RESOLUTION 2008-03
OF THE
DONNER SUMMIT PUBLIC UTILITY DISTRICT
ADOPTING THE DONNER SUMMIT PUBLIC UTILITY DISTRICT SEWER SYSTEM MANAGEMENT PLAN

WHEREAS, The Donner Summit Public Utility District (DSPUD) is required to prepare a Sewer System Management Plan (SSMP) in response to a General Waste Discharge Requirement (GWDR) issued by the State of California Water Resources Control Board; and

WHEREAS, SWRCB Order No. 2006-0003-DWQ applies to all public wastewater collection/treatment entities that own/operate one mile or more of sewer pipe; and

WHEREAS, The schedule for completion of the SSMP is dependent on the population served by the wastewater entity; the DSPUD falls into the category of a population served of <2,500 residents; and

WHEREAS, The first requirement of the SSMP is to develop a work plan and schedule for completing the twelve separate sections of the SSMP and to present that schedule to the District Board of Directors for approval.

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of the Donner Summit Public Utility District, as follows:

1. That said Board of Directors does hereby approve and adopt as the Donner Summit Public Utility District SSMP as presented in Exhibit "A" attached.

PASSED AND ADOPTED this 15th day of April, 2008 at a Regular meeting of the Board of Directors, by the following vote:

AYES: Cathy Reis, Phil Gamick, Lori Van Meter,

NOES:
ABSENT: Robert Sherwood Rachel Tolmachoff
ABSTAIN:

DONNER SUMMIT PUBLIC UTILITY DISTRICT

By: _____
President of the Board of Directors

ATTEST:

By: _____ / Clerk of the Board for
Secretary of the Board of Directors

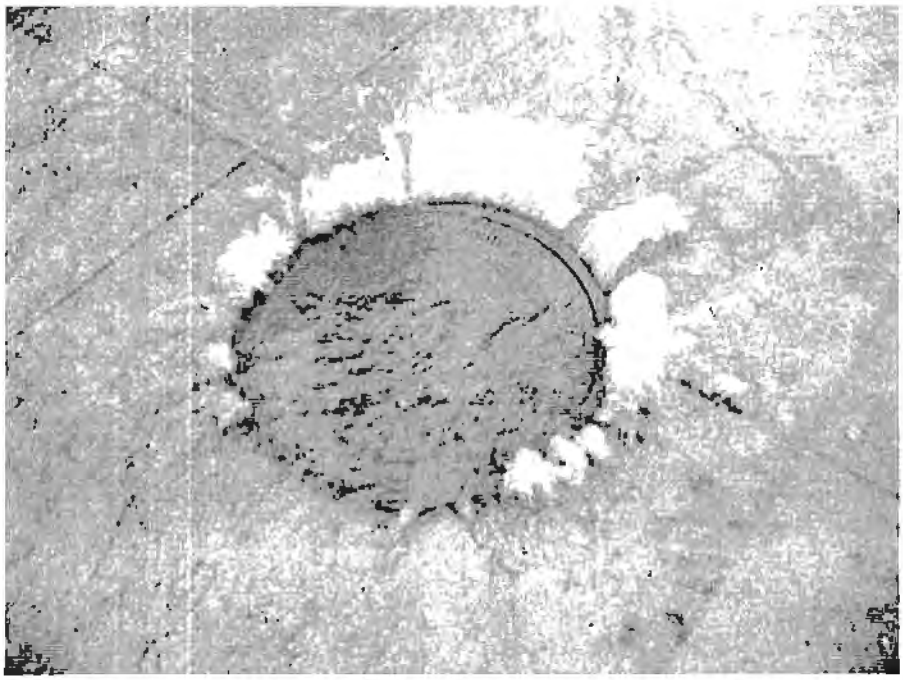
Donner Summit PUD

Sanitary Sewer Overflows (SSOs)

Sewer Spill Prevention

Sanitary Sewer Overflows (SSOs) are sewer spills. Roots, grease, or other debris blocking the sewer pipe can cause SSOs. SSOs can result in the contamination of home, streets, and storm drains that flow directly to the bay and beaches.

Restaurants and other commercial establishments that can discharge fats, oils, grease, and other detrimental materials are routinely inspected to ensure that these discharges do not cause SSOs.



Reporting Sewage Spills

If you see or smell a possible sewage spill, **please contact the District Office to report the incident as soon as possible!** This is particularly important if the spill occurs in a public area or if the sewage flows into surface water (e.g. streams, ocean, or a storm sewer drain).

Please have an accurate location of the spill ready when reporting to the District. The quicker a sewer spill is responded to, the less of a threat to the environment and human health it becomes.

Who to Call

- During normal business hours, call 530-426-9144
- Outside of normal business hours, call 530-426-9144

Please Report Overflows on Private Property

Sewage backups within homes or on private property are usually the responsibility of the property owner. In these situations, you should call a plumber **and** the District Office.

Protect Your Sewer Lateral

The line running from your home out into the street is referred to as a sewer lateral. This lateral is the property of, and the responsibility of, the homeowner. If your lateral is improperly maintained, it can lead to costly repairs and sewer spills. Maintaining the sewer lateral is the responsibility of the property owner.

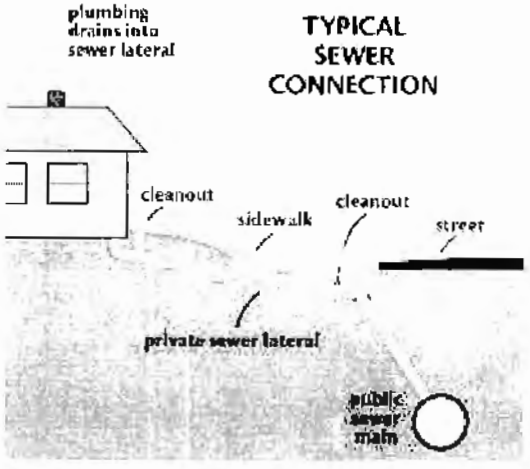
The sewer lateral should never be broken or cut in order to connect a gutter or drain, or to run a plumbers snake. Tree roots, excessive amounts of water, or contaminants can enter through a break, creating maintenance, health, and environmental problems.

Before Snaking Your Sewer Lateral

The District is happy to provide its residents with information on installing backflow prevention devices and clean-outs, as time permits.

Residents should notify the District in advance when planning to have roots cleared from a sewer lateral. The crew can monitor the main sewer and remove any root balls cut free from your sewer lateral, preventing the material from clogging the main sewer pipeline. The crews can also answer any questions relating to sewer line problems.

Please call 530-426-9144 during normal business hours.



If Your Building Faces a Steep Road

Homes and buildings, which front a steep road, run the risk of sewer back-flow. You can call the District to help determine whether your property includes a proper backwater valve device and if 1 is needed.

Protect Your Health

Although domestic sewage is almost 99% water, a large number of disease-causing bacteria and viruses can be present. The following recommendations are made to protect your health if a sewage spill occurs.

Avoid Contact With Sewage Spills

Individuals not involved in the cleanup of the site, should remain out of the area, if possible until the contamination has been removed and the area disinfected. It is particularly important that children stay away.

Hygiene is Essential

If your skin comes into contact with sewage, it is essential to immediately clean the affected areas thoroughly with soap and warm water. This is particularly important before eating or preparing food.

Your skin is a very good barrier against germs and disease. Skin contact with sewage does not usually pose a serious health problem. However, disease-causing organisms can enter the body through cuts or sores on the skin, through splashes into the eyes and mouth, or by eating food or water contaminated by dirty hands.

See your health care professional if a wound becomes red and infected after contact with sewage.

Immunizations

Immunizations are usually not necessary following exposure to sewage. However, it is a good idea to check with your health care professional about tetanus vaccination if you have received a puncture wound (e.g. stood on a nail), or if a wound is contaminated with sewage.

Dos & Don'ts

Something To Think About

Many people do not think much about what they flush down the toilet or pour down the drain. If they don't want it, they just flush it and forget it. This can often include a lot of materials that are not only bad for the Wastewater Collection System and the Wastewater Treatment Plant but also potentially harmful to the local environment we all treasure so much.

Problem Materials

Some of the materials that can cause blockages in the lines or clog lift station pumps, leading to spills of raw sewage into the environment include:

- Grease, oil
- Dental floss
- Cloth
- Baby wipes
- Rubber gloves
- Various medical wastes

An ounce of prevention is worth a pound of cure.

Other materials that will flow through the Collection System but can interfere with the Treatment Plant processes and possibly result in unsuitable materials entering the ocean, contacting sensitive animals and plants include:

- Unused medications
- Cat litter
- Photo chemicals
- Solvents

Do's and What You Can Do

- **Call the District if you have questions about or problems with your sewer line**. Occasionally the sewer problem the homeowner is experiencing can be traced back to the city mains, our crews will check the mains in an effort to help you isolate the problem. On other occasions when roots or debris are cleared from private lines and flushed into the District mains they will cause a backup in the District main. If our crews are kept informed they will take steps to ensure that while a problem in 1 location is solved it does not cause another problem further down the line.
- **Use only a licensed contractor or plumber to make any repairs**. State law requires that any contractor performing more than $500 of work is required to have a contractor's license. Having a licensed contractor or plumber is very important when working on sewer systems as there are a number of unique hazards in sewer work.
- **Report any sewer problems or overflows immediately**. During normal business hours please call 530-426-9144 as soon as you observe the problem. Outside of normal business hours please call 530-426-9144. The quicker a sewer spill is responded to, the less of a threat to the environment and human health it becomes.
- **Recycle motor oil, paint, and other toxic materials at designated recycling sites.**
- **Locate your building's outside clean out and backflow prevention device.** If you know where these facilities are you will be much better equipped to deal with any sewer problem

that may arise. While you have an active sewer spill is not a good time to be looking for your clean out or backflow device.

- **Deposit all cooking grease in the trash**. While it may seem harmless to dump that hot grease down the drain, cooking grease as it cools will congeal and form a solid mass blocking the flow of sewage in either your private lateral or in the sewer main.
- **Maintain your private sewer lateral**. The line running from your home out into the street is referred to as a sewer lateral. This lateral is the property of, and the responsibility of the homeowner. If your lateral is improperly maintained it can lead to costly repairs and sewer spills.

What You Should Not Do

- Flush cat litter or feces down the toilet. Recent scientific studies have shown a link between sea otters and the feline disease, toxoplasma gondii. T. gondii is the tiny, single celled parasite linked to many of the otter strandings in our region and across the state. The parasite is known to originate in domestic cats and other felines, who spread it through their feces. In order to minimize the risk of this disease to otters, used cat litter should be placed in the garbage for disposal at the landfill. To minimize the risk of pollution from runoff water into storm drains, creeks, and eventually the ocean, it is recommended that people pick up after their outdoor cats (and dogs) whenever possible. It is especially important to remember that pregnant women should not handle cat litter or feces due to potential health risks from T. gondii to their unborn child.
- Dispose of medical wastes, dental floss, clothes, baby wipes, diapers, rubber gloves, or similar items down the drain. These items can easily clog sewer pumps and in many cases pose a hazard to both the environment and the Collections system workers.
- Flush unwanted medications down the drain. These materials can remain in the environment and in some cases pass through our treatment process intact. In response to a growing demand for a safe and convenient way to dispose of household medications, including prescription and over-the-counter drugs please contact your local pharmacies and other county and state agencies.

Donner Summit Public Utility District
P.O. Box 610 53823 Sherritt Lane – Soda Springs California –95728
Phone (530) 426-3456 – Fax (530) 426-3460

Donner Summit PUD

Organizational Chart

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Operator Contact List

Updated 9/21/2022

Name:	Residence:	Title:	Contact #:
WWTP	Soda Springs	Work	530-426-9144
Jim King	Meadow Vista CA	Plant Manager	916-826-4810
Justin Vosburgh	Penn Valley CA	Asst. Manager	530-386-1503
Paul Schott	Reno NV	Lead Operator	530-277-9153
Sean Patrick	Meadow Vista CA	Operator 3	916-261-4659
Josh Shelton	Colfax CA	Mechanic	530-575-2879

Element 1: GOALS

This SSMP element identifies goals the District has set for the management, operation and maintenance of the sewer system and discusses the role of the SSMP in supporting these goals. These goals provide focus for District staff to continue high-quality work and to implement improvements in the management of the District's wastewater collection system. This section fulfills the Goals requirement of both the RWQCB (Element 1) and the SWRCB (Element 1) SSMP requirements.

1.1 Regulatory Requirements for Goals Element

The summarized requirements for the Goals element of the SSMP are as follows:

RWQCB Requirement:

The collection system agency must develop goals to manage, operate, and maintain all parts of its collection system. The goals should address the provision of adequate capacity to convey peak wastewater flows, as well as a reduction in the frequency of sanitary sewer overflows (SSOs) and the mitigation of their impacts.

SWRCB Requirement:

The collection system agency must develop goals to properly manage, operate, and maintain all parts of its wastewater collection system in order to reduce and prevent SSOs, as well as to mitigate any SSOs that occur.

1.2 Goals Discussion

Providing safe, responsive, and reliable sewer service is a key component to fulfilling the District's responsibilities to its ratepayers and visitors.

In support of these responsibilities, the District has developed the following goals for the operation and maintenance of its sewer system. This document outlines responsibilities, allocates staff hours to Sewer System work elements, and provides procedures and guidelines for maintenance and cleaning activities.

1. Minimize sanitary sewer overflows.
2. Prevent public health hazards.
3. Minimize inconveniences by responsibly handling interruptions in service.
4. Protect the large investment in collection systems by maintaining adequate capacities and extending useful life.
5. Prevent unnecessary damage to public and private property.

6. Use funds available for sewer operations in the most efficient manner.

7. Convey wastewater to treatment facilities with a minimum of infiltration, inflow and exfiltration.

8. Provide adequate capacity to convey peak flows.

9. Perform all operations in a safe manner to avoid personal injury and property damage.

This SSMP supplements and supports the Districts existing Operations & Maintenance Program and Goals by providing high-level, consolidated guidelines and procedures for all aspects of the District's sewer system management. The SSMP will contribute to the proper management of the collection system and assist the District in minimizing the frequency and impacts of SSOs by providing guidance for appropriate maintenance, capacity management, and emergency response.

