NORTHSTAR COMMUNITY SERVICES DISTRICT

CODE

WATER ORDINANCE 21-05

Effective: April 20, 2005

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BOARD OF DIRECTORS

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Adopted: April 20, 2005

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1. ADMINISTRATION

1.01 Title

The Northstar Community Services District Water Code represents, and may be referred to as the District Water Code. The District Water Code meets or exceeds the Uniform Plumbing Code, the Uniform Building Code, National Electrical Code, National Fire Protection Code, and other codes as listed in Definitions and Abbreviations.

1.02 Introduction

The purpose of the District Water Code is to provide the public with an accessible document stipulating requirements and guidelines applicable to all Water System facility construction and maintenance within the District boundaries. The District Water Code also establishes charges for services and provides a method for the collection of said charges.

Formed in 1991, the Northstar Community Services District (District) provides the Northstar community with a full range of public services, including; Water, Sewer, Fire Suppression, Snow Removal, Street Lighting, Solid Waste contracting, Multi-use Recreational Trails, and Road Maintenance. Throughout the years the Northstar, Truckee and Tahoe areas has changed considerably. At the same time, Water System technology continues to improve. The rapidly changing community, improved technology, and a progressive District Board attitude have combined to maintain the excellence of the water system facilities that exist today. The District operates and is governed by rules and laws set forth in the Health and Safety Code of the State of California. This code is adopted pursuant to Government Code Section 61000 et. Seq.

A five-member Board of Directors elected at the general elections held in November governs the District locally. The Board of Directors is responsible for setting policy and general administrative procedures for the District. The General Manager of the District then administers the policies and procedures set by the Board.

This document constitutes a compilation of standards for water system design, development, repair, and construction, while guiding the development of new services and guarantees continuance of excellent service to existing customers.

All requests for variances or deviations from these standards by the owner or their agent, shall be submitted, in writing, to the General Manager. It is incumbent upon the requestor to secure such written permission and not to assume that permission will be forthcoming for said variances or deviations.

1.03 Revenue Program

The District may, by an order approved by a majority vote of the members of the Board of Directors, prescribe, revise, and collect fees, rates, rentals, or other charges for services and facilities furnished by the District in connection with its Water System. Revenues derived by the District from said fees, rates, rentals or other charges for service or facilities may be used for any purpose except the acquisition or construction of additional local street mains or service laterals which are solely for private use.

The District is empowered with this authority in accordance with the Health and Safety Code of the State of California, Section 6400 et seq.

1.04 Scope

The provisions of the District Water Code shall apply to water facilities construction, use, maintenance, discharge, deposits or rates, both directly and indirectly into and through all of the District's Water System, and to the issuance of permits and collection of fees.

2. GENERAL POLICIES

2.01 Dwelling Unit Equivalent Transfer Policy

In the event that DUE's are established and utilitized as a basis for development within the District then a policy of approving or disapproving transfers of available dwelling unit equivalents (DUE's)[1] between parcels is as follows: Such transfers may be approved by the Board of Directors only when all of the criteria stated herein are satisfied.

- Each application for transfer of DUE's shall be in writing and shall be signed by the owner(s) of the affected real property and shall be accompanied by a map describing the general location of the affected parcels.

- The parcels involved in the proposed transfer, both transferor and transferee parcels, shall be in common ownership, with evidence of ownership accompanying the application.

- Transfers of DUE's shall be permitted only between parcels both located within a given sub-watershed service area of sufficient size to handle the total number of DUE's, without regard for allocation of DUE's between parcels. Nothing herein is intended to increase the number of DUE's available within a given sub-watershed service area of the District.

- Each transfer of DUE's shall be for a use which is consistent with applicable zoning requirements imposed by the appropriate land use regulatory agency and no DUE's shall be transferred without prior approval of the appropriate land use regulatory agency for the area within which the parcels involved in the proposed transfer are situated. The applicant shall file with the appropriate land use regulatory agency for the proposed use prior to making application to the District for transfer of DUE's.

- No approval of transfer of DUE's shall give any vested right to any number of DUE's which is not consistent with the land use density as approved by the appropriate land use regulatory agency, at or subsequent to the time the application for transfer is approved.

- A notice, in form suitable for recording, shall be provided to the District and recorded by the District at the applicant's expense. Said notice shall contain the name of the owner of record of all parcels involved in the transfer application, a legal description of the parcel from which DUE's are transferred (transferor parcel) and of the parcel to which DUE's are transferred (transferee parcel) as well as a certificate of consent of such transfer executed by the mortgagor, trustee and/or beneficiaries of all parcels involved in the transfer or in the alternative a statement by the record owner that there is no mortgage or, trustee or beneficiary affected by the transfer application.

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[1] DUE: A single family residential unit. One DUE is equal to 500 gallons of water per day.

- All cost and expenses related to the preparation and recording of such notice shall be paid by the applicant.

- Only one transfer of DUE's from or to a parcel of real property shall be permitted within a 12-month period immediately following the filing of an application for transfer by any owner of record. More than one Transfer Request within the 12-month period will require Board of Director approval. Such restriction upon transfer shall apply notwithstanding a change in ownership of the parcels involved in such transfer during the 12-month period immediately following the date of application for transfer of DUE's from or to a parcel, which has been previously requested and approved.

- All District service charges, fees and assessments shall be paid current as of the date of filing an application for transfer.

- No application for transfer of DUE's shall be submitted to the Board of Directors of the District for review and approval until all items above have been completed.

2.02 Dedication of Water System Facilities

New Facilities: Whenever new Water System facilities are to be dedicated to the District for operation and maintenance, said facilities shall be constructed and tested in accordance with the District Code requirements that are in force on the date the improvement plans were approved by the District, provided such construction is completed within 1 year of the plan approval date.

Improvement plans not completed within 2 years of the approval date, as indicated by the General Manager's dated signature on the plans, shall be updated to current District Code requirements.

Acceptance of dedication of new Water System facilities occurs after all District Code requirements are met. Dedication acceptance is approved, by resolution, by the Board of Directors.

Existing Facilities: Existing Water System facilities to be dedicated to the District for operation and maintenance shall be repaired, upgraded and tested in accordance with the current District Code requirements.

Acceptance of dedication of existing Water System facilities occurs after all District Code requirements are met. Dedication acceptance is approved, by resolution, by the Board of Directors.

2.03 Disasters

Should a disaster occur, and the appropriate governing agencies deem a property uninhabitable, the District may elect to temporarily suspend user fees. The owner or their agent of a property involved may notify the District, in writing, and request a temporary suspension of fees.
The District disaster policy allows for a maximum 2-year time period during which user fees will not be charged. At the end of the 2-year time period, or at such time occupancy is granted on said property within the 2-year time period, user fees will resume.
This policy shall be implemented on a "case by case" basis only, under the direction of the General Manager.

2.04 Authority to Receive District Services

The owner or their agent shall pay all the appropriate fees and/or deposits and have all necessary approvals regarding Water System facility improvements prior to receiving services from the District. For the purpose of this section, "services" include, but are not limited to, issuance of a Water Permit, plan check review, field visits and inspections.

2.05 Extension of and/or Alterations to Water System Facilities

An owner or their agent may request an extension of Water System facilities and/or alterations to existing Water System facilities in order to obtain Water service from the District. The owner or their agent shall be required to design and install, in accordance with District Code requirements, and at the owner or their agent's expense, all such Water System facilities required by said extension and/or alteration.

The District at its option, however, may require the owner or their agent to install Water System facilities with more capacity, of greater length, or of a different route than would be required for the service requested, ('excess facilities'). In such events, the District may reimburse the owner or their agent for the costs of such excess facilities if such excess facilities are required solely to benefit, improve or upgrade service to existing or other District customers.

If, however, such excess facilities are deemed necessary by the District for the orderly development of an integrated Water System in the area of the proposed pipeline extension and/or alteration, the District may require the owner or their agent to design, install, and pay the cost of such excess facilities. Under such case, the owner or their agent may be entitled to reimbursement pursuant to "Buy Back Agreements" as outlined below.

Dedication: If the Water System facilities installed under the premises described above are offered for dedication to the District, all requirements as specified in Appendix A-5.7, Guarantee and Delivery of Title, page 77, shall be met before said dedication is accepted by the District Board of Directors.

Specifications and Fees: The District shall review engineered plans and accept or reject the size and location of the Water System facilities to be installed. Type and quality of material used in the installation of the Water System facilities shall meet the requirements specified in Appendix A-5, District Standard Specifications, page 67 or, as specified by the District. The installation of Water System facilities does not alleviate the owner or their agent from any other fee requirements as specified within this document.

Buy Back Agreements: At the District's option, the District may enter into an agreement with the owner whereby adjacent properties connecting to the Water System facilities installed by the owner or their agent, will be required to reimburse the owner or their agent, through the District, for a prorated share of the cost for the Water System facility design and construction. Administration of reimbursement monies will continue until all such prorated shares have been paid, but no longer than a period of 10 years after completion of the Water System facilities.

2.06 Initiation of Water System Facility Construction

It shall be the responsibility of the owner or their agent to obtain approval of all the appropriate agencies before commencement of construction of Water System facilities proposed for connection to the District Water System. Procurement of approvals and/or permits from such agencies shall be the full responsibility of the owner or their agent.

Residential: District water permits will be paid for at the District Administration office. A District form regarding Will Serve will be presented to the owner/agent after collection of all applicable connection and pro-rated user fees in order to complete the building permit process at Placer County. A signed, Placer County approved building permit and plans must be presented to District personnel at the District Administration office prior to start of construction.

Commercial: District water permits will be paid for at the District Administration office. A District form regarding, Will Serve will be presented to the owner/agent after collection of all applicable connection and mitigation fees in order to complete the building permit process at Placer County. Submitted improvement plans will not be considered approved by the District or water construction authorized until such time that the General Manager signifies approval by letter or by dated signature on the mylars in the approval block provided within the improvement plans. A signed, Placer County approved building permit and plans must be presented to District personnel at the District Administration office prior to start of construction.

There shall be no changes permitted to District approved improvement plans unless such changes, corrections and/or additions are resubmitted to the General Manager for consideration and subsequent approval. All changes, corrections and/or additions shall be noted, dated and initialed on the improvement plans as such by the owner or their agent.

3. GENERAL PROVISIONS AND REGULATIONS

3.01 Validity of the District Code

If any part, section, subsection, paragraph, sentence, clause or phrase of the District Code is held invalid or unconstitutional for any reason by a court of law having jurisdiction, that decision does not affect the validity or constitutionality of the remainder of the District Code. The Board of Directors declares that it would have adopted each provision of the District Code irrespective of the validity of any other provision.

3.02 District Personnel Duties

Delegation of Authority: The General Manager shall administer, implement and enforce the provisions of the District Code. Any powers granted to or duties imposed on the General Manager may be delegated by the General Manager to persons in the employ of and/or acting in the general interest of the District.

Identification: All District personnel shall identify themselves upon request when entering the work site or property for any inspection of work or other purposes required or provided for by the District Code.

Access: The District or its authorized agents or employees shall have access at all reasonable times to enter the customer's premises for any purpose properly connected with the providing of water service, including inspection of the same to determine that the District Code and Ordinances are being observed.

No person shall place on any water pipeline, or pipeline easement, any obstruction, such as wires, fences, trees, or buildings, which may impede or otherwise interfere with the District's ready access to any portion of the Water System owned by the District. Upon the District's written request, such obstruction shall be immediately removed by the owner or 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.

3.03 Water System Installation

Minimum Water System Facility Standards: Facilities shall be so designed as to maintain constant pressure integrity and not allow infiltration of contaminants, pollutants, ground water, surface water or other constituents of any type or amount that would degrade the product or impact 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.

Winter Construction: No water construction or excavation, other than work performed in emergency conditions, shall be performed during winter conditions. **Determination of winter**

conditions shall be the sole responsibility of the District and made by the General Manager. Winter conditions generally run from October 15th through April 15th.

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

- An appointment is scheduled for a visual inspection during normal working days and hours.
- The trench must be backfilled the same day as the visual inspection. This may require another inspection to verify completion of backfill.
- Above ground water system must be insulated/protected against frost and/or freezing. Call-outs for water system repair will be charged at cost plus.

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 Water System Connections: All buildings requiring public water facilities, as defined in the Uniform Building Code and/or the District Code, shall be connected to the District Water System facilities when available.

Availability shall mean review and acceptance for service provision by the District and a District water system with uncommitted capacity within 200 feet of the property. Once connected the further maintenance and use of private well systems, potable water storage tanks and other on-site water supply facilities contained on any property within 200 feet of a District Water System shall be allowed only by written consent of the General Manager and may be declared a public health hazard by the General Manager.

The owner or their agent at their sole risk and expense shall accomplish connection to the District's Water System facilities:

- Within 1 year, following written notification by the District, in the event the dwelling is serviced by a water supply other than the District's facilities.

The customer or user shall at their sole risk and expense remove from service and render harmless any and all well systems, potable water storage supply tanks, and other on-site water supply facilities in accordance with Placer County/District Regulations, the Uniform Plumbing Code and any State law, within 1 day following the date the dwelling is connected to the District's Water System facilities. Exemptions may be allowed if provisions detailed in the Cross-Connection Control, Section 8 are met and District verification and written approval is completed for all abandoned water facilities (see Abandoned Water System Facilities, Section 7.12, page 33).

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 water service, at the discretion of the District, by any of the following means:

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

- Through 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 Service Line Connections

The shared use of a *private building service line* by two or more parcels shall constitute the drafting, executing, and recording (with the County) of a "Joint Service Line Agreement" between each of the parties sharing the private building service line. Executing and recording of the "Joint Service Line Agreement" shall be the responsibility of the parties involved. Through the "Joint Service Line Agreement", the parties (owners) agree to share equally the operation, maintenance, and testing costs associated with the shared private building lateral. The "Joint Service Line Agreement" shall be binding upon the heirs, successors and assigns of each of the parcels. The shared line will not constitute a single connection and each parcel or building will pay a separate connect fee and user fee. The General Manager will decide meter requirements.

3.06 Easement Abandonment

All persons requesting an abandonment of easement must submit request to the County of Placer. Formal proceedings per County rules and regulations must be strictly adhered to. The District will not be responsible for any and all costs incurred in the owner's request for easement abandonment. The owner may incur District charges for any time, materials and overhead costs in the review and processing of said request.

3.07 District Records and Maps

The locations shown on the 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 Water System 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 Utility 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 Water System facilities in relationship to the proposed excavation. In the event of conflicting positions, the District Water System facilities shall have prior rights to its location.

- Be responsible for the proposed excavation shall explore for and expose the District Water System facilities using reasonable care. Once the District Water System 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 necessary modifications, improvements, expansions or development of, and/or damage to the District's Water System facilities regardless of the cause. This includes consequential damage due to improper pipe protection and backfill procedures.

- **Call Underground Service Alert (1-800-227-2600) 48 hours prior** to any start of excavation.

- Be responsible and liable for all costs involved in the repair of damages to the District Water System facilities caused by said work. The requesting owner or agent shall also be liable for the location of and connection to District's facilities, or in any costs associated with the District provision of services to the requesting party.

3.09 Location of Points of Service Inconsistent with District Record Maps

It is the owner or their agent's responsibility to expose the stub out and determine adequate fall before construction. The service line connection point location shall be placed in an appropriate vault, meter box or other type as requested by District. During construction, marking stakes shall be placed around all utility facilities. The owner or their agent shall be responsible for maintaining the stake location during any clearing operation.

Whenever the stub out 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 or service point, in determining the location by use of surface and underground pipeline detectors. However, the District shall bear no expense for equipment, excavation, time and/or labor expenses incurred by any person in determining the location of stub-outs, service lines, vaults or meter boxes or other District Water System facilities.

3.10 Non-existing Service Connections and/or Points of Service Shown on Record Maps

Before a point of service, which is shown to exist on District map is determined to be “nonexistent,” the person attempting to locate the service line 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 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 stub out, valve, service line, vault, meter box or point of service exists as shown on the "as-built" or record maps, **the General Manager may:**

- Waive any applicable water main tapping fee.

- Install or cause to be installed a service line at the District's expense, provided there is a water main servicing the property with uncommitted capacity.

3.11 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. WATER PERMIT – RESIDENTIAL

4.01 Notice of Intent to Issue Building Permit

A County form "Notice of Intent to Issue Building Permit" (form) for an individual parcel or development must be completed by the District and a copy faxed, mailed or delivered to the Placer County Building Department. The purpose of the form is to provide Placer County, an owner or their agent assurance that the District has sufficient capacity to provide water service for the parcel on a "first come, first served" basis at the time of the application for connection fees. No express guarantees for service or capacity use are implied by the issuance of the form until actual, physical connection is made. All connections are on a "first come, first served" basis. The forms are completed by the District based upon; 1) plan check and acceptance of the land use/building plans provided by the owner/agent. 2) payment to the District of all connection, permitting fees and pro-rated user fees. The inspection and acceptance of land use/building plans are based simply on the planned use of the parcel with respect to water supply, including type and quantity, amount, incorporation into existing facilities, impact on existing facilities and service provision by the District.

Any change in the land use/building plans from the date the form was issued may impose a different or greater demand upon the District's water facilities. 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 "Notice of Intent" form 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 a Water Permit prior to initiation of any water system improvements. The reception of a "Notice of Intent" form provides that such Water 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 collection, treatment, storage and distribution. The "Notice of Intent" form also provides that District services such as plan check review, field visits, and inspections will be authorized only after a building permit is issued and payment has been made and recorded of all applicable deposits, fees and charges, and subject to all then applicable District requirements.

4.02 Water Permit

The owner or their agent desiring to connect to the District water system shall be required to provide, in person, information and sign a Receipt for collected fees and deposits for the purpose of acquiring a Water Permit. The District shall provide the Water 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 prior to issuance of a District Will Serve form. The owner or their agent must obtain the Water Permit in person. A Will Serve form and the Water Permit shall be issued on a first come, first served basis, and shall be valid for 1 year. Any Water Permit not utilized within 1 year may be extended for an additional year, provided all applicable requirements are met and provided all deposits, fees, and charges are paid as detailed on Appendix A-1, A-2, A-3 and A-4, pages 59, 61, 63, and 65.

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

4.03 Excessive Projected Water Use

Any owner or their agent proposing to have excessive use on any property within the District's Water system in quantities, or at a rate greater than the capacity for which the water system was designed, when such additional quantity will immediately overload the water system, shall be denied the right to use 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 water system. 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 water system in order to enlarge the capacity of the water system for collection, treatment, storage, distribution and operation 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. WATER PERMIT - COMMERCIAL

5.01 Notice of Intent to Issue Building Permit

A County form "Notice of Intent to Issue Building Permit" (form) for an individual parcel or development must be completed by the District and a copy faxed, mailed or delivered to the Placer County Building Department. The purpose of the form is to provide Placer County, an owner or their agent assurance that the District has sufficient capacity to provide water service for the parcel on a "first come, first served" basis at the time of the application for connection fees. No express guarantees for service or capacity use are implied by the issuance of the form until actual, physical connection is made. All connections are on a "first come, first served" basis. The forms are completed by the District based upon; 1) plan check and acceptance of the land use/building plans provided by the owner/agent. 2) payment to the District of all connection, permitting fees and pro-rated user fees. The inspection and acceptance of land use/building plans are based simply on the planned use of the parcel with respect to water supply, including type and quantity, amount, incorporation into existing facilities, impact on existing facilities and service provision by the District.

Any change in the land use/building plans from the date the form was issued may impose a different or greater demand upon the District's water facilities. 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 "Notice of Intent" form 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 a Water Permit prior to initiation of any water system improvements. The reception of a "Notice of Intent" form provides that such Water 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 collection, treatment, storage and distribution. The "Notice of Intent" form also provides that District services such as plan check review, field visits, and inspections will be authorized only after a building permit is issued and payment has been made and recorded of all applicable deposits, fees and charges, and subject to all then applicable District requirements.

5.02 Plan Check Review

The owner or their agent desiring to connect to the water system 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 that 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 a request for Plan Check Review.

The owner or their agent must make the Request for Plan Check Review in person. A valid, signed Grading Permit or Building Permit issued by the appropriate agency is required upon submittal of a Request 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 59, 61, 63, and 65.

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 water system after Plan Check approval is granted involving design changes to the water 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 water system shall connect, or permit any other person to connect additional water system 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 District's approval of the title transfer 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 Water Use

Any owner or their agent proposing to have excessive use on any property within the District's Water system in quantities, or at a rate greater than the capacity for which the water system was designed, when such additional quantity will immediately overload the water system, shall be denied the right to use 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 water system. 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 water system in order to enlarge the capacity of the water system for collection, treatment, storage, distribution and operation 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 water system will 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 Water Permit is Not Required

The provisions of this Division requiring Water Permit shall not apply to water contractors constructing public water facilities 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 Sections 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 water system facilities in accordance with the District Code, and as detailed in Appendix A-1, A-2, A-3, and A-4, pages 59, 61, 63, and 65.

The deposits received by the District for services as provided by the District Code shall be identified by applicant and by project. The District shall reconcile the status of the funds on deposit monthly and copies of such reconciliation shall be made available to the applicant upon request. It is the intent of the District to maintain a positive balance in the applicant's project deposit account. 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 water system, finalization and acceptance of the system by the District or cancellation of the permit.

6.02 Residential Plan Checking and Inspection Fees

No fees are charged for any review of improvement plans and/or specifications for a single-family residential connection; however, improvement plans must be made available to the District upon request. Inspections are charged as outlined in Appendix A-1, page 59.

6.03 Commercial Project Application Fees

Plan Check Review: The District shall review the improvement plans, with respect to the water system, 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 request for Will Serve Letter and Water 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 as specified in Appendix A-1, page 59, 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 water system facilities have been granted, the applicant shall deposit with the District a sum of money estimated by the General Manager to cover the cost of inspections, 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. Said deposit shall be paid prior to commencement of construction of the water system facilities. 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 contractor's work.

6.04 Connection Fees

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

- Residential connection fees are determined in accordance with Appendix A-2, page 61. Initial Connection Fees are due and payable prior to receipt of Will Serve Letter and Water 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 59, 61, 63, and 65. Estimated Connection fees are estimated, based on the factor rating as determined by the Plan Check Review. Appendix A-2, page 61, equates an EDU 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.

6.05 Assessments

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6.06 Billing of User Fees

Each lot or premises which are connected to, and each owner or customer receiving water service from the District shall pay a periodic user fees in accordance with the District's Fee Structure set forth in the appendices. These rates are effective 07-01-01.

All water use, service charges and fees may be billed on the same bill and collected together with fees and charges for any other District services. Except as provided herein, estimated first year user fees are included in the Water Permit fees and deposits and are prorated from the date of issuance to the coming June 30th of that fiscal year. The Residential User fees: Single family residential will be billed on the property tax rolls annually. Multiple family residential (condo's) and Commercial billing will be billed bi-monthly (every two months) on August 15th, October 15th, December 15th, February 15th, April 15th and June 15th 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 90 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 collected 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 water service as a result of the connections. Each owner shall be liable to the District for payment of water charges and fees, regardless of whether service is provided through an 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 homeowners' 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 water 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 owner's 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 water charges for each owner or customer represented by the association. Service to a common area may 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 59, 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 payer 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 payer, 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 has been made without immediate connect fee payment and 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 a Cashiers Check or a money order.

6.12 Billing Basis for User Fees

The District shall use several options for billing; a flat rate billing basis, a flat rate with meter generated overage use, or equivalent dwelling or fixture unit count as determined by the General Manager, and in accordance with Appendix A-2, page 61, and A-3, page 63.

6.13 Initial Billing of User Fees

User Fees shall be based on meter size, water use, connection type and/or fixture units derived from information supplied on the provided construction plans and additional information as may be available to the General Manager. Unless otherwise stated, billing shall commence the first day of connection request, payment of connect fees and issuance of Will Serve letter. As the District collects its residential user fees on the tax rolls, the first year of user fees will be added to connect fees prorated an amount for days from connect fee payment to June 30th of the Fiscal Year in which

connect fees are paid.

Commercial construction or other development user fees may be deferred for not more than 1 year from date of permitting with prior District approval.

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 will 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 use, in which case all charges and fees shall be assessed under Section 6.17, page 24.

6.15 Billing Adjustments by Fixture Ratings

Periodically, there are changes in the water use of property that may affect 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 the owner shall forfeit all rights to the allocations that have been reduced. Connection charges shall be assessed for any increase thereafter in the water 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 Section 2.03, Disasters, page 4.

6.16 Collection Remedies

For the accounts not collected on the tax roll; 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 exclusive.

Delinquent charges for Water service together with all penalties thereon, when recorded as in Chapter 6, Division 2, 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 Water 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 Water service, or to enforce a lien, shall be an additional charge for such Water service.

If water 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.

6.17 Unreported Connections or Use

An unreported connection or use is a connection that has not been inspected and approved by the District. An unreported connection or use is that use through a meter or direct connection on property either not permitted or, which was previously connected to the public water system that with unreported use or increases in 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 use of the water system which is new or has increased the factor rating or fixture units of the property or for which a Water 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.
The District for any unreported connections and/or unreported use shall assess connection charges and service charges at the time of discovery by the District.

6.18 Collection of Delinquent Assessment District Bonds

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7. INSTALLATION OF WATER SYSTEM FACILITIES GENERAL CONDITIONS

7.01 Connection Policy

Use of the connection to the District water system will be allowed when the water system is inspected tested and approved, and meets or exceeds all District criteria as set forth in these codes.

The building service lines or new development facilities will be installed, tested and backfilled per construction specifications before the structure is framed and covered. If the line, box or meter is damaged or appears to be damaged during construction, the District may require an additional test, per original specifications, at the sole cost of the permittee.

- The building service line or new development facilities must be tested and approved by the District.

In the event the water service line 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 connect fee. The water service line may be either disconnected, or shutoff and locked at the meter from the water main as deemed necessary by the District. If the water is disconnected or shutoff, a reconnect fee and retest of the pipeline will be required before re-connection. Additional inspection fees will be required.

If for any reason the Water Permit is canceled prior to the final connection, the water pipeline shall be disconnected either by the owner or, their agent or, the District. If the District disconnects the water service line, the owner or their agent will be charged for all work incurred by the District for said disconnection.

7.02 Responsibility for Service Line Installation

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

Unless otherwise agreed by the District, all building service 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.

7.03 Size and Type of Service Lines

Building service pipelines connecting to the District's water works shall meet the minimum requirements listed below (Also, see Technical Specifications). The District engineer will review all construction plans, water capacity requirements and pipe sizes. All service lines shall be fitted with 12 gauge tracing wire the full length of the pipe and daylighted at determined locations and secured

to pipe at 4 foot intervals. Service lines will be sized to meet capacity and design requirements. Appendix A-5, page 67, and Appendix A-6, page 79.

Residential Building Service Lines: The minimum diameter of the service line from meter to single family residence shall be 1-inch IPS diameter.

Condominium Building Service Lines: Pipeline diameter will be sized to meet engineered flow and capacity requirements as determined by the District engineer. In no event will service line to Condominium unit blocks (4 units per block) be less than 2-inch IPS diameter to end of service line.

Commercial Building Service Lines: Pipeline diameter will be sized to meet engineered flow and capacity requirements as determined by the District engineer. In no event will service line to commercial unit be less than 1-inch IPS diameter.

Appropriate meters, pressure reducers, backflow assemblies and other applicable fittings, shall be used in connecting to the service connection provided by the District.

7.04 Trench Requirements

All trenching for building service lines and service 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 Technical Specifications and Standard Drawings, Service Line Trench Detail, Figure 6, page 141.

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.

Restoration of surfaces including but not limited to all curbs, gutters, driveways, sidewalks, road shoulders and pavement damaged directly or indirectly by contractor work shall be reconstructed by the Contractor. Reconstruction shall be of the same design, materials and at least the same dimensions as the original work, or as specified, or shown on plans. If at any time during a period of one year from date of final acceptance of the work, or as described in contract agreement, any settlement of trenches or defect in construction, materials or workmanship require repairs, the District will contact the Contractor immediately to make such repairs as may be deemed necessary at the Contractor's expense.

7.05 Minimum / Maximum Pipeline Cover Requirements

A minimum depth of 42 inches from top of pipe to finish grade, (48 inches in unpaved traffic areas), as specified, shall cover all pipeline installations for mains and other service lines. Cover less than 42 inches from top of pipe to finish grade in traffic ways requires heavier walled pipe or sleeving as listed in Appendix A-5, page 67.

A maximum depth of 72 inches from top of pipe to finish grade is allowed. Depth over 72 inches must be approved in writing by District prior to acceptance of project.

7.06 Backfilling Building and Service Lines

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 97. 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, Service Line Trench Detail, Figure 6, page 141, before laying the pipeline. Native Backfill may not be substituted for Class 1 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, Service Line Trench Detail, Figure 6, page 141.

Material for Class 1, Class 2, Class 3, and Class 4 Backfill, as listed in Appendix A-6, page 97, shall be placed in uniform horizontal layers not exceeding 1 foot 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, Service Line Trench Detail, Figure 6, page 141. Under no case shall minimum compaction be less than 90% off pavement, or, 95% under vehicle travel lanes. In the event compaction tests performed by the owner or their agent may be questioned for validity, the District reserves the right to request a re-test of the area or perform the compaction tests, or have compaction tests performed through a licensed, geotechnical, testing firm, to verify compaction of the backfilled trench section. All tests required by the District will be at the owners cost and performed in such a manner as will not unnecessarily delay the work.

In the event that heavy groundwater is encountered in the excavated trench, Class 4 Backfill may be substituted for Class 1 Backfill if the District inspector prior to placement of Class 4 material approves the substitution. 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 owner or their agent. The General Manager shall determine the location and spacing of trench cut-off blocks for fittings, water system mains. Trench cut-off blocks shall be constructed as shown in the Standard Drawings, Trench Cut-Off Block, Figure 23, page 175.

The use of backfill material other than pre-approved 3/8" minus, sand (or cinders) for pipe bedding is prohibited. Class 2, Class 3, and Class 4 is not permitted unless approval is granted, in writing, from the General Manager.

7.07 Pressure Supply - Damages

Excluding the conditions below, the District will provide a minimum pressure of 20 PSI residual pressure at peak flows which include fire flows. Errors in planning or development of water facilities, which cause less than minimum pressure or supply, are the sole responsibility of the owner, developer or their agent. Pipe sizing and adequate water supply from District facilities to commercial or residential facilities are the sole responsibility of the owner, developer or their agent.

The District shall in no event be responsible for maintaining any service line beyond the meter, or in cases regarding private property service for multiple dwelling units or commercial facilities, beyond the private property line or, on encroachment boundaries as recorded on District approved maps. Nor is the District responsible for increase or decrease of water service pressure, volume, interruption of service, or damages to existing systems beyond the Districts control, or backflow to any single or multiple residential units or commercial buildings. Installation and maintenance of backflow prevention devices, pressure boosting pumps or pressure regulating devices are the sole responsibility of the permittee or owner. (See Section 8.0 Cross-Connection Control).

