TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

LIST OF APPENDICES

TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

APPENDIX A

SSMP Responder List

Employee	Title	Personal Phone #	TSD Mobile #
Babb, Kellen	Laborer	913-6172	
Bergeron, Sarah	Senior Engineer	412-3924	913-0232
Bourque, Jeremy	Laborer	(775) 685-4335	
Brooks, Herb	C/S Maintenance Worker II	550-1127	
Brown, Raymond	District Engineer	(775) 782-7285	913-0006
Clifton, Ryan	C/S Maintenance Worker II	412-3406	
Dicey, Gordon	C/S Maintenance Supervisor	587-7322	913-0004
Donchez, Mike	Lift Station Maintenance Worker II	(775) 746-4814	
Golder, Steve	Field Inspector II	(775) 345-2100	913-0009
Graham, Jim	Lift Station Maintenance Supervisor	587-3273	913-0002
Harrigan, Kurt	C/S Maintenance Worker II	(775) 843-1103	
Lopez, René	Lift Station Maintenance Worker I	448-9215	
Miracle, Bret	Field Inspector II	448-0145	913-0010
Raber, John	C/S Maintenance Supervisor	587-1225	913-0003
Ruge, Matt	C/S Maintenance Worker II	(775) 622-8436	
Sundale, Eric	C/S Maintenance Supervisor	913-8548	913-0005
Tresan, Blake	General Manager	550-2998	913-0013
Vickers, Kyle	C/S Maintenance Worker I	448-6005	
Vickers, Myles	C/S Maintenance Worker I	448-1121	
Walters, Morgan	C/S Maintenance Worker I	277-4358	
White, Mike	Field Inspector II	414-8106	913-0008
Wright, Lee	Superintendent	994-1098	913-0014

TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

APPENDIX B

TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

APPENDIX D

7. INSTALLATION OF SANITARY SEWER FACILITIES

7.01 Connection Policy

Connection of any residential or commercial structure to the District collection system is not authorized until the following conditions are met:

- An Application for Sewer Permit shall be completed and filed with the District as outlined in Sections 4 and/or 5, as appropriate.
- A seal cap deposit is paid to the District in the amount specified by Appendix A-1, page 65.
- The building lateral and corresponding sanitary sewer facilities must be installed, backfilled, and pressure tested in accordance with District Code requirements, which include
  - A visual inspection of the pipeline prior to backfilling (see Section 7.10)
  - An initial pressure test after backfilling (see Section 7.14).
- The building lateral must be sealed with a District furnished seal cap and numbered seal. ***Important, see Section 7.03, District Seal Cap, page 28 concerning removal of the numbered seal and seal cap!***
- The location of the seal cap shall be reasonably accessible by District personnel. Seal caps which are unreasonably obstructed by construction debris, structural features, or lack of space will not be removed until accessibility is improved.
- The seal cap shall not to be removed from the building lateral until the following conditions are met:
  - The building lateral has passed a second pressure test and been televised (Section 7.15). The second pressure test and television inspection will not be allowed until the property has passed the Final Grading Inspection from the Town or appropriate County Building Department. The cost of the second pressure test and television inspection is the responsibility of the owner and must be witnessed by a District Inspector.
  - The structure has passed the Drywall Nailing Inspection from the Town or appropriate County Building Department.
  - All test/flush water is removed from the building waste piping and disposed of to an area other than the sanitary sewer.

Property owners seeking a temporary certificate of occupancy prior to the completion of all the above steps must request a variance from the District in writing. Said request will be reviewed by the General Manager. Approval or rejection shall be at the General Manager's discretion on a case-by-case basis.

Winter Construction requirements, if applicable, shall be completed as outlined in Section 3.03, Sanitary Sewer Installation, page 7.

7.02 Preliminary Sewer Lateral Inspection Program

In certain situations the owner, or their agent, of a single family residential unit structure may choose to install the building lateral and corresponding sanitary sewer facilities before issuance of the Town of Truckee Building Permit and District Sewer Permit, as outlined in Section 4.02, Application for Sewer Permit, page 13.

Under this option, the building lateral and corresponding sanitary sewer facilities may be installed, backfilled, and inspected for an initial pressure test if the District is in receipt of a signed Preliminary Lateral Inspection Agreement which requires the additional following conditions are met by the owner or their agent:

- Provides an issued Utility Permit from the Town of Truckee
- Provides a site plan that shows sewer connection point and location of building sewer lateral, driveway location, elevation and invert elevation of house clean out and property line connection, and location of other underground utilities
- Understands obligation to reinstall lateral if approved building plans require alteration of the lateral and agree not to request a variance
- Makes payment of Inspection Fee
- Makes payment of Utility Permit Deposit (deposit will be used by TSD to disconnect building lateral at the property line if a Building Permit is not provided to the District within 90 days. Time limit may be modified on a case-by-case basis at the discretion of the General Manager.)

7.03 District Seal Cap

The installation of a numbered seal cap by District personnel is required to prevent debris and unmonitored flows from entering the sanitary sewer system.

User fees will begin upon removal of the seal cap by District personnel. See Section 7.01, Connection Policy, page 27 for conditions required prior to the removal of the seal cap by District personnel.

WARNING: ONLY TRUCKEE SANITARY DISTRICT PERSONNEL ARE AUTHORIZED TO BREAK THE NUMBERED SEAL AND REMOVE THE SEAL CAP.

If the District seal is broken, and/or the seal cap removed, the sewer lateral must be retested before final approval is given. Any tampering with the District numbered seals or any unauthorized seal cap removal will be subject to a charge of **$500.00** as specified in Appendix A-1, page 65. **This charge is strictly enforced.**

Each seal cap is equipped with a numbered seal and instructions warning of its unauthorized removal.

WARNING DO NOT REMOVE
UNAUTHORIZED REMOVAL SUBJECT TO
$500.00 CHARGE
FOR REMOVAL PLEASE CALL
TRUCKEE SANITARY DISTRICT
(530) 587-3804

It is the owner or their agent's responsibility to contact the District to schedule removal of the seal cap by an authorized agent of the District.

In the event the sanitary sewer facilities have not been approved within the time period of the permit, and an extension of the permit is not requested, the owner will forfeit their seal cap deposit. The sewer lateral may be disconnected from the sewer main as deemed necessary by the District. If the sewer is disconnected, a retest of the building lateral will be required before re-connection. Additional inspection fees will be required.

If for any reason the Application for Sewer Permit is canceled prior to the final connection, the sewer pipeline shall be disconnected, either by the owner or their agent or the District. If the District disconnects the lateral, the owner or their agent will be charged for all work incurred by the District for said disconnection. Such charges will be deducted from any funds remaining with the District.

7.04 Responsibility for Building Lateral Installation

It shall be the responsibility of the owner, or their agent, to install all building lateral pipelines and appurtenances from and within the premises of the owner, or their agent, to the service connection pipeline provided by the District.

Unless otherwise agreed by the District, all building lateral pipelines and related appurtenances within the premises of the owner, or their agent, shall be installed at the owner's or their agent's expense.

7.05 Size and Type of Building Laterals

Building lateral pipelines connecting to the District's sewerage works shall meet the requirements listed below and the criteria listed in Appendix A-5, page 73, and Appendix A-6, page 75.

Residential Building Laterals: The diameter of gravity building laterals shall not be less than the pipeline diameter exiting the structure, or less than 4 inches for a single residence or two residences. A 6-inch diameter pipeline or larger shall be used for more than two dwelling units.

Commercial Building Laterals: The minimum pipeline diameter for new gravity building laterals shall not be less than 6 inches. Existing 4-inch building laterals proposed for commercial use shall be tested in accordance with Section A-6.10, page 107. If the existing 4-inch building lateral fails the test, the entire 4-inch pipeline shall be removed or abandoned and the commercial building lateral shall be upgraded to a 6-inch diameter pipeline.

Appropriate fittings shall be used in connecting to the service connection provided by the District. On double sewer services, both wyes shall be uncovered prior to connection to the system for District inspection and the appropriate wye shall be used.

Joints in all building laterals shall be of a gasket collar type as recommended by the manufacturer and shall pass the District's inspection and required tests. Glued fittings shall not be accepted.

7.06 Trench Requirements

All trenching for building lateral and service lateral pipeline installation shall be performed in accordance with the California Occupational Safety and Health Act. All trenches shall be excavated and backfilled in accordance with the Standard Drawings, Typical Sewer Trench, Figures 14, 15, 16, or 17 pages 167, 169, 171, 173.

7.07 Minimum Pipeline Cover Requirements

A minimum of 30 inches compacted earth fill, meeting District requirements as outlined herein, shall cover all gravity and force building and service laterals. Cover less than 48 inches in vehicular traveled ways requires heavier walled pipe as listed in Appendix A-5, page 73.

7.08 Minimum Slope Requirements

Residential Building Laterals: Trenches shall be on an even grade with a minimum slope of 0.0208 (1/4 inch fall per linear foot) for 4-inch diameter pipeline and 0.0050 (1/16 inch fall per linear foot) for 6-inch diameter pipeline. Holes for connecting pipe collars shall be dug so that each joint of pipe will have an even bearing over 6-inches of sand bedding placed on the trench bottom.

Commercial Building Laterals: Trenches shall be on an even grade with a minimum slope of 0.0050 (1/16 inch fall per linear foot) for 6-inch diameter pipeline. Minimum slopes for pipelines greater than 6 inches in diameter are listed in Appendix A-6, page 75.

7.09 Backfilling Building and Service Laterals

The native soil in the trench bottom shall be compacted to 90 percent relative compaction before placement of pipe zone backfill for pipeline bedding. Backfill shall meet the gradation requirements listed in Appendix A-6, Section A-6.8. It is recommended that Class 1 Backfill material have a specific gravity of at least 2.5 to assure proper compaction. Class 1 Backfill bedding material shall also be compacted to a relative compaction as specified in the Standard Drawings, Typical Sewer Trench, Figures 14, 15, 16, or 17 pages 167, 169, 171, 173, before laying the pipeline. Class 3 Native Backfill may be substituted for Class 1 Backfill if the

substitution is approved by the District Inspector **prior** to installation of the building lateral and placement of the Class 3 Native Backfill.

The new building and service laterals shall be visually inspected by a District inspector prior to backfilling above the spring line. After the visual inspection by a District inspector, the trench shall be backfilled. All trenches for building and service laterals shall be backfilled in accordance with the Standard Drawings, Typical Sewer Trench, Figures 14, 15, 16, or 17 pages 167, 169, 171, 173.

Materials for Class 1, Class 2, Class 3, and Class 4 Backfill, as listed in Appendix A-6, Section A-6.8, shall be placed in uniform horizontal layers not exceeding 0.67 feet in thickness before compaction, and shall be brought up uniformly on all sides of the trench.

Each layer of backfill shall be compacted to a relative compaction as indicated in the Standard Drawings, Typical Sewer Trench, Figures 14, 15, 16, or 17 pages 167, 169, 171, 173. The District reserves the right to perform compaction tests, or have compaction tests performed through a licensed geotechnical testing firm, to verify compaction of the backfilled trench section. All tests by the District will be performed in such a manner as will not unnecessarily delay the work. The owner or their agent shall not be required to reimburse the District for the initial tests performed. If subsequent tests are required due to compaction failures, the owner or their agent shall pay for all subsequent compaction tests.

In the event that significant groundwater is encountered in the excavated trench, Class 4 Backfill may be used in the pipe zone if the substitution is approved by the District inspector **prior** to placement of Class 4 material. If Class 4 Backfill material used in the pipe zone, filter fabric must be placed on the sides and top of the Class 4 Backfill before proceeding with additional approved backfill.

Water stop impervious plugs (trench cutoff blocks) shall be installed in trenches where Class 4 Backfill is used, in all areas of ground water movement, and in all trenches containing pipeline slopes of 10 percent or greater.

The location and spacing of trench cut-off blocks for private building laterals shall be the responsibility of and shall be determined by the District. The location and spacing of trench cut-off blocks for sanitary sewer mains shall be determined by the General Manager. Trench cut-off blocks shall be constructed as shown in the Standard Drawings, Trench Cut-Off Blocks, Figure 18, page 175.

The use of backfill material other than Class 1, Class 2, Class 3 and Class 4 is not permitted unless approval is granted, in writing, from the General Manager.

7.10 Installation of Cleanouts

A two-way cleanout shall be installed in each building lateral at the property line of the premises being provided with sewer service and a one-way cleanout within 5 feet of where the lateral exits the structure foundation. Cleanouts located under the house are not accepted, the cleanout must be located *outside* the building foundation. Additional cleanouts shall be installed at intervals not to exceed 100 feet, and at any other point the owner or their agent may select for the purpose

of keeping said sewer pipeline clean and free of obstruction. A cleanout shall also be installed on the upstream side of the fitting at all 45 degree or greater bends.

When the distance from where the sewer service exits the structural foundation of the building to the property line is less than 20 ft, the cleanout at the building can be substituted by installing a two-way cleanout at the property line. The lateral from the foundation to the property line cleanout must be a single piece of pipe, free of joints or fittings.

All cleanout risers must be installed 3 to 8 inches below finished grade and boxed to finished grade with an appropriate removable watertight plug in the end of the riser. No push on gasket PVC caps shall be permitted. Cleanout risers shall be of the same diameter as the building lateral (for 4-inch and 6-inch diameter building laterals) and at least 6-inches in diameter for all building laterals greater than 6-inches diameter. Appropriate cleanout boxes are required to be installed on **all** cleanout risers.

All cleanout boxes shall be constructed of concrete with cast iron lids. Reinforced plastic cleanout boxes are not acceptable. Cleanout boxes shall be set to grade and backfilled to prevent accidental displacement or removal. Lids shall have "SEWER" or equivalent imprinted on the lid. Lids with verbiage other than a sewer utility designation (i.e., Water, Gas, etc.) imprinted on the lid are not permitted. See Standard Drawings, Lateral Cleanout Assembly, Figure 10, page 159.

If new construction makes existing reinforced plastic cleanout boxes susceptible to vehicular/snow removal traffic, the affected cleanout boxes shall be replaced with a vehicle rated cleanout box.

A sewer lateral stub out to vacant land shall be brought to grade and boxed, contain a wye (two wyes for double service) with approved removable plugs in the end of the pipe. The stub out shall be placed at the property line at the appropriate depth to service the parcel.

Dual swing ties are required for all stub outs and cleanout risers. Permanent objects such as, fire hydrants, above ground utility boxes, power poles, water boxes, structures, etc. shall be used for swing ties. Cleanouts under decks shall have a minimum of 36" of clearance from the top of cleanout box to the bottom of deck joists. If less than 36" is available, access through a trap door through the deck must be provided (minimum dimensions of trap door is 2 feet by 3 feet).

7.11 Backflow Prevention Devices

Private and commercial building laterals are subject to the provisions of the California Plumbing Code, Section 710.0 and 710.1. Drainage piping serving fixtures which have flood level rims located below the elevation of the next upstream manhole cover of the sewer serving such drainage piping shall be protected from backflow of wastewater by installing an approved type of backwater valve. Fixtures above such elevation shall not discharge through the backwater valve.

Building laterals which connect to a joint lateral (a privately owned *shared* lateral pipeline that receives wastewater flow from two or more parcels) may also require the installation of a backflow prevention device to protect private property.

In the event of a pipeline stoppage in the joint lateral, a backflow prevention device installed on each private building lateral would inhibit wastewater in the joint lateral from backing-up through the private building lateral into the building served.

Backflow prevention devices are especially useful in areas where a joint lateral provides service to parcels of significantly different elevations.

7.12 Tracer Wire on Building Sewer Laterals

Building laterals are required to have a tracer wire installed adjacent to the sewer pipe. The tracer wire shall consist of 10 AWG minimum with THW, THHW, TW, THWN, or other approved wet location insulation.

The tracer wire shall be attached to the top of the building lateral with tape at appropriate intervals. Wire shall be continuous between cleanouts and other access points where excess wire shall be spooled within the cleanout boxes to provide connection points. Splices shall incorporate approved underground splice kits.

The tracer wire shall run the entire length of the building lateral, beginning at the cleanout adjacent to the building foundation, continuing along the pipeline route, and terminating in the cleanout box at the property line. The tracer wire shall surface in the cleanout box at all intermediate cleanouts, and then continue alone the pipeline route to the property line cleanout. The tracer wire shall be tested for continuity following backfill.

7.13 Sewer Lateral Pressure Testing

All new residential, private and commercial building laterals shall be pressure tested by either an air or water method, at the discretion of the District, in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page 107. The test sections shall be from the cleanout adjacent to the building to the service lateral connection point (typically the property line), or from the cleanout at the property line to the building cleanout, corresponding to the new pipeline installed. The District may also require the section from the building cleanout to the tie in under the structure be tested to assure proper connection of the building lateral to the structure waste piping. Residential, private, and commercial wastewater collection systems of such

diameter and length to require the use of manholes shall also be balled and flushed, mandrel tested, and televised per Appendix A-6.

A District inspection shall be required for approval of workmanship and materials in compliance with District requirements. Testing will be completed in the presence of a District Inspector.

The system must be completely ready for inspection at the appointed time; failure to comply with this will result in an additional inspection service charge for each occurrence. The owner or their agent must be present at the time of inspection and test.

Building laterals installed as part of new construction require an initial pressure test, after backfilling the trench, within 10 working days from the date of the visual inspection. A second pressure test is required after the structure has passed the Final Grading Inspection by the Town of Truckee or appropriate County equivalent.

If a pipeline fails the test, the owner or their agent shall be responsible for notifying the District when corrective work has been completed for scheduling a new test.

7.14 Building Sewer Lateral Televising

Building laterals installed as part of new construction shall require a closed circuit television (CCTV) inspection after the structure has passed the Final Grading Inspection by the Town of Truckee or appropriate County equivalent before the seal cap will be removed. The owner shall be responsible for supplying the CCTV and all associated costs. A District Inspector must be on-site and view the CCTV inspection as it is being performed. The District will not accept videos as a substitute for live viewing. The purpose of the CCTV inspection is to insure no debris or sags are in the building lateral prior to connection to the building plumbing. A District Inspector must view and approve of the CCTV inspection before the seal cap will be removed.

7.15 Testing of Manholes, Grease Interceptors, Sand/Oil Interceptors

Testing of all manholes, grease interceptors, and sand/oil interceptors shall be in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page107.

7.16 Residential/Small Commercial Pump Systems

For all building sites in which the improvement plans designate a pumped service or for any owner wishing to construct a structure on a portion of a lot or parcel for which gravity service was not provided, the owner shall install a sewage pump as specified herein for the purpose of lifting sewage to the public sewer.

A pumped sewer service shall consist of a gravity sewer, a waste water holding tank, one or more pumps, a force main, electrical controls, and an alarm system. The pump and holding tank shall be installed in a location such as to be reasonably accessible for inspection and maintenance. If the holding tank is located outside of the building foundation it shall not be located within 5 feet of any building used as a dwelling, within 10 feet of any property line or within 50 feet of any lake, stream, or reservoir. Where installed, such installations shall be maintained by the owner at the owner's expense.

A duplex pump system is suggested for residential applications when more than one residence is served by the same pump system. Commercial enterprises which contain public restroom facilities shall be required to operate and maintain a duplex pump system.

Installation:

Gravity Pipeline - The gravity sewer lateral from the building sewer to the waste water holding tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page 107. Pipe must be grouted or sealed to a watertight condition at the point of holding tank penetration. The gravity sewer lateral is subject to the requirements of Tracer Wire on Building Sewer Laterals, Section 7.12, page 33.

Waste Water Holding Tank - The holding tank shall be a solid impervious walled container. All openings in the walls of the tank, including pipe or conduit penetrations, are to be sealed to prevent inflow of surface water, infiltration of ground water, or exfiltration of contained wastewater. The tank shall have a minimum capacity of 150 gallons. The tank shall be vented with a 1 1/4 inch minimum vent line. The tanks shall be buried to a depth such that the top cover of the tank is 18 inches below finished grade. A weatherproof housing, with adequate insulation, shall be installed and extended to 6 inches above finished grade. It shall be the owner's responsibility to determine groundwater conditions that may cause the tank to float when empty and to provide the appropriate solutions to prevent it. Internal ballast that reduces the tank capacity below 150 gallons will not be acceptable.

Pumping Equipment - Pumps shall be centrifugal of the non clog or grinder type. Pumps shall be capable of passing a minimum of a 2-inch diameter sphere. Pumps and motors shall be sized so as to maintain a minimum of 4-feet per second flow velocity throughout the entire discharge piping system when a maximum of one pump is pumping under actual installed conditions. A copy of the pump specifications and pump curve shall be required and made available to the District inspector before testing is allowed.

Electrical - The electrical control cabinet shall be isolated from the holding tank. All wiring, controls, conduits, boxes, etc. shall meet or exceed National Electrical Code (NEC) requirements for materials, ratings, placement, and installation, etc. All equipment located in the holding tank shall be U.L. approved for its specific and proper use. All wiring in the area above the holding tank shall be provided with protection from physical damage by a combination of cable routing and/or conduits. Any wiring which hinders entry or view into the holding tank when opened will not be acceptable. All electrical connections shall be in an approved electrical junction box. All conduits leaving the holding tank, or the enclosed area above or surrounding the holding tank, shall be sealed. A circuit disconnecting means for all circuits must be located within sight of the holding tank unless a lockout device is installed on the disconnecting means for each individual circuit attached to or related to the pump system at the holding tank.

Alarm System - The holding tank and electrical controls shall include an alarming system that produces an audible and visual alarm when the liquid level in the holding tank exceeds a predetermined safe level. The audible and visual devices indicating such an alarm state shall be located at all inhabited buildings or structures served by the sewage system with the intent to

notify the occupants of the possibility of a wastewater spillage. The alarms system power shall be supplied through a separate circuit from the pump power supply. It is recommended that the alarm system include a battery backup to allow the alarm to function during an electrical power outage. For commercial applications that serve multiple buildings, the alarm system must also include an auto dialer system that will phone a responsible party and notify them of the alarm status of the pump system.

Discharge Piping - The discharge pipeline shall be ductile iron, polyvinyl chloride (PVC), high density polyethylene (HDPE), or an approved pressure rated material designed for wastewater. The piping shall be pressure class 130 minimum and rated for the pressure service being installed. The pipeline size shall be **2 inch internal diameter minimum**. The discharge pipeline shall be fitted with an approved pressure rated sewer check valve and an isolation gate

or PVC ball valve. The discharge pipeline shall also include a 1/4 inch valve pressure test port located between the check portion of the check valve and the isolation valve. The isolation valve shall be located on the discharge side of the check valve. Both valves and the test port may be located in an accessible area inside or outside of the holding tank in such a manner that they are accessible for operation and maintenance or repairs. If both valves and the test port are located inside the wet well, an additional isolation or ball valve shall be installed on the discharge pipeline, adjacent to the wet well/weatherproof insulated box. Additional isolation valve shall be boxed separately and brought to grade. It is recommended that valves are installed with unions.

All discharge pipelines are required to have a tracer wire installed adjacent to the sewer pressure pipe. Tracer wire shall consist of 10 AWG minimum with THW, THHW, TW, THWN, or other approved wet location insulation. Wire shall be attached to the top of the force main with tape at appropriate intervals. Wire shall be continuous between vaults and other access points where excess wire shall be spooled to provide connection points. Splices shall incorporate approved underground splice kits. Each run of tracer wire shall be tested for continuity following backfill.

In cases where the District service lateral stubbed to the property line is a force main (positive slope), the tracer wire following the private force main discharge piping shall be brought to the surface and boxed to grade at the property line. It is recommended that the tracer wire be placed in conduit where it surfaces through the ground at the property line and covered with a concrete box with a cast iron lid labeled "sewer" or "S".

Discharge pipelines shall have a trench cutoff block located every 50 linear feet of pipe, at changes in pipeline type and/or grade, and at the pump tank. Thrust blocks shall be located at all fittings that change the direction of the pipe. Thrust blocks shall be constructed of concrete with a minimum size of 2 cubic feet.

A siphon break shall be installed on the discharge pipeline at its connection point to the gravity sewer. A cleanout in accordance with the Installation of Cleanouts, Section 7.10, page 31, shall

be placed in the discharge pipeline at the property line, if the siphon break can be placed in a practical manner such that sufficient gravity slope can be maintained from the property line to the District main pipeline.

Inspection and Testing:

The gravity portion of the pipeline from the building to the holding tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page 107.

A visual inspection shall be performed to check the following:

- proper venting of the holding tank.
- an acceptable weather proof, insulated box with an insulated lid directly above the holding tank.
- a weather tight seal on the holding tank lid and at all pipe or conduit penetrations.

The discharge pipeline shall be pressured tested with air or water to a pressure of 150 percent of the calculated maximum possible working pressure (the Total Dynamic Head, TDH) for the installed pump. The maximum possible working pressure for the system can be assumed to occur at the pump's shut off point. The pump shut off point can be obtained from the pump's performance curve by following the curve to the point at which it meets the axis representing the head of liquid. The pressure must remain constant for 10 minutes. The required test equipment shall be provided by the owner or owner's agent and be acceptable to the District.

The electrical system and controls shall be inspected and approved by the local governing authority for the building electrical inspection. Pumping and alarm tests shall only be performed after the electrical system has been inspected and approved by the proper authority. The District Inspector shall require proof of such approval before starting any of the following functional tests:

- The pump shall be started and stopped so the check valve can be tested for proper operation.
- The pumping system shall be tested for a discharge pipeline velocity of 4 feet per second. The flow velocity test shall be performed with the discharge pipeline full of water and the pumping system functional under normal operating conditions.
- The pump shall be run to pump down the holding tank to allow a visual inspection of the tank and to check it for leaks.
- The alarm system shall be checked for proper function of audio and visual alarms.

Septic tanks converted for use as holding tanks shall be air, water, or vacuum tested. The test shall be the same as specified for sanitary sewer pipelines, manholes, and grease and sand oil interceptors. If the converted septic tank fails the test, it shall be abandoned in accordance with Abandoned Sewer and Sewage Disposal Facilities, Section 7.19, page 39, and a new holding tank meeting the requirements for Residential Pump Systems shall be installed in its place.

Deviation from Requirements:

Any deviation from the above stated requirements shall be approved in writing by the General Manager.

7.17 Delay in Sanitary Sewer Facility Testing

Testing of new sanitary sewer facilities may be delayed when inclement weather does not allow the required testing to be performed during the winter months. When such a situation arises, the owner or their agent may enter into a written agreement with the District to delay the required testing. The purpose of this agreement is to allow the owner to receive a Town of Truckee or Placer County Certificate of Temporary Occupancy. Said agreement allows the owner or their agent to use their seal cap deposit as security to assure the required testing of the sanitary sewer facilities when weather permits, with a specific deadline date upon which testing must be completed.

7.18 Owner-builder Temporary Hook Up to Sanitary Sewer

An owner-builder, who plans to place a trailer on a parcel for the owner-builders sole use and living quarters while building a residence, may request a temporary trailer be connected to the sanitary sewer system by completing the following administrative steps:

- Present the appropriate valid Town of Truckee/Placer County Building Permit at the District's office and request an Application for Sewer Permit.
- Pay connection fees to the District and to the Tahoe-Truckee Sanitation Agency (T-TSA).
- Pay a $600.00 seal cap deposit for the house seal cap. This deposit is refundable upon the District's removal of the seal cap, less any fees accrued from date of Application for Sewer Permit issuance. See Section 7.03, District Seal Cap, page 28.
- Pay a $100.00 fee for administrative costs.
- User fees shall commence on the date payment is made for the temporary trailer. Unpaid user fees will be deducted from deposits when final inspection has been completed.

Once the above administrative requirements are completed, the temporary trailer may be connected to the District sanitary sewer system under the following conditions:

Installation of Pipelines: The house building lateral and the temporary sewer lateral have been installed, backfilled and tested by the owner-builder and inspected by a District inspector. The house building lateral shall have a District seal cap and a numbered seal placed on it. The type of pipe used for the temporary sewer lateral shall be in accordance with District Code requirements.

The temporary sewer lateral shall be located in a trench with at least 30 inches of cover. The temporary sewer lateral shall have a slope of at least 1/4 inch fall per foot of length. The temporary sewer lateral shall be connected to the house building lateral using a wye.

The temporary sewer lateral riser shall be provided with a sewage drain inlet not less than 3 inches in diameter (if a trap is required as described) or 4 inches in diameter if no trap is required, to receive the wastes of the temporary trailer. The riser shall be protected by either of the following:

- A concrete box constructed of concrete with a cast iron lid rated for vehicle loading as described in Section 7.10, Installation of Cleanouts, page 31 or
- A 4-inch thick slab of concrete extending at least 6 inches away from the outside diameter of the riser pipe. The riser shall extend 3 inches above the top of the concrete slab.

Connection of the temporary trailer to the temporary sewer lateral shall be a watertight connection to prevent the entrance of groundwater or surface water at all times. Trailer facilities shall not be used to wash or dispose of construction tools or materials.

Location: The temporary trailer shall be parked a distance of no more than 3 feet from the temporary connection point riser. The riser shall be placed in concrete as described below. If a cleanout riser on the house sewer lateral can be utilized, a concrete box can be used in place of the concrete. The connection of the trailer to the riser shall be watertight.

Venting: In the case that the trailer waste fixtures are not properly vented, the drain inlet shall be provided with an effectively vented trap not less than 3 inches in diameter for inlets designed to receive the discharge of vehicles equipped with toilets.

If the temporary trailer fixtures are not property vented, the drain inlet trap shall be individually vented with a vent pipe not less than 2 inches interior diameter. All vent pipes, in outdoor locations, shall be located at least 10 feet from an adjoining property line and shall extend at least 10 feet above the ground level. All vent pipes shall be adequately supported.

Connection of Temporary Trailer: The house sewer lateral and the temporary sewer lateral shall be tested as required by the District Code. After the test, a seal cap and numbered seal shall be placed on the house connection point and the temporary trailer shall be connected to the temporary sewer lateral as described above.

The temporary sewer lateral may be used during the house construction or for a maximum of 2 years, whichever is less, beginning with the date the trailer fee is paid. If the house construction is not complete after the 1 year period, the owner may solicit the District to extend the allowed use of the temporary sewer lateral for an additional year. An extension will require an additional $100.00 administrative fee. After the end of the second year of use, the temporary sewer lateral shall be removed and the wye plugged as described above.

Upon completion of the house and subsequent granting of occupancy by the Town of Truckee/Placer County, the temporary sewer lateral shall be completely removed by the owner-builder within 5 days of occupancy of the house. The temporary sewer lateral shall be removed from its trench. The wye (fitting that joined the building lateral with the temporary lateral) shall be rotated upward and a cleanout riser pipe installed to grade. The cleanout shall be boxed to grade as shown in Lateral Cleanout Assembly, Figure 10, page 159. All temporary sewer lateral materials shall be removed from the property and the temporary sewer lateral trench shall be completely backfilled. The seal cap shall be removed and the house sewer lateral retested as required by the District Code.

7.19 Abandoned Sewers and Sewage Disposal Facilities

Every abandoned building (house) sewer, or part thereof, shall be plugged or capped with an approved watertight plug within 5 feet of the property line. The procedure shall be witnessed by a District Inspector.

Once the lateral is plugged at the property line, one of two options are available. The owner may continue to pay user fees or may choose to stop user fee payments. If user fees are discontinued, connection fees will be required at the time of re-connection at the current connection fee rate. If the owner continues to pay user fees, no connection fees will be required at the time of re-connection.

Every cesspool, septic tank and seepage pit which has been abandoned or has been discontinued otherwise from further use or to which no waste or soil pipe from a plumbing fixture is connected, shall have the sewage removed there from and be completely filled with earth, sand, gravel, concrete or other approved material.

The top cover or arch over the cesspool, septic tank, or seepage pit shall be removed before filling and the filling shall not extend above the top of the vertical portions of the sidewalls or above the level of any outlet pipe until the cesspool, septic tank or seepage pit has been inspected. After such inspection, the cesspool, septic tank or seepage pit shall be filled to the level of the top of the ground.

Where disposal facilities are abandoned consequent to connecting any premises with the public sewer, the permittee making the connection shall fill all abandoned facilities as required within 30 days from the time of connecting to the public sewer (Uniform Plumbing Code, Section 1119). The District shall verify such abandonment.

8. GREASE REDUCTION PROGRAM

8.01 Commercial Food Establishments

Any commercial establishment serving food such as, but not limited to:

restaurants	coffee shops
delicatessens	drive-in eating establishments
bakeries	donut shops
take-out	ice cream or milk drive-in stations
food catering establishments	

or commercial food manufacturing facilities such as, but not limited to:

packing establishments	slaughter houses
canneries	

or commercial facilities such as, but not limited to:

hospitals	motels/hotels
markets	recreation or reception halls
schools	conference centers
churches	

When any grease or other objectionable materials may be discharged into a public or private sanitary sewer system the commercial establishment shall have installed on the premises an appropriately sized grease interceptor or grease trap as required by Chapter 10 of the Uniform Plumbing Code.

The facilities listed above can be classified into the following categories based on the type of facility, the nature and the volume of the waste flow produced, the hours of operation, and the number of meals served per day:

- **Industrial** - commercial facilities as defined in the Uniform Plumbing Code, and those facilities designated by the General Manager.
- **High Volume** - full menu type establishments operating more than 16 hours per day and/or serving 500 or more meals per day.
- **Medium Volume** - full menu or specialty menu type establishments serving full meals 8 to 16 hours per day, and/or 100 to 400 meals per day.
- **Small Volume** - fast food, take-out or specialty type food establishments with limited menus, a minimum of dish washing, and/or minimal seating capacity.

Grease interceptors shall be installed at all industrial, high, and medium volume food establishments. The size, type and location of each grease trap or interceptor shall be approved by the General Manager or his/her designated representative. Waste in excess of 140 degrees Fahrenheit (60 degrees Celsius) shall not be discharged into a grease trap or interceptor.

For the purpose of this division, the term "fixture" shall mean and include each plumbing fixture, appliance, apparatus or other equipment required to be connected to or discharged into a grease trap or interceptor by any provision of this division.

Waste discharge from fixtures and equipments in the above-mentioned types of establishments which may contain grease, or other objectionable materials, including, but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, etc., and floor drains located in areas where such objectionable materials may exist, may be drained into the sanitary waste through a grease trap or interceptor when approved by the General Manager. **Exception: Toilets, urinals, and other fixtures containing fecal material may not flow through interceptors, traps, or sand/oil interceptors. Garbage disposal units shall not be plumbed to grease traps.**

District personnel will periodically schedule inspections of grease traps and interceptors. It shall be the responsibility of the owner or their agent to maintain grease traps and interceptors in an efficient operating condition by periodic removal and proper disposal of the accumulated grease. No such collected grease shall be introduced into any drainage piping or public or private sanitary sewer facility,

The owner or their agent shall post and maintain a current grease trap/interceptor cleaning and maintenance log on the premises and shall have the log available for review by District personnel at all times.

8.02 Grease Interceptors

Industrial facilities, Medium, and High Volume food establishments as defined in Commercial Food Establishments, Section 8.01, page 41, are required to install a grease interceptor. Small Volume food establishments may require a grease interceptor as determined by the General Manager.

Interceptors shall be constructed and installed at the expense of the owner, in accordance with the Standard Drawings, Grease Interceptor, Figure 25, page 189.

Each grease interceptor shall be so installed and connected that it shall be easily accessible at all times for inspection, cleaning, and removal of the intercepted grease. A grease interceptor may not be installed in any part of a building where food is handled. Proper location of the grease interceptor shall meet the Uniform Plumbing Code Requirements and the approval of the General Manager.

Each commercial facility or business establishment for which a grease interceptor is required shall have an interceptor which shall serve only that business establishment. Buildings remodeled for use requiring interceptors shall be subject to these regulations.

Grease interceptors shall have a minimum 750-gallon capacity.

Interceptors shall be installed in such a manner that surface drainage may not enter. Interceptors located in vehicle traffic areas shall be capable of withstanding an H-20 axle load. The access port cover shall be at least ½ inch below finished grade and shall also be capable of withstanding an H-20 axle load. Except as otherwise provided, the cover and access ports shall be gas-tight. The waste shall enter the interceptor through an inlet pipe only. Interceptors shall be so designed that they will not become air bound. Each interceptor shall be properly vented, as required by Chapter 9, Uniform Plumbing Code.