Element 3: ORGANIZATION

This section of the SSMP identifies District staff who are responsible for implementing this SSMP, responding to SSO events, and meeting the SSO reporting requirements. This section also includes the designation of the Authorized Representative to meet SWRCB requirements for completing and certifying spill reports. This section fulfills the Organization requirement of both the RWQCB (Element 3) and the SWRCB (Element 3) SSMP requirements.

3.1 Regulatory Requirements for Organization Element

The summarized requirements for the Organization element of the SSMP are as follows:

RWQCB Requirement:

The collection system agency's SSMP must identify staff responsible for implementing measures outlined in the SSMP, including management, administration, and maintenance positions. Identify the chain of communication for reporting and responding to SSOs.

SWRCB Requirement:

The collection system agency's SSMP must identify:

1. The name of the responsible or authorized representative;
2. The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. Include lines of authority as shown in an organization chart or similar document with a narrative explanation; and
3. The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

3.2 Element 2 Appendix

Supporting information for Element 2 is included in Appendix A. This appendix includes the following documents:

1. Table of sewer staff names and phone numbers (update as needed).

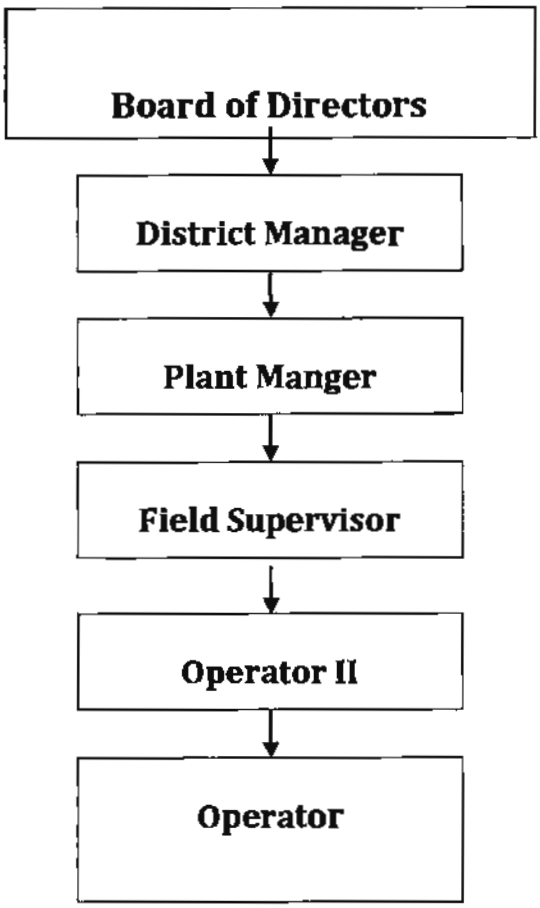
3.3 Organization Discussion

This section discusses the organization and roles of sewer staff, the authorized representative to the SWRCB, and key staff responsible for implementing and maintaining the SSMP.

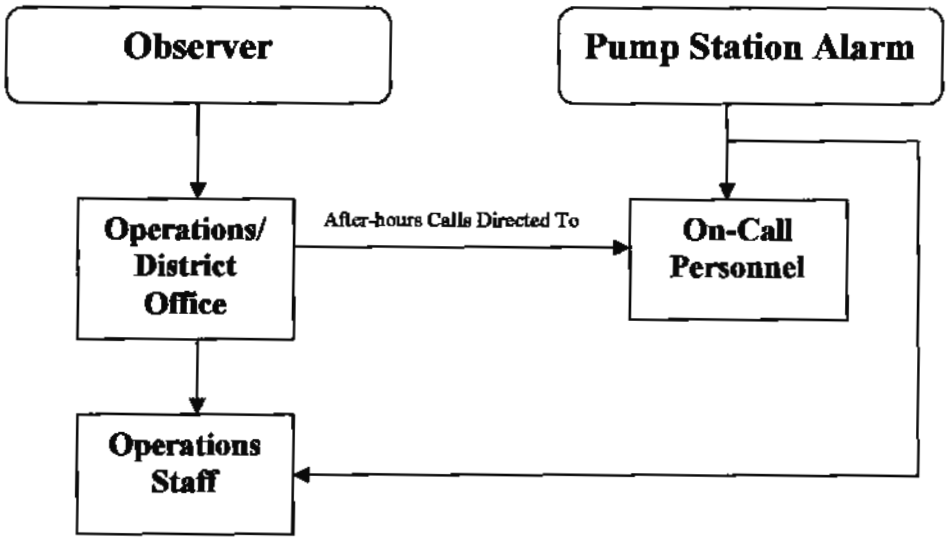
Department Organization

The organization chart for the management, operation, and maintenance of the District's wastewater collection system is shown on Figure 2-1. The names and phone numbers of staff filling these positions are included in Appendix A, Table 1. Letters used on the organization chart

Donner Summit PUD Organizational Chart



Sewer Response Spill
Flow Chart



Sanitary Sewer Overflow Plan

Element 4: OVERFLOW EMERGENCY RESPONSE PLAN

The section of the SSMP provides an overview and summary of the District's emergency response documents and procedures for sewer overflows. Complete documentation of overflow response procedures are attached in Appendix B. This section fulfills the Overflow Emergency Response Plan requirement of both the RWQCB (Element 3) and the SWRCB (Element 6) SSMP requirements.

4.1 Regulatory Requirements for Overflow Emergency Response Plan Element

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

RWQCB Requirement:

The collection system agency must develop an overflow emergency response plan (OERP) that provides procedures for SSO notification, response, reporting, and impact mitigation. The response plan should be developed as a stand-alone document and summarized in the SSMP.

SWRCB Requirement:

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

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

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

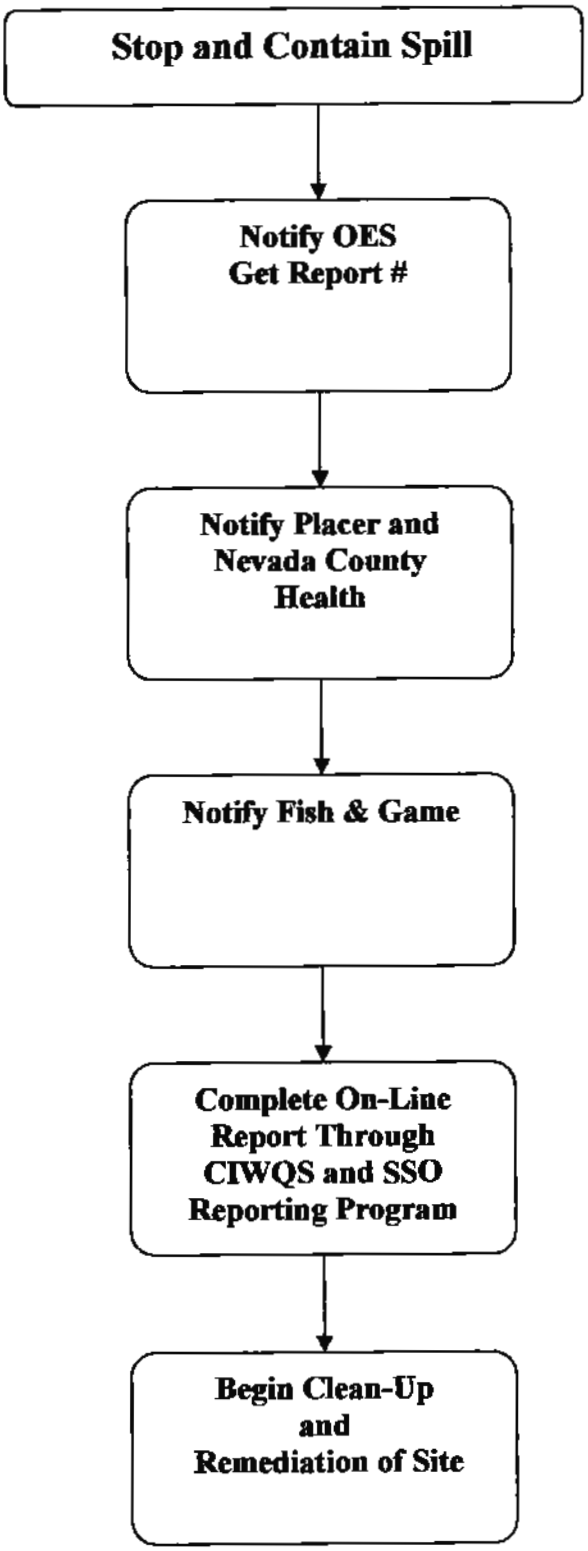
(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, regional water boards, water suppliers, etc…) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All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

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

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

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

Spill Response Flow Chart



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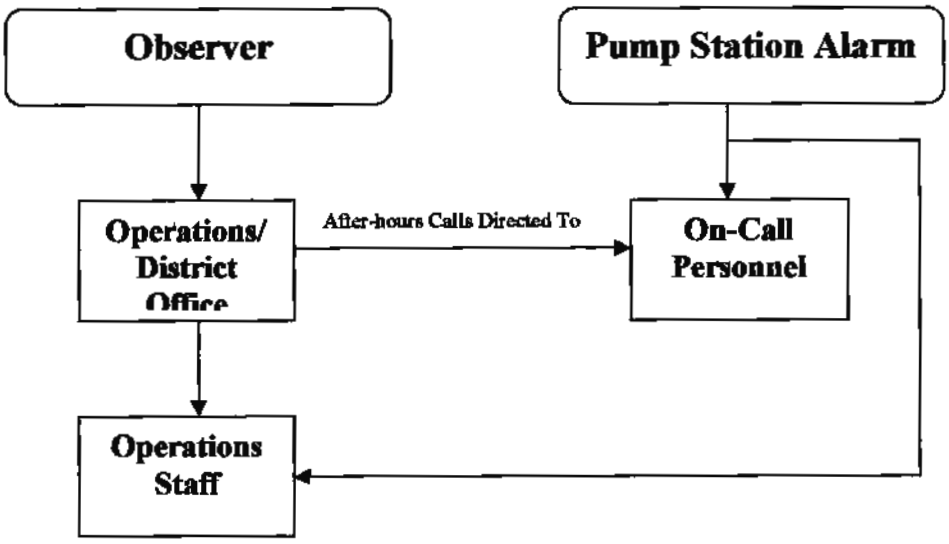
Flow Chart



Linda S. Adams
Secretary for
Environmental
Protection

California Regional Water Quality Control Board
Central Valley Region
Karl E. Longley, ScD, P.E., Chair

Sacramento Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

Arnold
Schwarzenegger
Governor

SPILL REPORTING FACT SHEET

To be posted at facility.

WHEN A SPILL OCCURS YOU MUST FOLLOW THE MANDATORY PROCEDURES IN THE TABLE BELOW:

What is a spill? A spill is any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into surface waters or drainage channels that is not permitted or authorized by a regulatory agency. (A spill includes an unauthorized discharge to land that poses a public health threat.) Be on the safe side, **REPORT IT!**

Required Communication	Agency to Contact (all are required)	Time Requirements	Contact Method
1. Notification	Office of Emergency Services (OES)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from OES)
	Local Health Department (LHD)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone - (fill in LHD number) (- -)
	Appropriate Regional Water Board Office Sacramento (RB5S) Redding (RB5R) Fresno (RB5F)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – RB5S: (916) 464-3291 RB5R: (530) 224-4845 or RB5F: (559) 445-5116
2. Certification	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the unauthorized discharge.	Telephone – (916) 464-3291 (be prepared to provide detailed information)[1]
3. Reporting	Regional Water Board	Within **5 business days**, submit written report.	Mail or Hand Delivery

[1] See **Spill Reporting Procedures** document (Enclosure 1).

Enclosure 2

-EMERGENCY CONTACT NUMBERS-

Fire Department	911
Police	911
Ambulance	911
Poison Control CA	1-800-356-3129
Chemical Spill	1-800-424-3129 (Chemtrec)
Nevada County Environmental Health Services	1-530-582-7829
California State Office of Emergency Services	1-800-852-7550
Department of Fish and Game	(888)-334-2258

OTHER IMPORTANT NUMBERS:

Chief Plant Operator	(916) 826-4810
Sierra Chemical	(800)777-8965

OUTSIDE SERVICES ROSTER

ORGANIZATION	SERVICES AVAILABLE	CONTACT
Pac Machine Co. 8570 23rd Ave Sacramento CA 95826	Heavy Equipment Pumps	Chris (916) 387-1336
Nevada County Sheriff	Emergency Response	911 530-582-7842
Placer County Sheriff	Emergency Response	911 530-581-6305
Truckee Fire Dept. 530-582-7850	Fire Fighting Fire Hose First Aid	530-265-2351
EPA	Process Failure	1-206-553-0483
	Emergency Fuel (Diesel/Unleaded)	(916) 645-2179
Chemtrec	Emergency Spill Notification	1-800-424-9300

FOG
PROGRAM

OIL AND GREASE INTERCEPTORS (OGI)

Requirement:

Oil and grease interceptors are required for industrial and commercial food establishments where pretreatment of wastewater effluent is indicated as necessary to capture grease, oil, or food solids.

This standard applies to all new construction, tenant improvements, remodels, and or existing systems which are in need of upgrading.

OGI's will be sized from industry submitted, certified food preparation facility survey information. The sizing criteria will follow the Uniform Plumbing Code (UPC), Appendix H. The interceptor size (in gallons) will be established by a formula.

Sizing Criteria:

a) Parameters: the parameters for sizing a grease interceptor are hydraulic loading and grease storage capacity, for one or more fixtures.

b) Sizing Formula: the size of the interceptor shall be determined by the following formula:

Number of Meals Peak per Hour * (X) Waste Flow Rate (X) Retention Time # (X) Storage Factor ## (=) Inceptor Size (Liquid Capacity)**

OIL AND GREASE INTERCEPTORS (OGI)

City of Redding
777 Cypress Avenue
Redding CA 96001
Telephone:
(530) 225-4013
FAX: (530) 225-4360

CONSTRUCTION STANDARDS
Pages 380.00, 380.10, 380.40 STD NO. D-170, and 380.60 STD NO. D-172

REQUIREMENT:

Oil and grease interceptors are required for industrial and commercial food establishments where pretreatment of wastewater effluent is indicated as necessary to capture grease, oil, or food solids.

