significant updates have been made. The recertification process shall also include entering the necessary data into the CIWQS reporting system and mailing the associated form to the State Water Board at:**

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
P.O. Box 100  
Sacramento, CA 95812

**SSMP Audit**  
**6/13/2011**

**Auditing Staff:**

Josh Keener, Wastewater Compliance Coordinator  
Josh Vandiver, Wastewater Utility Supervisor - Collections  
Bob Gullixson, Collections Lead Worker

**Audit Findings:**

- Document Control- A review of document handling, review, and maintenance procedures during the period audited found that document control has in general been adequate and sufficient to allow upkeep of the SSMP document, tracking of performance measures and maintenance of spill-related documentation. A few minor discrepancies in spill documentation were found and corrected, but these did not affect the notification and reporting required by SWRCB Order No. 2006-0003-DWQ or Order No. WQ 2008-0002-EXEC. An example of this are two instances where a stoppage report form was used to record information of a SSO instead of the Sewer Spill Report form. Also, auditing staff found various SSMP forms and documentation that needed to be updated; these changes have been made and are recorded in Appendix J of the SSMP.
- Training- The Collections Division has seen some turnover during the period audited, and the training of new staff, along the refresher training of existing staff, was found to be adequate and conducive of trained staff who are familiar with job tasks such as system maintenance and spill response procedures.
- Targets and Objectives- A review of performance towards the performance indicators found in Appendix H of the SSMP found that in general the Collections Division has made great strides towards improvement of those indicators. For example, the annual number of SSOs, as well as the overall volume discharged, was reduced during the period audited. The number of SSOs per 100 miles of collection system continues to compare favorably to both the Region 5 and statewide averages. The auditing staff determined that future audits would be bolstered by an inclusion of documentation on performance indicator progress. An example would be charts, tables, or graphs indicating the annual number of SSOs, annual spill volumes, etc.

**General Conclusions:**

Overall, the SSMP and related programs were found to be effective, well managed, and adequate as the foundation of a well operated and maintained collection system program. All programs are being implemented and managed appropriately, and the needed minor changes noted above did not result in any system deficiencies. Another SSMP audit will be performed prior to June 22, 2013, and that audit will take into consideration the recommendations made by auditing staff in the areas of performance indicator documentation.

**SSMP Audit**  
**6/05/2013**

**Auditing Staff:**

Josh Keener, Wastewater Compliance Coordinator  
Josh Vandiver, Wastewater Utility Supervisor - Collections

**Summary:**

The City of Redding Wastewater Utility has had a Sewer System Management Plan (SSMP) in place since June 16, 2009, and the plan is used as a tool to successfully manage our public wastewater collection system. SWRCB Order No. 2006-0003-DWQ requires that the SSMP be audited every two years. The City's collection system has experienced twenty-one sanitary sewer overflows (SSOs) since the previous audit in 2011, a 19% reduction from the previous two-year total of twenty-six SSOs.

**Audit Findings:**

- Document Control- A review of document handling, review, and maintenance procedures during the period audited found that document control has in general been adequate and sufficient to allow upkeep of the SSMP document, tracking of performance measures and maintenance of spill-related documentation. Various SSMP forms and documentation were found to need updating, and these changes have been made and are recorded in Appendix J of the SSMP.
- Training- Staff training was found to be adequate and conducive of trained staff who are familiar with job tasks such as system maintenance and spill response procedures.
- Targets and Objectives- A review of progress towards the performance indicators found in Appendix H of the SSMP found that in general the Collections Division has made great strides towards improvement of those indicators. The annual number of SSOs, as well as the overall volume discharged, was reduced during the period audited. The number of SSOs per 100 miles of collection system continues to compare favorably to both the Region 5 and statewide averages. These and similar indicators are further detailed on the attached performance indicator sheet.

**General Conclusions:**

Overall, the SSMP and related programs were found to be effective, well managed, and adequate as the foundation of a well operated and maintained collection system program. All programs are being implemented and managed appropriately, as indicated by the increasing performance on both maintenance functions and system issues such as SSOs. Another SSMP audit will be performed prior to June 5, 2015.

## SSMP PERFORMANCE INDICATORS (6/2011-6/2013)

<b>Indicator</b>	
<u>Number of SSOs (by season)</u>	
Wet Season (October-May)	<b>6/2011 to 5/2012 = 6, 6/2012 to 5/2013 = 8</b>
Dry Season (June-Sept)	<b>6/2011 to 5/2012 = 3, 6/2012 to 5/2013 = 4</b>
<u>Number of SSOs (by volume)</u>	
<10 gal	<b>5</b>
10 - 99 gal	<b>6</b>
100 - 999 gal	<b>9</b>
≥1000 gal	<b>1</b>
<u>SSO Volume</u>	
Total	<b>73,319 gallons (69,900 came from just the Sophy Place SSO)</b>
Recovered	<b>4,578 gallons (Not counting Sophy Place, recovery was 75% of discharged volume)</b>
<u>Number of SSO (by cause)</u>	
Blockages	
Roots	<b>4</b>
Grease	<b>2</b>
Debris - General	<b>2</b>
Debris - Rags	<b>5</b>
Debris from Laterals	<b>1</b>
Vandalism	<b>0</b>
Construction Debris	<b>1</b>
Multiple Causes	<b>0</b>
Other	<b>6</b>
Infrastructure Failure	<b>0</b>
Inflow & Infiltration	<b>0</b>
Electrical Power Failure (lift stations)	<b>0</b>
Flow Capacity Deficiency	<b>0</b>
Natural Disaster	<b>0</b>
Bypass	<b>0</b>
Cause Unknown	<b>0</b>
<u>Number of SSOs per mile of sewer per year</u>	<b>2.3 SSOs/100 miles/year</b>
<u>Volume of SSOs per 1,000 capita per year</u>	<b>362.31/1,000 capita/year</b>
<u>Maintenance Activities</u>	
Televised Inspection	<b>156,856 linear feet</b>
Hydrocleaning	<b>4,117,830 linear feet</b>
Manhole Inspection	<b>12,523 manholes inspected</b>

## **SSMP Audit** **6/17/2015**

### **Auditing Staff:**

Josh Keener, Wastewater Compliance Coordinator

### **Summary:**

The City of Redding Wastewater Utility has had a Sewer System Management Plan (SSMP) in place since June 16, 2009, and the plan is used as a tool to successfully manage our public wastewater collection system. SWRCB Order No. 2006-0003-DWQ requires that the SSMP be audited every two years. The City's collection system has experienced seventeen sanitary sewer overflows (SSOs) since the previous audit in 2013, a 19% reduction from the previous two-year total of twenty-six SSOs.

### **Audit Findings:**

- Document Control- A review of document handling, review, and maintenance procedures during the period audited found that document control has in general been adequate and sufficient to allow upkeep of the SSMP document, tracking of performance measures and maintenance of spill-related documentation. Various SSMP forms and documentation were found to need updating, and these changes have been made and are recorded in Appendix I of the SSMP.
- Training- Staff training was found to be adequate and conducive of trained staff who are familiar with job tasks such as system maintenance and spill response procedures.
- Targets and Objectives- A review of progress towards the performance indicators found in Appendix G of the SSMP found that in general the Collections Division has made great strides towards improvement of those indicators. The annual number of SSOs, as well as the overall volume discharged, was reduced during the period audited. The number of SSOs per 100 miles of collection system continues to compare favorably to both the Region 5 and statewide averages. These and similar indicators are further detailed on the attached performance indicator sheet.

### **General Conclusions:**

Overall, the SSMP and related programs were found to be effective, well managed, and adequate as the foundation of a well operated and maintained collection system program. All programs are being implemented and managed appropriately, as indicated by the increasing performance on both maintenance functions and system indicators such as SSOs. Another SSMP audit will be performed prior to June 17, 2017.

## SSMP PERFORMANCE INDICATORS (6/2013-6/2015)

<b>Indicator</b>		
<u>Number of SSOs (by season)</u>		
Wet Season (October-May)	<b>6/2013 to 5/2014 = 7, 6/2014 to 5/2015 = 9</b>	
Dry Season (June-Sept)	<b>6/2013 to 5/2014 = 0, 6/2014 to 5/2015 = 1</b>	
<u>Number of SSOs (by volume)</u>		
<10 gal	<b>2</b>	
10 - 99 gal	<b>6</b>	
100 - 999 gal	<b>5</b>	
≥1000 gal	<b>4</b>	
<u>SSO Volume</u>		
Total	<b>49,411 gallons</b> (41,250 came from just the 1611 E. Cypress SSO)	
Recovered	<b>6,671 gallons</b> (Not counting 1611 E. Cypress, recovery was 82% of discharged volume)	
<u>Number of SSO (by cause)</u>		
Blockages		
Roots	<b>2</b>	
Grease	<b>1</b>	
Debris - General	<b>1</b>	
Debris - Rags	<b>3</b>	
Debris from Laterals	<b>1</b>	
Vandalism	<b>0</b>	
Construction Debris	<b>0</b>	
Multiple Causes	<b>0</b>	
Other	<b>8</b>	
Infrastructure Failure	<b>0</b>	
Inflow & Infiltration	<b>1</b>	
Electrical Power Failure (lift stations)	<b>0</b>	
Flow Capacity Deficiency	<b>0</b>	
Natural Disaster	<b>0</b>	
Bypass	<b>0</b>	
Cause Unknown	<b>0</b>	
<u>Number of SSOs per mile of sewer per year</u>	<b>1.94 SSOs/100 miles/year</b>	(15.6% reduction from 2011-2013 period)
<u>Volume of SSOs per 1,000 capita per year</u>	<b>234.84/1,000 capita/year</b>	(35.1% reduction from 2011-2013 period)
<u>Maintenance Activities</u>		
Televised Inspection	<b>1,372,465 linear feet</b>	
Hydrocleaning	<b>4,122,278 linear feet</b>	
Manhole Inspection	<b>14,257 manholes inspected</b>	

**SSMP Audit**  
**6/07/2017**

**Auditing Staff:**

Josh Keener, Wastewater Compliance Coordinator  
Josh Vandiver, Wastewater Collections Supervisor  
Alex Bostick, Wastewater Collections Working Supervisor

**Summary:**

The City of Redding Wastewater Utility has had a Sewer System Management Plan (SSMP) in place since June 16, 2009, and the plan is used as a tool to successfully manage our public wastewater collection system. SWRCB Order No. 2006-0003-DWQ requires that the SSMP be audited every two years. The City's collection system has experienced sixteen sanitary sewer overflows (SSOs) since the previous audit in 2015, a 5.9% reduction from the previous two-year total of seventeen SSOs.

**Audit Findings:**

- Document Control- A review of document handling, review, and maintenance procedures during the period audited found that document control has in general been adequate and sufficient to allow upkeep of the SSMP document, tracking of performance measures and maintenance of spill-related documentation. Various sections of the SSMP were found to need updating, and these changes have been made and are recorded in Appendix I of the SSMP.
- Training- Staff training was found to be adequate and conducive of trained staff who are familiar with job tasks such as system maintenance and spill response procedures.
- Targets and Objectives- A review of progress towards the performance indicators found in Appendix G of the SSMP found that in general the Collections Division has continued to make strides towards improving system performance. The annual number of SSOs was reduced during the period audited, but the overall volume discharged roughly doubled. This was largely due to three large spills which discharged near creeks or drainage channels, complicating and delaying response efforts. The number of SSOs per 100 miles of collection system continues to compare favorably to both Region 5 and statewide averages. These and similar indicators are further detailed on the attached performance indicator sheet.

**General Conclusions:**

Overall, the SSMP and related programs continue to be effective, well managed, and adequate as the foundation of a well-operated and maintained collection system program. All programs are being implemented and managed appropriately, as indicated by the increasing performance on both maintenance functions and system indicators such as SSOs. Another SSMP audit will be performed in June, 2019.

## SSMP PERFORMANCE INDICATORS (6/2015-6/2017)

<b>Indicator</b>		
<u>Number of SSOs (by season)</u>		
Wet Season (October-May)	<b>10/2015 to 5/2016 = 7, 10/2016 to 5/2017 = 5</b>	
Dry Season (June-Sept)	<b>6/2015 to 9/2015 = 1, 6/2016 to 9/2016 = 3</b>	
<u>Number of SSOs (by volume)</u>		
<10 gal	<b>2</b>	
10 - 99 gal	<b>4</b>	
100 - 999 gal	<b>2</b>	
≥1000 gal	<b>8</b>	
<u>SSO Volume</u>		
Total	<b>101,640 gallons</b> (85,200 gal came from just three large SSO)	
Recovered	<b>51,738</b> (Not counting the 3 largest spills, recovery was 72% of discharged volume)	
<u>Number of SSO (by cause)</u>		
Blockages		
Roots	<b>2</b>	
Grease	<b>1</b>	
Debris - General	<b>3</b>	
Debris - Rags	<b>4</b>	
Debris from Laterals	<b>0</b>	
Vandalism	<b>1</b>	
Construction Debris	<b>0</b>	
Multiple Causes	<b>2</b>	
Other	<b>2</b>	
Infrastructure Failure	<b>0</b>	
Inflow & Infiltration	<b>1</b>	
Electrical Power Failure (lift stations)	<b>0</b>	
Flow Capacity Deficiency	<b>0</b>	
Natural Disaster	<b>0</b>	
Bypass	<b>0</b>	
Cause Unknown	<b>0</b>	
<u>Number of SSOs per mile of sewer per year</u>	<b>1.86 SSOs/100 miles/year</b>	(4.1% reduction from 2013-2015 period)
<u>Volume of SSOs per 1,000 capita per year</u>	<b>274.19/1,000 capita/year</b>	(16.8% increase from 2013-2015 period)
<u>Maintenance Activities</u>		
Televised Inspection	<b>1,948,320 linear feet</b>	
Hydrocleaning	<b>5,808,000 linear feet</b>	
Manhole Inspection	<b>14,898 manholes inspected</b>	

## **Section XI-Communications Program**

### **11.1 Communications With the Public**

The City of Redding's wastewater-related public education program consists of radio ads on Results Radio and TV ads on Channel 7 concerning the disposal of grease, wipes and household hazardous waste to the sanitary sewer system. Wipes Clog Pipes print ads and door hangers are used periodically to raise awareness about properly disposing of cleaning wipes in the trash, and mailers are often enclosed with billing notices to educate citizens about various Wastewater issues.

### **11.2 Communications With Satellite Agencies**

The City of Redding does not have any existing agreements with other agencies that could be considered Satellite Agencies. The City of Redding does, however, receive and treat waste from private third parties, such as the Redding Rancheria, and has agreements with these entities. These are binding legal agreements, which specify the volume and quality of the wastewater received, as well as the location of receipt and the associated ongoing costs.

**Section XII-Contact Phone Numbers**

<b>City of Redding</b>	<b>Contact name</b>	<b>Office</b>
City Manager	Barry Tippin	530-245-7156
Director of Public Works	Chuck Aukland	530-225-4067
Assistant Director of Public Works	Ryan Bailey	530-224-6030
Municipal Utility Manager-Wastewater	Josh Vandiver	530-224-6069
Public Works Supervisor Wastewater Collections	Kevin Garner	530-224-6127
Public Works Supervisor Industrial Waste	Tracy Wyhliidko	530-224-4319
Wastewater Compliance Coordinator	Josh Keener	530-224-4122
Working Supervisor Wastewater Collections	William Hunt	530-224-6054
Working Supervisor Wastewater Collections	Ted Spencer	530-224-6070
Public Works Admin (switchboard)	Natasha Rose	530-224-6068
Public Works Supervisor Storm Drains	Matt Cervenka	530-224-2435
Public Works Supervisor Water Treatment	Conrad Tona	530-225-4475
Risk Management	Cameron Dewey	916-758-8691
Code Enforcement Supervisor	Steve Willkomm	530-245-7196