Grade rings may be used to establish final grade for the access ports and shall be installed using Ram-Nek and Ram-Nek primer. Chimney seals shall be installed within the grade rings in all interceptors.

Interceptors shall be tested in the same manner as manholes. The test shall be witnessed by a District Inspector.

Abandoned grease interceptors shall be emptied and filled in the same manner as required for abandoned septic tanks as described in Section 1119, Uniform Plumbing Code.

8.03 Grease Traps

Small Volume food establishment as described in Commercial Food Establishments, Section 8.01, page 41, if not required to install a grease interceptor, shall install a grease trap. Installation of grease traps must be in conformance with and have the approval of the appropriate County Environmental Health Department.

No grease trap shall be installed which has an approved rate of flow of more than 55 gallons per minute, nor less than 20 gallons per minute, except with prior written approval of the General Manager.

Each plumbing fixture or piece of equipment connected to a grease trap shall be provided with an approved type flow control or a restricting device installed in a readily accessible and visible located in the tailpiece or the drain outlet of each such fixture. Flow control devices shall be so designed that the flow through such device or devices shall at no time be greater that the rated capacity of the grease trap. No flow control device having adjustable or removable parts shall be approved.

Each grease trap required by this section shall have an approved rate of flow, expressed in gallons per minutes, which is not less that 40 percent of the total capacity in gallons of fixtures discharging into said trap. The grease retention capacity of the trap, expressed in pounds of grease, shall not be less than two times the approval rate of flow in gallons per minute.

Any grease trap installed with the inlet more than 4 feet lower in elevation that the outlet of any fixture discharging into such grease trap shall have an approved rate of flow which is not less than 50 percent greater than that given in the preceding paragraph. Not more than four separate fixtures shall be connected to or discharged into any one grease trap.

Each fixture discharging into a grease trap shall be individually trapped and vented in an approved manner. An approved type grease trap may be used as a fixture trap for a single fixture when the horizontal distance between the fixture outlet and the grease trap does not exceed 4 feet and the vertical tailpipe or drain does not exceed 2 ½ feet.

No water jacketed grease trap or grease interceptor shall be approved or installed.

Each grease trap shall have an approved water seal of not less than 2 inches in depth or the diameter of its outlet, whichever is greater.

8.04 Sand/Oil Interceptors

Every private or public wash rack used for cleaning vehicles, machinery or machine parts or facilities used for vehicle maintenance shall drain or discharge into a sand/oil interceptor of an approved design for this use.

The minimum internal dimensions of the interceptor shall be approximately 24 inches wide by 72 inches long with 57 inches between the tank bottom and the bottom opening of the 90-degree bend at the outlet for a 490-gallon minimum liquid capacity (see Standard Drawings, Sand/Oil Interceptor, Figure 26, page 191).

The inlet and outlet sewer piping shall conform to District specifications. The sewer outlet pipe shall have a downward pointing 90-degree bend inside the tank. The bottom entrance to the 90-degree bend shall extend 6 inches below the invert of the outlet pipe. The top of the sewer inlet and outlet pipes shall be at least 30 inches below the pavement surface where they enter and exit the tank.

The tank shall have a minimum of one self sealing access port and shall be maintained in a leak tight condition so there is no entry of surface storm water. There shall also be no leakage of groundwater into the tank, and waste flow shall not be allowed to flow into the surrounding ground. Grade rings may be used to establish final grade for the access ports and shall be installed using Ram-Nek and Ram-Nek primer. To reduce infiltration, sand/oil interceptors within paved areas shall be installed with chimney seals between the interceptor cover and the manhole frame.

When the tank is located in a vehicle traffic area, the access port(s) shall be set at least ½ inch below finished grade. Tank covers and access ports located in vehicle traffic areas shall be capable of withstanding an H-20 axle load.

District personnel will periodically schedule inspections of sand/oil interceptors. It shall be the responsibility of the owner or their agent to maintain the sand/oil interceptor in an efficient operating condition by periodic removal and proper disposal of the accumulated sand and oil.

No such collected sand and oil shall be introduced into any drainage piping or public or private sanitary sewer facility.

The owner or their agent shall post and maintain a sand/oil interceptor cleaning and maintenance log on the premises and shall have the log available for review by District personnel at all times.

All trapped materials removed from the interceptor, including filters and filter media, shall be disposed of in accordance with current existing environmental codes and regulations. It is the responsibility of the owner or their agent to determine the governing agency and comply with the code requirements.

Sand/Oil Interceptors shall be tested in the same manner as manholes. The test shall be witnessed by a District Inspector.

Abandoned sand/oil interceptors shall be emptied and filled in the same manner as required for abandoned septic tanks as described in Section 1119, Uniform Plumbing Code.

Vehicle Wash Installations: All vehicle wash installations shall be equipped with an appropriate sand/oil interceptor. Portable water piping to the wash installation shall be metered to verify water consumption. No other facility other than the wash installation shall be fed potable water through the meter.

Vehicle wash installations shall utilize a recycle system. The clarification, filtration and recycle system shall be designed by the owner or their agent and approved by the District. When a recycle system is used, there shall be a closed shutoff valve in the sewer outlet pipeline external to the interceptor tank. It shall have the necessary access and protection.

It shall be the responsibility of the owner or their agent to maintain the system for proper operation. The District shall be notified at least 72 hours in advance of any emptying and/or flushing of the system into the sanitary sewer.

The design automated full service vehicle wash installations must be approved by the District on an individual basis.

Vehicle Maintenance Facilities: Each vehicle maintenance facility shall have a sand/oil interceptor that meets the minimum tank requirements described above.

8.05 Time of Compliance

All commercial establishments serving food, commercial food manufacturing facilities, and commercial facilities described in Commercial Food Establishments, Section 8.01, page 41, and all private or public wash facilities used for cleaning vehicles, machinery or machine parts, or facilities used for vehicle maintenance as described in Sand/Oil Interceptors, Section 8.04, page 44, shall be required to install a grease interceptor/trap, or a sand/oil interceptor within the 60 day period after the first occurrence of any of the following events:

- transfer of ownership or interest in the parcel, the facility, or the business;
- the issuance by the County/Town of any building permit for the construction, reconstruction or related work to be performed on the premises costing more than $5,000;
- the backup or discharge of wastewater on or from the premises due to grease, oil, or sand build up in their building plumbing or building lateral;

- or 90 days after receiving written notice from the General Manager of the necessity for installation of such facilities.

10. MAINTENANCE OF EXISTING FACILITIES

10.01 Maintenance and Testing of Private Sanitary Sewer Facilities

The owner or their agent of a property served by the District's sanitary sewer shall be responsible for the operation and maintenance of the private sanitary sewer facilities, including all devices or safeguards required by this section, which are located upon said property. The owner or their agent's operation and maintenance responsibility is from the building to the connection at the sanitary sewer easement or property line.

The owner or their agent shall, at their own risk and expense, install, keep and maintain in good repair all *sanitary sewer facilities* (sanitary sewer pipelines, force mains, manholes, equipment, pump stations, and related appurtenances) situated on the premises so served. The District shall not be responsible for any loss or damage caused by improper or defective installation of sanitary sewer facilities, whether inspected and/or approved by the District. All such installations of sanitary sewer facilities shall conform with all federal, state, county, town and local laws, rules, regulations and ordinances.

The owner or their agent served by the District's sanitary sewer system shall be responsible and liable for all costs involved in the repair of all damages caused by the owner, customer, or agents thereof, to the District's sanitary sewer facilities, including but not limited to sewer obstructions, wherever located.

All sanitary sewer facilities found in need of repair as a result of testing procedures required by this chapter shall be repaired and/or installed to the standards set forth in the District Code.

10.02 Conditions Requiring Testing of Existing Sanitary Sewer Facilities

It shall be unlawful for any owner of a house, building, or property connected to the District's sanitary sewer system to maintain private sanitary sewer facilities in a condition such that the tests contained herein cannot be successfully accomplished.

All private sanitary sewer facilities, including those serving residential, multiple residential, commercial, and industrial connected to the District's sanitary sewer system shall be tested when any of the following conditions occur:

(a) remodeling of the house, building or property served to an extent of more than 50 percent of the assessed valuation, as determined by Nevada/Placer County or

(b) installation of additional plumbing fixtures in the house, building or property served and/or installation of additional building lateral pipeline, or

(c) change of use of the house, building or property serviced from residential to business or commercial, or from non restaurant commercial to restaurant commercial, or

(d) repair or replacement of all or part of the building lateral(s), force main pipeline, or private lift station components, or

(e) the addition of living quarters, such as guest cabins on the property served or conversion of garages into living quarters with plumbing fixtures, or addition of structures on the parcel that impact an existing building lateral or force main, or

(f) prior to the close of escrow upon a sale of the house, building or property served, or

(g) the transfer of ownership or interest in the parcel, the facility, or the business. (A transfer of ownership between immediate family members, shall not require testing), or

(h) change in tenant of the facility or business, or

(i) change of ownership (multiple owners) on the deed selling their portion to other partner/investors, or

(j) an inspection by the District indicates reasonable cause, or

(k) upon determination of the General Manager that testing or sanitary sewer facility replacement is required for the protection of the public health, safety and welfare.

10.03 Testing Procedures for Existing Sanitary Sewer Facilities

The owner or their agent of a house, building, or property connected to the District's sanitary sewer system shall conduct all sanitary sewer facility upgrades and testing required at their sole expense and shall notify the District 48 hours prior to testing. Testing shall be witnessed by a District Inspector.

Sanitary Sewer Pipelines: All building laterals, joint laterals, and privately owned main pipelines shall be tested by either an air or water method, at the discretion of the District. Tests shall be in accordance with Appendix A-6, Section A-6.10.

In the case of building and joint laterals, the test section shall be from the building cleanout to the District service connection point. The test section includes all private pipelines, including joint laterals, which provide sanitary sewer service to the parcel in question.

Privately owned main pipelines shall be tested their full length. Test failures of non-metallic asphaltic composite pipe shall require entire replacement of the defective pipeline.

If a cleanout has not been installed at the easement/property line, a two-way cleanout shall be installed prior to testing. If there is no cleanout located outside the building foundation (within

five feet of the foundation wall), then a cleanout shall be installed. If the building lateral exits the foundation under an existing deck or concrete patio, the location of the building cleanout near the foundation may be modified on a case-by-case basis as determined by the General Manager. The Cleanouts shall be installed and boxed as specified in Installation of Cleanouts, Section 7.10,

page 31. The owner or their agent shall be responsible for such installation. A cleanout underneath the house is not acceptable.

The building cleanout can be substituted by installing a two-way cleanout at the property line when the distance from the point where the building lateral exits the foundation to the property line cleanout is less than 20 feet and the building lateral consists of a single pipe segment with no fittings. Such building laterals will be considered too short to test. At the District's discretion, building laterals that are too short to test may be required to be televised to confirm integrity of pipeline.

Manholes, Grease Interceptors, Sand/Oil Interceptors: Testing of all manholes, grease interceptors, and sand/oil interceptors shall be in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities.

Pump System Testing, Pump Station Outside The Building Foundation: The gravity portion of the pipeline from the building to the holding tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities.

A visual inspection of the pump system will be performed to check for:

- soundness of the wastewater holding tank.
- proper venting of the holding tank.
- acceptable weather proof insulated box with adequate waterproof insulation below the box lid directly above the holding tank.
- a weather tight seal on the holding tank lid and at all pipe and electrical conduit penetrations.
- a properly functioning check valve on the discharge pipeline.

In the event that there is no check valve and/or pressure test port installed on the existing discharge pipeline, a check valve, a 1/4 -inch valve pressure test port, and an isolation gate or PVC ball valve shall be installed in accordance with Section 7.16, Residential/Small Commercial Pump Systems, page 34.

A pressure gage shall be connected to the test port and the pressure test port valve shall be opened. The pump shall be started and the holding tank pumped down to allow a visual inspection of the holding tank to check it for leaks. The check valve shall also be inspected for proper operation.

Immediately after the holding tank is pumped down and the pump turned off, the gage pressure shall be noted in the discharge pipeline. The pressure shall remain constant for 10 minutes. Any drop in pressure shall constitute a test failure and the check valve and/or the discharge pipeline shall be repaired and/or replaced.

After the check valve and/or the discharge pipeline is repaired and/or replaced, another test shall be attempted. A subsequent loss of pressure constitutes a failure of the check valve and/or discharge pipeline; whereupon the defective check valve and/or discharge pipeline section shall be replaced and tested as described in Section 7.16 page 34.

The alarm system, if so equipped, shall be checked for proper function of audio and visual alarms. If no alarm system exists, an alarm system shall be installed in accordance with Section 7.16 if the pump system testing has been triggered by a building remodel that impacts the number or configuration of any plumbing fixture units in the building.

In the event that the holding tank or the force main needs replacement the pump and controls must be updated to meet District Code. In the event that the controls need replacement an alarm system must be installed as specified in Residential/Small Commercial Pump System, Section 7.16, page 34.

Septic tanks and concrete vaults converted for use as holding tanks shall be air, water or vacuum tested. The test shall be the same as specified for sanitary sewer pipelines, manholes, and grease and sand/oil interceptors. If the converted septic tank/concrete vault fails the test, it shall be abandoned and a new holding tank meeting the requirements for residential pump systems shall be installed in its place.

10.04 Time Limits for Completion of Testing Procedures

Testing shall be completed in a timely manner as follows:

- Prior to the close of escrow upon the sale of the residence, building, or property, or transfer of ownership or interest in the parcel, the facility, or the business, or
- Within 30 days of standard notification by the District, or
- Immediately if it is determined by the General Manager that testing and repair are necessary to protect public health and the integrity of the sanitary sewer system.

In the event that testing would be required during the period from October 15 to April 15 or during such other periods when such work would be impractical due to weather conditions, the General Manager may defer such requirement upon posting of a performance bond with the District. The posting of the performance bond is intended to assure funds are available to repair and replace the sanitary sewer facilities in question when weather conditions permit. The amount of the performance bond shall be based on the time since the last test, pipe material, lineal footage of the building lateral, the number of cleanouts and other related appurtenances to be installed, as well as the removal and replacement of existing physical obstacles and structures affected by the test.

In place of a performance bond, the owner may choose to hold an equal amount of funds in an escrow account, if the property or business is being sold or transferred. Funds held in escrow will not be released without written notification by the District to the Title Company holding such funds. In such case, the testing must be performed by the following June 15.

If a sanitary sewer facility fails any of the above described tests, the owner or their agent shall cause corrective work and retesting to be performed within 30 days from the date of the original test. All repairs shall be approved by the District.

Repairs or replacement of 50 percent or more of a sanitary sewer pipeline or force main may be cause for total pipeline replacement as determined by the District. In the case of total pipeline replacement, the pipeline shall be installed in accordance with the requirements of new pipeline installation as outlined in Section 7, Installation of Sanitary Sewer Facilities, page 27.

After a second failure of any sanitary sewer facility, the owner shall be charged an additional inspection fee for further inspections.

In the event that a sanitary sewer facility has not been tested within the required time period, the District shall initiate procedures for sewer disconnection.

10.05 Waiver of Testing Requirements

The General Manager shall have the power to waive testing requirements if:

(a) the sanitary sewer facility has been installed and tested within a prior 8 year period, or

(b) the existing sanitary sewer facility was tested within a prior 5 year period and there is good reason to believe that such testing is not necessary, or

(c) the sanitary sewer pipeline or force main is of such a length that testing is not practical, or

(d) the sanitary sewer facilities are part of a central private sanitary sewer system as described in Shared Use Facilities, Section 10.06, page 53, and the District has an established written agreement concerning specific testing requirements.

Nothing herein shall constitute a warrant by the District of the soundness or ability of the sanitary sewer facility to accomplish its purpose or remain in compliance with the District Code.

10.06 Shared Use Facility

The District may choose to allow the owner or their agent of a ***Shared-Use Facility*** (common interest subdivisions, commercial shopping centers, mini malls, apartment complexes, condominium complexes, schools, office buildings, and hospitals, etc.) one of the following option agreements for the maintenance and testing of sanitary sewer facilities. The use of a Shared-Use Facility agreement for testing purposes is allowed by the District on a case-by-case basis. Qualification for use of such agreement is determined solely by the District and is based on the size, layout, and complexity of the sanitary sewer facilities serving the Shared-Use Facility. Any agreement must be in writing and acceptable to the District and the owner or their agent of the Shared-Use Facility.

Option No. 1: The owner or their agent of the Shared agrees to complete required testing, repair or replacement of ***all*** the sanitary sewer facilities servicing the Shared-Use Facility upon notification by the District that testing is required. Under this option, sales, leases, or changes in tenant/ownership of individual units or suites are allowed to proceed prior to testing and without approval from the District.

After 5 years from the latest test date, ***all*** the sanitary sewer facilities servicing the Shared-Use Facility shall be retested when any of the conditions outlined in Section 10.02, page 49 occur ***or*** Option No. 2 may be chosen and applied.

Option No. 2: The owner or their agent of the Shared-Use Facility agrees to complete required testing, repair or replacement of ***all*** the sanitary sewer facilities servicing the Shared-Use Facility upon notification by the District that testing is required, and will complete said testing over a 5 year period of time. The owner or their agent of the Shared-Use Facility shall be required to test a minimum of 20 percent of the total number of sanitary sewer facilities per year, beginning at the time of initial notification by the District that such testing is required. Under this option, sales, leases, or changes in tenant/ownership of individual units or suites are allowed to proceed without approval from the District *if the conditions of the agreement have been fully honored by the owner or their agent of the Shared-Use Facility.*

After 3 years from the latest test date associated with the 5 year testing period, 20 percent of the total number of sanitary sewer facilities servicing the Shared-Use Facility shall be retested when any of the conditions outlined in Section 10.02, page 49 occur, ***or*** Option No. 1 may be chosen and applied.

If the conditions of the Option No. 2 Shared-Use Facility Agreement have not been fully honored by the owner or their agent, the Shared-Use Facility shall be retested when any of the conditions outlined in Section 10.02, page 49 occurs within 8 years of the earliest test date associated with the unfulfilled Shared-Use Facility Agreement.

Testing or sanitary sewer facility replacement may be required at any time upon a determination of the General Manager for the protection of the public health, safety and welfare.

10.07 Cleaning Manholes

When septic tank contents are dumped into a specified manhole under permission from the General Manager, it shall be discharged through a pipe or hose in such a manner that none of the contents shall be left adhering to the sides or shelf of the manhole.

11. PROHIBITED USES OF SEWER

11.01 Discharge Permit Required

No person shall discharge, or cause to be discharged, any industrial waste into the District sanitary sewer system without having obtained an Industrial Waste Permit from T-TSA. Such permit is required in addition to any other permits that may be required by the District Code, Town Code, County Code, State Statute or other Ordinance, rule or regulation applicable to the industrial discharge.

11.02 General

It shall be unlawful for any person to do any of the following:

(a) To place, throw, or deposit, or cause or permit to be placed, thrown, or deposited in any public sewer or District sewer main pipeline any dead animal, offal, or any other solid matters, or materials or obstructions of any kind whatever of such nature as may clog or obstruct such sewer, or which may interfere with or prevent the effective use, operation, maintenance or repair of the sewer.

(b) To deposit or discharge, or cause or permit to be deposited or discharged, into any public sewer or District sewer main pipeline any water or wastewater or liquid waste of any kind containing chemicals, greases, oils, tars, or other matters in solution or suspension, in concentrations greater than 100 parts per million, by weight, which may clog or obstruct the sewer, of which may in any way damage or interfere with or prevent the effective use, operation, maintenance or repair of the sewer, or which may necessitate or require frequent repair, maintenance or flushing of such sewer to render it operable, or which may obstruct or cause an unwarranted increase in the cost of treatment of the wastewater.

(c) To discharge, or cause discharge or permit to be discharged to the sanitary sewer system any storm water, surface water, ground water, roof runoff, surface drainage, subsurface drainage, cooling water or waters of similar quality into any public sewer.

(d) To discharge any gasoline, benzene, ethylene-glycol, oil or other flammable or explosive liquid or substance into any public sewer.

(e) To discharge, or cause or permit to be discharged, any toxic or other pollutants in amounts or concentrations that (1) endanger public safety; (2) adversely impact the physical integrity of the T-TSA treatment works; (3) cause a violation of effluent to water quality limitations imposed by the Lahontan Regional Water Quality Control Board or other public entity; or (4) preclude the selection of the most cost effective alternative for waste water treatment and sludge disposal.

(f) To connect sanitary sewer pipelines or laterals from any septic tank or cesspool to the District's sanitary sewer system.

(g) To discharge uncontaminated water into a public sanitary sewer except by written permission from the District.

(h) To allow plumbing fixtures to run water to inhibit freezing water pipes, whether the structure is occupied or not.

11.03 Garbage

Garbage resulting from the preparation of food may be discharged into the public sewer provided the materials are ground to fineness sufficient to pass through a 3/8 inch screen. The garbage grinding operation shall utilize a balanced water supply and cutting heads combination such that the operation will produce approximately 500 milligrams per liter settle able materials. The General Manager shall have sole authority to regulate the permittee's water supply and fineness gradation based on the special conditions at the site.

11.04 Temperature of Effluent

A person shall not discharge into the public sewer effluent to a temperature exceeding 140 degrees Fahrenheit.

11.05 Control of pH

Before any person shall discharge acids or alkalies into the public sewer, he shall control the pH to the extent the District finds adequate.

11.06 Toxic Substances

Any and all toxic chemical substances shall be subject to the industrial waste discharge permit requirement of the Tahoe Truckee Sanitation Agency. Additionally, all toxic and chemical waste substances shall be retained on site by the permittee until they have been pre treated sufficiently to meet the discharge standards specified in the applicable Permit for the premise. The discharge of any toxic chemical substance into sanitary sewer facilities will result in the declaration of a violation and the prosecution thereof in accordance with District Code.

11.07 Removal of or Damage to Sewer

An unauthorized person shall not remove or cause to be removed, or damage or cause to be damaged, any portion of any public sewer, District sanitary sewer facility, or any appurtenances thereto.

11.08 Unauthorized Opening of the District Sanitary Sewer Facilities

An unauthorized person shall not open or enter, or cause to be opened or entered, for any purpose whatsoever, any District sanitary sewer facility. The opening of any public sewer facility may lead to a penalty. This specifically includes all manholes and vaults used as access points by District personnel. Individuals may schedule a District employee to assist them if there is a need to have a facility opened.

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12. ENFORCEMENT

12.01 Violations

The permittee shall be held solely responsible for all costs that the District may incur during the investigation, correction and/or prosecution of any and all violations to the District Code. Any and all such costs shall be reviewed by the Board of Directors and, if found appropriate, the Board of Directors may institute collection procedures in accordance with the District Code.

12.02 Authority of District

The charges, fees, levees and assessed monetary levees pursuant to District Code shall be collected by the District. The District shall make and enforce the regulations as necessary to ensure the public health, safety, and welfare. The District shall also ensure the economical and efficient management and protection of the District's sanitary sewer system and such regulating, collection, rebating and refunding of such charge and fees, levees and assessments as deemed appropriate by the Board of Directors.

In the event of a violation of any of the laws of the State of California, Nevada County, Placer County, Town of Truckee or the ordinances of the District or rules and regulations so established referring to the discharge of wastewater, the District shall notify the person or persons causing, allowing, or committing such violation and upon the failure of such person or persons to cease or prevent further violation within 5 days after the receipt of such notice, the District shall, after giving 10 days notice as outlined in Section 12.07, Notice and Hearing Prior to Discontinuance Other Than a Discontinuance of Service for Non-Payment, page 61, have authority to disconnect the property from the District sanitary sewer system.

12.03 Public Nuisance

Continued habitation of any building or continued operation of any commercial or industrial facility in violation of the provisions of the District Code or any other ordinance, rule or regulation of this District is hereby declared to be a public nuisance. The District may cause proceedings to be brought for the abatement of the occupancy of the building or industrial facility during the period of such violation.

12.04 Public Nuisance, Abatement

During any period of disconnection, habitation of such disconnected premises by human beings shall constitute a public nuisance, whereupon the District may cause or petition legal proceeding to be brought for the abatement of the occupancy of said premises by human beings during the period of such disconnection. In such events, and as a condition of re-connection, the applicant for re-connection shall pay to the District all costs incurred by the District associated with the disconnection and the legal proceedings. Such costs shall include but not be limited to reasonable attorney fees and the costs of suit(s) arising out of any such action.

12.05 Discontinuance of Service

Service may be discontinued for any one of the following reasons:

(a) Delinquency in the payment of any bill, except that service shall not be discontinued for nonpayment in any of the following situations:

1. During the pendency of any investigation by the District of a customer dispute or complaint.

2. When a customer has been granted an extension of the period for payment of a bill.

3. On the certification of a licensed physician or surgeon that to do so will be life threatening to the customer.

4. If the customer is financially unable to pay for service within the normal payment period, yet is willing to enter into an amortization agreement with the District and requests permission to amortize, over a period not to exceed 12 months, the unpaid balance of any bill asserted to be beyond the means of the customer to pay within the normal payment period.

(b) Any violation by the customer of any rules and regulations of the District governing sewer service.

(c) Unsafe Apparatus or Damaging Conditions. If an unsafe or hazardous condition is found to exist on the customer's premises, or if the customer's use of sewer service is found to detrimental or damaging to the District or its other customers, the District may discontinue sewer service without notice, provided that the District shall notify the customer immediately of the reasons for the discontinuance and the corrective actions to be taken by the customer before service can be restored. If the District determines that the need for the discontinuance stems from the customer's failure to adequately maintain the customers' building lateral or the customer's improper use of the building lateral or is otherwise caused by the customer's actions/inactions, then the customer will be liable for the District's cost of discontinuance and re-connection, if any, as well as any corrective actions required by the District.

12.06 Notice and Hearing Prior to Discontinuance of Service for Non Payment

At least 10 days before any proposed discontinuance of service for nonpayment of a delinquent account, the District shall mail a notice, postage prepaid to the customer to whom the service is billed of the proposed discontinuance. Such notice shall be given not earlier than 19 days from the date of mailing the District's bill for such service and the 10 day period shall not commence until 5 days after the mailing of the notice. In addition to the 10 day notice provided for in the preceding sentence, the District shall make a reasonable, good faith effort to contact an adult person residing at the premises of the customer by telephone or in person at least 48 hours prior to any discontinuance of such service.

Every notice of discontinuance of service required by this section, shall include all of the following information:

- The name and address of the customer whose account is delinquent.
- The amount of delinquency.
- The date by which payment or arrangements for payment is required in order to avoid discontinuance.
- The procedure by which the customer may initiate a complaint or request an investigation concerning service or charges, unless the District's bill for services contains a description of that procedure.
- The procedure by which the customer may request amortization of the unpaid charges.
- The procedure for the customer to obtain information on the availability of financial assistance including private, local, state or federal sources, if applicable.
- The telephone number and name of a representative of the District who can provide additional information or institute arrangements for payment.

12.07 Notice and Hearing Prior to Discontinuance other than a Discontinuance of Service for Non-Payment

In order to effect its powers, the District may enter upon private property for the purpose of inspection and maintenance of sanitary and waste disposal facilities and may terminate service to property in which a violation of any rule or regulation is found to exist.

Prior to termination of service, however, the General Manager shall notify, in writing, the owner and tenant, if any, of such property that service is intended to be so terminated and conduct a hearing thereon as herein provided. Such notice shall be mailed to the owner at the address shown on the records of the assessor of the county or as known to the clerk, and a copy shall be delivered to the tenant or posted conspicuously on the property. The notice shall state the date of proposed termination of service and the reasons therefore and the date the District Board shall hold a public hearing upon such intended termination. Such hearing shall not be held less than 10 days subsequent to the giving of notice as herein required.

12.08 Discontinuance of Service on Weekends, Holidays or After Hours

No sewer service shall be discontinued to any customer or user because of any delinquency in payment on any Saturday, Sunday, legal holiday, or at any time during which the business offices of the District are not open to the public.

12.09 Amortization of Delinquent Bill for Service

Every complaint or request for investigation by a customer that is made within 5 days of receiving the disputed bill, and every request by a customer that is made within 13 days of the

mailing of the notice required by Discontinuance of Service, Section 12.05, page 60, for an extension of the payment period of a bill asserted to be beyond the means of the customer to pay in full during the normal period of payment shall be reviewed by the General Manager. The review shall include consideration of whether the customer shall be permitted to amortize the unpaid balance of the account over a reasonable period of time, not to exceed 12 months. Any customer, whose complaint or request for an investigation has resulted in an adverse determination by the General Manager, may appeal the determination to the Board of Directors.

12.10 Authority to Settle Controversies Relating to Discontinuance and to Permit Amortization of Delinquent Bills

The General Manager is hereby authorized to investigate complaints and review disputes pertaining to any matters for which service may be discontinued and to rectify errors and settle controversies pertaining to such matters. The General Manager is also authorized, upon a proper showing by a customer of the customer's inability to pay a delinquent bill during the normal period, to grant permission to amortize the unpaid balance over a reasonable period of time, not to exceed 12 months. At the discretion of the General Manager, controversies may be brought to the Board of Directors for settlement prior to the discontinuance of any such service.

12.11 Notice Required Prior to Discontinuance of Service for Failure to Comply with Amortization Agreement

If an amortizing agreement is authorized, no discontinuance of service shall be effected for any customer complying with such agreement, if the customer also keeps the account current as charges accrue in each subsequent billing period. If a customer fails to comply with an amortization agreement, the District shall not discontinue the service without giving notice to the customer at least 48 hours prior to discontinuance of the conditions the customer is required to meet to avoid discontinuance, but the notice does not entitle the customer to further investigation by the District.

12.12 Enforcement of Provisions

The provisions of the District Code, and a violation of failure to comply with any provision of the District Code, may be enforced, prosecuted and/or corrected pursuant to Health and Safety Code Sections 6523, 6523.2 and 6523.3, the penalty provisions of the District ordinance that adopted this code by reference, and/or other applicable provisions of law.

12.13 Means of Enforcement Only

The District hereby declares that the foregoing procedures are established as a means of enforcement of the terms and conditions of its ordinances, rules and regulations, and not as a penalty.

12.14 Cumulative Remedies

All remedies set forth herein for the collection and enforcement of charges, rates, and penalties are cumulative and may be pursued alternatively or consecutively.

12.15 Appeals Procedure

Any person aggrieved by a ruling under or interpretation of the provisions of the District Code may submit a written appeal to the General Manager of the Truckee Sanitary District within 90 days of the date that the applicant is advised by the member entity or by the Agency of any action. The appeal shall set forth the events and circumstances leading to the appeal, the nature of the ruling or interpretation from which relief is sought, the nature of the impact of the ruling on appellants' property or business, together with any other reason for the appeal.

Should the aggrieved person not be satisfied with the determination of the General Manager, he/she shall ask to appeal the decision of the General Manager to the Board of Directors within 60 days of the date that the General Manager's determination is made. The General Manager shall then submit such appeal together with his/her recommendations to the Board of Directors which shall forthwith study the matter, hear testimony and reasons for such appeal, and prepare a written decision summarizing the findings and ruling of the Board which shall be sent to the appellant within 30 days.

After a decision is reached by the Board of Directors which results in the granting, denying, or revocation of a permit, the appellant must bring any legal action again the District within the time limits set forth in Section 1094.6 of the Code of Civil Procedure which provisions are applicable to the Truckee Sanitary District.

12.16 Re-connection to the District's Sanitary Sewer System

After disconnection of sanitary sewer service to any premises for any cause, the re-connection of such premises shall be subject to all provisions of the District Code and/or Ordinance applicable thereto.

12.17 District Code Authority

To the extent that the terms and provisions of this ordinance may be inconsistent or in conflict with the terms or conditions of any prior District ordinances, resolutions, rules or regulations governing the same subject, the terms of this ordinance shall prevail with respect to the subject matter thereof, and such inconsistent and conflicting provisions of prior ordinances, resolutions, rules or regulations are hereby repealed.

If any provision of this ordinance or applications thereof to any person or circumstances is held invalid, no other provision of this ordinance shall be affected thereby.

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APPENDIX A-5
MATERIALS FOR CONSTRUCTION OF SANITARY SEWERS

GRAVITY PIPELINE INSTALLATIONS

Gravity pipe shall contain a flexible gasket in the bell section to provide an air tight seal in the joint.

Type of Pipe	Class of Pipe	Minimum Cover Non-Traffic	Minimum Cover Traffic	Maximum Cover
PVC	SDR 35	30"	48"	12'
PVC	C900 DR 25 or SDR 26	30"	48"	16'
PVC	C900 DR 18	30"	30"	28'
PVC	C900 DR 14	30"	30"	-
DI	CL 51 or greater	30"	30"	-

PRESSURE PIPELINE INSTALLATIONS

Force main pipelines shall be designed and approved on a case by case basis. Considerations shall include; design static and dynamic pressures, pressure cycling, alignments, and any other condition considered unique to the project. Piping shall be a minimum 2" diameter with a pressure rating equal to or greater than the pump system requirements. Piping with an inside diameter of less than 2" shall require the use of a grinder pipe on the pump system. No piping shall have an inside diameter of less than 1.8".

Type of Pipe	Minimum Class of Pipe	Minimum Cover Non-Traffic	Minimum Cover Traffic
PVC	SCH 40 Welded Joint	30"	30"
PVC	DR18 CL 150*	30"	30"
HDPE	DR 13.5	30"	30"
DI	CL 51	30"	30"

*Blue pipe is not acceptable

INSTALLATION OF COUPLINGS

Building Laterals
Rigid or flexible couplings may be used on building laterals.

Gravity Main Pipelines
Coupling on pipelines shall be rigid or flexible with anti shear bands on pipes of similar material; or flexible couplings on pipes composed of different material.

Pressure Pipelines
Rigid couplings are required on pressure pipelines.

NOTE: Flexible couplings shall be Bond Seal, Fernco, Indiana Seal, or other approved coupling. Rigid couplings shall be PVC, Romac, Bond Seal Anti Shear, Fernco Anti Shear, Indiana Seal Anti Shear of other approved coupling.

NOTE: The use of any other pipe material for construction of sanitary sewer facilities, other than that listed above, must be approved in writing by the District.

APPENDIX A-6
DISTRICT STANDARD SPECIFICATIONS

A-6.1 Scope

The District Standard Specifications constitute a compilation of standards for sewer system design, development, repair and construction. The purpose of these standards is to establish quality guideline for sewer system design and construction within the Truckee Sanitary District. These standards shall apply to all sanitary sewer facilities constructed within the boundaries of the District.

The owner or their agent shall, at all times, keep themselves fully informed of, and shall observe and comply with all applicable Federal and State Laws; Nevada/Placer County, Town of Truckee, and special district ordinances, resolutions, rules, and regulations which in any manner effect the design construction or operation of the sanitary sewer system and its appurtenances.

All developments/projects are handled on a first come, first serve basis. There are specific administrative requirements for developments and projects which involve the installation of sewer facilities. The District has produced a "Development Guidelines" packet to assist you. The owner or their agent shall be required to submit the necessary application and associated forms to the District to facilitate this procedure. "Development Guidelines" packets may be obtained at the District office.

A-6.2 Design Standards

With regard to wastewater design flows, the designer shall use current and/or proposed land use designations. Population densities will vary, being controlled largely by the number of residential lots per acre and other land uses. All wastewater design flow estimates shall incorporate equivalent population for schools, commercial, and industrial uses. These figures shall be indicated on the set of improvement plans submitted for approval. Design calculations shall assume all pipes to have a Manning's n = 0.013. For design purposes, gravity sewer mains shall be considered at capacity when the ratio of the water depth to pipe diameter (d/D) is equal to 0.8.

Residential Design Flow:

For design purposes, an average flow of 230 gallons per day per single family residential unit shall be assumed. Peak flows shall be estimated using chart A-6.2. In large sanitary sewer systems, consideration should be given to concentrations of peak flows.