7.08 Commercial - Residential Pressure / Supply Pump Systems

For all building sites in which the improvement plans require a pumped or boosted pressure service or for any owner wishing to construct a structure on a portion of a lot or parcel for which pressure service was not provided or has inadequate pressure, the owner shall install a booster pump as specified herein for the purpose of increasing inadequate pressure or volume to the public or private water systems. **All means necessary to provide sufficient pressure by gravity flow shall be exhausted prior to acceptance by the District regarding pumped service applications.**

A pumped water service shall consist of a booster type pump system to supply a) an elevated storage tank sufficient to provide gravity pressure. b) a hydro-pneumatic tank supplied by pump system to provide adequate water volume and pressure at a minimum of 20 PSI residual pressure at the highest elevation of the system c) gravity water, a water holding tank, one or more pumps, a service line, electrical controls, and an alarm system. The pump and tank shall be installed in a location such as to be reasonably accessible for inspection and owner maintenance. If the tank is located outside of the building foundation it shall be located within 5 feet of any building used as a dwelling or commercial building. Where installed, the owner at the owner's expense shall maintain such installations.

Installation:

Pumping Equipment - Pumps shall be UL approved and capable of providing 125% of the engineered requirement for peak flows including fire flows, at a minimum pressure of 20 PSI residual. Pumps and motors shall be sized so as to maintain a minimum 20 PSI residual pressure at the highest projected elevation and at peak flow. 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 pump system. All wiring, controls, conduits, boxes, etc. shall meet or exceed National Electrical Code (NEC) requirements for materials, ratings, placement, and installation etc. All equipment shall be U.L. approved for its

specific and proper use. All wiring in the area shall be provided with protection from physical damage by a combination of cable routing and/or conduits. All electrical connections shall be in an approved electrical junction box. A disconnecting means for all circuits must be located within sight of the pump or tank unless a lockout device is installed on the disconnecting means for each individual circuit attached to or related to the pump system.

Backflow Prevention - An AWWA approved backflow prevention device shall be installed on any water system with a potential to cause backpressure or backsiphonage of used water into the District's water system. The devices are to be installed as close to property line as is feasible or, in a location as determined appropriate by the District. The devices are to be tested annually (installation anniversary) by an approved tester and a written, signed test result delivered to the District Fire Department. (See Section 8.0 Cross-Connection Control for additional details).

Inspection and Testing:

A visual inspection shall be performed to check for the following:

- proper installation of connections, pipe, pump and backflow prevention devices.
- water proof, weather tight electrical systems with automatic safety trips, ground fault circuit interrupter (GFCI) and circuit breakers installed in proper location.
- installation and testing of an approved backflow prevention device. (signature on test form by authorized agent required).
- pressure test and pump run.

The service line shall be pressure tested with air or water to a pressure of 150 psi or 50 psi above working pressure whichever is greater, or as specified by the District engineer. 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 water.

The residual flow pressure must remain constant for 20 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 tests shall only be performed after the electrical system has been inspected and approved by the proper authority. The District Inspector or representative shall require proof of such approval before starting any of the following functional tests:

- The pump shall be started and stopped so the backflow prevention assembly can be tested for proper operation.

Deviation from Requirements:

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

7.09 Delay in Water System Facility Testing

Testing or inspection for final may be delayed when inclement weather or other conditions will not allow the required testing to be performed during 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 with a specific deadline date upon which testing must be completed, however, **under no circumstances will final acceptance of the system be allowed without visual inspection and proper testing of the entire pipe and all appurtenances.**

7.10 Temporary Hook-Up to Water System

Temporary hook-ups and/or construction trailers are not allowed for residential construction purposes. An owner-builder, who plans to place a trailer on a parcel for the owner-builders sole use for construction purposes, may request a temporary trailer be connected to the Water System by completing the following administrative steps:

Receive prior approval from Northstar Property Owners Association, Design Review Committee. Single family residential construction is not eligible for trailer hook-ups.

- Present the appropriate valid Placer County Building Permit at the District's office and request a Temporary Water Permit.

- Pay connection fees and prorated user fees to the District.

- Pay a $550.00 deposit for the connection. This deposit is refundable upon the District's approval for disconnect of the temporary system.

- Pay a $100.00 fee for administrative costs.

Once the above administrative requirements are completed, the temporary trailer may be connected to the District Water System under the following conditions:

Installation of Temporary Pipelines: The temporary water service line has been installed, tested and inspected by a District inspector and backfilled if required. The type of pipe used for the temporary water service line shall be in accordance with District Code requirements.

If trenching is required, the temporary water service line shall be located in a trench with at least 42 inches of cover.

Location: The temporary trailer shall be parked a distance of no more than 75 feet from the temporary connection point.

Connection of Temporary Trailer: The temporary water service line shall be tested as required by the District Code.

The temporary water service line may be used during construction for a maximum of 1-year whichever is less, beginning with the date the trailer fee is paid. If the construction is not complete after the 1-year period, the owner may solicit the District to extend the allowed use of the temporary water service line 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 water service line shall be removed.

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 Placer County, the temporary water service line shall be completely removed by the owner-builder within 5 days of occupancy of the house. The temporary water service line shall be removed from its trench.

7.11 Temporary Supply from Fire Hydrant

An Applicant for use of water from a fire hydrant must secure a "Fire Hydrant use Permit" from the District. Applicant must provide cross-connection control protection, a hydrant valve and hydrant wrench. The District will supply a hydrant meter and water use will be recorded daily. The Applicant will be responsible for all equipment used in the duration of the permit. A $1,500.00 deposit will be required for loan of metering/ backflow device. Permitting will be $13.39 per day and rate of charge will be $1.12 per 1,000 gallons per the "Water Fee Structure" section of this Ordinance. The applicant will be responsible for all damages to the hydrant, hydrant equipment, or water system caused by the applicant. The Applicant will be responsible for care, safety or loss of any District provided equipment.

7.12 Abandoned Water System Facilities

Every abandoned building, potable water system, or part thereof, shall be physically disconnected and capped or shut off at the District valve prior to the meter shut-off and locked and the meter removed. A District Inspector shall witness this procedure.

Once the service line is disconnected, one of two options is available. The owner may continue to pay User Fees or may choose to stop User Fee payments. If User Fees are discontinued, Connection Fees and pro-rated standby charges 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.

7.13 Emergency Notification

As necessity may arise in case of water line break(s) or other unavoidable causes, the District shall have the right to temporarily cut off the water supply, in order to make the necessary repairs, connections, etc. The District will use all reasonable and practicable measures to notify the

consumer, for interruption in service, lessening of supply, inadequate pressure, a poor quality of water, or for any causes reasonably beyond its control.

7.14 Reserves for Emergency

The District shall reserve sufficient supply of water at all times in reservoirs to provide for fires and other emergencies, and may restrict or regulate the quantity of water used by consumers in case of scarcity, or whenever the public welfare may require it. No unauthorized use of water will be permitted during these conditions.

7.15 Water Rationing

The District reserves the right to restrict services, impose water-rationing schedules and enforce and maintain water-rationing schedules for any reasonable cause, until such a time as water rationing may not be required. No unauthorized use of water will be permitted during these conditions.

7.16 Unauthorized Use

Unauthorized use is any use not in compliance with the District's rules, regulations and imposed scheduling.

8. CROSS-CONNECTION CONTROL

8.01 Purpose

The purpose of this program is: (1) to protect the public water supply against actual or potential contamination through cross connections by isolating sources of contamination that may occur within a water user's premises because of some undiscovered or unauthorized cross connection on the premises; (2) to eliminate existing connections between drinking water systems and other sources of water that are not approved as safe and potable for human consumption; (3) to eliminate cross connections between drinking water and sources of contamination; (4) to prevent the making of cross connections in the future.

These regulations are adopted pursuant to the State of California Administrative Code, Title 17-Public Health entitled "Regulations Relating to Cross-Connections."

It is unlawful for any person, firm or corporation at any time to make or maintain or cause to be made or maintained, temporarily or permanently, for any period of time whatsoever, any cross connection between plumbing pipes and/or water fixtures being served with water by the District and any other source of water supply or to maintain any sanitary fixture or other appurtenances or fixtures which, by reason of their construction, may cause or allow backflow of water or other substances into the water supply system of the District and/or the service of water pipes or fixtures of any consumer of the District.

8.02 Definitions

A. District: The Northstar Community Services District

B. Air-Gap (AG) Separation: The term "air-gap separation" means a physical break between a supply pipe and a receiving vessel. The air-gap shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel, in no case less than one inch.

C. Approved Backflow Prevention Device: The term "Approved backflow prevention device" shall mean devices which have passed laboratory and field evaluation test performed by a recognized testing organization which has demonstrated their competency to perform such tests to the California Department of Health Services. A list of approved backflow prevention devises can be obtained from the District Fire Department.

D. Approved Water Supply: the term "approved water supply" means any water supply whose potability is regulated by a State or local health agency.

E. Auxiliary Supply: The term "auxiliary supply" means any water supply on or available to the premises other than the approved water supply.

F. AWWA Standard: The term: "AWWA Standard" means an official standard developed and approved by the American Water Works Association (AWWA).

G. Backflow: The term "backflow" shall mean a flow condition, caused by a differential in pressure that causes the flow of water or other liquids, gases, mixtures or substances into the distributing pipes of a potable supply of water from any source or sources other than an approved water supply source. Backsiphonage is one cause of backflow. Back pressure is the other cause.

H. Contamination: The term "contamination" means a degradation of the quality of the potable water by any foreign substance which creates a hazard to the public health, or which may impair the usefulness or quality of the water.

I. Cross Connection: The term "cross connection" means any unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and any source or system containing unapproved water or substance that is not or cannot be approved as safe, wholesome, and potable. By-pass arrangements, jumper connections, removable sections, swivel or changeover devices, or other devices through which backflow could occur, shall be considered cross connections.

J. Double Check (DC) Valve Assembly: The term "double check valve assembly" means an assembly of at least two independently acting check valves including flanged, full port resilient wedge shut-off valves on each side of the check valve assembly, and test cocks available for testing to check the water tightness of each check valve.

K. Double Check Detector Assembly (DCDA): the term "double check detector assembly" means an assembly of at least two independently acting check valves including flanged, full port resilient wedge shut off valves on each side of the check valve assembly and test cocks available for testing to check the water tightness of each check valve. The double check assembly shall have a 3/4" x 5/8" detector meter (reading in cubic feet) installed around the valves (NCSD Drawing SA0007).

L. Health District: The term "Health District" means the California Department of Health Services, or the county with respect to a small water system.

M. Local Health District: The term "local health agency" means the Placer County Environmental Health Department.

N. Person: The term "person" means an individual, corporation, company, association, partnership, municipality, public utility, or other public body or institution.

O. Premises: The term "premises" means any and all areas on a water user's property, which are served or have the potential to be served by the public water system.

P. Public Water System: The term "public water system" means a system for the provision of piped water to the public for human consumption that has fifteen or

more service connections or regularly serves an average of 25 individuals daily at least 60 days out of the year.

Q. Reclaimed Water: The term "reclaimed water" means a wastewater which, as a result of treatment, is suitable for uses other than potable use.

R. Reduced Pressure Principle Device: The term "reduced pressure principle backflow prevention device" means a device incorporating two or more check valves and an automatically operating differential relief valve located between the two checks, a flanged, full port resilient wedge shut-off valve on each side of the check valve assembly, and equipped with necessary test cocks for testing.

S. Reduced Pressure Principle Detector Assembly – The term "reduced pressure principle backflow prevention device" means a device incorporating two or more check valves and an automatically operating differential relief valve located between the two checks, a flanged, full port resilient wedge shut-off valve on each side of the check valve assembly, and equipment with necessary test cocks for testing. The reduced pressure principle backflow device shall have a 5/8" x 3/4" detector meter (reading in gallons) installed around the valves (NCSD Drawing SA007).

T. Service Connection: The term "service connection" refers to the point of connection of a user's piping to the water supplier's facilities.

U. Water Supplier: The term "water supplier" means the person who owns or operates the approved water supply system.

V. Water User: The term "water user" means any person obtaining water from an approved water supply system.

8.03 Responsibility

A. Under the rules of Title 17 relating to cross-connection, the District has primary responsibility to prevent water from unapproved sources, or any other substances, from entering the District's water system.

B. The District is primarily responsible for the prevention of contamination and pollution of the District's water system. Such responsibility begins at the point of origin of the District's water supply and includes adequate treatment facilities and water mains, and ends at the point of service (meter) to the water user's water system. The District shall insure adequate backflow and backsiphonage protection is maintained on the water user's system directly connected to the District's system.

C. The water user shall have the prime responsibility of preventing contaminants and pollutants from his water system from entering the District's water system as required by this policy and the California Department of Health Services.

D. The District shall not be responsible for any loss or damage directly or indirectly resulting from or caused by any improper or negligent installation, operation, use,

repair, or maintenance of, or interfering with, any approved backflow prevention assembly, required by this policy, by any water user or any other person.

E. The water user shall bear all costs for the installation of pumps or renovation of existing water user piping, as a result of any decreases in line pressure attributed to the upgrading of existing backflow prevention assemblies or the installation of approved backflow prevention assemblies.

F. The District shall not be held responsible for any losses or damages incurred by the water user as a result of upgrading existing backflow prevention assemblies or the installation of approved backflow prevention assemblies.

8.04 Protection Requirements

General Provisions - Unprotected cross connections with the public water supply are prohibited.

Whenever backflow protection has been found necessary, the District will require the water user to install an approved backflow prevention device by and at his expense for continued service, or before a new service will be granted.

Wherever backflow protection has been found necessary on a water supply line entering a water user's premises, then any and all water supply lines from the District's mains entering such premises, buildings, or structures shall be protected by an approved backflow prevention device. The type of device to be installed will be in accordance with the requirements of this program.

Where Protection is Required - Each service connection from the District's water system for supplying water to premises having an auxiliary water supply shall be protected against backflow of water from the premises into the public water system unless the auxiliary water supply is accepted as an additional approved water supply by the District having jurisdiction.

Each service connection from the District's water system for supplying water to any premises on which any substance is handled in such fashion as may allow its entry into the water system shall be protected against backflow of the water from the premises into the public system. This shall include the handling of process waters and waters originating from the District's water system which have been subjected to deterioration in sanitary quality.

Backflow prevention devices shall be installed on the service connection to any premises having (a) internal cross connections that cannot be permanently corrected and controlled to the satisfaction of the District or state and local health department, or (b) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not cross connections exist.

Type of Protection Required - The type of protection that shall be provided to prevent backflow into the approved water supply shall be in accordance with Table 1. The type of

protective device that may be required, listed in an increasing level of protection, includes: Double Check Valve Assembly (DC), Reduced Pressure Principle Device (RP), and Air Gap (AG). The water user may choose a higher level of protection than required by the District. The minimum types of backflow protection required to protect that approved water supply, at the user's water connection to premises with varying degrees of hazard are given in Table 1. Situations that are not covered in Table 1 shall be evaluated on a case-by-case basis and the appropriate backflow protection shall be determined by the District. The District reserves the right to install a more stringent device than listed if, in its sole judgment, the particular circumstances of that water user require a higher degree of backflow protection.

Requirements Abbreviations - Tables 1 uses the given abbreviations for these types of devices: Air Gap Separation = AG; Reduced Pressure Principle Device = RP; Double Check Valve Assembly = DC; Double Check Detector Assembly = DCDA; and Reduced Pressure Principle Detector Assembly = RPDA.

Water Use	Device
1. Beauty Salons	DC
2. Board and Care Facilities, Skilled Nursing Facilities	DC
3. Buildings – Commercial / Industrial Multi-story over 50' in elevation above street level to ground floor.	DC
4. Canneries, Packing Houses, and Reduction Plants	RP
5. Car Wash	RP
6. Chemical processing or Storage Facilities	RP
7. Chemically Contaminated Water Systems	RP
8. Dairies and Cold Storage Plants	DC
9. Dye Works	RP
10. Fire Systems – Class 1 and 2	DC
11. Film Processing Laboratories	RP
12. Fire Systems – Class 3, 4, 5, and 6, as defined in California Department of Health Services Manual of Cross Connection Control.	
A. Class 3 and 4	DCDA
B. Class 5 and 6	AG/RPDA
13. Food Processing Plants	DC

14.	Hospitals, Sanatoriums	RP
15.	Irrigation Services into which fertilizers, herbicides, or pesticides are, or can be, injected or subject to back pressure.	RP
16.	Multi-tenant (2 or more) commercial properties	RP
17.	Laboratories	RP
18.	Laundries, Commercial	DC
19.	Medical Buildings, Clinics, or Veterinary Clinics	RP
20.	Metal Manufacturing, Cleaning, Processing and Fabricating Plants	RP
21.	Mobile Home Parks	DC
22.	Mortuaries, Morgues, or Autopsy Facilities	RP
23.	Oil and Gas Production, Storage, or Transmission Properties	RP
24.	Paper Products Manufacturing Plants	RP
25.	Plating Operations	RP
26.	Premises with Piped Auxiliary Water Supplies where the approved supply is not physically connected to the auxiliary supply, i.e., canal well, pond	DC
27.	Premises with booster pumps on the treated water	DC
28.	Premises with Piped Auxiliary Water Supplies where the approved supply is connected physically to the auxiliary supply.	RP
29.	Premises with Pumped Sewage	RP
30.	Radioactive Materials or Substances	RP
31.	Restricted, Classified, or Closed Facilities	RP
32.	Restaurants with Automatic Dishwashers or Steam Tables	DC
33.	Sand, Gravel, Cement, and Ready Mix Plants	DC
34.	Secondary Schools and Colleges (w/o laboratories)	DC
35.	Civil Works Facilities	DC

8.05 Backflow Prevention Devices

Approved Devices - Only backflow prevention devices that have been approved by the District shall be acceptable for installation by a water user connected to the District's potable water system.

The District will provide, upon request, to any affected water user a list of approved backflow prevention devices. The list is available at NCSD's Fire Department.

Installation - Backflow prevention devices shall be installed in a manner prescribed in Section 7603, Title 17 of the California Administrative Code. Location of the devices should be no farther than 3 feet from the water user's meter or, at the property line. The District shall have the final authority in determining the required location of a backflow prevention device.

The following is a description of the installation of backflow devices:

Air-gap (AG) Separation - An AG must be located as close as practical to the water user's connection, and all piping between the user's connection and receiving tank must be entirely visible unless otherwise approved in writing by the District.

Reduced Pressure (RP) Principle Backflow Prevention Assembly - An RP must be located no farther than 3 feet from the water user's meter. This type of assembly must be installed at least twelve inches and not more than thirty-six inches above grade (measured from the lowest point of the assembly), and must have adequate side and top clearance to allow access for testing and maintenance. A minimum side and top clearance of twelve inches should be allowed.

Double Check Valve Assembly (DC) - The approved double check valve assembly shall be located no more than 3 feet from the water user's connection and shall be installed above grade, if possible, and in a manner where it is readily accessible for testing and maintenance. If a double check valve assembly is installed below grade, it must be installed in a vault such that there is a minimum of twelve inches (12") between the bottom of the vault and the bottom of the assembly, so that the top of the assembly is no more than a maximum of eight inches (8") below grade, so there is a minimum of twelve inches (12") of clearance between the side of the assembly with the test cocks and the side of the vault, and so there is a minimum of twelve inches (12") clearance between the other side of the assembly and the side of the vault. Special consideration must be given to double check valve assemblies of the "Y" type. These assemblies must be installed on their "side" with the test cocks in a vertical position so that either check valve may be removed for service without removing the assembly. Vaults which to not have an integrated bottom must be placed on a three inch (3") layer of gravel.

Testing and Maintenance - The owners of any premises on which, or an account of which, backflow prevention devices are installed, shall have the devices tested by a person who has demonstrated their competency in testing of these devices to the District. Backflow prevention devices must be tested at least annually and immediately after installation, relocation or repair. The District may require a more frequent testing schedule if it is

determined to be necessary. No device shall be placed back in service unless it is functioning as required. A report in a form acceptable to the District shall be filed with the District Fire Department each time a device is tested, relocated, or repaired. These devices shall be serviced, overhauled, or replaced whenever they are found to be defective and all costs of testing, repair, and maintenance shall be borne by the water user.

The District will supply affected water users with a list of persons acceptable to the District to test backflow prevention devices. The District will notify affected customers by mail when annual testing of a device is needed and also supply users with the necessary forms which must be filled out each time a device is tested or repaired.

Removal - Approval must be obtained from the District before a backflow prevention device is removed, relocated, or replaced.

A. Removal: The use of a device may be discontinued and the device removed from service upon presentation of sufficient evidence to the District to verify that a hazard no longer exists or is not likely to be created in the future;

B. Relocation: A device may be relocated following confirmation by the District that the relocation shall continue to provide the required protection and satisfy installation requirements. A retest shall be required following the relocation of the device;

C. Repair: A device may be removed for repair, provided the water use is either discontinued until repair is completed and the device is returned to service, or the service connection is equipped with other backflow protection approved by the District. A retest shall be required following the repair of the device;

D. Replacement: A device may be removed and replaced provided the water use is discontinued until the replacement device is installed. All replacement devices must be approved by the District and must be commensurate with the degree of hazard involved.

User Supervisor - At each premise where it is necessary, in the opinion of the District, a user supervisor shall be designated by and at the expense of the water user. This user supervisor shall be responsible for the monitoring of the backflow prevention devices and for avoidance of cross connections. In the event of contamination or pollution of the drinking water system due to a cross connection on the premises, the District shall be promptly notified by the user supervisor so that appropriate measures may be taken to overcome the contamination. The water user shall inform the District of the user supervisor's identity on, as a minimum, an annual basis and whenever a change occurs.

8.06 Administration Procedures

Water System Survey - The District shall review all requests for new services to determine if backflow protection is needed. Plans and specifications must be submitted to the District upon request for review of possible cross connection hazards as a condition of service for new service connections. If it is determined that a backflow prevention device is necessary to protect the public water system, the required device must be installed.

The District may require an on-premise inspection to evaluate cross connection hazards. The District shall transmit a written notice requesting an inspection appointment to each affected water user. Any water user who cannot or will not allow an on-premise inspection of his piping system shall be required to install the backflow prevention device the District considers necessary.

The District, at its discretion, may require a re-inspection for cross connection hazards of any premise to which it serves water. The District shall transmit a written notice requesting an inspection appointment to each affected water user. Any water user who cannot or will not allow an on-premise inspection of his piping system shall be required to install the backflow prevention device the District considers necessary.

Customer Notification - Device Installation - The District will notify the water user of the survey findings, listing the corrective actions to be taken if any are required. A period of 60 days shall be given to complete all corrective actions required, including installation of backflow prevention devices.

A second notice shall be sent to each water user who does not take the required corrective actions prescribed in the first notice within the 60 day period allowed. The second notice shall give the water user a 2-week period to take the required corrective action. If no action is taken within the 2- week period the District may terminate water service to the affected water user until the required corrective actions are taken.

Customer Notification - Testing and Maintenance - The District shall notify each affected water user when it is time for the backflow prevention device installed on their service connection to be tested. This written notice shall give the water user 30 days to have the device tested and supply the water user with the necessary form to be completed and resubmitted to the District.

A second notice shall be sent to each water user that does not have their backflow prevention device tested as prescribed in the first notice within the 30-day period allowed. The second notice shall give the water user a 2-week period to have their backflow prevention device tested. If no action is taken with the 2-week period, the District may terminate water service to the affected water user until the subject device is tested.

Following the third notice, the District shall have the option (in place of disconnection) of performing the annual test and making minor repairs to the backflow device. The District shall notify the water user of the needed repair and provide a list of qualified backflow specialists who can repair the device. The device must be repaired within 30 days. The water user shall be billed for this service at the current charge out rate.

8.07 Water Service Discontinuance

General - When the District encounters water uses that represent a clear and immediate hazard to the potable water supply that cannot be immediately stopped, the District shall institute the procedure for discontinuing the water service.

Basis for Discontinuance - Conditions or water uses that create a basis for water service termination shall include, but are not limited to, the following items:

A. Refusal to install a required backflow prevention device;

B. Refusal to test a backflow prevention device;

C. Refusal to repair a faulty backflow prevention device

D. Refusal to replace a faulty backflow prevention device

E. Direct or indirect connection between the public water system and a sewer line;

F. Unprotected direct or indirect connection between the public water system and a system or equipment containing contaminants;

G. Unprotected direct or indirect connection between the public water system and an auxiliary water system; or

H. A situation that presents an immediate health hazard to the public water system.

8.08 List of Approved Backflow Prevention Device Testers

Persons who desire to have their names, company, and phone numbers placed upon the District's list of Approved Backflow Prevention Device Testers shall demonstrate competency in all phases of backflow prevention device testing and repair by submitting certification of the following minimum requirements:

A. Applicants shall have had at least two (2) years experience in plumbing or pipefitting or equivalent qualifications.
B. Applicants shall hold a valid Backflow Prevention Device Testers certification from the American Water Works Association (AWWA) California-Nevada Section.
C. A tester of backflow prevention devices shall furnish evidence, showing availability of necessary tools and equipment to properly test such devices and shall be responsible for the competency and accuracy of all tests and reports prepared.

All fieldwork shall be completed and/or immediately supervised by the individual listed by the District. The District may remove the tester from the approved list at any time for improper testing, repairs and/or reporting.

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. 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 District personnel must issue a Water Permit and Will Serve Letter prior to scheduling and receiving an inspection. District personnel shall inspect all Water System facilities installation for compliance with all requirements of the District Code.

Commercial: All applicable fees and deposits must be paid and District personnel must complete District Plan Check Review before scheduling and receiving inspections. District personnel shall inspect all Water System facilities installation for compliance with all requirements of the District Code.

9.02 Request for Inspection of Water System Facilities

The owner or their agent shall notify the District at least two business days (48 hours) 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 Water System 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 Water System facilities does not conform to the provisions of the District Code, the District shall notify the owner or their agent in writing, 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 Water Inspection, the Water 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 District Approval

No Water System facility constructed under the provisions of the District Code shall be placed in use until the District has approved the work. 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 the District Code. The General Manager shall make a determination, in writing that the best interest of the public will be.

10. MAINTENANCE/TESTING OF WATER FACILITIES

10.01 Maintenance and Testing of Private Water System Facilities

The owner or their agent of a property served by the District's water system shall be responsible for the operation and maintenance of the private water system 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 District's water system easement or property line.

The owner or their agent shall, at their own risk and expense, install, keep and maintain in good repair all Water System facilities (water pipelines, mains, valves, meters, equipment, pump systems, backflow devices 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 Water System facilities, whether inspected and/or approved by the District. All such installations of Water System facilities shall conform to all Federal, State, County, District and local laws, rules, regulations and ordinances.

The owner or their agent served by the District's Water 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 Water System facilities wherever located.

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

10.02 Conditions Requiring Testing of Existing Water System Facilities

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

All private Water System facilities, including those serving residential, multiple residential, commercial, and industrial connected to the District's Water System shall be brought to then existing District Standards and 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, as determined by Placer County assessed valuation 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 service line(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) an inspection by the District indicates reasonable cause or,

(g) upon a determination of the General Manager that testing or Water System facility replacement is required for the protection of the public health, safety and welfare.

10.03 Connection Procedures for New Water System Facilities

Connections to existing facilities shall be made as indicated on District approved drawings and shall be scheduled and coordinated to result in a minimum disruption of existing system.

The District shall be notified in advance of making any connection to existing system and shall be made only at a time approved and authorized by the District. All facets of work, related to any design, connection, modification of pipe, parts, engineering, etc., must be approved by the District prior to disruption of service or physical connection and are made at the sole responsibility of the Contractor.

10.04 Testing Procedures for New or Existing Water System Facilities

The owner or their agent of a house, building, or property connected to the District's Water System shall conduct all Water System facility upgrades and testing required at their sole expense and shall notify the District 48 hours prior to testing. A District Inspector shall witness testing.

Water Pipelines: All building service lines, joint lines, and privately owned pipelines shall be pressure tested as prescribed in this ordinance. Residential service lines may be pressure tested at District's operating pressure and visually inspected for leaks and code conformance.

In the case of building and joint service lines, the test section shall be from the building / District owned connection point (property line) to the point at which the system daylights. The test section includes all private pipelines, including joint service lines, valves, meters, backflow devices or pressure reducing valves, which provide Water service to the parcel in question.

Testing shall be in accordance with one of the following (Note: test failures of existing non-metallic asphaltic composite (AC) pipe shall require entire replacement of the defective pipeline with District approved PVC, Ductile Iron or C900. Installation and testing of the new pipeline shall be in accordance with Section 7, Installation of Water System Facilities, page 27.

- The Contractor shall furnish all materials, equipment and labor for testing the piping system at 150 psi or at 50 psi above working pressure, whichever is greater, or as required by the District. The minimum 150 psi pressure in the system shall not exceed 175 psi at the lowest elevation of the test section without District approval. Residential service lines may be pressure tested at District's operating pressure and visually inspected for leaks and code conformance.

- Each system may be tested as a unit or in sections as shown on plans, or as directed by the District, but each complete system shall successfully meet the requirements specified herein. Testing shall be completed with all pipelines, fittings, saddles, taps, and tie-ins completed and in place.

- The test shall be made by closing valves and pressurizing the test section to the standards in the preceding paragraph. Specified pressure shall be maintained for 3 hours and leakage determined. Leakage shall not exceed 2.5 gallons per day per inch diameter per mile of pipe (0.312 gallons per 3 hours per inch diameter per mile of pipe). If the first test fails to conform to these specifications, a second test may be performed. A second loss exceeding the allowable specification constitutes a failure of the test section, whereupon that section shall be replaced, as needed, and tested in accordance with these specifications.

- All corrections to failed system must be performed in the presence of a District Inspector and subjected to the same test criteria initially performed.

- The Contractor shall, at his own expense, repair any damage to the water facilities, or to any other structures, resulting from or caused by these tests.

10.05 Time Limits for Completion of Testing Procedures

Testing shall be completed in a timely manner as follows:

- Prior to connection to District facilities or to District acceptance of any part of the water facilities, residence, building, or property, or
- Within 30 days of standard notification by the District, or
- Immediately if the General Manager determines that testing and repair are necessary to protect public health and the integrity of the Water System.

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 Water System facility.

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

Testing of any portion of the Water System facility after repair or replacement may be required at any time upon a determination of the General Manager for the protection of the public health, safety and welfare.

10.06 Flushing and Sterilization of Water Lines

All equipment and pipelines intended to carry potable water shall be sterilized prior to placing facilities in service. Sterilizing procedures shall conform to AWWA C651 as hereinafter modified or expanded and the requirements of any governing agency having jurisdiction. Flushing and sterilization shall take place prior to final approval, acceptance and use of the system.

Prior to sterilizing, flush all foreign matter from water facilities to be sterilized. Contractor shall provide all materials and labor to complete process without damage to adjacent properties. Minimum flushing velocities shall be 2.5 feet per second.

The following flow rates will achieve minimum required velocities for the pipe diameter indicated:

Pipe Diameter, inch	Flow Rate, gpm
4	98
6	220
8	390
10	610
12	880
14	1,200

For large diameter pipe where it is impractical or impossible to flush the pipe at 2.5 fps velocity, clean the pipeline in place from the inside by brushing and sweeping, then flush at a lower velocity.

10.07 Sterilization of System

A. **General:** All potable water systems shall be disinfected in accordance with the requirements of AWWA C651. Also, see Technical Specification Appendix.