This standard applies to all new construction, tenant improvements, remodels, and existing systems which are in need of upgrading.

OGI's will be sized from industry submitted, certified food preparation facility survey information. The sizing criteria will follow the Uniform Plumbing Code (UPC), Appendix H. The interceptor size (in gallons) will be established by a formula.

SIZING CRITERIA:

(a) Parameters: the parameters for sizing a grease interceptor are hydraulic loading and grease storage capacity, for one or more fixtures.

(b) Sizing Formula: the size of the interceptor shall be determined by the following formula:

Number of Meals Peak per Hour *	X	**Waste Flow Rate****	X	**Retention Time #**	X	**Storage Factor ##**	=	**Interceptor Size (Liquid Capacity)**

* Meals served per hour **OR** total seating capacity

** Waste Flow Rate:

a. With dishwashing machine	6 gallon flow
b. Without dishwashing machine	5 gallon flow
c. Single service kitchen	2 gallon flow
d. Food waste disposer	1 gallon flow

\# Retention Times:

Commercial kitchen waste dishwasher	2.5 hours
Single service kitchen single serving	1.5 hours

Storage Factors:

Fully equipped commercial kitchen	8.0 hours operation:	1
	16.0 hours operation:	2
	24.0 hours operation:	3
Single service kitchen	1.5	

The minimum size OGI allowed by the City is 1250 gallons. For very large OGI requirements, the maximum size requirement will be established on a case by case basis. Adjustments for extenuating circumstances will include establishment of an agreed upon OGI maintenance (pumping) schedule, between the facility owner/operator and the City.

DESIGN:

All new construction and upgrades having an OGI requirement shall be constructed to include a sample monitoring station.

Facilities required to install OGIs and/or sample monitoring stations shall install units of approved designs on file with the City's *Construction Standards*.

If an existing undersized unit is structurally sound and installed properly, then, in lieu of replacing it with a larger unit, the owner may choose to install an additional unit in series with the existing unit to satisfy the total size capacity required.

All required OGIs shall be installed and properly maintained with all internal required plumbing of proper design and length in place at all times.

Revised 08/20/2002

Element 6: MEASURES AND ACTIVITIES

This section of the SSMP discusses the Districts operations, maintenance and other related measures and activities. This section fulfills the Measures and Activities SSMP requirement for the RWQCB (Element 6) and the Operation and Maintenance Program SSMP requirement for the SWRCB (Element 4).

6.1 Regulatory Requirements for Measures and Activities

The requirements for the Measures and Activities element of the SSMP are summarized below. Since requirements for this SSMP element contain several categories, this summary is organized by category, with RWQCB and SWRCB requirements described for each category as applicable.

Collection System Map

RWQCB Requirement: The wastewater agency must maintain up-to-date maps of its collection system facilities. The SSMP should describe the type of maps currently being used, along with procedures for updating the maps with new and rehabilitated facilities.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments, manholes, pumping facilities, pressure pipes, valves, and applicable stormwater conveyance facilities.

Resources and Budget

RWQCB Requirement: The wastewater agency shall allocate adequate resources for the operation, maintenance, and repair of its collection system. The SSMP should demonstrate that the resources are adequate for an acceptable delivery of the agency's services.

SWRCB Requirement: None.

Prioritized Preventive Maintenance

RWQCB Requirement: The wastewater agency shall prioritize its preventive maintenance activities. The SSMP should describe the system currently used for prioritized preventive maintenance and any plans, as needed, to maintain the integrity of the system and reduce the frequency of SSOs.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must describe routine preventive operation and maintenance activities by staff and contractors; including a system for scheduling regular maintenance and cleaning of the sanitary sewer system, with more frequent cleaning and maintenance targeted at known problem areas. The preventive maintenance program should have a system to document scheduled and conducted activities, such as work orders.

Scheduled Inspections and Condition Assessment

RWQCB Requirement: The wastewater agency shall identify and prioritize structural deficiencies and implement a program of prioritized short-term and long-term actions to address them. The SSMP should describe the approach currently used for scheduled inspections and condition assessment of the sewer collection system. The approach should address criteria and results for short-term and long-term prioritization of corrective actions based on identified structural or other deficiencies.

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

Contingency Equipment and Replacement Inventories

RWQCB Requirement: The wastewater agency shall provide contingency equipment to handle emergencies, and spare/replacement parts intended to minimize equipment/facility downtime. The SSMP should summarize the agency's critical spare parts inventory and list major equipment used for sewer system operation and maintenance.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must provide equipment and replacement part inventories, including identification of critical replacement parts.

Training

RWQCB Requirement: The wastewater agency shall provide training on a regular basis for its staff in collection system operations, maintenance, and monitoring. The SSMP should include a description of the agency's training program and whether any changes or improvements are anticipated in the near future.

SWRCB Requirement: As appropriate and applicable to the system, the wastewater agency must provide training on a regular basis for staff in sanitary sewer system operations, maintenance, and require contractors to be appropriately trained.

Outreach to Plumbers and Building Contractors

RWQCB Requirement: The wastewater agency must implement an outreach program to educate commercial entities involved in sewer construction or maintenance about the proper practices for preventing blockages in private laterals. This requirement can be met by participating in a region-wide outreach program.

SWRCB Requirement: None.

6.2 Element 6 Appendix

Supporting information for Element 6 is included in Appendix E. This appendix includes the following documents:

1. Agendas and minutes from Council meetings adopting the 2008 Sewer Master Plan

2. Sewer section of the City's Operation and Maintenance Program

3. CCTV defect coding system

4. Focused cleaning schedules

5. Equipment Inventory

6. Plumbers and building contractors outreach brochure

6.3 Collection System Map Discussion

The District has block book maps of their sewer and storm drain systems in pdf format, with each block book sheet covering approximately 0.25 sq. mile. Maps are printed into a map book for use by maintenance and engineering staff. Each manhole has an assigned ID based on the block book grid in which it falls. The block book maps show the manhole ID, pipe length, flow direction, and pipe diameter, as well as street names, parcels, and parcel IDs. The City also has pump station plans or as-built drawings for reference.

The block book maps are based on the City's GIS files of the sewer system, which contain some system data, including pipe upstream and downstream manholes, pipe diameter, pipe material, pipe length, pipe slope, location (street or easement), as-built plan, and comments. The database includes fields for pipe inverts, manhole invert, and manhole depth, but does not currently include data for these attributes. These GIS files were originally created in the late-1990s and are based on as-built drawings.

Additional data were developed during preparation of the Districts 2008 Sewer Master Plan. Inverts for trunk mains were taken from as-built drawings, and inverts from smaller diameter mains were derived based on pipe slopes and the elevation at the connection to the trunk. As of 2008, the additional data developed for the Master Plan are stored in GIS files separate from the City's sewer system GIS files used for mapping.

When errors are discovered on the maps, the error is noted on a printed copy of the block book map page. Pages with errors are filed by the Public Works Engineering Department, and batch updates to the GIS and map book are completed periodically. Since the City is built out, no new sewers are expected to be added to the GIS.

The City plans to have an annual CIP project to update the GIS starting in 2008/2009.

6.4 Resources and Budget Discussion

The District funds sewer system services, including operations, maintenance, and capital projects, through a sewer enterprise fund. This fund is user-supported; it uses revenue from rate payers to fund sewer-related work. The District currently has adequate resources and budget to provide sufficient operations, maintenance, and repair of the collection system as required by the SSMP, and the District re-evaluates its budget every two years.

The District prepares a formal Service & Financial Plan every two fiscal years. The most recent plan was prepared in 2008, and covers fiscal years (FY) 2008/2009 and 2009/2010. A 5-year CIP is also prepared with each Financial Plan. The Districts most recent Sewer Master Plan, completed in 2008, was not finished in time for complete integration into the formal Service & Financial Plan and 5-year CIP

The 2005 Master Plan recommendations adopted by the City also include an increase in sewer staffing from 0.25 full-time-equivalent (FTE) Associate Civil Engineer to 1 FTE Associate Civil Engineer. This additional staff will help the City meet the current workload as well as implement the CIP. As a result of this recommendation, the City hired an additional full-time Associate Civil Engineer in 2007. The City re-evaluates staffing levels every two years.

The Master Plan also recommends an additional 2.0 FTE Maintenance Workers and 0.5 FTE Maintenance Supervisor. This recommendation was based on the recommended acquisition of a mainline closed circuit television (CCTV) camera, which would require a two-person team to operate. Rather than the standard CCTV camera and trunk, the City is evaluating equipment that could be mounted on existing hydroflushing equipment and operated by existing flushing crew staff. Therefore, the recommended additional maintenance staff and supervisor may not be needed. The City plans to evaluate the need for additional maintenance staff after CCTV equipment has been selected.

6.5 Prioritized Preventive Maintenance Discussion

The District does prioritize its preventive maintenance activities. The preventive maintenance program includes scheduled focused and cyclic cleaning, root control, and regular inspection of pump stations, as well as investigation of customer complaints. The following subsections summarize the City's preventive maintenance activities. For additional information, refer to the Districts Operations and Maintenance Program, prepared annually, and Chapter 3 from the 2008 Sewer Master Plan. The portion of the Operations and Maintenance Program specific to the Sewer Division is included in Appendix E.

Sewer Cleaning

Cleaning is the primary sewer maintenance activity. The District has both frequent, focused cleaning as well as cyclic cleaning for pipes not on the focused cleaning schedule. These two cleaning programs are discussed below.

a) Focused Cleaning.

Approximately 33% of the system is cleaned and inspected each year. Cleaning frequency depends on the history and causes of stoppages or overflows on a line. Table 4-1 summarizes the total length

b) Cyclic Cleaning.

Sewers smaller than 12 inches in diameter that are not included in the focused cleaning program are cleaned on a 4-year cycle (25 percent per year). This 4-year cycle is consistent with industry standards and is achievable with current staffing levels.

Element 6: Measures and Activities Root Control

The City has a cyclic root foaming program and covers approximately one-third of the system per year.

If roots are determined to be an issue during the annual sewer CCTV project, cleaning, or response to complaints, root cutting is performed with chain flail attachments on the jetters or with mechanical cutters.

Pump Station Maintenance

City maintenance staff perform a weekly inspection of the Districts 7 pump stations from the surface (no confined space entry).

Odor Control

The District receives approximately 2 to 3 isolated odor complaints per year. The complaints are often in the area of the large lift station across from Donner Ski Ranch. The District has no official odor control program in place. When there are complaints, District crews flush the sewer lines and attempt to plug holes in the manhole lids where odors may be escaping the system.

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Investigation of Customer Complaints

The District responds to customer complaints about sewer service. Complaints are generally related to sewer stoppages, overflows, or odors. Response is performed by the collection system staff during work hours and the standby worker during after hours. Response includes assessing the complaint and resolving the problem.

The majority of the complaints are related to stoppages. During work hours, a cleaning crew is diverted to remove stoppages. Most of the stoppages occur in laterals. Although crews respond to all stoppage complaints, they are not responsible for clearing stoppages in laterals. The Districts initial response time goal is 30 minutes. During non-work hours, the District has staff on standby to address complaints.

Maintenance Management and Work Orders

The District has budgeted for and issued an RFP for a new computerized maintenance management system and sewer asset management system. The new system is expected to be implemented by 2014.

6.6 Scheduled Inspections and Condition Assessment Discussion

Manhole Inspection

As part of the focused and cyclic cleaning programs, District maintenance staff visually inspect manholes for corrosion, debris or damage around the base, cracks or holes, and condition of manhole steps.

Manhole inspection data is recorded on manhole inspection sheet and kept in binders.

Pipeline Inspection

The District has conducted several phases of CCTV inspection of its sewer pipes, beginning in 2008. The District as of 2012 has completed a contract for CCTV inspection for the remainder of its sewer system. The inspection is planned to be completed in late 2012. The specifications for this contract include a defect coding system. Although the numbering is different from the coding system developed during the Master Plan, the defect categories are similar and will allow the City to continue to consistently analyze CCTV inspection results. Appendix E includes a table of this coding system.

Pump Station Inspections and Assessment

Pump stations are inspected on a weekly basis. Weekly inspections include visual check of the equipment, manual cycling of pumps, checking and cleaning floats, recording hour meter readings, and cleaning off debris.

Pump stations are inspected extensively every two years. Extensive maintenance includes cleaning out of sump, and removing pumps for inspection and repairs if necessary.

6.7 Contingency Equipment and Replacement Inventories

The District maintains an equipment inventory. All sewer maintenance equipment and replacement parts are stored at the Districts Wastewater Treatment Plant. Equipment and replacement parts are periodically replaced based on the estimated useful and remaining life. The City keeps spare/replacement parts in inventory to minimize facility downtime in the event of an unplanned failure. Spare parts include spare manhole lids; hoses, valves, and heads for maintenance and emergency response equipment; and 6 and 8 inch diameter PVC and VCP spare pipe. District pump stations include redundant systems to reduce impacts of a failure.

Pump stations and the Districts trunk main are considered as "critical" parts of the system. Contingency equipment stored by District to support an effective response to emergency conditions include sewer bypass pumps and piping, emergency backup generator, and Vac-Con truck. The District stores the adequate inventory for responding to overflow emergencies.

6.8 Training Discussion

The District budgets for training its sewer maintenance staff each year, and the Maintenance Division has an extensive training program and will continue to review its training program to meet the demands of maintaining the sewer system.

The District encourages sewer staff to become CWEA certified, and providing training opportunities to enable all sewer maintenance staff to become and remain certified is a goal of the District. The District assists with certification by paying for the preparation course, certification exams, and required continuing education. The District also provides training tapes and manuals for employees for both work and home study. As nearly all of the District current sewer maintenance staff is certified, the current focus is on continuing education to maintain certification.

The District uses numerous outside programs, as well as providing in-house and on-the-job training for sewer maintenance crews. Training programs that the District uses are listed below:

- CWEA
- ABAG
- APWA
- Maintenance Superintendent Association
- Vendor sponsored training
- Du-All Safety training
- In-house training by supervisor and lead workers
- Safety tailgate meetings by experienced staff or vendors

For in-house training the District uses the Operation and Maintenance of Wastewater Collection Systems (by Kenneth D. Kerri). All field training is supervised by an experienced certified operator. New employees and operators work with an experienced senior operator for at least three months or until they can demonstrate competency in each skill set. Though the training listed is mainly for the maintenance crews, occasionally the training sessions are attended by the engineering staff as well.