Commercial Design Flow:

Wastewater drainage systems for commercial applications shall be designed to meet the requirements of the Uniform Plumbing Code.

Horizontal Alignment:

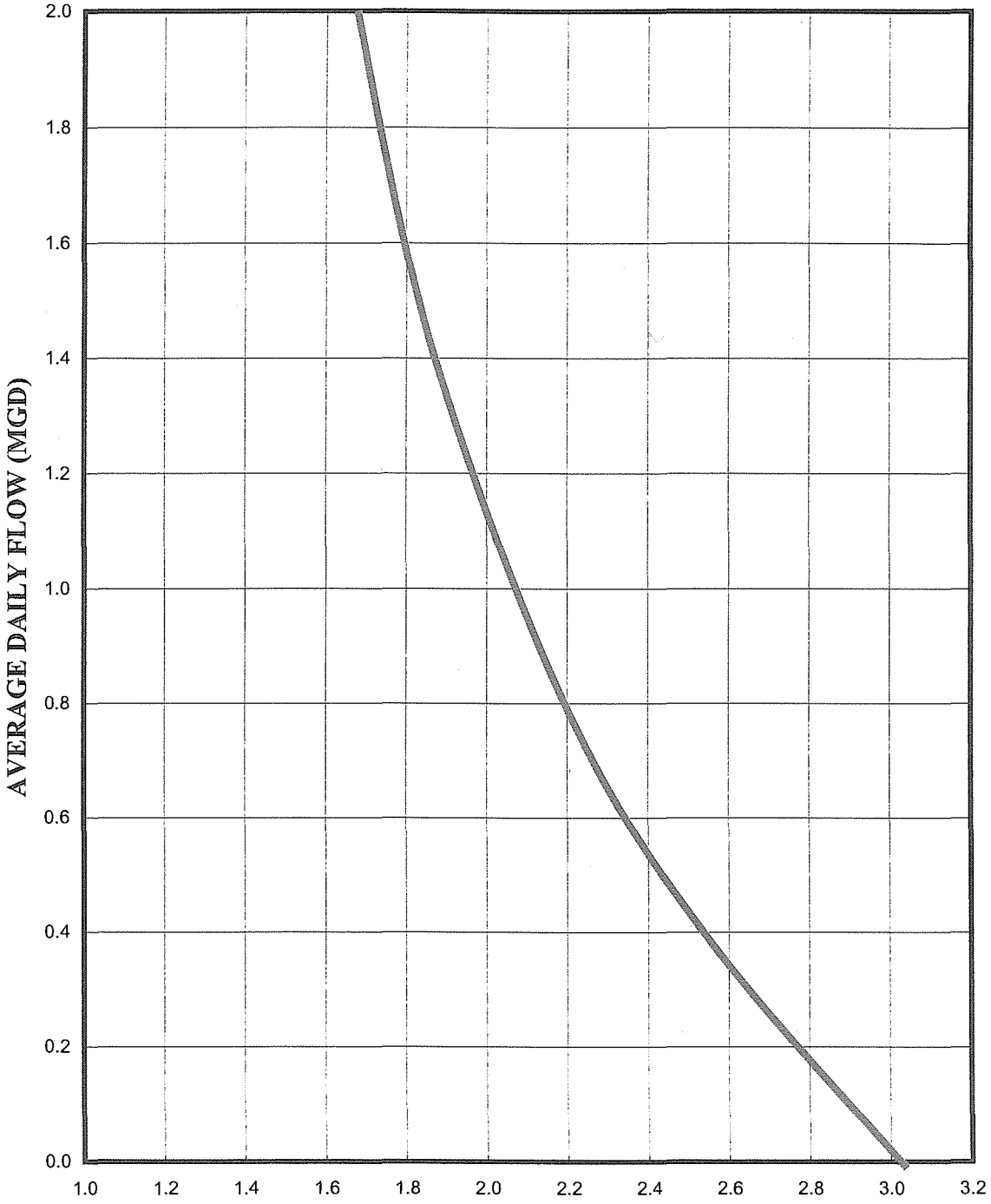
Sanitary sewer grades shall be designed to provide a minimum velocity of 2 feet per second when flowing full. The following table indicates the slopes which will provide that velocity, and these shall be used as the standard for design. Minimum acceptable slopes are also shown. These minimum slopes shall be used only when topographic features preclude standard slopes and require written approval from the General Manager for their use.

SLOPE IN FEET/FOOT

Diameter	2 feet/Second Flow	Minimum Acceptable
4"	0.0208 (1/4" per foot)	0.0104 (1/8" per foot)
6"	0.0050	0.0035
8"	0.0035	0.0025
10"	0.0025	0.0015
12"	0.0020	0.0008
15"	0.0016	0.0007
18"	0.0012	0.0006

Whenever a change in the size of the pipe, or an angle of 20 degrees or greater in alignment occurs, the flow line of the pipe flowing into manholes shall be a minimum of 0.17 feet above the flow line of the pipe flowing from the manhole, or an amount necessary to match the inside crowns of the pipe, whichever is greater.

AVERAGE TO PEAK FLOW RELATIONSHIP



(MULTIPLY BY AVERAGE DAILY FLOW TO DETERMINE PEAK HOUR FLOW FOR PIPE DESIGN CALCULATIONS)

Location and Alignment of Sanitary Sewer Facilities:
All sanitary sewer facilities to be dedicated to the Truckee Sanitary District shall be constructed and installed within rights-of-way dedicated for public streets or roads, or within sanitary sewer easements, unless such construction or installation is determined to be impractical by the General Manager.

Whenever it is essential that curved alignment be used for sanitary sewer pipelines, a radius of not less than 200 feet will be used, and shall be greater whenever possible. No sanitary sewer facility, including building laterals, shall be located within 50 feet of a water well. Any sanitary sewer pipeline located between 50 feet and 100 feet of a water well shall be constructed of ductile iron with rubber type ring joints.

Location of Sanitary Sewer Facilities with Respect to Other Utilities:
Sanitary sewer main pipelines running parallel to water mains must maintain at least a 10 foot horizontal separation. Sanitary sewer main pipelines crossing water mains shall maintain at least 1 foot vertical separation and shall meet Uniform Plumbing Code requirements for pipeline types, joint locations, and encasement or sleeving.

The location of building laterals with respect to water service connections running parallel in a common trench shall meet the requirements of the Uniform Plumbing Code, Section 720.0 which states in part:

- The bottom of the water pipe, at all points, shall be at least 12 inches above the top of the sewer pipeline, and

- The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a minimum clear horizontal distance of at least 12 inches from the sewer.

The spring line of building lateral crossing water pipes shall be at least 12 inches below the bottom of the water pipe and shall meet Uniform Plumbing Code requirements for pipeline types, joint locations, and encasement or sleeving.

Sanitary sewer main pipelines running parallel to other utilities (e.g., natural gas, storm drain, electrical lines, communications) shall be installed so that a minimum of 4 ft of horizontal separation exists between the closest points of the pipes. Sewer laterals shall be installed so that a minimum of 18 inches of horizontal separation exists. Sanitary sewer main pipelines running perpendicular to other utilities shall be installed so that a minimum of 1 ft of vertical separation exists and the sewer pipe should be centered such that the distance from the utility crossing to the joints is maximized.

Pipe Cover:
The depth of any sanitary sewer main pipeline or lateral shall be adequate to obtain a minimum cover of 30 inches. Any exception to this rule must have prior approval of the General Manager.

Manhole Spacing:
Normal maximum spacing for manholes shall be 400 feet. Where the location of two manholes are determined by intersecting lines, the distances between intervening manholes shall be approximately equal. Sewers on curved alignment with a radius of less than 400 feet shall have

manholes spaced at a maximum of 300 feet and adjusted down to fit the individual case. Curved alignment shall not be used unless specifically permitted by the General Manager.

The maximum spacing of manholes on outfall sewer pipelines of 12 to 24 inches shall be 500 feet.

End of Line Cleanouts:
An end of line cleanout may be used in lieu of a terminus manhole only with the approval of the General Manager. See Standard Drawings, End of Line Cleanout Assembly, Figure 5, page 149.

End of Line Manholes (Terminus):
An end of the line manhole shall have a trough not less than three quarters the diameter of the manhole base. This will allow ingress of cleaning and televising equipment.

Sanitary Sewer Service Connections:
In all new subdivision work, the sewer service lateral from the sewer main pipeline to the property line shall be installed at the time the sewer main pipeline is constructed.

Whenever a sewer main pipeline is installed which will serve existing houses or other buildings, a sanitary sewer service connection shall be constructed for each such existing house or building. Each sanitary sewer service connection shall be referenced to the plan stationing.

A plan and profile of any sanitary sewer service connection, other than for a single family or two family dwelling, shall be submitted in accordance with the District Code.

Sanitary sewer service laterals may be connected to outfall sewer pipelines (pipelines 12 inches in diameter or larger) at manhole locations only, and only when the depth of the outfall sewer pipeline does not exceed 12 feet from finished grade.

Wastewater Lift Stations and Force Mains:
Whenever the design of a sanitary sewer system includes the necessity of a wastewater lift station and a force main, the following data shall be submitted for tentative approval prior to construction:

Pumps

- The design flow computations for the pumping system which includes both the pumps or ejectors, and the force main.

- The type, size, and model of pump to be used. Pumps shall be similar in design and manufacture to existing District equipment if possible. Pump curves shall be supplied with all design parameters and system curves marked.

Site

- A plot plan showing the dimensions of the site and its location with respect to homes or other structures. Minimum distance from a lift station to any residence shall be 50 feet except with advance approval of the General Manager for each specific case.

- Section and plan views of the wet well and all other structures to be constructed.

Electrical and Telemetry

- The design computations for electrical loads for pumps and all other equipment.
- Control equipment electrical diagrams. Control equipment shall be equal to design and manufacture of currently used control equipment in the District if possible.
- Telemetry electrical diagrams. Telemetry equipment shall be equal to design and manufacture of currently used telemetry equipment. All telemetry equipment shall be compatible with the District's most current telemetry system whether that system is in use or being implemented.
- Electrical standby system design. Electrical system shall incorporate a standby power system consisting of a safety switch and generator plug combination. Stations being dedicated to the District and serving more than 9 residences shall also include a generator and transfer switch combination depending on pumping station size, design flow, and type. Designation shall be by the General Manager
- Method of storage of 1 hour of peak flows in case of pump failure (i.e. storage tank or oversized lines).

Force Main

- The size and type of pipe to be used.
- The size and type of fittings to be used.
- The tentative alignment of pipe and locations of bypass ports if required. Bypass ports shall incorporate valve and fitting types that match current District bypass port design and usage (see Standard Drawings, Bypass Port (single), Figure 23, page 185, and Bypass Port (double), Figure 24, page 187).
- A single bypass port shall be located at the pump station. Additional double bypass ports shall be located at accessible locations with a maximum distance between ports of 1,500 feet.
- Force mains shall discharge into dedicated manholes that have no other input of sewage (see Standard Drawing, Force Main Detail (siphon break at manhole), Figure 13, Page 165).

The force main shall be marked with tracer wire. Tracer wire shall consist of 10 AWG minimum with THW, THHW, TW, THWN, or other approved wet location insulation. Wire shall be attached to the top of the force main with tape at appropriate intervals. Wire shall be continuous between vaults and other access points where excess wire shall be spooled to provide connection points. Splices shall incorporate approved underground splice kits. Each run of tracer wire shall be tested for continuity following backfill.

Mobile Home and Recreational Vehicle Parks:
Whenever the design of a sanitary sewer system involves mobile home and/or recreational vehicle parks, additional requirements to those in the Uniform Plumbing Code, may be necessary due to the environment (see Standard Drawings, Utility Pad Installation, Figure 11, page 161).

A-6.3 Criteria for Improvement Plans

Format of Improvement Plans:
Improvement plans for sanitary sewer improvements shall be prepared on standard FAS sheets (24 x 36 inches). Scales are to be as follows except in unusually rough terrain where the scales may be variable. Horizontal 1 inch = 100 feet or 1 inch = 40 feet, Vertical 1 inch = 10 feet or 1 inch = 5 feet.

On subdivision or improvement plans exceeding three sheets in the set, a title sheet shall be prepared showing the entire subdivision or project, Assessment District, Town Limits, Streets Names, Section and/or grant lines and corners; and the location within the County. The owner or their agent shall provide a list of symbols and abbreviations either on the title sheet or in the specifications.

The title sheet also shall include the Engineer's name, and license number and signature; the date and scale of the drawing; and the blocks for the necessary approval of the General Manager and other officials.

Each set of improvement plans submitted to this office shall have a suitable index map showing the overall area to be developed and the sheet index referring to the construction improvement plans.

Each sheet within the set of drawings shall have an approved title block showing the sheet title, number, date, scale and the Engineer's name and license number; and the name of the Subdivision or Assessment District.

Approval blocks shall appear on the title sheet and all detail sheets that have details to be approved by the District. There shall be one block for "Approved" to be signed by the General Manager. The block shall have space to be dated.

Example: These improvement plans have been reviewed and approved for construction of the sanitary sewer.

Approved: TRUCKEE SANITARY DISTRICT

_____ _____
General Manager and Chief Engineer **Date**

Special notes shall be clearly indicated, and it shall be conspicuously noted on the improvement plans that all construction work and installations shall conform to the District Code and that all work is subject to the approval of the General Manager. The following phrase shall be noted on the improvement plans:

"All sewerage works to meet or exceed Truckee Sanitary District Code requirements"

Plan and Profile Sheet Requirements:
The improvement plans shall clearly show the existing and proposed alignments and profiles of the sanitary sewer(s) in relation to road ways, drainage ditches, storm drains or any other underground utility. The improvement plans shall show all areas of conflict and minimum clearances between sanitary sewer and water facilities. Ground surface profiles must be shown.

The stationing on plan and profile shall read from left to right. Insofar as practical the improvement plans shall be so arranged that the north arrow is either pointed toward the top or to the right edge of the sheet.

Detail Sheet Requirements:
Detail sheets of all sanitary sewer facilities (manholes, cleanouts, traps, interceptors, wet wells, pump stations, etc.) shall be included in the improvement plans. Typical trench sections shall also be included in the improvement plans.

Cross Sections shall be included in the improvement plans, where determined necessary by the General Manager.

Inclusion of Datum and Legal Boundaries:
The bench marks and datum shall be clearly pointed out on the improvement plans both as to location, description and elevation. The datum shall be U.S. C & G.S., 1927 North American Datum.

It is desired and encouraged that proposed improvements be tied into the California Coordinate System if monument coordinate points are available within a reasonable distance of said improvement.

Right-of-way lines, the boundaries of lots fronting on the street, drainage easements, utility easements, section lines and corners, land grant lines, and temporary construction easements both existing and proposed shall be shown on the improvement plans. All right-of-way and easement lines shall be properly dimensioned.

Topographic Features:
All pertinent topographic features shall be shown such as street lines, curbs, sidewalks, shoulders, existing structures, houses, trees and other foliage drainage ditches, utility poles, fire hydrants, and all other features of the area which may affect the design requirements for the project.

Existing and proposed substructure location and size; i.e., storm and sanitary sewer pipelines; water and gas pipelines; electrical, telephone, cable TV conduits; and any other buried utilities which may affect the design requirements of the project, shall be noted.

A-6.4 As Built Drawings/Electronic Data

The owner or their agent of a newly constructed commercial development containing sanitary sewer facilities shall prepare and submit reproducible improvement plans (mylar sheets) containing all approved construction changes or final dimensions delineated on the improvement

plans. All improvement plans produced on computer with the aid of computer design software shall be saved on a compact disk (CD). A single set of reproducible improvement plans ***and*** a CD containing the same data as the reproducible improvement plans shall be presented to the District. Compact disk shall contain plans in both drafting software format (e.g., AutoCAD) and in an image application format (e.g., pdf).

The set of as constructed improvement plans submitted to the District shall have the words "As Built" or "Record Drawings" in one inch high letters on each sheet.

Dimensions and locations shall be sufficient for locating the constructed improvements. Dual swing ties are required for all stub outs and cleanout risers. Permanent objects such as property corners, power poles, water boxes, structures, etc. shall be used for swing ties.

Sewer facilities (e.g., manholes, lift stations, laterals) on As Built drawings shall include TSD identification names as provided by the District.

In the case that the sanitary sewer facilities are to be dedicated to the District, the General Manager shall approve the "As Built / Record Drawing" improvement plans prior to any District acceptance of the completed system.

A-6.5 Construction Administration

Installation of new sanitary sewer facilities or alternation to existing sewer facilities requires inspection during construction by an authorized representative of the District. Each phase of construction must be inspected and approved prior to proceeding to subsequent phases.

Any improvements constructed without inspection as provided herein or construction contrary to the orders or instructions of the authorized representative of the District will be deemed as not complying with these specifications and will not be accepted by the District.

Adequate notice shall be given the District prior to the beginning of construction operations in constructing sanitary sewer facilities so that arrangements may be made by the District to provide adequate inspection.

Conformity with Improvement Plans and Allowable Deviation:
Deviations from the approved improvement plans, as may be required by field conditions during construction, shall require written approval by the General Manager.

Alteration of Improvement Plans:
All authorized alterations affecting the requirements and information given on the approved improvement plans shall be in writing. No changes shall be made of any plan or drawing after the same has been approved by the District except by direction of the General Manager.

Working drawings or plans for any facility not included in the improvement plans furnished by the owner or their agent shall be approved by the District prior to commencement of any work involving such facility.

Authority of the District Inspector:
The periodic inspection performed by the various inspectors employed by the District shall not constitute approval or ratification of work improperly completed by the contractor.

Final Inspection:
Upon completion of any improvements which are constructed under and in conformance with this Code, and prior to requesting final inspection, the area shall be thoroughly cleaned of all rubbish, excess material and equipment; and all portions of the work shall be left in a neat and orderly condition satisfactory to the District. The final inspections may include: Ball and Flush of the pipelines, Mandrel Tests, Television Inspection, Air, Water, or Vacuum tests and/or any other tests deemed necessary by the District.

The General Manager will require copies of all Grant Deeds for easements given to the District as a part of sanitary sewer facility installation. Field verification of such easements may be required.

After receiving the request for final inspection, the District will inspect the work. The contractor and/or owner will be notified in writing as to any particular defects or deficiencies to be remedied. The contractor shall proceed to correct any such defects or deficiencies at the earliest possible date. At such time as the work has been completed, a second inspection shall be made by the District to determine if the previously mentioned defects have been repaired, altered and completed in accordance with this Code. At such time as the General Manager approves and accepts the work for the District, the contractor and/or owner may request in writing, for Board approval. The owner will be notified in writing as to the date of final approval and acceptance by the District Board of Directors.

A-6.6 Legal Relations and Responsibility

District Liability:
Neither the District, the General Manager or any other officer or agent of the District shall be personally responsible for any liability arising under any contract between the developer and any contractor or subcontractor.

District Responsibility:
The District shall <u>not</u> be held responsible for the care or protection of any material or parts of the work prior to final acceptance.

The District and its representatives, in establishing this Code, and in performing any services, or making any examinations, tests, or inspections hereunder, shall not be liable in any way to any person by reason of any injury, damage, costs, or expenses sustained or caused as a result thereof; nor shall any such services, examinations, tests or inspections constitute any warranty in reference thereto on the part of the District or its authorized representatives, and the relationship of the District to the contractor, or developer shall be solely that of independent contract and not joint venture, partnership, or otherwise.

That the developer shall at its sole cost and expense hold the District harmless from and defend the District against all claims, charges, demands or causes of action arising out of or in any manner whatever connected with any act, activity or work made, completed or undertaken hereunder by the developer, its contractor, engineer, or agents, or employees thereof.

Nothing herein contained shall be deemed to modify, limit, or restrict the rights, duties, and obligations given or granted to said District by the laws of the State of California now in effect or hereafter from time to time adopted, including without limitations the right to amend or modify this Code at any time, and if any part of this Code be determined to be unconstitutional, such determination shall not render ineffective or invalid the remaining provisions therein contained and set forth.

Responsibility for Damage:
The District, the General Manager and all officers, agents and employees of the District shall not be answerable or accountable in any manner thereof; or for any of the materials or other things used or employed in performing the work; or for injury to any person or persons either workmen or the public, for damage to property from any cause which might have been prevented by the developer or anyone employed by him against all of which injuries or damages to persons and property the developer having control over such work, must properly guard.

The developer shall be responsible for any liability imposed by law of any damage to any persons or property resulting from defects or obstructions or from any cause whatsoever during the progress of the work or at any time before its completion and final acceptance.

The developer shall indemnify and save harmless the District, the General Manager and all officers, agents and employees of the District from all suits or actions of every name, kind, description brought for or on account of any injuries or damages received or sustained by any person or persons by or from the developer, his/her agents in the construction of the work or by or in consequence of any negligence in guarding the same, any improper materials used in its construction or by or on account of any act or omission of the developer or his/her agents.

Developer's Responsibility for Work:
Except as provided above, until the formal acceptance of the work by the District, the developer or his/her contractor shall have the charge and care thereof and shall bear the risk of injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution, or from the non execution of the work. The developer or his/her contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof.

All public or private facilities, including but not limited to gravel surfacing at existing canals, structures, telephone cables, roadways, curbs, gutters, parking lots, private drives, levees and embankments for creeks, ponds and reservoirs disturbed during construction of the work shall be repaired and/or replaced by the contractor to match facilities existing prior to construction. In addition, the contractor shall be responsible for any settlement damage to such facilities or adjoining areas for a period of one year after acceptance of such required facilities.

Public Convenience:
It shall be the owner or their agent's responsibility to provide for the passage of public traffic through the work during construction. When work is to be performed in existing traveled streets or roads, trench spoil shall be placed so as to offer the least possible obstruction and inconvenience to public traffic. The owner or their agent shall have under construction no greater length or amount of work than can be prosecuted properly with due regard to the rights of the public.

All public traffic shall be permitted to pass through the work with as little inconvenience and delay as possible. Bridges of approved construction shall be installed and maintained across trenches at all crosswalks, intersections and such other points where, in the opinion of the General Manager, traffic conditions make it advisable.

Spillage resulting from hauling operations along or across any publicly traveled way shall be removed immediately by the owner or their agent at their expense.

Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property.

Convenient access to driveways, houses and buildings along the line of the work shall be maintained and temporary approaches to crossings or intersecting highways shall be provided and kept in good condition. When the abutting owner's access across the right-of-way line is to be eliminated, or to be replaced under the Contract by other access facilities, the existing access shall not be closed until the replacement access facilities are usable.

All fences, mailboxes, signs, etc. subject to interference shall be maintained by the owner or their agent until the work is completed, at which time they shall be restored to the condition existing prior to starting the work, or as shown on the improvement plans or specified by the General Manager.

Water or dust palliative shall be applied in accordance with Northern Sierra Air Quality Management District Rule 226.

In order to expedite the passage of public traffic through or around the work and where ordered by the District, the owner or their agent shall install signs, lights, flares, barricades, and other facilities for the sole convenience and direction of public traffic. Also, where directed by the District, the owner or their agent shall provide and station competent flag persons whose sole duties shall consist of directing the movement of public traffic through or around the work.

Flag persons and guards, while assigned to traffic control, shall perform their duties and shall be provided with the necessary equipment in accordance with the current "Instructions to Flagmen" of the State of California Department of Transportation. The equipment shall be furnished and kept clean and in good repair by the owner or their agent at their expense.

Safety:
The owner or their agent shall be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to all applicable Federal, State, and local laws, ordinances, and codes, and to the rules and regulations established by the California Occupational Health and Safety Administration, and to other rules of law applicable to the work.

The services of the District in conducting construction review of the owner or their agent's performance is not intended to include review of the adequacy of the contractor's work methods, equipment, bracing or scaffolding or safety measures, in, on, or near the construction site, and shall not be construed as supervision of the actual construction nor make the District responsible

for providing a safe place for the performance of work by the owner or their agent, subcontractors, or suppliers; or for access, visits, use work, travel or occupancy by any person.

The owner or their agent shall carefully instruct all personnel working in potentially hazardous work areas as to potential dangers and shall provide such necessary safety equipment and instruction as is necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to electrical work, work involving excavation and in pump sump work.

All work and materials shall be in strict accordance with all applicable State, Federal and local laws, rules, regulations, and codes.

All electrical equipment furnished shall be grounded and provided with guards and protections as required by safety codes. Where vapor-tight or explosion-proof electrical installation is required by law, this shall be provided.

Shoring and Trench Safety Plan - Attention is directed to Section 832 of the Civil Code or the State of California relating to lateral and subjacent support, and the owner or their agent shall comply with this law.

In accordance with Section 6705 of the State Labor Code, the owner or their agent shall have provisions for worker protection from caving ground. Trench safety working drawings shall show the design of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. If such working drawings vary from the shoring system standards established by the Construction Safety Orders of the California Occupational Health and Safety Administration or the Federal safety standards of the Department of Health, Education and Welfare, improvement plans shall be prepared by a registered civil or structural engineer. In no event shall the owner or their agent use a shoring, sloping, or protective system less effective than that required by said Construction Safety Orders, or less effective than that required by said Federal Safety Standards.

Protection of Person and Property:
The owner or their agent shall take whatever precautions are necessary to prevent damage to all existing improvements, including above ground and underground utilities, trees, shrubbery that is not specifically shown to be removed, fences, signs, mailboxes, survey markers and monuments, buildings, structures, the District's property, adjacent property, and any other improvements or facilities within or adjacent to the work. If such improvements or property are injured or damaged by reason of the owner or their agent's operations, they shall be replaced or restored, at the owner or their agent's expense, to a condition at least as good as the condition they were in prior to the start of the owner or their agent's operations.

The owner or their agent shall adopt all practical means to minimize interference to traffic and public inconvenience, discomfort or damage. The owner or their agent shall protect against injury any pipes, conduits or other structures, crossing the trenching or encountered in the work and shall be responsible for any injury done to such pipes or structures, or damage to property resulting there from. They shall support or replace any such structures without delay and without any additional compensation to the entire satisfaction of the District. All obstructions to traffic shall be guarded by barriers illuminated at night. The owner or their agent shall be responsible for all damage to persons and property directly or indirectly caused by their operations and, under all circumstances, they must comply with the laws and regulations of the County and the State of

California relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdictions.

The owner or their agent is cautioned that they must replace all improvements in rights-of-way and within the public streets to a condition that shall comply with all general paving requirements and special requirements of the Town of Truckee, Nevada County, Placer County, and the State of California Department of Transportation.

Type and time of construction required at any road subject to interference by Contract work will be determined by those authorities responsible for maintenance of said road. It shall be the responsibility of the owner or their agent to determine the nature and extent of all such requirements, including provision of temporary detours as required; however, the construction right-of-way obtained by the District at affected roadways will be adequate for provision of all required detours. As required at any road crossing, the owner or their agent shall provide all necessary flag persons, guardrails, barricades, signals, warning signs and lighting to provide for the safety of existing roads and detours. Immediately after the need for temporary detours ceases, or when directed, the owner or their agent shall remove such detours and perform all necessary cleanup work, including replacement of fences, and removal of pavement. Included shall be all necessary replacement of existing roadway appurtenances, grading work, soil stabilization and dust control measures, as required and directed. The cost of all work specified under this Section shall be borne by the owner or their agent.

If required by law, the owner or their agent shall shore up, brace, underpin, and protect as may be necessary, all foundations and other parts of all existing structures adjacent to and adjoining the site of the project, which are in any way affected by the excavations or other operations connected with the completing of the work under his/her contracts.

The owner or their agent shall examine all bridges, culverts, and other structures over which they will move their materials and equipment, and before using them, they shall properly strengthen such structures where necessary. The owner or their agent shall be responsible for any and all injury or damage to such structures caused by reason of their operations.

A-6.7 Guarantee and Delivery of Title

General Guarantee:
The developer/owners shall supply the District with a guarantee for all materials and workmanship which is incorporated into the system for a time period that, at a minimum, extends from the date of acceptance of the facilities to the first day of October of the following year (see Section 2.01 Dedication of Sanitary Sewer Facilities, page 3 and Section 2.05, Extension of and/or Alterations to Sanitary Sewer Facilities, page 4). The time period for the guarantee may be extended by the General Manager on a case-by-case basis as needed. To assure the District this will be completed, the developer/owners shall supply this guarantee as requested by the District in either of the following two forms. Failure to provide this maintenance agreement or maintenance bond will cause the District to withhold final approval.

- Maintenance Bond - The developer/owners shall supply a maintenance bond for 10 percent of the contract amount for the sanitary sewer facilities as specified in the District Dedication Packet.

- Maintenance Agreement - The developer/owners shall supply a maintenance agreement, depositing 10 percent of the contract amount for sewer facilities, in cash securities as specified in the District Dedication Packet.

If a period of 48 hours has elapsed after the developer/owner and/or the bonding company have received written notice by certified mail that a condition of failure exists and no correction has been made, the bonds will be called or the securities withdrawn, and the work will be performed by the District and charged against them.

The developer shall be responsible for the full expense incidental to making good any and all of the above guarantees, the performance of which shall be binding upon the developer and his/her sureties.

Delivery of Title:
Upon the completion and acceptance of the installations of the sewer facilities hereunder, the same shall be transferred to the District, without cost, and the owner shall provide and deliver to the District the following:

- Duly executed warranty bill of sale transferring marketable title to the District of all such sewer works, installations and appurtenances, title thereto to be free and clear of all liens and encumbrances and;

- Duly executed easements wherein said facilities and installations are located in favor of the District; which said bill of sale and easement shall be in form acceptable to the District.

A-6.8 Materials and Equipment

All materials, hardware, equipment, fittings and other miscellaneous items to be incorporated in the District sanitary sewer system shall conform to the following specifications. No changes from the specified products shall be made without written approval from the General Manager. Coverage requirements for various pipeline materials is listed in Appendix A-5, page 73.

Samples and Tests:
The General Manager may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance stating that the materials involved comply in all respects with the requirements of the specifications. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials. A Certificate of Compliance must be furnished with each lot of material delivered to the work and the lot so certified must be clearly identified in the certificate.

All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the contractor of responsibility of incorporating material in the work which conforms to the requirements of the improvement plans and specifications and any such material not conforming to such requirements will be subject to rejection whether in place or not.

The District reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

At the option of the District the source of supply of each of the materials shall be approved by the District before delivery is started and before such material is used in the work. Representative preliminary samples of the character and quality prescribed shall be submitted by the contractor or producer of all materials to be used in the work for testing or examination as desired by the District.

All tests of materials furnished by the owner or their agent shall be made in accordance with commonly recognized standards of national organizations, and such special methods and tests as are prescribed in these specifications.

The owner or their agent shall furnish such samples of materials as are requested by the District, without charge. Samples will be secured and tested whenever necessary to determine the quality of material.

The owner or their agent shall deliver to the District two copies of certificates from the manufacturers of all materials and appurtenances incorporated in the District sanitary sewer system. These certificates shall certify that all goods manufactured by the manufacturer meet all applicable codes, District requirements and specifications.

The certificate shall show the type and quality of materials delivered, the requirements and/or specifications that are complied with.

Should the owner or their agent fail to secure the certificates as required he shall at his/her expense have a commercial testing laboratory, approved by the General Manager, perform the necessary testing and deliver two copies of the results to the General Manager.

Representative preliminary samples of the character and quality prescribed shall be submitted by the owner or their agent or producer of all materials to be used in the work for examination as desired by the General Manager.

No material shall be used until it has been approved by the General Manager.

The District reserves the right to take any additional samples or make additional tests as they may deem necessary.

Polyvinyl Chloride Pipe (PVC) Gravity Sewer Pipe:
PVC gravity sewer pipe and fittings shall conform to ASTM D 3034 for diameters from 4" to 15", and ASTM F 679 for 18" to 24", with integral-bell gasket joints. Rubber gaskets shall be factory installed and conform to ASTM F 477. Pipe joints shall conform to ASTM D 3212.

Pipe shall be made of PVC plastic having a cell classification of 12454-B or 12364-B as defined in ASTM D 1784 and shall have SDR of 35 or 26 and minimum pipe stiffness of 46 PSI according to ASTM D 2412. Pipe shall be installed in compliance with ASTM D 2321. Bedding material shall provide adequate and uniform support under pipe.

Pipe size and dimensions shall be submitted to the General Manager for approval prior to contractor's purchase.

- Size and Dimensions - Size and dimensions shall be such that the minimum "pipe stiffness" (F/Y) at 5 percent deflection shall be as specified in ASTM D 3034-72 for all sizes when calculated in accordance with ASTM designation D-2412, External Loading Properties of Plastic Pipe by Parallel-Plate Loading.

- Flattening-The flattening test shall comply with the requirements of ASTM D 3034-72.

- Extrusion Quality-The extrusion quality shall comply with the requirements of ASTM D 3034-72.

- Impact Resistance-The resistance shall comply with the requirements of ASTM D3034.

Nominal Pipe Size-Inches	Impact Strength Ft. - Lbs.
4	150
6	210
8	210
10	220
12	220
*	

*For larger diameter pipe, see ASTM Standards

- Markings - Markings shall comply with the requirements of ASTM

PVC Pressure Pipe (PVC C900 & C905):
PVC C900 & C905 pipe shall conform to and meet the requirements of AWWA C900 and C905, respectively. Compound material shall meet ASTM D1784, cell class 12454-B. Pipe shall be supplied with an integral bell with gasket meeting the requirements of ASTM F 477. The gasket joint assembly shall meet the requirements of ASTM D 3139.

High Density Polyethylene Pipe (HDPE):
HDPE pipe shall be high molecular weight, high density polyethylene pipe. The material shall be listed by the Plastic Pipe Institute (PPI) with a designation of PE 3408 and have a minimum cell classification of 345434C, D, or E (inner wall shall be light in color) as described in ASTM D3350. The pipe material shall meet the requirements for Type III, Class B or C, Category 5,

Grade P34 material as described in ASTM D1248. The pipe shall contain no recycled compound except that generated in the manufacturer's own plant from resin of the same specification from the same raw material pipe. Pipe (excluding black colored pipe) stored outside shall not be recycled. Pipe and fittings shall be made in conformance with ASTM F714 and ASTM D3261 as modified for the specified material. The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions or other injurious defects. It shall be uniform in density and other physical properties. Any pipe not meeting these criteria shall be rejected.

Ductile Iron Pipe:
Ductile iron pipe shall conform to and meet the requirements of ANSI/AWWA C151/A21.51. It shall be the thickness class required for supporting the imposed loads. Joints shall conform to ANSI/AWWA C111/ A21.11.

Push-on gasket joints and fittings may be used except where otherwise required by the District.

Fittings shall be ductile iron and shall meet the requirements of ANSI/AWWA C110/ A21.11. An exception to this is the 4 to 12 inch pipe size whereby ductile iron compact fittings may be used provided they meet the requirements of ANSI/AWWA C153/A21.53 and have a working pressure rating of 350 pounds per square inch.

Ductile iron gravity pipe used for single family residences shall be class 51 or heavier and may use "Calder" type couplings with stainless steel clamps.

Conductor Pipe:
Conductor pipes shall conform to County/Town and State requirements and these specifications.

Pipe used as a conductor pipe shall be either welded steel pipe or corrugated metal pipe. The General Manager may specify which type shall be used in any instance. The protective lining and coating, if required by the General Manager shall be as shown on the improvement plans.

- **Welded Steel Pipe** shall be manufactured of steel meeting the requirements of ASTM Designation A245, Commercial Grade. The method by which the pipe is manufactured shall comply with one or more of ASTM specifications: A134, A135, A139 or A211. The pipe shall be welded by either the electric-resistance or electric-fusion process, with either spiral seam welded joint or straight seam welded. All end joints shall be butt welded.

  When the conductor pipe is to be installed by boring and jacking, the wall thickness shall be 1/4 inch for sizes up to and including 24 inches in diameter, and 5/16 inch for sizes 27 inches to 36 inches in diameter.

- **Corrugated Metal Pipe** shall conform to and meet all the requirements of "Standard Specifications for Corrugated Metal Culvert Pipe" (ASSHTO Designation M36). Unless otherwise designated by the General Manager, the pipe may be fabricated of any of the base metals listed in the above specifications. Band couplers shall be of the same metal as the pipe.