B. **Chlorination:** A chlorine-water solution shall be uniformly introduced into pipeline by means of a solution-feed chlorinating device. The solution shall be introduced at one end of the pipeline through a tap in such a manner that as the pipeline is filled with water, the concentration entering the pipe is 50mg/L. In addition, a calcium hypochlorite granular tablet glued to the top of the mainline pipe is an acceptable method of disinfection. An approved method of backflow control shall be installed between solution/water supply and system being disinfected.

C. **Retention Period:** Chlorinated water shall be retained in the pipeline long enough to destroy all non-spore-forming bacteria or, twenty-four hours at minimum. After the required detention period, samples from representative locations within the test section shall retain a free chlorine residual of 25 mg/L.

D. **Valve Operation:** During the process of chlorinating the pipelines, all line valves and other appurtenances shall be operated while the pipeline is filled with the sterilization solution.

E. **Final Flushing/Dechlorination:** After the required sterilization and accepted test results, the solution shall be flushed from the pipeline and appurtenances until the District standard free chlorine residuals are met (.25 mg/L). The solution must be dechlorinated during discharge. Heavily chlorinated water may not be discharged to the environment without dechlorination to 0 mg/L. The CONTRACTOR shall be responsible for providing all flushing and dechlorination equipment and shall be in compliance with all Federal, State and local laws, rules and regulations.

11. PROHIBITED USES OF WATER SYSTEM

11.01 Water Permit Required

No person shall use, or cause to be used or discharged, any potable or raw water, or use any water storage or supply systems or facilities owned by the District without having obtained a Water Permit from the District. Such permit is required in addition to any other permits that may be required by the District Code, County Code, State Statute or other Ordinance, rule or regulation applicable to the use.

11.02 General

Prohibited Uses include, but are not limited to the following:

A. To place, throw, or deposit, or cause or permit to be placed, thrown, or deposited in any public water facility any solid, gaseous or liquid matters, or materials, contaminants or obstructions of any kind whatever which may interfere with or prevent the effective delivery, use, operation, maintenance, repair or treatment, storage or distribution of water.

B. To introduce or cause backsiphonage into the public Water System, any used water, storm water, surface water, ground water, roof runoff, surface drainage, sub-surface drainage, cooling water, solar system or hydronic system or waters of similar quality into any public water system. ("used water" is that point at which water leaves the public water system and enters private water system no matter the content or condition thereafter).

C. To cause to be introduced or the discharge of any gasoline, benzene, oil or other flammable or explosive liquid or substance into any public water facility, storage, watershed, or water way.

D. To introduce, or cause to be introduced, any toxic or other pollutants in any amounts or concentrations into any water facility, watershed or waterway.

E. To temporarily or permanently connect privately owned facilities or equipment to the public Water System facilities watershed or waterway without District issued permit.

11.03 Removal of or Damage to Water System

An unauthorized person shall not remove or cause to be removed, or damage or cause to be damaged, any portion of any public water system, Water System facility, or any appurtenances thereto.

11.04 Unauthorized Opening or Trespass upon District Water System Facilities

An unauthorized person shall not open or enter, or cause to be opened or entered, for any purpose whatsoever, any District Water System facility, watershed or waterway. The opening of or trespass upon any District water facility, watershed or waterway may lead to a penalty. This specifically includes all maintenance facilities, collection facilities, treatment facilities, storage facilities, pressure reducing stations 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 and/or Placer County. 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 Water 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, Placer County, or the ordinances of the District or, rules and regulations so established regarding the Water System and facilities, the District shall notify the person or persons causing, allowing, or committing such violation and upon the failure of such person or persons to cease or prevent further violation immediately upon notice of the violation, the District shall have authority to disconnect the property from the District Water 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 Water Code or any other ordinance, rule or regulation of this District is hereby declared to be a public nuisance. The District may cause proceedings to be brought for the abatement of the occupancy of the building or industrial facility during the period of such violation.

12.04 Public Nuisance, Abatement

During any period of disconnection, habitation of such disconnected premises by human beings shall constitute a public nuisance, whereupon the District may cause or petition legal proceeding to be brought for the abatement of the occupancy of said premises by human beings during the period of such disconnection. In such events, and as a condition of re-connection, the applicant for re-connection shall pay to the District all costs incurred by the District associated with the disconnection and the legal proceedings. Such costs shall include but not be limited to reasonable 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 water 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 water service is found to be detrimental or damaging to the District or its other customers, the District may discontinue water 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 service line or the customer's improper use of the building service line or is otherwise caused by the customer's actions/inactions, then the customer will be liable for the District's cost of discontinuance and re-connection, if any, as well as any corrective actions required by the District.

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

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

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

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

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

At least 10 days before discontinuing service, other than the discontinuance of service for nonpayment of a delinquent account or public health and safety issues which are provided for in Notice and Hearing Prior to Discontinuance of Service for Non-Payment, Section 12.06, page 54, the District shall provide the customer with a written notice which shall specify the reason for the proposed discontinuance and inform the customer of the procedure for and the availability of the opportunity to discuss the reason for the proposed discontinuance with the General Manager, who is empowered to review disputes and rectify errors and settle controversies pertaining to such proposed discontinuance of service. The name and phone number of the General Manager shall be included in any such notice of proposed discontinuance given to a customer.

12.08 Discontinuance of Service on Weekends, Holidays or after Hours

No water 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 54, 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 or request for an investigation has resulted in an adverse determination by the General Manager, may

appeal the determination to the Board of Directors.

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

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

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

If an 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, but the notice does not entitle the customer to further investigation by the District.

12.12 Enforcement of Provisions

The provisions of the District Code, and a violation 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 may submit a written appeal to the General Manager of the District 30 days of the date that the applicant is advised by the member entity or by the Agency of any action. The appeal shall set forth the events and circumstances leading to the appeal, the nature of the ruling or interpretation from which relief is

sought, the nature of the impact of the ruling on appellants' property or business, together with any other reason for the appeal.

Should the aggrieved person not be satisfied with the determination of the General Manager, he/she shall ask to appeal the decision of the General Manager to the Board of Directors within 30 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 at the next regularly scheduled meeting, 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 following that meeting.

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 District.

12.16 Re-Connection to the District's Water System

After disconnection of Water service to any premises for any cause, the re-connection of such premises shall be subject to all provisions of the District Water 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
PLAN CHECK, INSPECTION CHARGES AND SPECIAL FEES FOR WATER SYSTEM

PRIVATE DEVELOPMENT PLAN CHECK AND INSPECTION FEES

Payment of $250.00 shall be made prior to acceptance of improvement plans. All other District incurred costs for plan review, inspections, testing of materials, processing of design revisions, calculation of connection fees, user fees, assessments, related construction activities, automobile mileage, and all overhead and indirect costs will be billed to developer at cost.

RESIDENTIAL INSPECTION CHARGES

(free first time, re-inspection cost) .....$ 50.00

Other ..... At Cost

SPECIAL FEES AND CHARGES

Cancellation $25.00

Annexation Fee per acre .....Determined by the General Manager *

Annexation Fee sub-division .....Determined by the General Manager *

Other .....Determined by the General Manager *

* Based in part upon project/plan review and District Engineers determination of mitigation for annexation or development's impact on the District.

APPENDIX A-2
NORTHSTAR COMMUNITY SERVICES DISTRICT
WATER FEE STRUCTURE

WATER - RESIDENTIAL														
TYPE OF CONNECTION	UNIT OF MEASURE	CONNECTION FEE PER UNIT OF MEASURE (a)						FEE TYPE	MONTHLY USER FEE CHARGE PER UNIT OF MEASURE (a)					
		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Single Family	Residential	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$38.07	$48.29	$49.98	$51.73	$53.54	$55.41
								CAPITAL		$3.76	$7.52	$11.28	$15.04	$18.80
								TOTAL		**$52.05**	**$57.50**	**$63.01**	**$68.57**	**$74.21**
Condominium	Studio	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$22.85	$28.99	$30.00	$31.06	$32.14	$33.27
								CAPITAL		$2.26	$4.51	$6.77	$9.03	$11.28
								TOTAL		**$31.25**	**$34.52**	**$37.83**	**$41.17**	**$44.55**
Condominium	Lodgetts	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.69	$1,766.42	OPERATIONS	$22.85	$28.98	$30.00	$31.05	$32.13	$33.26
								CAPITAL		$2.26	$4.51	$6.77	$9.02	$11.28
								TOTAL		**$31.24**	**$34.51**	**$37.82**	**$41.16**	**$44.54**
Condominium	1B-1B	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$26.65	$33.80	$34.99	$36.21	$37.48	$38.79
								CAPITAL		$2.63	$5.26	$7.89	$10.53	$13.16
								TOTAL		**$36.44**	**$40.25**	**$44.11**	**$48.01**	**$51.95**
Condominium	2B-1B	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$32.23	$40.89	$42.32	$43.80	$45.33	$46.92
								CAPITAL		$3.18	$6.37	$9.55	$12.73	$15.91
								TOTAL		**$44.07**	**$48.68**	**$53.35**	**$58.06**	**$62.83**
Condominium	2B-2B	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$34.24	$43.43	$44.95	$46.53	$48.15	$49.84
								CAPITAL		$3.38	$6.76	$10.14	$13.52	$16.90
								TOTAL		**$46.81**	**$51.71**	**$56.67**	**$61.68**	**$66.74**
Condominium	3B-2B	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$36.06	$45.74	$47.34	$49.00	$50.72	$52.49
								CAPITAL		$3.56	$7.12	$10.68	$14.24	$17.80
								TOTAL		**$49.30**	**$54.47**	**$59.68**	**$64.96**	**$70.30**
Condominium	4B-2B	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$38.07	$48.29	$49.98	$51.73	$53.54	$55.41
								CAPITAL		$3.76	$7.52	$11.28	$15.04	$18.80
								TOTAL		**$52.05**	**$57.50**	**$63.01**	**$68.57**	**$74.21**
Overage(b)	Per 100 cubic feet	--	--	--	--	--	--	OPERATIONS	$1.92	$2.43	$2.52	$2.61	$2.70	$2.79
								CAPITAL		$0.19	$0.38	$0.57	$0.76	$0.95
								TOTAL		**$2.62**	**$2.90**	**$3.18**	**$3.46**	**$3.74**

(a) Connection fees and first year's User Fees shall be due upon the earlier of the District's approval of Building Improvement Plans, initial use of the system, or as otherwise ordered by the Board of Directors of the District. First year's User Fees will be prorated to the end of the fiscal year.

(b) Overage: Use over 3,000 cubic feet (cf) per 2 months or 18,000 cf annually

(c) Determined by General Manager

APPENDIX A-2
NORTHSTAR COMMUNITY SERVICES DISTRICT
WATER FEE STRUCTURE

WATER - COMMERCIAL (a)

APPURTENANCE CALCULATION

TYPE OF CONNECTION	UNIT OF MEASURE	CONNECTION FEE PER UNIT OF MEASURE (b)						FEE TYPE	MONTHLY USER FEE CHARGE PER UNIT OF MEASURE (b)					
		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Golf Course Irrigation / Snowmaking	Per acre-foot	$0.00	(c)	(c)	(c)	(c)	(c)	OPERATIONS	$210.22	$266.66	$275.99	$285.65	$295.65	$306.00
								CAPITAL	--	$20.76	$41.52	$62.27	$83.03	$103.79
								TOTAL	**$210.22**	**$287.42**	**$317.51**	**$347.93**	**$378.68**	**$409.79**
Hotel (without kitchen)	Living Unit	$291.42	$301.61	$312.17	$323.10	$334.41	$346.11	OPERATIONS	$22.16	$28.11	$29.10	$30.11	$31.17	$32.26
								CAPITAL	--	$2.19	$4.38	$6.57	$8.75	$10.94
								TOTAL	**$22.16**	**$30.30**	**$33.47**	**$36.68**	**$39.92**	**$43.20**
Hotel (with kitchen)	Living Unit	$379.68	$392.97	$406.72	$420.96	$435.69	$450.94	OPERATIONS	$25.92	$32.89	$34.04	$35.23	$36.46	$37.74
								CAPITAL	--	$2.56	$5.12	$7.68	$10.24	$12.80
								TOTAL	**$25.92**	**$35.45**	**$39.16**	**$42.91**	**$46.70**	**$50.54**
Campsite (with sewer)	# of Sites	$269.65	$279.09	$288.86	$298.97	$309.43	$320.26	OPERATIONS	$8.23	$10.44	$10.81	$11.19	$11.58	$11.98
								CAPITAL	--	$0.81	$1.63	$2.44	$3.25	$4.06
								TOTAL	**$8.23**	**$11.25**	**$12.43**	**$13.62**	**$14.83**	**$16.05**
Campsite (without sewer)	# of Sites	$204.36	$211.51	$218.91	$226.57	$234.50	$242.71	OPERATIONS	$5.14	$6.52	$6.75	$6.99	$7.23	$7.49
								CAPITAL	--	$0.51	$1.02	$1.52	$2.03	$2.54
								TOTAL	**$5.14**	**$7.03**	**$7.77**	**$8.51**	**$9.26**	**$10.03**
Other Businesses; Ski Clubs, Snack Bars, Service Stations, etc.	Per Unit/Seat	$85.86	$88.86	$91.97	$95.19	$98.52	$101.97	OPERATIONS	$2.80	$3.56	$3.68	$3.81	$3.94	$4.08
								CAPITAL	--	$0.28	$0.55	$0.83	$1.11	$1.38
								TOTAL	**$2.80**	**$3.83**	**$4.23**	**$4.64**	**$5.05**	**$5.47**
Markets/Grocery	# of Plumbing Fixture Units	$85.86	$88.86	$91.97	$95.19	$98.52	$101.97	OPERATIONS	$3.54	$4.49	$4.65	$4.81	$4.98	$5.15
								CAPITAL	--	$0.35	$0.70	$1.05	$1.40	$1.75
								TOTAL	**$3.54**	**$4.84**	**$5.34**	**$5.86**	**$6.37**	**$6.90**
Laundries	# of 10 lb machines	$345.82	$357.93	$370.45	$383.42	$396.84	$410.73	OPERATIONS	$8.65	$10.97	$11.36	$11.76	$12.17	$12.59
								CAPITAL	--	$0.85	$1.71	$2.56	$3.42	$4.27
								TOTAL	**$8.65**	**$11.83**	**$13.07**	**$14.32**	**$15.58**	**$16.87**
	# of 20-50 lb machines	$692.86	$717.11	$742.21	$768.18	$795.07	$822.90	OPERATIONS	$17.32	$21.97	$22.74	$23.53	$24.36	$25.21
								CAPITAL	--	$1.71	$3.42	$5.13	$6.84	$8.55
								TOTAL	**$17.32**	**$23.68**	**$26.16**	**$28.66**	**$31.20**	**$33.76**
Restaurants & Bars	# Inside Seats	$82.22	$85.10	$88.08	$91.16	$94.35	$97.66	OPERATIONS	$1.68	$2.13	$2.20	$2.28	$2.36	$2.44
								CAPITAL	--	$0.17	$0.33	$0.50	$0.66	$0.83
								TOTAL	**$1.68**	**$2.30**	**$2.54**	**$2.78**	**$3.03**	**$3.27**
	# Outside Seats	$43.53	$45.05	$46.63	$48.26	$49.95	$51.70	OPERATIONS	$1.68	$2.13	$2.20	$2.28	$2.36	$2.44
								CAPITAL	--	$0.17	$0.33	$0.50	$0.66	$0.83
								TOTAL	**$1.68**	**$2.30**	**$2.54**	**$2.78**	**$3.03**	**$3.27**
	# Banquet Seats	$24.66	$25.52	$26.41	$27.34	$28.29	$29.28	OPERATIONS	$1.27	$1.62	$1.67	$1.73	$1.79	$1.86
								CAPITAL	--	$0.13	$0.25	$0.38	$0.50	$0.63
								TOTAL	**$1.27**	**$1.74**	**$1.92**	**$2.11**	**$2.30**	**$2.48**
Theaters / Churches	# of Seats	$14.51	$15.02	$15.54	$16.09	$16.65	$17.23	OPERATIONS	$0.61	$0.78	$0.81	$0.84	$0.86	$0.89
								CAPITAL	--	$0.06	$0.12	$0.18	$0.24	$0.30
								TOTAL	**$0.61**	**$0.84**	**$0.93**	**$1.02**	**$1.11**	**$1.20**
Car Wash	# of Bays	$1,085.83	$1,123.84	$1,163.17	$1,203.88	$1,246.02	$1,289.63	OPERATIONS	$18.65	$23.66	$24.49	$25.35	$26.23	$27.15
								CAPITAL	--	$1.84	$3.68	$5.53	$7.37	$9.21
								TOTAL	**$18.65**	**$25.50**	**$28.17**	**$30.87**	**$33.60**	**$36.36**
Hydrant / Construction	Per Day	$15.96	$16.52	$17.10	$17.70	$18.32	$18.96	OPERATIONS	--	--	--	--	--	--
								CAPITAL						
								TOTAL						
	Per 1,000 gallons	--	--	--	--	--	--	OPERATIONS	$1.87	$2.38	$2.46	$2.55	$2.64	$2.73
								CAPITAL	--	$0.19	$0.37	$0.56	$0.74	$0.93
								TOTAL	**$1.87**	**$2.56**	**$2.83**	**$3.10**	**$3.38**	**$3.65**
Barber Shops	# of Service chairs	$304.71	$315.37	$326.41	$337.84	$349.66	$361.90	OPERATIONS	$16.55	$21.00	$21.73	$22.49	$23.28	$24.10
								CAPITAL	--	$1.63	$3.27	$4.90	$6.54	$8.17
								TOTAL	**$16.55**	**$22.63**	**$25.00**	**$27.40**	**$29.82**	**$32.27**
Beauty Salons	# of Service chairs	$304.71	$315.37	$326.41	$337.84	$349.66	$361.90	OPERATIONS	$23.95	$30.37	$31.44	$32.54	$33.68	$34.86
								CAPITAL	--	$2.36	$4.73	$7.09	$9.46	$11.82
								TOTAL	**$23.95**	**$32.74**	**$36.17**	**$39.63**	**$43.14**	**$46.68**
Other Commercial (c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	OPERATIONS	(c)	(c)	(c)	(c)	(c)	(c)
								CAPITAL						
								TOTAL						
Overage (d)	Per 100 cubic feet	--	--	--	--	--	--	OPERATIONS	$1.92	$2.43	$2.52	$2.61	$2.70	$2.79
								CAPITAL	--	$0.19	$0.38	$0.57	$0.76	$0.95
								TOTAL	**$1.92**	**$2.62**	**$2.90**	**$3.18**	**$3.46**	**$3.74**
Pools and Spas	Equivalent Dwelling Unit (EDU)	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.69	$1,766.42	OPERATIONS	$38.07	$48.29	$49.98	$51.73	$53.54	$55.42
								CAPITAL	--	$3.76	$7.52	$11.28	$15.04	$18.80
								TOTAL	**$38.07**	**$52.05**	**$57.50**	**$63.01**	**$68.58**	**$74.21**
Irrigation	# of Plumbing Fixture Units	$85.86	$88.87	$91.98	$95.19	$98.53	$101.97	OPERATIONS	$2.80	$3.55	$3.68	$3.80	$3.94	$4.08
								CAPITAL	--	$0.28	$0.55	$0.83	$1.11	$1.38
								TOTAL	**$2.80**	**$3.83**	**$4.23**	**$4.63**	**$5.04**	**$5.46**
Temporary Irrigation (f)	# of Plumbing Fixture Units	$85.86	$88.87	$91.98	$95.19	$98.53	$101.97	OPERATIONS	$2.80	$3.55	$3.68	$3.80	$3.94	$4.08
								CAPITAL	--	$0.28	$0.55	$0.83	$1.11	$1.38
								TOTAL	**$2.80**	**$3.83**	**$4.23**	**$4.63**	**$5.04**	**$5.46**

(a) Commercial Fees are determined by summing the appropriate fees from the Meter Calculation and the Appurtenance Calculation tables.
The fee from the meter Calculation table is determined by the size of the meter that is or would be installed.
(b) Connection fees and first year's User Fees shall be due upon the earlier of the District's approval of Building Improvement Plans, initial use of the system, or as otherwise ordered by the Board of Directors of the District.
First year's User Fees will be prorated to the end of the fiscal year.
(c) Determined by General Manager
(d) Overage: use over 3,000 cubic feet (cf) per 2 months or 18,000 cf annually
(e) Fees for pools and spas are assessed by dividing the total volume of the pool or spa by the volume eqiuvalent of one Equivalent Dwelling Unit (EDU) and multiplying the result by the rate shown. One EDU = 36,500 gallons.
(f) Temporary irrigation connection fees will be refunded in full, minus a $600 fee for installation and inspections. Refund available only for services abandoned and inspected per District requirements.

APPENDIX A-2
NORTHSTAR COMMUNITY SERVICES DISTRICT
WATER FEE STRUCTURE

WATER - COMMERCIAL (a)														
METER CALCULATION														
TYPE OF CONNECTION	UNIT OF MEASURE	CONNECTION FEE PER UNIT OF MEASURE (b)						FEE TYPE	MONTHLY USER FEE CHARGE PER UNIT OF MEASURE (b)					
		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
3/4" Meter	Each	$1,487.28	$1,539.33	$1,593.21	$1,648.97	$1,706.68	$1,766.42	OPERATIONS	$38.07	$48.29	$49.98	$51.73	$53.54	$55.42
								CAPITAL	--	$3.76	$7.52	$11.28	$15.04	$18.80
								TOTAL	**$38.07**	**$52.05**	**$57.50**	**$63.01**	**$68.58**	**$74.21**
1" Meter	Each	$1,858.50	$1,923.54	$1,990.87	$2,060.55	$2,132.67	$2,207.31	OPERATIONS	$46.78	$59.34	$61.42	$63.57	$65.79	$68.10
								CAPITAL	--	$4.62	$9.24	$13.86	$18.48	$23.10
								TOTAL	**$46.78**	**$63.96**	**$70.66**	**$77.43**	**$84.27**	**$91.19**
1-1/2" Meter	Each	$2,228.50	$2,306.50	$2,387.23	$2,470.78	$2,557.26	$2,646.76	OPERATIONS	$62.41	$79.16	$81.93	$84.80	$87.77	$90.84
								CAPITAL	--	$6.16	$12.32	$18.49	$24.65	$30.81
								TOTAL	**$62.41**	**$85.32**	**$94.26**	**$103.29**	**$112.42**	**$121.65**
2" Meter	Each	$2,600.92	$2,691.96	$2,786.17	$2,883.69	$2,984.62	$3,089.08	OPERATIONS	$77.95	$98.88	$102.35	$105.93	$109.63	$113.47
								CAPITAL	--	$7.70	$15.40	$23.09	$30.79	$38.49
								TOTAL	**$77.95**	**$106.58**	**$117.74**	**$129.02**	**$140.43**	**$151.96**
3" Meter	Each	$3,714.56	$3,844.57	$3,979.13	$4,118.40	$4,262.54	$4,411.73	OPERATIONS	$194.80	$247.11	$255.76	$264.71	$273.97	$283.56
								CAPITAL	--	$19.24	$38.47	$57.71	$76.94	$96.18
								TOTAL	**$194.80**	**$266.34**	**$294.23**	**$322.41**	**$350.92**	**$379.74**
4" Meter	Each	$5,201.84	$5,383.90	$5,572.34	$5,767.37	$5,969.23	$6,178.15	OPERATIONS	$311.68	$395.37	$409.20	$423.53	$438.35	$453.69
								CAPITAL	--	$30.78	$61.55	$92.33	$123.11	$153.89
								TOTAL	**$311.68**	**$426.14**	**$470.76**	**$515.86**	**$561.46**	**$607.58**
6" Meter	Each	$7,060.33	$7,307.44	$7,563.20	$7,827.92	$8,101.89	$8,385.46	OPERATIONS	$546.07	$692.69	$716.93	$742.02	$767.99	$794.87
								CAPITAL	--	$53.92	$107.84	$161.77	$215.69	$269.61
								TOTAL	**$546.07**	**$746.61**	**$824.77**	**$903.79**	**$983.68**	**$1,064.48**
>6" Meter	Each	(c)	(c)	(c)	(c)	(c)	(c)	OPERATIONS	(c)	(c)	(c)	(c)	(c)	(c)
								CAPITAL						
								TOTAL						

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The fee from the meter Calculation table is determined by the size of the meter that is or would be installed.
(b) Connection fees and first year's User Fees shall be due upon the earlier of the District's approval of Building Improvement Plans, initial use of the system, or as otherwise ordered by the Board of Directors of the District.
First year's User Fees will be prorated to the end of the fiscal year.
(c) Determined by General Manager
(d) Overage: use over 3,000 cubic feet (cf) per 2 months or 18,000 cf annually
(e) Fees for pools and spas are assessed by dividing the total volume of the pool or spa by the volume eqiuvalent of one Equivalent Dwelling Unit (EDU) and
multiplying the result by the rate shown. One EDU = 36,500 gallons.
(f) Temporary irrigation connection fees will be refunded in full, minus a $600 fee for installation and inspections. Refund available only for services abandoned and inspected per District requirements.

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 (Use 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 and other business patrons.

# of Restaurant Seats	# of Fixture Units
0-50	12
51-100	15
101-200	21
201-300	27
301-400	33
401-500	39
501-600	45
601-700	51
701-800	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 numbers of business fixture units remain. Example: A restaurant with seating of 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, and the credit applied would be reduced so that the required number of business fixture units 15 remain.

APPENDIX A-5
DISTRICT STANDARD SPECIFICATIONS

A-5.1 Scope

The District Standard Specifications constitute a compilation of standards for water system design, development, repair and construction. The purpose of these standards is to establish quality guidelines for water system design and construction within the District. These standards shall apply to all Water System 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; Placer County, and special district Ordinances, Resolutions, Rules, and Regulations which in any manner effect the design construction or operation of the Water System facilities and its appurtenances.

All developments/projects are handled on a first come, first serve basis. There are specific administrative requirements for developments and projects that involve the installation of water facilities.

A-5.2 Design Standards

Design Flow: A minimum average flow of 500 gallons per day per single residential unit or 320 gallons per multi residential and 80 gallons per year per square foot for commercial shall be used for design purposes, with the peak flow being consistent with peak residential/commercial flows and fire flows. In larger Water System facilities, consideration should be given to concentration of peak flows. Residential systems should be designed to maintain a minimum residual pressure of 35 psi. All water systems shall be designed with sufficient capacity to handle maximum peak flows, residential and fire flows, and maintain a minimum residual pressure of 20 psi at those flows. The District maintains existing static pressure zones at a high of 105 psi and low of 50 psi. The District will require new development to provide those pressures. Pressure reducing valves pre set at 60 psi will be required on all connections. Any exceptions to these specifications will require prior approval by the General Manager.

Population densities will vary, being controlled largely by the number of residential lots per acre and other land uses. All design population estimates including equivalent population for schools, commercial, and industrial uses, shall be indicated on the set of improvement plans submitted for approval.

Location and Alignment of Water System Facilities: All Water System facilities to be dedicated to the District shall be constructed and installed within rights-of-way dedicated for public streets or roads, or within Water System 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

Water System pipelines, a radius of not less than 200 feet will be used, and shall be greater whenever possible.

Location of Water System Facilities with Respect to Sewer System: Water System main pipelines running parallel to sewer mains must maintain at least a 10- foot horizontal separation, or be constructed of C900 or Ductile Iron and meet the following criteria. Water System main pipelines crossing sewer mains shall maintain at least 1- foot vertical separation and shall meet Uniform Plumbing Code requirements for pipeline types, joint locations, and encasement or sleeving.

The location of building service lines with respect to sewer service connections running parallel in a common trench shall meet the requirements of the Uniform Plumbing Code, Section 1108 that states in part:

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

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

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

Pipe Cover: The depth of any Water System main pipeline or service lateral shall be adequate to obtain a minimum cover of 42 inches from top of pipe. Any exception to this rule must have prior approval of the General Manager.

Fire Hydrant Spacing: Normal maximum spacing for fire hydrants shall be 300 feet. Design changes will remain option of General Manager, Utility Manager or District Fire Chief.

E**nd of Line:** An end of line stub may be flanged capped or restrained valved. Flange Cap shall be water-tight and pressure protected with anchors and thrust blocks. Valve shall be flanged or MJ connected and thrust blocks installed at end. Swing-ties and tracing wire will be provided and installed by the contractor and marked clearly on prints to indicate end of line.

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

Whenever a water main pipeline is installed which Will Serve form existing houses or other buildings, a Water System service connection shall be constructed for each such existing house or building. Each Water System service connection shall be referenced to the plan stationing.

A plan and profile of any Water System service connection, other than for a single-family dwelling shall be submitted in accordance with the District Code.

Water Pump Stations and High Pressure Mains: Whenever the design of Water System Facilities includes the necessity of water pumps or high-pressure mains, the following data shall be submitted for tentative approval prior to construction:

Pumps

- The design flows computations for the pumping system that includes the pumps and high-pressure main.

- The types, 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 any residence shall be 50 feet except with prior approval of the General Manager for each specific case.

- Section and plan views of the infrastructure and facilities 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

The pipeline and appurtenances 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 pipelines with tape at maximum 4-foot 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 Water System involves mobile home and/or recreational vehicle parks, additional requirements to those in the Uniform Plumbing Code, may be necessary due to the environment.

A-5.3 Criteria for Improvement Plans

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

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

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

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

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

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

Example:

These improvement plans have been reviewed and approved for construction of the Water System

Approved: NORTHSTAR COMMUNITY SERVICES DISTRICT

_____ _____

General Manager / Utilities Manager **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 / Utilities Manager. The following phrase shall be noted on the improvement plans:

"All water works to meet or exceed Northstar Community Services District Code requirements"

Plan and Profile Sheet Requirements: The improvement plans shall clearly show the existing and proposed alignments and profiles of the Water System (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 Water System and sewer facilities. Ground surface profiles must be shown.

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

Detail Sheet Requirements: Detail sheets of all Water System facilities (treatment, storage, collection, transmission, wells, pump stations, facilities, electrical, roads, drainages, easements, 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 benchmarks 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 water system pipelines, sewer systems, 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-5.4 As-Built Drawings/Electronic Data

The owner or their agent shall have reproducible improvement plans (mylar sheets) prepared with 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 Computer Disk (CD). A single set of reproducible improvement plans and a CD containing the same data as the reproducible improvement plans and two sets of "as-builts" shall be presented to the

District.

The set of "as-built" improvement plans shall have the words "as-built" 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. The General Manager shall approve the "as-built" improvement plans prior to any District acceptance of the completed system.

A-5.5 Construction Administration

Installation of new Water System facilities or alteration to existing water 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 Water System 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: 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 water system 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 District Board of Directors will notify the owner in writing as to the date of final approval and acceptance.

A-5.6 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 the risk of injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution, or from the non execution of the work. The developer or his/her contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof.

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

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

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

Spillage or damage 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.

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

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

The services of the District in conducting construction review of the owner or their agent's performance is not intended to include review of the adequacy of the contractor's work methods, equipment, bracing or scaffolding or safety measures, in, on, or near the construction site, and shall not be construed as supervision of the actual construction nor make the District responsible for providing a safe place for the performance of work by the owner or their agent, subcontractors, or suppliers; or for access, visits, use work, travel or occupancy by any person.