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their agent at no cost to the District or, at the District's option, shall be removed by the District at the owner's expense. If the owner wishes to reinstall said obstruction to its preexisting condition, the owner shall be responsible for all costs associated with its reinstallation. Said reinstallation shall be subject to subsequent removals if access by the District is again required.

3.03 SANITARY SEWER INSTALLATION

Minimum Sanitary Sewer facility Standards: Facilities shall be designed so as not to pollute underground or surface waters, create a nuisance, or menace the public health or safety. The General Manager shall consult with the health officers and officials of public agencies, and from time to time, promulgate standards which may vary according to location, topography, physical conditions, and other pertinent factors.

Rain, Surface and Ground Water Drainage: No sump pump, runoff pool, receptacle, drainage area, or roof which receives or disposes of rain, surface or ground water shall be connected to any private or public wastewater disposal system.

Winter Construction: No sewer construction or excavation shall be performed during winter conditions. Determination of winter conditions shall be the sole responsibility of the District and made by the General Manager. The District shall post, at the District Administration Building, notification of winter condition requirements at least two weeks before enforcement of said conditions begins.

If allowed by the District, a trench may be excavated for installation of a sewer pipeline only when:

- The pipeline materials, including fittings, to be used are heavier walled pipe such as C900 PVC or ductile iron, and
- Imported backfill material, free of ice and snow, is used to fill the trench to within 12-inches of finished grade, with the remaining void to be filled with native material, and
- An appointment is scheduled for a visual inspection in the A.M. hours, and
- The trench is completely backfilled the same day as the initial visual inspection. Tis may require another inspection to verify completion of backfill.

Notice of Noncompliance: Whenever any construction is being performed contrary to the provisions of the District Code, the General Manager shall issue written notice to the responsible party to stop work on that portion of the construction on which the violation has occurred. No work shall proceed on that portion until corrective measures have been taken and approved by the General Manager.

Mandatory Sanitary Sewer Connections: All buildings requiring sanitation facilities, as defined in the Uniform Building Code and/or the District Code, shall be connected to the District sanitary sewer facilities when available.

Availability shall mean a public sewer with uncommitted capacity within 200 feet of the property. The further maintenance and use of septic tanks, cesspools and other on-site waste disposal facilities contained on any property within 200 feet of a District sanitary sewer, with uncommitted capacity, are hereby declared a public nuisance pursuant to Government Code Section 54352 and my be enjoined, and/or abated in a manner provided by law.

No person shall cause or permit the disposal of wastewater or other liquid waste into any drainage system which is not connected to the public sewer when such connection is required by this section.

Connection to the District's sanitary sewer facilities shall be accomplished by the owner or their agent at their sole risk and expense:

- Within 1 construction season, following written notification by the Distric, in the event the dwelling is serviced by a septic tank or other on-site waste disposal system; or

- Before occupancy of a building occurs.

The customer or user shall at his/her sole risk and expense remove form service and render harmless any and all septic tanks, cisterns, vessels or similar underground vaults in accordance with County/Town Regulations, the Uniform Plumbing Code and any state law within 30 days following the date the dwelling is connected to the District's sanitary sewer facilities. District verification and approval is required for all abandoned wastewater facilities (see Abandoned Sewers and Sewage Disposal Facilities, Section 7.16, page 39).

3.04 MULTIPLE UNITS ON SAME PREMISES

Separate houses, buildings, living or business and commercial quarters, or adjoining premises under a single control or management may be provided with sewer service, at the discretion of the District, by any of the following means:

- Through separate service connections to each unit or combination thereof,

- Though a single service connection to supply the entire premises, or any combination thereof, or units thereon, in which case the combined rate or charge may be applied by the District; such combined rates or charges to be assumed by the applicant unless otherwise modified by agreement or by the District Code.

3.05 JOINT LATERAL CONNECTIONS

A *private building lateral* used by two or more parcels is termed a "Joint Lateral." Requirements for drafting, executing, and recording a "Joint Lateral Agreement" between each of the parties sharing the private building lateral shall be as follows:

- New Construction Connecting to an Existing Private Building Lateral: Drafting, executing and recording of the Joint Lateral Agreement *is required* prior to final sewer inspection, and shall be the responsibility of the parties involved.

- Discovery of a Existing Joint Lateral Not Part of New Construction: Drafting, executing, and recording of the Joint Lateral Agreement ***is recommended*** and shall be the responsibility of the parties involved.

Through the Joint Lateral Agreement, the parties (owners) agree to share equally the operation, maintenance, and testing costs associated with the shared private building lateral. The Joint Lateral Agreement shall be written such that the agreement is binding upon the heirs, successors and assigns of each of the parcels involved.

3.06 EASEMENT ABANDONMENT

All persons requesting an abandonment of easement may incur a charge for the processing of said request. The said charge will not exceed the actual expense to the District in researching and processing such request. A non-binding estimate of expenses will be provided upon request to those desiring an abandonment of easement and such estimates shall be the basis of the required deposit.

3.07 DISTRICT RECORDS AND MAPS

The locations shown on the Truckee Sanitary District's records, maps, as-builts, etc., are believed to be accurate. The District does not warrant that all facilities are located as shown, and does not represent that all facilities are in fact shown.

3.08 LIABILITY FOR DAMAGE TO DISTRICT SANITARY SEWER FACILITIES

Prior to and whenever any underground construction is to be performed, the owner or their agent responsible for the proposed excavation shall contact the District and review the appropriate record drawings on file at the District Office.

The owner or their agent responsible for the excavation shall:

- Make such calculations, findings and conclusions as may be necessary to determine the approximate location of the District sanitary sewer facilities in relationship to the proposed excavation. In the event of conflicting positions, the District sanitary sewer facilities shall have prior rights to its location.

- Be responsible for the proposed excavation and shall explore for and expose the District sanitary sewer facilities using reasonable care. Once the District sanitary sewer facilities are exposed, the owner or their agent responsible for the excavation shall verify the clearances and compatibility of the proposed works.

- Be solely responsible for any and all damage to the District's sanitary sewer facilities regardless of the cause. This includes consequential damage due to improper pipe protection and backfill procedures.

- Call **Underground Service Alert** (1-800-642-2444) 48 hours prior to any start of excavation.

- Be responsible and liable for all costs involved in the repair of damages to any District sanitary sewer facilities caused by said work.

3.09 LOCATION OF POINTS OF SERVICE INCONSISTENT WITH DISTRICT RECORD MAPS

It is the owner or their agent's responsibility to expose the sanitary sewer sub out and determine adequate fall before installation of the building lateral and/or establishing the building finished floor elevation.

Whenever the stub out, wye, or other point of service is not located as shown on the District's "as-built" or record maps, the District shall assist the owner or their agent, to the extent reasonably possible after reasonable effort has been made by the owner or their agent to locate the stub out, in determining the location the stub out, wye or point of service by use of surface and underground pipeline detectors.

However, the District shall not be liable for the cost of equipment, excavation, time and/or labor expenses incurred by the owner or their agent in determining the location of stub-outs, service laterals, wye's or other District sanitary sewer facilities, whether existing on nonexisting.

3.10 Nonexisting Laterals, wye's and/or Points of Service Shown on Record Maps

Before a stub out, wye or point of service which is shown to exist on District maps is determined to be "nonexistent," the person attempting to locate the service lateral connection point shall contact the District for assistance. The district shall not be liable for any expense, equipment, excavation and/or labor incurred by any person in determining the existence or the "nonexistence" of any stub out wye, point of service and/or other facility.

When the district has previously been provided with "as-built" or record maps, and the General Manager has made a determination that no service lateral, wye, or point of service exists as shown on the "as-built" or record maps, the General Manager may:

- Waive any applicable sewer main tapping fee.
- Install or cause to be installed a service lateral at the District's expense, provided ther is a sewer main servicing the properly with uncommitted capacity.

3.10 TIME LIMITS

Any time limit provided for in the District Code may be extended by mutual written consent of both the District and the permittee or applicant, or other person affected.

4. APPLICATION FOR SEWER PERMIT, RESIDENTIAL

4.01 WILL SERVE LETTER

A Will Serve Letter for an individual parcel may be issued by the District at the request of the owner or their agent. The purpose of the Will Serve Letter is to provide an owner or their agent assurance that the District has sufficient capacity to provide sanitary sewer service for the parcel. Each Will Serve Letter is issued based on a "statement of facts" provided by the owner or their agent on the date of that issuance. The statement of facts is simply the planned use of the parcel with respect to sanitary sewer flows, including type, concentration, and amount of waste to be discharged into the District's sanitary sewer system.

Any change in the statement of facts from the date the Will Serve Letter was issued may impose a different or greater demand upon the District's sanitary sewer system. The District shall be notified of any change in the statement of facts. Failure to do so is a violation subject to penalties as provided by Section 6523 of the Health and Safety Code.

The Will Serve Letter in addition to all other terms and conditions required by the District, shall not provide any unconditional guarantee, priority or reservation of capacity, but that the owner their agent or subsequent purchaser must provide information and sign a

Receipt for Collected Fees and Deposits for the purpose of acquiring an Application for Sewer Permit prior to initiation of any sanitary sewer improvements. The reception of a Will Serve Letter provides that such Application for Sewer Permit will be issued by the District solely upon a first come, first served basis and only to the extent there is then remaining available capacity in the physical facilities for conveyance and treatment. The Will Serve Letter also provides that District services such as plan check review, field visits, and inspections will be authorized only after an
Application for Sewer Permit has been issued, and only upon payment of all then applicable deposits, fees and charges and in accordance with and subject to all then applicable District requirements.

4.02 APPLICATION FOR SEWER PERMIT

The owner or their agent desiring to connect to the sanitary sewer shall be required to provide, in person, information and sign a Receipt for Collected Fees and Deposits for the purpose of acquiring an Application for Sewer Permit. The District shall provide the Application for Sewer Permit, indicating thereon the information to be furnished by the owner or their agent. The District may require, in addition to the information furnished by the printed form, any additional information, specifications, and improvement plans from the applicant which will enable the District to determine that the proposed work or use complies with the provisions of the District Code.

All applicable fees and deposits are required upon submittal of an Application for Sewer Permit.

The Application for Sewer Permit must be made in person by the owner or their agent. A valid, signed building permit for the permanent residence, issued by the appropriate agency, is required upon submittal of an Application for Sewer Permit.

An Application for Sewer Permit shall be issued on a first come, first served basis, and shall be valid for one year.

Except by special agreement with the District, no customer or user of the District's sanitary sewer system shall connect, or permit any other person to connect additional sanitary sewer facilities other than those specified in the statement of facts and/or the Application for Sewer Permit.

4.03 EXCESSIVE PROJECTED WASTE FLOWS

Any owner or their agent proposing to have wastewater discharged from any property to the District's sanitary sewer system in quantities, or at a rate greater than the capacity for which the sewer was designed, when such additional quantity will immediately overload the sewer, shall be denied the right to discharge more than the proportionate share allotted to the property. If, however, the capacity will not be exceeded immediately, but will be exceeded sometime in the future, the General Manager may enter into an agreement with the property owner to permit connection to the sewer. Such agreement shall be in a form acceptable to the District and shall include, at a minimum:

- A covenant requiring the owner to construct, cause to be constructed, or share in the cost of constructing improvements to the sewer system in order to enlarge the capacity of the sewer at such future time as the General Manager determines.

- A provision binding subsequent owners of the property.

- A bond or other form of security acceptable to the General Manager to guarantee compliance with the terms of the agreement.

5. APPLICATION FOR SEWER PERMIT, COMMERCIAL

5.01 WILL SERVE LETTER

A Will Serve Letter for an individual parcel may be issued by the District at the request of the owner or their agent. The purpose of the Will Serve Letter is to provide an owner or their agent assurance that the District has sufficient capacity to provide sanitary sewer service for the proposed commercial project on the parcel. Each Will Serve Letter is issued based on a "statement of facts" provided by the owner or their agent on the date of that issuance. The statement of facts is simply the planned use of the parcel with respect to sanitary sewer flows, including type, concentration, and amount of waste to de discharged into the District's sanitary sewer system.

Any change in the statement of facts from the date the Will Serve Letter was issued may impose a different or greater demand upon the District's sanitary sewer system. The District shall be notified of any change in the statement of facts. Failure to do so is a violation subject to penalties as provided by Section 6523 of the Health and Safety Code.

The Will Serve Letter for sewer availability, in addition to all other terms and conditions required by the District, shall not provide any unconditional guarantee, priority or reservation of capacity. The reception of a Will Serve letter provides that sanitary sewer service is solely upon a first come, fist served basis and only to the extent there is then remaining available capacity in the physical facilities for conveyance and treatment. The Will Serve Letter also provides that District services such as plan check review, field visits, and inspections will be authorized only upon payment of all then applicable deposits, fees and charges and in accordance with and subject to all aen applicable district requirements.

5.02 APPLICATION FOR PLAN CHECK REVIEW

The owner or their agent desiring to connect to the sanitary sewer shall be required to meet the requirements of Plan Check Review as outlined by the District. The District shall provide a Plan Check Review checklist form, indicating thereon the information to be furnished by the applicant. The district may require, in addition to the requirements of the printed form, any additional information, specifications, and improvement plans from the applicant which will enable the District to determine that the proposed work or use complies with the provisions of the District Code.

A plan Check Review deposit, as outlined in Appendix A-1, page 67 is required upon submittal of project plans. Two sets of project plans, showing all proposed sanitary sewer facilities, are required for Plan Check Review.

A Request for Plan Check Review shall be issued on a first come, first served basis. Improvement plans are not approved until signed by the General Manager. Improvement plans approved as acceptable to District Code requirements within Plan Check Review are authorized for construction, provided all deposits, fees, and charges are paid as detailed on Appendix A-1, A-2, A-3, and A-4, pages 67, 69, 71, and 73.

Project improvement plans approved by the District that are not constructed within 2 years of signature approval by the General Manager shall be subject to existing District Code requirements and may require additional Plan Check Review by the District.