  When the conductor pipe is to be installed by boring and jacking the material shall be No. 10 gauge or thicker. The sections of pipe shall be especially prepared for making field joints by riveting or bolting. If the joints are bolted, the bolts shall be 3/8 inch diameter and galvanized. Rivets shall be of the same material as the base metal used for the corrugated sheets, and shall be galvanized or sherardized.

Castings:
All castings for manhole rings and covers, or other purposes, shall be tough grey iron, free from cracks, holes, swells and cold sheets and be of workmanlike finish, and shall conform to the pertinent Standard Drawing. The cast iron shall meet the requirements of Specification ASTM Designation A48, Class 40. The quality shall be such that a blow from a hammer will produce an indentation on a rectangular edge of the castings, without flaking the metal. Before leaving the foundry, all castings shall be thoroughly cleaned.

Manhole covers shall fit tightly to form a watertight seal and shall seat in the frame and shall not rock. All manhole covers which do not fit neatly and bear firmly in the frame will be rejected.

Manhole frame and covers shall be used to protect end of line cleanouts located in paved areas. Manhole covers shall fit tightly to form a watertight seal and shall seat in the frame and shall not rock. The frame and cover shall be set on a concrete footing ring of at least 12 inches wide by 12 inches thick.

Precast Manhole Sections:
The manhole sections, adjustment rings and tapered sections with tongue and groove joints shall conform to ASTM Designation C478, except that cement and aggregate shall conform to the requirements of Structural Concrete, Section A-6.14, page 118, of the Standard Specifications. Concrete for poured portions of manholes shall conform to Structural Concrete, Section A-6.14, page 118, of the Standard Specifications. Joints shall conform to Installation of Sanitary Sewer Facilities, Section A-6.9, page 97, of the Standard Specifications under "Manholes." Manhole cones shall be constructed with an internal flat vertical surface at the upper joint to allow installation of internal manhole chimney seals. Vertical surface shall measure no less than 2-inches and be continuous along the entire circumference of the top cone opening. Metal forms shall be used in the manufacture of the precast sections so as to obtain smooth surfaces. The concrete shall be well compacted by being centrifugally-spun, vibrated, or mechanically-tamped.

Cast in Place Manhole Bases:
Cast-in-place concrete for manholes or portions of manholes shall conform to the Standard Specifications and ASTM Specification C478-64T. Portland cement shall be Type II, conforming to the requirements of ASTM Designation C-150.

Backfill Material:
Backfill material as indicated in the Standard Drawings shall meet the following specifications:

Class 1 Backfill

Sieve Sizes	Percentage Passing Sieves
½"	100
No. 4	35-100
No. 50	10-40
No. 100	3-20
Minimum Sand Equivalent	20
Minimum Durability	40

Class 2 Backfill

Sieve Sizes	Percentage Passing Sieves
1"	100
3/4"	90-100
No. 4	35-60
No. 30	10-30
No. 200	2-9
Minimum Sand Equivalent	20
Minimum Bulk Specific Gravity	2.5

Class 3 Native Backfill

Sieve Sizes	Percentage Passing Sieves
3"	100
Minimum Sand Equivalent	20

Class 4 Backfill

Sieve Size	Percentage Passing Sieves
1"	90-100
3/4"	70-100
1/2"	25-60
3/8"	10-40
#4	0-10
#8	0-5
Minimum Bulk Specific Gravity	2.5

Slurry Cement Backfill

Slurry cement backfill shall consist of a fluid, workable mixture of aggregate, cement, and water. When slurry cement backfill is used for structure backfill, the width of the excavation may be reduced so that the clear distance between the outside of the pipe and the side of the excavation on each side of the pipe is a minimum of 6 inches. Cement shall be Portland cement. Water used for slurry cement backfill shall be free from oil, salts, and other impurities which would have an adverse effect on the quality of the backfill material. Aggregate shall be free of organic material and other deleterious substances and shall meet the following grading:

Sieve Size	Percentage Passing Sieves
1½ "	100
1"	80-100
3/4"	60-100
3/8"	50-100
#4	40-80
#100	10-40

The aggregate, cement, and water shall be proportioned either by weight or by volume. Not less than 188 pounds of cement (2-sack) shall be used for each cubic yard of material produced. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed. Materials for slurry cement backfill shall be thoroughly machine-mixed until the cement and water are thoroughly dispersed throughout the material. Slurry cement backfill shall be placed in the work within one hour after mixing.

Slurry cement backfill shall be placed in a uniform manner that will prevent voids in, or segregation of, the backfill, and will not float or shift the pipe. Backfilling over or placing any material over slurry cement backfill shall not commence until 4 hours after the slurry cement backfill has been placed, except when concrete sand is used for the aggregate and the in-place material is free draining, backfilling may commence as soon as the surface water is gone.

Backfill tests shall be made in conformance with the requirements set forth in these Specifications:

Tests	Test Method No. California or ASTM
Relative Compaction	ASTM D1556, D1557, & D2922
Sand Equivalent	ASTM D2419 / 217
Resistance (R-Value)	ASTM D2844 / 301
Sieve Analysis	ASTM C136 / 202
Durability	ASTM D3744
Bulk Specific Gravity	ASTM C127

Pump Stations:
(For private residential submersible pump stations see Residential/Small Commercial Pump Systems, Section 7.16 page 34). Pump stations shall have a duplex pump configuration with controls designed to alternate pumps. Controls shall include Hand-Off-Auto switches and running lights for each pump. Pump electrical supply shall be single phase for pumps rated at 5 horsepower or less where possible. Pumps shall be sized for the ultimate design flow of the area being serviced by the station and with a minimum of 4 feet per second flow velocity in the force main.

Submersible Pump Stations:
Submersible pumps shall be of the explosion proof type. If circumstances require, the pump shall incorporate a grinder or cutter type blade/impeller system. Pump design shall be of the Flygt rail and discharge base mount type or approved equal. Lifting chains shall be stainless steel and rated for the lifting requirements provided by the pump manufacturer. Each pump discharge pipeline shall include a swing check valve with external lever and weight and an eccentric plug

valve before the two discharge pipelines join. Valves shall be located in a separate vault outside of the wet well where possible. External valve vaults shall have a valve drain pipeline plumbed into the wet well. The drain pipeline valve shall be accessible by means of a riser pipe boxed to grade between the vault and the wet well see Standard Drawings, Figure 20, Submersible Pump Station (section view), page 179 and Figure 21, Submersible Pump Station (plan view), page 181. Wet well piping and fittings shall be flanged ductile iron only. Submersible pump controllers shall be of a type equal in design and manufacture to preferred current District submersible controllers. All site related issues shall be in accordance with Pump Station Structures, Section A-6.15, page 127. All electrical and telemetry equipment shall be in accordance with Pump Station Electrical Work, Section A-6.16, page 132.

Drywell Centrifugal Wastewater Pumps:
Centrifugal pumps shall be of the vertical or horizontal close-coupled, self-priming centrifugal type specifically designed for the handling of raw, unscreened sanitary domestic wastewater. Each pump shall be of heavy, cast iron construction and shall include a motor with the pump impeller mounted directly on the one-piece motor-pump shaft.

Each pump at its rated speed shall be designed to retain adequate liquid in the pump casing to insure unattended automatic re-priming in a complete open system without suction of discharge check valves and with a dry suction leg. Upon completion of re-priming cycle, pumps shall deliver full rated capacity at rated Total Dynamic Head (TDH) at the designed total dynamic suction lift.

The openings and passages of the pump shall be large enough to permit the passage of a sphere 3 inches in diameter and any trash or stringy material which can pass through the average 4 inch building collection system. The pump must be equipped with a removable cover plate or rotating assembly allowing complete access to pump interior to permit service and repairs without disturbing suction or discharge piping. The pump volute casing shall contain no openings of a lesser diameter than the sphere size specified. Screens or any internal devices that create a maintenance nuisance or interfere with priming and performance of the pump will not be permitted.

The pump shaft shall be sealed against leakage by a double mechanical seal, installed in a bronze seal housing constructed in two sections with registered fit. Both the stationary sealing member and mated rotating member shall be of Tungsten-Titanium carbide alloy.

The impeller shall be two-vane, semi-open or enclosed type, non clog, cast in ductile iron, and shall be balanced. The impeller shall be keyed and secured to the motor-pump shaft by a stainless steel device. The impeller shall not be screwed or pinned to the motor-pump shaft and shall be readily removable without the use of special tools. To prevent the build up of stringy materials, grit and other foreign particles around the pump shaft, all impellers less than full diameter shall be trimmed inside the impeller shroud. The shroud shall remain full diameter so that close, minimum clearance from shroud to volute is maintained.

The seal system lubricant shall be taken from the pump discharge through a 40 micron or better filter. The filter shall be readily accessible for cleaning and maintenance. The filter shall be isolated with brass valves. The seal system shall contain a brass valve connected near the top of the seal housing to permit the relief of any air trapped in the seal unit. A manually operated brass valve shall also be provided to vent the pump volute.

The pump volute shall be of heavy, cast iron construction, free from projections that might cause clogging or interfere with flow through the pump.

The pump shall be supported by a heavy, cast iron base with four legs to provide maximum rigidity and balance. The height of a vertical pump base shall be sufficient to permit the use of an increasing suction elbow which shall be provided when the nominal pump size is smaller than the suction line. The suction and discharge openings shall be flanged, faced and drilled 125-pound American Standard.

Upon request, manufacturer must submit to the District for their evaluation and approval, a list of self-priming wastewater pump installations reflecting of satisfactory, automatic operations while permanently installed in an unattended wastewater lift stations.

Workmanship and materials throughout shall be of highest quality.

Pump Motors:
The motors shall be designed for continuous operation at full load with a temperature rise of not more than 40 degrees centigrade above ambient temperature. Motors shall be capable of frequent starts each hour as required to meet the flow requirements without overheating. Motors shall also be rated for the altitude at which they are to be installed.

A-6.9 Installation of Sanitary Sewer Facilities

Excavation and Bedding:
Unless otherwise specified, the excavation for sewer pipe shall be an open trench, excavated to six inches below the flow line grade shown on the improvement plans, or 1 inch below the outside diameter of the bell, whichever is greater. The native soil in the trench bottom shall be compacted to 90 percent relative compaction before placement of bedding in the pipe zone. Pipe zone bedding material shall be compacted to a relative compaction as specified in the Standard Drawings, Typical Sewer Trench, Figures 14, 15, 16, or 17 pages 167, 169, 171, 173.

Pipe trenches shall not be left open farther than 300 feet in advance of pipe laying operations or 200 feet to the rear thereof, unless otherwise permitted by the General Manager.

All trench excavation within asphalt paved areas shall be saw cut in neat parallel lines to the limits of excavation. When the existing pavement is concrete, it shall be sawed to a neat line 6 inches wider on each side than the trench width.

Whenever the bottom of the trench is soft, yielding, or unsuitable as a foundation for the pipe, sufficient crushed rock or coarse clean gravel shall be rammed into the soft material. If such treatment does not provide a proper foundation, the unsuitable material shall be removed to a depth such that when replaced with bedding material, it will provide a stable foundation.

Whenever the trench bottom is in rocky material, the trench shall be excavated to 6 inches below the flow line shown on the improvement plans or 3 inches below the outside diameter of the bell, whichever is greater, and backfilled to grade with imported bedding material thoroughly compacted into place.

Water stop impervious plugs (trench cutoff blocks) shall be installed in trenches where Class 4 Backfill is used, in all areas of ground water movement, and in all trenches containing pipeline slopes of 10 percent or greater.

The location and spacing of trench cut-off blocks for private building laterals shall be the responsibility of and shall be determined by the owner or their agent. The location and spacing of trench cut-off blocks for sanitary sewer mains shall be determined by the General Manager. Trench cut-off blocks shall be constructed as shown in the Standard Drawings, Trench Cut-Off Blocks, Figure 18, page 175 .

Bracing and Shoring:
Sufficient bracing and shoring shall be installed in trenches to insure the safety of workers, and to protect and facilitate the work. Where practicable all such bracing and shoring shall be removed from the trench as the backfilling proceeds. All bracing and shoring shall comply with current Construction Safety Orders of the California Occupational Health and Safety Administration.

When shoring is used in the trench, the fill shall be carried to a height sufficient to prevent the surrounding ground from cracking or caving into the trench before the shoring is removed.

Pipeline Installation:
A minimum of 30 inches compacted earth fill shall cover all gravity and force main pipelines. Cover less than 48 inches in vehicular traveled ways requires heavier walled pipe as listed in Section A-5, page 73.

The pipe shall be laid in conformity to the prescribed line and grade. The prescribed grade shall be set using the appropriate surveying tools (i.e., transit, rod, laser, etc.). In case any discrepancy exists from the prescribed alignment, the work shall be stopped and the discrepancy immediately corrected. In addition, a string line shall be used in the bottom of the trench to insure a straight alignment of pipe between manholes, unless curved alignment is shown on the improvement plans.

Pipe shall be laid continuously upgrade with the bell of the pipe uphill. Each length of pipe shall be laid on a firm bed and shall have a true bearing for the entire length between bell holes. No wedging or blocking up of the pipe will be permitted.

Both bell and spigot shall be clean before the joint is made and care shall be taken that nothing but the joint-making material enters the joints.

When for any reason, pipe laying is discontinued for an hour or more, the open end of all pipelines shall be closed with a close-fitting stopper.

Joining pipes shall be made by approved methods and recommendations of the manufacturer, care being used to prevent chipping or cracking of either end of the pipe during installation.

Pipe shall be protected during handling against impact shock and free fall. The rubber gasket joints shall be cleaned prior to the seating of the gasket. The gasket shall be wiped clean and shall be fitted snugly in the gasket seat. A thin film of lubricant shall be applied to the inside surface of the gasket which will come in contact with the plain end of the pipe, if necessary apply

the same lubricant to the plain end of the pipe. Use only a lubricant recommended by the pipe manufacturer.

Boring or Jacked Casing:
The work contemplated under this heading consists of placing cast iron pipe or other pipe of approved material, usually in a conductor pipe, under a paved roadway, street or railroad to a true line and grade as shown on the improvement plans, by means of boring or jacking operations. The equipment and method of operation shall be approved by the General Manager before proceeding with the work.

The excavation for the boring operation shall be kept to a minimum, but shall be of sufficient dimensions to satisfactorily complete the work. If so required, bracing and shoring shall be provided to adequately protect the workmen and the roadway or railroad.

The conductor pipe shall be placed closely behind and in conjunction with the boring operation. The bored hole shall be not more than 0.1 foot in diameter larger than the conductor pipe. Guide rails shall be accurately set to line and grade so as to achieve close adherence to the line and grade shown on the improvement plans.

The pipe to be placed inside the conductor pipe shall have a non-rigid joint and shall be installed by the use of suitable wood skids or approved casing spacers. Clean sand shall then be sluiced or blown into the conductor pipe to a depth of not less than half the diameter of the sewer pipe.

Where tunneling is permitted, backfill shall be made with clean damp sand, tamped and compacted to insure a non-yielding, uniform foundation for the entire length of the tunnel.

A boot shall be placed at both ends of the casing pipe to prevent the passage of water through the annular space between casing pipe and sewer pipe.

Trench Backfill Gravity Pipelines:
Backfill around and to at least 1 foot over pipe (pipe zone), shall be made with either Class 1 or Class 2 Backfill material compacted as placed. A difference in level on either side of the pipe not to exceed 4 inches shall be maintained to hold the pipe firmly in place.

Backfill from a point at least 1 foot over the top of the pipe to finish grade shall be made with Class 2 or Class 3 Backfill. When the sewer trench lies within the paved right-of-way of an existing street this backfill shall be Class 2. Class 3 Backfill may be used in areas outside the pavement of streets and highways involved. The General Manager shall have discretion on selection of backfill materials that vary from those outline herein based on site specific conditions.

Backfill shall not be placed until the pipe or other facility has been inspected by an authorized District Representative and approved for backfilling.

Material for Class 1, Class 2, Class 3, and Class 4 Backfill shall be placed in uniform horizontal layers not exceeding 0.67 foot in thickness before compaction, and shall be brought up uniformly on all sides of the trench. Backfill compaction beneath the pipe must be achieved prior to placing pipe in trench. If the contractor can satisfactorily demonstrate to the General Manager an alternative method of placing the backfill so that all requirements, other than the layer thickness,

are met, the General Manager will permit the contractor to use the alternative method. Under no circumstance will the contractor use the alternative method unless the **General Manager's approval is obtained in writing.**

Each layer of backfill shall be compacted to a relative compaction as indicated in the Standard Drawings, Typical Sewer Trench, Figures 14, 15, 16, or 17 pages 167, 169, 171, 173.

The District reserves the right to perform compaction tests, or have compaction tests performed through a licensed geotechnical testing firm, to verify compaction of the backfilled trench section. All tests by the District will be performed in such a manner as will not unnecessarily delay the work. The owner or their agent shall not be required to reimburse the District for the initial tests performed. If subsequent tests are required due to compaction failures, the owner or their agent shall pay for all subsequent compaction tests.

The use of backfill material other than Class 1, Class 2, and Class 3 is not permitted unless approval is granted, in writing, from the General Manager.

Class 4 Backfill material may be used in the pipe zone, if approved by the General Manager or their designated representative in writing, under the following conditions:

- When large amounts of groundwater are encountered within the trench section, or;
- When trench depths exceed 12 feet in depth and placement of Class 1 Backfill material at the prescribed relative compaction is not possible.

If Class 4 Backfill material is used in the pipe zone, Mirifi 140 NC filter fabric, or equivalent, must be placed on the sides and top of the Class 4 Backfill before proceeding with additional approved backfill. A minimum of three trench blocks must be installed between manholes at equal intervals when Class 4 material is used.

Groundwater may be removed from the trench and placed in the existing sanitary sewer if all of the following conditions are met:

- The contractor receives written permission from the Tahoe-Truckee Sanitation Agency to make said discharge. T-TSA can be contacted at (530) 587-2525.
- The contractor requests, in writing, to place said groundwater into the existing sanitary sewer, ***and*** receives, in writing, from the General Manager permission to do so. This written request by the contractor and subsequent written reply from the General Manager will be only on a case-by-case basis.
- The volume of groundwater placed into the existing sanitary sewer shall not exceed a predetermined amount (in gallons per minute) as designated in writing by the General Manager.
- All pump/hose inlets shall be screened to prevent rocks or gravel from entering the existing sanitary sewer system. If high concentrations of silts are suspended in the groundwater, settling basins may be required before the water may be placed into the existing District sanitary sewer system.

Initial backfill shall be to 0.7 of the vertical outside diameter of the pipe in 8 inch maximum lifts.

Backfill material shall be "shovel sliced" on both sides of the pipe, with care to assure that the spaces under the pipe haunches have been filled.

Field repairs to PVC pipe are not acceptable unless the General Manager has given his/her prior approval for each repair.

Mechanical compactors shall not be used directly over the pipe with less than 1 foot of cover.

Paving over trenches shall not be placed until the backfill has been inspected by an authorized District representative. Trench surfacing and trench restoration in Nevada/Placer County, Town of Truckee, or State of California right-of-way shall conform to the requirements of the agency having jurisdiction.

Backfill around manholes, grease interceptors, sand/oil interceptors, and pits excavated for boring operations shall be made in the same manner as above specified for trenches, except as otherwise provided under Manholes.

If, at any time during the period of responsibility, there shall be any settlement of the trenches, cracking of the newly applied pavement, or separation of the newly applied pavement from the existing pavement requiring repairs to be made in any street highway, or easement, or should any other defect appear in the system due to the contractor's operations, the owner or their agent shall promptly repair all defects in accordance with the requirements of the responsible agency.

Trench Backfill Force Mains:
Trench backfill methods and materials for force mains, shall be as specified for gravity sewer pipelines with the following exceptions:

- The height of backfill over the pipe before testing shall not be less than 12 inches.
- At all changes of direction and at valves, the force main shall be restrained from movement by the use of thrust blocks or restrained joints.
- A plan describing the proposed use of restrained joints and/or thrust blocks must be approved by the District prior to any force main installation.
- All restrained joints and/or thrust blocks shall be in place before the pipeline is hydrostatically tested.
- All joints, bends, angles, or fittings shall be left exposed until testing has been completed.

Every precaution shall be taken against floating the pipe. In case of such floating, the contractor shall replace the pipe to its proper location at his/her own expense, and replace any damaged pipe which may have resulted.

Trench Section, Within New Roads:
Sewer pipelines installed within new roads shall be bedded on 6 inches of Class 1 or Class 2 Backfill compacted to 95 percent relative compaction. Class 1 or Class 2 Backfill shall also extend a minimum 12 inches above top of pipe, compacted to 95 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (paved - new road construction), Figure 14, page 167. In the event that significant groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 or 2 Backfill as outlined above. A minimum of three trench cut-off blocks must be placed in the trench if Class 4 backfill is used.

Class 3 native backfill shall be placed from 12 inches above top of pipe to road sub grade. All Class 3 Backfill shall be compacted to 90 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (paved - new road construction), Figure 14, page 167.

Trench Section, Existing Paved Areas:
Sewer pipelines installed within existing paved areas shall be bedded on 6 inches of Class 1 or Class 2 Backfill compacted to 95 percent relative compaction. Class 1 or Class 2 Backfill shall also extend a minimum 12 inches above top of pipe, compacted to 95 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (paved - existing roadway), Figure 15, page 169. In the event that heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 or 2 Backfill as outlined above. A minimum of three trench cut-off blocks must be placed in the trench if Class 4 backfill is used.

Class 2 Backfill shall be placed from 12 inches above top of pipe to 1 inch below bottom of existing asphalt pavement. All Class 2 Backfill shall be compacted to 95 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (paved - existing roadway), Figure 15, page 169.

Trench Section, Roadway Shoulders adjacent to Paved Areas:
Sewer pipelines installed on roadway shoulders adjacent to paved areas shall be bedded on 6 inches of Class 1 or Class 2 Backfill compacted to 95 percent relative compaction. Class 1 or Class 2 Backfill shall also extend a minimum 12 inches above top of pipe, compacted to 95 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (off shoulder), Figure 16, page 171. In the event that heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 or 2 Backfill as outlined above.

Class 2 Backfill shall be placed from 12 inches above top of pipe to finished grade. Class 2 Backfill placed from 12 inches above top of pipe to 12 inches below finished grade shall be compacted to 90 percent relative compaction, with Class 2 Backfill placed from 12 inches below finished grade to finished grade compacted to 95 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (off shoulder), Figure 16, page 171.

Class 3 Backfill may be substituted for Class 2 Backfill up to one foot below finished grade. Class 3 Backfill shall be compacted to 90 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (off shoulder), Figure 16, page 171.

Trench Section, Unpaved Areas:
Sewer pipelines installed in unpaved areas shall be bedded on 6 inches of Class 1 or Class 2 Backfill compacted to 95 percent relative compaction. Class 1 or Class 2 material shall also extend a minimum 12 inches above top of pipe, compacted to 95 percent relative compaction as

specified in the Standard Drawings, Typical Sewer Trench (non traffic areas), Figure 17, page 173. In the event that heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 or 2 Backfill as outlined above.

Class 2 or Class 3 Native Backfill shall be placed from 12 inches above top of pipe to finished grade. Class 2 or Class 3 Native Backfill shall be compacted to 90 percent relative compaction as specified in the Standard Drawings, Typical Sewer Trench (non traffic areas), Figure 17, page 173).

Manhole Installation:
Manholes shall be watertight structures constructed in accordance with the details shown on the improvement plans as specified herein and as directed by the General Manager. Precast manholes shall be constructed of precast reinforced pipe sections, tapered reinforced concrete sections, adjustment rings, with cast-in-place bases in accordance with the Standard Specifications and ASTM Specifications C478-64T. Portland cement shall be Type II, conforming to the requirements of ASTM Designation C-150.

Precast manhole bases shall be used in lieu of cast in place manhole bases except where required to connect to existing pipelines. All manhole cones shall be of the concentric type unless otherwise requested by the District. A minimum of 28 inches of straight trough shall be provided immediately upstream of the outlet pipe penetration to facilitate the entry of District television equipment.

The ends of pipe (barrel) sections, tapered sections, adjustment rings shall be of such design and construction that when properly laid they shall have a smooth and uniform surface. Each joint shall be sealed with Ram-Nek sealant and primer to prevent infiltration or exfiltration. Ram-Nek shall be neatly trimmed after manhole assembly.

No pipe shall project more than 0.17 foot into a manhole and in no case shall the bell of a pipe be built into the wall of a manhole or structure. All work shall be cured for a period of 10 days after being placed and shall be protected from injury.

Manholes shall be situated such that surface runoff is not directed to and does not pool over the frame and cover. Adequate drainage shall be provided to direct surface runoff away from the manhole cover.

Manholes in paved areas shall have at least one, 2-inch grade ring installed on top of the cone section. The manhole frame and cover shall be placed on top of the grade ring as prescribed herein. The throat of the manholes shall be made of precast concrete grade rings of the proper inside diameter and height. If fine adjustments are needed a concrete mixture fortified with "Xypex Xycrilic Admix" or equal may be used. The maximum depth permitted shall be 12 inches between the cone and frame. Adjustments using concrete mix shall not exceed 2 inches.

When adjusting and existing manhole to grade and the total depth of the throat from the top of the frame to the bottom of the throat exceeds 24 inches, the upper portion of the manhole shall be removed and the manhole shall then be reconstructed so that the final adjusted height of the throat is not greater than 12 inches. The manhole shall then be tested in accordance with Section A-6.10, Testing of Sanitary Sewer Facilities, page 107.

Before any work is started on adjusting or repairing a manhole, the channels in the base shall be covered. This cover shall be kept in place during all work. Upon completion of the work, the cover shall be removed from the manhole allowing no debris to fall or remain in the manhole.

The inside base of manholes shall be shaped to provide channels conforming to the size and shape of the crown of the inlets and outlets. The exact configuration of transition from branch size to mainline sizes shall be as directed by the General Manager.

Cast-in-place concrete for manholes or portions of manholes shall conform to the Standard Specifications and ASTM Specification C478-64T. Portland cement shall be Type II, conforming to the requirements of ASTM Designation C-150.

The top of manhole elevations shown on the improvement plans are approximate only. In general, the finished grade of the manhole shall be set a maximum of 0.1 foot below the existing ground. Finished grade in paved areas should meet the appropriate Nevada/Placer County, Town of Truckee, or State of California specifications.

Whenever the excavation for a manhole exceeds the outside diameter of the manhole by 10 inches, measured along a radius line, the backfill shall be placed in layers not to exceed 8 inches uniformly around the structure and mechanically tamped to relative compaction of not less than 95 percent for each layer.

Manhole Frame and Cover:
Cast iron frames and covers as specified shall be furnished and installed by the contractor in accordance with the applicable portions of the Standard Specifications, except as herein modified. Cast iron frames and covers shall be matched and marked in pairs before delivery to the work. Manhole covers shall fit into their respective frames to form a watertight seal and shall seat in the frame without rocking.

Bolt down type manhole frames and covers may be required at the request of the District within easements or other areas deemed necessary. If required, bolts shall be stainless steel with an anti seize compound applied to all male threads. Miscellaneous iron and steel for use in the construction of manholes shall be furnished and installed in accordance with the details shown on the improvement plans.

Internal Chimney Seals:
When manholes, grease interceptors, or sand/oil interceptors are located in paved areas, or in areas of known high groundwater, an internal rubber seal, as specified, shall be installed. A rubber seal extension to include any additional heights of chimney not covered by the seal itself, shall be used as directed. The internal rubber seal and seal extensions shall be as manufactured by Cretex Specialty Products, or approved equal. The seals and extensions shall have a minimum thickness of 3/16 inches and shall be extruded from a high grade rubber compound conforming to the applicable requirements of ASTM C923. The bands used for compressing the seal and extension against the manhole shall be fabricated from 16 gauge stainless steel conforming to ASTM A240 type 304, any screws, bolts or nuts used on this band shall be stainless steel conforming to ASTM F593, type 304.

External Manhole/Vault Seals:
When manholes are located within an area of high groundwater, adjacent to a lake or stream, or within an area of standing water, the exterior manhole joints and surface shall be sealed with an external concrete sealant. Exterior manhole walls shall be sealed with a liquid cold-applied waterproofing membrane system such as Sonneborn ® HLM 5000®, or equivalent. Exterior joints shall be sealed with an elastomeric based external concrete joint wrap such as Henry RUB'R-NEK®, or equivalent.

Manhole Temporary Construction Cover:
Temporary covers of 3/8 inch steel plate of sufficient size to adequately cover the opening shall be placed on the cone of a manhole until paving is completed. Steel plate shall be attached to the cone with a removable watertight seal. Suitable locating ribs shall be welded to the underside of the cover to hold it in place during the grading and paving operations.

Manhole Markers:
Manholes located in easements or unpaved areas shall be marked with a composite, flexible utility marker. Marker shall have a minimum width of 3 ½ inches and a minimum length of 66 inches. Cross section design shall be such that the marker is able to remain erect in moderate wind conditions, yet flex without breaking if the top is bent over parallel to the ground. Marker shall be green or white in color with a lettered decal designating "sewer" or "sewer manhole" as appropriate.

Connection to Existing Manhole:
Connections to existing manhole walls shall be made by core drilling into the wall of the manhole. Pipe penetration through the manhole wall shall be sealed with a watertight seal by one of the following:

- equipping the pipe with a flexible pipe-to-manhole connector (Kor-N-Seal®, or equivalent) that provides a watertight seal of the pipe to the manhole. The rubber for the connector shall comply with ASTM 923 and consist of elastomers designed to be resistant to ozone, weather elements, chemicals, including acid, alkalis, animal and vegetable fats, oils, and petroleum products from spills. Stainless steel elements of the connector shall be non-magnetic series 316 stainless steel.

- Alternative mechanical seal requiring prior District approval.

- If either of the above pipe to manhole connectors cannot be used due to constraining field conditions, the following application will be allowed on a case-by-case basis: inserting the end of the pipe through the core drilled opening, and either using a manufactured water stop around the pipe centered in the penetration or packing the opening around the pipe with Ram-Nek and primer, then covering with a stiff mix of cement mortar, thoroughly compacted. The mortar shall be composed of one part Type II Portland cement and three parts clean sand. The mortar shall be troweled smooth and flush with the interior surface of the manhole.

Connection of a pipeline to an existing manhole which has a stub-out shall be accomplished with a rigid repair coupling. No flexible rubber couplings are allowed.

The use of impact hammers to break into a manhole wall is prohibited.

Drop Manholes:
When in the opinion of the General Manager the flow line grades are such as to require a drop manhole this shall be accomplished as detailed in the District Standard details. A drop inlet shall not be permitted within 5 feet of the flow line. Drop inlets shall utilize a Drop Bowl by Reliner, or approved equal.

Utility Pad Installation:
See Standard Drawings, Utility Pad Installation, Figure 11, page 161.

Cleanouts:
A cleanout shall be installed in each building lateral at the property line of the premises being provided with sewer service and within 5 feet of where the lateral exits the structure foundation. Cleanouts located under the house are not accepted, rather the cleanout must be located *outside* the building foundation. Additional cleanouts shall be installed at intervals not to exceed 100 feet, and at any other point the owner or their agent may select for the purpose of keeping said sewer pipeline clean and free of obstruction. A cleanout, boxed to grade, shall also be installed at the property line on vacant parcels, and on the upstream side of the fitting at all 45 degree or greater bends.

All cleanout boxes shall be constructed of steel reinforced concrete with cast iron lids. Reinforced plastic cleanout boxes are not acceptable. Cleanout boxes shall be set to grade and backfilled to prevent accidental displacement or removal. Lids shall have "SEWER" or equivalent imprinted on the lid. Lids with verbiage other than a sewer utility designation (i.e., Water, Gas, etc.) imprinted on the lid are not permitted. See Standard Drawings, Lateral Cleanout Assembly, Figure 10, page 159.

All cleanout risers must be from 3 to 8 inches below finished grade and boxed to finished grade with an appropriate removable watertight plug in the end of the riser. Cleanout risers and appropriate boxes are required at the property line cleanout and at the cleanout installed nearest the building.

Dual swing ties are required for all stub outs and cleanout risers. Permanent objects such as property corners, power poles, water boxes, structures, etc. shall be used for swing ties.

Building Laterals:
Building lateral pipelines connecting to the District's sanitary sewer system shall meet the requirements listed below and the criteria listed in Appendix A-5, page 73 and Appendix A-6, page 75.

- **Residential Building Laterals:** The diameter of gravity building laterals shall not be less than the pipeline diameter exiting the structure, nor less than 4 inches for a single residence or two residences. Six-inch diameter pipeline or larger shall be used for more than two dwelling units.

- **Commercial Building Laterals:** The minimum pipeline diameter for commercial gravity building laterals shall not be less than 6 inches.

Appropriate fittings shall be used in connecting to the service connection provided by the District. On double sewer services, both wye's shall be uncovered prior to connection to the system for District inspection and the appropriate wye shall be used.

Joints in all building laterals shall be of a collar type as recommended by the manufacturer and shall pass the District's inspection and required tests.

Building laterals are required to have a tracer wire installed adjacent to the sewer pipe. The tracer wire shall be insulated 10 gage copper wire and shall run the entire length of the building lateral, terminating in the cleanout boxes at the property line and adjacent to the building foundation.

Backflow Prevention Devices:
Private and commercial building laterals are subject to the provisions of the California Plumbing Code, Sections 710.0 and 710.1. Drainage piping serving fixtures are installed on a floor level that is located below the elevation of the next upstream manhole cover of the sewer serving such drainage piping shall be protected from backflow of wastewater by installing an approved type of backwater valve. Fixtures on floor levels above such elevation shall not discharge through the backwater valve.

Buildings with laterals which connect to a double service or a joint lateral (a privately owned *shared* lateral pipeline that receives wastewater flow from two or more parcels) should also install a backflow prevention device to protect private property.

In the event of a pipeline stoppage in the joint lateral, a backflow prevention device installed on each private building lateral would inhibit wastewater in the joint lateral from backing-up through the private building lateral into the building served.

Backflow prevention devices are especially useful in areas where a joint lateral provides service to parcels of significantly different elevations.

A-6.10 Testing of Sanitary Sewer Facilities

The following tests will be required for all sanitary sewer facilities connected to the District's sanitary sewer system. Testing shall not be permitted until all excavation, backfilling (for other utilities), and grading (for roadway sub grade and structural section) in the immediate area of the sanitary sewer facility has been completed.

Gravity Pipelines:
After the sewer pipelines have been properly backfilled to a depth where additional backfilling will not disturb the position of the pipe, all sections shall be tested either *hydrostatically* or with an *air* test. In no case shall the required minimum backfill be less than 30 inches above the top of the pipe before subjecting the pipeline to the test. All necessary materials and equipment to make the test shall be provided by the owner or their agent.

Hydrostatic Test - Mainline:
A section of sewer pipeline shall be prepared for testing by plugging the upper side of the downstream manhole and all openings in the upstream manhole except the downstream opening.

A minimum 5-foot test head shall be applied to the upstream end of the pipeline by filling the manhole to the appropriate depth. Where grades are slight, two or more sections between manholes may be tested at once. Where grades are steep, and excessive test heads would result by testing from one manhole to another, test tees the full size of the sewer main shall be installed at intermediate points so the maximum head on any section under test will not exceed 15 feet.

The allowable leakage in the test section shall not exceed 350 gallons per mile per day per inch diameter of pipe. If it is necessary or desirable to increase the test head above 5 feet, the allowable leakage will be increased at the rate of 80 gallons for each foot of increased in head.

Test sections showing leakage in excess of that allowed shall be repaired or reconstructed as necessary to reduce the leakage to that specified above and the pipeline retested.