The owner or their agent shall carefully instruct all personnel working in potentially hazardous work areas as to potential dangers and shall provide such necessary safety equipment and instruction as is necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to electrical work and excavation and in pump sump or pressurized systems 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 law requires vapor-tight or explosion-proof electrical installation, this shall be provided.

Shoring and Trench Safety Plan: Attention is directed to Section 832 of the Civil 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 there from. They shall support or replace any such structures without delay and without any additional compensation to the entire satisfaction of the District. All obstructions to traffic shall be guarded by barriers and illuminated at night. The owner or their agent shall be responsible for all damage to persons and property directly or indirectly caused by their operations and, under all circumstances, they must comply with the laws and regulations of the County and the State of California relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdictions.

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

Those authorities responsible for maintenance of said road will determine type and time of construction required at any road subject to interference by Contract work. 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 of the 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-5.7 Guarantee and Delivery of Title

General Guarantee: The developer/owners 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 Water System facilities.

- Maintenance Agreement - The developer/owners shall supply a maintenance agreement, depositing 10 percent of the contract amount for water facilities, in cash securities.

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 water 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 water 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.

APPENDIX A-6
TECHNICAL PROVISIONS FOR CONSTRUCTION OF WATER SYSTEM / FACILITIES

A-6.1 Piping and Plumbing

Treated Waterline Piping: Allowable treated waterline pipe materials shall be Ductile Iron Pipe and Polyvinyl Chloride (PVC) Pressure Pipe and Steel Pipe. Specifications for individual pipe materials are given below.

Design Conditions:

A. Depth of cover to be a minimum of 42 inches.
B. Trench width shall be a minimum of 1 pipe diameter plus 12 inches.
C. 6" of 3/8" minus bedding under the pipe.
D. Bedding tamped to 12 inches above pipe, load factor 1.5.
E. Soil density 150 pounds per cubic foot.
F. Bedding angle 90 degrees.
G. Live load AASHTO H-20, 16,000- pound wheel load.
H. Rigid pipe 1.5 factor of safety versus crushing.
I. Flexible pipe allowable deflection – as specified by pipe manufacturer.
J. Above design conditions apply to an empty conduit with no internal pressure.
K. Ductile iron pipe shall be installed adjacent to and forty feet on either side of fuel tanks, fueling stations, or individual properties using volatile material on the property, unless soils testing are submitted showing no volatile material exist in the trench envelope.

Ductile Iron Pipe: Shall be fully gauged and labeled

Material – Ductile iron water pipe shall conform to AWWA C151 specifications. Ductile iron pipe shall be pressure class 350 for pipe sizes 12 inch and smaller, pressure class 300 for 14 to 20 inch, pressure class 200 for 24 inch pipe, and pressure class 150 for pipes 30 inches and larger. Higher pressure class shall be used where the working pressure of the pipe exceeds the pressure class shown.

Joints – Lengths of ductile iron pipe shall be joined by slip-on type joint or mechanical type joint as shown on the plans with rubber rings furnished by the manufacturer of the pipe and designed for use with the pipe being installed. Assembly of pipe and joints shall follow the manufacturer's instructions. After assembly of each slip-on joint the final location of rubber rings within each joint shall be checked by gauge as recommended by the manufacturer.

Joints between ductile iron pipe and fittings shall be slip-on type, mechanical type or flanged as shown on the plans. Slip-on type joints shall be sealed by means of rubber rings designed for use with the pipe being installed. Rubber rings resistant to fuels shall be used forty feet on either side of

property using or containing volatile materials.

Joints between ductile iron pipe and other types of pipe shall be made by means of the proper sized and type compression adapter.

Fittings - The fittings shall be designed to meet the design requirements of the adjacent pipe used. All fittings shall be smooth and free from defects.

Fittings shall be ductile iron or fabricated steel.

Fittings shall be manufactured in accordance with AWWA Standard C110, 111, 115, and 153. Ductile iron fittings shall be protected with a petroleum asphaltic lining and coating. Fabricated steel fittings shall be fusion epoxy lined and coated.

Bolts and nuts shall be carbon steel, ASTM A307, Grade A; hex head, or standard tee-head.

Polyvinyl Chloride (PVC) Pressure Pipe: All PVC pressure pipe shall have cast-iron-pipe-equivalent outside diameters.

Small Diameter PVC – Polyvinyl Chloride (PVC) Pressure Pipe, 4 inches to 12 inches, shall conform to current AWWA C-900 and have Underwriters' Laboratories, Factory Mutual and NSF approval. All parts of C-900 not in conflict with these specifications shall apply in full force. PVC pipe shall be dimension ratio (DR) 18, class 150 for internal working pressures up to 130 psi; use DR 14, class 200 for internal working pressures between 130 psi and 180 psi. For internal working pressures greater than 180 psi, pipe DR/class shall be determined by the Engineer.

PVC pipe that has been exposed to the sun and become discolored shall not be installed if the date printed on the pipe indicates the pipe was manufactured two or more years prior to the installation date. If the date printed on the pipe has been destroyed or altered and the pipe is discolored, the pipe shall not be installed.

Large Diameter PVC – PVC pipe in sizes 14 inches through 24 inches, manufactured to AWWA C905 standard, shall be allowed. Use dimension ratio (DR), 18, pressure rating (PR) 165 for internal working pressures up to 130 psi; use DR 14, PR 200 for internal working pressures between 130 psi and 180 psi. For internal working pressures greater than 180 psi, pipe DR/PR shall be determined by the Engineer. AWWA C905 larger than 24 inches is not allowed.

PVC pipe that has been exposed to the sun and become discolored shall not be installed if the date printed on the pipe indicates the pipe was manufactured two or more years prior to the installation date. If the date printed on the pipe has been destroyed or altered and the pipe is discolored, the pipe shall not be installed.

Joints – Lengths of PVC shall be joined by a locked-in flexible elastomeric gasket coupling with bell and spigot configuration. Lubricants intended for use with PVC pipe shall be compatible with the plastic material and not adversely affect the potable quality of the water being transported.

Joints between PVC pipe and fittings shall be slip-on type or mechanical types as shown on the

plans. Slip-on type joints shall be sealed by means of rubber rings designated for use with the type of pipe being installed.

Joints between PVC pipe and other types of pipe shall be made by means of the proper sized compression type adaptor.

Fittings – Fittings shall be cast or ductile iron fittings.

Steel Pipe: Two types of steel pipe shall be allowed for 10 inch to 54 inch diameters:

Steel Cylinder Pipe – Steel pipe shall be steel cylinders, cement-mortar lined and coated. Steel pipe shall be manufactured in conformance with AWWA C200. Minimum steel wall thickness shall be 0.188 inches for pipes 10 inches to 36 inches and 0.2500 inches for pipes from 38 inches to 54 inches. Cement-Mortar lining and coating shall conform to AWWA C205. Prior to fabrication, the Contractor shall submit the manufacturer's design calculations to the Engineer for approval.

Pretensioned Reinforced Concrete Steel Pipe – Steel pipe shall be pretensioned reinforced concrete steel cylinder pipe in conformance with AWWA C303. Prior to fabrication, the Contractor shall submit the manufacturer's design calculations to the Engineer for approval.

Pipe Lengths – Pipeline laying lengths shall be standardized at lengths of either 20 feet or 40 feet except where shorter lengths are required for fittings, curves and closures.

Joints – Lengths of steel pipe shall be joined by a locked-in flexible elastomeric gasket coupling with bell and spigot configuration unless welded bell and spigot joints, mechanically coupled joints or bolted flanges are designated on the plans or in the specifications. Field welding shall conform to AWWA Specification C206. Flanges, bolts and gaskets shall conform to AWWA C207. Flanges shall be Class D or E. Each bell and spigot joint shall be sealed with a sand mortar. The mortar shall be applied on the interior and exterior according to the pipe manufacturer's recommendations. Each joint shall be physically inspected by a District representative prior to closing the pipe trench.

Fittings – Joints between steel pipe and fittings shall be welded, slip-on type or mechanical type as shown on the plans. Slip-on type joints shall be sealed by means of rubber rings designated for use with the pipe being installed. Fittings shall be cement mortar coated and lined to a thickness equal to the coating on the adjacent pipe.

Repairs – All repairs shall be made subject to the approval of the Engineer, and any injury to the protective lining and coating of the pipe, or to the caulking or jointing material, shall be carefully and completely repaired.

Treated Water Service Piping: All service lines, valves, and fittings shall be in conformance with AWWA C800-89. 3/4-inch, and 1-inch meters shall be served with minimum 1-inch service piping. 1-1/2-inch and 2-inch meters shall be served with minimum 2-inch service piping. Allowable 1-inch service piping shall be Polyethylene PE3408, Type K copper or brass. Allowable 2-inch service piping shall be Polyethylene PE3408, Type K copper or brass.

All joints in copper and brass shall be inspected by NCSD before backfilling. Joints shall be bronze compression connections as manufactured by Mueller 110, Jones J-2600 series, Ford Pack Joint or certified equal. When soldered fittings are used, the solder and fittings shall be lead free and approved for potable water service.

- 2-inch service piping from the main shall have a 2-inch corporation stop valve.
- 3-inch and larger meters shall be served with 4 inch or larger piping.
- Meters three inches and larger shall have bypass piping around the meter. A ball valve shall be installed in the bypass pipeline. The ball valve shall be lockable.
- NCSD recommends that water sensitive services with less than three inch meters should have bypass piping equal in size to the service piping.

Specification for individual pipe materials are as follows;

Copper and Brass: Copper pipe shall be type K, hard or soft, IPS size in conformance with ASTM B88. Brass pipe shall be in conformance with ASTM B43.

Polyvinyl Chloride (PVC): Two inch diameter polyvinyl chloride pipe shall be Schedule 80, and shall conform to ASTM Designation D1784 for rigid PVC compounds. It shall bear the National Sanitation Foundation seal of approval and shall conform with the requirements of commercial standard 256 and ASTM D 2241.

Pipe shall be manufactured to Iron Pipe Size (IPS) dimensions and furnished in minimum standard lengths of 20 feet. 4 inch and larger diameter polyvinyl chloride shall conform to current AWWA C-900.
All chemical feed piping 3 inch and smaller shall be Schedule 80 PVC as specified in this section.

All PVC fittings shall be molded fittings manufactured of the same material as the pipe and shall be suitable for either solvent weld or screwed connections. Solvent weld type couplings and fittings shall be of a pressure rating greater than that of the pipe and shall be of a type recommended by the pipe manufacturer.

Polyethylene: Polyethylene (PE) pipe shall conform to AWWA C-901, Standard designation PE 3408, SDR 9, class 200 and shall be Iron Pipe Size.

Raw Water Piping: For pressure flow, allowable raw water pipe materials shall be reinforced concrete pressure pipe, steel pipe, ductile iron pipe, polyvinyl chloride (PVC) and fusion welded high- density polyethylene. For open channel flow, gauge steel pipe or corrugated high density

polyethylene pipe shall be allowed.

All bends exceeding 22-1/2 degrees shall have an approved standard manhole and there shall be a minimum of 10 feet of pipe between bends. Bends for pressure flow shall not exceed 45 degrees.

Specifications for individual pipe materials follow.

Reinforced Concrete Pressure Pipe (RCP): Materials – Reinforced concrete pressure pipe shall be of the class shown on the plans. The pipe shall be centrifugally cast reinforced concrete pipe. Reinforced concrete pressure pipe shall conform to the specifications of AWWA Designation C 302, except as provided herein. Prior to fabrication the contractor shall submit the manufacturer's design calculations to the Engineer for review.

Classes – Concrete pipe shall be specified by the maximum hydrostatic head: 25,50,75,100,125, or 150 feet measured to the centerline of the pipe and by the external loadings of 10, 15, 20 feet of earth over top of pipe, designated B, C, and D respectively. The typical nomenclature used herein for the various classes of pipe is B-50 = Concrete pressure pipe for 10 foot maximum cover and 50 foot maximum head. Pipe shall be laid and jointed in accordance with a manufacturer's recommendations.

Joints – Lengths of RCP pressure pipe shall be joined by a flexible elastomeric gasket and shall conform to the requirements of AWWA Designation C 392, Section 3.4, and shall be able to withstand expansion, contraction, and settlement.

Fittings and Specials – Fittings and specials shall be either fabricated steel with cement mortar coating and lining or constructed the same as the pipe. Prior to fabrication the contract shall submit the manufacturer's design calculations to the Engineer for review. Angle points and branch lines shall be constructed with an access manhole when practical.

Conductor Pipe: Conductor pipes shall conform to County and State requirements and these specifications. Pipe used as a conductor pipe shall be either welded steel pipe or corrugated metal pipe. The General Manager may specify which type shall be used in any instance. The protective lining and coating, if required by the General Manager shall be as shown on the improvement plans.

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

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

Gauge Steel Pipe: Corrugated Steel pipe and Spiral Ribbed Steel pipe shall be allowed for non-pressure raw water collection applications. Corrugated steel pipe shall have a paved invert. All gauge steel pipe shall be hot dipped galvanized. All work and materials shall conform to Caltrans Standard Specifications, Section 66, except as modified herein.

The minimum steel thickness for supplied under this section shall be 14- gauge (0.079 inches).

Spiral Ribbed Steel Pipe: Spiral Ribbed Steel Pipe shall be fabricated with a continuous helical lock seam and with a continuous spirally wound rib projecting outward from the pipe shell and open to the interior in lieu of corrugation. The ribs shall be 3/4 inches in width and 3/4 inches in height and shall be spaced on a maximum of 7-1/2 inch centers. Lock seams shall develop the full strength of the pipe and shall be spaced equally distant between 2 adjacent ribs. The pipe shall be furnished with annular rerolled ends. Any pipe, which has been damaged, shall be repaired to the satisfaction of the Engineer or shall be rejected.

Coupling bands for ribbed steel pipe shall be 12- inch wide annular bands, manufactured from 0.064 -inch thick galvanized steel conforming to Section 66 of the State of California, Department of Transportation (Caltrans), Standard Specifications. The coupling bands shall be a hat shaped band or other approved design and shall be fitted with 7 inch wide gaskets fabricated from neoprene or butyl rubber or other durable, resilient material approved by the Engineer, and assembled in such a manner as to form a sealed joint.

Corrugated Steel Pipe: Coupling bands for corrugated metal pipe shall be 12 inches wide, galvanized, conforming to Section 66 of the State of California Department of Transportation, Standard Specifications and shall have a 12 inch wide neoprene gasket. Joints between corrugated metal pipe shall concrete encased.

Corrugated High Density Polyethylene Pipe: Corrugated High Density Polyethylene pipe (HDPE) shall be furnished and installed in accordance with this specification and the details and notes shown on the contract drawings.

HDPE couplings and fittings shall comply with all the requirements of AASHTO M0252-85I for 3 inch to 10 inch diameter and AASHTO M-294-85I for 12 inch to 24 inch diameter. Split couplings with gaskets shall be furnished. Due to anticipated field changes requiring cutting, pipe with integral couplings shall not be allowed. When HDPE with integral smooth lining is specified or called for on the plans it shall comply with all material and stiffness requirements of AASHTO M-294. For design purposes, the Mannings "n" shall be 0.012 for fusion welded HDPE and 0.020 for corrugated HDPE. HDPE shall not be placed directly on rock or other rigid materials. HDPE shall be installed per the pipe manufacturer's recommendations.

A-6.2 Valves and Appurtenances

Treated waterline valves two inch through twelve inch shall be gate type. Gate valves four inch and larger shall be flange by flange connected to one flange by mechanical joint coupling.

Raw waterline valves shall be gate type. Raw water gate valves sixteen inch and larger shall have a two-inch minimum by-pass.

Gate Valves: Gate valves, 2 inch through 12 inch in diameter shall be resilient seated wedge type, 200 psi WOG rated, and conform to AWWA specification C509. All interior ferrous surfaces shall be protected against corrosion by factory applied fusion-bonded or thermal setting epoxy coating which shall be a minimum 8 mils thick and per AWWA C550.

Valves shall have a smooth inside bore on the bottom half so that sediment cannot accumulate. Valves shall open counter-clockwise. Valves installed underground shall have a non-rising stem and a 2 inch square operating nut that is accessible through a valve box. Valves installed above ground shall have outside stem and yolk (OS&Y), rising stem, and be handwheel operated.

- Gate valves 1-1/2 inch and smaller shall be 85-5-5-5 bronze, handwheel operated, non-rising stem, 200 psi WOG.
- Treated waterline valves 2 inch through 10 inch shall be gate type. Gate valves 4 inch and larger shall be flange by flange.
- Raw waterline valves shall be gate type. Valves 16 inches and larger shall have a 2 inch minimum by-pass valve.
- For system compatibility, gate valves shall be manufactured by U.S. Pipe, Mueller, American Flow Control or American AVK.

Butterfly Valves: All butterfly valves shall be rubber seated conforming to the requirements of AWWA Specification C504. Valves shall be short body type.

Valve discs shall be constructed of alloy cast iron, ASTM A436 Type1 (Ni-Resist). All butterfly valves shall be operated manually and shall open counter-clockwise. Valves installed underground shall be traveling nut operated with all gearing fully encased with double stop feature and have a 2 inch square operating nut that is accessible through a valve box.

Valves installed above ground shall be flanged and be lever operated through 8 inches and handwheel operated for larger sizes. The handwheels shall have a minimum diameter of 18 inches and be fastened to the operating shaft with a cotter pin for easy removal.

Treated waterline valves 14 inches or larger shall be butterfly type. Butterfly valves 4 inches and larger shall be flanged with MJ X MJ as required. All interior ferrous surfaces shall be protected against corrosion by factory applied thermal setting epoxy coating which shall be a minimum 8 mils thick and per AWWA C550. Exterior ferrous surfaces shall be protected against corrosion by factory applied asphaltic coating.

Where a butterfly valve is placed at capped pipe, three foot section of pipe or a minimum pipe length long enough to exercise the valve shall be installed between the butterfly valve and the capped pipe.

For system compatibility, butterfly valves shall be manufactured by Pratt, or Mueller.

Angle Meter Stops: Angle meter stops shall be 85-5-5-5 bronze construction manufactured by Mueller, James Jones, or Ford. Inlet shall be iron pipe size compression or Mueller "insta-tite," with a meter coupling nut outlet and locking wing.

Combination Air and Vacuum Release Valves: Air and vacuum release valves shall be combination air and vacuum release valves as manufactured by the Valve and Primer Corporation (APCO) 143-C, 145-C, etc, Crispin U-10, 20, etc. or Val-Matic 201C, 202C, etc., bronze or stainless steel trim.

Size shall be per these specifications. Engineering calculations shall be submitted on each combination air and vacuum release valve installed on steel pipe or plastic pipe greater than 12 inch diameter showing the adequacy of the valve to prevent pipe failure. Boxes shall be sized as necessary.

Provide 1 inch AVRV on line sizes up to 12 inches; 2 inch AVRV on line sizes 14 inches to 18 inches; and three inch AVRV on line sizes 20 inches to 30 inches. For line sizes larger than 30 inches, the AVRV size shall be determined by the Engineer or as shown on the plans.

Pipe taps for AVRV shall always be at actual high points of waterline. Where the pipeline raises suddenly to avoid another utility or other obstruction, an AVRV shall be placed at the high point if the centerline elevation rise of the high point is one pipe diameter above the centerline pipeline at the grade on either side of the high point.

Automatic Control Valves: Automatic control valves include pressure reducing, pressure relief, flow regulator, surge anticipation, pump control, and altitude valves. Unless otherwise approved by the Engineer, all automatic control valves shall be diaphragm actuated pilot controlled type and shall have globe style body, stainless steel trim, V-port seating, and be fusion epoxy lined and coated. The pilot system shall include pilot line and wye-strainers with blow-offs, opening and closing speed controls, position indicator, and pilot system isolation cocks.

Pressure Reducing Valves: Pressure reducing valves 2 inches and smaller shall be bronze body with stainless steel trim, self-contained, direct acting high capacity type with a built-in stainless steel strainer, have an adjustable outlet pressure setting, and be fully repairable in line. Valves shall be Cla-Val Model 990.

Pressure reducing valves larger than 2 inches shall be combination reducing / sustaining and diaphragm actuated pilot controlled type. Valves shall be Cla-Val Model 92-01.

For applications of pressure-reducing valves in which the differential pressure exceeds Cla-Val's cavitation chart limit, the valve shall be Singer.

Pressure Relief Valves: Pressure relief valves shall be diaphragm actuated pilot controlled type designed to maintain a steady upstream pressure by relieving excess pressure without causing pipeline surges. Valves shall be Cla-Val Model 50-01.

Altitude Valves: Altitude valves shall be diaphragm actuated pilot controlled type with a single seat and a resilient disc for tight closure. If required by system hydraulics, the valve shall be the two-way flow type. For applications of altitude valves in which the differential pressure exceeds the manufacturer's cavitation chart limit, an orifice plate shall be installed downstream of the valve to dampen the cavitation per the manufacturer's recommendations. Valves shall be Cla-Val Model 210.

Ball Valves: Ball valves shall be metallic or plastic as described herein. Mueller 300 series or equal.

Metallic Ball Valves: Ball valves 2 inches and smaller and which are used in steel or copper piping systems shall have a bronze body and stem and Teflon ball and seating.

Plastic Ball Valves: Plastic ball valves used in PVC piping system shall be polyvinyl-chloride, normal impact, with Teflon seat ring. Valves 2 inches and smaller shall be provided with union type end connections and stub ends designed for socket welding. Valves larger than 2 inches shall be flanged.

Globe Valves: Globe valves 3 inches and smaller shall have a bronze body with a replaceable composition disc. Valves shall be globe or angle pattern as required. Globe valves larger than 3 inches shall be iron body with yoke bonnet and bronze trim. Globe valves shall have designed working pressure of WOG-200 psi.

Solenoid Valves: Solenoid valves shall be two-way, full line size, diaphragm type, 125 minimum psi body pressure, 5 psi minimum operating differential, for use with cold water or air. Valve shall be suitable for 115 volt, 60 Hz AC power supply, and shall be as manufactured by Automatic Switch Company, Model 8210, or equal.

All solenoid valves shall have manual operators, encapsulated coils and shall have electrical characteristics as indicated on the drawings. All valves shall be mounted horizontally.

Swing Check Valves: Swing check valves 1-1/2 inches and smaller shall be all bronze, regrinding type designed for a working pressure of 150 psi.

Swing check valves for waterlines 2 inches and larger shall be iron body, brass trimmed, designed for a working pressure of not less than 350 psi. They shall be of the balanced, swing gate type with a clear opening at least equal to that of the connecting pipe and shall have an external lever and counter weight.

Swing check valves shall be rubber flapper type, Apco, Valve and Primer Corporation, Mueller, or Crane.

Valve Boxes: Valve boxes shall be provided for all underground valves and shall be precast concrete, Brooks or Christy G5 Traffic Valve Boxes. Lids shall be cast iron traffic type G5C and marked "WATER." If noted on plans, additional markings may be necessary.

Tapping Valves: Flanged gate valves shall be used for hot tapping waterlines. All gate valves shall conform to gate valves in these Specifications.

Tapping Sleeves/Saddles: Tapping sleeves shall be entirely Type 304 Stainless Steel, including the flange, nuts & bolts, and must have a tapped test outlet and plug, as manufactured by JCM, Ford, or Romac. Mueller ductile iron tapping saddles shall be allowed.

Flange Gaskets: Flanges 4 inches through 36 inches shall be 1/8-inch thick drop in type SBR as manufactured by U.S. Pipe or approved equal. No bonding agent (i.e., Permatex) shall be used on the flange or gasket. The flange face shall be free of any foreign matter and/or rough surface.

Nuts and Bolts: Nuts and bolts shall be cadmium plated, zinc coated. Threads shall be coated with "Loctyte" anti-seize. The bolt shall extend at least 3 threads through the nut.

Service Saddles: Service saddles shall be 85-5-5-5 bronze construction with wide strap and iron pipe thread. PVC C-900 1-inch service saddles shall be Mueller BR2B, Smith Blair 397, Jones J996, Ford S90, Romac 101B, or equal; 2-inch service saddles shall be Jones J979, Mueller BR2B, or Romac 202B, or equal.

Service saddles for Asbestos Cement, Cast and Ductile Iron, and Steel pipe shall be double strap bronze Mueller BR2B, Smith Blair 313, Ford 202B, Jones J-979 or equal.

Corporation Stops: Corporation Stops shall be of 85-5-5-5 bronze construction as manufactured by the James Jones Company, Mueller Company, or Ford. Inlet threads shall be male iron pipe threads. Outlet shall be iron pipe size compression, or Mueller "Insta-tite."

The corporation stop shut off shall be located between the side of the pipe at the 3 or 9 o'clock position.

A-6.3 Water Meters

Meters shall be as described below:

Meters 3/4 inch to 2 inches: Water meters 3/4 inch to 2 inches shall be in conformance with AWWA C700 except as modified under this specification, and as manufactured by Sensus, Badger, Schlumberger or approved equal. Meters shall be positive displacement of the rotating disc or oscillating piston type. Unless otherwise specified, water service meters shall be 3/4 inch X 3/4 inch and shall be 7 ½ inch lay to fit 15-inch Mueller Thermacoil box or 9 inch lay to fit 18" Mueller Thermacoil box.

The meters main case and register housing shall be all bronze with removable bottom cap. The bottom cap shall be secured with 316 stainless steel bolts and washers, 4 bolts on a 3/4 inch meter

and 6 bolts on a 1 inch meter. Residential meter registers shall read in U.S. gallons and shall be straight reading roll sealed magnetic drive with readout and a hardened glass lens. Commercial meters shall be the same and read in cubic feet. The register shall be permanently hermetically sealed without the use of O-rings or gaskets. The register housing shall attach to the meter case by a bayonet attachment and be secured with a seal pin to prevent tampering. The register assembly shall count in any position and shall be removable from the main case without otherwise disassembling the meter. All meters shall have the direction of flow and the serial number stamped on the main case and shall read from the inlet with the hinge pin over the outlet and shall have the serial number stamped on the register housing. All meters shall be guaranteed for 1 year on material and workmanship. The meter accuracy and register shall be guaranteed for 10 years. Meters shall be capable of being retrofitted for reading by telephone or cable systems.

Meters 3 inch and Larger: Water meters 3 inches and larger shall be in conformance with AWWA C702 except as modified under this specification. Meters shall be manufactured by Sensus or approved equal. Meters shall be a flanged single register high performance compound meters. The meter shall have a test plug on the downstream end of the meter.

Water Meter Bypass: Three inch (3") meters or larger shall have meter bypass piping. The bypass piping size shall be:

METER SIZE	MINIMUM BYPASS PIPING
3"	2"
4"	2"
6"	4"
8"	4"

The actual size of the bypass piping shall be determined by the Engineer.
A lockable ball valve shall be installed in the bypass pipeline. The lock shall be provided by the Agency.

Meter Boxes: For meters 3/4 inch and smaller, meter boxes shall be Mueller Thermacoil bury boxes, 15 inch diameter X 42 inch bury, 15 inch X 4 inch insulation pad, and non-locking lid marked "WATER". For 1 inch to 2 inch meters, meter boxes shall be Mueller Thermacoil bury boxes, 18 inch diameter X 42 inch bury, 18 inch X 4 inch insulation pad, and non-locking lid marked "WATER", or, Christy B30 or B36 utility box with metal self-closing reading port sized to allow adequate room for the meter, and the lid shall have a metal self-closing reading port. In all cases, the meter box shall be large enough for proper placement and reading of meter.

Valve Riser Extensions: 8-inch diameter PVC conforming to AWWA Section C-900 water pipe or SDR 35 fitted with debris catcher type cap.

Strainers: Unless otherwise noted, air and gas line strainers shall be Y-pattern bronze body, with 40 mesh screen packed with copper or stainless steel wool. Air line strainers shall be fitted with a brass blowoff cock.

Unless otherwise noted, waterline strainers shall be Y-pattern, iron body with 20 mesh heavy gauge stainless steel screen, and have a tapped blow-off connection with a brass nipple and brass ball valve.

Pressure Gauges: Unless otherwise noted, pressure gauges shall be stainless steel bourdon type with a 4-1/2 inch diameter dial and black alumalite cases suitable for mounting as required. Calibration shall be in 2 psi increments. Pressure range and calibrations shall be as required and the dial shall be engraved with the units in which the gauge is calibrated. All pressure gauges shall be equipped with bronze ball valve type shutoff cocks and glycerin filled.

Pressure gauges shall be rated for service intended, including negative pressure (vacuum gauge or compound gauge).

Locating Cable and Tape: Direct Burial copper cable, No. 10 THHN insulated, shall be taped to the top of all pipe (except 1 and 2-inch service piping) before backfilling. The cable shall be taped to the top of the pipe 5-feet on center with 2-inch duct tape or nylon ties. The pipe shall be clean and dry before the tape is applied. The cable shall be produced from the vender, complete with an approved epoxy splice kit. Cable joints shall be spliced in accordance with the manufacturer's instructions to form a set of continuous electrical conductors throughout the pipe system. Where pipe branches occur, the cable shall be branched also so that cable is provided to the surface at each valve, fire hydrant, blow-off, air/vacuum release valve, backflow prevention device, or other facilities. 3-inch wide, blue, Waterline Warning Tape shall be installed 12 inches above the top of all pipes, including 1 and 2-inch service piping.

Flexible Couplings: Flexible couplings shall have a minimum pressure rating equal to the pipe class. Care shall be taken to see that smooth surfaces have been provided on the pipe so that the coupling can be properly fitted.

Flanged Coupling Adapters: All flanged coupling adapters must be flanged by mechanical joint. Flanges, bolting, and gaskets shall conform to the requirements for the pipe or valve to which the adaptor is attached. The flange class shall match that of the pipe or valve. Flanges must be the same size as the valve flanges. Romac FCA501 or equal.

Rubber Expansion Joints: Rubber expansion joints, which allow expansion and control vibration when connecting rigid piping to pumps and other mechanical equipment, shall be Perflex 980, series 110 or 111, Holz Rubber Company, Lodi, California.

Water Facility Markers: Water facility markers shall be installed in all unpaved areas as detailed in the Standard Drawings, Water Facility Marker, Figure 20, page 169.

Restrained Joints: Restrained joints shall be designed such that the joint has the same lateral strength as the pipeline and/or can restrain the maximum test force exerted on the pipeline. All restraining systems shall be tightened with an adjustable torque wrench to the manufactures recommended torque. The location and minimum required development length shall be clearly identified on the plans per Standard Drawing SA001. The Engineer shall certify the method and the required development length of restraint.

All fire hydrant laterals shall be fully restrained ductile iron pipe, or C-900 class II. The hydrant bury elbows shall have thrust blocks per Standard Drawing SA015 in addition to the restrained joints.

All horizontal and vertical angle points 11 ¼ degrees or more shall be restrained the full development length.

All tees and crosses shall be restrained the full development length.

All in-line valves and dead end pipelines shall be restrained the full development length.

Restraint shall be provided by Star Pipe Products All Grip Series, Uni-flange 1300 or 900 Series, or approved equal for PVC pipe. Restraint shall be provided by EBAA Iron 2100 or 1200 or 1100 SD or 1000 or 800 or 100 Series, or Star Pipe Products Stargrip Series, or Uni-flange 1300 Series, or approved equal for ductile iron pipe. "One Bolt" and "Aqua Grip" are also acceptable.