# Appendix A

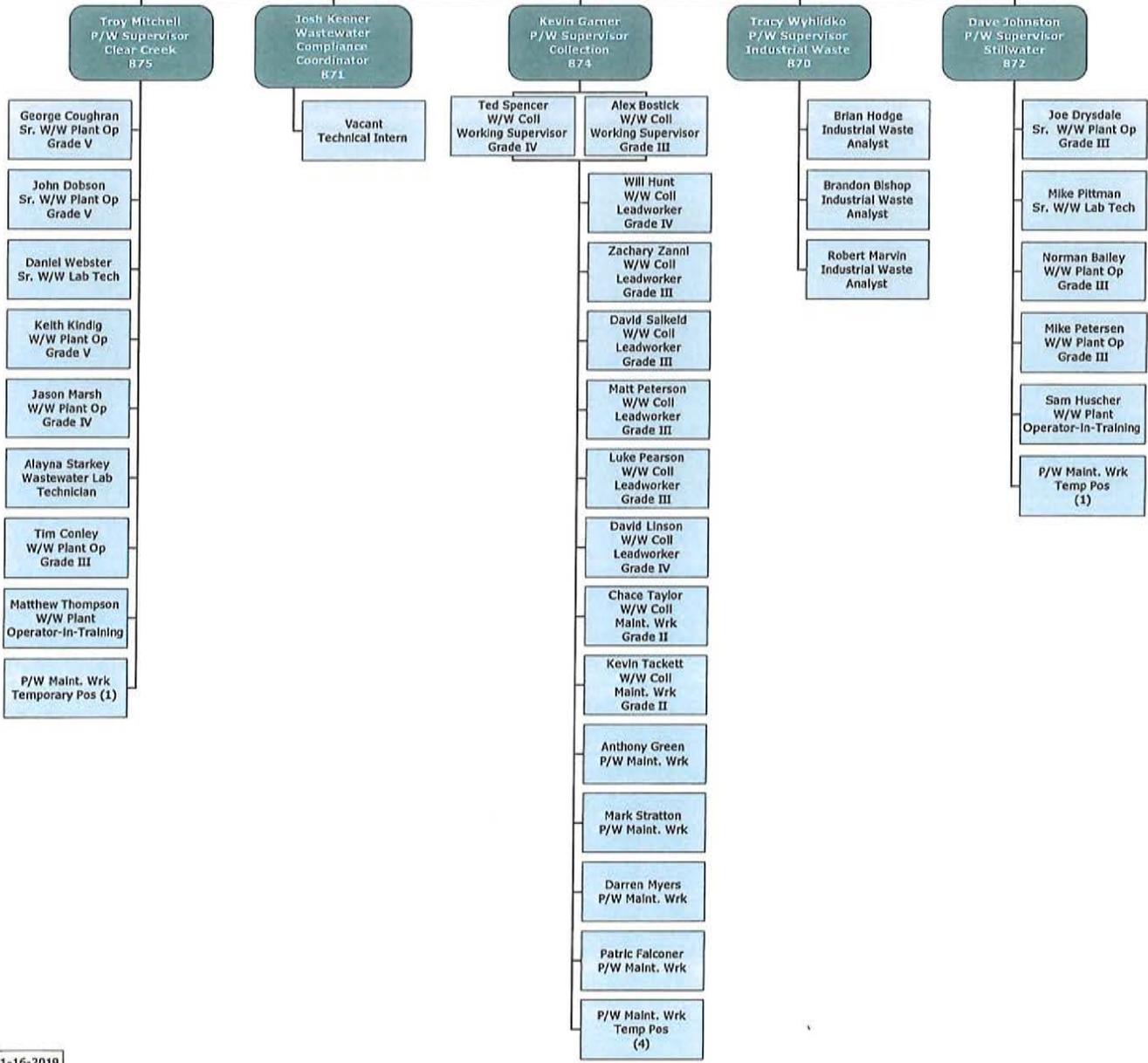
## Organizational Chart

**PUBLIC WORKS  
WASTEWATER UTILITY  
DIVISIONS 870, 871, 872, 874, 875**

**CHUCK AUKLAND  
DIRECTOR OF PUBLIC WORKS**

**RYAN BAILEY  
ASSISTANT DIRECTOR OF PUBLIC WORKS**

**JOSH VANDIVER  
WASTEWATER UTILITY MANAGER**



Appendix B  
Employee Contact  
Information-During Work  
Hours

**CITY OF REDDING – PUBLIC WORKS – FIELD OPERATIONS**

TRK#	EMPLOYEE	JOB TITLE	OFFICE PHONE	CELL PHONE	OTHER
<b>RMU ADMINISTRATION</b>		<b>DIVISION 867</b>	<b>CHANNEL 1A</b>		<b>10</b>
	<b>BRIAN CRANE</b>	<b>PUBLIC WORKS DIRECTOR</b>	<b>245-7155</b>	<b>638-5098</b>	<b>FAX:</b>
	<b>CHUCK AUKLAND</b>	<b>PUBLIC WORKS ASSISTANT DIRECTOR (CITY HALL)</b>	<b>245-7156</b>	<b>510-0921</b>	
	<b>JON McCLAIN</b>	<b>PUBLIC WORKS ASSISTANT DIRECTOR</b>	<b>224-6029</b>	<b>227-6082</b>	<b>224-6071</b>
	Annie Hunt	Customer Service Representative	224-4323		
	<b>David Braithwaite</b>	<b>Associate Civil Engineer</b>	224-6063		
	Kim Collins	Management Analyst II	224-2430		
	<b>Marty Wayne</b>	<b>Project Coordinator</b>	<b>224-4457</b>	<b>410-2204</b>	
	Misty Kufner	Clerk II	224-6079		
	Meiko Burroughs	Customer Service Representative	224-4455		
	Rhonda Bernard	Executive Assistant I	224-4330		
	Terri Webster	GIS Analyst II (GIS Department)	224-4337		
	Vicki Thomasy	Administrative Assistant II	224-6055		
<b>STREETS DIVISION</b>		<b>DIVISION 511</b>	<b>CHANNEL 1B</b>		<b>8</b>
<b>200</b>	<b>Randy Campbell</b>	<b>P/W Supervisor - Streets</b>	<b>224-6077</b>	<b>227-2862</b>	<b>FAX:</b>
<b>211</b>	<b>James Carter</b>	<b>Working Supervisor – P/W</b>		<b>604-2170</b>	<b>224-6071</b>
<b>213</b>	<b>Randy Amaral</b>	<b>Working Supervisor - P/W</b>	<b>224-6084</b>	<b>227-2182</b>	<b>FAX:</b>
223	Bill Coffee	P/W Lead Worker			<b>224-4406</b>
224	Glen Pine	Equipment Operator			
220	Mark Lloyd	P/W Lead Worker			
225	Neil Maxey	Equipment Operator			
221	Brad Garrison	P/W Maintenance Worker			
<b>SIGN SHOP</b>		<b>DIVISION 511</b>	<b>CHANNEL 1B</b>		<b>4</b>
<b>212</b>	<b>Carl Buchanan</b>	<b>Working Supervisor-P/W</b>	<b>224-6081</b>	<b>917-5110</b>	<b>FAX:</b>
219	Darrell McDaniel	P/W Lead Worker			
226	Terry Zalesny	Equipment Operator			<b>224-6071</b>
<b>222</b>	<b>Dave Schultz</b>	<b>Parking Meter Service Worker</b>		<b>227-0165</b>	
<b>STORM DRAIN UTILITY</b>		<b>DIVISION 801</b>	<b>CHANNEL 1D</b>		<b>5</b>
<b>681</b>	<b>Matt Cervenka</b>	<b>P/W Supervisor- Storm Drain</b>	<b>224-2435</b>	<b>339-0284</b>	<b>FAX:</b>
682	Dave Jackson	Working Supervisor- PW		227-1468	<b>224-6071</b>
683	Dan Jarrett	P/W Lead Worker	224-4343	351-2520	<b>Standby:</b>
684	Kevin Chew	Equipment Operator		351-2520	<b>638-6615</b>
	Robert Strieff	Equipment Operator			
<b>ELECTRICAL TECHNICIANS / USA LOCATORS</b>		<b>DIVISION 807</b>	<b>CHANNEL 1A</b>		<b>10</b>
210	Dean Burroughs	Utility Specialist II – Locator	224-4210	440-6718	<b>FAX:</b>
	Geoffrey Diaz	Utility Specialist I- Locator	247-6920	215-0470	<b>224-6071</b>
209	Scott Hansen	Utility Specialist II – Locator	224-4456	356-4682	
<b>240</b>	<b>Paul Landis</b>	<b>Field Foreman – Electrical Technician</b>	<b>224-6034</b>	<b>524-3401</b>	<b>FAX:</b>
514	Darryl Hughart	Electrical Technician – Foothill Water Treatment Plant	245-7174	526-0171	<b>224-6038</b>
633	David Lhuillier	Electrical Technician – Stillwater WWTP	378-6710	605-5791	
247	Eric Davis	Electrical Technician	224-6035	351-4367	
245	Gene Donham	Electrical Technician	224-6035	351-5973	<b>FAX:</b>
	John Rossie	Electrical Technician – Clear Creek WWTP	225-4159	440-4745	<b>225-4935</b>
522	Mike Suber	Electrical Technician- Foothill Water Treatment Plant	245-7114	604-4711	
<b>WTR-GENERAL &amp; ADMIN</b>		<b>DIVISION 861</b>	<b>CHANNEL 1A</b>		<b>3 29</b>
<b>503</b>	<b>John Wendele</b>	<b>Water Utility Manager</b>	<b>224-6040</b>	<b>338-5546</b>	<b>FAX:</b>
	Mike Robertson	Municipal Utilities Manager (Retired/Part-time Temp)	224-6127	638-5300	<b>224-6071</b>
	Pam Clackler	P/W Supervisor	224-6032		
<b>WATER TREATMENT</b>		<b>DIVISION 863</b>	<b>CHANNEL 1A</b>		<b>10</b>
<b>509</b>	<b>Conrad Tona</b>	<b>P/W Supervisor-Water Treatment</b>	<b>225-4475</b>	<b>227-4124</b>	<b>FAX:</b>
<b>533</b>	<b>Steve Bosse</b>	<b>Working Supervisor - Water Pit T4D4</b>	<b>245-7279</b>	<b>338-7889</b>	<b>225-4552</b>
<b>515</b>	<b>Michael Lawrence</b>	<b>Working Supervisor - Water Pit T4D4</b>	<b>245-7281</b>	<b>338-7888</b>	
502	Bruce Kuhn	Senior Water Plant Operator T4	225-4192	338-7891	<b>Standby:</b>
561	Duane Cook	Senior Water Plant Operator T4		338-7890	<b>604-5071</b>
	Jaime Halter	Water Plant Operator T4		338-7892	
505	James Samples	Water Plant Operator T4		338-7893	
	Jim Morrison III	Water Plant Operator T3		338-7895	
507	Joel Gerber	Water Plant Operator T3		338-7894	
532	Rick Coulter	Water Maintenance Worker D1		338-7896	

**CITY OF REDDING – PUBLIC WORKS – FIELD OPERATIONS**

TRK#	EMPLOYEE	JOB TITLE	OFFICE PHONE	CELL PHONE	OTHER
<b>WTR-SYSTEM OPER &amp; MAINT DIVISION 864 CHANNEL 1A 16</b>					
512	Dave Guadagni	P/W Supervisor – Water Distribution	224-6033	604-5138	FAX:
510	Dan Lamb	Water System Specialist D3/D4	224-6031	604-8680	224-6071
555	Andy Diaz	Working Supervisor – Water Dist D3	224-6078	941-3722	
554	Bert Miller	Working Supervisor – Water Dist D3	224-6024	941-3743	
	Adam Froeber	P/W Maintenance Worker			
508	Andy Mewhirter	Water Lead Worker D3	224-6037	510-2112	
517	Dan Shank	Water Lead Worker D3		604-5076	
571	Dave Straub	Water Maintenance Worker D1		515-5293	
563	David Campbell	Water Maintenance Worker D2		338-8355	
565	Gabe Johnson	Water Maintenance Worker D2			
569	Kely Miller	Water Maintenance Worker D2	224-6037	605-7994	
516	Kyle Zanni	Water Lead Worker D3		941-8961	
529	Mark Hall	Water Lead Worker D3		941-3721	
	Mike Morretino	P/W Maintenance Worker			
	Richard Trabold	Water Maintenance Worker D1			
542	Steve Capfer	Water Lead Worker D3		515-7515	
<b>WASTEWATER-INDUSTRIAL PRETREATMENT DIVISION 870 CHANNEL 1A 4</b>					
684	Tracy Wyhlidko	P/W Supervisor – Industrial Waste	224-4319	356-4623	FAX:
662	Brian Hodge	Industrial Waste Analyst	224-6058	356-5041	224-6052
602	Brandon Bishop	Industrial Waste Analyst	224-6051	605-7241	
685	Robert Marvin	Industrial Waste Analyst	224-6049	209-1736	
<b>WASTEWATER SYSTEM-ADMIN DIVISION 871 CHANNEL 1A 2 34</b>					
612	Ryan Bailey	Wastewater Utility Manager	224-6030	200-4912	224-6071
	Josh Keener	WW Compliance Coordinator	224-4122	524-2420	224-6071
<b>WASTEWATER-STILLWATER TREATMENT DIVISION 872 CHANNEL 3A 6</b>					
	David Johnston	P/W Supervisor – Stillwater G5	378-6702	840-6845	FAX:
	Brian Bailey	Wastewater Plant Operator G3	378-6700		378-6709
	Joe Drysdale	Senior Wastewater Plant Operator G3	378-6700		
	Mike Pittman	Senior Wastewater Lab Technician	378-6701		Standby:
	Rick Harris	Wastewater Plant Operator G3	378-6700		604-5072
	Rob Bennett	Senior Wastewater Plant Operator G3	378-6700	366-6149	
<b>WASTEWATER COLLECTION SYSTEMS DIVISION 874 CHNLS 1A &amp; 1F 13</b>					
615	Josh Vandiver	P/W Supervisor – Wastewater Collection	224-6069	209-1012	FAX:
614	Steve Hollingsworth	Working Supervisor – Wastewater Collection G4	224-6070	356-4622	224-6071
632	Alex Bostick	Working Supervisor- Wastewater Collection G3	224-6054	945-2541	
	Billy (Will) Hunt	Wastewater Collection Lead Worker G4		356-4599	
	Dave Faganello	Wastewater Collection Lead Worker G3			
	David Linson	P/W Maintenance Worker	Rotates trucks		
	David Salkeld	Wastewater Collection Maintenance Worker G2	every 6 mths:	356-4602	
	Dominic McCurtain	Wastewater Collection Lead Worker G4	603/639 TV Van	515-9866	
	Luke Pearson	P/W Maintenance Worker- WW G2	616 Lift Stations		
	Kevin Garner	Wastewater Collection Lead Worker G3	626 Cleaning	356-7803	
	Matt Peterson	Wastewater Collection Maintenance Worker G2	631 Construction		
	Ted Spencer	Wastewater Collection Lead Worker G3	665 Cleaning	604-5074	
	Zach Zanni	Wastewater Collection Lead Worker G3			
<b>WASTEWATER-CLEAR CREEK TREATMENT DIVISION 875 CHANNEL 2H 9</b>					
	Troy Mitchell	P/W Supervisor – Clear Creek G5	225-4157	356-7831	FAX:
	Daniel Webster	Senior Wastewater Lab Technician	225-4158		
	George Coughran	Senior Wastewater Plant Operator G5	225-4158		
	John Dobson	Senior Wastewater Plant Operator G5	225-4158		
	Mike Carnahan	Building & Facilities Mechanic II		351-5593	
	Robert Frederick	Wastewater Plant Operator G3			
	Tom Stephens	Wastewater Plant Operator G3	225-4443		Standby:
	Alayna Starkey	Wastewater Lab Technician	225-4158		605-6944
	Keith (Chris) Kindig	Wastewater Plant Operator G3	225-4158		

Appendix C  
24 Hour Contacts for  
Equipment and Materials

# 24 HOUR EMERGENCY CONTACTS FOR EQUIPMENT AND MATERIALS

R&B Company – Howard Getchel, cell 330-1397/ home 221-6798  
David Enck cell 330-1396

Camilla Valley / Ferguson – John Schmit cell 351-4873 / home 241-1614  
Jim Paul cell 510-5675 / home 365-2669  
Joel Matney cell 510-6152 / 357-4802

I-5 Rentals 226-8081 (transfers to answering service afterhours)

United Rentals 221-8851  
800-877-3687

Drosher Equipment 241-0505 (transfers to on call person after hours)  
Ed home 245-0510

Rain for Rent 662-1024 office (emergency bypass pumps)

Pac Machine (916) 387-1336 office (emergency bypass pumps)  
Pat LaZansky cell (916) 416-2252

Munson Pumps 515-8024 (emergency bypass pumps)

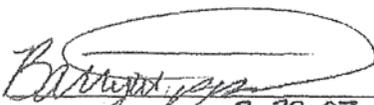
Appendix D  
City of Redding Design  
Standards

1. ACCEPTABLE PIPE MATERIALS:

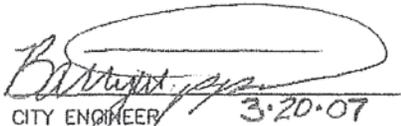
INTERCEPTORS (30"-60"):	HDPE, HIGH DENSITY POLYETHYLENE VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH) PVC SOLID WALL SDR 26 PER ASTM D-3034
TRUNK SEWER (15"-30"):	HDPE, HIGH DENSITY POLYETHYLENE VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH) PVC SOLID WALL SDR 26 PER ASTM D-3034
SEWER MAIN (8"-12"):	HDPE, HIGH DENSITY POLYETHYLENE VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH) PVC SOLID WALL SDR 26 PER ASTM D-3034
SEWER CONNECTIONS/LATERALS:  (4" OR 6"):	VCP, VITRIFIED CLAY PIPE (EXTRA STRENGTH)  ABS SOLID WALL PIPE SDR 23.5 ASTM D-2751 ABS SOLID WALL PIPE SDR 26 ASTM D-2751 ABS SOLID WALL PIPE (DWV SCHEDULE 40) PVC SOLID WALL PIPE SDR 23.5 ASTM D-3034 PVC SOLID WALL PIPE SDR 26 ASTM D-3034
PRESSURE SEWER CONNECTIONS/LATERALS:	HDPE, HIGH DENSITY POLYETHYLENE PVC SOLID WALL PIPE (SCHEDULE 80) PVC SOLID WALL PIPE (C900)

**FOR USE IN SEWER PIPELINES FOR WHICH COMMERCIAL OR INDUSTRIAL AREAS ARE TRIBUTARY,  
SPECIFIC APPROVAL IS REQUIRED FOR PLASTIC PIPE.**

2. THE LARGEST PIPELINE THAT CAN BE TAPPED FOR A SEWER CONNECTION LATERAL IS 15 INCH UNLESS APPROVED BY THE CITY ENGINEER.
3. PRIOR TO ACCEPTANCE OF THE SEWER, THE PIPELINES SHALL BE PROPERLY CLEANED OF ALL DEBRIS, AIR TESTED, MANDRELLED WHEN APPLICABLE, AND TELEVIEWED. PROPER CLEANING TECHNIQUES AND DEVICES SHALL BE UTILIZED TO INSURE NO DEBRIS, SAND, GRAVEL OR SILT WILL ENTER THE EXISTING CITY SEWER SYSTEM.
4. THE DOWNSTREAM END OF ALL NEW PIPELINES SHALL BE PLUGGED UNTIL THE SEWER IS ACCEPTED BY THE CITY.
5. MANDREL TESTING SHALL BE REQUIRED FOR PVC PIPE PER STANDARD SPECIFICATIONS SECTION 306-1.2.12.
6. THE CITY OF REDDING MAY PRECLUDE THE USE OF PVC PIPE IN AREAS OF HIGH GROUNDWATER OR UNSTABLE GROUND CONDITIONS OR WHEN A TRENCH SHIELD IS TO BE USED.
7. PRIOR TO ACCEPTANCE ALL MANHOLE SHALL SUCCESSFULLY PASS A VACUUM TEST PER CITY OF REDDING STANDARDS 300.10.
8. MINIMUM DEPTH OF COVER:
  - 1 A. 5.0 FEET OVER SEWER MAIN
  - B. 4.5 FEET OVER SEWER CONNECTIONS/LATERALS AT PROPERTY LINE (PER PAGE 301.00 & 622.00)
9. THE MINIMUM RADIUS CURVATURE FOR SEWER MAINS SHALL BE 1.5 TIMES THE MANUFACTURERS RECOMMENDATION. ALL CURVATURE OF FLEXIBLE PIPE SHALL BE MADE BY BENDING THE PIPE. NO DEFLECTION OF THE PIPE JOINTS SHALL BE ALLOWED. SHARPER CURVES MAY BE OBTAINED BY USING 3' COUPLINGS (18" MINIMUM BETWEEN COUPLINGS).
10. SEWER TAPS ON LIVE SEWER MAINS SHALL BE PERFORMED BY CITY OF REDDING CREW ONLY. CONTACT THE CITY SEWER DEPARTMENT TO SCHEDULE THE TAP.