Any change in the drawings with respect to the sanitary sewer after Plan Check approval is granted involving design changes to the sanitary sewer system, more construction, or an increase in the number of units, hookups, taps, or fixture units than that for which the Plan Check approval was issued shall be considered an unauthorized usage and is prohibited until an additional review is completed, permission to proceed is granted, and all appropriate deposits, fees and charges are paid.

Except by special agreement with the District, no customer or user of the District's sanitary sewer system shall connect, or permit any other person to connect additional sanitary sewer facilities other than those authorized within the Plan check Review process.

5.03 TRANSFER OF TITLE OF A PARTIALLY COMPLETED PROJECT

A person or party to which Plan Check approval has been issued may transfer title of a partially completed project to another person solely for the same lot or premises for which the Plan Check approval was issued, subject to all terms and conditions under which the Plan Check approval was issued. The transferee shall meet all requirements of the District relating to the transfer. The usage of Plan Check approved improvement plans for a lot or premises other than the lot or premises for which the approved improvement plans were issued shall be considered an unauthorized usage and is prohibited.

Prior to the transfer of the title for the title for the same lot or premises, the District shall inspect the lot or premises for which the Plan Check approval was issued. The purpose of this inspection shall be for the District to verify that the amount of construction and the number of units, hookups, taps, fixture units and facilities had not increased from that authorized by the Plan Check approval.

The district may require that the permittee or applicant first provide a revised set of improvement plans showing the different design and pay all deposits, fees and charges required by the District. These requirements are in addition to other requirements or limitations imposed upon the usage of permits as set forth in the District Code.

5.04 EXCESSIVE PROJECTED WASTE FLOWS

Any owner or their agent proposing to have wastewater discharged from any property to the District's sanitary sewer system in quantities, or at a rate greater than the capacity for which the sewer was designed, when such additional quantity will immediately overload the sewer, shall be denied the right to discharge more than the proportionate share allotted to the property. If, however, the capacity will not be exceeded immediately, but will be exceeded sometime in the future, the General Manager may enter into an agreement with the owner to permit connection to the sewer. Such agreement shall be in a form acceptable to the District and shall include, at a minimum:

- A covenant requiring the owner to construct, cause to be constructed, or share in the cost of constructing improvements tot he sewer system in order to enlarge the capacity of the sewer at such future time as the General manager determines.
- A provision binding subsequent owners of the property.

- A bond or other form of security acceptable to the General manager to guarantee compliance with the terms of the agreement.

5.05 LARGE LAND DEVELOPMENTS

Large land developments that require connection to the District's sanitary sewer system may require the owner or their agent to enter into an improvement agreement with the District outlining the terms and conditions applicable to the particular project.

5.06 WHEN APPLICATION FOR SEWER PERMIT NOT REQUIRED

The provisions of this Division requiring an Application of Sewer Permit shall not apply to sewer contractors constructing public sewers and appurtenances under contracts awarded by the Board of Directors.

6. FEES AND CHARGES

6.01 DEPOSITS AND REFUNDS

Any person requesting permission to construct facilities in accordance with Section 4 and 5, shall pay deposits in advance to the District to cover actual fees, charges and costs to be incurred by the District that are associated with said permitting process and the construction of sanitary sewer facilities in accordance with the District Code, and as detailed an Appendix A-, A-2, A-3, and A-4, pages 67, 69, 71, and 73.

The deposits received by the District for services as provided by the District Code shall be identified by applicant and by project. The status of the funds on deposit shall be reconciled monthly by the District and copies of such reconciliation shall be made available to the applicant upon request. In the event of a pending or projected shortfall, the District shall provide written notice to the applicant stating the amount of supplemental deposit that must be provided and terms or conditions that may in the opinion of the General Manager, be appropriate.

The unused portion of all funds remaining on deposit with the District shall be returned to the applicant without interest, upon completion of plan check review, connection to the District sanitary sewer system, or cancellation of the permit.

6.02 RESIDENTIAL PLAN CHECKING AND INSPECTION FEES

Plan Check Review: The District shall review the improvement plans, with respect to the sanitary sewer, of all proposed commercial projects. This includes, but not limited to, proposed subdivision, retail businesses, apartments, condominiums, office buildings, motels, food establishments, etc.

6.03 COMMERCIAL PROJECT APPLICATION FEES

Plan Check Review: The District shall review the improvement plans, with respect to the sanitary sewer, of all proposed commercial projects. This includes, but not limited to, proposed subdivisions, retail businesses, apartments, condominiums, office buildings, motels, food establishments, etc.

Prior to Application for Sewer Permit for a commercial project, the applicant shall submit two sets of improvement plans (no Photocopies) to the District for Plan Check Review to assure compliance with District requirements. Prior to the District performing the Plan Check Review, the applicant shall pay a deposit to the District a specified in appendix A-1, page 67 of the District Code from which Plan Check Review fees will be charged.

Commercial Project Deposit: After Plan Check Review has been completed and approval of the improvement plans for sanitary sewer facilities have been granted, the applicant shall:

- Provide the District with a signed Grading Permit or Building Permit issued by the appropriate agency, and

- Deposit with the District a sum of money estimated by the General Manager to cover the cost of construction inspection, testing of materials, processing of design revisions, procuring or preparing record improvement plans, estimated connection fees, user fees, assessments, related construction activities, automobile mileage, and all overhead and indirect costs.

The signed Grading Permit or Building Permit shall be submitted to the District, and the Commercial Project Deposit shall be paid prior to inspection of the sanitary sewer facilities by District personnel. The General Manager's estimate shall be based on the best information available, including the owner's and their engineer's estimate of the cost of the facilities to be constructed. The deposit estimated by the General Manager will be based on reasonable periods of time for the completion of the contractors work.

The Application for Sewer Permit is issued upon payment of the Commercial Project Deposit.

6.04 CONNECTION FEES

Payment of sewer connection fees is the responsibility of the owner of the property, regardless of who is deriving benefit from, submitting payment for, or receiving sewer service as a result of the connection. Connection charges are non refundable unless the Applicant for Sewer Permit is canceled prior to final connection approval by the District.

- Residential connection fees are determined in accordance with Appendix A-2, page 69. Initial Connection fees are due and payable upon Application for Sewer Permit. Additional connection fees shall be assessed for any increase thereafter in the factor rating of the property.

- Commercial and industrial connection fees shall be determined in accordance with Appendix A-1, A-2, A-3, and A-4, pages 67, 69, 71, and 73. Estimated Connection fees are estimated based on the factor rating as determined by the Plan Check Review. Appendix A-2, page 69, equates a single family living unit to 15 plumbing fixture units. Initial connection fees are included in the Commercial Project Deposit. Additional connection fees shall be assessed for any increase thereafter in the factor rating of the property.

Buildings which existed within the boundaries of the District on or before April 15, 1977, and were served by septic tanks until tied into the system, will be exempt from the regular connection charge applicable at the time the building is connected to the system for the factor rating, at the time of connection. This exemption is provided only when such connection is made within 1 year from the time sanitary sewer service becomes avalable

to the property. An accessible sewer within 200 feet of the property will generally fulfill the definition of availability. The sewer allocation provided for the fore-mentioned buildings is neither refundable nor transferable.

6.05 Assessments

Specific parcels of land within the District may be included in Special Assessment Districts and Benefit Assessment Areas formed to finance or to buy-back the costs for the sanitary sewer facilities serving said parcel(s). Parcels within the area to be serviced are evaluated and assigned "Dwelling Unit Equivalent" (DUE) factors, from which design and capacity is determined. By District standards, a dwelling unit equivalent is a sewer service that provides domestic strength wastewater at a rate not to exceeding 230 gallons per day. A dwelling unit equivalent may also be defined as the Nevada County permitted land use of any given parcel expressed in single family densities.

Parcels may be assessed, based on buildable acreage and the number of DUE's the parcel could support as indicated by the zoning.

6.06 Billing of User Fees

Each lot or premises which are connected to, and each owner or customer receiving sewer service from the District shall pay a periodic user fees in accordance with the Truckee Sanitary District Fee Structure set forth in the appendices. These rates remain effective April 15, 2000. These schedules provide an appropriate additional administrative and overhead charge for users from whom the District does no receive property tax monies.

All sere use, service charges and fees may be billed on the same bill and collected together with fees and charges for any other District cervices. Except as provided herein, estimated user fees are included in the Application for Sewer Permit deposits. The User fees will be billed semiannually in advance, on January 1 and July 1 of each year, and shall become due and payable 30 days from the date of that billing statement. In the event of delinquency, a 10 percent penalty shall be added to the balance due. The District shall include a statement on its bill to each customer or owner, or shall provide such statement to each owner by any other means, that any charges remaining delinquent for a period of 30 days shall constitute a lien against the lot or parcel of land against which the charges were imposed. The District shall provide Notice of Public Hearing pursuant to Section 6066 of the Government Code to each affected owner. After Public Hearing, the District will request by resolution, that the County Auditor include the amount of said delinquencies on the property tax bill against the respective lot or parcel. Once the transfer of delinquent amounts has been turned over to the County Auditor's office for collection, no payment shall be received by the District on said delinquent amounts except as paid to the District by the County Auditor's office.

User fees shall be billed to the owner of the property served. The payment of user fees shall be the responsibility of the owner of the property regardless of who is deriving the benefit from, submitting payment for, or receiving the sewer service as a result of the connections. Each owner shall be liable to the District for payment of sewer charges and fees, regardless of whether service is provided through as individual service lateral or multi customer service lateral.

The District may elect to send a composite bill to groups of customers when each of the following conditions are met:

- the owners to be billed as a group own lots or premises in a multi unit living building,
- the owners have formally organized in writing into a homeowner's or similar association,
- the homeowner's or similar association, through properly executed covenants, conditions, articles of incorporation or by laws, has the power to act as the sole agent for the owners concerning sewer charges in a manner which binds individual owners.

Providing the above conditions are met, the District may bill to and the association shall pay all delinquent penalty and interest charges on the composite bills. The composite bill or other notices to the association shall constitute a bill or other notice to each individual owner or customer, who shall agree that no other notice or bill to individual owners or customers shall be necessary for, or a prerequisite to, the District's exercise of its powers to terminate service, or place liens on each owners' property or exercise other legal remedies necessary to collect delinquent bills and charges. The composite bill shall consist of the sum of the total semiannual sewer charges for each owner or customer represented by the association. Service to a common area shall be treated as service to a single unit.

6.07 ANNEXATION FEES AND CHARGES

Annexation fees and charges as detailed in Appendix A-1, page 67, are required for all areas outside of the District boundaries applying for annexation to the District on or after the effective date of the District Code.

The annexation fees shall be due and payable on the date of any such annexation approval by the District and payment shall be a condition of said approval. Non-monetary conditions of annexation shall be specified in an annexation agreement executed between the owner(s) and the District prior to the Local Agency Formation Commission hearings and approval of the proposed annexation.

The owner or their successor in title or interest of any such parcel or lot as herein described shall be responsible for payment of the annexation fee provided in this section.

The Clerk or other designated official of the District shall receipt the payment of all such annexation fees and shall record the name of the payor and a description of the parcel to which such payment is applicable. A record of all such payments shall be maintained by the district, including the date and amount of payment, the name of the payor, their mailing address, and a description of the parcel, or lot, to which such payment or payments are applicable.

6.08 FEES FOR PREPARING AND/OR REVIEWING SPECIAL DOCUMENTS

Before proceeding with the preparation of any special study Environmental Impact Report, or related document, the General Manager shall collect from the person making the request a deposit in the amount determined by the General Manager to be fair and equitable. If, after the fee is paid, a change in the study or documents is requested which will increase the cost to the District, supplemental fees shall be collected in the amount of the estimated additional cost.

6.09 PENALTIES ON UNPAID CONNECTION FEES

In the event that any connection charges are not paid within 30 days of the date of invoice, a basic penalty of 10 percent shall be added to such unpaid connection charges. The owner may request, in writing, to extend payment of additional connection charges over a 12 month or lesser period. The request may be granted upon approval of the General Manager.

6.10 DELINQUENT ACCOUNT PENALTY FEE

Any owner whose account is found to be delinquent shall be assessed a basic penalty of 10 percent of the delinquent amount.

6.11 RETURNED CHECK FEE

A fee may be required by the District for each check tendered as payment to the District that is returned unpaid. Future payments made to the District may be required to be in the form of cash, a Cashiers Check or a money order.

6.12 BILLING BASIS FOR USER FEES

The District shall use a flat rate billing basis, based on the billing factor units of the user as determined by the General Manager, and in accordance with Appendix A-2, page 69, and A-3, page 71.

6.13 INITIAL BILLING OF USER FEES

User Fees shall be based on estimated flow derived from information supplied on the Application for Sewer Permit and additional information as may be available to the General Manager. Billing shall commence on the first day of the month following the date that the seal cap is removed by authorized District personnel and/or the sewer connection is inspected and approved by the District, or when usage commences, whichever occurs first.

6.14 BILLING ADJUSTMENTS

An adjustment of user fee charges will be made when the District is notified of a change in use, when the District discovers a change or when the change is made. Any amount paid in excess of the actual computed user fee charge shall be credited against the account. Any deficiency in the amount paid and the actual computed user fee charge shall be added to the account.

Deficiencies or credits may not be made for a period more than 2 years prior to the date the General Manager determines that a billing discrepancy exists, except in the event of an unreported connection or discharge, in which case all charges and fees shall be assessed under Section 6.16, page 25.

Periodically, there are changes in the sewer use of property which affects the factor rating. The District will notify the owner in writing of these changes and of any possible reduction or increase in the factor rating.

- Increased Factor Rating: The owner, upon written notification by the District of an increase in the factor rating, may choose to remove the additional plumbing fixtures

to avoid increased connection and user fees. Removal of the additional plumbing fixtures must be completed by the owner and verified by the District within 30 days of the written increased factor rating notification.

- Reduced Factor Rating: The owner may elect to pay lesser user fees for the lower factor rating by signing an Agreement for the Reduction of District Factor Rating. In Accordance with this agreement, the factor rating for the property shall be reduced and all rights to the allocations which have been reduced shall be forfeited by the owner. Connection charges shall be assessed for any increase thereafter in the sewer capacity of the property which is represented by any subsequent increase in its factor rating. The owner may elect to continue paying the user fees for the higher factor rating of a property with no reduction and thereby not forfeit all rights to the allocations for the higher factor rating.