Tie-in Sleeves: All tie-ins shall be completed with cast or ductile iron 12-inch minimum length mechanical joint sleeves. Bolting and gaskets shall conform to the requirements for the pipe to which the sleeve is attached.

Backflow Devices: All backflow prevention assemblies shall be installed in accordance with Section 8, Cross Connection Control.

A-6.4 Installation and Testing

Location of Existing and New Utilities: Location of all utilities shown on plans is approximate. At least 2 working days prior to starting work on the project, the Contractor shall contact Underground Service alert (USA) at (800) 227-2600 for location. The locations of various utilities shown on the plans are solely an accommodation to the Contractor without any representation or guarantee concerning completeness and/or accuracy. The Contractor is responsible for ascertaining the locations of, and providing protection for, all utilities to be encountered in the performance of the required work.

Quality Control: The Contractor shall use appropriate quality control procedures to ensure that all pipe and fittings shall be of the first grade and quality conforming to these Specifications. Pipe shall be stored and transported in a proper manner and kept clean after delivery to the job site. All work on pipe shall be performed in a skillful and professional manner.

Laying of Pipe: Pipe shall be laid and joined in accordance with manufacturer's and/or Engineer's direction. Necessary facilities including slings shall be provided for lowering and properly placing pipe sections into trench without damage. A minimum of 42 inches compacted earth fill shall cover all main and service pipelines. Cover less than 42 inches or in vehicular traveled ways may require heavier walled pipe as listed in Appendix A-5, page 67.

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.

Each section of pipe shall be thoroughly cleaned before it is lowered into the trench.
If clean pipe sections and fittings cannot be placed in the trench without getting dirt into open pipe, the Engineer may require a piece of material to tied over the ends of the pipe or fitting until it has

been lowered into position in the trench. After the pipe has been lowered into the trench, all foreign matter shall be completely brushed from the pipe ends before assembly.

The pipe shall be cut to provide closure pieces of correct lengths to permit the proper location of the pipe sections, or to locate valves, fittings, and appurtenant structures where specified on plans.

The pipe and fittings shall be laid to the lines and grades specified on plans, and centered in the trench. All pipe to be laid upgrade for grades in excess of 10%. All horizontal and/or vertical bends consisting of 11-1/4 degrees or more shall be thrust with concrete as shown in the Standard Drawings, Figures 21 and 22, pages 171 and 173.

The alignment and elevation of the pipeline as shown on the drawings are designed to avoid conflict with new and existing underground utilities as far as their locations are known which is the responsibility of others.
Trenches must be kept dry until pipe has been laid, joints closed and backfill completed to a depth of 1 foot above top of pipe. Crushed rock for drainage and/or bedding shall be provided as necessary.

Temporary water tight plugs shall be provided for closure of the open ends of the pipelines each time pipe laying activity stops and at the end of each working day to prevent the entry of dirt and/or other contaminants.

Bedding and Backfill Placement: All backfill shall be carefully placed and spread in uniform horizontal layers (lifts) not exceeding 12 inches per lift. Backfill shall be placed to about the same elevation on both sides of the pipe to prevent unequal loading and displacement of pipe. Backfill shall be placed to minimum depth of 30 inches above the top of the pipe unless shown otherwise on plans.

Connections to Existing Pipelines: All connections to existing pipelines shall be made as shown on the plans and in accordance with these Specifications.

Where the existing main is not provided with fittings for connecting to the new main, connections shall be made either by hot tap or cutting and inserting sections of pipe and fittings, as shown on the plans or as directed by the Engineer.

For hot tap installations, the tapping saddle shall have a test plug and shall be air tested at 50 psi for 5 minutes. Tapping valves shall be flange by flange. All hot taps shall be witnessed by the Agency Inspector.

When deemed necessary by the District representative, shutdowns of existing in-service pipeline and other distribution facilities shall be made by the Agency as required to complete pipeline connections. A shutdown shall be for as short a period as possible and shall be scheduled by the District representative. The amount of lead-time necessary for shutdown and connection to existing mains varies with each job and must be planned accordingly. In no case shall a shutdown and/or connection be scheduled with less than 3 days notice. Absolutely no connection operations shall occur prior to passing pressure and bacteria tests. Interference with the operation of the Agency's distribution system shall be kept at a minimum. While an existing pipeline is shut down, the connection work shall be performed without interruption, continuing after regular working hours if

necessary, until completed, unless otherwise directed by the District representative. In some cases, shutdowns must occur at times other than normal working hours and/or days.

In all cases, shutdowns shall be made under the direction of the District representative. The Agency shall close all valves in making a shutdown and shall open all valves to restore pressure to the existing main, as well as initiate pressure to the new installation.

The District representative shall be notified at least 11 working days prior to any connection operations so that advance preparation on the part of the Agency can be made, and shall confirm such advance notice in writing.

Abandonment of Existing Facilities: Existing facilities shall be abandoned as indicated on the plans and specifications. Ends of pipelines to be abandoned in place shall be mechanically restrained by flange or valve and cement thrust block installed if required.

Hydrostatic Testing: Backfill shall meet and pass all compaction requirements and subgrade shall be completed prior to hydrostatic testing. The District representative shall be notified forty eight (48) hours prior to testing and must approve any water placement in any portion of the pipeline. The pipeline shall be filled with water and all air evacuated.

For treated water lines the pressure shall then be slowly increased to 150 psi or 150% of working pressure, whichever is greater. The test pressure shall be maintained for at least 3 hours. Accurate means shall be provided for measuring the quantity of water required to maintain full pressure on the line for the test period. The maximum allowable leakage shall be per the pipe manufacturer's recommendations or as directed by the District representative.

For raw water collection piping the maximum allowable leakage shall be 2.5 gallons per inch diameter, per 1000 lineal foot, per 24 hours. RCP shall be tested to the class rating of the pipe at the lowest point in elevation in the test section.

All or part of the pipeline may be drained as necessary to repair leaks. All leaks shall be repaired in a manner approved by the District representative and retested before being accepted by the Agency. The Contractor shall provide all labor, equipment, and materials, required for filling and testing the pipelines. After successful completion of the hydrostatic test, the chlorination flushing, bacteriological test and high velocity flushing may be completed.

Disinfection / Chlorination and Flushing: After successful completion of the hydrostatic test, the Contractor shall chlorinate the pipeline per AWWA C651-86 by completely filling the main and appurtenances with water having a minimum of 50 parts per million (ppm) and a maximum of 100 parts per million (ppm) of available chlorine from calcium hypochlorite. The only disinfection method allowed shall be the continuous-feed method. The chlorinated water shall be retained in the main for at least 24 hours. At the end of this 24 hour period the treated water in all portions of the main and appurtenances shall have a residual of not less than 25 parts per million (ppm).

After chlorination the pipeline shall be flushed per AWWA C651-86 Section 6.2. The water shall then remain unmoved for a minimum of forty eight (48) hours after which the Agency shall collect bacteriological samples which shall be tested for coliform of less than 2.2 parts per million (ppm) by an independent laboratory.

The number and location of samples shall be determined by the District representative and shall be randomly chosen from fire hydrants and services. If emergency work is under way, disinfection is to be per AWWA C651-86 Section 9.

The Contractor shall make the necessary piping connections and furnish and install all necessary equipment required for the high velocity flushing operations. The Contractor shall provide for safe and legal disposal of water from flushing. The Contractor shall remove all temporary flushing facilities. All costs for chlorination and flushing shall be paid by the Contractor.

Continuity Testing: The Contractor shall test for the continuity of the locating wire at time of final walk- thru. The Contractor shall provide all labor, equipment, and materials required for testing the continuity of the locating wire at each meter, valve, fire hydrant, blow off, and AVRV. Should continuity not be present and/or observed the Contractor shall repair, replace, and retest as necessary, entirely at Contractor's expense.

Drilling Service Taps: PVC service taps shall be drilled using a sharp shell cutter such that the entire plug and remains are extruded from the pipe.

A-6.5 Earthwork - Trenching

Scope of Work: This work shall consist of: performing all operations necessary to excavate earth, rock or other material of whatever nature including removal of water regardless of character or subsurface condition necessary for the construction of the project facilities; placing backfill for all facilities including site grading, structures, transmission piping, roadwork; removing and replacing unsuitable material; placing embankment material for all required project facilities; other earthwork shown on the plans and indicated in the specifications including excavating and backfilling all structures, trenches and depressions resulting from the removal of obstructions, removing and replacing unsuitable material.

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

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.

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

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

Backfill around vaults and the pit excavated for boring operations shall be made in the same manner as above specified for trenches, except as otherwise provided under underground vaults.

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.

Excavation and Bedding: Unless otherwise specified, the excavation for water pipe shall be an open trench, excavated to 12 inches below bottom of pipe grade and 12 inches from each side. The native soil in the trench bottom shall be compacted to 90 percent relative compaction before placement of Class 1 Backfill for pipeline bedding.

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

All trench excavation within asphalt paved areas shall be saw cut in neat parallel lines 6 inches wider than each side of the trench width 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 12 inches below the bottom of the pipe and/or 6 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 General Manager shall determine the location and spacing of trench cut-off blocks for Water System mains. Trench cut-off blocks shall be constructed as shown in the Standard Drawings, Trench Cut-Off Block, Figure 23, page 175.

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 General Manager prior to proceeding with the work shall approve the equipment and method of operation.

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 water 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 Pipelines: Class 1 Backfill for water system pipelines and related appurtenances that are constructed for the District shall have a minimum specific gravity of 2.5.

Backfill from a point at least 1 foot over the top of the pipe to finish grade shall be made with Class 2 or Class 3 Backfill. When the water trench lies within the right-of-way of a street 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.
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 for residential units or for pipes less than 3" in diameter requires use of material with a maximum sieve size of 3/8-inch minus only.

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

Bulk Specific Gravity shall be at least 2.5

Material for Class 1, Class 2, Class 3, and Class 4 Backfill shall be placed in uniform horizontal layers not exceeding 1 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.

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 be required to reimburse the District for the initial tests performed. If subsequent tests are required due to compaction failures, the owner or their agent shall pay for all subsequent compaction tests.

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

Class 4 Backfill material may be 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, must be placed on top of the Class 4 Backfill before proceeding with additional approved backfill.

Groundwater may not be removed from the trench and by use of any part of the existing or new water system piping or facilities. Groundwater must be eliminated from trench prior to installation of water pipe and the pipe must be protected from groundwater at all phases of construction.

- The contractor must eliminate or control groundwater prior to pipe installation utilizing methods that meet or exceed Federal, State or local requirements.

- If high concentrations of silts are suspended in the groundwater, settling basins may be required before the water is pumped or diverted to daylight.

Initial backfill shall be to 1 foot 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.

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

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

Backfill around vaults and the pit excavated for boring operations shall be made in the same manner as above specified for trenches, except as otherwise provided under underground vaults.
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 Mains: Class 1 Backfill for Water System main pipelines and related appurtenances that are constructed for the District shall have a minimum specific gravity of 2.5. Trench backfill methods and materials for mains, shall be as specified for water pipelines with the following exceptions:

- The height of backfill over the pipe before testing shall not be less than 12 inches.

- Thrust blocks shall be in place before the pipeline is hydrostatically tested.

- All joints, bends, angles, or fittings shall be left exposed until testing has been completed.

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

Trench Section, Paved Areas: Pipeline shall be bedded on twelve inches of Class 1 Backfill compacted to 90 percent relative compaction. Class 1 Backfill shall also extend a minimum 12 inches above top of pipe, compacted to 90 percent relative compaction. 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.

Trench Section, Roadway Shoulders adjacent to Paved Areas: Pipeline shall be bedded on 12 inches of Class 1 Backfill compacted to 90 percent relative compaction. Class 1 Backfill shall also extend a minimum 12 inches above top of pipe and compacted to 90 percent relative compaction. 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.

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.

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. 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 compaction.

A-6.6 Fire Hydrants

Construction: Fire hydrants shall be of the dry-barrel type according to AWWA C502. Manufacturer shall be Mueller Super Centurion 250, dry barrel type or approved equal. Fire hydrants shall have one 5-1/4" and two 2-1/2" national standard thread hose connections. All hose connections shall be provided with ductile iron nozzle caps with metal chains. Nozzle cap nuts shall be the same shape and size as operating nuts. The stem shall have a breakaway coupling. The upper standpipe shall be 28" in height. The bottom base connection shall be 6" flanged. The barrel shall have a "breakable" flanged connection to the upper and lower standpipe sections. Both standpipe sections shall be manufactured of ductile iron.

Operating Nuts: Operating nuts shall be 1-1/2" pentagons. The operating nut shall rotate counter-clockwise to open. Operating nuts shall be equipped with weathershields.

Pressure Rating: Fire hydrants shall be tested to 500 psig and shall be suitable for a continuous working pressure of 250 psig.

Exterior Coating of Upper Standpipe: The exterior surfaces of the upper standpipe shall have a three coat paint system conforming to the requirements of AWWA C502. The paint system shall consist of one primer coat and two finish coats of alkyd-based gloss enamel. Color of the finished coats shall be "Hydrant Red".

Exterior Coating of Lower Standpipe: The exterior surfaces of the lower standpipe shall have an asphaltic coating approximately 1 mil thick.

Interior Coating: The interior surfaces of the fire hydrant shall be coating with black asphalt paint conforming to Federal Specification TT-C-494B. Fire hydrants shall be Mueller Model Super Centurion 250. No equals or substitutes will be accepted. All fire hydrants shall be installed in strict accordance with the manufacturer's published recommendations, AWWA Standards, and all applicable codes. All hydrants shall be spaced a maximum of 300 feet unless CONTRACTOR has received prior written approval signed by the DISTRICT Fire Chief. Fire hydrant laterals shall be installed as indicated in the Approved Drawings. All joints along the hydrant lateral shall be fully restrained ductile iron or Blue Brute pipe, using joint restraint methods as indicated in drawings. The hydrant bury elbows shall have thrust blocks per in addition to the restrained joints. All horizontal and vertical angle points 11-1/4 degrees or more shall be restrained the full development length.
All fire hydrants shall be installed in strict accordance with the manufacturer's published recommendations, AWWA Standards, and all applicable codes.

All tees and crosses: shall be restrained the full development length.

All in-line valves: and **dead end pipelines** shall be restrained the full development length.

Tie-in Sleeves: All tie-ins shall be completed with cast or ductile iron 12-inch minimum length mechanical joint sleeves. Bolting and gaskets shall conform to the requirements for the pipe to which the sleeve is attached.

Restrained Joints: Restrained joints shall be designed such that the joint has the same lateral strength as the pipeline and/or can restrain the maximum test force exerted on the pipeline. All restraining systems shall be tightened with an adjustable torque wrench to the manufactures recommended torque. The District representative shall certify the method and the required development length of restraint.

Castings: All castings for pressure reducing station, control valves, 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. Any cast iron rings, frames or covers 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.

All frames and entrance covers shall fit tightly to the seat and shall not rock. All materials, which do not fit neatly and bear firmly in the frame will be rejected.

Pump Stations: Pump stations shall have a duplex pump configuration with controls designed to run primary or secondary pumps. Controls shall include Hand-Off-Auto switches and running lights for each pump. Pump electrical supply shall be three phase for pumps rated at 7 horsepower or more where possible. Pumps shall be sized for the ultimate design peak flow (including fire flows) of the area being serviced by the station and retain a 20 PSI minimum residual at that flow.

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.

Underground Vault Installation: Vaults 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 vaults shall be constructed of precast reinforced 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 vaults shall be used in lieu of cast in place vaults whenever possible.

The ends of barrel sections, tapered sections and 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 Kent Seal, or Ram-Nek sealant and primer to prevent infiltration or exfiltration. Ram-Nek shall be neatly trimmed after assembly.

Underground Vaults in paved areas shall have at least one, 2-inch grade ring installed on the top vault section man-way entrance. The man-way frame and cover shall be placed on top of the grade ring as prescribed herein. The throat of the man-ways 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 be 12 inches between the cone and frame. Adjustment using concrete mix shall not exceed 2 inches.

When adjusting an existing manway 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 vault shall be removed and reconstructed so that the final adjusted height of the throat is not greater than 12 inches.

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

Whenever the excavation for an underground vault exceeds the outside diameter of the vault 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.

Precast Vault Sections: The vault 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-6.10, page 110. Concrete for poured portions of manholes shall conform to Structural Concrete, Appendix A-6.10, page 110. 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.

Vault 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. Vault covers shall fit into their respective frames without rocking. Vault 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 vaults shall be furnished and installed in accordance with the details shown on the improvement plans.

Internal Chimney Seals: All new construction vaults or replacement of existing vaults with grade rings may require installation of an internal rubber seal as specified. A rubber seal extension to include any additional heights of vault grade rings and/or frames not covered by the seal itself, shall be used as directed. The internal rubber seal and seal extensions shall be as manufactured by Cretex Specialty Products, or approved equal. The seals and extensions shall have a minimum thickness of 3/16 inches and shall be extruded from a highgrade rubber compound conforming to the applicable requirements of ASTM C923. The bands used for compressing the seal and extension against the vault lid shall be fabricated from 16 gauge stainless steel conforming to ASTM A240 type 304, any screws, bolts or nuts used on this band shall be stainless steel conforming to ASTM F593, type 304.

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

Vault 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. 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 Vault: Connections through existing vault 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 seal 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 pipe through the core drilled opening, and packing the opening around the pipe with Kent seal or 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 vault that has a stub-out shall be accomplished with flanged coupling only. No circle clamps or flexible rubber couplings are allowed.

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

Underground Vault Testing: If deemed necessary by the District, any or all vaults shall be tested for leakage by one of the following procedures:

Vacuum Test: Vacuum test equipment shall be used per the manufacturers specifications. A vacuum of 10 inch 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-6.7 Pavement Restoration

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

This work shall consist of furnishing and installing tack seal (see "Binder" below) at all joints and feathered areas and furnish and install asphaltic concrete purchased at a central mixing plant and approved by the District and as specified herein in all areas affected by trenching and construction activities under this contract.

Asphalt concrete is designated as Type A and shall meet the requirements Section 39 of the State of California Department of Transportation Standard Specifications (July 1992) Type A Asphalt Concrete or, as designed by the District. 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.

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

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

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

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

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

Type	Grading
A, AR-4000	1/2" minus maximum

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

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

AGGREGATE GRADING REQUIREMENTS
Type A Asphalt Concrete
Percentage Passing

1/2" Maximum, Medium

Sieve Compliance	Limits of	Operating	Contract	Sizes	Gradation	Range
1/2"		100	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, to a pavement to be surfaced, and to other surfaces designated by the District representative.

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

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

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

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

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

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

Spreading: When directed by the District representative, 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-6.7, Compacting, page 107. 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 representative, 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 not less than 2.5 inches in the compacted state. Compacted thickness over 2.5 inches requires separate lifts.

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 the contractor shall furnish acceptable equipment.

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

Manhole/Vaults/Valve box Lid Adjustments: When manholes/vaults or valve boxes 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/vault or valve boxes frame and cover. If the manhole/vault or valve boxes are 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/vault or valve box and paved out at 45 degrees to the edge of existing pavement.

A-6.8 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. The contractor shall remove spillage resulting from hauling operations along or across existing streets or roads immediately. 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-6.9 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, bituminous, chemicals, concrete and other harmful materials and shall conduct and schedule his/her operations so as to avoid or minimize muddying and silting of said conduits, streams, lakes and reservoirs.

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

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

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

The requirements of this section shall apply to all work performed within the District and to all noncommercial 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, District, town, county, state, and federal regulations pertaining to water pollution and soil erosion including the payment of any fines or penalties imposed by any governmental agency as a result of work performed by or for the owner or their agent.

Stream Zones: Where working areas encroach on live streams, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams, and during the construction of such barriers, the muddying of streams shall be held to a minimum.
Prior to the removal of material from an area beneath a flowing stream, a bypass channel shall be constructed in a location, which will carry the stream free from mud or silt around the material removal operation.

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

When operations are completed, the flow of streams shall be returned as nearly as possible to the original meandering thread without creating the possibility of future bank erosion.
Material derived from the work shall not be deposited in a live stream channel where it could be washed away by high stream flows.

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

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

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

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

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

the following paragraphs at the rate of 2 tons per acre. Mulching shall follow immediately after seeding.

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

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

A-6.10 Structural Concrete

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

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

Quality Assurance: Qualification of Workmen: experienced and skilled concrete workmen working under the supervision of an experienced concrete contractor shall complete all concrete work.

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

ACI - American Concrete Institute.

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

- ASTM - “American Society for Testing and Materials.”
- C 31 - "Making and Curing Concrete Test Specimens in the Field."
- C 33 - "Standard Specification for Concrete Aggregates."
- C 39 - "Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens."
- C 88 - "Standard Specification for Method of Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate."
- C 94 - "Standard Specification for Ready-Mixed Concrete."
- C 143 - "Standard Method of Test for Slump of Portland Cement Concrete."
- C 150 - "Standard Specification of Portland Cement."
- C 157 - "Standard Method of Test for Length Change of Hardened Mortar and Concrete."
- C 171 - "Standard Specification for Sheet Materials for Curing Concrete."
- C 172 - "Sampling Fresh Concrete."
- C 233 - "Testing Air-Entraining Admixtures for Concrete."
- C 260 - "Standard Specifications for Air-Entraining Admixtures for Concrete."
- C 309 - "Standard Specification for Liquid Membrane - Forming Compounds for Curing Concrete."
- C 494 - "Standard Specifications for Chemical Admixtures for Concrete."
- C 2419 - "Standard Specification for Method of Test for Sand - Equivalent Value of Soil and Fine Aggregate."
- E 329 - "Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction."

UBC - Uniform Building Code, Standards:

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

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

- Mix Designs - Furnish a list of proportions for each proposed mix.

- Strength - For each mix, submit data showing that the proposed mix will attain the required strength in accordance with the requirements of these specifications.

- Aggregate - For each aggregate used, submit data showing that it complies with ASTM C33. Include gradation, deleterious materials, specific gravity and soundness. For coarse aggregates in mixes for site work, include abrasion.

- Cement - Furnish mill tests for all cement used. Submit this data to the District for review prior to delivering any concrete materials to the site. Mix designs, test, etc., required by this specification need not be made specifically for this job, provided that data submitted is current within the last 12 months and that in the judgment of the Testing laboratory the test data correctly describes the materials proposed for use.

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

The owner will perform and report on the following:

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

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

- Take samples as required from sources designated by contractor;

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

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

    2) Other plant quality controls are adequate.

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

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

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

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

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

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

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 C94. Proportioning shall comply with Alternative 3, mixing and transporting shall comply with requirements for Truck-Mixed Concrete.

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

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

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

Admixtures: Only if acceptable by Northstar Community Services District.

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

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

Epoxy Materials:

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

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

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

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

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

Drypack Mortar for Form Tie-Holes and Patching: Composed of one part Portland Cement and two parts of fine aggregate and water.
Cement Mortar for Sacking: 5-1/2 parts sand, 2-1/2 parts Portland Cement, 1-1/2 parts lime hydrate by volume, plus water.

Concrete Curing Requirements:

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

Pre-molded Joint Filler: ASTM D 1751.

Polyvinyl 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 their work and shall not proceed until all unsatisfactory conditions have been corrected including the following:

- Approval of compaction tests of fill and backfill.

- Completion of the placement of drainage fills or slab base.

- Completion of form work.

- Placement of reinforcement.

- Placement of embedded items.

- Completion of review of form work and reinforcing.

Slab on Grade and Footing: Vapor Barrier: Place completely over capillary break material 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 or to reinforcing steel. Do not over vibrate concrete.

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

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

Bring surfaces to be finished to proper grade, strike off finish in a workmanlike manner. Ensure smooth level surfaces.
Add no water when placing concrete.

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

- Compact, screed, level, and tamp with a grid tamper to raise a thin mortar bed to the surface. Steel trowel and medium broom after concrete has hardened sufficiently to prevent the drawing of moisture to the surface. Do not dust with dry materials. Avoid excessive tamping and surface mortar.
- Tool mark slabs where shown. Round all edges to a 1/2-inch radius.

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

Weather Protection:

Cold Weather Requirements:

- 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 containing 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, sun-shades, fog sprays, or other devices as directed and as required.

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

Defective Work: Any concrete work not formed as shown or not true to the intended alignment or not plumb or level where so intended, or not true to the intended grades and levels or that has voids or rack pockets that have not been filled, or that has any sawdust, wood, or debris embedded in it, or does not fully conform to the Specifications will be deemed to be defective. Concrete finish which is not properly surfaced as specified, or which varies more than 1/4 inch from the required finish grade (except floors having drains), or which has any roughened top surfaces, or which does not

connect properly to the adjoining work will be deemed to be defective. Defective work shall be removed and be replaced with workmanship and materials complying with the requirements of the Contract Documents at no increase in Contract Price and with no time extension allowed.

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

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

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

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

Wall Finishes:

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

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

Reinforcement: Bar reinforcement shall be deformed, and shall be intermediate grade conforming to the "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-6.15 Pump Station Structures

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

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

Floor Drains: The floor or bottom areas of the above-mentioned structures shall be drained by means of sloping floors, catch basins with grates, and drain lines constructed to terminate at an approved location, and will not 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.

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 Water System.

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

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

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

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

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

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

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

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
7000 and greater, but less than 7500	340 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-6.10, page 110, of this specification.

Excavation and Backfill: the General Manager shall approve excavation and backfill for buildings and structures.

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 Water System facilities shall be of an all weather type with a minimum width of 12 feet of traveled way with 2 feet compacted shoulders. This width may be increased if length or locations become a consideration to the District.

The road grades shall be a maximum of 8 percent. Grades in excess of 8% may be approved by the General Manager or District Engineer on a case by case basis. The structural section for access roads and parking areas shall be a minimum of 10 inches of aggregate base Class 2, and 3 inches of compacted asphalt concrete.

Roadway and site drainage shall be to County of Placer specifications.

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 320 square feet of parking and adequate room to turn around where necessary.

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

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

Welder Qualification: All welders working on any portion of work to be incorporated in the District Water 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 the General Manager may witness testing. Contractor shall bear all costs of such inspection.

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

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

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

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

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

Pipe shall be cleaned of dirt and scale prior to installation and all joints swabbed clean before jointing. All fittings necessary for the satisfactory alignment and arrangement of piping and all necessary unions and cleanouts shall be adequately supported throughout and the weight thereof shall be carried independently of the pump casings or the equipment. All pipe work shall be mounted in a truly workmanlike manner with pipe work parallel with vertical and horizontal axis of

reference. All sections of pipe shall be rigidly bolted or joined together after being cut accurately to length in such a manner as to relieve any and all parts of equipment of undue strain resulting from closure of flanged or other joints or connections. Equipment shall be so positioned and aligned that no strain shall be induced within the equipment during or subsequent to the installation of pipe work. Threaded joints shall be made up with the best quality pure lead paste or approved equal, carefully and smoothly placed on the male threads only. All screwed joints shall be made tight with tongs and wrenches; caulking of any kind will not be permitted.

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

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

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

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

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

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

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

Dehumidifiers where required shall conform to the following. The moisture removing capability of the dehumidifier shall vary with the temperature and relative humidity. The minimum capacity rating at 80 degrees Fahrenheit shall be 15.5 pints per day at 60 percent relative humidity. The maximum capacity at 80 degrees Fahrenheit shall be 25 pints per day at 90 percent humidity. The dehumidifier shall be controlled automatically by an adjustable humidistat and low air temperature cut out with contacts of adequate capacity for the dehumidifier motor.
Ventilation shall be accomplished by using a ventilating blower with sufficient capacity in cubic feet per minute to ventilate the enclosing structure. Minimum guidelines for air changes per hour shall be taken from the current publication of NFPA 820, *Standard for Fire Protection in Water Treatment Pumping Facilities*. 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. The General Manager shall approve air-conditioning type and size.

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

Working Space: Provide adequate working space around electrical equipment in compliance with the National Electrical Code. In general, provide 6-1/2 foot of headroom and 42-inch minimum clear workspace in front of panelboards 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 panelboards, wireways, raceways, pull boxes, and similar locations. Plastic wiring ducts are preferred as an alternate to lace or wire ties.

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

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

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-volt, or as required 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 NEMA Class I Type B standards. Fabrication shall be of code gauge steel with 1-1/2 x 1-1/2 inch welded structural steel angles at the top and bottom of the frames. Control cabinets shall be designed for multiple alignment with continuous main horizontal bus and multiple sections riveted together.

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

All bus bars shall be rectangular and formed of alcan tin-plated copper supported on fiberglass insulators and be properly braced to withstand mechanical stresses of not less than 22,000 amperes. Each combination, starting unit shall be mounted on a chassis, having a height as required by the particular size of the combination starter and circuit breaker unit. The chassis shall be so housed and constructed as to isolate the components from adjoining circuits. All motor starters shall be of the magnetic type for across-the-line starting with ambient compensated thermal and adjustable overload

protection in each phase. Overload heaters shall be sized for the load they are protecting. Motor starters and circuit breakers shall be I.T.E., Square D, or approved equal. Each combination starter shall be protected by a molded case circuit breaker having an interrupting capacity of not less than 14,000 amperes (symmetrical) and/or as called for on the drawings.

Adjustable time delay relays shall be provided, where shown on drawings, to start motors in sequence to limit starting demand on commercial power. Ammeters shall be used as necessary.

Time delay relays, control power transformers and auxiliary relays as necessary shall be provided in each cubicle and each internal and external component shall be clearly identified.
Components shall be mounted on removable back panels, drilled and tapped from the front. They shall not protrude into or restrict 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 or off" position.

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

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

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

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

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

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

Bussing: All bussing shall be of copper with sizes based on current code requirements or a current carrying capacity of not over 1,000 amperes per square inch of cross-section. Bars shall be ¼-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** outlet plug-ins shall be ground fault circuit interrupter protected.

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

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

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

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

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

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

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

- In dry locations in furred spaces.

- In partitions other than concrete or solid masonry.

- For exposed work indoor above 6 feet.

Conduits installed in contact with the ground, in sand or gravel-fill shall be rigid steel with two protective coverings of Koppers' Bitumastic #50 or equal, applied after couplings and fittings are in place, each coat not less than 1/32 inch thick when dry. Conduit shall be run concealed in areas having finished ceilings and in furred walls. Conduit may be run exposed where so permitted by the General Manager. Exposed conduit below 6 feet shall be rigid type. Conduit run exposed shall be neatly installed parallel and at right angles to the structural members.
Conduit shall be fastened to the structure with pipe clamps. Conduits up to and including 1-1/2 inch trade size shall be supported at 5 foot intervals or less.

Cap conduit during construction by means of manufactured seals; swab out conduits before wires are pulled in.

Make watertight conduits projecting through roof by proper flashing.

Water Facilities Electrical Equipment: The electrical equipment used in the underground vaults or placed in water facilities must meet the National Electrical Code (NEC) requirements for Class I, Division I, groups C and D hazardous atmospheres. If sensors or other electrical equipment is used that does not meet the NEC requirements for hazardous atmospheres, they shall be electrically isolated with approved intrinsically safe barriers.

Telemetry: Will be required where treatment, storage, some transmission facilities, pump stations or well systems and other types of mechanical facilities are to be incorporated into the District Water System. The owner or their agent shall include a complete telemetry system, which shall conform to the existing District telemetry plans, and system. The General Manager shall approve the proposed system.