DWG DATE: 2-03	SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT		
1	4-06	EDIT NOTES	APPROVED BY  CITY ENGINEER 3-20-07	<b>SANITARY SEWER CONSTRUCTION CRITERIA</b>
MARK	DATE	REVISION		

1. EACH MANHOLE SHALL BE TESTED IN THE PRESENCE OF THE CITY INSPECTOR FOR ACCEPTANCE PRIOR TO FINAL PAVING AND AFTER ALL BACKFILLING AND COMPACTION IS COMPLETED. INDUSTRY STANDARDS SUGGEST THAT THE MANHOLES BE PRETESTED IMMEDIATELY AFTER ASSEMBLY AND PRIOR TO BACKFILLING. SUCH PRETESTING IS FOR THE CONTRACTORS CONVENIENCE AND NEED NOT BE IN THE PRESENCE OF THE INSPECTOR.
2. ALL TESTING EQUIPMENT AND LABOR SHALL BE PROVIDED BY THE CONTRACTOR.
3. ALL PIPES ENTERING THE MANHOLE SHALL BE PLUGGED, TAKING CARE TO SECURELY BRACE THE PLUGS FROM BEING DRAWN INTO THE MANHOLE.
4. THE TEST HEAD SHALL BE PLACED AT THE INSIDE OF THE TOP OF THE CONE SECTION AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
5. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF. WITH THE VALVES CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO NINE INCHES. THE MANHOLE SHALL PASS IF THE TIME IS GREATER THAN 60 SECONDS FOR 48" DIAMETER MANHOLE, 75 SECONDS FOR 60", AND 90 SECONDS FOR 72".
6. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE WITH A NONSHRINK GROUT. RETESTING SHALL PROCEED UNTIL SATISFACTORY TEST IS OBTAINED. NO GROUT SHALL BE PLACED IN THE HORIZONTAL JOINTS BEFORE TESTING.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
			APPROVED BY 	<b>SPECIFICATIONS FOR VACUUM TESTING OF MANHOLES</b>
MARK	DATE	REVISION	CITY ENGINEER 3-20-07	

1. DESIGN OF SEWER LINES SHALL BE BASED UPON AN AVERAGE DAILY FLOW OF 300 GALLONS PER HOUSEHOLD EQUIVALENT PER DAY PLUS 1,500 GALLONS PER ACRE PER DAY FOR STORM WATER AND GROUNDWATER INFILTRATION. PEAKING FACTORS SHALL BE PER CITY OF REDDING MASTER PLAN.
2. MAINS AND COLLECTOR SEWER LINES SHALL BE DESIGNED WITH A MINIMUM MANNING COEFFICIENT OF N=0.013.
3. THE MINIMUM SLOPE ALLOWED FOR SEWER PIPELINES SHALL BE:

8"	s=0.0040
10"	s=0.0030
12"	s=0.0025

THE MAX. LENGTH OF ANY DEAD END PIPELINE SHALL BE 250 FEET, OR LESS, SHALL HAVE A MIN. SLOPE OF s=.0040 AND NO MORE THAN FOUR SERVICE CONNECTIONS.

4. MINIMUM GRADES SHALL NOT BE LESS THAN THOSE REQUIRED TO PRODUCE A VELOCITY OF TWO (2.0) FEET PER SECOND WHEN THE SEWER SIZE SELECTED IS FLOWING FULL OR HALF FULL. PIPE SIZES SHALL NOT BE ARBITRARILY INCREASED IN ORDER TO TAKE ADVANTAGE OF A FLATTER GRADE.
5. THE MINIMUM SIZE SEWER MAIN SHALL BE 8-INCH.
6. MINIMUM DEPTH OF COVER:

- △ 1. A. 5.0 FEET OVER SEWER MAIN
- B. 4.5 FEET OVER SEWER CONNECTIONS/LATERALS AT PROPERTY LINE (STANDARD PAGE 301.00)

7. MANHOLE SPACING:

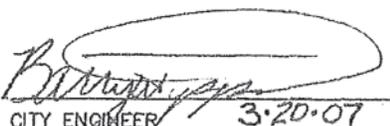
- △ 1. A. SEWERS 8 TO 12 INCH : 500 FEET MAXIMUM
- B. SEWERS 15 TO 30 INCH : 700 FEET MAXIMUM
- C. SEWERS 36 INCH AND LARGER : 1,000 FEET MAXIMUM
- D. AT ALL ANGLE POINTS IN HORIZONTAL AND VERTICAL ALIGNMENT

8. DROP MANHOLES WILL NOT BE PERMITTED UNLESS APPROVED BY THE CITY ENGINEER.

9. MAXIMUM DEPTH OF COVER:

SEWER MAINS SHALL NOT BE DESIGNED WITH COVER EXCEEDING 15 FEET FROM FINISH SURFACE GRADE, UNLESS SPECIAL PERMISSION IS RECEIVED FROM THE CITY ENGINEER.

10. NO PRIVATE FORCE MAINS WILL BE ALLOWED IN THE CITY RIGHT-OF-WAY UNLESS PERMISSION IS RECEIVED FROM THE CITY ENGINEER.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
△	4-06	EDIT STD	APPROVED BY	SANITARY SEWER DESIGN CRITERIA
	MARK	DATE	REVISION	
			 CITY ENGINEER 3.20.07	

PVC SEWER PIPE AND FITTINGS FOR GRAVITY SEWERS SHALL BE MADE FROM ALL NEW, RIGID, UNPLASTICIZED POLYVINYL CHLORIDE IN ACCORDANCE WITH ASTM STANDARD SPECIFICATION D 3034 WITH A WALL THICKNESS OF AT LEAST SDR 26. SDR VALUES AND PVC MATERIAL REQUIREMENTS SHALL BE PER SECTION 207-17 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK). JOINTS SHALL CONSIST OF AN INTEGRAL BELL AND RUBBER RING ELASTOMERIC SEAL (GASKETS) MEETING THE REQUIREMENTS OF ASTM D3212 AND ASTM F 477. THE PIPE AND FITTINGS SHALL BE ASSEMBLED WITH THE PIPE MANUFACTURER'S RECOMMENDED LUBRICANT.

ALL PIPE SHALL HAVE A "HOME" MARK TO INDICATE FULL PENETRATION OF THE SPIGOT WHEN THE JOINT IS MADE.

**FOR USE IN SEWER PIPELINES FOR WHICH COMMERCIAL OR INDUSTRIAL AREAS ARE TRIBUTARY, SPECIFIC APPROVAL IS REQUIRED FOR PLASTIC PIPE.**

ALL PVC PIPELINES ENTERING OR LEAVING A CONCRETE STRUCTURE SHALL HAVE A STANDARD MANHOLE GASKET, AS RECOMMENDED BY THE PIPE MANUFACTURER, FIRMLY CLAMPED AROUND THE PIPE EXTERIOR AND CAST INTO THE STRUCTURE BASE OR NEAR THE STRUCTURE WALL CENTER AS A WATER STOP.

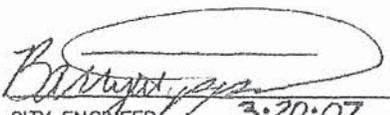
INSTALLATION, BEDDING, AND BACKFILL REQUIREMENTS FOR PVC SEWER PIPE SHALL BE IN ACCORDANCE WITH ASTM D 2321 AS MODIFIED BY CITY OF REDDING STANDARD PAGE 610.00.

AFTER PIPE INSTALLATION AND PLACEMENT AND COMPACTION OF BACKFILL, BUT PRIOR TO PLACEMENT OF PAVEMENT, ALL PIPELINES SHALL BE CLEANED AND THEN SEPERATELY MANDRELLED TO MEASURE FOR OBSTRUCTIONS. OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO DEFLECTIONS, JOINT OFFSETS, AND SEWER CONNECTIONS/LATERAL PIPE INTRUSIONS. A CONTRACTOR-SUPPLIED RIGID MANDREL MEETING THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS SECTION 306-1.2.12 WITH AN EFFECTIVE CIRCULAR CROSS-SECTION HAVING A DIAMETER OF AT LEAST 95 PERCENT OF THE MAXIMUM AVERAGE INSIDE DIAMETER, PER ASTM 3034, SHALL BE PULLED THROUGH THE PIPE BY HAND NOT SOONER THAN 30 DAYS AFTER COMPLETION OF PLACEMENT AND DENSIFICATION OF BACKFILL. THE MINIMUM EFFECTIVE LENGTH OF THE MANDREL SHALL BE EQUAL TO ITS NOMINAL DIAMETER. OBSTRUCTIONS DUE TO DEFLECTION SHALL BE CORRECTED BY REPLACEMENT OF THE OVER-DEFLECTED PIPE; RE-ROUNDING IN PLACE WILL NOT BE ALLOWED.

IF A SECTION OF PIPELINE FAILS TO MEET THE MANDREL TEST AND IS REPAIRED AND FAILS A SECOND TIME, IT SHALL BE REPLACED WITH AN APPROVED RIGID OR SEMI-RIGID PIPE MATERIAL AND CONNECTED WITH FLEXIBLE RUBBER COUPLINGS WITH STAINLESS STEEL CLAMPS.

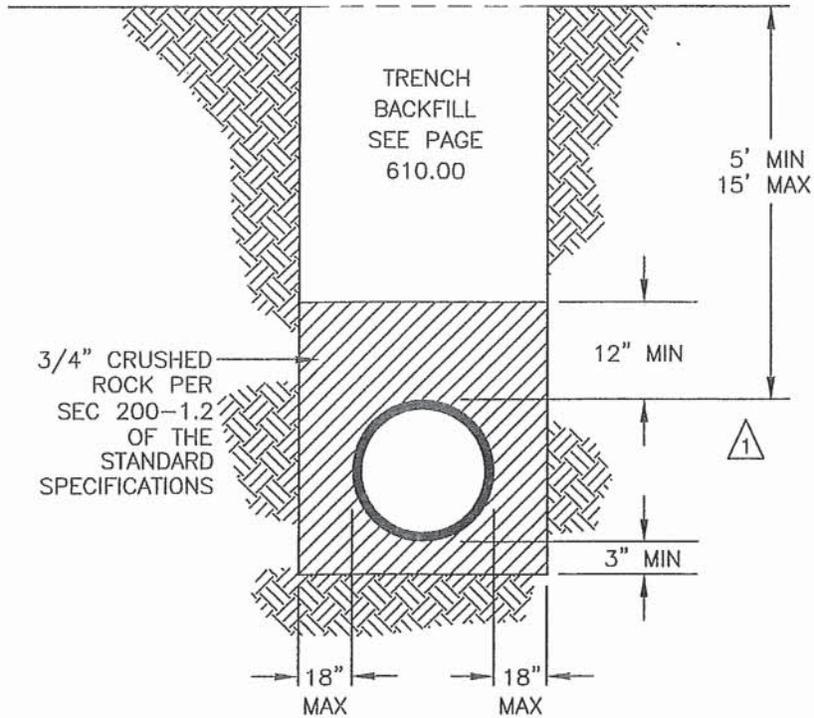
PVC PLASTIC SEWER PIPELINE MAY BE MANDREL TESTED AGAIN BEFORE THE TWELFTH MONTH FOLLOWING ACCEPTANCE AT THE DISCRETION OF THE MUNICIPAL UTILITIES DEPARTMENT. THE CONTRACTOR SHALL REPAIR ANY OBSTRUCTIONS CAUSED BY EXCESS DEFLECTION.

ALL DEFLECTION TESTING SHALL BE WITNESSED BY THE **CITY INSPECTOR** AND BE CONDUCTED BY THE CONTRACTOR'S FORCES AND AT THE CONTRACTOR'S EXPENSE.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
	4-06	EDIT STD	APPROVED BY 	POLYVINYL CHLORIDE (PVC) SEWER PIPE
MARK	DATE	REVISION	CITY ENGINEER 3-20-07	

FLEXIBLE

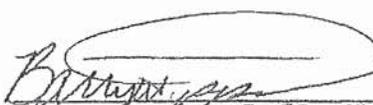
PVC SDR 26 (8 INCH-15 INCH)



NOTES:

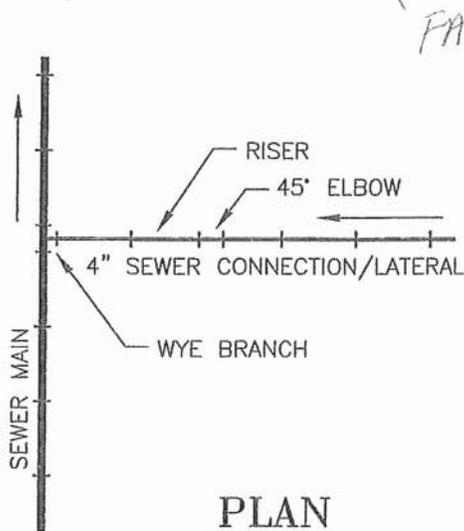
1. ALL FLEXIBLE PLASTIC SEWER MAINS SHALL BE MANDREL TESTED WITH 5% MAX DEFLECTION PRIOR TO TELEVIEWING. THE CONTRACTOR SHALL REPAIR ANY SEWER MAIN OBSTRUCTION CAUSED BY EXCESS DEFLECTION DUE TO THE USE OF SLEDS OR BOXES.

△ 2. SEWER CONNECTIONS/LATERALS TO HAVE THE SAME BEDDING REQUIREMENTS AS SEWER MAINS.

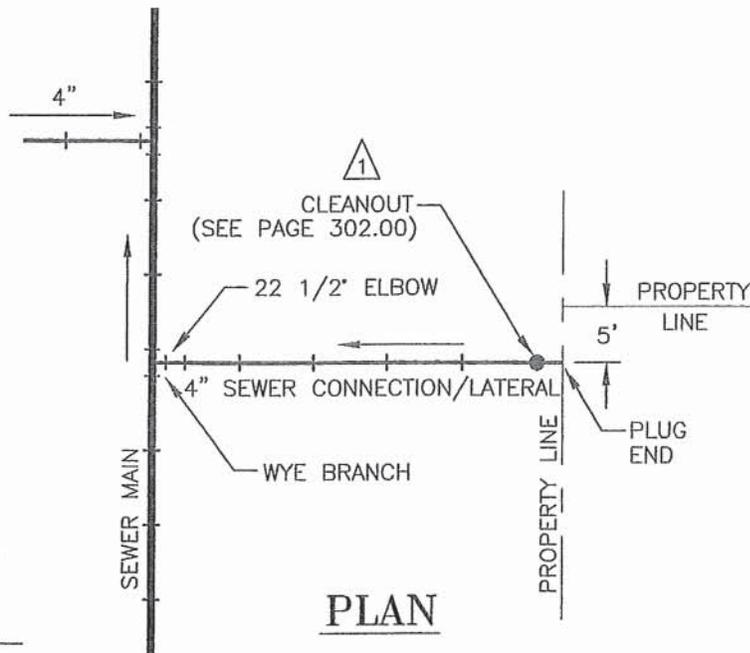
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
△ 1	4-06	EDIT NOTES & DETAIL	APPROVED BY 	BEDDING FOR PLASTIC SEWER PIPE
	MARK	DATE	REVISION	

**NOTES:**

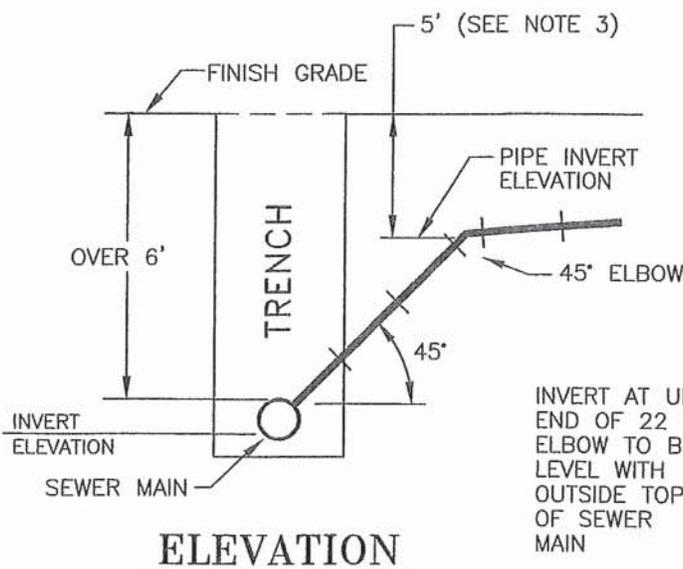
1. 90° TAPS ARE ACCEPTABLE.
2. RISERS SHALL BE INSTALLED WHEN DEPTH OF SEWER MAIN EXCEEDS 6 FT.
3. VERTICAL INSTALLATIONS (STOVEPIPING) WILL NOT BE ALLOWED.
4. WHERE SEWER MAIN IS IN AN EASEMENT, INSTALL A TEE BRANCH AND PLUG.
5. ~~PLACE 1/2" OR 5/8" PLASTIC CONDUIT (SCRAP) UPRIGHT AT PROPERTY LINE OVER END OF SEWER CONNECTION/LATERAL.~~
6. SEWER TAPS ON LIVE SEWER MAINS SHALL BE PERFORMED BY CITY OF REDDING CREW ONLY. CONTACT THE CITY INSPECTOR TO SCHEDULE TAP.
- 1 7. STAMP "S" INTO CURB AT LOCATION OF LATERAL.