In the event of a disaster, adjustments to billing may be made as specified in Secton 2.03, Disasters, page 3.

6.15 COLLECTION REMEDIES

Remedies for collecting and enforcing user fees and connection charges set out by the District Code are cumulative. Any and all remedies may be used alternatively. None of the remedies are Delinquent charges for sanitary sewer service together with all penalties thereon, when recorded as in Chapter 6, Division2, of the Government Code of California shall constitute a lien upon the real property served and such liens shall continue until the charges thereon and penalties thereon are fully paid or the property sold therefore in the manner more particularly provided in Sections 54354, 54354.5 and 54355 of said Government Code of California.

Delinquent charges for sanitary sewer service together with penalties thereon, which remain delinquent as of June 30 of each year shall be collected in the same manner as the general taxes for the District for the forthcoming fiscal year provided that the District shall give notice as provided by law.

Delinquent charges, together with all penalties thereon, may be collected by an action in any court of competent jurisdiction against a person or persons who owned the property when the service was rendered for the collection of all delinquent charges and penalties.

An action may be instituted in any court of competent jurisdiction to enforce any lien on the land for the user fees and connection charges together with all penalties thereon.

Reasonable attorneys' fees and court costs of any action in any court for collection of user fees, together with any penalties thereon, or for a preliminary or permanent injunction, or for the issuance of an order stopping or disconnecting sanitary sewer service, or to enforce a lien, shall be an additional charge for such sanitary sewer service.

If sewer service is furnished by the District to the real property and is disconnected for unpaid charges, re-connection shall not be made until all user fees and connection charges including penalties and disconnection and re-connection charges have been paid to the District.

6.16 UNREPORTED CONNECTIONS AND DISCHARGES

An unreported connection is a connection which has not been inspected and approved by the District. An unreported discharge is a discharge on property previously connected to

the public sewer system that increases the factor rating and/or fixture unit use on the property or for which all applicable charges have not been paid.

Upon discovery of unreported connections or unreported discharges to the sewer system which increase the factor rating or fixture units of the property or for which an Application for Sewer Permit has not been issued or for which user fees have never been paid, the District shall charge all current user fees, and current connection charges and fees, including all basic penalties and additional penalties thereon, from the time the unreported connection or discharge was made. All such charges and fees shall be deemed to be user fees, including all current connection charges and all service charges and penalties thereon retroactive to the date of the unreported connection.

Connection charges and service charges shall be assessed by the District for any unreported connections and unreported discharges at the time of discovery by the District.

6.17 COLLECTION OF DELINQUENT ASSESSMENT DISTRICT BONDS

For any applicable period, when property taxes for a parcel within Sewer Assessment District No. 6 (SAD 6) become delinquent with the County Tax Collector, the portion of the unpaid tax assessed for SAD 6 Sewer Bonds remains as a lien against the property, until such time said assessment, penalties, interest and fees, are collected by the District. An unpaid SAD 6 assessment is subject to liens against the subject property and a judicial foreclosure lawsuit initiated by the District on behalf of SAD 6 Bondholders, to collect all amounts due.

7. INSTALLATION OF SANITARY SEWER FACILITIES

7.01 CONNECTION POLICY

Connection of the building lateral 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.
- The structure shall be rough framed and the roof sheathed.
- The rough plumbing shall be tested and approved by the appropriate building department.
- All test/flush water shall be removed from the building waste piping and disposed of. Test/flush water shall not be disposed of into the sanitary sewer.
- The building lateral shall be installed, backfilled, and tested in accordance with District Code requirements.

7.02 ALTERNATE CONNECTION OPTION

In certain situations the owner or their agent may choose to install the building lateral and corresponding sanitary sewer facilities (manholes, wastewater holding tanks, discharge pipelines, temporary trailer lateral, etc.) before construction of the structure. The building lateral and corresponding sanitary sewer facilities may be installed, backfilled, and tested

before the structure is rough framed and roof sheathed if the following conditions are met:

- A seal cap deposit is paid to the District in the amount specified by Appendix A-1, page 67.
- The building lateral and corresponding sanitary sewer facilities must be installed, backfilled, and tested in accordance with District Code requirements.
- The building lateral must be sealed with a District furnished seal cap and numbered seal. ***Important, see warning below concerning removal of numbered seal and seal cap!***
- Rough plumbing is not to be connected to the building lateral. Before connection, the structure's roof shall be sheathed, the rough plumbing shall be approved by the appropriated building department, and all test/flush water shall be removed from the building waste piping and disposed of to an area other than the sanitary sewer.
- 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.

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 penalty of $500.00 as specified in Appendix A-1, page 67. **This penalty 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 PENALTY
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 sewer lateral has 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 pipeline 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.

7.03 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.

7.04 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 77.

RESIDENTIAL BUILDING LATERAL: *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. 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 10.3, PAGE 50. IF THE EXISTING 4-INCH BUILDING LATER 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 collar type as recommended by the manufacturer and shall pass the district's inspection and required tests.

7.05 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, or 16, pages 167, 169, or 171.

All encroachment permits and/or easements necessary for trenching shall be the responsibility of the owner or their agent, and shall be delivered to the District prior to inspection of pipeline installation.

The surface of ground or pavement of any public road or other public way intercepted or in which trenching work has been performed, shall on completion of backfilling, be restored as nearly as practicable to the condition it was prior to trenching.

7.06 MINIMUM PIPELINE COVER REQUIREMENTS

A minimum of 30 inches compacted earth fill 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 75.

7.07 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 thet each joint of pipe will have as 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 slope for pipelines greater than 6 inches in diameter are listed in Appendix A-6, page 77.

7.08 BACKFILLING BUILDING AND SERVICE LATERALS

The native soil in the trench bottom shall be compacted to 90 percent relative compaction before placement of Class 1 Backfill for pipeline bedding. Class 1 Backfill shall meet the gradation requirements listed in Appendix A-6, page 77. 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, or 16, pages 167, 169, or 171, 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, or 16, pages 167, 169, or 171.

Material for Class 1, Class 2, Class 3, and Class4 Backfill, as listed in Appendix A-6, page 77, 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, or 16, pages 167, 169, or 171. 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 heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 Backfill if the substitution is approved by the District inspector **prior** to placement of Class 4 material. If Class 4 Backfill material is substituted for Class 1 material, filter fabric must be placed on 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 Block, Figure 17, page 173.

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.

7.09 INSTALLATION OF 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, 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.

All cleanout risers must be installed 8 inched below finished grade and boxed to finished grade with an appropriate removable watertight plug in the end of the riser. 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. Cleanout risers and appropriated boxes are required at the property line cleanout and at the cleanout installed nearest the building. Cleanout boxes shall be constructed of concrete with cast iron lids for vehicular traveled areas and designated snow removal/storage areas, or reinforced plastic with snap-on or locking lids for non vehicular areas. 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 <u>not</u> permitted. See Standard Drawings, Lateral Cleanout Assembly, Figure 10, page 159.

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.

7.10 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 though 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.

7.11 TRACER WIRE ON BUILDING SEWER LATERALS

Building lateral 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, then continue along the pipeline route to the property line cleanout. The tracer wire shall be tested for continuity following backfill.

7.12 SEWER LATERAL TESTING

All new building laterals shall be tested by either an air or water method, at the discretion of the District. The test section shall be from the wye at the service lateral connection point to the building cleanout, 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.

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.

Once the backfill is complete and the cleanout boxes are installed, the new building lateral shall be tested in accordance with one of the following:

- Air Testing consists of plugging each end of the building lateral and applying a pressure of 3.5 pounds per square inch to the section under test. The pipeline shall be allowed a maximum loss in pressure of ½ pound per square inch in 5 minutes. If the loss exceeds ½ pound per square inch, the test may be attempted one additional time. A second loss of pressure constitutes a failure of the pipeline.

- Water Testing consists of plugging the downstream end of a building lateral, placing a section(s) of 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 case 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.

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

7.13 TESTING OF MANHOLES, GREASE INTERCEPTORS, SAND/OIL INTERCEPTORS

Testing shall be in accordance with one of the following:

- Water test by plugging all inlet and outlet pipes and filling the test section with water to the top of the frame rim. The water should be introduced into the test section at least 4 hours in advance of the official test period to allow the concrete and joint material to become saturated. The test section shall then be refilled to the original water level.

At the beginning of the test, the elevation of the water in the test section shall be carefully measured from a point on the frame rim. After a period of 4 hours, the water elevation shall be measured from the same point on the frame rim and the loss of water during the test period calculated. If this calculation is difficult, enough water shall be measured into the test section 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. Manholes, Grease Interceptors, and Sand Oil Interceptors showing leakage in excess of that allowed shall be repaired or reconstructed as necessary to reduce the leakage to that specified. All failures shall be retested after the necessary repairs have been completed.

Vacuum test by using acceptable equipment approved by the District. Vacuum test equipment shall be used per the manufacturers specifications. A vacuum of 10-inchers mercury should de 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.

7.14 RESIDENTIAL/SMALL COMMERCIAL PUMP SYSTEMS

For all building sites in which the improvement plans designated 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 Sewer Lateral Testing, Section 7.12, page 32, 33. 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 7.11, page 32.

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 ¼ inch minimum vent line. The tank 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 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 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 and 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 alarm system power shall be supplied through a dedicated circuit, separate 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.

Discharge Piping – the discharge pipeline shall be ductile iron, polyvinyl chloride (PVC), polyethylene, 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 diameter minimum and not be of a size smaller than the pump discharge port. The discharge pipeline shall be fitted with an approved pressure rated sewer check valve and a gate valve. The discharge pipeline shall also include a ¼-inch pressure test port located between the check portion of the check valve and the gate valve. The gate valve shall be located on the discharge side of the check valve. Both valves and the test port shall be located as close to the pump or holding tank as possible and in such a manner that they are accessible for operation and for maintenance or repairs. It is recommended that valves are installed with unions and boxed to grade.

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 te tested for continuity following backfill.

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 Installation of Cleanouts, Section 7.09, 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 the Sewer Lateral Testing, Section 7.12, page 32.

A visual inspection shall be performed to check for 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 pressure tested with air or water to a pressure of 150 percent of the calculated maximum possible working pressure (the Total Dynamic Head, or 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 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, manhole, and grease and sand oil interceptors. If the converted septic tank fails the test, it shall be abandoned in accordance with Abandoned Sewers and Sewage Disposal Facilities, Section 7.17, 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 form the above stated requirements shall be approved in writing by the General Manager.

7.15 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 the agreement is to allow the owner to receive a Town of Truckee/ Building Division 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.

7.16 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.
- Pay a $100.00 fee for administrative costs.

Once the above administrative requirements are competed, 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 bave 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 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 ¼ 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 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 properly 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 for a maximum of 1 year, 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.

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.

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 trech shall be completely backfilled. The seal cap shall be removed and the house sewer lateral retested as required by the District Code.

7.17 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. This 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 strop 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 therefrom 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 no limited to:

packing establishments	slaughter houses
canneries	

or commercial facilities such as, but not limited to:

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

where any grease or other objectionable materials may be discharged into a public or private sanitary sewer system shall have installed on the premises an appropriately sized grease interceptor or grease trap as required by Chapter 7, Uniform Plumbing Code.

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

- **Industrial –** commercial facilities as defined in sections 709 and 710 of the Uniform Plumbing Code, and those facilities designated by the General Manager.

- **High Volume** – full menu type establishments operating more than 16 hour 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.

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 equipment in the above-mentioned types of establishments which may contain grease or thor abjectionalble materials, including, but not limited to, scullery sinks, pot and pan sinks, dishwashers, food waste disposal, soup kettles, etc., and floor drains located in areas where such objectionable materials may exist, may be drained into the sanitary waste though 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.**

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 abailable for review by District personnel at all times.

8.02 GREASE INTERCEPTORS

Industrial facilities and High Volume food establishments as defined in Commercial Food Establishments, Section 8.01, page 41, are required to install a grease interceptor. Medium 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 24, page 187.

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.

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 the inlet pipe only. Interceptors shall be so designed that they will not become air bound. Each interceptor shall be properly vented, as required by Section 708(d), 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.

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

8.03 GREASE TRAPS

Small Volume food establishments as described in Commercial Food Establishments, Section 8.01, page 41, may choose to install a grease trap in place of a grease interceptor. Medium Volume food establishments, after careful review of UPC requirements based on actual or estimated waste flows, may also be allowed to install a grease trap in lieu of a grease interceptor.

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 location 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 than 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 a approved rate of flow, expressed in gallons per minutes, which is not less than 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 approved 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. No 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. No mechanical grease trap shall be allowed.

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 25, page 189).

The inlet and outlet sewer piping shall conform to District specifications. The sewer outlet pipe shall have a downward pointing 90-degreee 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.

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 vehicles traffic areas shall be capable of withstanding an H-20 axle load.

District personnel will periodically schedule inspection 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 ve 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. Potable 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 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 construction, reconstruction or related work to be performed on the premises costing more than $5000.00;
- 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.

9. INSPECTION

9.01 PRE-INSPECTION REQUIREMENTS

All work completed under the provisions of the District Code shall be subject to inspection by and shall meet the approval of the General Manager provided; however, approval by the General Manager shall not relieve the owner or their agent or any other person from complying with any other applicable law or ordinance.

Residential: All applicable fees and deposits must be paid and an Application for Sewer Permit must be issued before scheduling and receiving an inspection by District personnel. District personnel shall inspect all sanitary sewer facilities installation for compliance with all requirements of the District Code.

Commercial: All applicable fees and deposits must be paid, the District Plan Check Review completed, and if applicable, an Application for Sewer Permit issued before scheduling and receiving inspections by District personnel. An Application for Sewer Permit is not required for developments involving land subdivisions subject to the Subdivision Act. District personnel shall inspect all sanitary sewer facilities installation for compliance with all requirements of the District Code.

9.02 REQUEST FOR INSPECTION OF SANITARY SEWER FACILITIES

The owner or their agent shall notify the District at least two business days prior to the time any inspection is to be made, unless a full time inspector representing the District is assigned to the project.