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. The contractor on revised transparent ozalid prints of original tracings shall present this

information. 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 instruction, maintenance and overhaul manuals, clearly showing and explaining operation and overhaul of all starters, circuit breakers, controls and all electrical equipment.

- Renewal parts lists for all equipment requiring maintenance, adjustment or repairs.

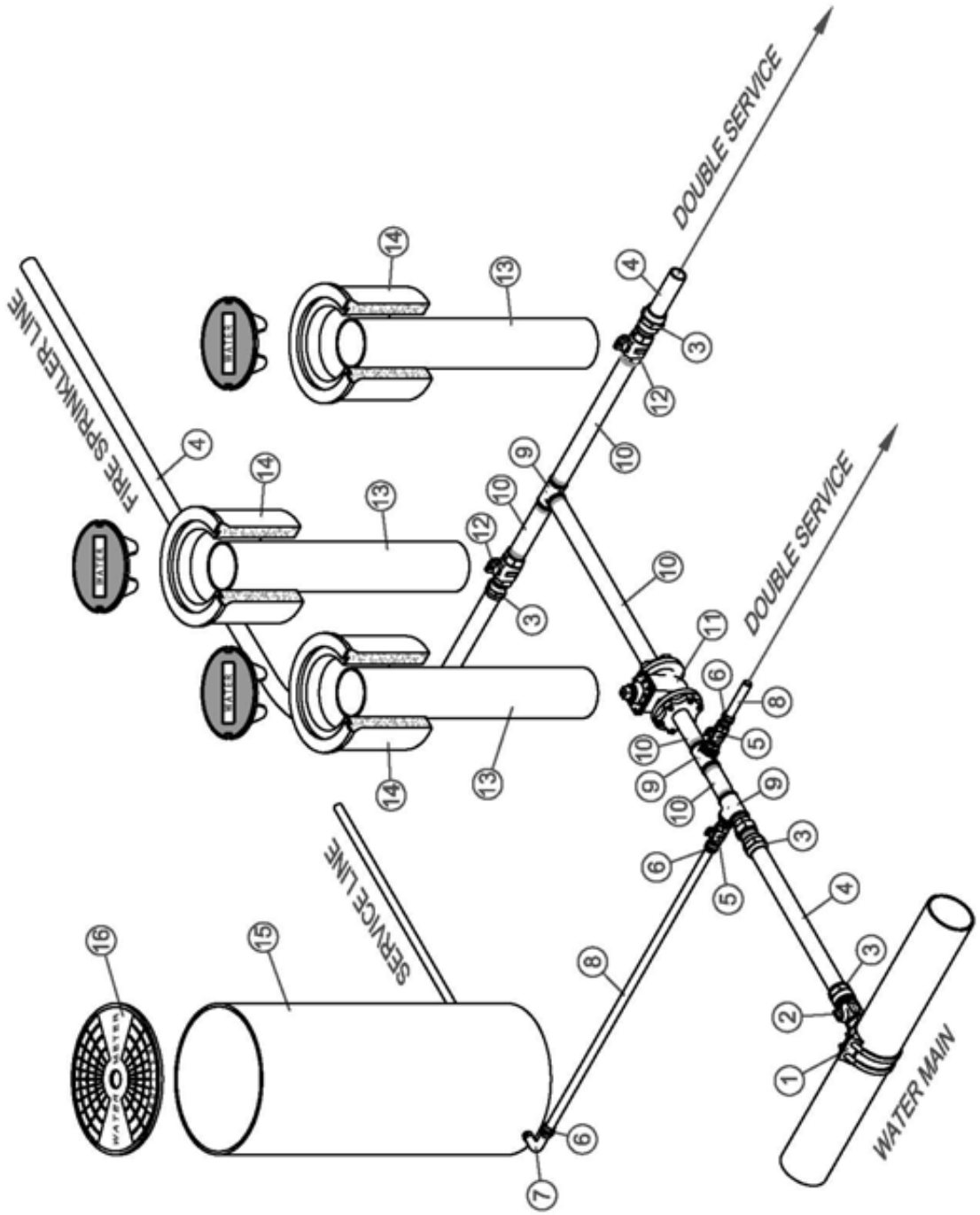
- Complete step-by-step sequential explanation of relay contact and device operation for all controls. The written explanation shall be clearly coordinated to device symbols and numbers on the elementary wiring diagrams.

- Complete step-by-step sequential instructions and precautions for system start-up as well as system shut down.

- All material called for in c. through 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 their own expense, replace any work, material, or equipment furnished by him which develops defects within 1 year from the date of acceptance.

STANDARD DRAWINGS

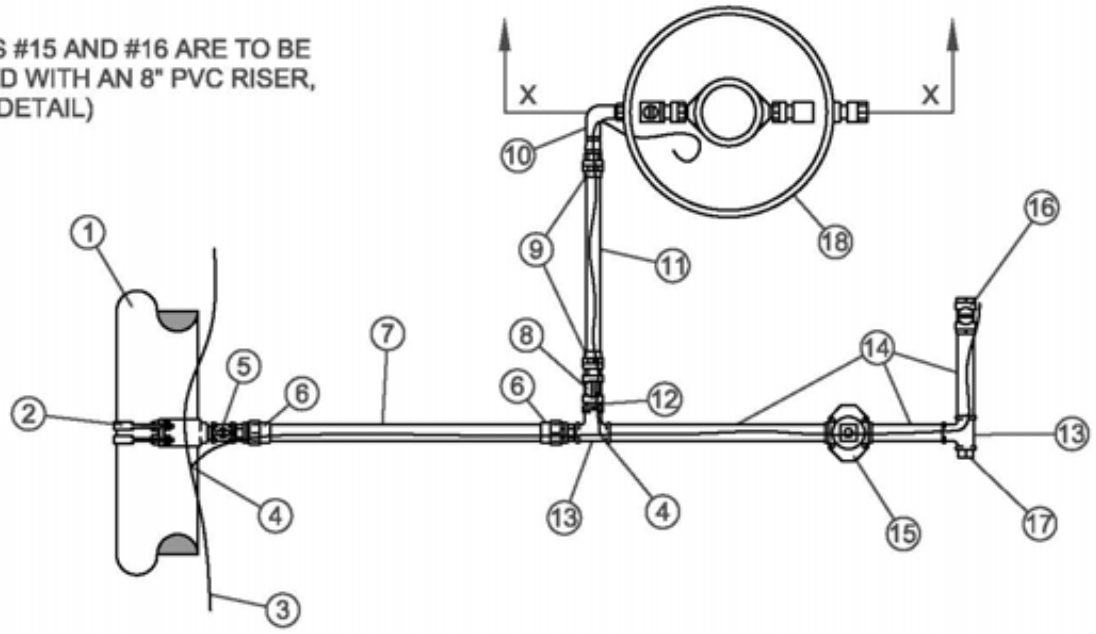


1. SERVICE SADDLE - DOUBLE STRAP
2. 2" CORPORATION STOP
3. 2" COMPRESSION FITTING
4. 2" PE PIPE OR COPPER PIPE (IPS)
5. 1" CURB BALL VALVE
6. 1" COMPRESSION FITTING
7. 1" STREET ELL
8. 1" PE PIPE OR TYPE "K" COPPER
9. 2" BRASS TEE
10. 2" BRASS NIPPLE
11. 2" RESILIENT WEDGE GATE VALVE
12. 2" CURB BALL VALVE
13. 8" PVC RISER WITH AN OSHA APPROVED LOCKING DEBRIS CAP
14. CHRISTY "G5" TRAFFIC VALVE BOX
15. MUELLER METER BOX WITH 1" METER AND 1" HARDWARE
16. 18"Ø FLAT LID - NO LOCK

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	WATER SERVICE LINE DETAIL (ISOMETRIC VIEW)	DRAWN: JW	DWG. FILE: WO-1
		APPROVED: MS	FIGURE: 1
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

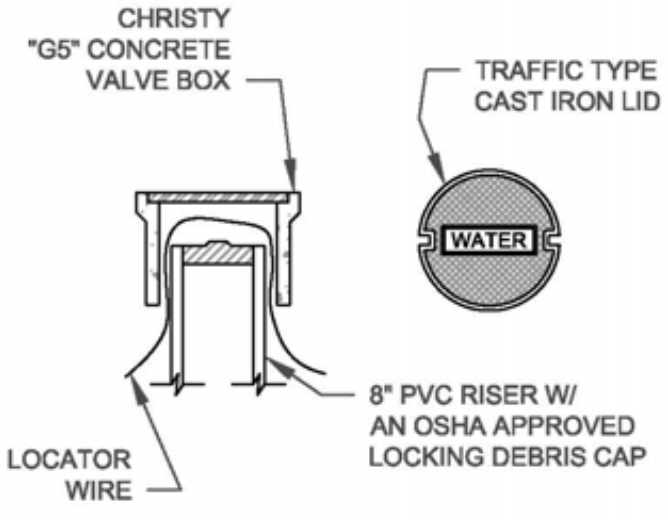
PLAN VIEW

ITEMS #15 AND #16 ARE TO BE BOXED WITH AN 8" PVC RISER, (SEE DETAIL)

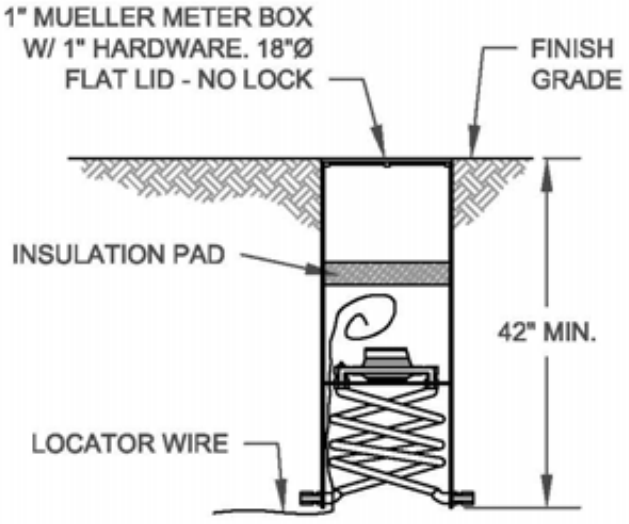


1. WATER MAIN
2. 2" SERVICE SADDLE
3. LOCATOR WIRE
4. WIRE SPLICE
5. 2" CORP. STOP
6. 2" COMPRESSION FITTING
7. 2" PE OR COPPER PIPE (IPS)
8. 1" CURB BALL VALVE
9. 1" COMPRESSION FITTING
10. 1" STREET ELL
11. 1" PE OR TYPE "K" COPPER
12. 2" TO 1" REDUCER
13. 2" BRASS TEE
14. 2" BRASS NIPPLE
15. 2" RESILIENT WEDGE G.V.
16. 2" CURB BALL VALVE
17. 2" BRASS CAP
18. MUELLER METER BOX

DETAIL



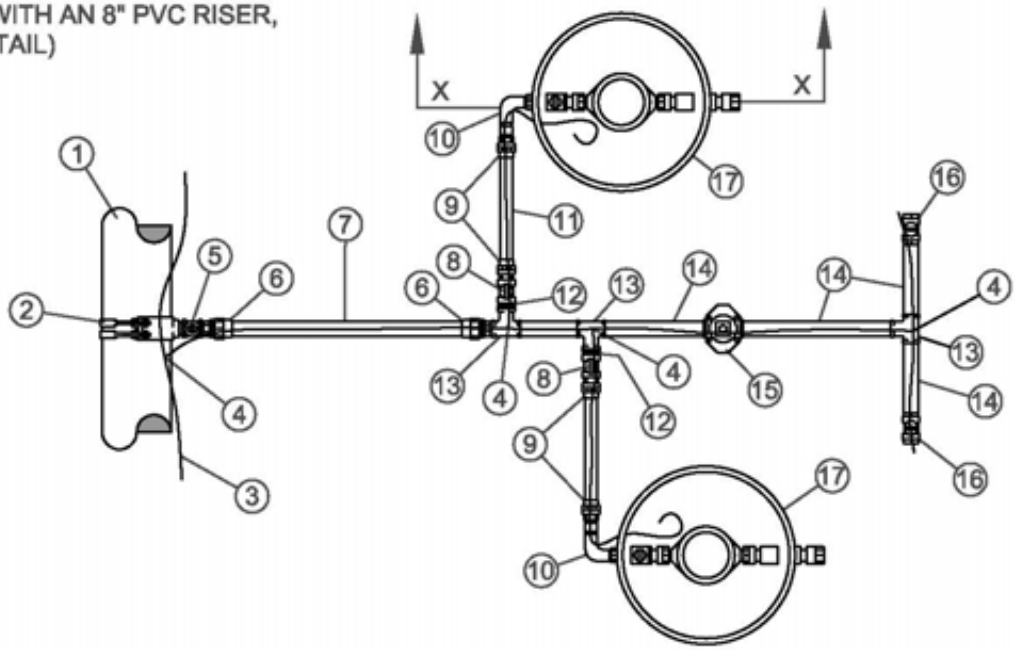
SECTION X - X



N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR: WATER
	SINGLE SERVICE DETAIL	DRAWN: JW	DWG. FILE: WO-2
		APPROVED: MS	FIGURE: 2
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

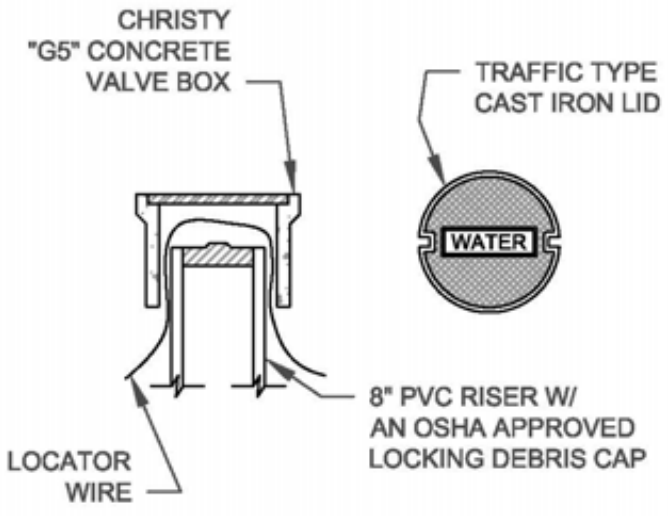
PLAN VIEW

ITEMS #15 AND #16 ARE TO BE BOXED WITH AN 8" PVC RISER, (SEE DETAIL)

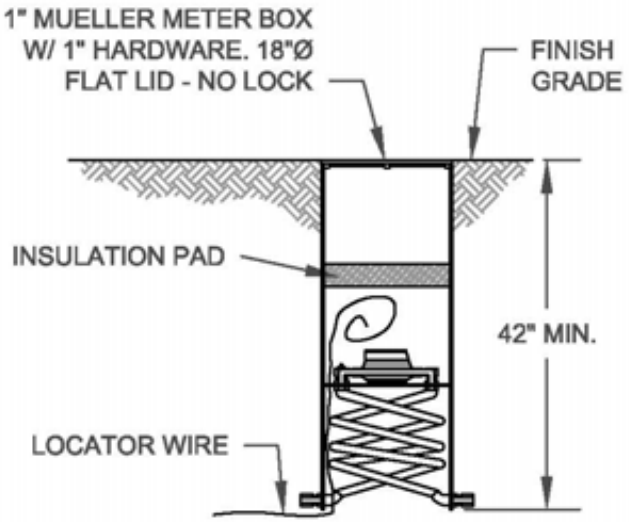


1. WATER MAIN
2. 2" SERVICE SADDLE
3. LOCATOR WIRE
4. WIRE SPLICE
5. 2" CORP. STOP
6. 2" COMPRESSION FITTING
7. 2" PE OR COPPER PIPE (IPS)
8. 1" CURB BALL VALVE
9. 1" COMPRESSION FITTING
10. 1" STREET ELL
11. 1" PE OR TYPE "K" COPPER
12. 2" TO 1" REDUCER
13. 2" BRASS TEE
14. 2" BRASS NIPPLE
15. 2" RESILIENT WEDGE G.V.
16. 2" CURB BALL VALVE
17. MUELLER METER BOX

DETAIL



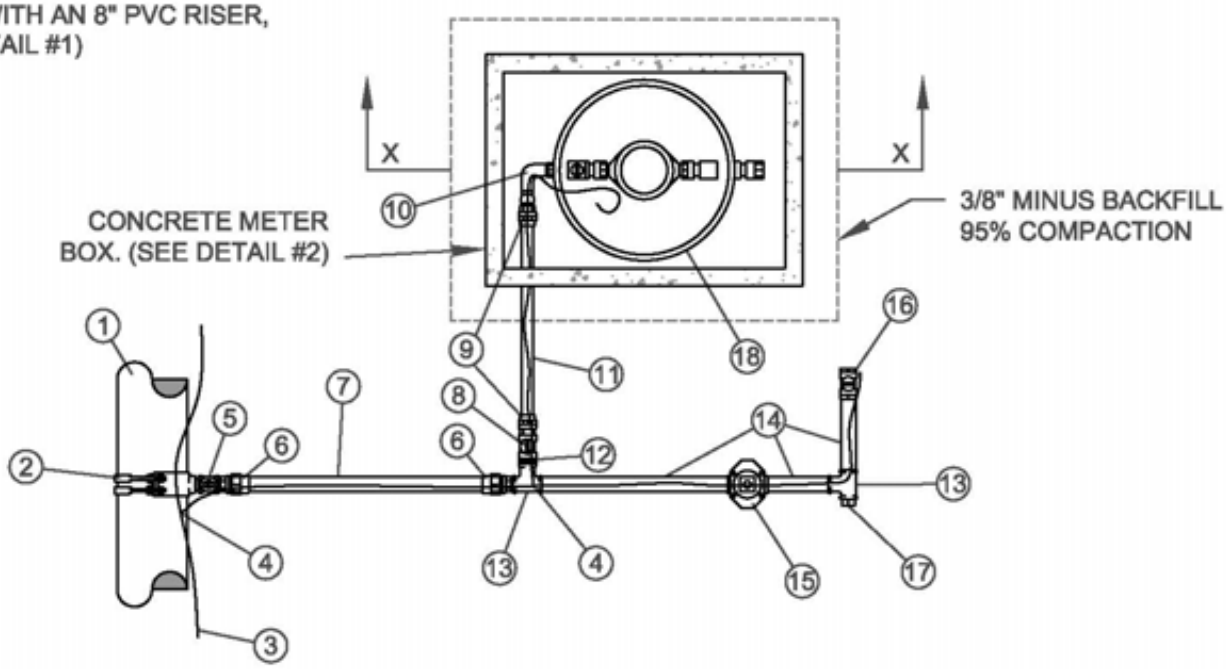
SECTION X - X



N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	DOUBLE SERVICE DETAIL	DRAWN: JW	DWG. FILE: WO-3
		APPROVED: MS	FIGURE: 3
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

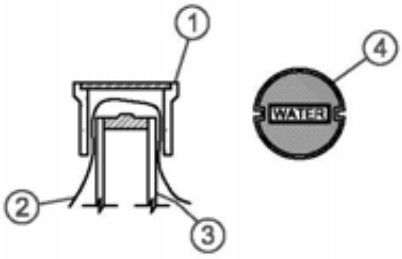
PLAN VIEW

ITEMS #15 AND #16 ARE TO BE BOXED WITH AN 8" PVC RISER, (SEE DETAIL #1)

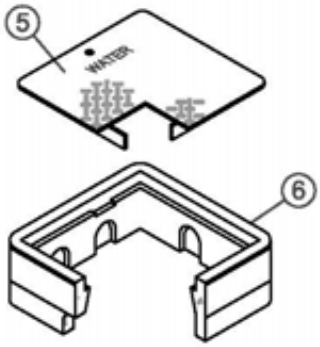


1. WATER MAIN
2. 2" SERVICE SADDLE
3. LOCATOR WIRE
4. WIRE SPLICE
5. 2" CORP. STOP
6. 2" COMPRESSION FITTING
7. 2" PE OR COPPER PIPE (IPS)
8. 1" CURB BALL VALVE
9. 1" COMPRESSION FITTING
10. 1" STREET ELL
11. 1" PE OR TYPE "K" COPPER
12. 2" TO 1" REDUCER
13. 2" BRASS TEE
14. 2" BRASS NIPPLE
15. 2" RESILIENT WEDGE G.V.
16. 2" CURB BALL VALVE
17. 2" BRASS CAP
18. MUELLER METER BOX

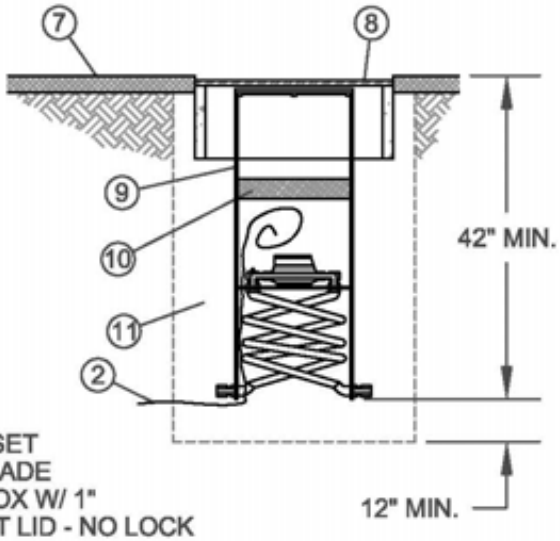
DETAIL #1



DETAIL #2



SECTION X - X

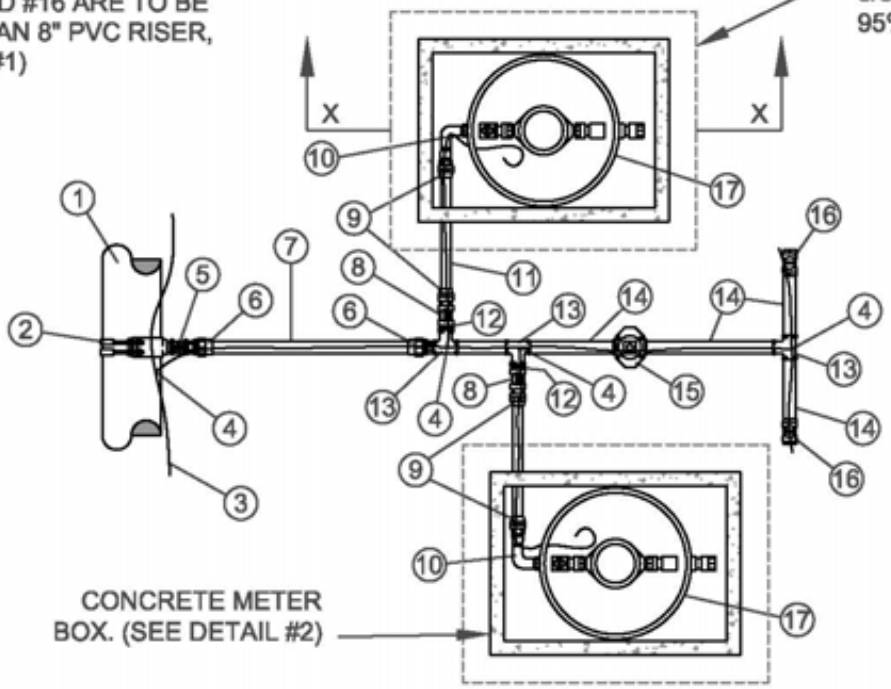


1. CHRISTY "G5" CONCRETE VALVE BOX
2. LOCATOR WIRE
3. 8" PVC RISER W/ AN OSHA APPROVED LOCKING DEBRIS CAP
4. TRAFFIC TYPE CAST IRON LID
5. 1/4" STEEL CHECKER PLATE TRAFFIC COVER W/ LIFT HOLE. MARKED "WATER"
6. CONCRETE METER BOX
7. FINISH GRADE. 3" MIN. COMPACTED ASPHALT
8. TRAFFIC RATED BOX SET 1/2" BELOW FINISH GRADE
9. 1" MUELLER METER BOX W/ 1" HARDWARE. 18"Ø FLAT LID - NO LOCK
10. INSULATION PAD
11. 3/8" MINUS BACKFILL. 95% COMPACTION

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	SINGLE SERVICE DETAIL FOR PAVED AND TRAFFIC AREAS	DRAWN: JW	DWG. FILE: WO-4
		APPROVED: MS	FIGURE: 4
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW

ITEMS #15 AND #16 ARE TO BE BOXED WITH AN 8" PVC RISER, (SEE DETAIL #1)



1. WATER MAIN
2. 2" SERVICE SADDLE
3. LOCATOR WIRE
4. WIRE SPLICE
5. 2" CORP. STOP
6. 2" COMPRESSION FITTING
7. 2" PE OR COPPER PIPE (IPS)
8. 1" CURB BALL VALVE
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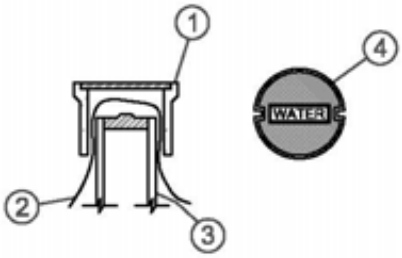
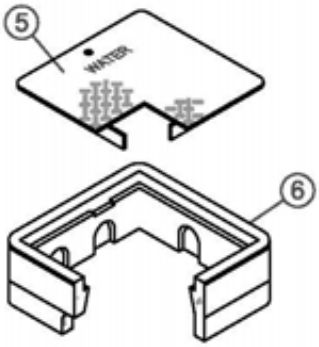
17. MUELLER METER BOX

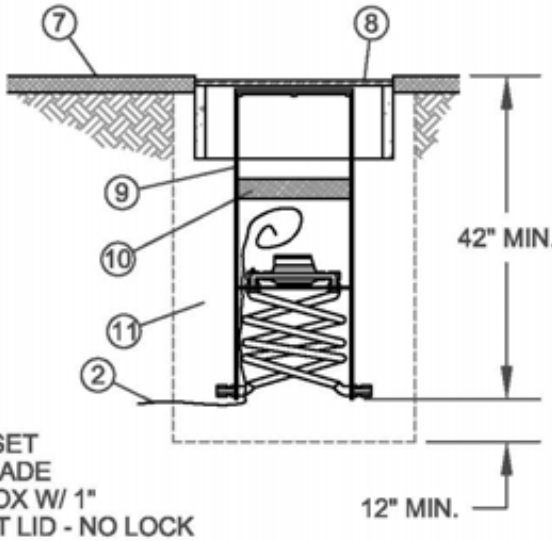
DETAIL #1



DETAIL #2



SECTION X - X



1. CHRISTY "G5" CONCRETE VALVE BOX
2. LOCATOR WIRE
3. 8" PVC RISER W/ AN OSHA APPROVED LOCKING DEBRIS CAP
4. TRAFFIC TYPE CAST IRON LID
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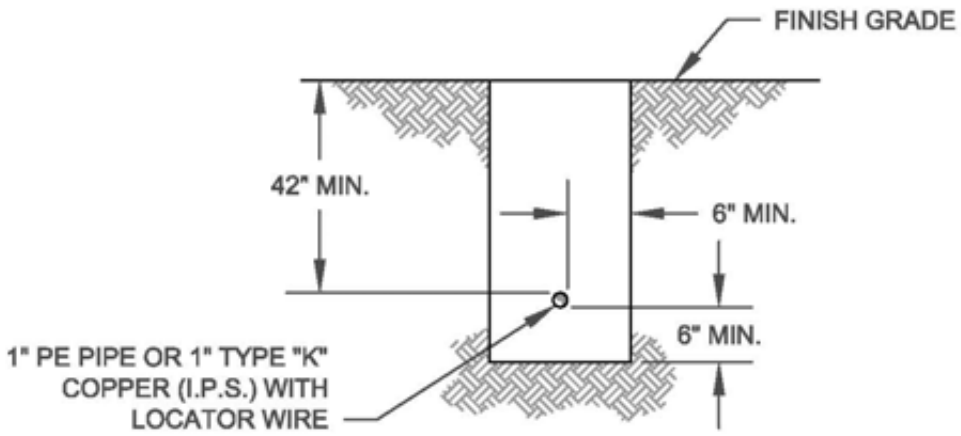
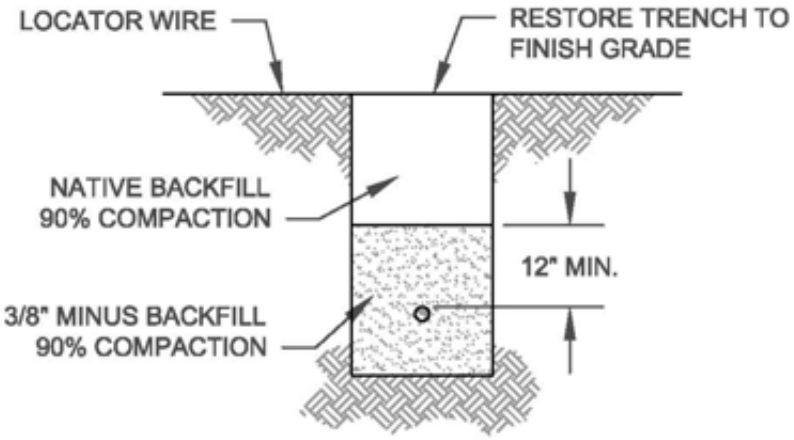
9. 1" MUELLER METER BOX W/ 1" HARDWARE. 18"Ø FLAT LID - NO LOCK
10. INSULATION PAD
11. 3/8" MINUS BACKFILL. 95% COMPACTION

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	DOUBLE SERVICE DETAIL FOR PAVED AND TRAFFIC AREAS	DRAWN: JW	DWG. FILE: WO-5
		APPROVED: MS	FIGURE: 5
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