**PLAN**

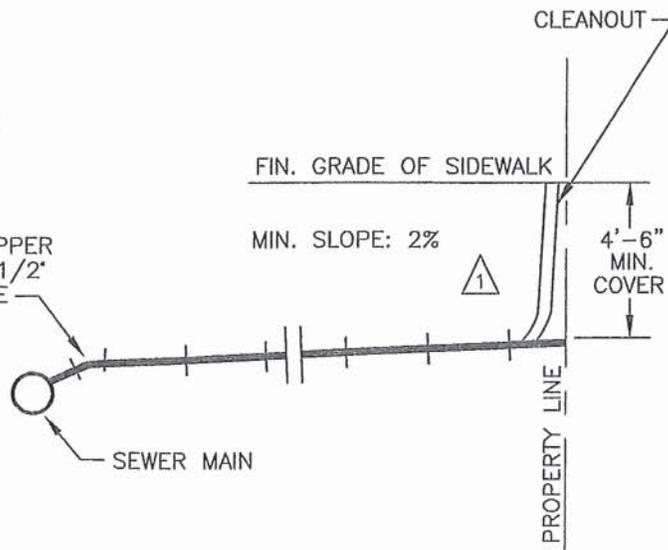


**PLAN**



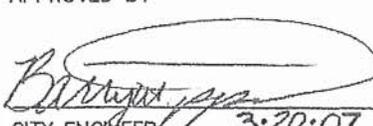
**ELEVATION**

INVERT AT UPPER END OF 22 1/2° ELBOW TO BE LEVEL WITH OUTSIDE TOP OF SEWER MAIN

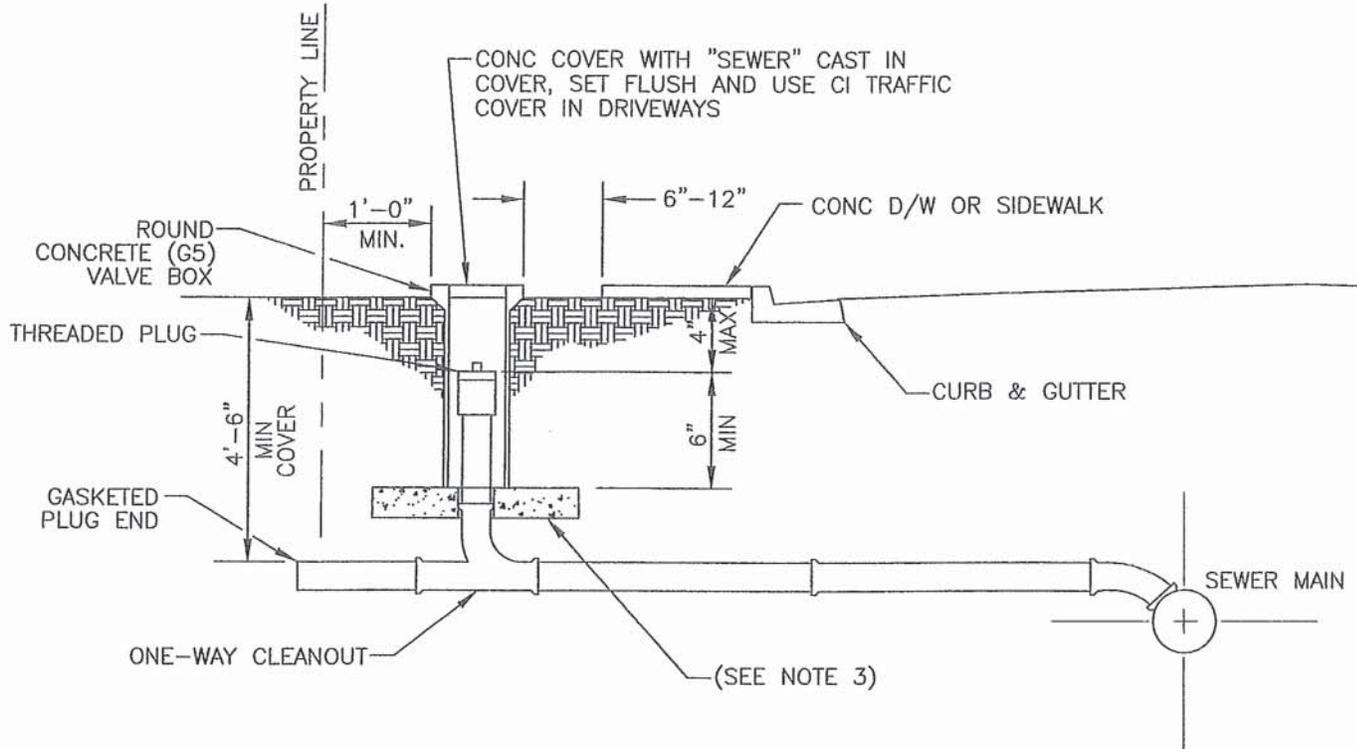


**TYP. HOUSE CONNECTION**

**TYP. HOUSE CONNECTION RISER**

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	EDIT STD	APPROVED BY	TYPICAL HOUSE CONNECTION
	MARK	DATE	REVISION	
			 CITY ENGINEER 3-20-07	

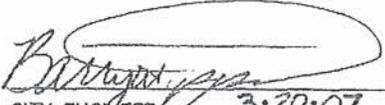
THIS STANDARD IS APPLICABLE TO ALL NEW RESIDENTIAL CONSTRUCTION.



NOTES:

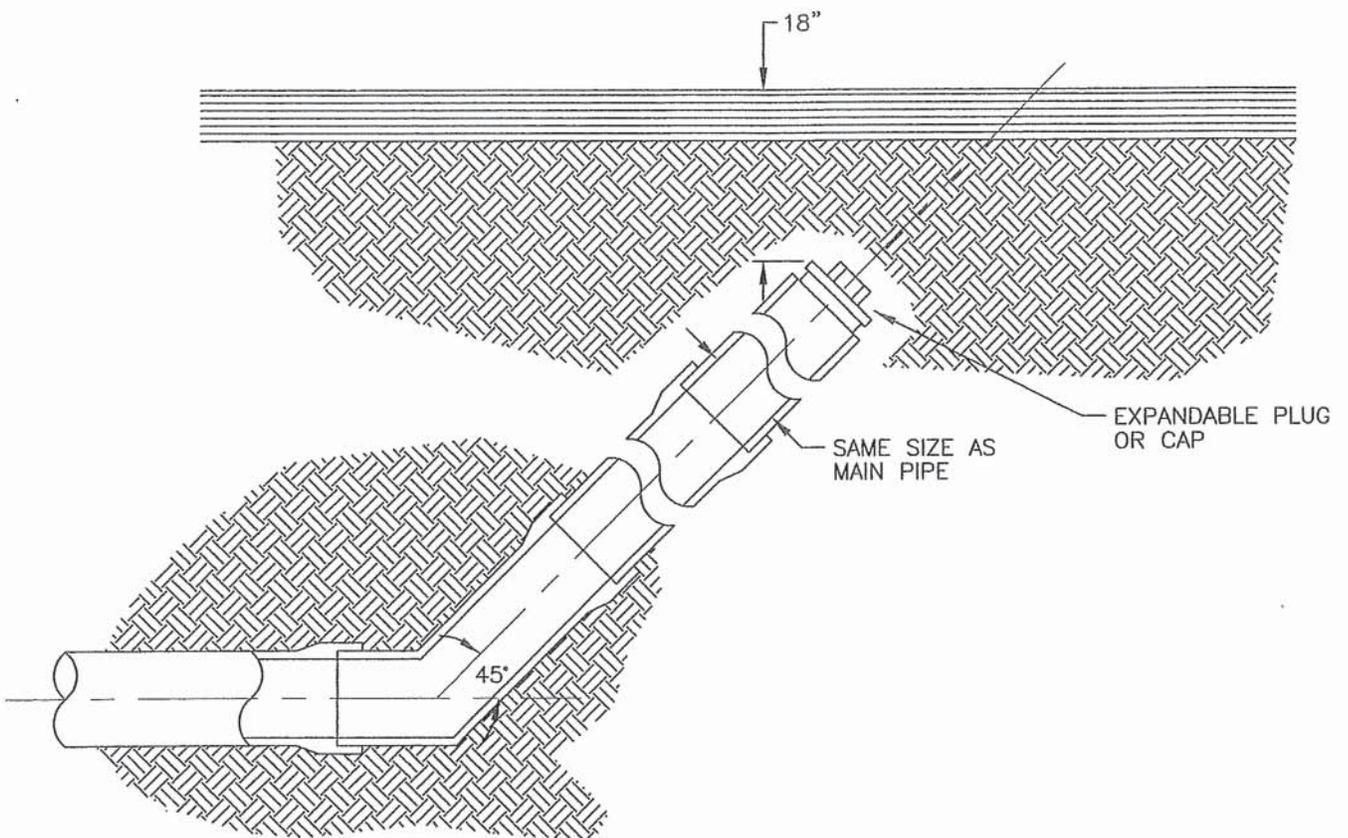
1. WHERE ~~CONC D/W OR SIDEWALK EXISTS~~, LATERAL CLEANOUT SHALL BE PLACED ~~AT THE BACK OF~~ <sup>WALK</sup> CONC. WITH 6"-12" CLR BETWEEN CONC AND CLEANOUT BOX. FOR ALL OTHER SITUATIONS, CLEANOUT SHALL BE PLACED 1' OFF THE PROPERTY LINE OR AS SHOWN ON THE PLANS.
2. ONCE THE NEW SEWER MAIN AND LATERALS HAVE BEEN TESTED, ACCEPTED AND APPROVED TO BE PUT ON-LINE, CONTRACTOR SHALL CONNECT THE BUILDING LATERAL TO THE NEW CLEANOUT.
3. WHERE LATERAL CLEANOUT IS LOCATED IN DRIVEWAYS OR OTHER AREAS SUBJECT TO VEHICULAR TRAFFIC, INSTALL A 4" THICK BY 24" SQ. PRECAST CONC BLOCK W/ 6" DIA. HOLE IN CENTER OVER THE CLEANOUT PIPE AS SHOWN.

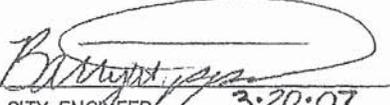
6"-12" BEHIND

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
			APPROVED BY	<h1>ONE-WAY LATERAL CLEANOUT</h1>
	4-06	NEW STD	 CITY ENGINEER 3-20-07	
MARK	DATE	REVISION		

NOTES:

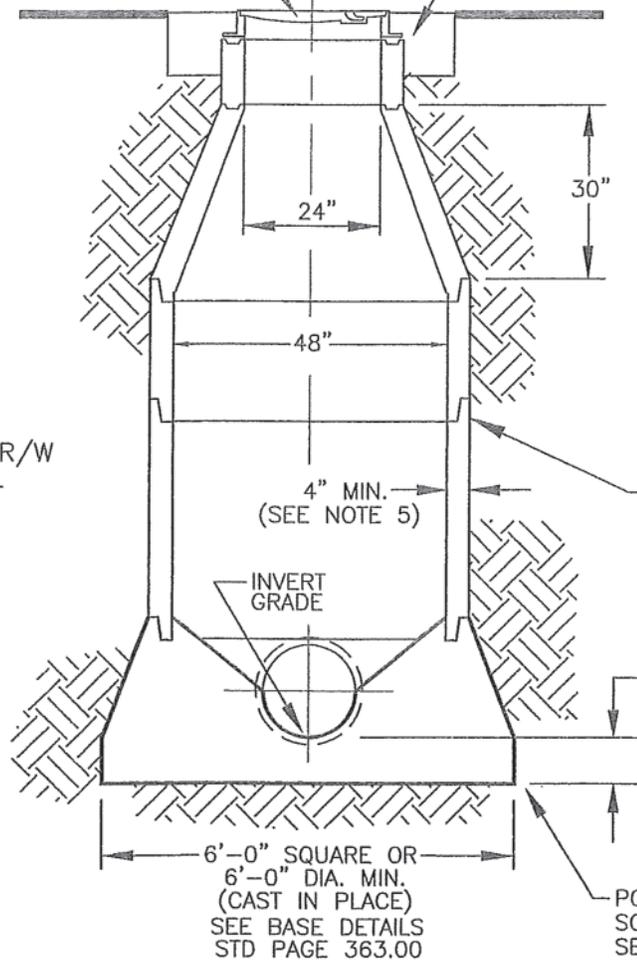
1. ALL WORK SHALL CONFORM TO THE CITY OF REDDING CONSTRUCTION STANDARDS AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.



DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT		
		APPROVED BY		<h2>SEWER MAIN TERMINATION</h2>	
		 CITY ENGINEER 3.20.07			
MARK	DATE	REVISION			

STD. MANHOLE FRAME AND COVER  
(PAGE 364.20 OR PAGE 364.30)  
FINISH GRADE ADJUSTMENT (PAGE 612.00)

CONCRETE COLLAR  
520-C-2500



BACKFILL SHALL BE  
CLASS 'A' IN STREET R/W  
AND CLASS 'C' IN ALL  
OTHER LOCATIONS,  
COMPACTION PER STD  
PAGE 610.00

PRECAST REINFORCED  
CONCRETE RISER SECTIONS.  
BED EACH SECTION IN  
FLEXIBLE JOINT SEALANT  
(SEE NOTE 10)

8" MIN.

POUR AGAINST UNDISTURBED  
SOIL OR FORM. FOR PRECAST  
SEE NOTE 9.

6'-0" SQUARE OR  
6'-0" DIA. MIN.  
(CAST IN PLACE)  
SEE BASE DETAILS  
STD PAGE 363.00

**NOTES:**

1. WHERE MANHOLES ARE NOT LOCATED IN STREETS OR TRAVELED WAY PLACE TOP OF MANHOLE 12" TO 24" ABOVE EXISTING GROUND UNLESS OTHERWISE SHOWN ON PLANS.
2. ALL CONCRETE USED IN MANHOLE SHALL BE PER PAGE 100.00.
3. ECCENTRIC TYPE CONC. CONE SECTION SHALL BE INSTALLED IN PLACE OF CONCENTRIC CONES WHEN DIRECTED BY THE ENGINEER. WHEN ECCENTRIC CONE SECTION IS INSTALLED, THE VERTICAL WALL SHALL BE INSTALLED DOWNSTREAM.
4. PIPE MAY BE LAID THROUGH A LINE MANHOLE EXCEPT WHEN A GRADE OR LINE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN DIAMETERS OF THE UPSTREAM AND THE DOWNSTREAM PIPES OR 0.20 FT. WHICHEVER IS GREATER.
5. PRECAST REINFORCED CONCRETE PIPE SEGMENTS SHALL CONFORM TO ASTM DESIGNATION: C478-70 4" MIN. THICKNESS.
6. PRECAST REINFORCED CONCRETE MANHOLE RISER SECTIONS SHALL BE FORMED WITH MALE AND FEMALE ENDS.
7. WHEN CLAY PIPE IS INSTALLED PIPE SECTION SHALL NOT EXTEND MORE THAN 12" FROM SIDE OF MANHOLE.
8. WHEN ABS PIPE IS USED, THE BARREL OF THE PIPE SHALL BE PRE-PRIMED WITH SOLVENT AND SPRINKLED WITH SAND IN ORDER TO PROVIDE A WATERTIGHT SEAL BETWEEN THE PIPE AND CONCRETE. THIS REQUIREMENT IS IN ADDITION TO THE USE OF THE WATERSTOP.
9. PRECAST CONCRETE BASES MANUFACTURED BY COOK CONC. PRODUCTS OR TEICHERT AGGREGATE OR EQUAL MAY BE USED IN LIEU OF POURED IN-PLACE BASES. SEE STD PAGE 363.00
10. ALL SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT:
  - A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER.
  - A SINGLE BEAD SHALL BE USED IF THE SEALANT IS 1 1/4-INCH OR GREATER DIAMETER.
11. 6'-0" MANHOLES ARE TO BE CONSTRUCTED AT THOSE LOCATIONS WHERE PIPE SIZE IS 30" OR LARGER IN DIAMETER.



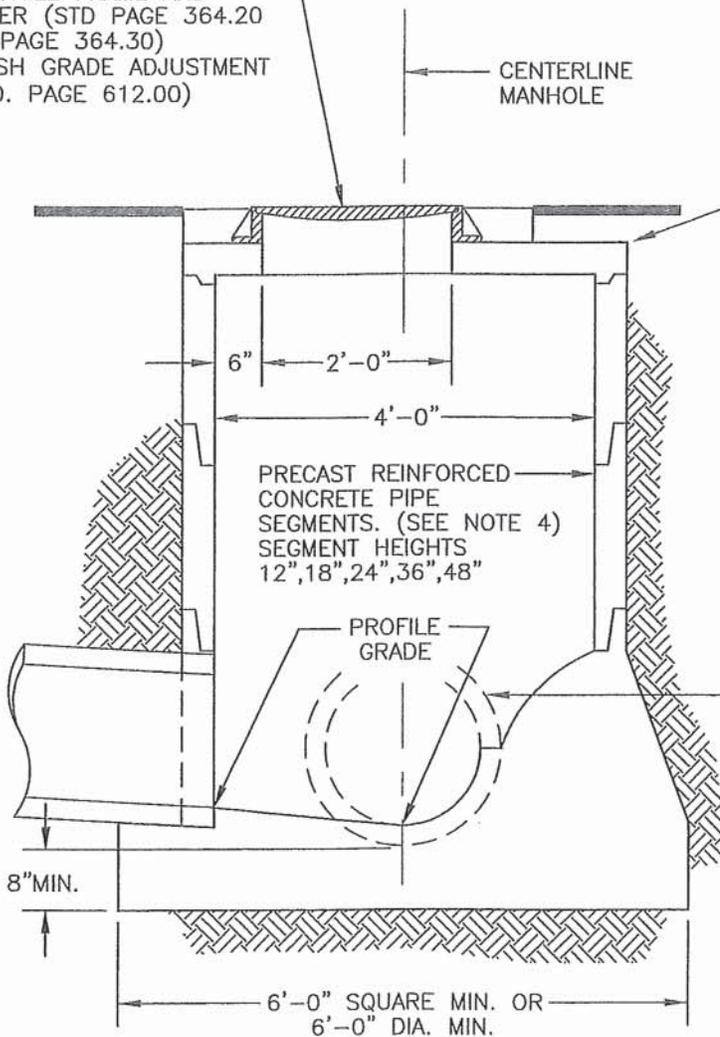
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
MARK	DATE	MOD. NOTE	APPROVED BY	TYPE 1 4 FT. SEWER MANHOLE
			 CITY ENGINEER 3-20-07	
1	4-06			
		REVISION		

**NOTES:**

1. WHERE MANHOLES ARE NOT LOCATED IN STREETS, PLACE TOP OF MANHOLE COVER 12" TO 24" ABOVE FINISHED GRADE UNLESS OTHERWISE SHOWN ON PLANS.
2. ALL CONCRETE USED IN MANHOLE BASE SHALL BE PER PAGE 100.00.
3. PIPE MAY BE LAID THROUGH A "LINE" MANHOLE EXCEPT WHERE A GRADE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN DIAMETER IN THE UPSTREAM AND DOWNSTREAM PIPES OR 0.20 FT., WHICHEVER IS GREATER.
4. PRECAST REINFORCED CONCRETE MANHOLE SECTION SHALL CONFORM TO ASTM DESIGNATION C478 (6" MIN. WALL THICKNESS). SECTIONS SHALL HAVE TONGUE AND GROOVE JOINTS.
5. ALL MANHOLE SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT (KENT-SEAL OR EQUAL). A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER. AND A SINGLE BEAD IF SEALANT IS 1 1/4-INCH OR GREATER IN DIAMETER.
- 1 **6.** 6'-0" MANHOLES ARE TO BE CONSTRUCTED AT THOSE LOCATIONS WHERE PIPE SIZE IS 30" OR LARGER IN DIAMETER.

MANHOLE FRAME AND COVER (STD PAGE 364.20 OR PAGE 364.30)  
FINISH GRADE ADJUSTMENT (STD. PAGE 612.00)

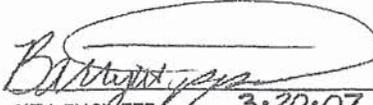
CENTERLINE  
MANHOLE



REINFORCED CONCRETE LID SHALL MEET AASHTO HS20-44 REQUIREMENTS. APPROVAL OF THE LID DESIGN BY THE CITY ENGINEER MUST BE OBTAINED PRIOR TO INSTALLATION.