9.03 CONDITIONS REQUIRED AT TIME OF INSPECTION

At the time of the inspection, the owner or their agent shall have all work uncovered and convenient to facilitate the inspection. The owner or their agent shall provide and make available, to the inspector, any necessary special equipment and/or facilities to accomplish a thorough and complete inspection of the work. No inspections of sanitary sewer facilities will be made if the inspector's view of the facilities is blocked or obscured. The owner or their agent shall, at their sole cost, remove all materials, equipment, backfill and other objects, at the direction of the inspector, so as to facilitate the inspection.

9.04 CORRECTION OF DEFECTIVE WORK

If the construction/installation of sanitary sewer facilities does not conform to the provisions of the District Code, the District shall issue a Notice of Sewer Inspection, in writing, to notify the owner or their agent concerning the defective construction/installation. The owner or their agent shall correct the defective construction/installation before subsequent inspection by the District. If the owner or their agent fails to comply and correct the items listed on the Notice of Sewer Inspection, the Application for Sewer Permit may be suspended and/or revoked in accordance with the provisions of the District Code.

9.05 FACILITIES NOT TO BE USED PRIOR TO FINAL INSPECTION

No sanitary sewer facility constructed under the provisions of the District Code shall be placed in use until the work has been approved by the District and a Certificate of Final Inspection has been issued. Deviations from this requirement may be made only when the work is substantially complete and has been inspected and found to be in conformance with the provisions of District Code. The General Manager shall make a determination, in writing, that the best interest of the public will be served by permitting such use prior to the completion of the total work under consideration.

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 system 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 ower 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 or 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 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, 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), 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

(f) prior 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) in inspection by the District indicates reasonable cause, or

(i) upon a 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 and air or water method, at the discretion of the District.

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.

Testing shall be in accordance with one of the following (Note: test failures of non–metallic asphaltic composite pipe shall require entire replacement of the defective pipeline. Installation and testing of the new pipeline shall be in accordance with Section 7, Installation of Sanitary Sewer Facilities, Page 27):

- Air test consisting of plugging each end of the pipeline and applying a pressure of 3.5 pounds per square inch to the section being tested, The pipeline shall be allowed a maximum loss in pressure on ½ pound per square inch in 5 minutes. If the loss exceeds ½ pounds per square inch, the test may be attempted one additional time. A second loss of pressure constitutes a failure of the pipeline, whereupon the pipeline shall be replaced, as needed, and retested in accordance with this section.

- Water test consisting of plugging the downstream end of a pipeline, placing a section(s) of 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 case 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 pipeline shall be allowed a maximum loss of water level of 1 inch in 5 minutes for a 4-inch or 6-inch pipeline per 100 feet on length. If the loss exceeds the allowable, pipeline may be retested one additional time. A second loss exceeding the allowable constitutes a failure of the pipeline, whereupon the pipeline shall be replaced, as needed, and tested in accordance with this section.

If a cleanout has not been installed at the easement/property line, a 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 7.09, page31. The owner or their agent shall be responsible for such installation. A cleanout underneath the house is not acceptable.

Manholes, Grease Interceptors, Sand/Oil Interceptors: Testing shall be in accordance with one of the following:

- Water test by plugging all inlet and outlet pipes and filling the test section with water to the top of the frame rim. The water should be introduced into the test section at

In the event that there is no check valve and/or pressure test port installed on the existing discharge pipeline, a check valve and a valved ¼ inch pressure test port shall be installed in accordance with Section 7.14, Residential 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 discharge pipeline section 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 above.

The alarm system, if so equipped, shall be checked for proper function of audio and visual alarms.

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 Pump systems, Section 7.14, 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 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 in an amount equal to 125 percent of the General Manager's estimate of the cost of replacing the sanitary sewer facility.

In place of a performance bond, the owner may escrow funds in an amount equal to 125 percent of the General Manager's estimate, if the property or business is being sold or transferred. Funds held in escrow will not be released without wriften 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 Division 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 no practical, or

(d) the sanitary sewer facilities are part of a central private sanitary sewer system as described in Shared Use Facilities, Section 10.6, page 54, and the District has an established written agreement concerning specific testing requirements.

Nothing herein shall constitute a warranty 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 Facilities

The District may choose to allow the owner or their agent of a **Shared-Use Facility** (common interest subdivision, 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-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. Under this option, sales, leases, or changes in tenant/ownership of individual units or suites are allowed to proceed 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, page49 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 seft 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 ore 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, or 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, 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.

11.03 Garbage

Garbage resulting from the preparation of food may be discharged into the public sewer provided the materials are ground to a fineness sufficient to pass through a 3/8 inch screen. The garbage grinding operation shall utilize balance water supply and cutting heads combination such that the operation will produce approximately 500 milligrams per liter settleable 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 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 the 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 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.

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 the 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 collections, rebating and refunding of such charges 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 ore 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 63, have authority to disconnect the property form 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 proceedings 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 attorneys 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 be 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" 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 lest 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 the delinquency.
- The procedure by which the customer may initiate a complaint ore request and investigation concerning service or charges, unless the District's bill for services contains a description of that procedure.
- The procedure 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 therefor 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 62, 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 for 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 ore 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 an 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 amortization 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 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, by 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 or 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 any 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 he General Manager, he/she shall ask to appeal the decision of the General Manager of the Truckee Sanitary District within 90 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 against 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 reconnection of such premises shall be subject to all provisions of the District Code and/or Ordinances 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.

APPENDIX A-1
DEPOSITS, INSPECTION CHARGES AND SPECIAL FEES

DEPOSITS

Residential Seal Cap.....$ 600.00
Residential User Fees.....$ 100.00
Commercial Seal Cap.....$1,000.00
Plan Check Review.....$ 250.00
Sewer Main Tapping Deposit.....$ 250.00
Commercial Project.....Determined by Plan Check
Other.....Determined by the General Manager

INSPECTION CHARGES

RESIDENTIAL.....$ 75.00
OTHERS.....AT COST

SPECIAL FEES AND CHARGES

ILLEGAL SEAL CAP REMOVAL.....$ 500.00
Permit Extension.....$ 100.00
Permit Cancellation.....$ 25.00
Annexation Fee per acre.....$ 50.00
Assessment Bond Segregation.....$ 500.00
Copy Service, 8 ½ X 11.....$0.10 Per Page
Other .....Determined by the General Manager

APPENDIX A-2
TRUCKEE SANITARY DISTRICT FEES STRUCTURE

TYPE OF CONNECTION	UNIT OF MEASURE	CONNECTION FEE PER UNIT	MONTHLY USER FEE CHARGE PER UNIT			
Residential	Living Unit	$750.00	R	$14.50	RR	$19.00
Hotel/Motel (without Kitchen)	Living Unit	202.50	M	3.92	MM	5.14
Hotel/Motel (with Kitchen)	Living Unit	262.50	N	5.08	NN	6.65
Campsite (with sewer)	# of Sites	187.50	K	3.63	KK	4.76
Campsite (without sewer)	# of Sites	142.50	Q	2.76	QQ	3.62
Other Business, Ski Clubs, Snack Bars, Service Stations, etc.	# of Plumbing Fixture Units *	50.00	B	.87	BB	1.14
Markets	# of Plumbing Fixture Units *	50.00	G	.87	GG	1.14
Laundries	# of 10 LB Machines	240.00	L	4.64	LL	6.08
	# of 20 lb-50Lb Machines	480.00	X	9.28	XX	12.16
Restaurants & Bars	# of Inside Seats	50.00	F	.87	FF	1.14
	# of Outside Seats	25.00	Z	.44	ZZ	.58
	# of Banquet Seats	18.00	Y	.31	YY	.41
Theaters	# of Seats	7.50	T	.15	TT	.20
Churches	# of Seats	7.50	C	.15	CC	.20
Barber Shops	# of Service Chairs	210.00	H	4.06	HH	5.32
Beauty Shops	# of Service Chairs	375.00	A	7.25	AA	9.50
Temporary Discharge	Per 1,000 Gal.	***	D	2.07	DD	2.71
Other***	***	***	S	***	SS	***

* Refer to Appendix A-3
** Refers to customers from whom the District receives no property tax monies.
*** As Determined by the General Manager.

APPENDIX A-3
PLUMBING FIXTURE UNIT EQUIVALENTS

FIXTURE	PRIVATE	PUBLIC
Bathtub (with or without shower)	2	4
Dental Unit or Cuspidor	-	1
Drinking Fountain (each head)	-	1
Kitchen Sink	2	4
Laundry Tub (each pair Faucets)	2	4
Clothes Washer	2	4
Lavatory	1	2
Shower (each head)	2	4
Sink (Bar)	1	2
Sink or Dishwasher	2	4
Sink (Flushing rim, Clinic)	-	10
Sink (Wash up, each set of faucets)	-	2
Sink (Wash up, Circular Spray)	-	4
Sink (with garbage disposal	3	4
Sink (Used by Medical Professional only)	1	-
Urinal	3	5
Toilet	3	5
Floor Drain	1	2
Hot Tub	2	4

APPENDIX A-4
MULTIPLE USE FORMULA TABLE

When restrooms are shared by both restaurant patrons and other business patrons (as they are in some major ski areas, for example), and where restrooms are not located in the restaurant and are not provided solely for the use of restaurant patrons, the following table will be used to determine the number of business fixture units to be applied as a credit toward the actual number of business fixture units for the use of both restaurant a and other business patrons.

# of Restaurant Seats	# of Fixture Units
0-50	12
51-100	155
101-200	21
201-300	27
301-400	33
401-500	39
501-600	45
601-700	57
801-900	63
901-1000	69
1001-1100	75

The multiple use policy applies to both connection fees and semi-annual user fee billing. Existing accounts will retain any excess connection fee allocation resulting from the application of the multiple use credit.

In The table above, an eating establishment of each incremental seat count is eligible for the corresponding number of business fixture units to be credited toward the actual number of business fixture units counted. However, the above listed table also represents the minimum business fixture units for a restaurant of each incremental seat count. In the event that a limited number of toilets and lavatories are provided and the application of a multiple use credit leaves fewer business fixture units than the minimum, the multiple use credit is reduced so that the minimum number of business fixture units remain. Example: A restaurant with seating of more than 51, but less than 100 would be eligible for a multiple use credit of 15 business fixture units. If after applying the multiple use credit toward the actual business fixture unit count, the remaining business fixture units fall below 15, then the credit applied would be reduced so that the required number of business fixture units 15 remain.

APPENDIX A-5
MATERIALS FOR CONSTRUCTION OF SANITARY SEWERS

GRAVITY INSTALLATIONS

Type of pipe	Class of pipe	Minimum Cover Non-Traffic	Minimum Cover Traffic	Maximum Cover
PVC	SDR 35	30"	48:	12'
PVC	DR 25	30"	48"	16'
PVC	DR 18	30"	30"	28'
PVC	DR 14	30"	30"	
PVC	CL 200 (C900)	30"	30"	
DI	CL 51 or greater	30"	30"	
		30"	30"	

PRESSURE INSTALLATIONS

Type of Pipe	Minimum Class of Pipe	Minimum Cover Non-Traffic	Minimum Cover Traffic
PVC	CL 150	30"	30"
DI	CL 51	30"	30"

TRANSITION JOINTS AND FLEXIBLE COUPLINGS

Transition joints between different physical materials shall be Bond Seal, Fernco, Indiana Seal, or other approved flexible coupling.

NOTE: Any other pipe used for construction of sanitary sewer facilities must have written approval from the District.

APPENDIX A-6
DISTRICT STANDARD SPECIFICATIONS

A-6.1 Scope

The District Standard Specifications constitute a compilation of standard for sewer system design, development, repair and construction. The purpose of these standards is to establish quality guidelines 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 summit 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.

Residential Design Flow: An average flow of 100 gallons per person per day shall be used for design purposes, with the peak flow being consistent with chart A-6.2. District flow data indicates an average occupancy rate of 2.3 persons per residence. In larger sanitary sewer systems, consideration should be given to concentration of peak flows. All sewers shall be designed with sufficient capacity to handle peak flows with pipes running full but without surcharging the pipeline.

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

Gradient: 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"	.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
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 flowline of the pipe flowing into manholes shall be a minimum of 0.17 feet above the flowline of the pipe flowing from the manhole, or an amount necessary to match the inside crowns of the pipe, whichever is greater.

Needs Average to Peak Flow Relationship Graph

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 pipeline, 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 Water Pipelines: 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 lest 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 1008 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 he bottom of the water pipe and shall meet Uniform Plumbing Code requirements for pipeline types, joint locations, and encasement or sleeving.

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 manhole for any stub pipeline with a length of 300 feet or less provided the next downstream manhole is a straight-through manhole (no bends or sweeps). Any pipeline more than 300 feet in length shall terminate with a manhole. Sewer pipelines longer than 200 feet which are installed for future extension shall have an end of line cleanout at the end if there are any building laterals attached to it. Sewer pipelines longer than 200 feet shall terminate in a manhole with a stub for future extension. See Standard Drawings, End of Line Cleanout Assembly, figure 5, page 149.

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 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. Larger stations 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.

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 22, page 183, and Bypass Port (Double) Figure23, page 185).

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 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 (24X36 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 of 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, Street 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 drawing 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 ot 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 monumented 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 T.V. 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 3 ½ inch HD disk(s) or CD. A single set of reproducible improvement plans ***and*** a computer disk(s) or CD containing the dame data as the reproducible improvement plans shall be presented to the District.

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.

In the case that the sanitary sewer facilities are to be dedicated tot he 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 not 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 they risk of injury or damage to any part thereof by the action of 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 flagpersons whose sole duties shall consist of directing the movement of public traffic through or around the work.

Flagpersons 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 an in good repair by the owner or their agent at their expense.

Safety: The owner or their agent shall be solely an 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 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 protection 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 Divil Code of 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 therefrom. 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 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 flagpersons, 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/owner shall supply the District with a 1 year guaranty for all materials and workmanship which is incorporated into the system. 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 Development Guidelines.

- 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 Development Guidelines.

If after 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.

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 nay 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 manufactures 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 necassary 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.

C900 Pipe: C900 PVC pipe shall conform to and meet the requirements of AWWA C900-75.