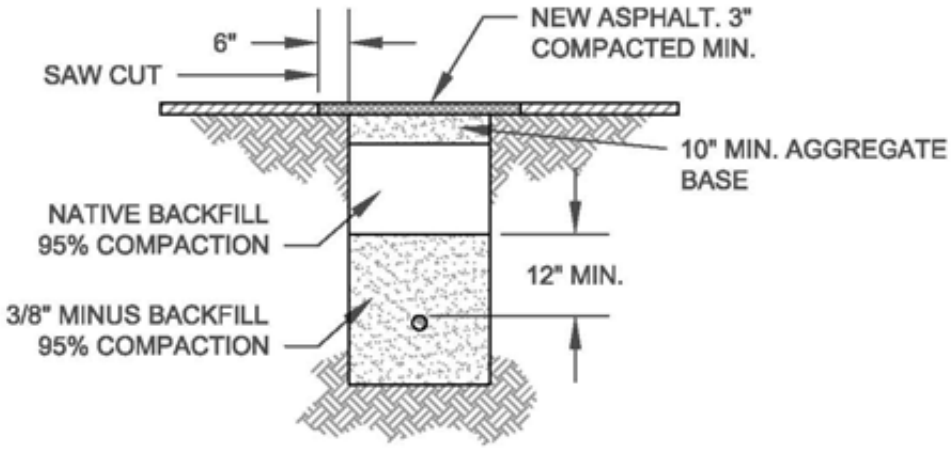
TRENCH DIMENSIONAL LAYOUT



UNPAVED AREAS

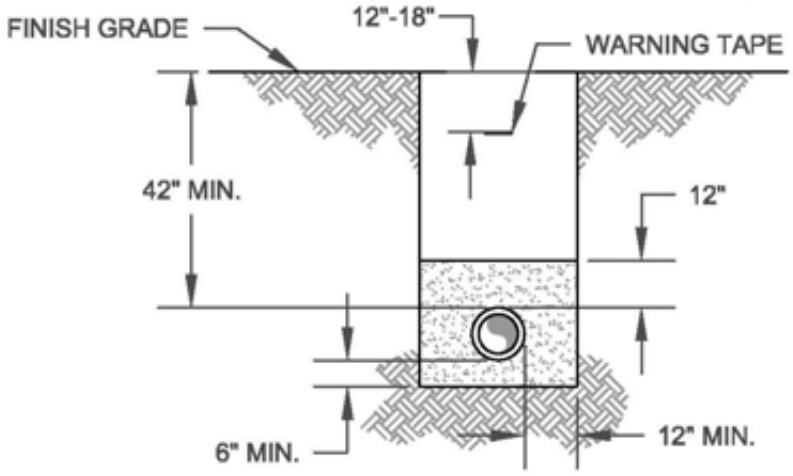


PAVEMENT AREAS

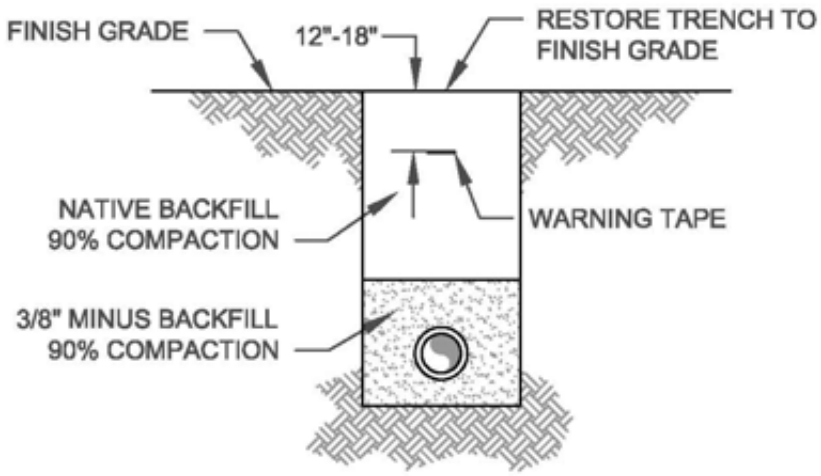


N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	SERVICE LINE TRENCH DETAIL	DRAWN: JW	DWG. FILE: WO-6
		APPROVED: MS	FIGURE: 6
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

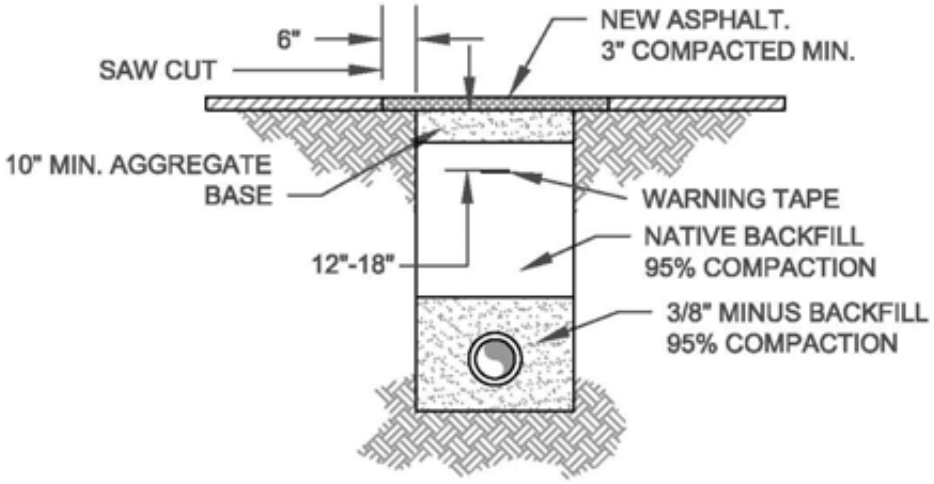
TRENCH DIMENSIONAL LAYOUT



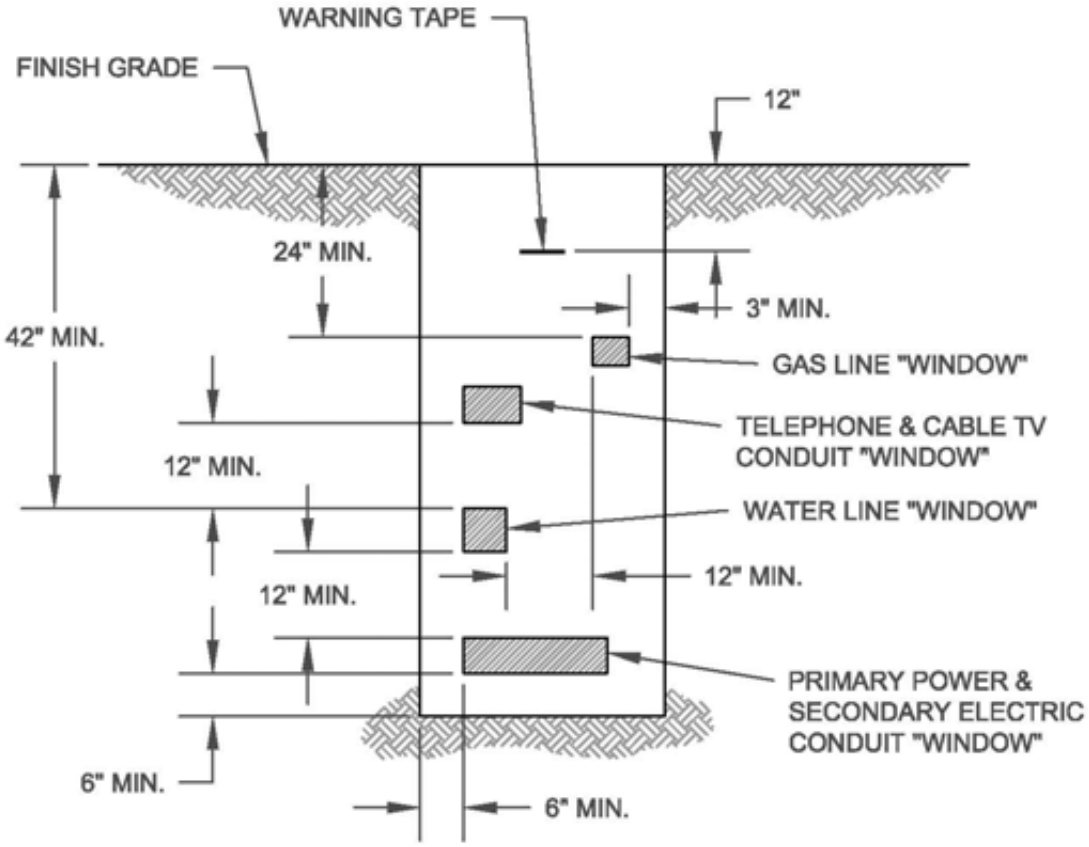
UNPAVED AREAS



PAVEMENT AREAS



N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	WATER MAIN TRENCH DETAIL	DRAWN: JW	DWG. FILE: WO-7
		APPROVED: MS	FIGURE: 7
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

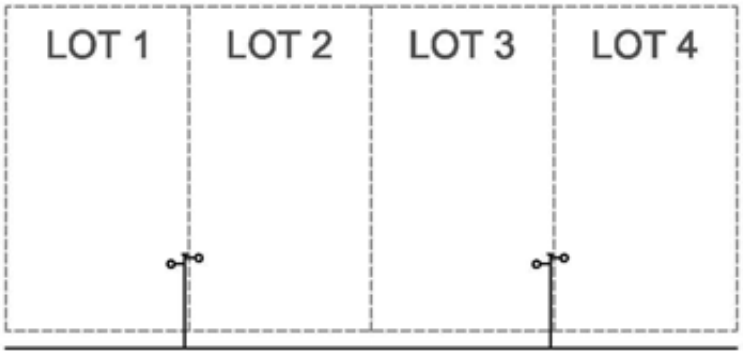


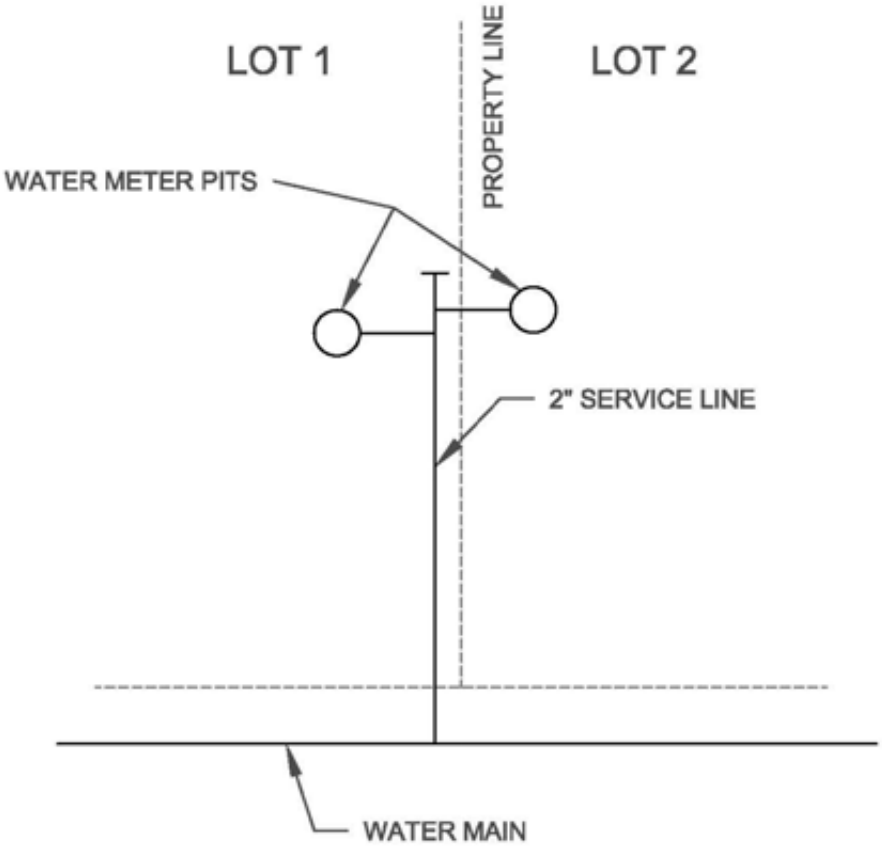
NOTES:

1. 1' CLEARANCE TO BE PROVIDED BETWEEN UTILITIES AND STORM DRAIN OR SANITARY SEWER AT CROSSINGS.

2. WATER LINE "WINDOW" TO REMAIN AT A DEPTH OF 42" MINIMUM TO TOP OF PIPE FROM FINISH GRADE. ALL OTHER UTILITIES PER UTILITY COMPANY SPECIFICATIONS.

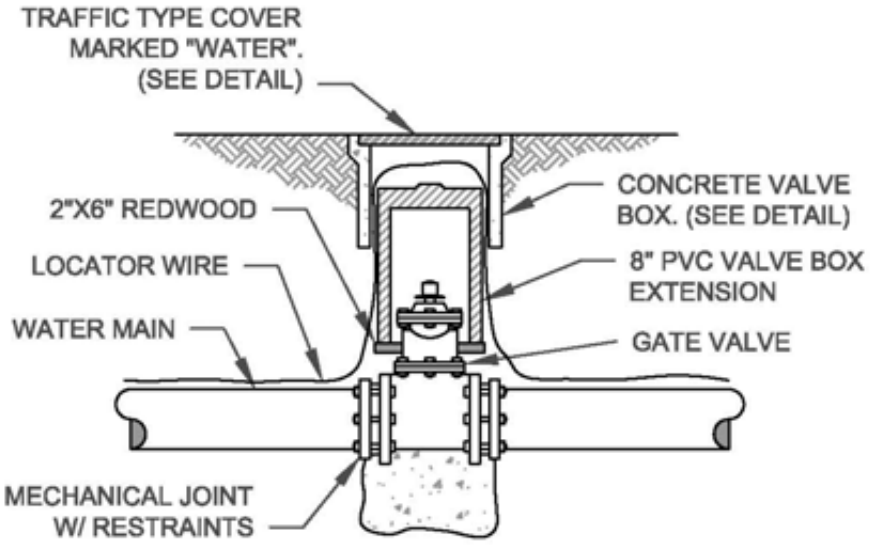
N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	JOINT TRENCH DETAIL	DRAWN: JW	DWG. FILE: WO-8
		APPROVED: MS	FIGURE: 8
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	



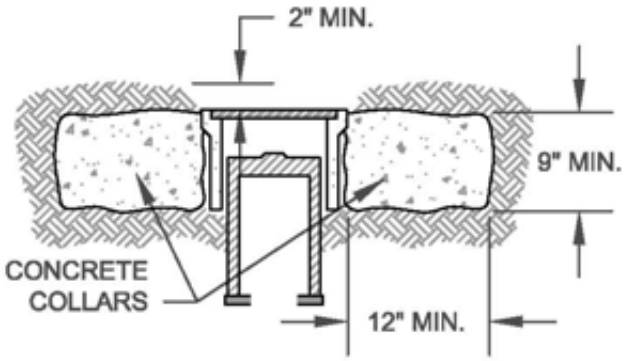


N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	TYPICAL WATER SERVICE LAYOUT	DRAWN: JW	DWG. FILE: WO-9
		APPROVED: MS	FIGURE: 9
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

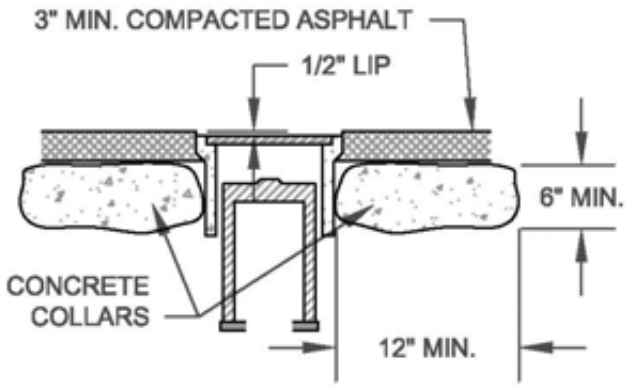
TYPICAL SECTION



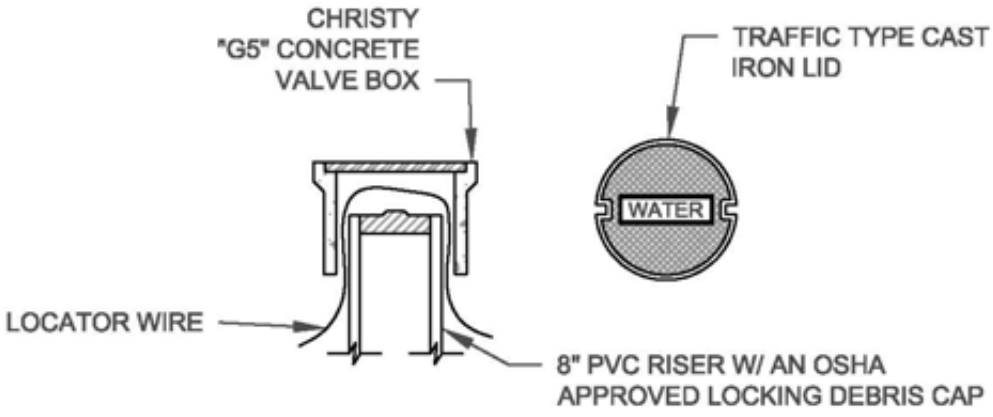
UNPAVED AREAS



PAVEMENT AREAS

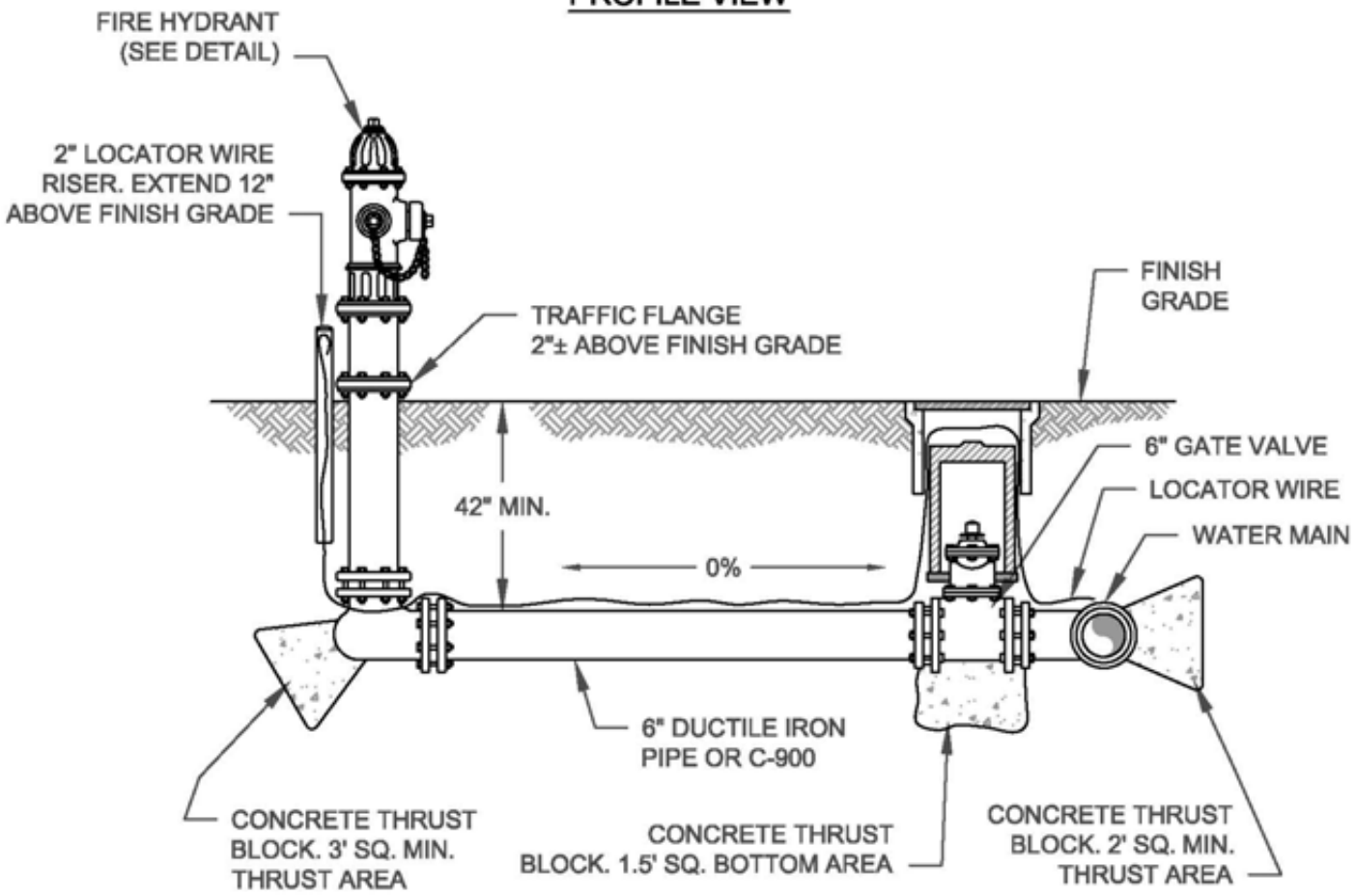


DETAIL

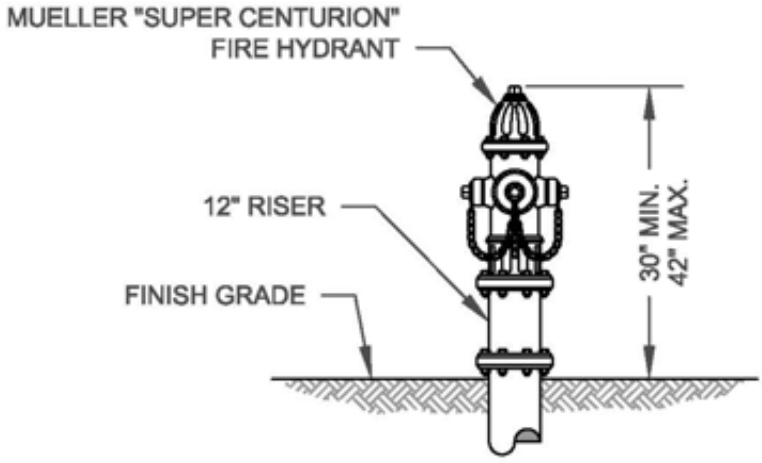


N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	WATER MAIN VALVE	DRAWN: JW	DWG. FILE: WO-10
	ASSEMBLY DETAIL	APPROVED: MS	FIGURE: 10
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PROFILE VIEW

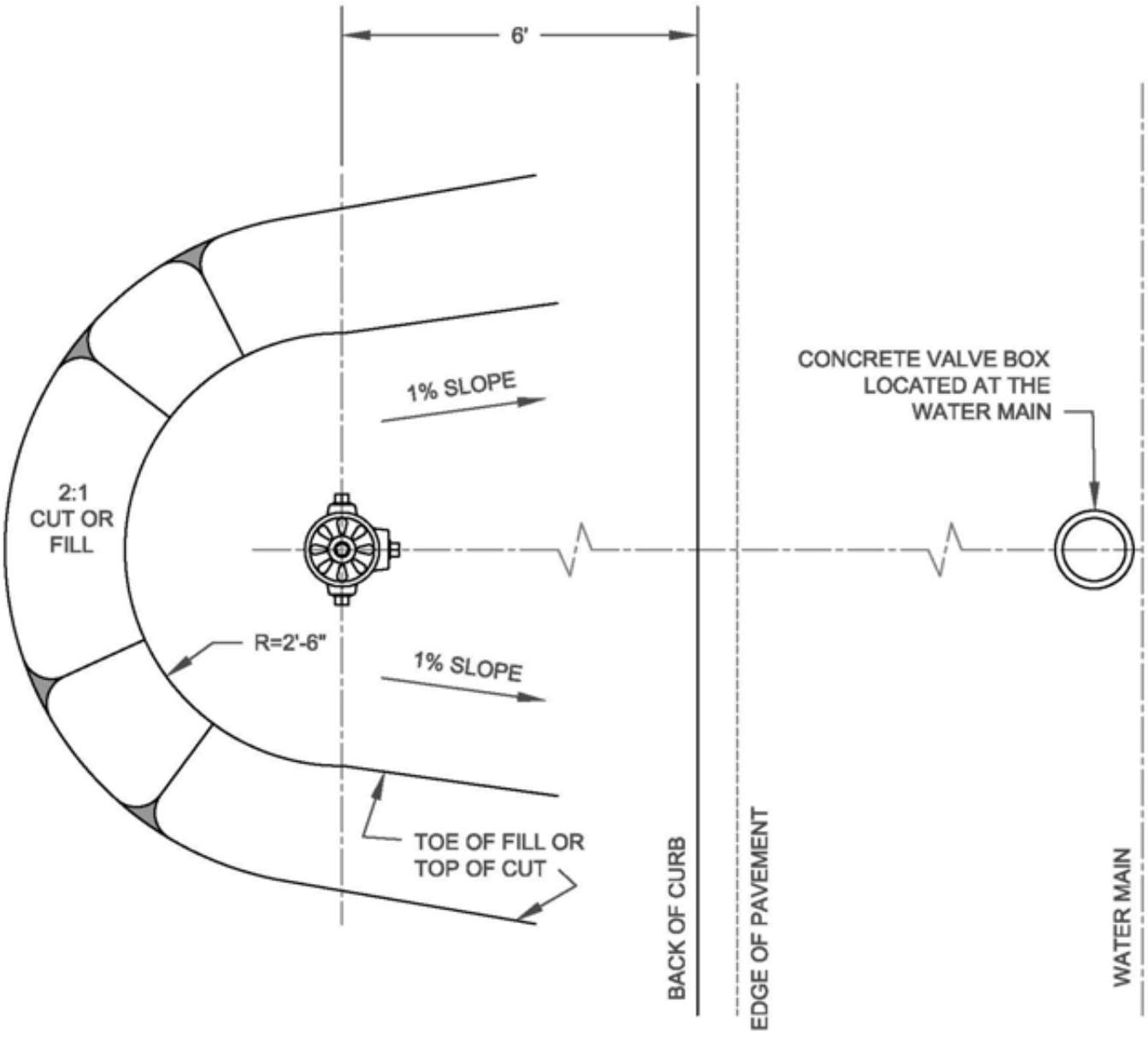


DETAIL



N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	FIRE HYDRANT DETAIL	DRAWN: JW	DWG. FILE: WO-11
		APPROVED: MS	FIGURE: 11
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

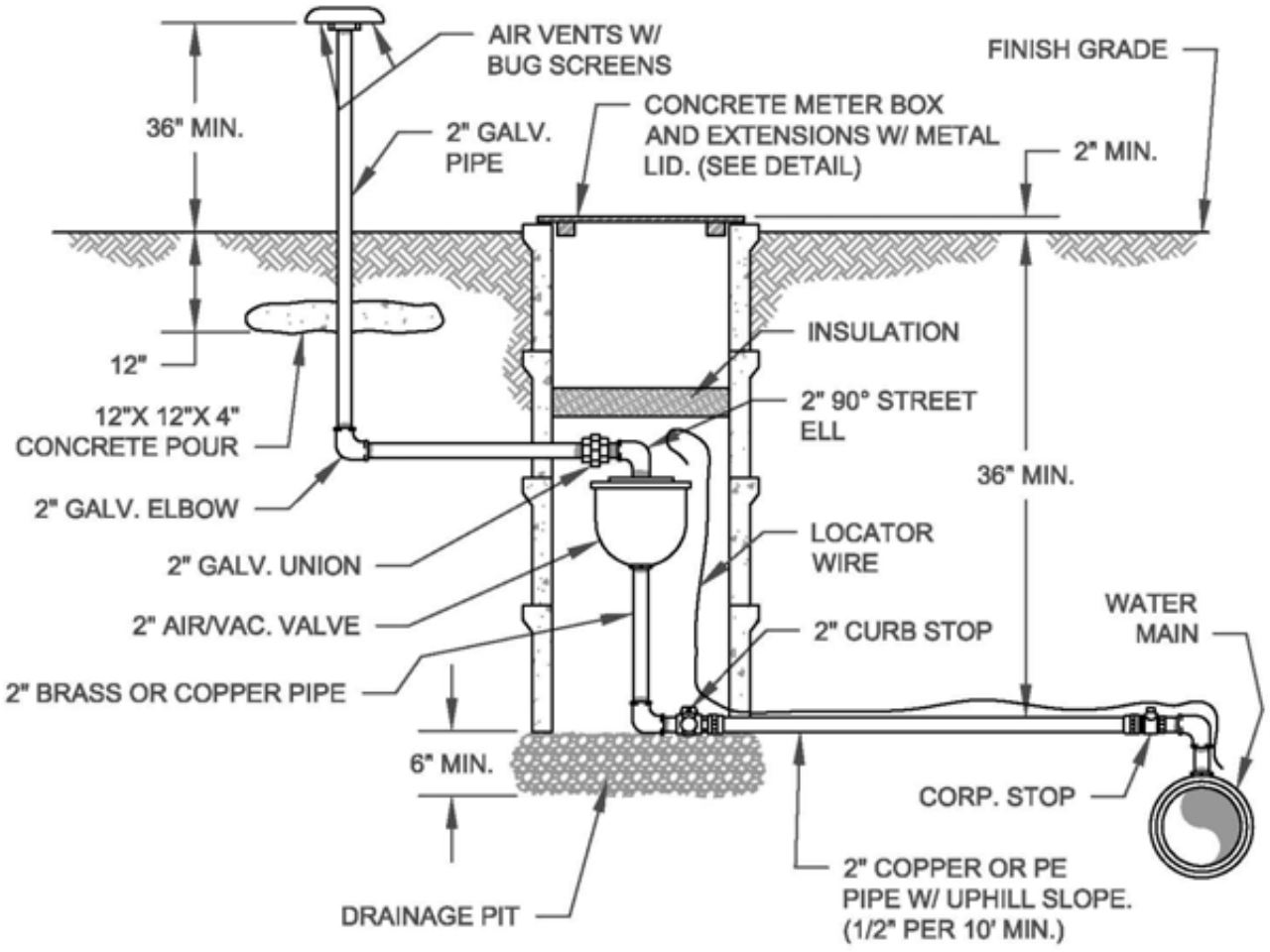
PLAN VIEW



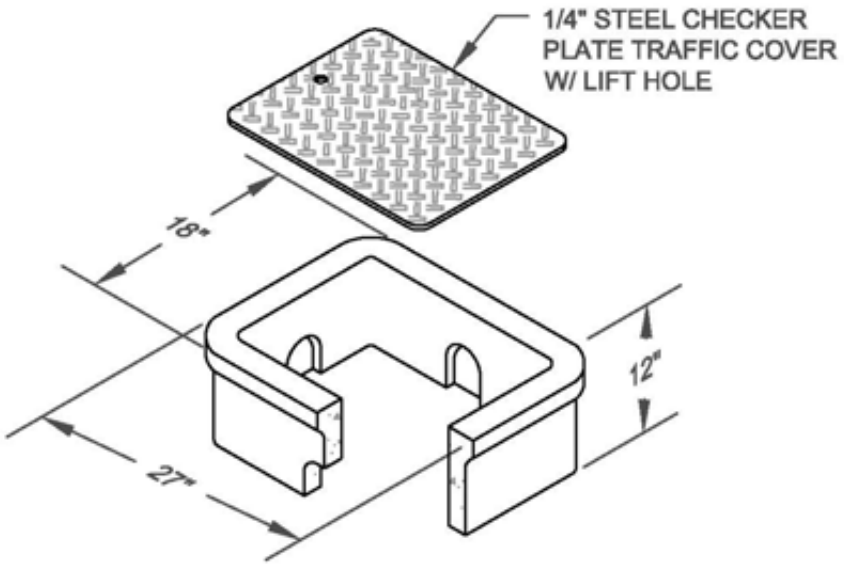
HYDRANT PAD SHALL BE CONSTRUCTED TO THE REQUIREMENTS FOR ROADWAY EMBANKMENT AND SLOPE COMPACTION, (95% MIN.).