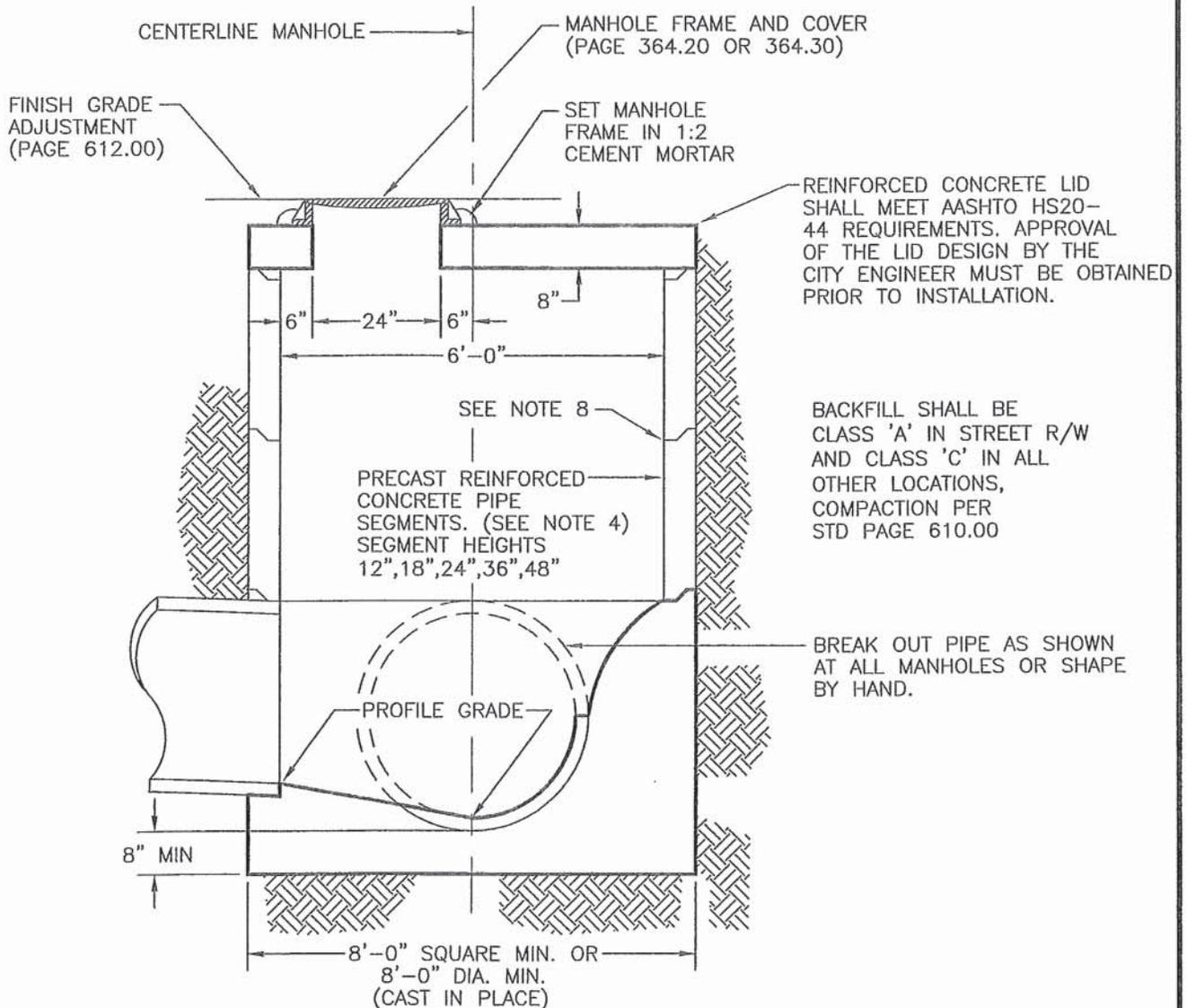
BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'C' IN ALL OTHER LOCATIONS, COMPACTION PER STD PAGE 610.00

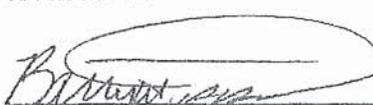
BREAK OUT PIPE AS SHOWN AT ALL MANHOLES OR SHAPE BY HAND.

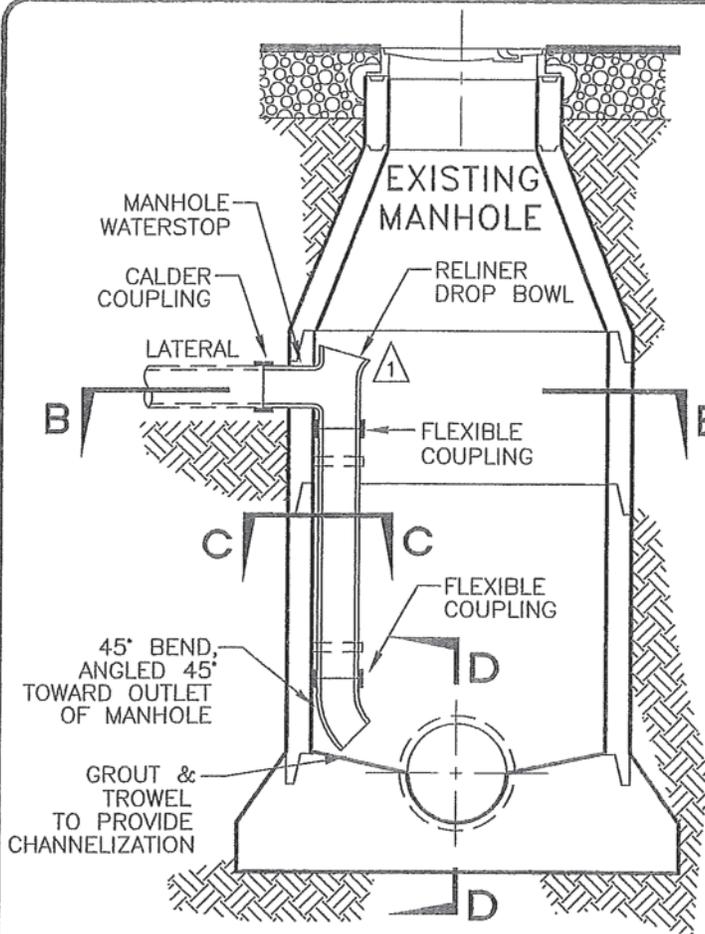
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
1	4-06	ADDED NOTE	APPROVED BY	TYPE 2 4 FT. SEWER MANHOLE
	MARK	DATE	REVISION	
			 CITY ENGINEER 3-20-07	

**NOTES:**

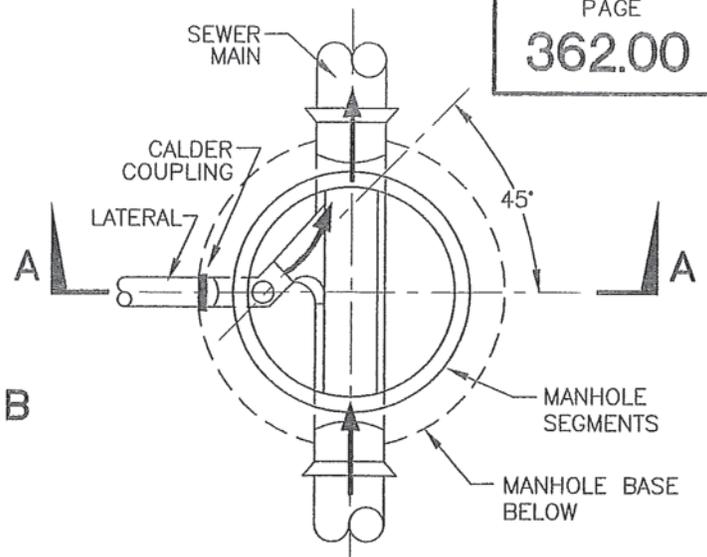
1. WHERE MANHOLES ARE NOT LOCATED IN STREETS, PLACE TOP OF MANHOLE COVER 12" TO 24" ABOVE FINISHED GRADE UNLESS OTHERWISE SHOWN ON PLANS.
2. ALL CONCRETE USED IN MANHOLE BASE SHALL BE PER PAGE 100.00.
3. PIPE MAY BE LAID THROUGH A "LINE" MANHOLE EXCEPT WHERE A GRADE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN THE UPSTREAM PIPES AND THE DOWNSTREAM PIPE OR 0.17 FT. WHICHEVER IS GREATER.
4. PRECAST REINFORCED CONCRETE MANHOLE SECTION SHALL CONFORM TO ASTM DESIGNATION C478 (6" MIN. WALL THICKNESS). SECTIONS SHALL HAVE TONGUE AND GROOVE JOINTS.
5. ALL MANHOLE SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT (KENT-SEAL OR EQUAL). A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER. AND A SINGLE BEAD IF SEALANT IS 1 1/4-INCH OR GREATER IN DIAMETER.
6. 6'-0" MANHOLES ARE TO BE CONSTRUCTED AT THOSE LOCATIONS WHERE PIPE SIZE IS 30" OR LARGER IN DIAMETER.
7. ALL MANHOLE SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT. A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER. AND A SINGLE BEAD IF SEALANT IS 1 1/4-INCH OR GREATER IN DIAMETER.



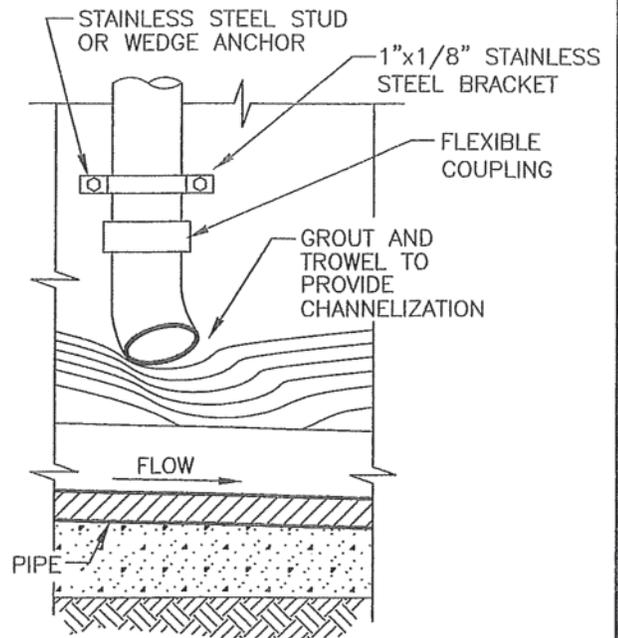
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		<b>STANDARD 6 FT. SEWER MANHOLE</b>
		 CITY ENGINEER 3-20-07		
MARK	DATE	REVISION		



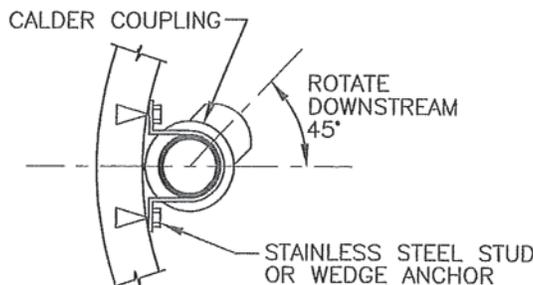
**SECTION A-A**



**SECTION B-B**



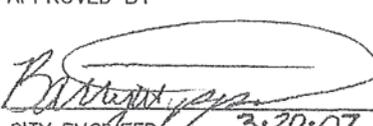
**SECTION D-D**

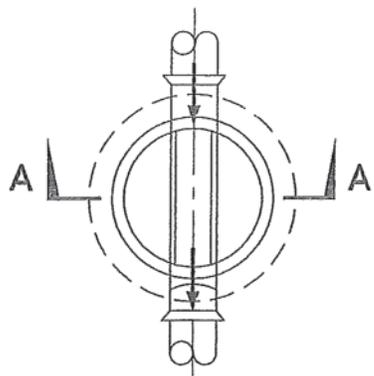


**SECTION C-C**

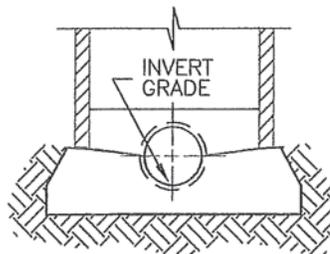
**NOTES:**

1. INSIDE DROP MANHOLES ALLOWED WHEN THE GRADE DIFFERENCE IS 6 FT. OR MORE ON EXISTING FACILITIES AND WITH SPECIAL APPROVALS BY THE CITY ENGINEER.
2. THIS TYPE OF DROP MANHOLE CONSTRUCTION MAY BE UTILIZED ONLY WHEN 8 INCH OR SMALLER PIPE IS USED.
3. VERTICAL PIPE SHALL BE 6 INCH FOR BOTH 6 INCH AND 8 INCH INCOMING LINES. 4 INCH VERTICAL PIPE MAY BE USED FROM 4 INCH INCOMING LINES.
4. ABS SCH 40 DWV PIPE SHALL BE USED IN THE DROP SECTION OF THE MANHOLE.
5. A CALDER COUPLING OR EQUAL SHALL BE USED ON THE JOINT IMMEDIATELY OUTSIDE THE MANHOLE.
6. A MINIMUM OF ONE STAINLESS STEEL BRACKET PER JOINT OF PIPE SHALL BE USED. A MINIMUM OF TWO BRACKETS SHALL BE USED PER MANHOLE INSTALLATION. BRACKET TO BE 1" X 1/8" STAINLESS STEEL ANCHORS PER BRACKET.
7. BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'B' IN ALL OTHER LOCATIONS. COMPACTION PER STD PAGE 610.00.

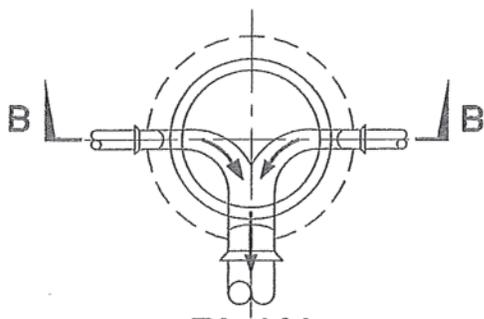
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
△	4-06	EDIT NOTES & DETAIL	APPROVED BY	4 FT. INSIDE DROP MANHOLE
	MARK	DATE	REVISION	
			 CITY ENGINEER 3.20.07	



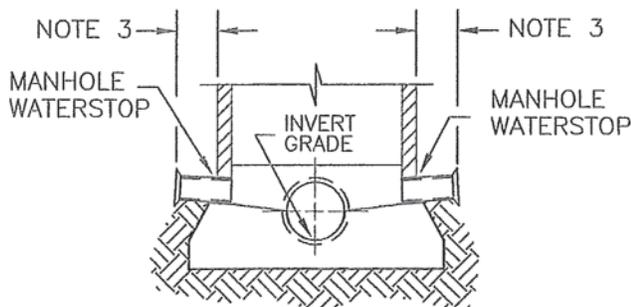
PLAN



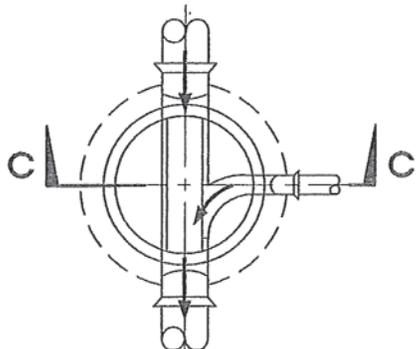
SECTION A-A



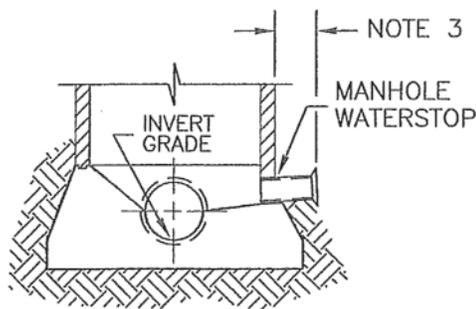
PLAN



SECTION B-B



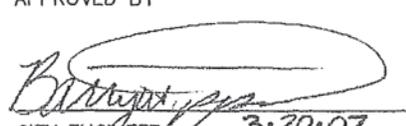
PLAN



SECTION C-C

**NOTES:**

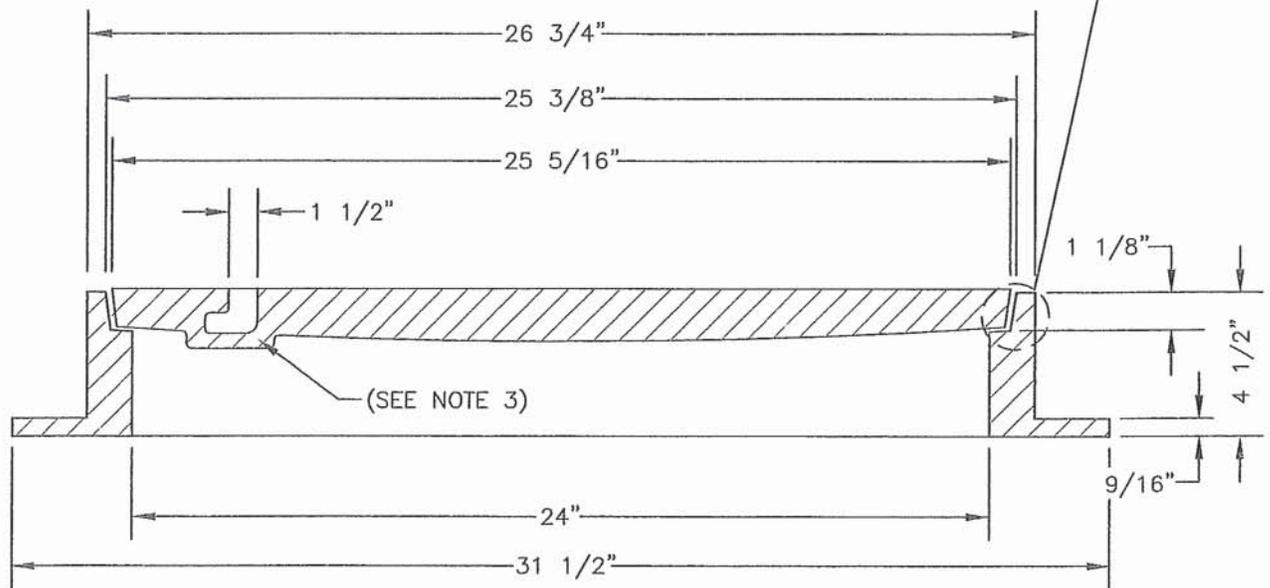
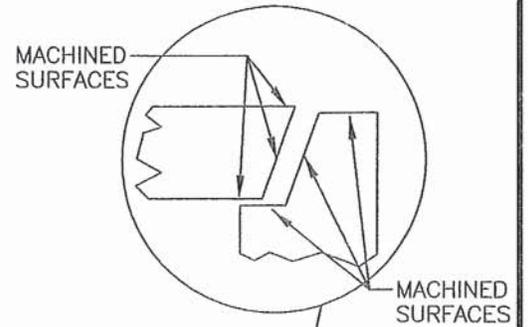
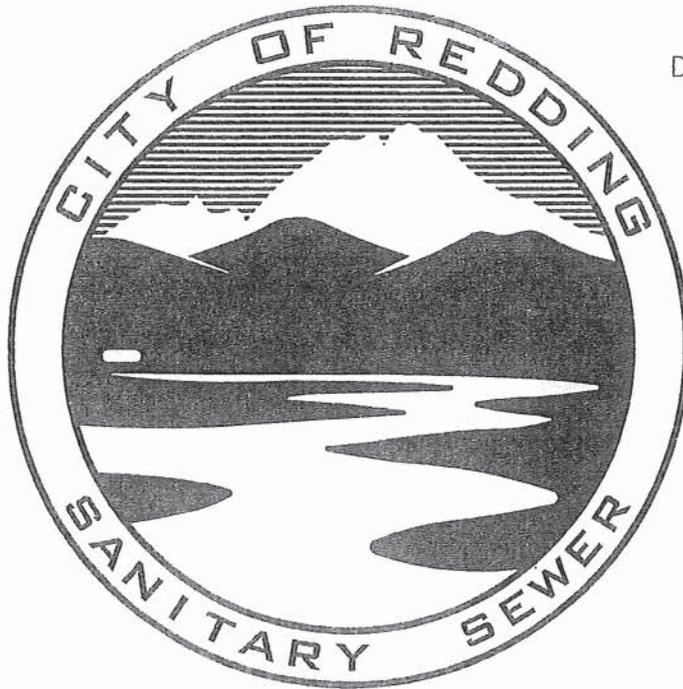
1. ALL CONCRETE USED IN MANHOLE SHALL BE PER PAGE 100.00.
2. PIPE MAY BE LAID THROUGH A LINE MANHOLE EXCEPT WHEN A GRADE OR LINE CHANGE OCCURS. MINIMUM DROP THROUGH ALL OTHER MANHOLES SHALL BE THE DIFFERENCE IN DIAMETERS OF THE UPSTREAM AND THE DOWNSTREAM PIPES OR 0.20 FT. WHICHEVER IS GREATER.
3. WHEN CLAY PIPE IS INSTALLED, PIPE SECTION SHALL NOT EXTEND MORE THAN 12" FROM SIDE OF MANHOLE.
4. WHEN ABS PIPE IS USED, THE BARREL OF THE PIPE SHALL BE PRE-PRIMED WITH SOLVENT AND SPRINKLED WITH SAND IN ORDER TO PROVIDE A WATERTIGHT SEAL BETWEEN THE PIPE AND CONCRETE. THIS REQUIREMENT IS IN ADDITION TO THE USE OF THE WATERSTOP.
5. PRECAST CONCRETE BASES MANUFACTURED BY COOK CONCRETE PRODUCTS OR TEICHERT AGGREGATE OR EQUAL MAY BE USED IN LIEU OF POURED IN-PLACE BASES.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		<p><b>MANHOLE BASE DETAIL</b></p>
		 CITY ENGINEER 3-20-07		
MARK	DATE	REVISION		