Hydrostatic Test - Lateral:
Lateral testing shall consist of plugging the downstream end of a building lateral, placing a section(s) of the pipe in the vertical branch of the building cleanout and filling the test section with water. At least 8 vertical feet of water (measured from the highest point of the pipeline to the top of the water column on the upstream cleanout riser of the test section) shall be used for the test. In pipelines with minimal fall, cleanout risers may need to be temporarily extended above ground to achieve the 8 vertical foot static water level. In no cases shall the vertical distance measured from the lowest point of the pipeline test section to the water surface in the cleanout riser exceed 15 feet. Additional cleanouts may have to be installed in steep pipelines and the pipeline tested in sections. The water level in the pipeline shall remain constant for 5 minutes for a 4-inch or 6-inch lateral. If a loss occurs, the pipeline may be retested one additional time. If a second loss occurs, this constitutes a failure of the pipeline.

Air Test:
Air testing may be used in lieu of the hydrostatic testing. Air testing shall be as specified herein unless otherwise directed by the General Manager. Length of pipeline tested shall be limited to the length between adjacent manholes. Air test procedure shall be as follows:

Pressurize the test section to 4.0 pounds per square inch and hold above 3.5 pounds per square inch for not less than 5 minutes. Add air if necessary to keep the pressure above 3.5 pounds per square inch. At the end of this 5 minute saturation period, note the pressure (must be 3.5 pounds per square inch min.) and begin the timed period. If the pressure drops 0.5 pounds per square inch in less than the time given in the following table, the section of pipe shall not have passed the test.

If the time for the pressure to drop 0.5 pounds per square inch is 125 percent or less of the time given in the table, the pipeline shall immediately be re-pressurized to 3.0 pounds per square inch and the test repeated.

For 8 inch and smaller pipe if the pressure drops less than 0.5 pounds per square inch after the initial pressurization and air is not added, the section undergoing test shall have passed.

If the test is not passed, the leak shall be found and repaired to the satisfaction of the General Manager and the pipeline shall be retested.

House waste piping shall be considered part of the building lateral to which it is connected. No adjustment of test time shall be allowed to compensate for the smaller diameter of the house waste piping.

Lateral Size	Minimum Time in Seconds
4	122
6	184
8	245
10	306
12	367
15	460

For larger diameter pipe, use the following formula:

Minimum time in seconds = 370 x pipe diameter in feet

When the prevailing ground water is above the sewer being tested, air pressure shall be increased 0.43 pounds per square inch for each foot the water table is above the flow line of the sewer.

The pressure gauge used shall be supplied by the contractor, shall have minimum divisions of 0.10 pounds per square inch, and shall have an accuracy of 0.04 pounds per square inch. Accuracy and calibration of the gauge shall be certified by a reliable testing firm at 6 month intervals or when requested by the General Manager. In addition, the General Manager may compare the contractor's gauge with a District owned gauge at any time.

Mandrel Testing:
Installed pipe shall be tested to insure that vertical deflections for plastic pipe do not exceed the maximum allowable deflection. Maximum allowable deflections shall be governed by the mandrel requirements stated herein and shall nominally be:

Nominal Pipe Size	**Percentage**
Up to and including 12-inch	5.0
Over 12- to and including 30-inch	4.0
Over 30-inch	3.0

The maximum average ID shall be equal to the average OD minus two times the minimum wall thicknesses per applicable ASTM Standards. Manufacturing and other tolerances shall not be considered for determining maximum allowable deflections.

Deflection tests shall be performed not sooner than 30 days after completion of placement and densification of backfill. The pipe shall be balled and flushed, and cleaned prior to testing.

For all pipes less that 24-inch ID, a mandrel shall be pulled through the pipe by hand to ensure that maximum allowable deflections have not been exceeded. If the mandrel fails to pass, the pipe will be deemed to be over deflected. Prior to use, the mandrel shall be approved by the engineer or by another entity approved by the engineer. Use of an uncertified mandrel or a mandrel altered or modified after certification will invalidate the test.

Any over deflected pipe shall be uncovered and, if not damaged, reinstalled.

Damaged pipe shall not be reinstalled, but shall be removed from the work site. Any pipe subjected to any method or process other than removal, which attempts, even successfully, to reduce or cure any over deflection, shall be uncovered, removed from the work site and replaced with new pipe.

The mandrel shall:

- Have an odd number of legs (nine legs minimum) and be a rigid, nonadjustable mandrel having an effective length not less than its nominal diameter.

- Be fabricated of steel, be fitted with pulling rings at each end, be stamped or engraved on some segment other than a runner indicating the pipe material specification, nominal size, and mandrel OD (e.g., PVC D 3034-8 inch - 7.524 inch, ABS Composite D 2680-10 inch - 9.584 inch); and be furnished in a suitable carrying case labeled with the same data as stamped or engraved on the mandrel. For the pipe IDS nominally 24-inch and larger, deflections shall be determined by a method submitted to and approved by the engineer. If a mandrel is selected, the minimum diameter, length and other requirements shall conform to the dimensions and requirements as stated above.

All costs incurred by the contractor attributable to deflection testing including any delays, shall be borne by the contractor.

Television Tests:
Each section of sewer pipeline shall be subject to inspection by use of a closed circuit television (CCTV) camera. Use of the CCTV inspection shall not relieve the contractor of the responsibility for performing the other tests outlined in this section nor shall it be used in lieu thereof.

Pre-inspection Preparation - CCTV inspection will not be scheduled or made until the following operations are complete:

- All sewer pipelines are installed and backfilled to finished grade, or, if pavement will be finished grade, to the final street sub grade, but prior to paving.

- All structures are in place and pipelines are accessible from structures.

- All pipelines have been balled, flushed and tested for deflection.

- All pipelines have been successfully tested.

Arrangements for Inspection - When the contractor determines that the pipeline is ready for inspection, the contractor shall notify the District and request a date for the CCTV inspection.

The District shall notify the contractor of the scheduled date. If it is determined by the contractor that the job site will not be ready or accessible for the CCTV inspection on the scheduled date, as notified, the contractor shall notify the District of the necessary cancellation at least 48 hours in advance of the scheduled inspection. Rescheduling shall be accomplished in the same manner as for the initial inspection.

The contractor shall bear the cost of all CCTV inspection made for the purpose of determining acceptance. The District shall charge the contractor for labor, materials, equipment, and travel time associated with all inspections and CCTV camera assistance.

Grounds for Refusal of Acceptance - All pipelines that have been televised will be evaluated by the District for deficiencies. If no deficiencies are noted, the sewer installation portion of the work will be considered satisfactory.

The following conditions are considered unacceptable for sewer pipelines and will result in refusal of acceptance:

- Standing water greater than ½-inch depth
- Joint separations greater than recommended by manufacturer
- Cocked joints present in straight runs or on the wrong side of pipe curve
- Chipped pipe
- Cracked pipe
- Infiltration or exfiltration
- Debris or other foreign matter
- Protrusions or excessive roughness in pipe
- Offset joint
- Out of round or diameter deflected pipe
- Improper alignment or curves not conforming to specified line
- Upset in normal hydraulic regime
- Any conditions that prevents the economical, safe or reasonable use of the sewer
- Pipeline sags in excess of 1/2-inch standing water

Video - Televised sewer pipelines will be recorded and the images retained by the District. The contractor may view video within 2 working days at the District Offices by making an appointment. All video produced as a result of the work shall be the sole property of the District and shall remain under its care and custody at all times.

Re-inspection - If the sewer pipeline offered for acceptance fails to meet applicable specifications, the District shall have a right to re-inspect after correction of defects and to charge a re-televising fee in accordance with current District rates. The CCTV testing process shall be repeated as necessary until all defects have been corrected to the satisfaction of the District.

Force Main Testing:

Pressure Class PVC Pipe - Each section of PVC pipe shall be tested in accordance with the Inspection and Testing methods outlined for pressure PVC pipe in the UniBell Handbook of PVC Pipe with the following conditions. The pipeline shall be subjected to a test pressure of not less than 150 pounds per square inch or the service pressure plus 50 pounds, whichever is greater, without exceeding the pressure rating for the pipe at the lowest end of the pipe. The pressure shall be applied for a minimum of 2 hours. All exposed joints, bends, angles, and fittings shall be closely examined during the test. Any part of the pipeline which proves to be defective shall be replaced and the pipeline retested.

Ductile Iron Pipe - Each section of ductile iron pipe shall be tested in accordance with Hydrostatic Testing methods outlined for ductile iron water mains in the Ductile Iron Pipe Research Association Handbook with the following conditions. The pipeline shall be subjected to a test pressure of not less than 150 pounds per square inch or the service pressure plus 50 pounds, whichever is greater, without exceeding the pressure rating for the pipe at the lowest end of the pipe. The pressure shall be applied for a minimum of 2 hours. All exposed joints, bends, angles, and fittings shall be closely examined during the test. Any part of the pipeline which proves to be defective shall be replaced and the pipeline retested.

Manhole, Grease Interceptor, Sand/Oil Interceptor, Overflow Tanks, and enclosed Valve Box Testing:
All manholes, grease interceptors, sand/oil interceptors, overflow tanks, and enclosed valve boxes shall be tested for leakage as indicated below. Newly installed structures shall be tested twice. An initial test shall be observed by the District prior to backfill. If structure fails initial test, repairs can be performed on exterior of structure. Upon acceptance of the initial test, a second test shall be performed after backfill.

Water Test - All inlet and outlet pipes shall be plugged and the units filled with water to the top of the manhole frame(s). The water should be introduced into the test section at least 4 hours in advance of the official test period to allow the unit and joint material to become saturated. The unit shall then be refilled to the original water level. At the beginning of the test, the elevation of the water in the unit shall be carefully measured from a point on the manhole rim. After a period of 4 hours, the water elevation shall be measured from the same point on the manhole rim and the loss of water during the test period calculated. If this calculation is difficult, enough water shall be measured into the unit to restore the water to the level existing at the beginning of the test, and the amount added taken as the total leakage. The allowable leakage shall not exceed 0.13 gallons per hour. Units showing leakage in excess of that allowed shall be repaired or reconstructed as necessary to reduce the leakage to that specified above and the unit retested.

Vacuum Test - Vacuum test by using acceptable equipment approved by the District. Vacuum test equipment shall be used per the manufacturers specifications. A vacuum of 10-inches mercury should be drawn on the manhole. The time, in seconds, for the vacuum to drop to 9-inches mercury shall be measured and shall not be less than the times listed below for various manholes and interceptors.

Time (sec)	Manhole Diameter (in.)	Interceptor Size (gal.)
60	48	
75	60	
90	72	
80		500 to 999
120		1,000 to 1,499
150		1,500 to 1,999
180		2,000 to 2,499

Note: Grease interceptors and sand/oil interceptors shall be completely drained and cleaned before initiation of the water or vacuum test.

A-6.11 Pavement Restoration

Asphalt Concrete Pavement Restoration:
The contractor shall perform asphalt concrete patching and pavement restoration work in accordance with State of California Department of Transportation Standard Specifications, Section 39, and Contract Drawings and documents.

This work shall consist of furnishing and mixing aggregate and asphalt binder at a central mixing plant, spreading and compacting the mixture as specified herein in all areas affected by trenching and construction activities under this contract.

Asphalt concrete is designated as Type B and shall meet the requirements Section 39 of the State of California Department of Transportation Standard Specifications (July 1992) Type B Asphalt Concrete.

Asphalt concrete shall be produced in a batch mixing plant, a continuous pug mill mixing plant or a dryer-drum mixing plant. Proportioning shall be either by hot-feed control or cold-feed control.

Asphalts:
Asphalt binder to be mixed with aggregate shall be Grade AR4000. The amount of asphalt binder to be mixed with the aggregate will be specified in the special provisions.

Liquid asphalt for prime coat shall conform to the provisions in "Liquid Asphalts", and shall be SC-250.

Aggregates:
All aggregates shall be clean and free from decomposed materials, organic material and other deleterious substances.

Coarse aggregate is material retained on the No.4 sieve; fine aggregate is material passing the No.4 sieve; and supplemental fine aggregate is added fine material passing the No. 30 sieve, including dust from dust collectors.

Unless otherwise specified in the special provisions, the aggregate grading to the various types of asphalt concrete shall conform to the following:

Type	Grading
B, AR-4000	1/2" maximum

The combined aggregate, prior to the addition of asphalt binder, shall conform to the requirements of this section. Conformance with the grading requirements will be determined by California Test 202, modified by California Test 105 when there is a difference in specific gravity of 0.2 or more between the coarse and fine portions of the aggregate or between blends of different aggregates.

In the tables below, the symbol "X" is the gradation which the contractor proposes to furnish for the specific sieve. The proposed gradation shall meet the gradation shown in the table under "Limits of Proposed Gradation". Changes from one mix design to another shall not be made during the progress of the work unless permitted by the District Engineer. However, changes in proportions to conform to the approved mix design shall not be considered changes in mix design.

AGGREGATE GRADING REQUIREMENTS
Type B Asphalt Concrete
Percentage Passing

1/2" Maximum, Medium

Sieve Gradation	Limits of Range	Operating Compliance	Contract Sizes
3/4"		100	100
1/2"		95-100	89-100
3/8"		80-95	75-100
No.4	59-66	X±5	X±8
No.8	43-49	X±5	X±8
No.30	22-27	X±5	X±8
No.200		3-8	0-11

Sub grade:
Immediately prior to applying prime coat or paint binder, or immediately prior to placing the asphalt concrete when a prime coat or paint binder is not required, the sub grade to receive asphalt concrete shall conform to the compaction requirement and elevation tolerances specified for the material involved and shall be free of loose or extraneous material. If the asphalt concrete is to be placed on an existing base or pavement which was not constructed as part of the contract, the contractor shall clean the surface by sweeping, flushing or other means to remove all loose

particles of paving, all dirt and all other extraneous material immediately before applying the prime coat or paint binder.

Prime Coat and Binder:
Edges of existing pavement being joined and surface being overlaid shall receive a tack coat of SS1H bituminous binder or equivalent.

Prime coat shall be applied at the approximate total rate of 0.25 gallons per square yard of surface covered.

Prime coat shall be applied at a temperature conforming to the range of temperatures provided in the State of California Department of Transportation Standard Specifications, Section 93-1.03, "Mixing and Applying," for distributor application of the grade of liquid asphalt being used.

A paint binder shall be furnished and applied to all vertical surfaces of existing pavement, curbs, gutters, and additional material is to placed, to a pavement to be surfaced, and to other surfaces designated by the District Engineer.

Paint binder shall be applied in one application at a rate of from 0.02 to 0.10 gallon per square yard of surface covered.

Spreading Equipment:
Asphalt pavers shall be self-propelled mechanical spreading and finishing equipment, provided with a screed or strike-off assembly capable of distributing the material to not less than the full width of a traffic lane if necessary.

Compacting Equipment:
A minimum of one steel-tired, two-axle tandem roller weighing not less than 8 tons nor more than 10 tons shall be used for each asphalt paver to compact Open Graded asphalt concrete.

Temporary Paving:
The owner or their agent shall comply with all general temporary paving requirements and special requirements of the Town of Truckee, Nevada County, Placer County, and the State of California Department of Transportation. Temporary paving (cold patch) shall be placed to grade over all backfilled trenches located within primary roadways until permanent paving is installed.

Temperature Requirements:
Type B asphalt concrete shall be placed only when the atmospheric temperature is above 50 degrees Fahrenheit.

Asphalt concrete and asphalt concrete base shall not be placed when the underlying layer or surface is frozen, or when, in the opinion of the District Engineer, weather conditions will prevent the proper handling, finishing, or compaction of the mixtures.

Spreading:
When directed by the District Engineer, paint binder shall be applied to any layer in advance of spreading the next layer.

Before placing the top layer adjacent to cold transverse construction joints, such joints shall be trimmed to a vertical face and to a neat line. Transverse joints shall be tested with a 12-foot straightedge and shall be cut back as required to conform to the requirements as specified in Section A-6.11, Pavement Restoration, page 113, Compacting. Connections to existing surfacing shall be feathered to conform to the requirements for smoothness. Longitudinal joints shall be trimmed to a vertical face and to a neat line if the edges of the previously laid surfacing are, in the opinion of the District Engineer, in such condition that the quality of the completed joint will be affected.

All layers shall be spread with an asphalt paver. Asphalt pavers shall be operated in such a manner as to insure continuous and uniform movement of the paver and shall lay a mat which will provide a lift of 2.5 inches in the compacted state and not less than 1.5 inches in the compacted state.

Compacting:
A pass shall be one movement of a roller in either direction. A coverage shall be as many passes as are necessary to cover the entire width being paved. Overlap between passes during any coverage, made to insure compaction without displacement of material in accordance with good rolling practice, shall be considered to be part of the coverage being made and not part of subsequent coverage. Each coverage shall be completed before subsequent coverage is started.

Rolling shall commence at the lower edge and shall progress toward the highest portion, and shall be performed so that cracking, shoving or displacement will be avoided.

The completed surfacing shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, or irregularities. Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete by blading or other equipment shall be eliminated by rolling or other means. The use of any equipment that leaves ridges, indentations, or other objectionable marks in the asphalt concrete shall be discontinued, and acceptable equipment shall be furnished by the contractor.

When a straightedge 12 feet long is laid on the finished surface and parallel with the center line, the surface shall not vary more than 0.01 foot from the lower edge of the straightedge. The transverse slope of the finished surface shall be uniform to a degree such that no depressions greater than 0.02 foot are present when tested with a straightedge 12-feet long laid in a direction transverse to the center line and extending from edge to edge of a 12-foot traffic lane. Contractor shall furnish the 12-foot straight edge.

Manhole Adjustments:
When manholes are adjusted to pavement grade, they shall be 1/2 to 3/4 inch below adjacent pavement surface. Asphalt concrete shall be neatly tapered from the final pavement grade to the manhole frame and cover. If the manhole is located within 2 feet of the edge of the pavement, in earth shoulders or earth flow-line areas, asphalt concrete shall be placed to a minimum 2 feet around the manhole and paved out at 45 degrees to the edge of existing pavement.

A-6.12 Clean Up

During the progress of the work, the owner or their agent shall keep the entire job site in a clean and orderly condition. Excess or unsuitable backfill material, broken pipe or other waste

material shall be removed from the job site. Spillage resulting from hauling operations along or across existing streets or roads shall be removed immediately by the contractor. All gutters and roadside ditches shall be kept clean and free from obstructions. Any deviation from this practice shall have prior approval from the General Manager.

Before final acceptance of the work, the owner or their agent shall carefully clean up the work and premises, remove all temporary structures built for the work, and remove all surplus construction materials and rubbish of all kinds from the grounds which he has occupied and leave them in a neat condition.

A-6.13 Environmental Considerations

Water Pollution:
The owner or their agent shall exercise every reasonable precaution to protect ditch conduits, streams, lakes and reservoirs from pollution with fuels, oils, bitumen, chemicals, concrete and other harmful materials and shall conduct and schedule his/her operations so as to avoid or minimize muddying and silting of said conduits, streams, lakes and reservoirs.

Nothing in these Standards shall relieve the owner or their agent of the responsibility for compliance with Sections 5650 and 12015, California Fish and Game Code, or other applicable statutes relating to prevention or abatement of water pollution.

Erosion control features shall be constructed concurrently with other work and at the earliest practicable time. Care shall be exercised to preserve vegetation beyond the limits of construction.

When borrow material is obtained from other than commercially operated sources, erosion of the borrow site during and after completion of the work shall not result in water pollution. The material source shall be constructed, where practicable, so that water will not collect or stand therein.

The requirements of this section shall apply to all work performed within the District and to all non commercially operated borrow or disposal sites used for work within the District. The word "stream" as hereinafter used shall be construed to mean ditch, conduit, stream, river, lake or reservoir.

The owner or their agent shall be completely responsible for compliance with all local, town, county, state, and federal regulations pertaining to water pollution and soil erosion including the payment of any fines or penalties imposed by any governmental agency as a result of work performed by or for the owner or their agent.

Stream Zones:
Where working areas encroach on live streams, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams, and during the construction of such barriers, the muddying of streams shall be held to a minimum.

Prior to the removal of material from an area beneath a flowing stream, a bypass channel shall be constructed in a location which will carry the stream free from mud or silt around the material removal operation.

Should the operations of the owner or their agent require transportation of materials across live streams, such operations shall be conducted without muddying the stream. Mechanized equipment shall not be operated in the channels of such live streams except as may be necessary to construct crossings or barriers and fills at channel alterations.

When operations are completed, the flow of streams shall be returned as nearly as possible to the original meandering thread without creating the possibility of future bank erosion.

Material derived from the work shall not be deposited in a live stream channel where it could be washed away by high stream flows.

Erosion Control:
This work shall consist of incorporating straw and/or mulch, fertilizing, and seeding all water pipeline excavation and backfill areas; all easements which are disturbed by pipelines, ditches or access roads shall also be seeded. Areas designated as waste or borrow areas shall be seeded after final cleanup of said areas is finished.

Seeding: Seed shall be uniformly distributed over the seedbed area. The seed mixture chosen shall be one which is suitable for dry soils at an elevation of 5,000 to 6,000 feet and meets the specifications for purity and viability as given in Chapter XI-C of the Tahoe Regional Planning Agency's Handbook of Best Management Practices.

The seeding operation shall be accomplished promptly after the cleanup of an area is completed, in no case shall the seeding operation of an exposed or disturbed area be allowed to stand fallow through winter until the following construction season.

Fertilizer: Fertilizer shall be applied at a rate so as to provide 80 pounds of available nitrogen per acre and 100 pounds of available phosphoric acid (p2o5) per acre.

Mulch: Wood fiber mulch shall be applied to all areas at the rate of 1,500 pounds per acre. The mulch shall be applied in a slurry with the seed and fertilizer. Straw mulch shall be a cereal grain straw, not rotted and free of noxious weeds. Straw mulch shall be applied on areas as specified in the following paragraphs at the rate of 2 tons per acre. Mulching shall follow immediately after seeding.

Erosion control shall be used on all trench excavation outside of the paved Nevada/Placer County, Town of Truckee, or State of California right-of-ways.

In addition, should the cross slope grade parallel with the trench be greater than 15 percent, Douglas Fir or Cedar 1 x 8 inch boards shall be placed normal to the pipe trench on 10 foot centers with 2 inches exposed above grade and extended 6 inches into original ground on each size before seeding.

A-6.14 Structural Concrete

Provide and install all cast-in-place concrete, as shown and as specified, including but not limited to the following:

- Accessories to be embedded in cast-in-place concrete, anchor bolts, etc.;
- Cutting, patching, finishing and curing of cast-in-place concrete;
- Coordination with all trades with regard to requirements for special bases, sleeves, chases, inserts, finishes, or provisions of any nature;
- Treatment of finished concrete surface.

Quality Assurance:
Qualification of Workmen: All concrete work shall be completed by experienced and skilled concrete workmen working under the supervision of an experienced concrete contractor.

Reference Standards:
The following references and standards are hereby made a part of this section. Nothing contained herein shall be construed as permitting work that is contrary to code requirements or governing rules and regulations.

ACI - American Concrete Institute.

- ACI 301 - "Specification for Structural Concrete for Buildings."
- ACI 304 - "Recommended practice for Measuring, Mixing and Placing Concrete."
- ACI 305 - "Recommended Practice for Hot Weather Concreting."
- ACI 306 - "Recommended Practice for Cold Weather Concreting."
- ACI 309 - "Recommendation Practice for Consolidation of Concrete."
- ACS 318 - "Building Code Requirements for Reinforced Concrete."

ASTM - American Society for Testing and Materials.

- C 31 - "Making and Curing Concrete Test Specimens in the Field."
- C 33 "Standard Specification for Concrete Aggregates."
- C 39 - "Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens."
- C 88 "Standard Specification for Method of Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate."
- C 94 - "Standard Specification for Ready-Mixed Concrete."
- C 143 - "Standard Method of Test for Slump of Portland Cement Concrete."
- C 150 - "Standard Specification of Portland Cement."

- C 157 - "Standard Method of Test for Length Change of Hardened Mortar and Concrete."
- C 171 - "Standard Specification for Sheet Materials for Curing Concrete."
- C 172 - "Sampling Fresh Concrete."
- C 233 - "Testing Air-Entraining Admixtures for Concrete."
- C 260 - "Standard Specifications for Air-Entraining Admixtures for Concrete."
- C 309 - "Standard Specification for Liquid Membrane - Forming Compounds for Curing Concrete."
- C 494 - "Standard Specifications for Chemical Admixtures for Concrete."
- C 2419 - "Standard Specification for Method of Test for Sand - Equivalent Value of Soil and Fine Aggregate."
- E 329 - "Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction."

UBC - Uniform Building Code, Standards.

Testing Agency:
Any testing Agency utilized during the course of the project should conform to the following: All reports and certificates prepared by the Testing Agency shall be signed by a Professional Engineer registered to practice as a Civil Engineer in the State of California. Test methods shall comply with the codes and standards listed.

Source Quality Control:
The Testing Agency shall perform tests and/or assemble the necessary data indicating conformance with specifications as follows:

- Mix Designs - Furnish a list of proportions for each proposed mix.
- Strength - For each mix, submit data showing that the proposed mix will attain the required strength in accordance with the requirements of these specifications.
- Aggregate - For each aggregate used, submit data showing that it complies with ASTM C33. Include gradation, deleterious materials, specific gravity and soundness. For coarse aggregates in mixes for site work, include abrasion.
- Cement - Furnish mill tests for all cement used. Submit this data to Truckee Sanitary District for review prior to delivering any concrete materials to the site. Mix designs, test, etc., required by this specification need not be made specifically for this job, provided that data submitted is current within the last 12 months and that in the judgment of the Testing laboratory the test data correctly describes the materials proposed for use.

- Provide all necessary controls during batching, mixing, and placement of concrete.

The owner will perform and report on the following:

- Review mix designs, certificates of compliance, and samples of materials proposed for use;

- Test and inspect materials, as necessary, in accordance with ACI 318, for compliance with requirements;

- Take samples as required from sources designated by contractor;

- Inspect batch plant prior to any Work to verify following:

  1) Plant is equipped with approved metering devices for determining moisture content of fine aggregate.

  2) Other plant quality controls are adequate.

- Compression Tests: During progress of Work, take not less than five identical test specimens for standard cylinder tests at job site for each 100 cubic yards or less of class "A" and "B" concrete placed per day (except 50 cubic yards or less at underpinning), in accordance with requirements of ASTM C 31 and C 172. Make standard 7 and 28 days after casting. Keep fifth cylinder as a check cylinder for further tests if required.

- Slump Tests: Make slump tests per ATM C 143 at time of making each set of cylinder specimens and for each truckload.

- Air Entrainment Tests: Make air entrainment test for each truckload.

Submittals:
Submit mix designs for approval by owner prior to placement of any concrete.

Submit improvement plans and schedule concrete placement operations before commencing Work. Show all construction, contraction and expansion joints.

Product Delivery, Storage and Handling:
Protect cement from moisture and rotate stock to insure fresh materials.

Alternative Procedures:
Concrete may be placed by pumping provided that pumping equipment is suitable for proposed use and provided that specific "pump mixes" are submitted with data showing that they comply with the requirements of these specifications and subject to approval of Testing Laboratory.

Concrete Mix:
Class "A" - Stone aggregate concrete for use in foundations: 3/4 inch maximum size aggregate, specified minimum 28 day strength of 4,000-pounds per square inch, slump 3-inches, +/=1-inch, 4-8 percent air entrainment, maximum water/cement ratio of 0.43.

Concrete mixes shall comply with ASTM C 94. Proportioning shall comply with Alternative 3, mixing and transporting shall comply with requirements for Truck-Mixed Concrete.

Materials:
Portland Cement: Type II, ASTM C 150, with use of at lease 2 years with proposed aggregates without detrimental reaction. Cement shall not exceed 150 degrees Fahrenheit at time of use. Use one brand of cement throughout the Work.

Standard Weight Aggregates: ASTM C 33 from approved pits. The Maximum size used in a particular location shall be consistent with the form and dimensions of the section being placed, with the location and spacing of the reinforcing steel and with the method of vibration. The aggregate sizes shall be such as will produce dense, uniform concrete, free of rock pockets, honeycombs, or other irregularities. Aggregates for stone concrete shall conform to UBC Standard No., 26-2, except as modified by this section. Any suitable individual grading of coarse aggregates may be used, provided a workable and durably sound mix is obtained. Fine and coarse aggregate for stone concrete shall be clean, hard, fine grained, ground crushed rock or washed gravel or a combination of both, free from oil, organic matter, or other deleterious substances containing not more than 2 percent by weight of shale or cherty material.

Water: Clean and free of deleterious materials such as acids, alkalis, salts, oils, or organic substances.

Admixtures: Only if acceptable by Truckee Sanitary District.

- Water Reducing Admixtures: ASTM C 494, Type A; Grace Construction Materials "WRDA"; Master Builders' "Pozzolith"; Sonneborn-Contech's "Trimix" or equal.

- Air Entraining Admixtures: ASTM C 260; Protec (Autolene Lubricant Company), MB-VR (The Master Builders' Company), or Plastiment (Sika Chemical Corp.).

Epoxy Materials:

- Epoxy Adhesive: Ceilcote No. 348, Concresive LPL 1001, or equal.

- Epoxy Grout: Ceilcote No. 648, Grace Vibro-Foil Grout Master Builder's Masterflow No. 713 Grout, or equal.

Grout for Base Plates: Master Builder's "Embeco 636 Grout"; Conrad Sovig's "Perma Grout"; Master Builders' "Masterflow 713", or equal.

Vapor Barrier: St. Regis Paper Company's Sisal Kraft Division "Moistop", or equal, in sheets as wide as possible to avoid joints. Provide manufacturer's recommended tape for all seams, joints, and repairs.

Hardeners: Clear, Dust-on Type: Base price on application of 50 pounds per 100 square feet. Same as Conrad Sovig's "K-Natural"; Upco Company's "Hydromat"; Lambert Corp.'s "Colorhard"; or equal.

Drypack Mortar for Form Tie-Holes and Patching: Composed of one part Portland Cement and two parts of fine aggregate and water.

Cement Mortar for Sacking: 5-1/2 parts sand, 2-1/2 parts Portland Cement, 1-1/2 parts lime hydrate by volume, plus water.

Concrete Curing Requirements:

- Seven-day full water cure.
- Manufactured curing compounds may be used in addition to the 7-day full water cure upon written approval of the General Manager.

Pre-molded Joint Filler: ASTM D 1751.

Polyvinyl Water stop: Neoprene, center bulb type, or equal.

Inspection:
Prior to placement of concrete, contractor shall be responsible for the examination and acceptance of all conditions affecting the proper installation of his/her work and shall not proceed until all unsatisfactory conditions have been corrected including the following:

- Approval of compaction tests of fill and backfill.
- Completion of the placement of drainage fills or slab base.
- Completion of form work.
- Placement of reinforcement.
- Placement of embedded items.
- Completion of review of form work and reinforcing.

Slab on Grade and Footing:
Vapor Barrier: Place completely over capillary break material sub grade. Lap joints 6 inches minimum, and continuously tape. Fit tightly to penetrations, and continuously tape. Install continuous tape at all edge conditions.

Sand Cushion: Place a 2-inch sand cushion on top of membrane immediately after placing membrane.

Clean and roughen all construction joint surfaces by removing latence and exposing sound aggregate. Thoroughly clean and moisten contact surfaces before placing fresh concrete.

Cleaning and wetting forms and sub grade: Remove foreign matter accumulated in forms, rigidly

close ports and openings left in the form work immediately prior to starting concrete placing. Wet wood forms sufficiently to tighten up cracks. Wet other materials sufficiently to reduce suction and maintain workability of the concrete mix. Thoroughly clean tools used in transporting, placing, and consolidating concrete immediately after each use. Wet sub grade surfaces, immediately prior to placing slabs on grade.

Placing Concrete:
Transport concrete from batching plant to place of final deposit as rapidly as practicable. Place concrete before initial set has occurred and in no event after it has contained water for more than 90 minutes and 45 minutes when concrete temperature exceeds 85 degrees Fahrenheit. Convey concrete from mixer to forms as rapidly as possible and deposit as nearly as practicable in its final position by methods which will prevent segregation or loss of ingredients. Thoroughly vibrate and tamp concrete so that all parts of forms are filled and so that no voids remain in mass or on surface. Take special care to work concrete through and around reinforcing steel.

Deposit concrete in horizontal layers not over 8-inches deep. Use spouts, elephant trunks or other approved means as necessary to avoid segregation when dropping concrete. Free fall shall not exceed 5 feet unless approved by the District prior to placement.

Use as many vibrators and tampers as necessary to secure desired results for different parts of structure. Make extra vibrators available during placing of concrete, ready for service in case any vibrator in use fails.

For vibrating of concrete, use a mechanical internal vibrator having a frequency of not less than 4,000 impulses per minute. Place vibrating element directly in concrete and not attached to either inside or outside of forms or to reinforcing steel. Do not over vibrate concrete.

Provide runways for buggies or other approved means of conveying concrete into place to prevent displacement of forms or reinforcement. Do not run buggies directly over reinforcing steel or on planks supported directly by reinforcing steel. Take care not to displace reinforcement, anchor bolts or other materials that are to be embedded in concrete.

Where placing of concrete has been stopped for a sufficient period of time so that shrinkage or warp has separated forms and concrete, draw forms into firm contact with concrete before placing additional concrete. Prevent any shoulder or ledge being formed at a cold joint.

Bring surfaces to be finished to proper grade, strike off, finish in a workmanlike manner. Ensure smooth level surfaces.

Add no water when placing concrete.

Finishing Concrete:
Sidewalks, Exterior Slabs on Grade and Curbs:

- Compact, screed, level, and tamp with a grid tamper to raise a thin mortar bed to the surface. Steel trowel and medium broom after concrete has hardened sufficiently to prevent the drawing of moisture to the surface. Do not dust with dry materials. Avoid excessive tamping and surface mortar.

- Tool mark slabs where shown. Round all edges to a 1/2-inch radius.

Curing Concrete:
During initial 7 days of curing, concrete and form work shall be kept continuously moist so that a film of water remains on the concrete or form work surface. This may be accomplished through continuously fogging or spraying with water or with moisture retaining fabric coverings. Any covering must be free of any substance that would be harmful to the concrete or the curing process. New fabric coverings should be thoroughly rinsed in water prior to use.

Weather Protection:

Cold Weather Requirements:

- All concrete placed during cold weather shall meet the requirements of the American Concrete Institute committee report (ACI 306)

- Recommended concrete temperature for placement during cold weather are defined in ACI 306, Table 3.1 as follows:

		Section size, minimum dimension, in. (mm)			
Line	Air Temperature	<12 in. (300 mm)	12-36 in. (300-900 mm)	36-72 in. 900-1800 mm)	>72 in. (900-1800 mm)
Minimum concrete temperature is placed and maintained					
1	----------	55 F (13 C)	50 F (10 C)	45 F (7 C)	40 F (5 C)
Minimum concrete temperature as mixed for indicated air temperature*					
2	Above 30 F (-1 C)	60 F (16 C)	55 F (13 C)	50 F (10 C)	45 F (7 C)
3	0 to 30 F (-18 to -1 C)	65 F (18 C)	60 F (16 C)	55 F (13 C)	50 F (10 C)
4	Below O F (-18 C)	70 F (21 C)	65 F (18 C)	60 F (16 C)	55 F (13 C)
Maximum allowable gradual temperature drop in first 24 hr after end of protection					
5	----------	50 F (28 C)	40 F (22 C)	30 F (17 C)	20 F (11 C)

* For colder weather a greater margin in temperature is provided between concrete as mixed and required minimum temperature of fresh concrete in place

Hot-Weather Requirements:

- In hot weather, take suitable precautions to avoid drying of concrete prior to finishing operations. Provide windbreaks, sun shades, fog sprays, or other devices as directed and as required.

- Concrete deposited in hot weather shall no have a placing temperature that will cause difficulty from loss of slump, flash set, or cold joints. Concrete temperature shall be less than 90 degrees Fahrenheit, unless higher temperatures are permitted by the Architect.