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.

Polyvinyl Chloride Pipe: Polyvinyl chloride pipe and fittings for gravity pipelines shall be a rubber ring jointed pipe as manufactured by Johns-Manville or other approved equivalent, and shall comply with the following specifications.

Polyvinyl Chloride pipe and fittings shall conform to A.S.T.M. designation D-1784 and STM D-3034 for rigid PVC compounds. Pipe size and dimensions shall be submitted to the General Manager for approval prior to contractor's purchase.

- Size and dimensions -- Size and dimension 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 A.S.T.M. 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 A.S.T.M.

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

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 mor3e 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 ¼ 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" (ASSHO 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 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, Appendix A-6.14, page 120, of the Standard Specifications. Concrete for poured portions of manholes shall conform to Structural Concrete, Appendix A-6.14, page 120 of the Standard Specifications. Joints shall conform to Installation of Sanitary Sewer Facilities, Appendix A-6.9, page 97, of the Standard Specifications under "Manholes." 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.

Pump Stations: (For private residential submersible pump stations see Residential Pump Systems, Section 7.13, 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 valved 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 19, Submersible Pump Station (Section Vie), page 177 and Figure 20, Submersible Pump Station (Plan View, page 179). Wet well piping and fitings 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, Appendix A-6.15, page 128. All electrical and telemetry equipment shall be in accordance with Pump Station Electrical Work, Appendix-6.16, page 133.

Drywell Centrifugal Wastewater Pumps: Centrifugal pumps shall be of the vertical or horizontal closed-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 repriming in a complete open system without suction of discharge check valves and with a dry suction leg. Upon completion of repriming 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 to Tungsten-Titanium carbide alloy.

The impeller shall be tow-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 flowline 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 Class 1 Backfill for pipeline bedding. Class 1 Backfill bedding material shall be compacted to a relative compaction as specified in the Standard Drawings, Typical Sewer Trench, Figures 14, 15, or 16, pages 167, 169, or 171.

Pipe trenches shall not be left open farther than 300 feet in advance or 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 flowline 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 Block, Figure 17, page 173.

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 in vehicular traveled ways requires heavier walled pipe as listed in Appendix A-5, page 75.

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 ipen end of all pipelines shall be closed with a close-fitting stopper.

The jointing of pipe with this type of joints 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. 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.

Trench Backfill Gravity Pipelines: Class 1 Backfill for sanitary sewer pipelines and related appurtenances which are constructed for the District shall have a minimum specific gravity of 2.5.

Backfill around and to at least 1 foot over pipe, shall be made with Class 1 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. 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 lest 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 right-of-way of a street this backfill shall be Class 2. Class 3 Backfill may be used in areas outside the pavement of streets and highways involved.

In connection with backfill, the following tests shall be made in conformance with the requirements set forth in these Specifications:

Tests	Test Method No. California Or ASTM
Relative Compaction	ASTM D1557 & D1556
Sand Equivalent	217
Resistance (R-Value)	301
Sieve Analysis	202

Backfill shall not be placed until the pipe or other facility has been inspected by an authorized District Representative and approved for backfilling. The percentage composition by weight as determined by laboratory sieves shall conform to the following requirements.

Class 1 Backfill

Sieve Sizes	Percentage Passing Sieves
1/2"	100
No. 4	35-100

Sand equivalent not less than 20.
Bulk Specific Gravity of Class 1 Backfill shall be at least 2.5.

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

Sand equivalent not less than 20.
Bulk Specific Gravity of Class 2 Backfill shall be at least 2.6.

Class 3 Native Backfill

Sieve Sizes	Percentage Passing Sieves
3"	100

Sand equivalent not less than 20.

Class 4 Backfill

Sieve Sizes	Percentage Passing Sieves
1"	90-100
3/4"	70-100
1/2"	25-60
3/8"	10-40
#4	0-10
#8	0-5

Bulk Specific Gravity shall be at least 2.5.

Material for class 1, 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. 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, or 16, pages 167, 169, or 171.

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 preformed. 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 substituted for Class 1 Backfill, 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 substituted for Class 1 material, 140 NC filter fabric, or equivalent, maust be placed on top of the Class 4 Backfill before proceeding with additional approved backfill.

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

- 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 P.V.C. are not acceptable unless the General Manager has given his/her prior approval for each repair.

Mechanicel 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 and the pit 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: Class 1 Backfill for sanitary sewer force main pipelines and related appurtenances which are constructed for the District shall have a minimum specific gravity of 2.5. Trench backfill methods and materials for force mains, shall be as specified for sewer pipelines with the following exceptions:

- All thrust blocks shall be in place before the pipeline is hudrostatically 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, Paved Areas: Pipeline shall be bedded on 6 inches of Class 1 Backfill compacted to 95 percent relative compaction. Class 1 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 Areas), figure 14, page 167. In the event that heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 Backfill as outlined above.

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 Areas, Figure 14, page 167.

Trench Section, Roadway Shoulders Adjacent to Paved Areas: Pipeline shall be bedded on 6 inches of Class 1 Backfill compacted to 95 percent relative compaction. Class 1 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 15, page 169. In the event that heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 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 Should), Figure 15, page 169.

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 15, page 169.

Trench Section, Unpaved Areas: Pipeline shall be bedded on 6 inches of Class 1 Backfill compacted to 95 percent relative compaction. Class 1 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 16, page 171. In the event that heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 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 compactions as specified in the Standard Drawings, typical Sewer Trench (Non Traffic Areas), figure 16, page 171.

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 Specification C478-64T.

Portland cement shall be Type II, conforming to the requirements of ASTM Designation C-150.

Precast manholes bases shall be used in lieu of cast in place manhole bases whenever possible.

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 o9f 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 Xycrylic Admix" or equal may be used. The maximum depth permitted shall 12 inches between the cone and frame. Adjustment using concrete mix shall not exceed 2 inches.

When adjusting an 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 Appendix A-6.10, Testing of Sanitary Sewer Facilities, page 108.

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 form 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 Sate of California specifications.

Whenever te excavation for a manhole exceeds the out side 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. Manhole frames and covers located within easements shall be the bolted down type, 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 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 coverad 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 tha applicable requirements of ASTM C923. The bands used for compressing the seal and extension against the manhole shall be fabricated form 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'RNEK®, 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.

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 modular mechanical type seal ("Link-Seal", or equivalent), consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and manhole wall opening. Links shall be loosely assembled with stainless steel bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt and nut. After the deal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide a watertight seal between the pipe and the manhole wall opening.

- Inserting the end of the pipe through the core drilled opening, and 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 riged 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.

Utility Pad Installation: See Standard Drawings, Utility Pad Installation, Figure11, 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 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.

All cleanout risers must be 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 sleanout installed nearest the building.

Cleanout boxes shall be constructed of concrete with cast iron lids for vehicular traveled areas or reinforced plastic with snap-on or locking lids for non vehicular areas. Cleanout boxed shall be set to grade and backfilled to prevent accidental displacement ore 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 <u>not</u> permitted.

Service laterals shall be extended top property line and shall be marked with either of the following:

- A 2 X 2 inch redwood stake. The stake shall be buried at the wye and shall extend to finished grade. No stakes shall be driven into the ground or left protruding above finished grade.

- A flexible green marker made of a composite of glass-fiber reinforced polymers. The marker shall be buried at the wye and extend to finished grade. The marker shall not be left protruding above finished grade.

Every service lateral shall be so marked before final acceptance.

A service lateral stub out to vacant land shall contain a wye (two wyes for double service) with approved removable plugs in the bell ends. The stub out shall be placed at the property line at the appropriate depth to service the parcel. An approved marker shall be buried in front of the wye(s) and cut offf flush to grade as specified in the Standard Drawings, Service Lateral Detail (Profile View), Figure 8, page 155.

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 75 and Appendix A-6, page 77.

- **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 unit.

- **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 wyes shall be uncovered prior 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 14 gage copper wire and shall run the entire length of he 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 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 leteral (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 on 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 subgrade 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: 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. 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 tested at the 5-foot test head.

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 aove and the pipeline retested.

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:

Pressurized 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 per square inch. At the end of this 5 minutes 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 if 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: Deflection test for Plastic Pipe and Fittings – 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 thickness' 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 cleaned prior to testing.

For all pipes less than 24-inch ID, a mandrel shall be pulled through he 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 or 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., VC

D-8 inch – 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 television (TV) camera. Use of the TV inspection shall not relieve the contractor tof the responsibility for performing the tests outlined in this section nor shall it be used in lieu thereof.

Pre-inspection Preparation – TV 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 TV 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 TV 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 district shall bear the cost of the first TV inspection made for the purpose of determining acceptance. Subsequent inspections and TV camera assistance rendered by the District shall be charged labor, materials, equipment, and travel time.

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:

- Visible standing water
- 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 ½ - inch standing water

Video Tape – televised sewer pipelines will be recorded onto video tape. The contractor may view video tapes within 2 working days at the District Offices by making an appointment. All video tapes 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.

Reinspection – If the sewer pipeline offered for acceptance fails to meet applicable specifications, the district shall have a right to reinspect after correction of defects and to charge a re-televising fee in accordance with current District rates. The TV 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 expose 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 Testing: If deemed necessary by the District, any or all manholes shall be tested for leakage by one of the following procedures:

Water Test - All inlet and outlet pipes shall be plugged and the manhole filled with water to the top of the manhole frame. The water should be introduced into the test section at least 4 hours in advance of the official test period to allow the manhole and joint material to become saturated. The manhole shall than be refilled to the original water level. At the beginning of the test, the elevation of the water in the upper manhole 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 upper manhole to restore the water to the level existing at the beginning of the test, and the amount added taken as the total leakage. For manholes, the allowable leakage shall not exceed 0.13 gallons per hour. Manholes showing leakage in excess of that allowed shall be repaired or reconstructed as necessary to reduce the leakage to that specified above and the manhole retested.

Vacuum Test – Vacuum test equipment shall be used per the manufacturers specifications. A vacuum of 10inch Hg should be drawn on the manhole, and the time for the vacuum to drop to 9 inch Hg shall be measured. For simplification in the field, a "rule of thumb" for this drop in vacuum shall be conservatively established at 60 seconds for a 48 inch diameter manhole; 75 seconds for a 60-inch diameter manhole; and 90 seconds for a 72-inch diameter manhole.

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 Specification, Section 39, and Contract Drawings and documents.

This work shall consist of furnishing and mixing aggregate and asphalt finder a 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 Specification (July 1992) Type B Asphalt Concrete.

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

Asphalt: 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.

Course 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 table 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 the "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 Sizes	Limits of Gradation	Operating Range	Contract Compliance
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

Subgrade: 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 subgrade 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.

Compaction Equipment: A minimum of one steel-tired, two-axle tandem roller weighting 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 ro9adways 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 Pavement Restoration, Appendix A-6.11, Compacting, page 117. 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 coverages are 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-foot 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 bitumens, 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 co9nduits, streams, lakes and reservoirs.

Nothing in these Standards shall relieve their 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 practical 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 preformed within the District and to all noncommercially 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 by pass 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 a 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 1oo 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 1X8 inch boards shall be placed normal to the pipe trench on 10 foot centers with 2inchs exposed above grade and extended 6 inches into original ground on each side 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 blots, 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;

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. Noting 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 – "Recommended 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 C 33. 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 repost 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 test: during progress of Work, take not less than five identical test specimens for standard cylinder tests at job site for each 100 cubic yards of less of class "A" and "B" concrete placed per day (except 50 cubic yards or less at underpinning), in accordance with requirements of ASTM C31 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.

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 Alternative3, mixing and transporting shall comply with requirements for Truck-Mixed Concrete.

Materials: Portland Cement: Type II, ASTM C 150, with use of at lese 2 years with proposed aggregates without detrimental reaction. Cement shall not exceed 150 degrees Fahrenheit at time of use. Use on brad 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), MBVR (The Master Builder's 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 Builder "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 Waterstop: 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.
- 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 subgrade. 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 subgrade: 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 subgrade 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 ore to reinforcing steel. Do not over vibrate concrete.

Where placing of concrete has been stopped for a sufficient periods of time so that shrinkage or wary has separated forms and concrete, draw forms into firm contact with concrete before placing additional concrete. Prevent any shoulder or ledge being 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 ed 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 fee 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:

- Provide adequate equipment for heating concrete materials and protecting concrete during freezing or near-freezing weather in accordance with ACI 306. Use no frozen materials or materials contanining snow or ice.

- All reinforcement, forms, fillers, and ground with which the concrete is to come in contact shall be free from snow or ice. Whenever the temperature of the surrounding air is below 40 degrees Fahrenheit, all concrete placed in the forms shall have a temperature of 45 degrees Fahrenheit or higher after placement. Provide adequate means for maintaining this temperature for 4 days. Provide any additional time necessary to ensure proper curing of the concrete as directed. The housing, covering, or other protection used in connection with curing shall remain in place and intact at least 24 hours after the artificial heating is discontinued. No dependence shall be placed on salt or other chemicals for the prevention of freezing.

Hot-Weather Requirements:

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

- Concrete deposited in hot weather shall not 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 on 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 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 deigns to lose water sheen, apply patching mortar, thoroughly consolidated 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 sement 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 "Billett-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-615 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 clearanca 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 recirculate 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 24X36 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, Appendix A-6.14, page 120, 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, become 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 tile 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 for and should they indicate that a test weld in 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 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 ridged 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 ore 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.

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 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 boards, terminal cans, 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, solderless 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, wireways, raceways pull boxes, and similar locations. Plastic wiring ducts are preferred as an alternate to lace ore wire ties.

#12 ASWG 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-0-45or 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 drawout circuit breakers and full voltage or soft-start motor starters; dry transformers; 120-voilt panelboards; 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 interwired in accordance with steel with MRMS 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 paneboard. 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 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 heater 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 wireways. Push buttons, selector switches, meters and pilot lights shall be visible and operable externally, through gasketed, 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 of 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 location 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 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 condition 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 noncurrent-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 panelboards, 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, sherardzing, 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 assemble 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 location 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 Kopper's 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 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, panelboards, 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 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 in c. to f. 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 form the date of acceptance.

BUILDING SEWER AND CLEANOUTS SIZED AS PER UNIFORM BLDG CODE