ACCEPTABLE  
MANUFACTURERS

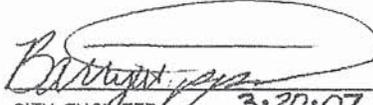
DOMESTIC MANUFACTURER ONLY

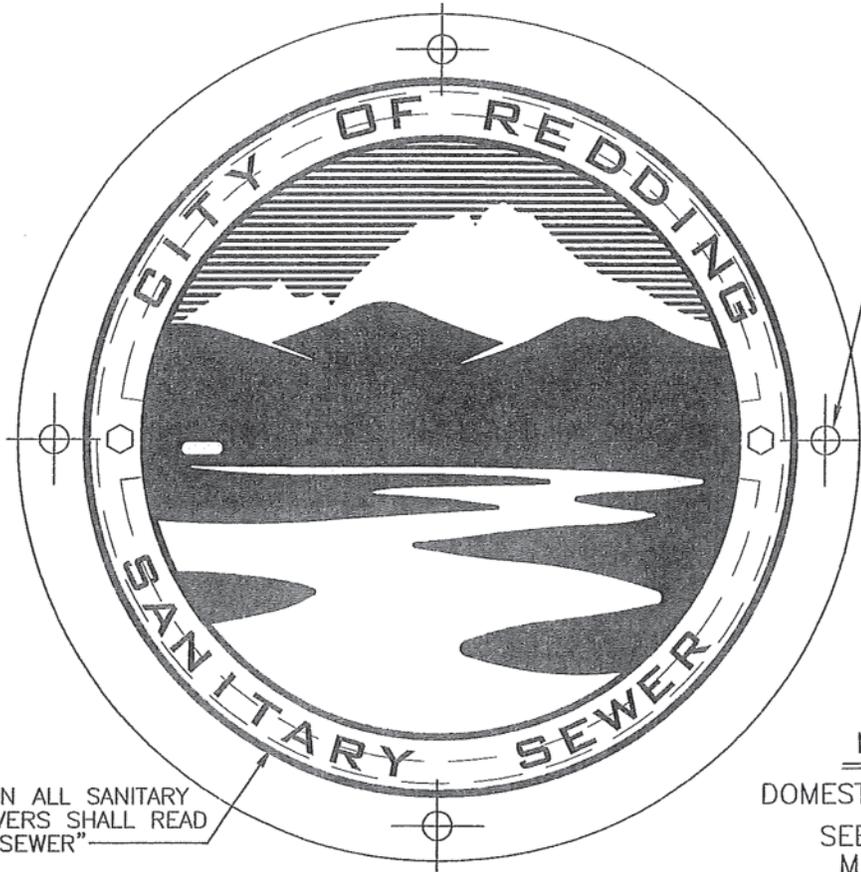
SEE CITY OF REDDING  
MUNICIPAL UTILITIES   
SEWER DEPARTMENT  
(530) 224-6069



NOTES:

1. FRAME AND COVER FULLY MACHINED ON SURFACES AS SHOWN TO PROVIDE NO-ROCK, NO-STICK FIT.
2. STANDARD COVER MARKINGS AVAILABLE: "SANITARY SEWER". CASTING SHALL BE ORDERED WITH THE APPROPRIATE MARKING.
-  3. CASTING SHALL BE FURNISHED WITH CLOSED PICKHOLES.
4. ALL PARTS OF ACCEPTABLE ASSEMBLIES ARE INTERCHANGEABLE.

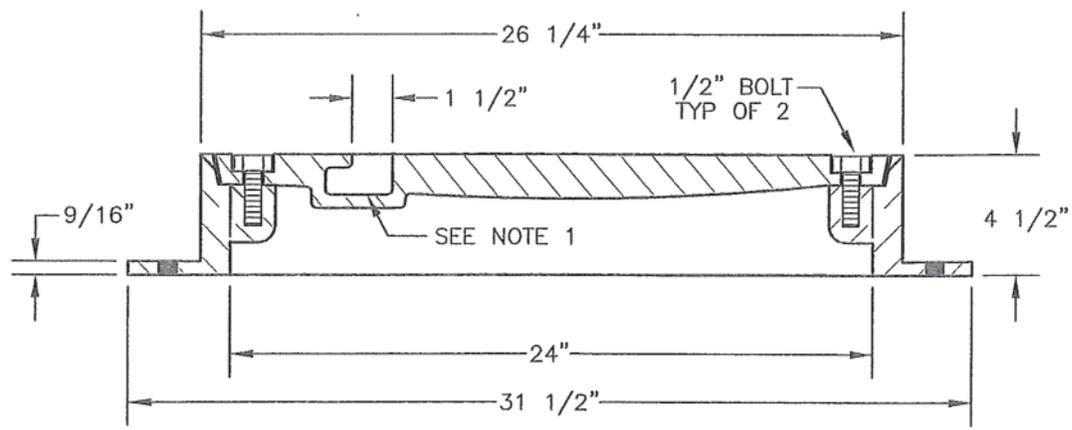
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
	4-06	EDIT NOTES	APPROVED BY	24 INCH SEWER MANHOLE COVER ASSEMBLY (STREET TYPE)
	MARK	DATE	REVISION	
			 CITY ENGINEER 3-20-07	



HOLES FOR 1/2" DIA  
RED HEAD MULTI SET  
DROP-IN ANCHORS OR  
APPROVED EQUAL  
MIN. 2 1/2" EMBEDMENT  
(TYP. OF 4)

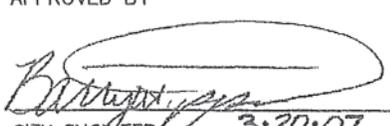
MARKING ON ALL SANITARY  
SEWER COVERS SHALL READ  
"SANITARY SEWER"

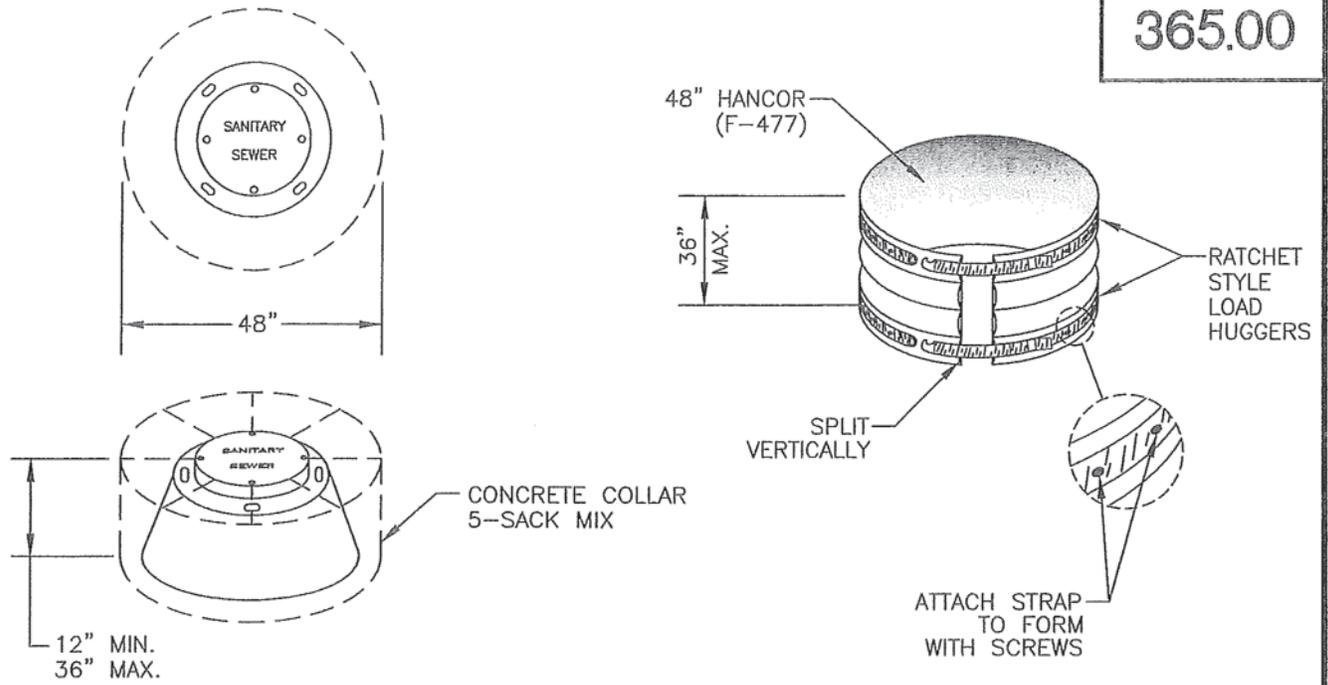
ACCEPTABLE  
MANUFACTURERS  
DOMESTIC MANUFACTURER ONLY  
SEE CITY OF REDDING  
MUNICIPAL UTILITIES  $\triangle$   
SEWER DEPARTMENT  
(530) 224-6069



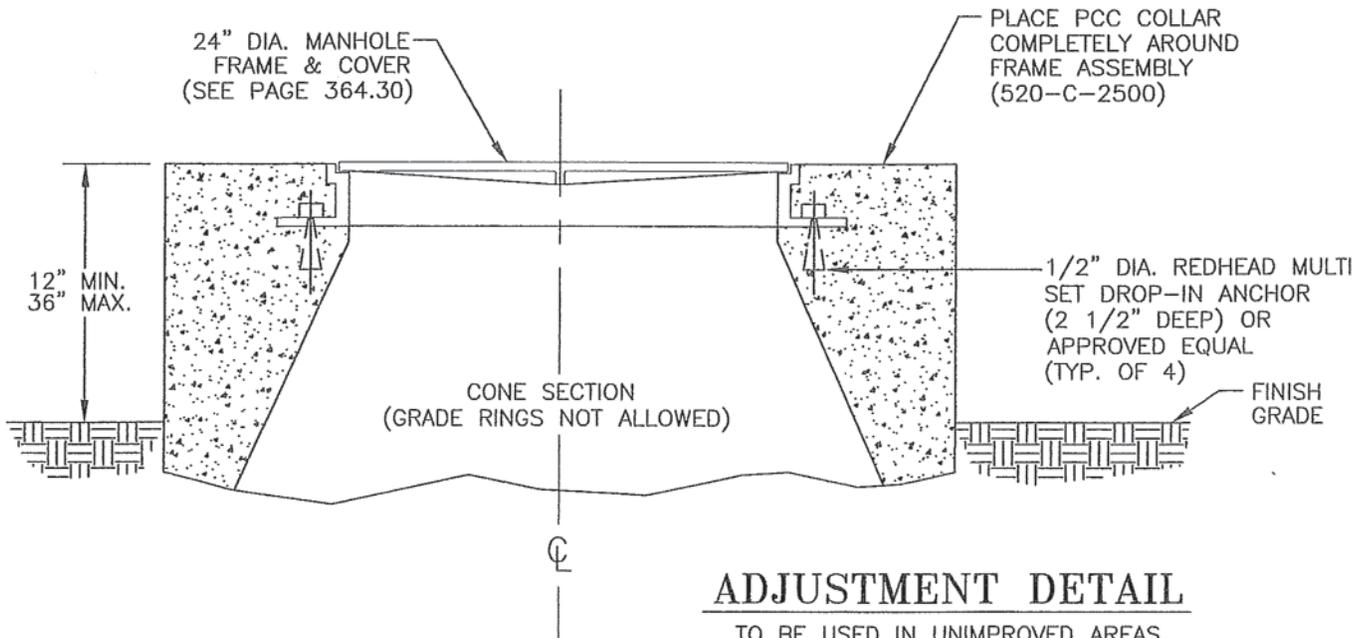
NOTES:

- $\triangle$  1. CASTING SHALL BE FURNISHED WITH CLOSED PICK HOLES.
- $\triangle$  2. ALL PARTS OF ACCEPTABLE ASSEMBLIES SHALL BE INTERCHANGEABLE.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
$\triangle$	4-06	EDIT NOTES	APPROVED BY	SEWER MANHOLE COVER ASSEMBLY- BOLT DOWN
	MARK	DATE	REVISION	
			 CITY ENGINEER 3-20-07	



### CONCRETE BUNKER FORM



### ADJUSTMENT DETAIL

TO BE USED IN UNIMPROVED AREAS  
(SHOWING REQUIRED FRAME ASSEMBLY ANCHORAGE)

**NOTE:**

- FOR SEWER MANHOLE CONST. SEE PAGE 360.00.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
	4-06	NEW STD	APPROVED BY	SEWER MANHOLE ADJUSTMENT DETAILS -UNIMPROVED AREAS-
MARK	DATE	REVISION	CITY ENGINEER <i>[Signature]</i> 3-20-07	

**REQUIREMENT:**

SAND AND SOIL INTERCEPTORS ARE REQUIRED FOR INDUSTRIAL AND COMMERCIAL ESTABLISHMENTS WHERE PRETREATMENT OF WASTEWATER EFFLUENT IS NECESSARY TO CAPTURE SOLIDS (SAND, SILTS ETC.) OR FLOATABLES (OILS ETC.).

THIS STANDARD APPLIES TO ALL NEW CONSTRUCTION, TENANT IMPROVEMENTS, REMODELS, AND EXISTING SYSTEMS WHICH ARE IN NEED OF UPGRADING.

SOI'S WILL BE SIZED FROM INDUSTRY SUBMITTED, CERTIFIED INDUSTRIAL WASTE SURVEY INFORMATION, OR BY CITY FIELD INSPECTION DATA. THE SIZING CRITERIA WILL FOLLOW THE UNIFORM PLUMBING CODE (U.P.C.) APPENDIX 1-9. THE U.P.C. DOES NOT SPECIFY REQUIREMENTS FOR ALL SPECIFIC APPLICATIONS; HOWEVER, THE BASIC FORMULA MAY BE EASILY ADAPTED TO DIFFERING APPLICATIONS OR PARAMETERS.

**SIZING CRITERIA:**

1. PARAMETERS—THE PARAMETERS FOR SIZING SOI UNITS ARE HYDRAULIC LOADING, RETENTION TIME, AND STORAGE FACTOR FOR ONE OR MORE FIXTURES OR INDUSTRIAL APPLICATIONS.
2. SIZING FORMULA—THE SIZE OF THE SOI WILL BE DETERMINED BY USE OF THE FOLLOWING FORMULA:

$$\begin{matrix} \text{NUMBER OF UNITS} & \times & \text{WASTE FLOW} & \times & \text{RETENTION} & \times & \text{STORAGE} & = & \text{INTERCEPTOR SIZE} \\ \text{WASHED PER HOUR*} & & \text{RATE**} & & \text{TIME***} & & \text{FACTOR****} & & \text{(LIQUID CAPACITY)} \end{matrix}$$

\* NUMBER OF UNITS WASHED PER HOUR (I.E., AUTO'S, ENGINES, PARTS, ETC.)

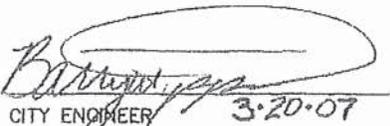
\*\* WASTE FLOW RATE—GALLONS PER UNIT CLEANED (FOR INTERMITTENT USE), OR GALLONS PER HOUR (FOR CONSTANT USE)

\*\*\* RETENSION TIME 2.0 HOURS

\*\*\*\* STORAGE FACTORS—VEHICLE/EQUIPMENT/PARTS, ETC. WASHING

- |   |           |
|---|-----------|
| A. SELF SERVICE/PUBLIC                      | 1.5 HOURS |
| B. EMPLOYEE OPERATED AUTOMATED/COMMERCIAL   | 2.0 HOURS |
| C. OTHER INDUSTRIAL/COMMERCIAL APPLICATIONS | 2.0 HOURS |

THE MINIMUM SIZE SOI ALLOWED BY THE CITY IS 100 GALLONS. ADJUSTMENTS FOR EXTUNUATING CIRCUMSTANCES WILL INCLUDE ESTABLISHMENT OF AN AGREED UPON SOI MAINTENENCE (PUMPING) SCHEDULE, BETWEEN THE FACILITY OWNER/OPERATOR AND THE CITY.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
			APPROVED BY	<b>SAND AND OIL          INTERCEPTORS (SOI)</b>
MARK	DATE	REVISION	 CITY ENGINEER 3-20-07	

**DESIGN:**

ALL NEW CONSTRUCTION AND UPGRADES, WHERE SOI'S ARE REQUIRED SHALL BE CONSTRUCTED TO INCLUDE A SAMPLE MONITORING STATION.