Defective Work:
Any concrete work not formed as shown or not true to the intended alignment or not plumb or level where so intended, or not true to the intended grades and levels or that has voids or rack

pockets that have not been filled, or that has any sawdust, wood, or debris embedded in it, or does not fully conform to the Specifications will be deemed to be defective. Concrete finish which is not properly surfaced as specified, or which varies more than 1/4 inch from the required finish grade (except floors having drains), or which has any roughened top surfaces, or which does not connect properly to the adjoining work will be deemed to be defective. Defective work shall be removed and be replaced with workmanship and materials complying with the requirements of the Contract Documents at no increase in Contract Price and with no time extension allowed.

Patching and Grinding:
Formed Surfaces: Patch tie holes and defective areas immediately after form removal. Bonding grout approximately one part Portland Cement to one part fine sand passing a #30 sieve, mixed to creamy consistency. Patching mortar shall be made of the same material and approximately the same proportions as used for concrete, except that coarse aggregate shall be omitted and mortar shall consist of not more than one part Portland Cement to 2-1/2 parts damp loose sand by volume. Combine white and gray Portland Cement as necessary to match color of surrounding concrete. Use no more mixing water than necessary for handling and placing. Mix patching mortar in advance and allow to stand with frequent mixing with trowel without adding water until it has reached the stiffest consistency that will permit placing. Remove honeycombed and other defective concrete down to sound concrete. Dampen area to be patched and at least 6 inches surrounding the area. After water has evaporated from surface, a coat of bonding grout shall be well brushed into the surface. When the bonding grout begins to lose water sheen, apply patching mortar, thoroughly consolidate and strike off slightly higher than surrounding surface. All patching mortar shall set undisturbed for at least 1 hour before final finishing. Do not finish patches for 7 days. Tie holes shall be cleaned, dampened, and solidly filled with patching mortar. All areas to be repaired or grouted are to be inspected by the owner and architect prior to repair.

Slabs on Grade: After entire slab is finished, shrinkage cracks may appear which shall be patched as follows:

- Where the slab is not exposed or where appearance is not important, fill cracks larger than 1/32 inch wide with cement grout and strike off level with surface.

- Where slab is exposed and appearance is important, repair all unsightly cracks in a manner satisfactory in appearance to the Architect. If this cannot be accomplished, then the concrete shall be considered defective.

- Wall Finishes:

- Sack all exposed exterior wall surfaces to fill only superficial air voids and irregularities which are larger than 1/4 inch in diameter with a cement mortar grout, remove all excess grout by sacking without use of water. Take care in application of grout and in sacking excess grout from surface in order that all voids are filled without a thickness of grout being built up on adjacent concrete surface. The resultant finish and texture of concrete shall match existing finish and texture.

Clean Up:
Wash and mop clean all interior finish surfaces and sweep and hose clean exterior surfaces after removal of protective covering. Leave all finish surfaces clean and free from oil, paint, plaster, stain and foreign substances and in approved condition.

Reinforcement:
Bar reinforcement shall be deformed, and shall be intermediate grade conforming to the "Billet-Steel Bars for Concrete Reinforcement" (ASTM Designation A15), and be of the shape and dimensions shown on the improvement plans. Before any reinforcing steel is delivered to the job site, two sets of prints of the shop drawings shall be submitted to the General Manager for his/her approval, showing the number, length, and a dimensioned bending diagram of all steel bars and rods. Such approval is intended only as an additional precaution against errors and the responsibility for furnishing and placing steel in accordance with the details shown on the improvement plans and as specified shall still remain with the contractor.

A-6.15 Pump Station Structures

Doors:
All man doors shall be hollow metal with all steel door frame. Minimum size 3068. Doors shall be of adequate size to move interior equipment in and out for maintenance.

Clearance Requirements:
Where works are to be constructed within vaults, houses, or other enclosing structures, the desired minimum horizontal clearance around, outside of, and between the extreme dimensions of appurtenances such as pipes, valves, fittings, flanges, pumps, tanks, and auxiliary equipment shall be 24 inches; the desired minimum horizontal clearance between said extreme dimensions and the vertical walls or enclosing surfaces of said structures shall be 24 inches; and the desired minimum vertical clearance under and between said extreme dimensions and the horizontal floors or bottom surfaces shall be 18 inches. Electrical equipment clearances shall be per the current National Electrical Code.

Floor Drains:
The floor or bottom areas of the above mentioned structures shall be drained by means of sloping floors, catch basins with grates, and drain lines constructed to terminate at an approved location, and will not re-circulate into the enclosing structure. The catch basin grates shall have a free flowing area of not less than 50 square inches, and the minimum drain line shall be 4 inch size. Where gravity discharge through a drain line is not feasible, a power driven sump pump or line pump, automatically activated by a liquid level sensing device, shall be installed. Gravity drains shall be equipped with a trap and drain to the wet well.

The enclosing structures shall be designed so that precipitation, surface water, and ground water cannot enter said structure. Floors shall be at least 6 inches above outside ground level. The Outside ground level shall have adequate storm drainage facilities not connected to the sanitary sewer system.

Materials and Workmanship:
All materials used or incorporated in any works to be accepted by the District shall be new and the best market quality. All work shall be completed in the best, most thorough, substantial and workmanlike manner.

All material, labor and finished work shall be subject to the approval of the General Manager as to its quality and fitness, and shall be immediately removed if it does not meet with his/her approval.

Improvement Plans:
The owner or their agent shall submit to the General Manager two prints of all structure plans for his/her review. These improvement plans shall be on 24 x 36 inch sheets.

All structures above ground shall be compatible architecturally with existing or future conditions and shall be approved as to appearance prior to final structure design.

Insulation:
Insulation shall be placed if required. The owner or their agent shall submit to the General Manager insulation calculations based upon a low temperature of minus 28 degrees Fahrenheit.

Surface Treatment:
The structures surface treatments shall be approved by the General Manager.

Loads:
The minimum vertical snow load applicable to the design of roofs and similar surfaces including water tanks shall conform to the following schedule.

Elevation of Structure	Normal Snow Load
5500 and greater, but less than 6000	220 PSF
6000 and greater, but less than 6500	260 PSF
6500 and greater, but less than 7000	300 PSF

Wind loads shall conform to the uniform building code.

Two sets of calculations shall be sent to the General Manager.

Concrete:
All concrete used in District structures shall conform to Structural Concrete, Section A-6.14, page 118, of this specification.

Excavation and Backfill:
Excavation and backfill for buildings and structures shall be approved by the General Manager.

The owner or their agent shall, at no expense to the District, take compaction tests one for each 100 cubic yards of structure backfill by an approved commercial testing laboratory with two copies of the results sent to the General Manager.

The moisture density test shall be ASTM D1557, Method A.

The in place density shall be determined by ASTM D1556.

Access Roads and Site Work:
Access roads to District sanitary sewer facilities shall be of an all weather type with a minimum width of 12 feet of traveled way. This width may be increased if length or location becomes a consideration to the District.

The road grades shall be a maximum of 8 percent. The structural section for access roads and parking areas shall be a minimum of 6 inches of aggregate base Class 2, and 4 inches of asphalt concrete.

There shall be adequate consideration given to roadway and site drainage.

Tops of all excavation slopes and toe of embankment slopes shall have "V" type ditches draining the runoff away from the site area.

All structure sites shall allow for a minimum of one pickup truck parking and adequate room to turn around where necessary.

The District will require free title to all structure sites and a recorded access easement on the road extending a minimum of 5 feet beyond any construction limits.

Welding:
All welding shall conform to the welding handbook of the American Welding Society, and as modified herein.

Welder Qualification:
All welders working on any portion of work to be incorporated in the District sanitary sewer system shall be certified as specified below and as may be required by the General Manager.

Fabrication and testing of test specimens for qualification of welding procedures and qualification of welding operators shall be completed at no cost to the District.

Test reports shall be submitted to the General Manager in triplicate and approved by him in writing prior to start of fabrication. Test reports shall become the property of the District.

The General Manager may require tested specimens to be furnished to him for review after testing. In the event that test specimens are not satisfactory, the welder will be disqualified.

The contractor shall advise the General Manager in advance of testing weld specimens and shall provide access to the test area so that testing may be witnessed by the General Manager, and bear all costs of such inspection.

Welder qualification tests will be evaluated in accordance with requirements of the AWS except that radiographic examinations will not be used in lieu of the guided bend tests. Radiographic examinations may be used as a supplement to other tests and should they indicate that a test weld is unsound, the General Manager may disqualify the welder.

In lieu of the AWS requirements, qualification tests for tack welding will be the same as the qualification tests required for butt welding material up to and including 3/4 inch thick.

All certification tests shall be performed at the owner or their agent's expense by a commercial testing laboratory approved by the General Manager.

Welding Testing:
If in the opinion of the General Manager, the workmanship or the welds are of such a type or nature as to require testing, the owner or their agent shall have the necessary tests performed by a commercial testing laboratory at the owner or their agent's expense with the results delivered to the General Manager.

Pipelines and Fittings:
All piping and appurtenances shall be installed in the position and to accurate lines, elevations, and grades as shown on the District approved improvement plans or specified herein. All pipelines shall be rigidly supported and braced by approved hangers, brackets, or other devices. When temporary supports are used, they shall be sufficiently rigid to prevent any shifting or distortion of the piping or related work.

Pipe shall be cleaned of dirt and scale prior to installation and all joints swabbed clean before jointing. All fittings necessary for the satisfactory alignment and arrangement of piping and all necessary unions and cleanouts shall be adequately supported throughout and the weight thereof shall be carried independently of the pump casings or the equipment. All pipe work shall be mounted in a truly workmanlike manner with pipe work parallel with vertical and horizontal axis of reference. All sections of pipe shall be rigidly bolted or joined together after being cut accurately to length in such a manner as to relieve any and all parts of equipment of undue strain resulting from closure of flanged or other joints or connections. Equipment shall be so positioned and aligned that no strain shall be induced within the equipment during or subsequent to the installation of pipe work.

Threaded joints shall be made up with the best quality pure lead paste or approved equal, carefully and smoothly placed on the male threads only. All screwed joints shall be made tight with tongs and wrenches; caulking of any kind will not be permitted.

Use of thread cement or caulking to make joints tight is prohibited. All cut ends shall be reamed to full bore before assembly.

Flanged joints shall be made up square, with even pressure on the gaskets, and shall be watertight. Gaskets shall be heat quality rubber packing not less than 1/16 inch thick and compatible with wastewater applications. All gaskets shall be the full width of the flanges to which they are applied.

All piping within structure shall have bolted flanged joints except as authorized by the General Manager.

The owner or their agent shall, if requested by the District, demonstrate the disassembly and reassembly of the station piping.

Bolts and nuts for flanged joints shall be made of the best quality of defined iron or mild steel and shall have sound, well fitting threads. Bolts shall be provided with hexagonal chamfered heads and nuts. The underside of all bolt heads and nuts shall have true surfaces at right angles to the axis of the bolts. The lengths of the bolts shall be such that after joints are made up, the bolts shall protrude through the nuts, but in no case shall they protrude more than 1/2 inch. All bolts shall have an anti seize compound applied to all male threads.

Emergency Storage:
All stations shall be designed to store 1 hour peak flow from high wet well alarm to overflow by use of overflow tanks or pipeline retention.

Generators:
All stations serving more than 9 residences shall have back-up generators.

Dehumidifiers, Heating, Ventilation, and Air Conditioning:
Where necessary these types of equipment shall be installed such that the control of the environment within wastewater lift stations and/or other District structures may be controlled.

Heaters shall be required in structures where cold sensitive equipment is located. Cabinets containing cold sensitive equipment shall be equipped with heat strips or heat ventilation. Piping located above ground or in such a manner that exposure to extreme cold would be evident if the heating system failed shall be avoided.

Dehumidifiers where required shall conform to the following. The moisture removing capability of the dehumidifier shall vary with the temperature and relative humidity. The minimum capacity rating at 80 degrees Fahrenheit shall be 15.5 pints per day at 60 percent relative humidity. The maximum capacity at 80 degrees Fahrenheit shall be 25 pints per day at 90 percent humidity. The dehumidifier shall be controlled automatically by an adjustable humidistat and low air temperature cut out with contacts of adequate capacity for the dehumidifier motor.

Ventilation shall be accomplished by using a ventilating blower with sufficient capacity in cubic feet per minute to ventilate the enclosing structure. Minimum guidelines for air changes per hour shall be taken from the current publication of NFPA 820, *Standard for Fire Protection in Wastewater Treatment and Collection Facilities*. A gas detection system shall be installed to check for levels of oxygen, hydrogen sulfide, and explosive gases. The indicators on the gas detection system shall be located such that personnel entering the building will receive notification of hazards. Telemetry equipment shall be connected to the gas detection system to remotely notify District personnel in the event there is a detection of dangerous levels of explosive gases.

Air conditioning shall be installed if the horsepower requirements of the pump motors are such that overheating will be a consideration. Air-conditioning type and size shall be approved by the General Manager.

Calculations for environmental conditions within the lift station shall be submitted with lift station improvement plans.

A-6.16 Pump Station Electrical Work

These Standards cover in general the Districts requirements. The developer shall have his/her engineers specify in additional detail all necessary items of electrical work not mentioned herein.

Materials:
All materials shall be new, of the quality herein specified, free from defects and approved by the Underwriters' Laboratories for the purpose for which they are used. Materials shall be of uniform type and make throughout.

Equipment Identification:
All panel boards, remote control switches, push buttons, terminal boxes, etc., shall be properly identified with a descriptive nameplate. Nameplate shall be made of 1/16-inch laminated plastic with black background and white letters. Size of letters shall be 1/8 inch high for equipment in device box or boxes and 1/4 inch high for panel board, terminal can, or larger items. Letters shall be machine engraved. Punched strip tape type nameplates and cardholders in any form are not acceptable.

Working Space:
Provide adequate working space around electrical equipment in compliance with the National Electrical Code. In general, provide 6-1/2 foot of headroom and 42-inch minimum clear work space in front of panel boards and controls.

Wire:
Installed in conduit and control panels shall be stranded copper with 600 volt type "THHN" or "THWN" insulation. Direct burial cable shall not be allowed.

All other wires shall be stranded type copper wire of not less than 98 percent conductivity. Wires shall bear the Underwriters' label, be color coded and be marked with gauge, type, and manufacturer's name on 24 inch centers.

Wire splices and joints are allowed only in readily accessible junction boxes. #10 AWG or smaller shall be twisted together electrically and mechanically secured and insulated with approved type insulated electrical spring connectors Scotchlok or Ideal. Threaded type wire nut, porcelain or Bakelite are not acceptable. Joints and connections for #8 AWG, or larger, shall be made with Burndy, T & B or approved equal, solder less tool applied pressure lugs and connectors. Un-insulated lugs and wire ends shall be insulated with layers of plastic tape equal to insulation of wire and all irregular surfaces properly padded with "Scotchfill" putty prior to application of tape. Tape shall be equal to Scotch #33, General Electric #AW-1 or H.K. Porter #107.

Lace or wire tie conductors together in a neat and workmanlike manner in panel boards, wire ways, raceways pull boxes, and similar locations. Plastic wiring ducts are preferred as an alternate to lace or wire ties.

#12 AWG wire shall be the minimum size wire used for lighting and power circuits. Wires run in conduit shall conform to code regulations as to number of wires and conduit size. All wire ends shall be identified with Thomas & Betts WM-A-Z and/or WM-0-45 or approved equal. Identification shall be as shown on the electrical drawings.

Outlet Boxes:
Shall be galvanized or sherardized, one-piece pressed steel type. Boxes for fixtures shall be not less than 4 inches and be equipped with fixture stud. Boxes shall be at least 1-1/2 inches deep. Boxes must be accurately placed for finish, independently and securely supported by adequate wood backing or by manufactured adjustable channel type heavy duty box hangers. Boxes in unfinished areas, installed exposed, shall be cast type "Condulet" for switches and convenience outlets. Exposed boxes mounted below 6 feet from finished floor shall be cast type.

Codes, Rules, Regulations:
All work shall be in full accordance with the latest edition of the National Electrical Code, California Electrical Code, and all state, federal, local, and other laws including the requirements of the serving utility company. However, when these specifications call for materials or construction of a better quality or larger sizes than required by the above mentioned rules and regulations, the provisions of the specifications shall take precedence.

Pilot Lights:
Shall be of the oil-tight type and shall have push-to-test feature. Color of lens shall be red unless noted otherwise on drawings.

Switchboard Motor Controls:
Shall generally consist of the following components: main circuit breaker; combination draw out circuit breakers and full voltage or soft-start motor starters; dry transformers; 120-volt panel boards; and all appurtenances.

The switchboard/motor controls shall consist of vertical sections to accommodate the circuit breakers, motor starters and control devices. The control structures shall be free-standing, designed and tested in accordance with the latest NEMA ICS 1970 standards, and shall be metal enclosed indoor type, completely inter-wired in accordance with steel with NEMA Class I Type B standards. Fabrication shall be of code gauge steel with 1-1/2 x 1-1/2 inch welded structural steel angles at the top and bottom of the frames. Control cabinets shall be designed for multiple alignment with continuous main horizontal bus and multiple sections riveted together.

Doors and blank cover plates shall be code gauge steel with gaskets around each door except panel board. Doors shall use semi-concealed piano type hinges and be secured with slotted head, one-quarter turn captive speed fasteners or approved equal.

All bus bars shall be rectangular and formed of Alcan tin-plated copper supported on fiberglass insulators and be properly braced to withstand mechanical stresses of not less than 22,000 amperes. Each combination starting unit shall be mounted on a chassis, having a height as required by the particular size of the combination starter and circuit breaker unit. The chassis shall be so housed and constructed as to isolate the components from adjoining circuits. All motor starters shall be of the magnetic type for across-the-line starting with ambient compensated thermal and adjustable overload protection in each phase. Overload heaters shall be sized for the load they are protecting. Motor starters and circuit breakers shall be I.T.E., Square D, or approved equal. Each combination starter shall be protected by a molded case circuit breaker having an interrupting capacity of not less than 14,000 amperes (symmetrical) and/or as called for on the drawings. Adjustable time delay relays shall be provided, where shown on drawings,

to start motors in sequence to limit starting demand on commercial power. Ammeters shall be used as necessary.

Time delay relays, control power transformers and auxiliary relays as necessary shall be provided in each cubicle and each internal and external component shall be clearly identified.

Components shall be mounted on removable back panels, drilled and tapped from the front. They shall not protrude into or restrict wire ways. Push buttons, selector switches, meters and pilot lights shall be visible and operable externally, through gasket, die-cut openings in the unit door. Thermal overload protective devices in combination starters and branch circuit protective devices shall have an external operating device. The circuit breaker shall be interlocked with the door so that the circuit must be de-energized before the door can be opened. A semi-concealed interlock "defeater" arrangement shall be provided. Provisions shall be made for padlocking the breakers with a minimum of three padlocks in the "on or off" position.

All plug-in equipment not mounted horizontally shall have readily removable physical restraining devices to prevent their vibrating loose and falling out.

A wiring diagram specifically detailed for each cubicle shall be furnished and installed inside each cubicle in a door mounted holder.

A continuous ground bus shall extend through all motor control centers. Provide space heaters and thermostats with a calibrated dial adjustment in each section.

All motor control centers and switchboards shall be mounted on 1-1/2 inch concrete slab raised above normal floor level. Grouting will not be accepted. Provide anchor bolts. At locations shown on improvement plans, maintain a minimum of 2 inch air space between rear of switchboards and concrete or metal walls. The 1-1/2 inch concrete pads shall be provided under this section of the specifications to fit the exact size and shape of the switchboards.

Identification of electrical interior controls shall be of a plastic coated material, or other permanent type of marking, as approved by the General Manager. Dymo tape is not accepted. The permanently attached marking shall be attached to each of the following, but not necessarily limited to such: relays, timers, terminal blocks, starters, control transformers, etc. Identification of each item shall correspond to wiring diagram of final shop drawings.

Final adjustments of equipment shall be made by a qualified representative of each manufactured item.

Lighting Fixtures and Lamps:
Shall be as shown in the Fixture Schedule complete with lamps listed therein, and shall be U.L. approved, listed and labeled for use as installed. All fixtures of a kind shall be of identical manufacture, appearance and finish. Fixtures shall be located where shown on improvement plans. Where structural conditions require slight deviations, resulting layout shall be symmetrical and as approved by the General Manager.

Bussing:
All bussing shall be of copper with sizes based on current code requirements or a current carrying capacity of not over 1,000 amperes per square inch of cross-section. Bars shall be 1/4 inch

thickness minimum. All contact surfaces shall be cleaned bright and silver-plated by submergence in an electrolytic bath. Busses shall be rigidly supported and thoroughly braced to match short circuit values of the main circuit breaker.

Circuit Breakers:
The main and distribution circuit breakers shall be molded case type with trip ratings as called for in the schedule on the drawing.

Each circuit breaker shall be identified with an engraved laminated phenolic plate showing the load served or the function of the breaker. The nameplate shall be attached with oval head machine screws tapped into the front of the board, or some other equally effective means.

Grounding:
Ground fittings shall be of approved manufactured type, installed and connected to conform with Code requirements. The neutral conductors and non current-carrying parts of equipment at each installation shall be grounded in accordance with the applicable Code. Ground conductor shall be copper having a current capacity per N.E.C., but not smaller than No. 6 AWG. Exercise every precaution to obtain good contact at all panel boards, outlets, etc. Where it is not possible to obtain good contact, the conduits shall be bonded around the boxes with an insulated conductor, No. 6 AWG or larger, connected to the conduits by means of approved clamps.

All equipment cases, motor frames, etc., shall be completely grounded to satisfy the requirements of the N.E.C. and the Electrical Safety Orders.

Conduits:
Rigid Steel Conduit shall be standard weight, mild steel pipe, zinc coated on the outside by a hot dipping, sherardizing, or metalizing process. The inside and outside of the conduit shall be finished with a protective coating.

Fittings, such as couplings, elbows, bends, etc., shall be subject to the same requirements as for rigid steel conduit. All couplings and unions shall be the threaded type assembled with red leaded joints made absolutely tight to exclude water. Unions shall be Crouse Hinds UNY or UNF or approved equal.

Electrical Metallic Tubing (E.M.T.) shall be cold rolled steel tubing with zinc coating on the outside and a protective enamel coating on the inside.

Fittings shall meet the same requirements for finish and material as E.M.T. They shall be the watertight compression type requiring the tightening of a nut. Indenters will not be allowed.

A flexible conduit shall be liquid tight except where used with a recessed light fixture. Conduit shall be galvanized with extruded polyvinyl covering and with watertight connectors. Minimum size shall be 1/2 inch except where supplied as part of approved manufactured assemblies.

All conduits shall be rigid, except that E.M.T. may be used at the following locations:

- In dry locations in furred spaces.
- In partitions other than concrete or solid masonry.

- For exposed work indoor above 6 feet.

Conduits installed in contact with the ground, in sand or gravel-fill shall be rigid steel with two protective coverings of Koppers' Bitumastic #50 or equal, applied after couplings and fittings are in place, each coat not less than 1/32 inch thick when dry. Conduit shall be run concealed in areas having finished ceilings and in furred walls. Conduit may be run exposed where so permitted by the General Manager. Exposed conduit below 6 feet shall be rigid type. Conduit run exposed shall be neatly installed parallel and at right angles to the structural members.

Conduit shall be fastened to the structure with pipe clamps. Conduits up to and including 1-1/2 inch trade size shall be supported at 5 foot intervals or less.

Cap conduit during construction by means of manufactured seals; swab out conduits before wires are pulled in.

Make water-tight conduits projecting through roof by proper flashing.

Wet Well Electrical Equipment:
The electrical equipment used in the wet well must meet the National Electrical Code (NEC) requirements for Class I, Division I, groups C and D hazardous atmospheres. The electrical control cabinet shall also be isolated from the wet well to meet the above hazardous atmospheres. If sensors or other electrical equipment is used that does not meet the NEC requirements for hazardous atmospheres, they shall be electrically isolated with approved intrinsically safe barriers.

Telemetry:
Will be required where wet wells, pump stations and other types of mechanical facilities are to be incorporated into the District sanitary sewer system. The owner or their agent shall include a complete telemetry system which shall conform with the existing District telemetry plans and system. The proposed system shall be approved by the General Manager.

Tests:
Upon completion of construction and adjustment of all equipment, all systems shall be tested under the direction of the General Manager to demonstrate that all equipment furnished and installed and/or connected under the provisions of these standards shall function electrically in the manner required.

All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show an insulation resistance between phase conductors and between phase conductors and ground not less than the requirements of the National Electrical Code. All circuits shall be tested for proper neutral connections.

As Built Drawings and Operating Manuals:
Shall be furnished in three bound sets, covering the following items:

- "As Built" drawings of contract electrical documents showing clearly exact locations of all underground conduits as installed. All deviations from contract drawings shall be shown. This information shall be presented by the contractor on revised transparent

ozalid prints of original tracings. As built drawings shall be presented at completion of project and before final payment is due.

- "As Built" drawings of all switchboards, panel boards, wiring diagrams and control equipment.

- Detailed control wiring diagrams, both schematic and construction wiring for all switchboards, motor starters, transformers. Included herein shall be copies of individual cubicle wiring diagrams posted inside motor starter cubicles as noted under switchboard specifications. All wires, connections, terminals, etc. shall have an individual identification code.

- Complete instruction, maintenance and overhaul manuals, clearly showing and explaining operation and overhaul of all starters, circuit breakers, controls and all electrical equipment.

- Renewal parts lists for all equipment requiring maintenance, adjustment or repairs.

- Complete step-by-step sequential explanation of relay contact and device operation for all controls. The written explanation shall be clearly coordinated to device symbols and numbers on the elementary wiring diagrams.

- Complete step-by-step sequential instructions and precautions for system start-up as well as system shut down.

- All material called for above shall be bound and indexed in stiff back, loose leaf, plastic covered binder.

Guarantee:
The owner or their agent shall leave the entire electrical system in proper working order and shall, at his/her own expense, replace any work, material, or equipment furnished by him which develops defects within 1 year from the date of acceptance.

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ORDINANCE 1-2012

AN ORDINANCE OF THE TRUCKEE SANITARY DISTRICT AMENDING CHAPTER 7, CHAPTER 10, AND APPENDIX A-5 OF THE TRUCKEE SANITARY DISTRICT CODE

The Board of Directors of the Truckee Sanitary District does ordain as follows:

SECTION 1. Chapter 7. entitled "INSTALLATION OF SANITARY SEWER FACILITIES" Section 7.16 Residential/Small Commercial Pump Systems is hereby amended to read as follows in the attached Exhibit "A".

SECTION 2. Chapter 10. entitled "MAINTENANCE OF EXISTING FACILITIES" Section 10.03 Testing Procedures for Existing Sanitary Sewer Facilities is hereby amended to read as follows in the attached Exhibit "B".

SECTION 3. APPENDIX A-5. entitled "MATERIALS FOR CONSTRUCTION OF SANITARY SEWERS" is hereby amended to read as follows in the attached Exhibit "C".

SECTION 4. This Ordinance shall take effect thirty (30) days after adoption.

SECTION 5. The Clerk of the District is directed to enter a certified copy of this Ordinance in the minutes of the Board of Directors.

PASSED AND ADOPTED by the Board of Directors of the Truckee Sanitary District on the 19th day of April 2012, by the following roll call vote:

AYES: Affeldt, Gilmore, Sweet, Van Gundy
NOES: None
ABSENT: Smart
ABSTAIN: None

Jerry Gilmore,
President of the Board of Directors

ATTEST:

Thomas S. Selfridge,
Board Secretary

EXHIBIT A

7.16 Residential/Small Commercial Pump Systems

For all building sites in which the improvement plans designate a pumped service or for any owner wishing to construct a structure on a portion of a lot or parcel for which gravity service was not provided, the owner shall install a sewage pump as specified herein for the purpose of lifting sewage to the public sewer. Where installed, such installations shall be maintained by the owner at the owner's expense.

A pumped sewer service shall consist of a gravity sewer, a waste water holding tank, one or more pumps, a force main, electrical controls, and an alarm system. The pump and holding tank shall be installed in a location that provides at least a 48 inch diameter x 36 inch high area above the center of the holding tank that is free and clear of any obstructions to allow access for inspection and maintenance. If height clearance is not met, a removable access panel located above the center and at least 24 inch wide x 36 inch long must be installed. If the holding tank is located outside of the building foundation it shall not be located within 5 feet of any building used as a dwelling, within 10 feet of any property line or within 50 feet of any lake, stream, or reservoir

A duplex pump system is suggested for residential applications when more than one residence is served by the same pump system. Commercial enterprises which contain public restroom facilities shall be required to operate and maintain a duplex pump system.

Installation:

Gravity Pipeline - The gravity sewer lateral from the building sewer to the waste water holding tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page 107. Pipe must be mechanically sealed to a watertight condition at the point of holding tank penetration. Gravity pipe shall be restrained as required to prevent separation from the tank. The gravity sewer lateral is subject to the requirements of Tracer Wire on Building Sewer Laterals, Section 7.12, page 33.

Waste Water Holding Tank - The holding tank shall be a solid impervious walled container rated for both the liquid it contains and the method of installation including direct burial. All holding tanks that are buried must have an antifloatation device to prevent the tank from rising due to ground water. All direct burial polyethylene tanks must be approved in writing by the General Manager. All openings in the walls of the tank, including pipe or conduit penetrations, are to be mechanically sealed to prevent inflow of surface water, infiltration of ground water, or exfiltration of contained wastewater. The tank shall have a minimum capacity of 150 gallons. The tank shall be vented with a 1 1/4 inch minimum vent line. Exterior tanks shall be buried to a depth such that the top cover of the tank is a minimum of 18 inches below finished grade. A weatherproof housing, with adequate insulation, shall be installed and extended to 6 inches above finished grade. It shall be the owner's responsibility to determine groundwater conditions that

may cause the tank to float when empty and to provide the appropriate solutions to prevent it. Internal ballast that reduces the tank capacity below 150 gallons will not be acceptable. Tanks installed in areas of high groundwater shall require additional protection to avoid submergence. It is the owner's responsibility to address high groundwater concerns and may include the addition of impervious risers or a waterproof vault to prevent groundwater submergence of the waste water holding tank.

Pumping Equipment - Pumps shall be centrifugal of the non-clog or grinder type. Non-clog pumps shall be capable of passing a minimum of a 2-inch diameter sphere. Pumps and motors shall be sized so as to maintain a minimum of 4-feet per second flow velocity throughout the entire discharge piping system when a maximum of one pump is pumping under actual installed conditions. A copy of the pump specifications and pump curve shall be required and made available to the District inspector before testing is allowed. Installation of pumping equipment shall be in accordance with pump manufacturer's recommendations including a vent hole in the standpipe, above the high water float, to purge the unit of trapped air.

Electrical - The electrical control cabinet shall be isolated from the holding tank. All wiring, controls, conduits, boxes, etc. shall meet or exceed National Electrical Code (NEC) requirements for materials, ratings, placement, and installation, etc. All equipment located in the holding tank shall be U.L. approved for its specific and proper use. All wiring in the area above the holding tank shall be provided with protection from physical damage by a combination of cable routing and/or conduits. Any wiring which hinders entry or view into the holding tank when opened will not be acceptable. All electrical connections shall be in an approved electrical junction box. All conduits leaving the holding tank, or the enclosed area above or surrounding the holding tank, shall be sealed. A circuit disconnecting means for all circuits must be located within sight of the holding tank unless a lockout device is installed on the disconnecting means for each individual circuit attached to or related to the pump system at the holding tank.

Alarm System - The holding tank and electrical controls shall include an alarming system that produces an audible and visual alarm when the liquid level in the holding tank exceeds a predetermined safe level. The audible and visual devices indicating such an alarm state shall be located at all inhabited buildings or structures served by the sewage system with the intent to notify occupants inside the house of the possibility of a wastewater spillage. The alarms system power shall be supplied through a separate, dedicated circuit from the pump power supply. It is recommended that the alarm system include a battery backup to allow the alarm to function during an electrical power outage. For commercial applications that serve multiple buildings, the alarm system must also include an auto dialer system that will phone a responsible party and notify them of the alarm status of the pump system.

Discharge Piping - The discharge pipeline shall be ductile iron, polyvinyl chloride (PVC), high density polyethylene (HDPE), or an approved pressure rated material designed for wastewater. The piping shall be pressure class 150 minimum and rated for the pressure service being installed. The pipeline size shall be **2 inch nominal diameter minimum for non-clog pumps, and 1 ¼ inch nominal diameter minimum for grinder pumps**. The discharge pipeline shall be fitted with an approved pressure rated sewer check valve and an isolation gate or PVC ball valve.

The discharge pipeline shall also include a 1/4 inch valve pressure test port located between the check portion of the check valve and the isolation valve. The isolation valve shall be located on the discharge side of the check valve. Both valves and the test port shall be located in an accessible area outside of the holding tank in such a manner that they are accessible for operation and maintenance or repairs. Valves must be installed with unions rated for the application. An accessible pressure rated union is mandatory between the pump and valve assembly.

All discharge pipelines are required to have a tracer wire installed adjacent to the sewer pressure pipe. Tracer wire shall consist of 10 AWG minimum with THW, THHW, TW, THWN, or other approved wet location insulation. Wire shall be attached to the top of the force main with tape at appropriate intervals. Wire shall be continuous along entire length of force main, beginning at the boxed check valve and terminating at the property line cleanout. Splices shall incorporate approved underground splice kits. Each run of tracer wire shall be tested for continuity following backfill.

In cases where the District service lateral stubbed to the property line is a force main (positive slope), the tracer wire following the private force main discharge piping shall be brought to the surface and boxed to grade at the property line. It is recommended that the tracer wire be placed in conduit where it surfaces through the ground at the property line and covered with a concrete box with a cast iron lid labeled "sewer" or "S".

Discharge pipelines shall have a trench cutoff block located every 50 linear feet of pipe, at changes in pipeline type and/or grade, and at the pump tank, and as designated by the General Manager. Thrust blocks shall be located at all fittings that change the direction of the pipe. Thrust blocks shall be constructed of concrete with a minimum size of 2 cubic feet.

A siphon break shall be installed on the discharge pipeline at its connection point to the gravity sewer. A cleanout in accordance with the Installation of Cleanouts, Section 7.10, page 31, shall be placed immediately downstream of the siphon break in the discharge pipeline at the property line, if the siphon break can be placed in a practical manner such that sufficient gravity slope can be maintained from the property line to the District main pipeline.

All discharge piping is required to be protected from freezing. It is the owner's responsibility to address site specific conditions and install freeze protection as necessary. Protection may include provisions of bypass drains, insulation, and heat tape.

Inspection and Testing:

The gravity portion of the pipeline from the building to the holding tank and the Waste Water Holding Tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page 107. For testing purposes the Waste Water Holding Tank shall be considered a manhole.

A visual inspection shall be performed to check the following:

- proper venting of the holding tank.

- an acceptable weather proof box with weather rated insulation directly above the holding tank.

- watertight mechanical seals on the holding tank lid and at all pipe or conduit penetrations.

The discharge pipeline shall be pressured tested with air or water to a pressure of 150 percent of the calculated maximum possible working pressure (the Total Dynamic Head, TDH) for the installed pump. The maximum possible working pressure for the system can be assumed to occur at the pump's shut off point. The pump shut off point can be obtained from the pump's performance curve by following the curve to the point at which it meets the axis representing the head of liquid. The pressure must remain constant for 10 minutes. The required test equipment shall be provided by the owner or owner's agent and be acceptable to the District.

The electrical system and controls shall be inspected and approved by the local governing authority for the building electrical inspection. Pumping and alarm tests shall only be performed after the electrical system has been inspected and approved by the proper authority. The District Inspector shall require proof of such approval before starting any of the following functional tests:

- The pump shall be started and stopped so the check valve can be tested for proper operation.

- The pumping system shall be tested for a discharge pipeline velocity of 4 feet per second. The flow velocity test shall be performed with the discharge pipeline full of water and the pumping system functional under normal operating conditions.

- The pump shall be run to pump down the holding tank to allow a visual inspection of the tank and to check it for leaks.

- The alarm system shall be checked for proper function of audio and visual alarms.

Septic tanks may be converted to house the Waste Water Holding Tank, but are prohibited from being used as the Waste Water Holding Tank. Converted Septic Tanks must have drain holes drilled in the bottom of the tank to drain trapped water, and appropriate solutions to prevent the Waste Water Holding Tank from floating.