FACILITIES REQUIRED TO INSTALL ON SOI AND/OR SAMPLE MONITORING STATION, SHALL INSTALL UNITS OF APPROVED DESIGNS ON FILE WITH THE CITY'S PUBLIC WORKS CONSTRUCTION STANDARDS. THE USE OF AUXILIARY OR ALTERNATE PRETREATMENT SYSTEMS IN CONJUNCTION WITH OR IN LIEU OF AN SOI UNIT MUST BE APPROVED BY THE CITY'S INDUSTRIAL WASTE DIVISION PRIOR TO INSTALLATION.

STANDARD REV: SEPTEMBER 19, 2003

IF AN EXISTING UNDERSIZED UNIT IS STRUCTURALLY SOUND AND INSTALLED PROPERLY, THEN, IN LIEU OF REPLACING IT WITH A LARGER UNIT, THE OWNER MAY CHOOSE TO INSTALL AN ADDITIONAL UNIT IN SERIES WITH THE EXISTING UNIT TO SATISFY THE TOTAL SIZE CAPACITY REQUIRED.

THE ATTACHED STANDARD SOI DRAWING APPLIES TO UNITS OF 100 THROUGH 1,500 GALLON CAPACITY. UNITS OVER 1,500 GALLON CAPACITY MUST HAVE AT LEAST 3 COMPARTMENTS.

ALL SEALING WITH A FLEXIBLE JOINT SEALANT OF RISERS AND COVER RINGS SHALL BE THE RESPONSIBILITY OF THE OWNER/OPERATOR AND/OR CONTRACTOR. ALL GROUTING OF INTERNAL PLUMBING SHALL BE THE RESPONSIBILITY OF THE CUSTOMER AND/OR CONTRACTOR.

FINAL INSPECTION REQUIRES UNBOLTED MANHOLE LIDS WHICH OPEN FREELY.

ALL REQUIRED SOI'S SHALL BE INSTALLED AND PROPERLY MAINTAINED WITH ALL INTERNAL REQUIRED PLUMBING OF PROPER DESIGN AND LENGTH IN PLACE AT ALL TIMES.

**REQUIREMENT:**

OIL AND GREASE INTERCEPTORS ARE REQUIRED FOR INDUSTRIAL AND COMMERCIAL FOOD ESTABLISHMENTS WHERE PRETREATMENT OF WASTEWATER EFFLUENT IS INDICATED AS NECESSARY TO CAPTURE GREASES, OILS, OR FOOD SOLIDS.

THIS STANDARD APPLIES TO ALL NEW CONSTRUCTION, TENANT IMPROVEMENTS, REMODELS, AND EXISTING SYSTEMS WHICH ARE IN NEED OF UPGRADING.

OGI'S WILL BE SIZED FROM INDUSTRY SUBMITTED, CERTIFIED FOOD PREPARATION FACILITY SURVEY INFORMATION. THE SIZING CRITERIA WILL FOLLOW THE UNIFORM PLUMBING CODE (U.P.C.) APPENDIX H. THE INTERCEPTOR SIZE (IN GALLONS) WILL BE ESTABLISHED BY A FORMULA.

**SIZING CRITERIA:**

1. PARAMETERS—THE PARAMETERS FOR SIZING A GREASE INTERCEPTOR ARE HYDRAULIC LOADING AND GREASE STORAGE CAPACITY, FOR ONE OR MORE FIXTURES.
2. SIZING FORMULA—THE SIZE OF THE INTERCEPTOR SHALL BE DETERMINED BY THE FOLLOWING FORMULA:

$$\begin{matrix} \text{NUMBER OF MEALS} & \times & \text{WASTE FLOW} & \times & \text{RETENTION} & \times & \text{STORAGE} & = & \text{INTERCEPTOR SIZE} \\ \text{PER PER HOUR}^* & & \text{RATE}^{**} & & \text{TIME}^{***} & & \text{FACTOR}^{****} & & \text{(LIQUID CAPACITY)} \end{matrix}$$

\* MEALS SERVED AT PEAK HOUR (OR), TOTAL SEATING CAPACITY

\*\* WASTE FLOW RATE:

- |  |               |
|--|---------------|
| A. WITH DISHWASHING MACHINE            | 6 GALLON FLOW |
| B. WITHOUT DISHWASHING MACHINE         | 5 GALLON FLOW |
| C. SINGLE SERVICE KITCHEN <sup>1</sup> | 2 GALLON FLOW |
| D. FOOD WASTE DISPOSER <sup>2</sup>    | 1 GALLON FLOW |

\*\*\* RETENSION TIMES

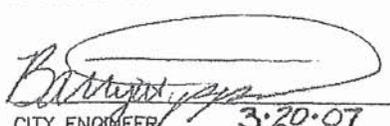
- |                                     |           |
|-------------------------------------|-----------|
| COMMERCIAL KITCHEN WASTE DISHWASHER | 2.5 HOURS |
| SINGLE SERVICE KITCHEN              | 1.5 HOURS |

\*\*\*\* STORAGE FACTORS

- |                                   |                     |
|-----------------------------------|---------------------|
| FULLY EQUIPPED COMMERCIAL KITCHEN | 8 HOUR OPERATION: 1 |
|                                   | 16 HOUR OPERATION 2 |
|                                   | 24 HOUR OPERATION 3 |
| SINGLE SERVICE KITCHEN            | 1.5                 |

<sup>1</sup> FAST FOOD FACILITIES USING ONLY PLASTIC UTENSILS, PAPER PLATES, ETC.

<sup>2</sup> FOOD WASTE DISPOSER ADD 1 TO A, B, OR C.

DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
		APPROVED BY		<b>OIL AND GREASE          INTERCEPTORS (OGI)</b>
		 CITY ENGINEER 3.20.07		
MARK	DATE	REVISION		

THE MINIMUM SIZE OGI ALLOWED BY THE CITY IS 1250 GALLONS. FOR VERY LARGE OGI REQUIREMENTS THE MAXIMUM SIZE REQUIREMENT WILL BE ESTABLISHED ON A CASE BY CASE BASIS. ADJUSTMENTS FOR FACILITIES REQUIRED TO INSTALL ON SOI AND/OR SAMPLE MONITORING STATION, SHALL INSTALL UNITS OF APPROVED DESIGNS ON FILE WITH THE CITY'S PUBLIC WORKS CONSTRUCTION STANDARDS. THE USE OF AUXILIARY OR ALTERNATE PRETREATMENT SYSTEMS IN CONJUNCTION WITH OR IN LIEU OF AN SOI UNIT MUST BE APPROVED

**DESIGN:**

ALL NEW CONSTRUCTION AND UPGRADES, WHERE SOI'S ARE REQUIRED SHALL BE CONSTRUCTED TO INCLUDE A SAMPLE MONITORING STATION. ALL FOOD WASTE DISPOSERS (GARBAGE GRINDERS) SHALL BE CONNECTED TO THE OGI INFLUENT PLUMBING.

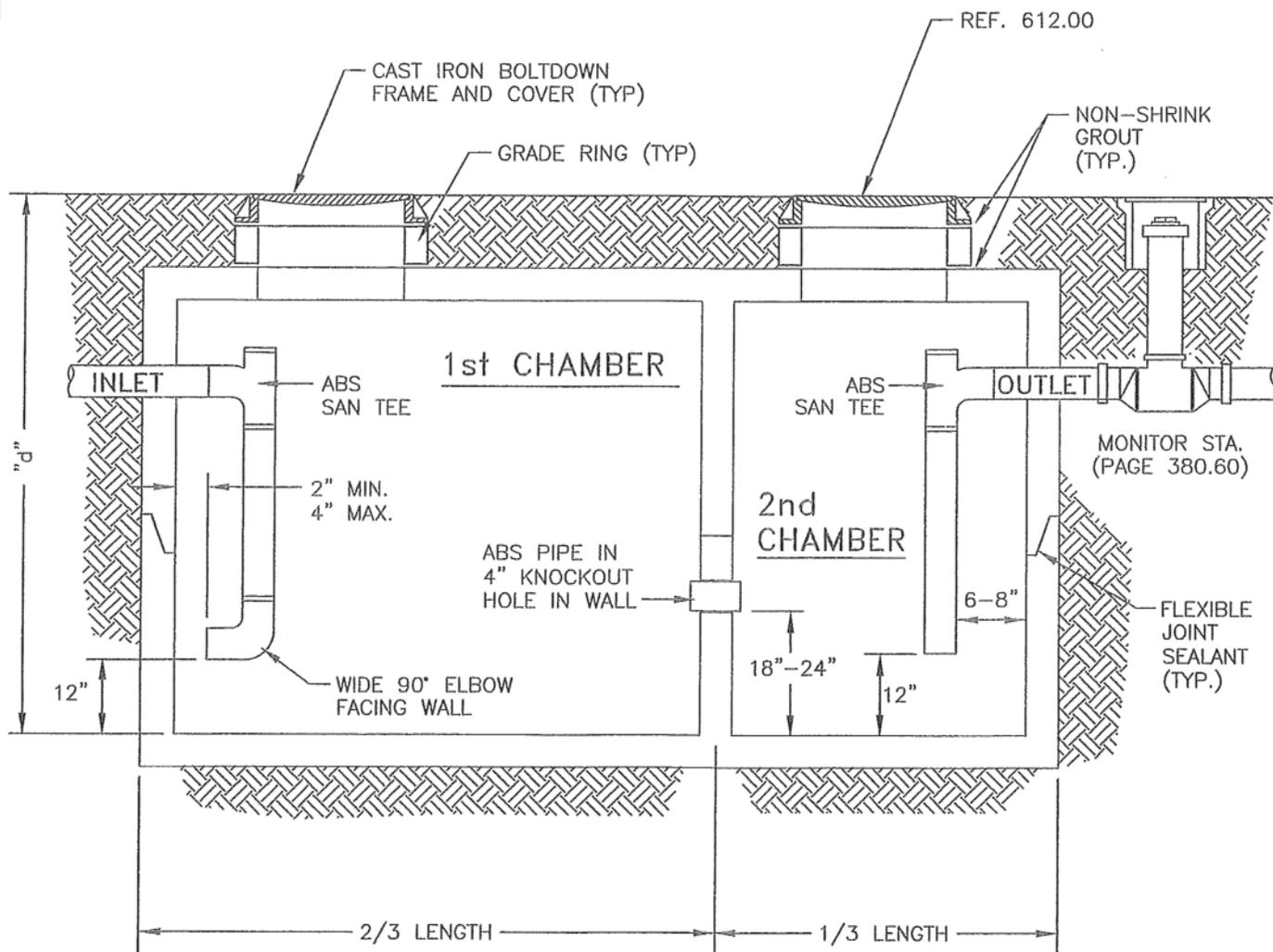
FACILITIES REQUIRED TO INSTALL OGI'S AND/OR SAMPLE MONITORING STATIONS, SHALL INSTALL UNITS OF APPROVED DESIGNS ON FILE WITH THE CITY'S PUBLIC WORKS CONSTRUCTION STANDARDS.

IF AN EXISTING UNDERSIZED UNIT IS STRUCTURALLY SOUND AND INSTALLED PROPERLY, THEN, IN LIEU OF REPLACING IT WITH A LARGER UNIT, THE OWNER MAY CHOOSE TO INSTALL AN ADDITIONAL UNIT IN SERIES WITH THE EXISTING UNIT TO SATISFY THE TOTAL SIZE CAPACITY REQUIRED. IN SUCH CASES THE BAFFLE WALL WITHIN THE EXISTING OGI MUST BE MODIFIED BY SCORING AND CUTTING A CENTERED 24-INCH MAXIMUM SQUARE HOLE IN THE BAFFLE WALL, WHICH BEGINS NO LESS THAN 12-INCHES FROM THE TOP OF THE BAFFLE WALL.

THE ATTACHED STANDARD SOI DRAWING APPLIES TO UNITS OF 100 THROUGH 1,500 GALLON CAPACITY. UNITS OVER 1,500 GALLON CAPACITY MUST HAVE AT LEAST 3 COMPARTMENTS.

ALL SEALING WITH A FLEXIBLE JOINT SEALANT OF RISERS AND COVER RINGS SHALL BE THE RESPONSIBILITY OF THE OWNER/OPERATOR AND/OR CONTRACTOR. ALL GROUTING OF INTERNAL PLUMBING SHALL BE THE RESPONSIBILITY OF THE OWNER/OPERATOR AND/OR CONTRACTOR. FINAL INSPECTION REQUIRES UNBOLTED MANHOLE LIDS WHICH OPEN FREELY.

ALL REQUIRED OGI'S SHALL BE INSTALLED AND PROPERLY MAINTAINED WITH ALL INTERNAL REQUIRED PLUMBING OF PROPER DESIGN AND LENGTH IN PLACE AT ALL TIMES.



**NOTES:**

1. MINIMUM WALL THICKNESS SHALL BE 4".
2. SYSTEMS THAT HAVE THE POTENTIAL OF SUPPORTING VEHICLES OR WHERE VEHICLES CAN BE LOCATED WITHIN DISTANCE "d" FROM THE CHAMBER WALL SHALL BE DESIGNED TO SUPPORT AASHTO HS20-44 LOADING. APPROVAL OF DESIGN MUST BE OBTAINED PRIOR TO INSTALLATION.
3. BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'C' IN ALL OTHER LOCATIONS PER STD PAGE 610.00

DWG DATE: 2-03

SCALE: NTS

CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT

APPROVED BY

*[Signature]*  
CITY ENGINEER 3-20-07

**SAND AND OIL AND  
OIL AND GREASE  
INTERCEPTOR**

SOI AND OGI

MARK

DATE

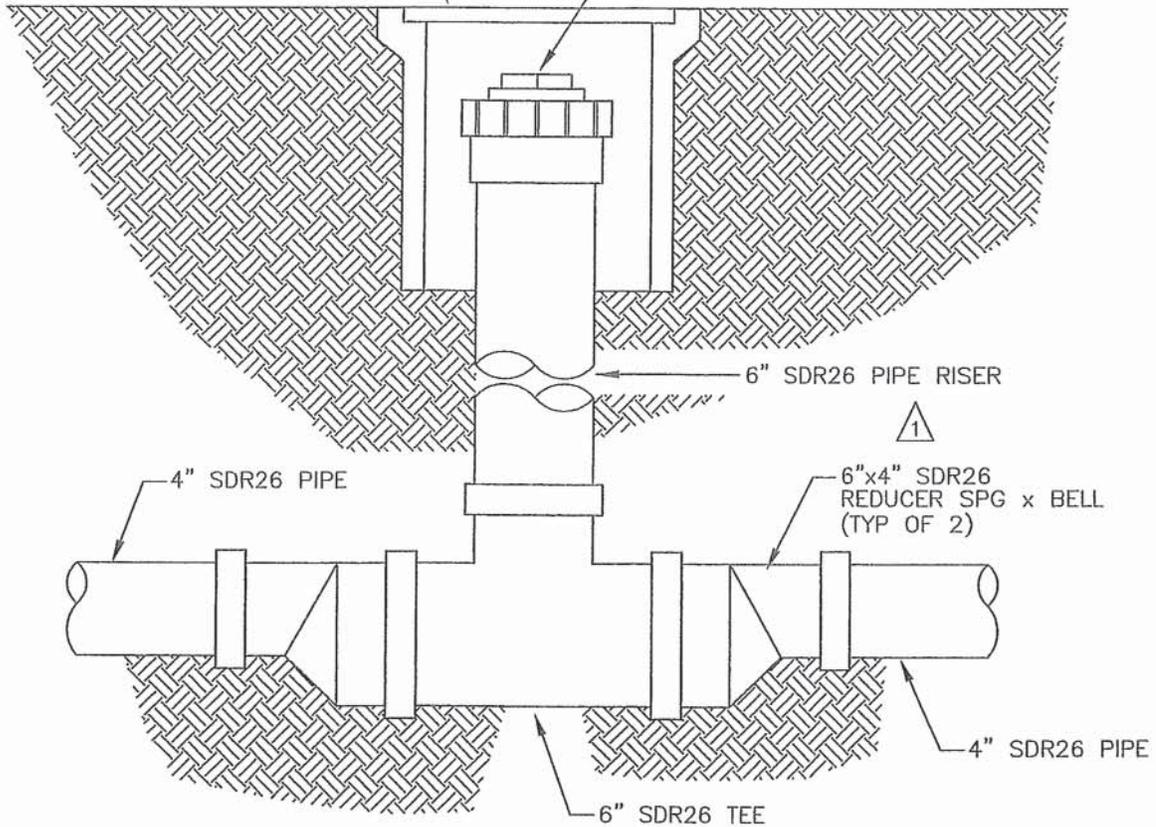
REVISION

**NOTE:**

MONITOR STATION MUST  
BE INSTALLED LEVEL.

G5 CONC BOX WITH LID  
(PROVIDE TRAFFIC LID  
WHEN LOCATED IN  
TRAVELED WAY)

6" FILLER PIPE COLLAR  
WITH 6" PLUG



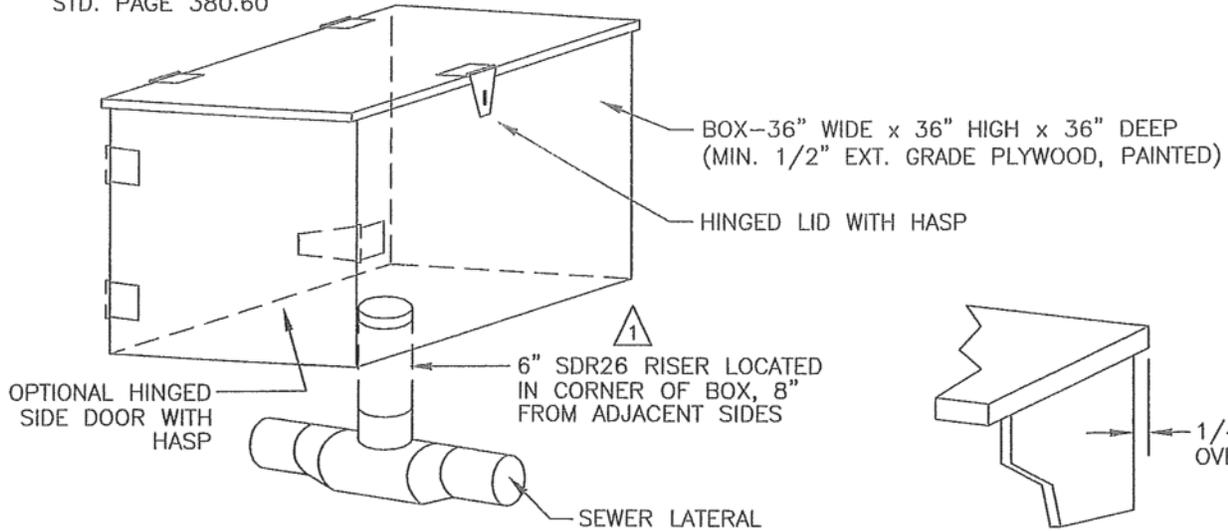
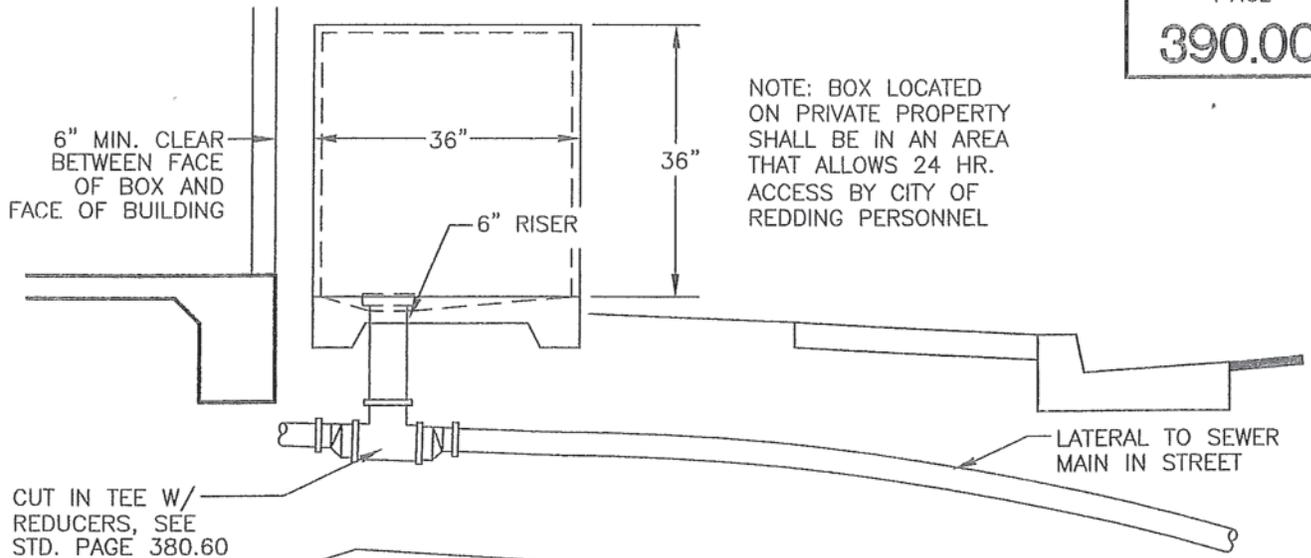
**△ PARTS LIST**

- 6" SDR26 TEE ————— 1 EA
- 6"x4" SDR26 REDUCER ——— 2 EA  
(SPG x BELL)
- 6" FILLER PIPE COLLAR ——— 1 EA
- 6" PLUG ————— 1 EA
- G5 CONCRETE BOX ————— 1 EA
- G5 SEWER LID ————— 1 EA

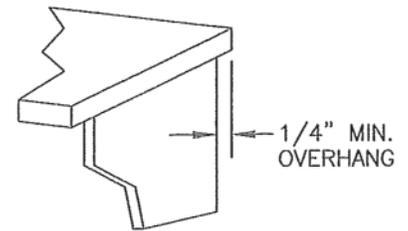
**IF REQUIRED**

- 4" ABS COUPLING ————— 1 EA
- 4" ABS x SDR BUSHING ——— 1 EA

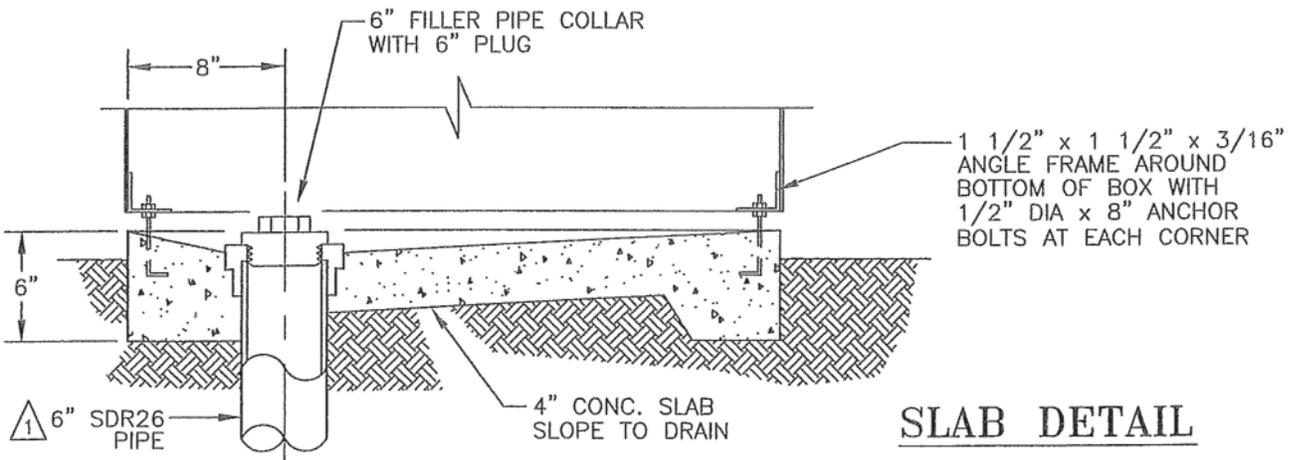
DWG DATE: 2-03		SCALE: NTS	CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT	
△ MARK	4-06	EDIT DETAIL	APPROVED BY	INTERCEPTOR MONITOR STATION
	DATE	REVISION	<i>[Signature]</i> CITY ENGINEER 3-20-07	



**BOX DETAIL**



**LID DETAIL**



**SLAB DETAIL**

DWG DATE: 2-03

SCALE: NTS

CITY OF REDDING • TRANSPORTATION & ENGINEERING DEPARTMENT



4-06

EDIT DETAIL

APPROVED BY

*[Signature]*  
CITY ENGINEER 3.20.07

**ABOVE GRADE  
WASTEWATER  
MONITORING STATION**

MARK

DATE

REVISION

# Appendix E

## SSO Reporting Flowchart

# REPORT OF SANITARY SEWER OVERFLOW OR LIFT STATION EQUIPMENT ALARM



Appendix F  
Public Health Warning Sign

# **WARNING**

**This area and waters  
may be contaminated by  
sewage.**

**Contact is not advised  
with these waters due to  
the increased risk of  
illness.**

**City of Redding  
Wastewater Division  
530-224-6069**



# Appendix G

## Performance Indicators

## SSMP PERFORMANCE INDICATORS

<b>Indicator</b>
<u>Number of SSOs (by season)</u>
Wet Season (October-May)
Dry Season (June-Sept)
<u>Number of SSOs (by volume)</u>
<10 gal
10 - 99 gal
100 - 999 gal
≥ 1000 gal
<u>SSO Volume</u>
Total
Recovered
<u>Number of SSO (by cause)</u>
Blockages
Roots
Grease
Debris - General
Debris - Rags
Debris from Laterals
Vandalism
Construction Debris
Multiple Causes
Other
Infrastructure Failure
Inflow & Infiltration
Electrical Power Failure (lift stations)
Flow Capacity Deficiency
Natural Disaster
Bypass
Cause Unknown
<u>Number of SSOs per mile of sewer per year</u>
<u>Volume of SSOs per 1,000 capita per year</u>
<u>Maintenance Activities</u>
Televised Inspection
Hydrocleaning
Manhole Inspection

Appendix H  
Agency Notification  
Instructions

# AGENCY NOTIFICATION INSTRUCTIONS

## Sanitary Sewer Spills

For all sanitary sewer overflows (SSOs) discharged from or caused by a failure of the City's system, a Sewer Spill Report must be completely filled out by responding staff. This includes any field notes, photos, info from landowners/neighbors/public, or pertinent emergency info listed at bottom of this page. In addition, complete the following notification procedures:

- **Category 1 SSOs-**

- 1- SSOs of any volume that reach surface water, or;
- 2- SSOs of any volume that reach the storm drain system and are not fully captured and disposed of.

For all Category 1 SSOs, contact Vandiver/Hollingsworth/Bostick and if necessary the other supervisors below.

- ❖ **If 1,000 gallons or more reaches surface water, or is discharged to a location where it probably will reach surface water**, notifications must be made to regulators. If a supervisor cannot be reached, staff must complete notification. Notify the California Office of Emergency Services (number on reverse) as soon as possible but no later than 2 hours after City staff learn of the SSO and notification can be made without substantially impeding cleanup or emergency measures. Make sure to obtain a CalOES notification number.
- **All other SSO's:** Call the supervisors listed below if necessary. Give completed Sewer Spill Report to a supervisor so that SSO reporting can be started.

NAME	OFFICE PHONE	CELL PHONE	24 HOUR	24 HOUR CELL
Josh Vandiver	530-224-6069	530-209-1012		530-209-1012
Steve Hollingsworth	530-224-6070	530-356-4622		
Alex Bostick	530-224-6070	530-941-2541		
Josh Keener	530-224-4122	530-524-2420	530-247-0174	530-524-2420
Ryan Bailey	530-224-6030	530-200-4912		530-200-4912

### **EMERGENCY INFO REQUIRED FOR SSO's AND HAZ MAT INCIDENTS**

Obtain as much information as possible about an SSO or hazardous material release and report to the appropriate agencies as listed on the back of this sheet, including the following information:

- Your name, organization, and telephone number and the location/address of incident
- Name and address of the party responsible for the incident (if known)
- Date and time of the incident, including date and time incident response ends
- Pictures of incident site, response efforts, impacted area, etc. if at all possible
- Source and cause of the release or spill and whether surface water or drainage channel was affected
- Type and quantity of material(s) released or spilled, including volume recovered if incident is a SSO
- Danger or threat posed by the release or spill, to human health or the environment
- Weather conditions at the incident location
- Name of carrier, vessel, railcar, truck number, or other identifying information
- Whether an evacuation has occurred
- Other agencies notified or about to be notified
- Any other information that may help emergency personnel respond to incident
- If CalOES is notified, obtain and document a CalOES incident number

**MAINTAIN A LOG BOOK OF ALL: CALLS, CONTACTED PERSONS' NAMES, CONVERSATIONS, TIMES, OBSERVATIONS, ANY INCIDENT NUMBERS THAT ARE ASSIGNED, OTHER RELATED INFORMATION, ETC.**

**THE TABLE BELOW LISTS THE AGENCIES REQUIRED TO BE NOTIFIED IN A GIVEN INCIDENT TYPE:**

CONDITION	AGENCY													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Category 1- Sewage spill > or = 1000 gallons (Category 1)	X	X	X		X									
Category 1- Sewage spill < 1000 gallons with threat to health or affecting surface water or drainage channel (Category 1)	X	X	X								X			
Spill entering storm water conveyance system and not fully recovered (Category 1)	X		X		X								X	
Chlorine release > 10 lbs	X	X	X		X	X	X	X		X	X			
Chlorine release < 10 lbs		X	X		X									
Sulfur Dioxide release > 500 lbs	X	X	X		X	X	X	X		X	X			
Sulfur Dioxide release < 500 lbs		X	X		X									
Prohibited conditions that impact Waters of the State		X	X								X			
Prohibited conditions that impact State roadway (reportable quantity)		X		X	X									
Incident resulting in property damage									X					
Railroad HazMat (spills/incidents involving railroad property)												X		
Spill in proximity to Bella Vista Water District intake near North Market Street Lift Station														X

	Agency	Phone/Website	Contact	Email/notes
1	California Office of Emergency Services Emergency (CalOES)	1-800-852-7550		
2	CV Regional Water Quality Control Board  HAZ MAT to storm drain	530-224-4845/224-4993 <a href="http://ciwqs.waterboards.ca.gov/">http://ciwqs.waterboards.ca.gov/</a>	Stacy Gotham Bryan Smith  George Day	<a href="mailto:sgotham@waterboards.ca.gov">sgotham@waterboards.ca.gov</a> <a href="mailto:bsmith@waterboards.ca.gov">bsmith@waterboards.ca.gov</a>  <a href="mailto:gday@waterboards.ca.gov">gday@waterboards.ca.gov</a>
3	Shasta County Environmental Health CUPA - HAZ MAT	530 225-5787 (call SHASCOM 245-6550 on weekends)	Mark Cramer  Jim Whittle	<a href="mailto:mcramer@co.shasta.ca.us">mcramer@co.shasta.ca.us</a>  <a href="mailto:jwhittle@co.shasta.ca.us">jwhittle@co.shasta.ca.us</a>
4	Cal Trans (for highways)	530-225-3066	Carl Snibbe	<a href="mailto:carl_snibbe@dot.ca.gov">carl_snibbe@dot.ca.gov</a>
5	RMU Field Ops 7 AM-4:30 M - F	530-224-6068		
6	City of Redding Haz Mat, SCHMIRT, Highway Patrol	911		Local Emergency Response Agencies
7	National Response Center	800-424-8802		Only if hazmat > reportable quantity: 10 lbs chlorine, 500 lbs sulfur dioxide; report <b>within 15 minutes</b>
8	Department of Toxic Substances Control (DTSC)	510-540-2122		Notify within 15 days, then again when cleaned up
9	City of Redding Risk Mgmt	530-225-4387/ 524-2626	Chris Carmona	<a href="mailto:ccarmona@ci.redding.ca.us">ccarmona@ci.redding.ca.us</a>
10	Shasta Co. Air Quality	530-225-5674	Ross Bell	<a href="mailto:rebell@co.shasta.ca.us">rebell@co.shasta.ca.us</a>
11	California Dept of Fish and Wildlife	530-225-2300		
12	Union Pacific Response Management Center (RMCC)	888-877-7267 24 hour 916-789-5241 admin	Benjamin Salo	<a href="mailto:brsalo@up.com">brsalo@up.com</a>
13	Redding Storm Drain Utility	530-245-1111/410-2195	Answering Service (John Stacher or standby #)	Request on-call Storm Drain crew
14	Bella Vista Water District (BVWD)	530-241-1085	Answering Personnel	Note proximity of spill to BVWD water intake near North Market Street Lift Station

Revised 2/2015

**City of Redding Wastewater Collections  
Spill Response  
Standard Operating Procedures**

1. Key information/notes required:
  - a. Time call received
  - b. Time of arrival on scene
  - c. Approximate gpm and amount of spill
  - d. Time stoppage relieved and cause
  - e. Any contact with storm drain or waterway
  - f. Status of cleanup (including volume returned or uncaptured)
  - g. When possible, speak with reporting person, nearby residents/businesses, etc. to determine as accurately as possible when discharge began.
  
2. Immediate action to be taken:
  - a. Prevent contamination of waterways by whatever means necessary
  - b. Evaluate and relieve stoppage
  - c. Take pictures of discharge, extent of effected area, cleanup measures, etc.
  
3. Notifications required:
  - a. Josh Vandiver - Supervisor: 530-209-1012/530-275-5607
  - b. If needed, contact the following:
    1. Josh Keener - Compliance: 530-524-2420
    2. Ryan Bailey - Manager: 530-200-4912
    3. Chris Carmona - Risk Management: 530-524-2626
    4. Matt Cervenka - Storm Drains: 530-339-0284
    5. Tracy Wyhlikdo - Industrial Waste: 530-356-4623
  
4. Coordinating efforts:
  - a. Evaluate assistance level required and call for backup. Examples:
    1. Personnel
    2. Equipment (pumps, sandbags, Vac Con, dechlorinator/diffuser, etc.)
    3. Contact Storm Drains in the event of contact with their system
    4. Contact Industrial Waste if commercial/industry involved or surface waters are effected.
  
5. Cleanup procedures and follow-up required:
  - a. Flush and pump
  - b. Erosion control if needed
  - c. Post public health warning signs if surface waters are contacted
  - d. Take pictures of completed cleanup
  - e. Make sure effected customer is informed and satisfied. Provide contact information for Chris Carmona and Josh Vandiver.
  
6. Detailed report with pictures/all notes turned in to Working Foreman's office.
  
7. Provide follow-up recommendations:
  - a. TV mainline
  - b. Sampling areas
  - c. Locations of signs
  - d. Repairs needed

# Appendix I

## Revision Record

## Sewer System Management Plan (SSMP) Revision Record

<b>Section Revised</b>	<b>Page Revised</b>	<b>Date</b>	<b>Revised By</b>
Appendix A- Org. Chart	Organization Chart	6/17/2011	JK
Appendix B- Employee Contact Info- During Work Hours	Contact Info. Chart	6/17/2011	JK
Appendix C- Employee Contact Info- After Hours	Contact Info. Chart	6/17/2011	JK
Appendix D- 24-hr Contact Info for Equipment and Materials	24-hour Equipment and Material Contacts	6/17/2011	JK
Appendix E- CoR Design Standards	Added Standards Pages 300.80, 301, 302, 350, 360, 360.10, 361, 362, 363, 364.20, 364.30, 365, 380, 380.10, 380.40, 380.60, 390	6/17/2011	JK
Appendix F- SSO Reporting Flowchart	Flowchart	6/17/2011	JK
Appendix I- Agency Notification Instruction and Spill Response SOP	Agency Notification Sheet	6/17/2011	JK
Appendix J- Revision Record	Added Appendix J	6/17/2011	JK
Section VI - Overflow ERP	Entire section revised	6/5/2013	JK
Appendix A- Org. Chart	Organization Chart	6/5/2013	JK
Appendix B- Employee Contact Info- During Work Hours	Contact Info. Chart	6/5/2013	JK
Appendix C- Employee Contact Info- After Hours	Contact Info. Chart	6/5/2013	JK
Appendix H-Performance Indicators	Performance Indicators Form	6/5/2013	JK
Appendix I- Agency Notification Instruction and Spill Response SOP	Agency Notification Sheet	6/5/2013	JK
Appendix A- Org. Chart	Organization Chart	6/17/2015	JK
Appendix B- Employee Contact Info- During Work Hours	Contact Info. Chart	6/17/2015	JK
Appendix C- Employee Contact Info- After Hours	Removed Appendix	6/17/2015	JK
Section XII – Contact Phone Numbers	Added Section XII	6/07/2017	JK
Section II – Organization	Revised job titles, duties	6/07/2017	JK
Section IV – Operation and Maintenance	Revised throughout	6/07/2017	JK
Section VI – Overflow Response	Revised throughout	6/07/2017	JK
Section VIII – Capacity Assurance Plan	Revised throughout	6/07/2017	JK