Deviation from Requirements:

Any deviation from the above stated requirements shall be approved in writing by the General Manager.

EXHIBIT B

10.03 Testing Procedures for Existing Sanitary Sewer Facilities

The owner or their agent of a house, building, or property connected to the District's sanitary sewer system shall conduct all sanitary sewer facility upgrades and testing required at their sole expense and shall notify the District 48 hours prior to testing. Testing shall be witnessed by a District Inspector.

Sanitary Sewer Pipelines: All building laterals, joint laterals, and privately owned main pipelines shall be tested by either an air or water method, at the discretion of the District. Tests shall be in accordance with Appendix A-6, Section A-6.10.

In the case of building and joint laterals, the test section shall be from the building cleanout to the District service connection point. The test section includes all private pipelines, including joint laterals, which provide sanitary sewer service to the parcel in question.

Privately owned main pipelines shall be tested their full length. Test failures of non-metallic asphaltic composite pipe shall require entire replacement of the defective pipeline.

If a cleanout has not been installed at the easement/property line, a two-way cleanout shall be installed prior to testing. If there is no cleanout located outside the building foundation (within five feet of the foundation wall), then a cleanout shall be installed. If the building lateral exits the foundation under an existing deck or concrete patio, the location of the building cleanout near the foundation may be modified on a case-by-case basis as determined by the General Manager. The Cleanouts shall be installed and boxed as specified in Installation of Cleanouts, Section 7.10, page 31. The owner or their agent shall be responsible for such installation. A cleanout underneath the house is not acceptable.

The building cleanout can be substituted by installing a two-way cleanout at the property line when the distance from the point where the building lateral exits the foundation to the property line cleanout is less than 20 feet and the building lateral consists of a single pipe segment with no fittings. Such building laterals will be considered too short to test. At the District's discretion, building laterals that are too short to test may be required to be televised to confirm integrity of pipeline.

Manholes, Grease Interceptors, Sand/Oil Interceptors: Testing of all manholes, grease interceptors, and sand/oil interceptors shall be in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities.

Pump System Testing, Pump Station Outside The Building Foundation: The gravity portion of the pipeline from the building to the holding tank and the waste water holding tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities. For testing purposes, the holding tank shall be considered a manhole.

A visual inspection of the pump system will be performed to check for:

- soundness of the wastewater holding tank.
- proper venting of the holding tank.
- acceptable weather proof insulated box with adequate waterproof insulation below the box lid directly above the holding tank.
- a weather tight seal on the holding tank lid and at all pipe and electrical conduit penetrations.
- a properly functioning check valve on the discharge pipeline.
- properly boxed property line clean out. If necessary, property line clean out shall be brought to grade in accordance with Section 7.10, Installation of Cleanouts, page 31

In the event that there is no check valve and/or pressure test port installed on the existing discharge pipeline, a check valve, a 1/4 -inch valve pressure test port, and an isolation gate or PVC ball valve shall be installed in accordance with Section 7.16, Residential/Small Commercial Pump Systems, page 34.

A pressure gage shall be connected to the test port and the pressure test port valve shall be opened. The pump shall be started and the holding tank pumped down to allow a visual inspection of the holding tank to check it for leaks. The check valve shall also be inspected for proper operation.

Immediately after the holding tank is pumped down and the pump turned off, the gage pressure shall be noted in the discharge pipeline. The pressure shall remain constant for 10 minutes. Any drop in pressure shall constitute a test failure and the check valve and/or the discharge pipeline shall be repaired and/or replaced.

After the check valve and/or the discharge pipeline is repaired and/or replaced, another test shall be attempted. A subsequent loss of pressure constitutes a failure of the check valve and/or discharge pipeline; whereupon the defective check valve and/or discharge pipeline section shall be replaced and tested as described in Section 7.16 page 34.

The alarm system, if so equipped, shall be checked for proper function of audio and visual alarms. If no alarm system exists, an alarm system shall be installed in accordance with Section 7.16 if the pump system testing has been triggered by a building remodel that impacts the number or configuration of any plumbing fixture units in the building.

In the event that the holding tank or the force main needs replacement the pump and controls must be updated to meet District Code. In the event that the controls need replacement an alarm

system must be installed as specified in Residential/Small Commercial Pump System, Section 7.16, page 34.

Septic tanks and concrete vaults converted for use as holding tanks shall be air, water or vacuum tested. The test shall be the same as specified for sanitary sewer pipelines, manholes, and grease and sand/oil interceptors. If the converted septic tank/concrete vault fails the test, it shall be abandoned and a new holding tank meeting the requirements for residential pump systems shall be installed in its place.

EXHIBIT C

APPENDIX A-5
MATERIALS FOR CONSTRUCTION OF SANITARY SEWERS

GRAVITY PIPELINE INSTALLATIONS

Gravity pipe shall contain a flexible gasket in the bell section to provide an air tight seal in the joint.

Type of Pipe	Class of Pipe	Minimum Cover Non-Traffic	Minimum Cover Traffic	Maximum Cover
PVC	SDR 35	30"	48"	12'
PVC	C900 DR 25 or SDR 26	30"	48"	16'
PVC	C900 DR 18	30"	30"	28'
PVC	C900 DR 14	30"	30"	-
DI	CL 51 or greater	30"	30"	-

PRESSURE PIPELINE INSTALLATIONS

Force main pipelines shall be designed and approved on a case by case basis. Considerations shall include; design static and dynamic pressures, pressure cycling, alignments, and any other condition considered unique to the project. Piping shall be a minimum 2" nominal diameter for non-clog pumps, and 1 ¼" nominal diameter for grinder pumps with a pressure rating equal to or greater than the pump system requirements. .

Type of Pipe	Minimum Class of Pipe	Minimum Cover Non-Traffic	Minimum Cover Traffic
PVC	SCH 40 Welded Joint	30"	30"
PVC	DR18 CL 150*	30"	30"
HDPE	DR 13.5	30"	30"
DI	CL 51	30"	30"

*Blue pipe is not acceptable

INSTALLATION OF COUPLINGS

Building Laterals
Rigid or flexible couplings may be used on building laterals.

Gravity Main Pipelines
Coupling on pipelines shall be rigid or flexible with anti shear bands on pipes of similar material; or flexible couplings on pipes composed of different material.

Pressure Pipelines
Rigid couplings are required on pressure pipelines.

NOTE: Flexible couplings shall be Bond Seal, Fernco, Indiana Seal, or other approved coupling. Rigid couplings shall be PVC, Romac, Bond Seal Anti Shear, Fernco Anti Shear, Indiana Seal Anti Shear of other approved coupling.

NOTE: The use of any other pipe material for construction of sanitary sewer facilities, other than that listed above, must be approved in writing by the District.

ORDINANCE 1-2013

AN ORDINANCE OF THE TRUCKEE SANITARY DISTRICT AMENDING CHAPTER 7 AND STANDARD DRAWING FIGURE 19 OF THE TRUCKEE SANITARY DISTRICT CODE

The Board of Directors of the Truckee Sanitary District does ordain as follows:

SECTION 1. Chapter 7, entitled "INSTALLATION OF SANITARY SEWER FACILITIES" Section 7.16, Residential/Small Commercial Pump Systems, is hereby amended to read as follows in the attached Exhibit "A".

SECTION 2. Standard Drawing Figure 19 entitled "Residential & Small Commercial Pump Station" is hereby amended to read as follows in the attached Exhibit "B".

SECTION 3. This Ordinance shall take effect thirty (30) days after adoption.

SECTION 4. The Clerk of the District is directed to enter a certified copy of this Ordinance in the minutes of the Board of Directors.

PASSED AND ADOPTED by the Board of Directors of the Truckee Sanitary District on the 16th day of May 2013, by the following roll call vote:

AYES: Affeldt, Gilmore, Smart, Sweet, Van Gundy
NOES: None
ABSENT: None
ABSTAIN: None

Jerry Gilmore,
President of the Board of Directors

ATTEST:

Thomas S. Selfridge,
Board Secretary

EXHIBIT A

7.16 Residential/Small Commercial Pump Systems

For all building sites in which the improvement plans designate a pumped service or for any owner wishing to construct a structure on a portion of a lot or parcel for which gravity service was not provided, the owner shall install a sewage pump as specified herein for the purpose of lifting sewage to the public sewer. Where installed, such installations shall be maintained by the owner at the owner's expense.

A pumped sewer service shall consist of a gravity sewer, a waste water holding tank, one or more pumps, a force main, electrical controls, and an alarm system. The pump and holding tank shall be installed in a location that provides at least a 48 inch diameter x 36 inch high area above the center of the holding tank that is free and clear of any obstructions to allow access for inspection and maintenance. If height clearance is not met, a removable access panel located above the center and at least 24 inch wide x 36 inch long, must be installed. If the holding tank is located outside of the building foundation it shall not be located within 5 feet of any building used as a dwelling, within 10 feet of any property line or within 50 feet of any lake, stream, or reservoir

A duplex pump system is suggested for residential applications when more than one residence is served by the same pump system. Commercial enterprises which contain public restroom facilities shall be required to operate and maintain a duplex pump system.

Installation:

Gravity Pipeline - The gravity sewer lateral from the building sewer to the waste water holding tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page 107. Pipe must be mechanically sealed to a watertight condition at the point of holding tank penetration. Gravity pipe shall be restrained as required to prevent separation from the tank. The gravity sewer lateral is subject to the requirements of Tracer Wire on Building Sewer Laterals, Section 7.12, page 33.

Waste Water Holding Tank - The holding tank shall be a solid impervious walled container rated for both the liquid it contains and the method of installation including direct burial. All holding tanks that are buried must have an antifloatation device to prevent the tank from rising due to ground water. All direct burial polyethylene tanks must be approved in writing by the General Manager. All openings in the walls of the tank, including pipe or conduit penetrations, are to be mechanically sealed to prevent inflow of surface water, infiltration of ground water, or exfiltration of contained wastewater. The tank shall have a minimum capacity of 200 gallons. The tank shall be vented with a 1 1/4 inch minimum vent line. Tanks shall extend a minimum of 2" above finished grade, and have a sealed lid that is rated for the snow load or traffic load as applicable. It shall be the owner's responsibility to determine groundwater conditions that may

cause the tank to float when empty and to provide the appropriate solutions to prevent it. Internal ballast that reduces the tank capacity below 200 gallons will not be acceptable. Tanks shall be installed to provide a minimum depth of 36" below the invert of the building gravity sewer inlet.

Pumping Equipment - Pumps shall be centrifugal of the non-clog or grinder type. Non-clog pumps shall be capable of passing a minimum of a 2-inch diameter sphere. Pumps and motors shall be sized so as to maintain a minimum of 4-feet per second flow velocity throughout the entire discharge piping system when a maximum of one pump is pumping under actual installed conditions. A copy of the pump specifications and pump curve shall be required and made available to the District inspector before testing is allowed. Installation of pumping equipment shall be in accordance with pump manufacturer's recommendations including a vent hole in the standpipe, above the high water float, to purge the unit of trapped air. Pumps shall be mounted on a Rail System to allow the removal and installation of the pumps from ground level during a flooded waste water holding tank condition.

Electrical - The electrical control cabinet shall be isolated from the holding tank. All wiring, controls, conduits, boxes, etc. shall meet or exceed National Electrical Code (NEC) requirements for materials, ratings, placement, and installation, etc. All equipment located in the holding tank shall be U.L. approved for its specific and proper use. All wiring in the area above the holding tank shall be provided with protection from physical damage by a combination of cable routing and/or conduits. Any wiring which hinders entry or view into the holding tank when opened will not be acceptable. All electrical connections shall be in an approved electrical junction box. All conduits leaving the holding tank shall be sealed. A circuit disconnecting means for all circuits must be located within sight of the holding tank unless a lockout device is installed on the disconnecting means for each individual circuit attached to or related to the pump system at the holding tank.

Alarm System - The holding tank and electrical controls shall include an alarming system that produces an audible and visual alarm when the liquid level in the holding tank exceeds a predetermined safe level. The audible and visual devices indicating such an alarm state shall be located at all inhabited buildings or structures served by the sewage system with the intent to notify occupants inside the house of the possibility of a wastewater spillage. The alarms system power shall be supplied through a separate, dedicated circuit from the pump power supply. It is recommended that the alarm system include a battery backup to allow the alarm to function during an electrical power outage. For commercial applications that serve multiple buildings, the alarm system must also include an auto dialer system that will phone a responsible party and notify them of the alarm status of the pump system.

Discharge Piping - The discharge pipeline shall be ductile iron, polyvinyl chloride (PVC), high density polyethylene (HDPE), or an approved pressure rated material designed for wastewater. The piping shall be pressure class 150 minimum and rated for the pressure service being installed. The pipeline size shall be **2 inch nominal diameter minimum for non-clog pumps, and 1 ¼ inch nominal diameter minimum for grinder pumps**. The discharge pipeline shall be fitted with an approved pressure rated sewer check valve and an isolation gate or ball valve. The

discharge pipeline shall also include a 1/4 inch valve pressure test port located between the check portion of the check valve and the isolation valve. The isolation valve shall be located on the discharge side of the check valve. Both valves and the test port shall be located in an accessible area either inside or outside of the holding tank in such a manner that they are accessible for operation and maintenance or repairs.

All discharge pipelines are required to have a tracer wire installed adjacent to the sewer pressure pipe. Tracer wire shall consist of 10 AWG minimum with THW, THHW, TW, THWN, or other approved wet location insulation. Wire shall be attached to the top of the force main with tape at appropriate intervals. Wire shall be continuous along entire length of force main, beginning at the waste water holding tank and terminating at the property line cleanout. Splices shall incorporate approved underground splice kits. Each run of tracer wire shall be tested for continuity following backfill.

In cases where the District service lateral stubbed to the property line is a force main (positive slope), the tracer wire following the private force main discharge piping shall be brought to the surface and boxed to grade at the property line. It is recommended that the tracer wire be placed in conduit where it surfaces through the ground at the property line and covered with a concrete box with a cast iron lid labeled "sewer" or "S".

Discharge pipelines shall have a trench cutoff block located every 50 linear feet of pipe, at changes in pipeline type and/or grade, and at the pump tank, and as designated by the General Manager. Thrust blocks shall be located at all fittings that change the direction of the pipe. Thrust blocks shall be constructed of concrete with a minimum size of 2 cubic feet.

A siphon break shall be installed on the discharge pipeline at its connection point to the gravity sewer. A cleanout in accordance with the Installation of Cleanouts, Section 7.10, page 31, shall be placed immediately downstream of the siphon break in the discharge pipeline at the property line, if the siphon break can be placed in a practical manner such that sufficient gravity slope can be maintained from the property line to the District main pipeline.

All discharge piping is required to be protected from freezing, and is required to have a minimum of 30" of cover. It is the owners responsibility to address site specific conditions and install freeze protection as necessary. Protection may include provisions of bypass drains, insulation, and heat tape.

Inspection and Testing:

The gravity portion of the pipeline from the building to the holding tank and the Waste Water Holding Tank shall be tested in accordance with Appendix A-6, Section A-6.10, Testing of Sanitary Sewer Facilities, page 107. For testing purposes the Waste Water Holding Tank shall be considered a manhole.

A visual inspection shall be performed to check the following:

- proper venting of the holding tank.
- watertight mechanical seals on the holding tank lid and at all pipe or conduit penetrations.

The discharge pipeline shall be pressured tested with air or water to a pressure of 150 percent of the calculated maximum possible working pressure (the Total Dynamic Head, TDH) for the installed pump. The maximum possible working pressure for the system can be assumed to occur at the pump's shut off point. The pump shut off point can be obtained from the pump's performance curve by following the curve to the point at which it meets the axis representing the head of liquid. The pressure must remain constant for 10 minutes. The required test equipment shall be provided by the owner or owner's agent and be acceptable to the District.

The electrical system and controls shall be inspected and approved by the local governing authority for the building electrical inspection. Pumping and alarm tests shall only be performed after the electrical system has been inspected and approved by the proper authority. The District Inspector shall require proof of such approval before starting any of the following functional tests:

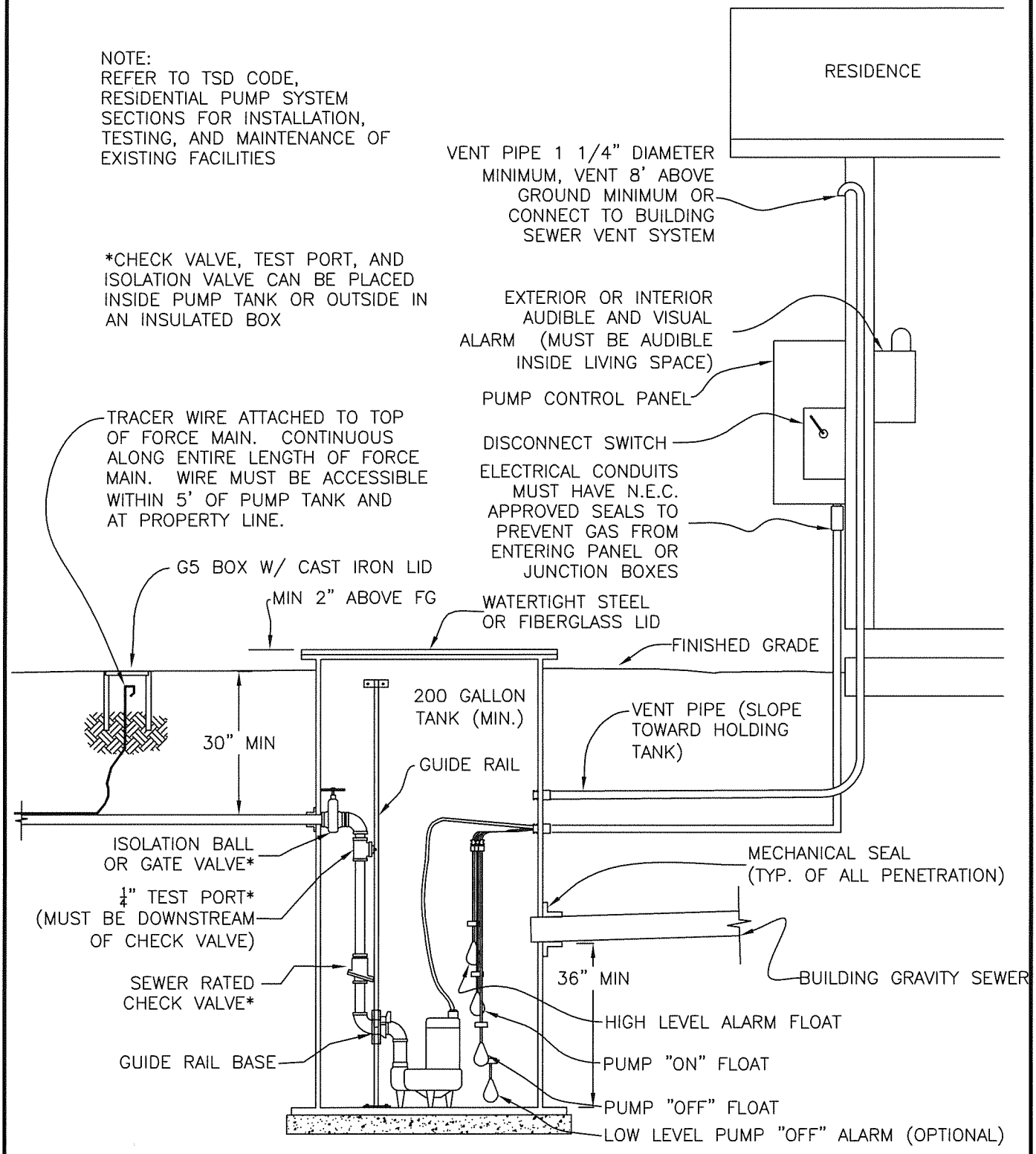
- The pump shall be started and stopped so the check valve can be tested for proper operation.
- The pumping system shall be tested for a discharge pipeline velocity of 4 feet per second. The flow velocity test shall be performed with the discharge pipeline full of water and the pumping system functional under normal operating conditions.
- The pump shall be run to pump down the holding tank to allow a visual inspection of the tank and to check it for leaks.
- The alarm system shall be checked for proper function of audio and visual alarms.

Septic tanks may be converted to house the Waste Water Holding Tank, but are prohibited from being used as the Waste Water Holding Tank. Converted Septic Tanks must have drain holes drilled in the bottom of the tank to drain trapped water, and appropriate solutions to prevent the Waste Water Holding Tank from floating.

Deviation from Requirements:

Any deviation from the above stated requirements shall be approved in writing by the General Manager.

EXHIBIT B



Scale: NTS

TRUCKEE SANITARY DISTRICT
A PUBLIC AGENCY
12304 Joerger Dr
Truckee, CA 96161
(530)587-3804

Ordinance 1-2013: TSD Code Book Standard Drawings

Residential/Small Commercial Pump Station

Figure 19

TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

APPENDIX C

TRUCKEE SANITARY DISTRICT

****APPROVED BUDGET FOR FY 2014-15****

SUMMARY - GENERAL FUND (FUND 1)	
DESCRIPTION	**TOTAL FUND SUMMARY ALL DEPTS.**
REVENUE	
User Fees & Penalties	**$2,578,800**
Inspection & Cancellation Fees	**$53,000**
Maintenance Income - Work Orders	**$47,400**
Tax Revenue - Ad Valorem	**$4,520,000**
Interest Earned	**$23,400**
Rents & Leases	**$10,500**
Miscellaneous Income	**$45,900**
TOTAL GENERAL FUND REVENUE	**$7,279,000**
EXPENDITURES	
Salaries & Wages	**$3,234,000**
Fringe Benefits - Active Employees	**$1,518,000**
Payroll Burden	**$305,000**
Retiree Health	**$442,000**
Liability Insurance	**$140,000**
Repairs & Maintenance	**$193,000**
Utilities & Phone Services	**$143,000**
Ad Valorem & Sewer Svc Billing Fees to Counties	**$95,000**
Supplies - Operating & Safety	**$54,000**
Fuel Expense - Unleaded & Diesel	**$87,000**
Outside Services	**$260,000**
Legal Fees	**$50,000**
Travel/Training/Mtgs: Gen-Safety-EE Relations	**$60,000**
Info Tech & Office Expenses	**$128,000**
Dues, Subscriptions & Memberships	**$31,000**
Uniforms, Linen & Safety Boots	**$12,000**
Environmental Permits & Fees	**$11,000**
LAFCo Expenses	**$9,000**
Printing & Publications	**$5,000**
Miscellaneous (Prior Yr Credits, Bank Fees, Other)	**$11,000**
Subtotal	**$6,788,000**
Cost Allocations to Funds 2, 4, 5 & 10	**(132,000)**
TOTAL GENERAL FUND EXPENDITURES	**$6,656,000**
GENERAL FUND NET INCOME (LOSS)	**$623,000**

SUMMARY - RESTRICTED & DESIGNATED FUNDS	
REVENUE	**AMOUNT**
Connection Fees - Fund 4 (Capital Reserve Fund)	$153,500
Interest Allocations - Funds 2, 4, 5, 6, & 10	$13,600
TOTAL REVENUE - RESTRICTED & DESIGNATED FUNDS	**$167,100**
EXPENDITURES	
FUND 2 - Martis Valley Interceptor O&M	$26,400
FUND 4 - Capital Reserve (Expansion)	$132,800
FUND 5 - Major Improvements (Capital Outlay & Replacements)	$448,600
FUND 6 - Contingency Reserve Fund	$0
FUND 10 - Sewer Assessment District #5	$38,400
FUND 13 - Landfill Remediation/Closure Maintenance	$5,000
TOTAL EXPENDITURES - RESTRICTED & DESIGNATED FUNDS	$651,200
TOTAL EXPENDITURES -ALL FUNDS	**$7,307,200**

* Tax Revenue is gross amount before Placer & Nevada County Admin/Collection Fees are deducted for Tax Roll cost allocation & billing services.

APPROVED BY BOARD OF DIRECTORS AT THEIR REGULAR MEETING JUNE 19, 2014

Thomas S. Selfridge, Secretary to the Board

	Frequency Required	Last Given	Assigned To	Safety Meeting Subjects 2015	Date Assigned
10	Annually	January-14	Eric	Hearing Protection Devices	**January 15, 2015**
36		October-12	Gordon	Slips and Falls	**January 29, 2015**
6	Annually	February-14	Ryan/Kevin	Respirator Fit Test	**February 12, 2015**
27		June-12	Sarah	Ladder Safety and Inspection	**February 26, 2015**
1	Annually	March-14	Ryan/Kevin	Confined Space Review and Entry Equipment Inspection	**March 12, 2015**
34		September-12	Jim	Proper Lifting and Back Care (ALL STAFF)	**March 26, 2015**
9	Annually	May-14	Arnold	Diesel/gasoline Spill Cleanup Procedures	**April 9, 2015**
51	2 years	April-13	Eric	CPR Training & First Aid **AED Refresher** (ALL STAFF)	**April 23, 2015**
22		January-13	Gordon	Falling/Flying Objects, Hard Hat Policy	**May 7, 2015**
7	Annually	May-14	Ryan/Kevin	SAR Equipment Training	**May 21, 2015**
12	Annually	June-14	John/Pam M.	AC Pipe Handling Refresher	**June 4, 2015**
3	Annually	July-14	Sarah	Evacuation and Shutdown of Facilities/Alarm System Review (ALL STAFF)	**June 18, 2015**
41		July-11	Jim	Sun Protection	**July 2, 2015**
4	Annually	August-14	Eric	Fire Extinguisher Training (ALL STAFF)	**July 16, 2015**
25		June-12	Gordon	Heat Illness Prevention Training	**July 30, 2015**
31		September-12	John	Personal Protective Equipment Inspection	**August 13, 2015**
35		Feb 2010	Sarah	Seatbelt Safety (ALL STAFF)	**August 27, 2015**
29		December-11	Sarah	Mobile/Smart Phone Safety & Use (ALL STAFF)	**September 10, 2015**
40		Jan 2010	Jim	Stretch & Flex (Clean/Disinfect Locker Room)	**September 24, 2015**
2	Annually	November-14	Jim	Electrical Lockout Tagout	**October 8, 2015**
33		December-11	Gordon	Practice Good Housekeeping	**October 22, 2015**
5	Annually	December-14	Eric/Pam M.	Hazardous Material Review/Communication, Update MSDS	**November 5, 2015**
8	Annually	April-14	John	Trench Safety and Shoring Review	**November 19, 2015**
38		November-12	Arnold	Snowblower Safety	**December 3, 2015**
11	Annually	January-12	Gordon	Personal Hygiene and blood borne pathogens	**December 17, 2015**
37		November-11	John	Snow plow installation- Units 6, 34 and 10	**December 31, 2015**

TSD FLEET INVENTORY SUMMARY REPORT

Data in this report comes from the Equipment/Fleet/Fleet Module (Hourly cost comes from Work Flow Setup).\
Report only includes operational equipment.

Thursday, December 19, 2013

TRUCKEE SANITARY DISTRICT
A PUBLIC AGENCY

Fleet ID	GBA ID	Description	Year	VIN	License #	Department	Operator	Hourly Cost
00001	19	U-01 Chevrolet Tahoe	2007	1GNFK13097J139447	1208002	Admin	Rebecca	9.75
00002	20	U-02 GMC 1 Ton Pickup-Utility Body w/Crane	2005	1GDJK34205E293352	1157169	Lift Station	Jim	9.75
00003	21	U-03 Ford F-150 1/2 Ton Pickup	1999	1FTRF18WXXKA37981	1022937	Shop	John	9.75
00004	51	U-04 Chevrolet One Ton PU	2008	1GCHK346X8E191583	1267479	Construction	John	9.75
00005	23	U-05 GMC C-5500 Utility Truck	2007	1GDE5C3217F408385	1157220	Construction	John	19.75
00006	24	U-06 Ford F350 1 Ton Pickup	1999	1FTSF31S7XEB13532	E994943	Construction	John	9.75
00007	25	U-07 Chevy Tahoe	2004	1GNEK13T04R296593	1173117	Admin	Lee	9.75
00008	26	U-08 GMC 1/2 Ton Pickup	2004	1GTEK14T34Z217019	1157118	Inspections	Mike W	9.75
00009	27	U-09 GMC 1/2 Ton Pickup	2004	1GTEK14T34Z217070	1157119	Inspections	Steve G	9.75
00010	28	U-10 Caterpillar 938G Loader w/12 ft Blade	2005	CAT0938GVRTB01888	SE574409	Construction	John	87.82
00011	29	U-11 Ford Expedition	2003	1FMPU16L63LB79721	1112853	Lift Station	Raymond	9.75
00012	30	U-12 Ford Expedition	2003	1FMPU16L83LB79722	1112852	Admin	Sarah	9.75
00014	31	U-14 Ford F-150 1/2 Ton Pickup	1999	1FTRF18W8XKB72313	1026452	TV	Gordon	9.75
00015	32	U-15 Ford F-150 1/2 Ton Pickup	2002	1FTRF18WG2NB19102	1118414	Cleaning	Joe	9.75
00016	33	U-16 Ford F450, Dump Bed & Crane	1997	3FELF47G2VMA34071	E991875	Construction	John	22.50
00017	34	U-17 Ford F350 Cab/Chassis Truck & Utility Body	2000	1FDWF37S4YEA49276	1058575	Cleaning	Joe	9.75
00019	36	U-19 Volvo/Vactor Vacuum Cleaning Truck	1999	4VHJCMPF2XN866814	1029710	Cleaning	Joe	122.50
00020	37	U-20 CAT BACKHOE/Loader #430-D	2006	CAT0430DABNK07234	SE574410	Construction	John	48.56
00024	40	U-24 CAT 426B Backhoe/Loader	1995	6KL00780	E034109	Construction	John	48.56
00025	41	U-25 Mack Dumptruck	1996	1M2P267Y7TM025672	E034616	Construction	John	46.50
00026	43	U-26 Chevy TV Van	2006	1GBJK34D86E277637	1157228	TV	Gordon	141.25
00027	44	U-27 Ford F-150 1/2 Ton Pickup	2002	1FTRF18WX2NB19104	1118415	Inspections	Insp Extra	9.75
00028	45	U-28 Ford Expedition	2003	1FMPU16L43LB79720	1112851	Admin	Blake	9.75
00029	46	U-29 Ford F-150 1/2 Ton Pickup	2002	1FTRF18W82NB19103	1118416	Shop	John	9.75
00030	47	U-30 GMC 1/2 Ton Pickup	2004	1GTEK14T54Z215496	1157120	Lift Station	Jim	9.75
00031	48	U-31 Holder Tractor w/Zaugg Snowblower	2006	52410476H	SE574408	Construction	John	140.00
00033	49	U-33 GMC 5500 4x4 Truck w/PipeHunter Jet Rodder	2007	1GDE5C3977F424037	1260450	Cleaning	Joe	100.00
00034	54	U-34 2008 Chevy Silverado	2008	1GCHK34608E199854	1304580	Construction	John	9.75
00035	56	U-35 CAT Mini Excavator	2008	CAT3035CJDMY03098	N/A	Construction	John	29.41

TSD FLEET INVENTORY SUMMARY REPORT

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Thursday, December 19, 2013

Fleet ID	GBA ID	Description	Year	VIN	License #	Department	Operator	Hourly Cost
00036	57	U-36 CAT Small Loader	2008	CAT0277CHJWF01970	N/A	Construction	John	37.64
00037	58	U-37 GMC C5500 5-yd Dump Truck	2009	1GDG5C3939F412866	1265239	Construction	John	25.50
00038	77	U-38 Chevy Silverado 1/2 ton Pick-Up	2010	1GCPKPE06AZ199448	1329780	Lift Station	Jim	9.75
00039	78	U-39 Ford F550 4x4 Cab/Chassis/Crane	2011	1FDUF5HT5BEB25976	1343051	Lift Station	Jim	22.50
00040	82	U-40 Chevy C3500 TV VAN 4x4 Chasis	2012	1GCZGUCL3C1141109	1399787	TV	Gordon	141.25
00041	89	U-41 Freightliner/Vactor Vacuum Cleaning Truck	2013	1FVAC7CY7DDBV5558	1381453	Cleaning	Joe	122.50
C-1	2	Compressor - Ingersol/Rand 160 CFM	2008	5037392724	SE570985	Construction	John	17.20
G-06	3	Generator - Caterpillar-150kw	1983	CH4609	SE319989	Lift Station	Jim	40.50
G-10	4	Generator - Caterpillar - 75kw	1999	1K9BP142XWR153146	SE491670	Lift Station	Jim	28.50
G-11	6	Generator Onan 20DNAF/Glenshire Gen Shed/Sulfid	1999	CA972898	SE623258	Lift Station	Jim	28.50
G-13	5	Generator - Caterpillar - 60KW	2002	16MPF102X2D032852	SE574718	Lift Station	Jim	28.50
G-15	7	Generator - Caterpillar - 100 KW	2004	16MPF11274D037976	SE574411	Lift Station	Jim	28.50
P-8	8	Pump - Godwin 6"	1999	23274	SE491671	Lift Station	Jim	31.50
P-9	9	Pump - Godwin 3"	1998	23315	SE488741	Lift Station	Jim	31.50
SE-06	10	Crafco EZ Pour 50 (crack fill trailer)	2004	1C9EJ081941418212	E1157136	Construction	John	25.00
SE-08	11	Forklift - Toyota	2001	62236	N/A	Shop	Dave	30.00
T-1	12	Trailmax / Equipment Trailer	2001	1G9KS37221A065333	E1070554	Construction	John	11.45
T-12	80	T-12 Utility Equipment Trailer	2011	5UCPY2127CA001157	1343068	Construction	Lee	11.45
T-2	13	Bypass Trailer/Hose Reel System	2005	H1405018900000129	SE574412	Lift Station	Jim	20.00
T-5	15	Shoring Trailer - Brite	1992	1B9F14206N1031824	E915531	Construction	John	0.00
T-6	16	Airtest Trailer	1991	N/A	N/A	Cleaning	Joe	0.00
T-7	17	Sani Hut Toilet Trailer	1999	1F9FS1111XS222327	SE491672	Construction	John	20.00
T-8	18	Bypass Trailer/Hose Reel System (Martis Camp)	2007	1H9BU18117N500836	E570986	Lift Station	Jim	20.00

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Buildings							
FOB							
A5							
2062	contactor used to start fan coils in the office 120 vac	Each	2.00				
2063	overload for contacter that starts fancoil under the office 120 vac	Each	2.00				
E3							
2125	Block Heater - Replacement element 208vac 4000 wat		1.00				
Mezzanine							
2064	Drain valve - for air compresser at the shop 30-200 psi		1.00				
2070	Pump Head - Main circulation pump in VMF heating system 115 vac	Each	1.00				
2071	Terminal Box that is used with grundfos pump head part#96406 115 vac	Each	1.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
A10							
1144	Wye - SDR 35 (gsk x gsk x gsk) 8"	Each	1.00				
1145	Wye SDR 35 (gsk x gsk x gsk) 8"x8"x4"	Each	4.00				
1146	Wye - SDR 35 (gsk x gsk x gsk) 8"x8"x6"	Each	5.00				
A11							
1142	Wye - SDR 35 (gsk x gsk x gsk) 6"	Each	7.00				
1143	Wye SDR 35 (gsk x gsk x gsk) 6"x6"x4"	Each	10.00				
A12							
1020	Coupling - Indiana Seal (AC to PVC) 6"	Each	3.00				
1028	Coupling - Indiana Seal (Clay to PVC) 6"	Each	25.00				
1033	Coupling - Indiana Seal (Concrete to PVC) 6"	Each	5.00				
A13							
1018	Coupling - Indiana Seal (AC to PVC) 12"	Each	4.00				
1031	Coupling - Indiana Seal (Concrete to PVC) 12"	Each	8.00				
A14							
1107	Repair Coupling - SDR 35 10"	Each	4.00				
1108	Repair Coupling - SDR 35 12"	Each	2.00				
1111	Repair Coupling - SDR 35 8"	Each	7.00				
1137	Wye SDR 35 (gsk x gsk x gsk) 10"x10"x4"	Each	3.00				
1138	Wye SDR 35 (gsk x gsk x gsk) 10x10x6"	Each	3.00				
1139	Wye SDR 35 (gsk x gsk x gsk) 12"x12"x4"	Each	0.00				
1140	Wye SDR 35 (gsk x gsk x gsk) 12"x12"x6"	Each	0.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
A15							
1017	Coupling - Indiana Seal (AC to PVC) 10"	Each	9.00				
1021	Coupling - Indiana Seal (AC to PVC) 8"	Each	12.00				
1025	Coupling - Indiana Seal (Clay to PVC) 10"	Each	18.00				
1029	Coupling - Indiana Seal (Clay to PVC) 8"	Each	17.00				
1034	Coupling - Indiana Seal (Concrete to PVC) 8"	Each	8.00				
A16							
1817	Fitting - SDR 35 TEE (gsk x gsk x gsk) 12"x12"x4"	Each	2.00				
A17							
1818	Fitting - Long Radius 45 S x S SDR 35 - 6"	Each	5.00				
A18							
1129	Wye - C-900 (gsk x gsk x gsk) 4"	Each	10.00				
1130	Wye - C-900 (gsk x gsk x gsk) 6"	Each	3.00				
1131	Wye C-900 (gsk x gsk x gsk)6"x6"x4"	Each	6.00				
A19							
1036	Fitting - C-900 (gsk x gsk 22) 4"	Each	6.00				
1037	Fitting - C-900 (gsk x gsk 22) 6"	Each	16.00				
1038	Fitting - C-900 (gsk x gsk 45) 4"	Each	13.00				
1040	Fitting - C-900 (st 22) 4"	Each	12.00				
1042	Fitting - C-900 (st 45) 4"	Each	6.00				
1104	Repair Coupling - C-900 4"	Each	8.00				
1105	Repair Coupling - C-900 6"	Each	3.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
A20							
1039	Fitting - C-900 (gsk x gsk 45) 6"	Each	11.00				
1041	Fitting - C-900 (st 22) 6"	Each	6.00				
1043	Fitting - C-900 (st 45) 6"	Each	7.00				
A6							
1110	Repair Coupling - SDR 35 6"	Each	9.00				
1148	Wye - SDR 35 (gsk x s x gsk) 6"	Each	13.00				
A7							
1049	Fitting SDR 35 (st 22) 6"	Each	22.00				
1051	Fitting SDR 35 (st 45) 6"	Each	11.00				
A8							
1045	Fitting SDR 35 (gsk x gsk 22) 6"	Each	22.00				
1047	Fitting SDR 35 (gsk x gsk 45) 6"	Each	11.00				
B12							
1023	Coupling - Indiana Seal (C.I./PVC to C.I./PVC) 6"	Each	10.00				
1024	Coupling - Indiana Seal (C.I./pvc to C.I/PVC) 8"	Each	10.00				
B13							
1819	Coupling - Flexible Coupling (Concrete to PVC) 15"	Each	7.00				
B15							
1030	Coupling - Indiana Seal (Concrete to PVC) 10"	Each	11.00				
C11							
1044	Fitting SDR 35 (gsk x gsk 22) 4"	Each	22.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
C11							
1046	Fitting SDR 35 (gsk x gsk 45) 4"	Each	9.00				
C12							
1022	Coupling - Indiana Seal (C.I./PVC to C.I./PVC) 4"	Each	32.00				
1027	Coupling - Indiana Seal (Clay to PVC) 4"	Each	16.00				
1109	Repair Coupling - SDR 35 4"	Each	25.00				
1147	Wye - SDR 35 (gsk x s x gsk) 4"	Each	11.00				
1172	Fitting - Sch 40 - 45 degree (glued) 3"	Each	4.00				
C2							
1825	Coupling - Flexible Coupling (AC-C900 TO AC-C900) 4"	Each	18.00				
1826	Coupling - Flexible Coupling (AC-C900 TO AC-C900) 6"	Each	11.00				
C3							
1090	Pipe Increaser SDR 35 (s x gsk) 6 x 4	Each	10.00				
1165	Coupling - Indiana Seal (4" Clay - 3" PVC)	Each	6.00				
1166	Coupling - Indiana Seal (4" PVC - 3" PVC) 4"-3"	Each	8.00				
C8							
1048	Fitting SDR 35 (st 22) 4"	Each	13.00				
1050	Fitting SDR 35 (st 45) 4"	Each	18.00				
C9							
1019	Coupling - Indiana Seal (AC to PVC) 4"	Each	25.00				
1032	Coupling - Flexible Coupling (Concrete to PVC) 4"	Each	40.00				
1141	Wye - SDR 35 (gsk x gsk x gsk) 4"	Each	7.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
C9							
2144	Wye - 15" x 4" SDR	Each	1.00				
2156	Flexible Coupling 4" (C900 - Clay)	Each	6.00				
D2							
1849	Coupling - Flexible Coupling AC/C900 To Clay 6"	Each	1.00				
1851	Flexible Coupling - NON SHEAR (C.I./PVC to C.I./PVC) 6"	Each	2.00				
1852	Coupling - Flexible Coupling 6" CI/PVC To 5" CI/PVC 6"x5"	Each	5.00				
TBD							
1005	Box Only G5 - Christy G5 box only	Each	5.00				
1006	Box Only N9 - c/o box concrete 10 5/8" x 17 1/4"	Each	1.00				
1009	Chimney Seal - Extension 10" (24")	Each	8.00				
1010	Chimney Seal - Extension 7" (7"x24")	Each	3.00				
1053	Grade Ring - Concrete 3"x24"	Each	0.00				
1054	Grade Ring - Concrete 6"x24"	Each	0.00				
1057	Manhole Barrel Section 48" x 12"	Each	1.00				
1058	Manhole Barrel Section 48" x 18"	Each	3.00				
1059	Manhole Barrel Section 48" x 24"	Each	1.00				
1060	Manhole Barrel Section 48" x 36"	Each	2.00				
1061	Manhole Barrel Section 48" x 48"	Each	1.00				
1065	Manhole Cone - Concentric, inside lip 18"	Each	3.00				
1066	Manhole Cone - Concentric, inside lip 24"	Each	3.00				
1070	Manhole Cover ONLY -	Each	7.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
TBD							
1072	Manhole Frame & Cover - Bolt down	Each	3.00				
1073	Manhole F & C - Tapered w/O-ring 4-1/2"	Set	14.00				
1079	Pipe - C-900 - 10"	Feet	36.00				
1080	Pipe - C-900 4"	Feet	23.00				
1081	Pipe - C-900 6"	Feet	67.00				
1082	Pipe - C-900 8"	Feet	52.00				
1083	Pipe - SDR 35 10"	Feet	46.00				
1084	Pipe - SDR 35 12"	Feet	25.00				
1085	Pipe - SDR 35 - 4"	Feet	44.00				
1086	Pipe - SDR 35 - 6"	Feet	97.00				
1087	Pipe - SDR 35 - 8"	Feet	63.00				
1124	Vault wH20 Lid,Christy R17P24 pit 24" - 36" pit/CR 3'x5'x2' high	Each	1.00				
1149	Chimney Seal Reg wide Triple Pleat 10"	Each	17.00				
1154	Coupling - Indiana Seal (C.I./PVC to C.I./PVC) 10"	Each	2.00				
1155	Manhole Frame and Cover - Tapered w/O-ring 3"	Each	5.00				
1156	Shear Ring - 6"	Each	6.00				
1158	Pipe - C-900 12"	Feet	20.00				
1159	Pipe Increaser - SDR 35 (st x gsk) 8x4	Each	3.00				
1164	Grade Ring - Concrete, 24" - 2"	Each	0.00				
1170	Shear Ring - 4"	Each	13.00				
1171	Pipe - Sch 40 - 3"	Feet	80.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
TBD							
1799	Grade Ring - H.D.P.E. Adjusting Ring sloped 24" x 1.50"	Each	7.00				
1802	Flexible Coupling - Indiana Seal (AC to PVC) 6"x4"	Each	2.00				
1804	Shear Ring & SEAL - PVC to PVC seal with ring (come as one part) 12"	Each	6.00				
1808	KoreNseal Boot NCP 8" C900 PVC MH tap dn-6" pipe, 8"OD range 7 1/2-8 1/2	Each	4.00				
1853	Chimney Seal - Extension 10" - 22"	Each	0.00				
1854	Chimney Seal - Regular 7" - 23"	Each	0.00				
1855	Chimney Seal - Regular 7" - 25"	Each	4.00				
1856	Chimney Seal - T3 Tapered 24"	Each	9.00				
1860	Grade Ring - Concrete, 25 " - 4"	Each	1.00				
1861	Grade Ring - Concrete, 25 " - 3"	Each	8.00				
1862	Pipe - Sch 40 - 2"	Feet	20.00				
1870	Vault with H20 Lid R17P36F - Christy pit (H2O load rating) 3'x5'x3' high	Each	1.00				
1874	Cover Only N9 - Clean out box Cover (cast iron) 10 5/8"x18 1/4"	Each	4.00				
1875	Cover Lid Only G5 - Christy G5 cover lid only (Cast Iron)	Each	5.00				
2029	Multi Connectors NPC - KOR&SEAL 4", 5",6"	Each	4.00				
2030	Kor-N-Tee Saddle - 6"	Each	2.00				
2033	Pipe - C-900 14"	Feet	20.00				
2055	Fitting - 4" schedule 40 Tee - 4"		2.00				
2077	"A" Drop Bowl - "A" Drop Bowl - 6"	Each	2.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
TBD							
2078	"A" Drop Bowl - "A" Drop Bowl - 4"	Each	4.00				
2079	"B" Drop Bowl - "B" Drop Bowl (no size specified)	Each	2.00				
2080	Drop Bowl Hoods - Drop Bowl Hoods 4"	Each	0.00				
2081	SS Bracket for 6" Pipe - SS Bracket for 6" Pipe	Each	9.00				
2082	SS Bracket for 4" Pipe - SS Bracket for 4" Pipe	Each	3.00				
2083	SS Bracket for 8" Pipe - SS Bracket for 8" Pipe	Each	5.00				
2088	Christy Pit - 4' x 7' x 3'	Each	0.00				
2089	Christy Pit - 5' x 4' x 3'	Each	2.00				
2094	Torsion Bar Lid - Torsion Bar Lid 4 x 7	Each	2.00				
2096	15" SDR 35 Pipe - 15"	Feet	20.00				
2107	Fitting Long Radius - 22 1/2 degree Sweep/SDR 6" x 36" - 6"	Each	1.00				
2117	Chimney Seal - Regular Chimney Seal 14" Wide - 24"	Each	5.00				
2118	Chimney Seal - Regular Chimney Seal 10" wide - 22"	Each	11.00				
2119	Chimney Seal - Extension Chimney Seal 7" Wide - 22"	Each	6.00				
2120	Chimney Seal - Extension Chimney Seal 10" wide - 26"	Each	0.00				
2121	SDR-26 - SDR 26 Pipe - 8"	Feet	10.00				
2122	4" SDR-C900 adapter - SDR - C900 adapter/increaser	Each	4.00				
2123	6" SDR-C900 adapter - SDR - C900 adapter/increaser	Each	2.00				
2124	Kor-N-Tee Saddle - Kor-N-Tee Saddle, SJ-4A - 4"	Each	0.00				
2134	8" SDR35 GSKT ST 45 - SDR-35 Gasket straight 45 degree	Each	10.00				
2135	8" SDR35 GSKT 45 - SDR-35 Gasket REGULAR 45	Each	10.00				

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Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Collection Systems							
VMF							
TBD							
2137	Sheer Bands - 8" sheer bands	Each	6.00				
2139	Flexible Repair Coupling - Flexible Repair Coupling (PVC to PVC SEAL) 15"	Each	2.00				
2141	Pipe Increaser - Pipe Increaser SDR-35 (4 x 6 gsk x gsk)	Each	2.00				
VSF							
NorthWest							
1014	Concrete Mix Baselite/Ready Mix, #60 (2/3 cu. ft.)	Sack	61.00				
1055	Hydro Patch -	Sack	8.00				
1077	Mortar - Mix 60 lb bag	Sack	64.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
FOB							
A1							
1574	PUMP SEAL, CARBIDE -	Each	2.00				
1576	PUMP SEAL, CARBON/CERAMIC -	Each	2.00				
1706	NO Solenoid Valve - 120VAC	Each	6.00				
A2							
1633	THERMOSTAT -	Each	11.00				
1884	Electric Heater - Electric Heater w/fan &thermostat 120Vac 100 W	Each	1.00				
A3							
2049	circuit breaker - Main for Schussing 250amp 600 vac	Each	1.00				
A4							
1243	CIRCUIT BREAKER - 240V,200A,3 poles	Each	2.00				
1244	CIRCUIT BREAKER - 240V,15A,2 poles	Each	1.00				
1245	CIRCUIT BREAKER - 240V,40A,2 poles	Each	1.00				
1255	CIRCUIT BREAKER 240V 100A 3POLES	Each	2.00				
A5							
1453	MOTOR STARTER - 240/480,3 ph	Each	1.00				
1455	MOTOR STARTER - 120/240/480 see notes	Each	1.00				
1458	MOTOR STARTER - 240/480 V,3ph	Each	1.00				
1557	RELAY, THERMAL O/L - 25 A, Bimetal	Each	3.00				
1558	RELAY, THERMAL O/L -	Each	1.00				
1559	RELAY, THERMAL O/L - melting alloy	Each	2.00				
1895	Motor Starter - Motor Starter for lahontan #1	Each	2.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
FOB							
A6							
1450	MOTOR STARTER - size O	Each	2.00				
1451	MOTOR STARTER - 240V,1ph,3-5 hp	Each	3.00				
1898	Magnetic starter - 3	Each	2.00				
1899	Magnetic starter - 1	Each	1.00				
B1							
1695	PTT Pilot Light -	Each	2.00				
B2							
1283	MOT STARTER CONT. POINTS -	Each	13.00				
1284	MOT STARTER CONT. POINTS -	Each	13.00				
1285	MOT STARTER CONT. POINTS -	Each	2.00				
1912	overload kit -	Each	8.00				
1918	Aux contact kit -	Each	7.00				
1919	Aux Interlock kit -	Each	19.00				
2065	ESP 100 overload relay - aux contact kit N.C. (0-8)	Each	6.00				
B3							
1449	METER, FREQUENCY -	Each	4.00				
1585	ZENER BARRIER - SINGLE CHANNEL 15VDC, 250 mA	Each	6.00				
1586	SAFE PAK - 115 V, SPST, N.C.	Each	1.00				
1589	SAFE PAK - 115 V, SPST, N.O.	Each	2.00				
1723	ZENER BARRIER, SIGNAL RETURN 30V,250MA	Each	1.00				
1920	Fan Motor - Dehumidifier fan motor	Each	2.00				

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
FOB							
B3							
2068	smoke detector used in all lift stations 12 vdc	Each	4.00				
B4							
1709	Radio Data Transceiver - Digital (new)	Each	2.00				
1937	California Microwave - data transceiver	Each	0.00				
B5							
1686	Micro 16 -	Each	0.00				
1687	Digital I/O Module -	Each	12.00				
1688	Bell 202 Modem Module -	Each	2.00				
1689	Analog Input Module -	Each	1.00				
1939	Power supply -	Each	2.00				
1940	RS-232 IO Controller -	Each	1.00				
1941	Digital Input 12 volt -	Each	1.00				
1942	Digital Input 24 volt -	Each	1.00				
1943	Relay output -	Each	4.00				
1944	relay - for control microsystems	Each	12.00				
1945	relay - for control microsystems	Each	28.00				
B6							
1370	PRESSURE GUAGE - 0 to 160 psi 4.5" dia	Each	1.00				
1371	PRESSURE GUAGE 0-100" wtr 1/4" NPT	Each	1.00				
1372	PRESSURE GAUGE -	Each	1.00				
1953	Transfer switch controller - 240 volt	Each	1.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
FOB							
B6							
1954	Automatic tranfser switch - 480 volt	Each	1.00				
2133	Gauge - 0 to 100 " water 1/4" NPT	Each	2.00				
B7							
1956	transducer -	Each	7.00				
1957	Operator Interface Terminal -	Each	0.00				
2060	SCADAPack Controller - Standard SCADAPack with 5203 controller	Each	2.00				
2061	SCADAPack Plus Controller - Standard SCADAPack Plus with 5203 controller	Each	2.00				
B8							
1359	GENERATOR REGULATOR - 150KW module	Each	1.00				
1362	SOLENOID -	Each	4.00				
1363	SWITCH, CONTROL PANEL -	Each	2.00				
1365	PRIMER PUMP -	Each	2.00				
C10							
1539	RELAY, TD, ON .5-5 SEC - 120 V coil	Each	2.00				
1540	RELAY, TD, ON 5-50 SEC. - 120 V coil	Each	1.00				
1541	RELAY, TD, ON 3-3 MIN. - 120 V coil	Each	1.00				
1542	RELAY, TD, ON 1-300 SEC. - 120 V coil	Each	2.00				
1543	RELAY, TD, ON 1-10 MIN. -	Each	1.00				
1544	RELAY, TD, .5-5 SEC. - 120 V coil	Each	1.00				
1545	RELAY, TD, OFF 1-300 SEC. - 120 V coil	Each	3.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
FOB							
C10							
1546	RELAY, TD, OFF 1-300 SEC. - 240 V coil	Each	1.00				
1611	PRESSURE SWITCH - 1"-26" wtr, spst on rise	Each	2.00				
C4							
1499	RELAY, 8 SPADE - 12 VDC,2PDT	Each	6.00				
1504	RELAY, 8 SPADE PIN - 240V,2PDT	Each	16.00				
1563	SOCKET, 5 SPADE TYPE -	Each	26.00				
1564	SOCKET, 8 SPADE TYPE -	Each	24.00				
1696	Solid State Relay SPST -	Each	8.00				
1697	12VDC Relay, SPDT -	Each	19.00				
1996	VOLTAGE SENSOR - 240 VAC	Each	7.00				
1997	3-PHASE MONITOR - 240 VAC	Each	4.00				
1998	3-PHASE MONITOR - 480 VAC	Each	2.00				
2132	Phase Monitor - FLYGT Phase Monitor 425-525 VAC	Each	2.00				
C5							
2067	overload heater for Schussing - H48	Each	8.00				
C6							
1261	SOLENOID COIL -	Each	9.00				
1498	RELAY - 120V,DPDT	Each	4.00				
2075	isolated switch - intrinsically safe switch 24 vac	Each	2.00				
C7							
1494	ALTERNATOR RELAY - 120V,DPDT	Each	2.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
FOB							
C7							
1526	RELAY, 1 NO & NC CONTACT - 110V	Each	3.00				
1610	REED SWITCH & MAGNET -	Each	13.00				
C8							
1691	Power Supply Mount -	Each	2.00				
1725	DC/DC CONVERTER -	Each	2.00				
2000	DC/DC CONVERTER -	Each	4.00				
2001	DC Power Supply - ? watt 12-15 VDC	Each	2.00				
2002	Protective Cover -	Each	2.00				
2004	DC-power supply -	Each	3.00				
C9							
1395	SINGLE PRESSURE MERCOID -	Each	2.00				
1396	DUAL PRESSURE MERCOID -	Each	1.00				
D3							
2045	Mechanical Seal - schussing pumps 410F seal assembly	Each	2.00				
2046	Shaft sleeve - for schussing pumps	Each	1.00				
2047	wear ring - Schussing pumps	Each	2.00				
2048	Bearing filter assembly - schussing pumps	Each	1.00				
D5							
2009	Capacitor kit - 230vac 2hp	Each	1.00				
2131	Ball valve service kit - Alder cr. ball valve rebuild kit 6"	Each	3.00				
D6							

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
FOB							
D6							
2127	float sw. - Pump room flooded used in Smith & Loveless pump sta 20 amp	Each	2.00				
D7							
1176	AIR COMPRESSOR -	Each	1.00				
1177	AIR COMPRESSOR -	Each	3.00				
1707	Air Compressor - submersible	Each	1.00				
D8							
2074	Operator Interface Terminal -	Each	3.00				
E 5							
2112	Hydro Ranger - meter	Each	1.00				
2113	Hydro Ranger - Xducer	Each	1.00				
E3							
2126	Block Heater - plastic tank heater 120vac 1000watt	Each	2.00				
E4							
2008	Transformer - 100 KVA	Each	3.00				
VMF							
TBD							
1594	FLOAT SWITCH, N.C. - 300 V, 13A, Red ball	Each	4.00				
VSF							
NorthWest							
2146	FULL CIRCLE CLAMP 8" x 12"	Each	2.00				
2147	FULL CIRCLE CLAMP 10" x 12"	Each	1.00				
2148	FULL CIRCLE CLAMP 10" x 20"	Each	2.00				

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
VSF							
NorthWest							
2149	FULL CIRCLE CLAMP 12.2" x 20"	Each	1.00				
2150	FULL CIRCLE CLAMP 9.4" x 16"	Each	1.00				
2151	FULL CIRCLE CLAMP 13.5" x 24"	Each	1.00				
2152	FULL CIRCLE CLAMP 15.8" x 24"	Each	1.00				
2153	FULL CIRCLE CLAMP 11.5" x 20"	Each	1.00				
2154	FULL CIRCLE CLAMP 11.4" x 20"	Each	1.00				
TBD-VSF							
1730	PLUG VALVE - ECCENTRIC PLUG VALVE w2" NUT 8"	Each	3.00				
1732	PLUG VALVE - ECCENTRIC PLUG VALVE w2" NUT 4"	Each	3.00				
1733	PLUG VALVE - ECCENTRIC PLUG VALVE w2" NUT 3"	Each	3.00				
1734	DIP SPOOL, FLANGED DIP SPOOL 8"dip,36"flg-flg	Each	2.00				
1737	RESTRAINED FLG ADAPTER - EBAA IRON MEGAFLG RESTRAINED FLG ADAPTER 8"	Each	3.00				
1738	RESTRAINED FLG ADAPTER - EBAA IRON MEGAFLG RESTRAINED FLG ADAPTER 6"	Each	2.00				
1739	RESTRAINED FLG ADAPTER - EBAA IRON MEGAFLG RESTRAINED FLG ADAPTER 4"	Each	2.00				
1740	RESTRAINED FLG ADAPTER - EBAA IRON MEGAFLG RESTRAINED FLG ADAPTER 3"	Each	2.00				
1746	PLUG VALVE - ECCENTRIC PLUG VALVE wBURIED SERVICE ACTUATOR AND 2" NUT 8"	Each	1.00				
1748	PLUG VALVE - ECCENTRIC PLUG VLV wBURIED SERVICE ACTUATOR AND 2" NUT 6"	Each	1.00				
1749	PLUG VALVE - ECCENTRIC PLUG VLV wBURIED SERVICE ACTUATOR AND 2" NUT 4"	Each	2.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
VSF							
TBD-VSF							
1750	CHECK VALVE - AWWA CAST IRON Ck Vlv wLEVER AND WEIGHT - LEVER ON R 4"	Each	2.00				
1751	CHECK VALVE - AWWA CAST IRON Ck vlv wLEVER AND WEIGHT - LEVER ON L 4"	Each	2.00				
1752	DIP SPOOL - FLANGED DIP SPOOL 8"dip,32.25" flg-flg	Each	3.00				
1754	DIP SPOOL - FLANGED DIP SPOOL 10"dip,10"flg-flg	Each	1.00				
1755	DIP SPOOL - FLANGED DIP SPOOL 6"dip,18"flg-flg	Each	2.00				
1756	DIP SPOOL - FLANGED DIP SPOOL 6"dip,12"flg-flg	Each	2.00				
1757	DIP SPOOL - FLANGED DIP SPOOL 6"dip,8" flg-flg	Each	2.00				
1764	FLANGED WYE - DI - DUCTILE IRON WYE, FLG X FLG X FLG 4"x4"x4"	Each	1.00				
1765	FLANGED WYE - DI - DUCTILE IRON WYE, FLG X FLG X FLG 6"x6"x6"	Each	2.00				
1766	FLANGED WYE - DI - DUCTILE IRON WYE, FLG X FLG X FLG 8"x8"x8"	Each	2.00				
1767	FLANGED WYE - DI - DUCTILE IRON WYE, FLG X FLG X FLG 10"x10"x8"	Each	1.00				
1768	FLANGED 45 ELBOW - DI - DUCTILE IRON 45 ELBOW, FLG X FLG 4"	Each	1.00				
1769	FLANGED 45 ELBOW - DI - DUCTILE IRON 45 ELBOW, FLG X FLG 6"	Each	2.00				
1770	FLANGED 45 ELBOW - DI - DUCTILE IRON 45 ELBOW, FLG X FLG 8"	Each	1.00				
1771	FLANGED 90 ELBOW - DI - DUCTILE IRON 90 ELBOW, FLG X FLG 3"	Each	1.00				
1772	FLANGED 90 ELBOW - DI - DUCTILE IRON 90 ELBOW, FLG X FLG 4"	Each	2.00				

TSD Parts Inventory *

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11/21/2014

Warehouse

Location

Part #	Part Description	Units	GBA Quantity	Quantity Counted	Notes	Initials	Date
Lift Stations							
VSF							
TBD-VSF							
1776	FLANGED TEE - DI - DUCTILE TEE, FLG X FLG X FLG 4"	Each	2.00				
1781	CHECK VALVE - AWWA CAST IRON CHECK VALVE wLEVER & WEIGHT - LEVER ON R 6"	Each	2.00				
2042	Electrical Enclosure - NEMA 4 (24x24x8)	Each	2.00				
2043	Enclosure Backpanel - Enclosure Backpanel 21 x 21	Each	2.00				

TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

APPENDIX E

TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

APPENDIX F

THOMAS S. SELFRIDGE, P.E.
General Manager
Chief Engineer

TRUCKEE SANITARY DISTRICT
A PUBLIC AGENCY

12304 Joerger Dr. • Truckee, California 96161-3312
Telephone (530) 587-3804 • Fax (530) 587-1840

March 05, 2014

Bar of America (Pacific Crest)
PO Box 2694
Truckee, CA 96160

RE: Grease Trap Inspection, APN: 19-100-13

Dear Restaurant Owner,

The Truckee Sanitary District's (District) is the public agency responsible for the collection and conveyance of wastewater in the greater Truckee area. Proper operation and maintenance of grease traps by business owners is a critical part of preventing sewer backups and overflows. The District needs your help to keep the sewers flowing freely. Fats, oils, and grease (FOG) are one of the leading causes of sewer backups and spills. Preventing these problems requires proper maintenance of your grease trap. To assist you in this effort, the District will be sending an inspector to your restaurant in the coming months to inspect your grease trap, look at your maintenance log, and provide educational materials.

Section 8.01 of the District Code states:
"*District personnel will periodically schedule inspections of grease traps and interceptors. It shall be the responsibility of the owner or their agent to maintain grease traps and interceptors in the efficient operation condition by periodic removal and proper disposal of the accumulated grease. No such collected grease shall be introduced into any drainage piping or public or private sanitary sewer facility. The owner or their agent shall post and maintain a current grease trap/interceptor cleaning and maintenance log on the premises and shall have the log available for review by District personnel at all times.*"

In most cases, the District recommends that grease traps be cleaned and emptied at least once a week. However, if your establishment generates large amounts of fats, oils and/or grease it may require more frequent cleaning. Allowing the grease to build up in the trap increases the potential for grease blockages, resulting in backups and overflows which could damage your business, property, and harm the environment. During the inspection, the District will provide you with educational materials (examples provided) on proper grease trap maintenance and grease waste disposal. Your cooperation in training your employees in proper maintenance and record keeping for the grease trap in your establishment is important. It is vital to the District that the maintenance log for your facility be maintained and posted in your restaurant. If during periodic inspections, the District determines that your restaurant is in non-compliance with District Code, enforcement action may be required.

If you would like to schedule a specific date and time for the grease trap inspection at your restaurant establishment, please call our office at 587-3804 by March 21, 2014 and we would be happy to schedule that for you.

We appreciate your cooperation on this matter and look forward to meeting with you to discuss proper operation and maintenance of your grease trap.

Sincerely,

Blake R. Tresan

Blake Tresan, P.E.
Assistant General Manager / District Engineer

cc: Property Owner

Recommended Method of Solids Disposal from Grease Traps

Remove Solid Material from Grease Trap

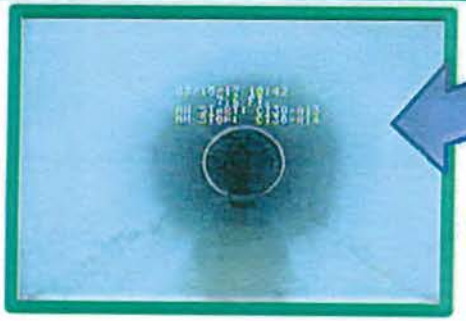
Add Absorbant Material

Double Bag and Secure

Place in Garbage

Questions? Call Truckee Sanitary District (530) 587-3804

YES / SI



Clean Pipe
Tubo Limpio

NO

Dirty Pipe
Tubo Sucio

QUESTIONS? CALL THE TRUCKEE SANITARY DISTRICT, (530) 587-3804

Grease Trap Maintenance Log

Registro de mantenimiento de la trampa de grasa

Date Fecha	Employee Initials Or Cleaning Vendor Iniciales del empleado o del proveedor de limpieza	Condition Condición	Comments Comentarios

TRUCKEE SANITARY DISTRICT

SEWER SYSTEM MANAGEMENT PLAN

APPENDIX I

Truckee Sanitary District

SSMP Audit Report Form

Audit Period Covered: _____

Introduction	Yes	No
Is the current system description complete and up to date? Are all infrastructure statistics current and complete?		
Discussion:		

	Element 1 – Goals	Yes	No
A	Are the goals stated in the SSMP still appropriate and accurate?		
Discussion:			

	Element 2 -- Organization	Yes	No
A	Is the Contact Information current?		
B	Is the Sanitary Sewer Overflow Responder List current?		
C	Is the Organization Chart in Figure 2-1 of the SSMP current?		

Element 2 -- Organization		Yes	No
D	Are the position descriptions an accurate portrayal of staff responsibilities?		
E	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?		
Discussion:			

Element 3 – Legal Authority		Yes	No
Does the SSMP contain current references to the District's Code documenting the District's legal authority to:			
A	Prevent illicit discharges?		
B	Require proper design and construction of sewers and connections?		
C	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the City?		
D	Limit discharges of fats, oil and grease?		
E	Enforce any violation of its sewer ordinances?		
F	Were any changes or modifications made in the past year or since the last SSMP audit to District Ordinances, Regulations, or standards?		
Discussion:			

Element 4 – Operations and Maintenance		Yes	No
Collection System Maps			
A	Does the SSMP reference the current process and procedures for maintaining the District's sanitary sewer system maps?		
B	Are the District's wastewater collection system maps complete, current, and sufficiently detailed?		
Prioritized Preventive Maintenance			
C	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?		
D	Based upon the SSO information in CIWQS and the Annual SSO Report, are the District's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?		
Rehabilitation and Replacement Program			
E	Is there an ongoing condition assessment program sufficient to rank the condition of sewer pipes and schedule rehabilitation? Are the current components of this program documented in the SSMP?		
F	Does the rehabilitation and replacement plan include a capital improvement plan that addresses proper management and protection of the infrastructure assets? Does the plan include a time schedule for implementing the short and long-term plans plus a schedule for developing the funds needed for the capital improvement plan?		
Contingency Equipment and Replacement Inventory			
G	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system?		
H	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?		
Training			
I	Are the training records current?		
J	Does the SSMP document current training expectations and programs?		

Element 4 – Operations and Maintenance	Yes	No
Discussion:		

	Element 5 – Design and Performance Standards	Yes	No
A	Does the SSMP reference current design and construction standards for the installation of new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?		
B	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?		
Discussion:			

	Element 6 – Overflow and Emergency Response Plan	Yes	No
A	Does the District's Overflow Emergency Response Plan (OERP) contain proper notification procedures so that the primary responders and regulatory agencies are informed of all sanitary sewer overflows (SSOs) as required by the WDR and MRP?		
B	Does the OERP have a program to ensure an appropriate response to all overflows?		

Element 6 – Overflow and Emergency Response Plan		Yes	No
C	Does the OERP contain procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities of all SSOs that potentially affect public health or reach waters of the State in accordance with the MRP? Does the SSMP identify the officials who will receive immediate notification of such SSOs?		
D	Are staff and contractor personnel aware of and appropriately trained on the procedures of the OERP?		
E	Does the OERP contain procedures to address emergency operations such as traffic and crowd control and other necessary response activities?		
F	Does the OERP ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge?		
G	Considering SSO performance data, is the OERP effective in handling SSOs in order to safeguard public health and the environment?		
H	Is the Water Quality monitoring Plan current and has it been trained on and practiced by staff that would be involved in a SSO of large volume?		
I	Was sampling conducted within 48 hours for all SSOs greater than 50,000 gallons and were results entered for these SSOs through the CIWQS website?		
J	Has the District prepared a Technical Report for all SSOs larger than 50,000 gallons? Have all Technical Reports been filed on the CIWQS website as required?		
Discussion:			

Element 7 – Fats, Oils, and Grease (FOG) Control Program		Yes	No
A	Does the Fats, Oils, and Grease (FOG) Control Program include a description of public education outreach efforts that promote proper handling and disposal of FOG?		
B	Does the FOG program include a plan for the disposal of FOG generated within the sewer system service area?		
C	Does the District have sufficient legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG?		
D	Are there requirements to install grease removal devices (such as traps or interceptors), best management practices (BMP) requirements, record keeping, maintenance requirements and reporting requirements established in the City's FOG Control Program?		
E	Does the District have authority to inspect grease producing facilities and have sufficient staff to inspect and enforce the FOG ordinance?		
F	Does the FOG control program identify sections of the collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?		
G	Does the FOG control program implement source control measures for all sources of FOG discharged to the collection system?		
H	Is the current FOG program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?		
Discussion:			

Element 8 – System Evaluation and Capacity Assurance Plan		Yes	No
A	Does the System Evaluation and Capacity Assurance Plan evaluate hydraulic deficiencies in the system and provide estimates of peak flows associated with conditions similar to those causing overflow events, if applicable?		
B	Does the District's capital improvement program (CIP) establish a schedule of approximate completion dates for both short-term and long-term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?		
C	Does the District take steps needed to establish a short and long-term CIP to address hydraulic deficiencies, including prioritization, alternatives analysis, and schedules? Are repair and replacement projects developed based upon condition assessment and/or field maintenance results?		
Discussion:			

Element 9 – Monitoring, Measurement, and Program Modifications		Yes	No
A	Does the District maintain relevant information that can be used to establish and prioritize appropriate SSMP activities?		
B	Does the District monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP?		
C	Does the District assess the success of the preventive maintenance program?		
D	Does the District update program elements, as appropriate, based upon monitoring or performance evaluations?		
E	Does the SSMP identify and illustrate SSO trends, including frequency, location and volume of SSOs?		

Element 9 – Monitoring, Measurement, and Program Modifications	Yes	No
Discussion:		

Element 10 – SSMP Audits		Yes	No
A	Does the audit focus on the effectiveness of the SSMP? If not, what needs to be changed to increase the effectiveness of the overall collection system program?		
B	Were the audit results shared with the District Board? And the public, via the District website?		
C	Will the SSMP Audit be completed, reviewed, and filed as an Appendix to the SSMP on a biennial basis?		
D	Do any proposed changes to the SSMP require Board approval as they have a substantial change in the policies and procedures for collection system operations and maintenance?		
Discussion:			

Element 11 – Communication Program		Yes	No
A	Does the District communicate on a regular basis with the public and other agencies about the development and implementation of the SSMP? Does the communication system provide the public the opportunity to provide input as the program is developed and implemented? Were annual progress reports and metrics of implementation of the SSMP provided to the District Board?		

Element 11 – Communication Program	Yes	No
Discussion:		

	Change Log	Yes	No
A	Is the SSMP Change Log current and up to date?		
Discussion:			