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	FIRE HYDRANT PAD DETAIL	DRAWN: JW	DWG. FILE: WO-12
		APPROVED: MS	FIGURE: 12
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PROFILE VIEW

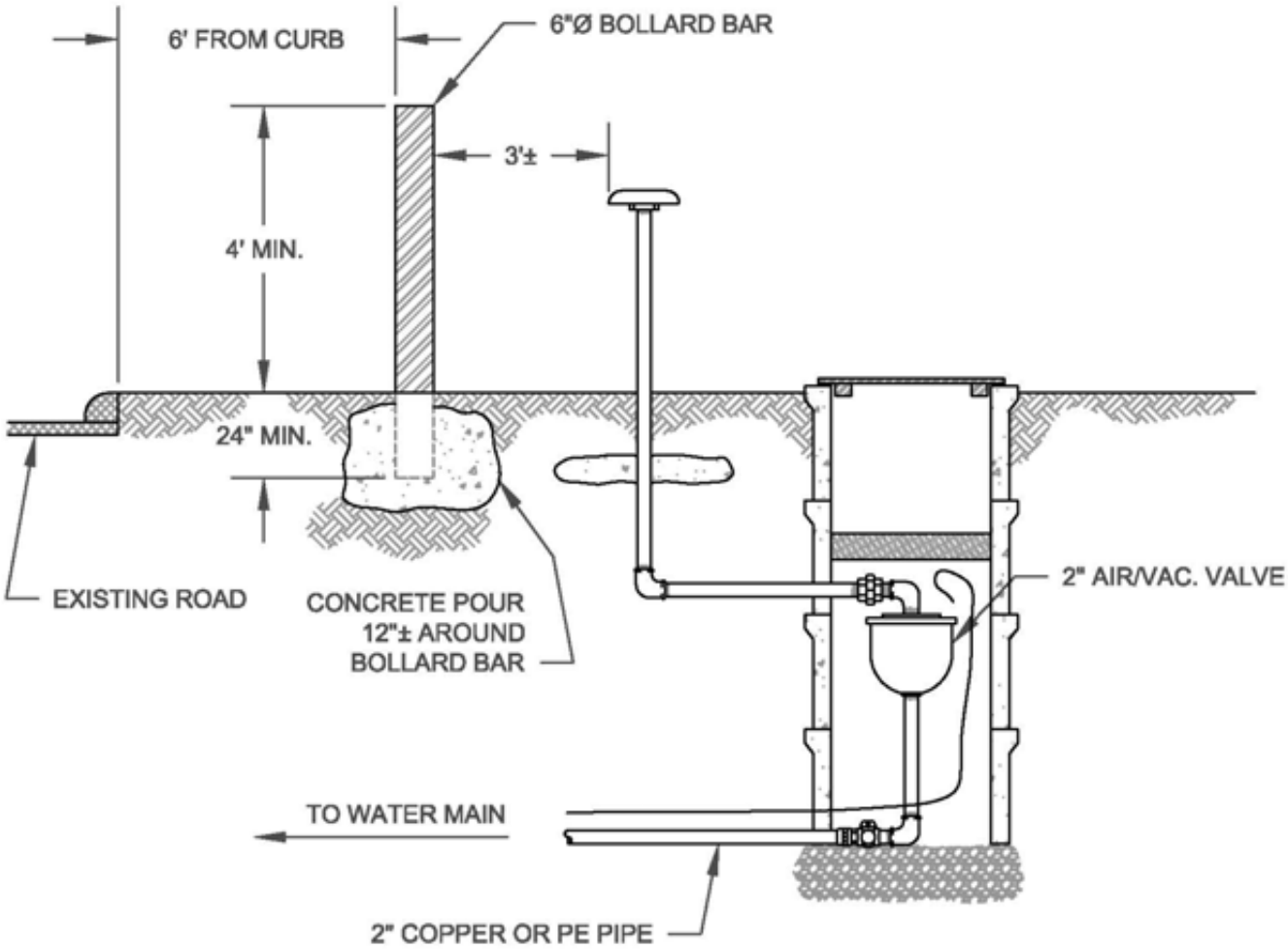


DETAIL

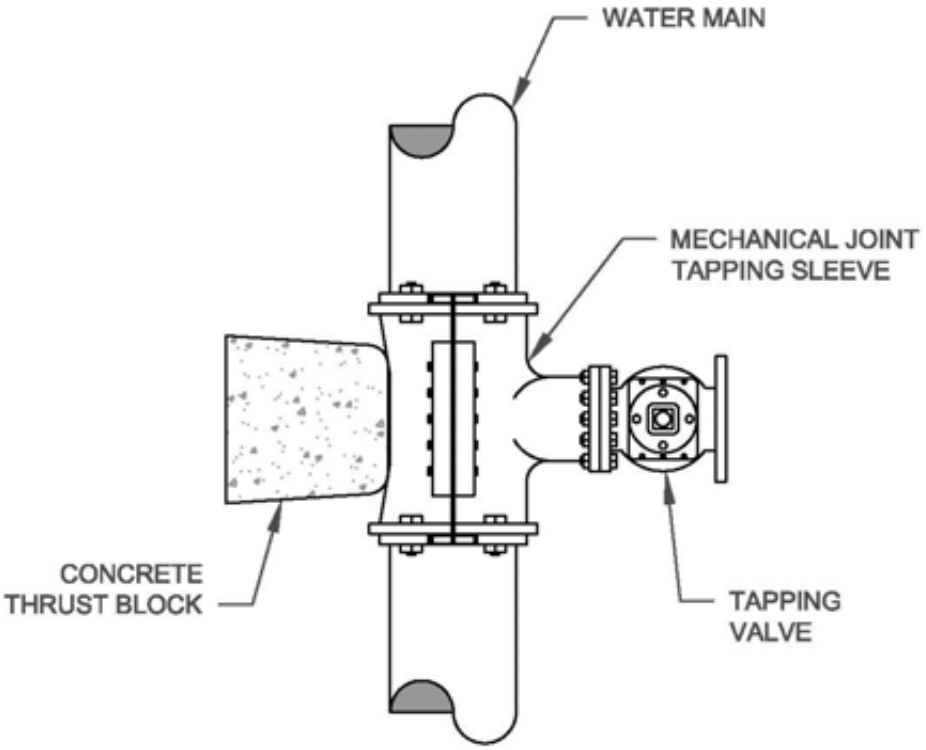


N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	COMBINATION AIR/VACUUM VALVE DETAIL	DRAWN: JW	DWG. FILE: WO-13
		APPROVED: MS	FIGURE: 13
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PROFILE VIEW



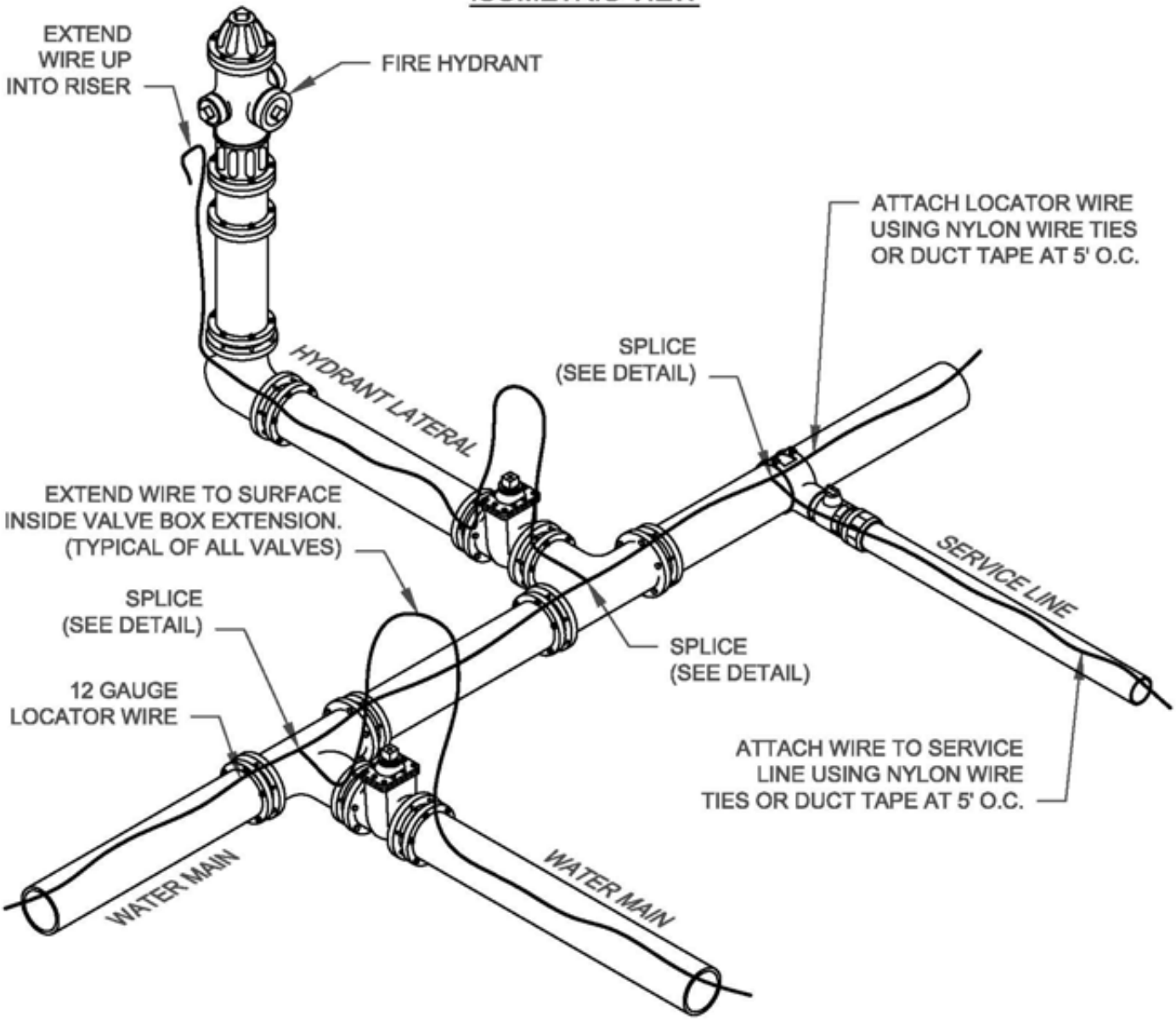
N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	BOLLARD BAR DETAIL FOR	DRAWN: JW	DWG. FILE: WO-14
	COMBINATION AIR/VAC. VALVES	APPROVED: MS	FIGURE: 14
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	



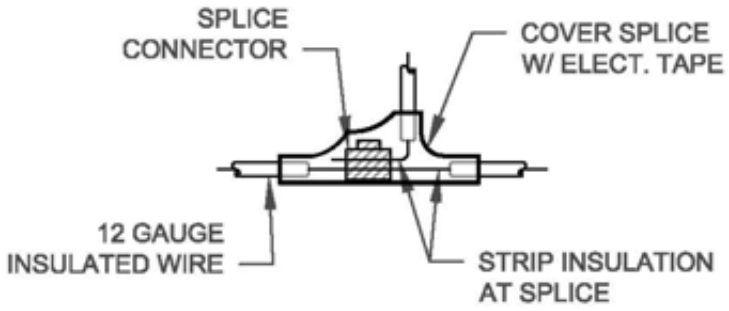
N.C.S.D. IS TO OBSERVE AND INSPECT ALL MAIN TAPS.

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	MAIN TAP DETAIL	DRAWN: JW	DWG. FILE: WO-15
		APPROVED: MS	FIGURE: 15
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

ISOMETRIC VIEW

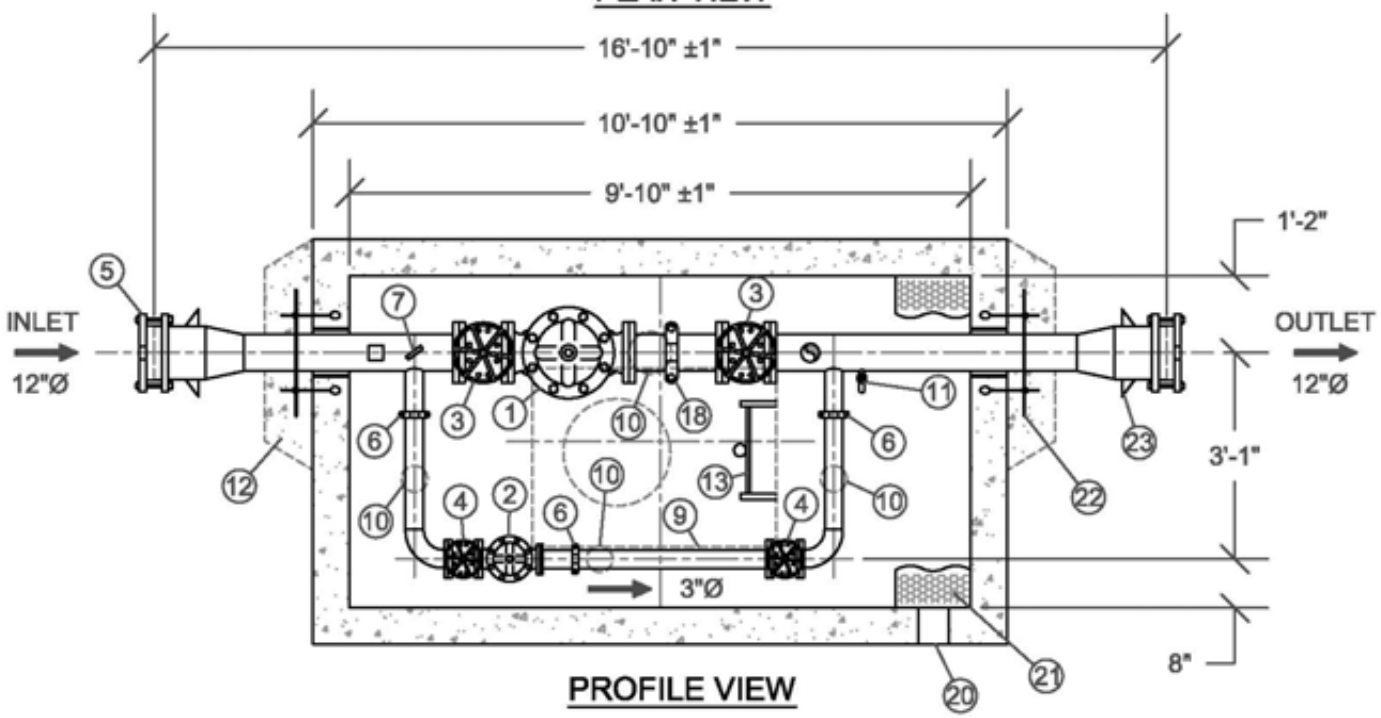


DETAIL

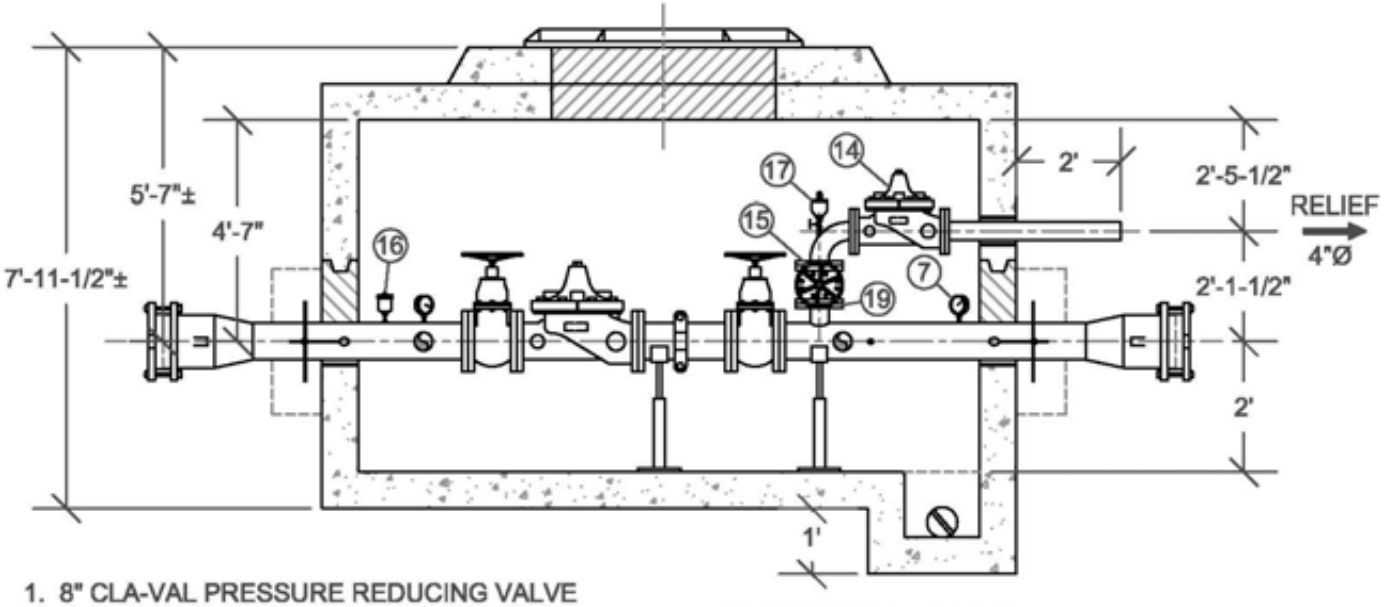


N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	LOCATOR WIRE DETAIL	DRAWN: JW	DWG. FILE: WO-16
		APPROVED: MS	FIGURE: 16
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW



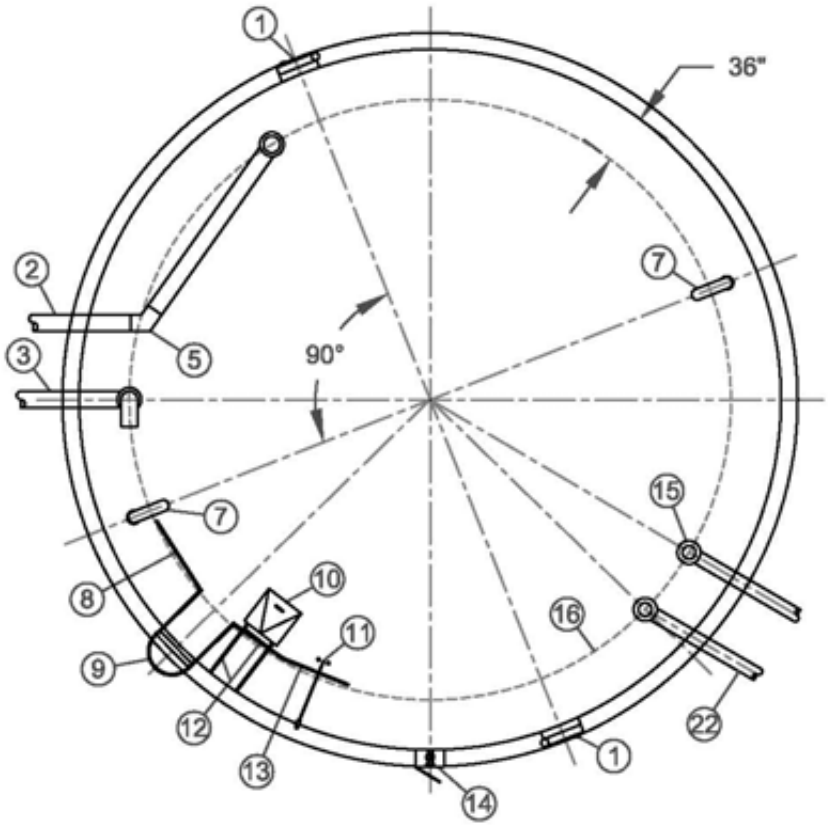
PROFILE VIEW



1. 8" CLA-VAL PRESSURE REDUCING VALVE
2. 3" CLA-VAL PRESSURE REDUCING VALVE
3. 8" MUELLER GATE VALVE W/ HANDWHEEL
4. 3" MUELLER GATE VALVE W/ HANDWHEEL
5. 12" SMITH BLAIR TRANSITION COUPLING
6. 3" VICTAULIC COUPLING
7. 4" WIKA PRESSURE GAUGE
8. PRECAST CONCRETE CHAMBER
9. 46" X 30" THREE PIECE VALVE VAULT COVER
10. ADJUSTABLE PIPE SUPPORTS
11. HOSE BIB TEST PORT
12. REINFORCED CONCRETE THRUST BLOCK
13. ALUMINUM LADDER
14. 4" CLA-VAL PRESSURE RELIEF VALVE
15. 4" MUELLER GATE VALVE W/ HAND WHEEL
16. 1" CLA-VAL AIR RELEASE VALVE
17. 1" CLA-VAL COMBINATION AIR VALVE
18. 8" VICTAULIC COUPLING
19. 4" VICTAULIC FLANGE ADAPTER
20. 5"Ø OPENING FOR 4"Ø DAYLIGHT DRAIN
21. 59"L x 12"W x 12" DEEP SUMP W/ SUMP GRATING
22. THRUST-SEAL PLATE W/ ANCHORING BOLTS
23. TIE ROD LUGS (TYP. OF 4)

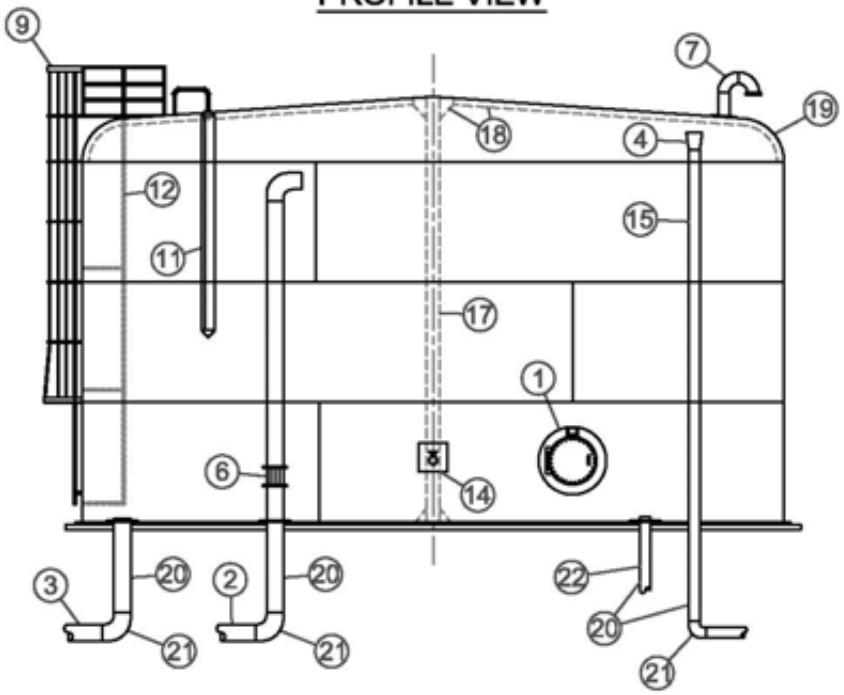
N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	PRESSURE REDUCING STATION	DRAWN: JW	DWG. FILE: WO-17
		APPROVED: MS	FIGURE: 17
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW

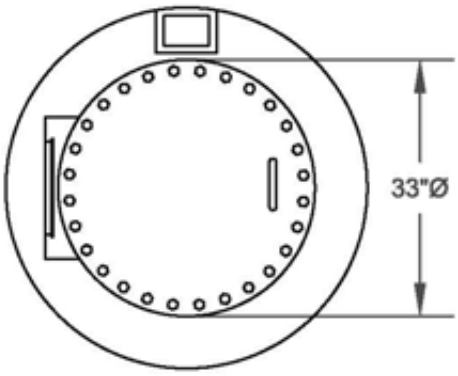


1. SHELL MANWAY (SEE DETAIL)
2. STEEL INLET
3. STEEL OUTLET
4. FLARED END
5. 45° ELBOW
6. FLEX COUPLING
7. ROOF VENT
8. 6' MIN. GUARD RAIL
9. CAGE & LADDER
10. ROOF MANWAY
11. LEVEL INDICATOR
12. INTERIOR LADDER
13. 8' MIN. GUARD RAIL
14. FIRE DEPT. CONNECTION W/ LOCKING COVER
15. INTERIOR OVERFLOW
16. EDGE OF KNUCKLE ROOF
17. CENTER COLUMN
18. ROOF SUPPORT STRUCTURE
19. KNUCKLE ROOF
20. SCH. 40 STEEL PIPE
21. STEEL ELBOW, WELDED
22. DRAIN

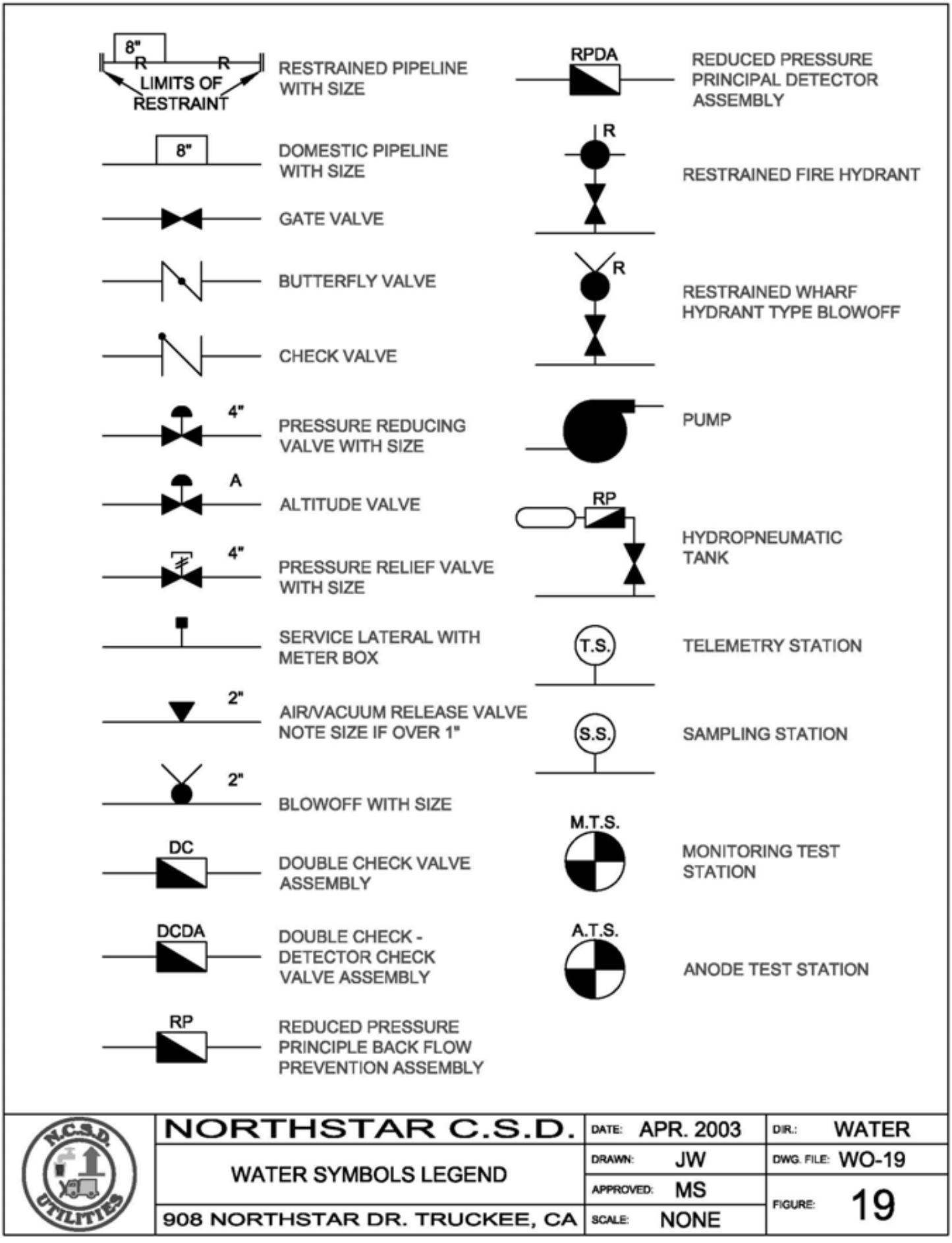
PROFILE VIEW

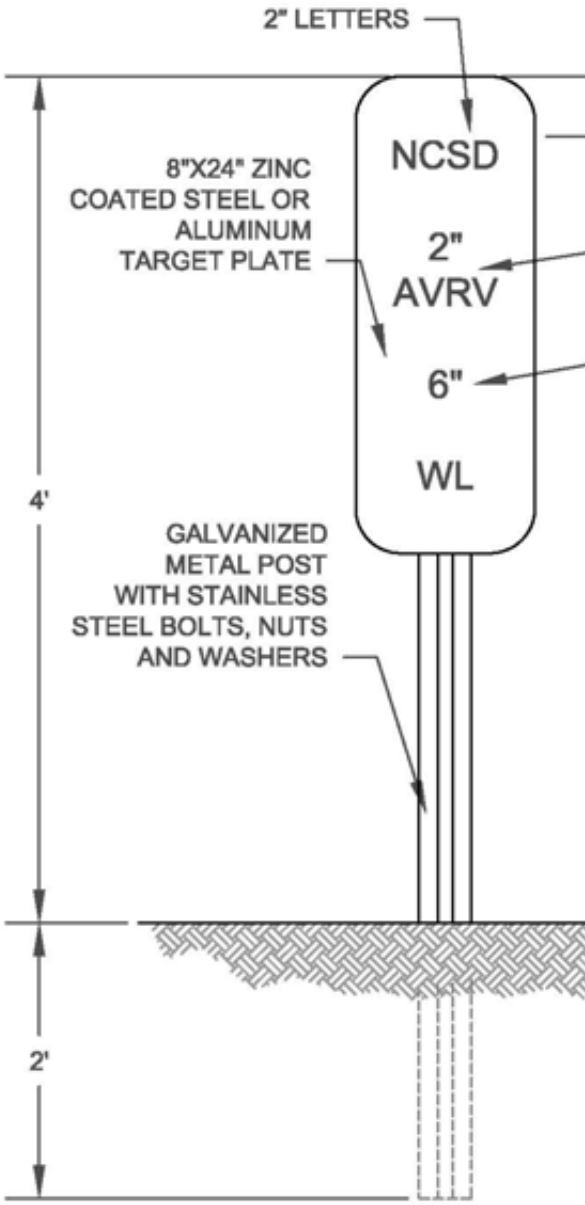


DETAIL



N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	TYPICAL STORAGE TANK DETAIL	DRAWN: JW	DWG. FILE: WO-18
		APPROVED: MS	FIGURE: 18
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	


8"
R
R
LIMITS OF RESTRAINT
RESTRAINED PIPELINE WITH SIZE
8"
DOMESTIC PIPELINE WITH SIZE
GATE VALVE
BUTTERFLY VALVE
CHECK VALVE
4"
PRESSURE REDUCING VALVE WITH SIZE
A
ALTITUDE VALVE
4"
PRESSURE RELIEF VALVE WITH SIZE
SERVICE LATERAL WITH METER BOX
2"
AIR/VACUUM RELEASE VALVE NOTE SIZE IF OVER 1"
2"
BLOWOFF WITH SIZE
DC
DOUBLE CHECK VALVE ASSEMBLY
DCDA
DOUBLE CHECK - DETECTOR CHECK VALVE ASSEMBLY
RP
REDUCED PRESSURE PRINCIPLE BACK FLOW PREVENTION ASSEMBLY
RPDA
REDUCED PRESSURE PRINCIPAL DETECTOR ASSEMBLY
R
RESTRAINED FIRE HYDRANT
R
RESTRAINED WHARF HYDRANT TYPE BLOWOFF
PUMP
RP
HYDROPNEUMATIC TANK
T.S.
TELEMETRY STATION
S.S.
SAMPLING STATION
M.T.S.
MONITORING TEST STATION
A.T.S.
ANODE TEST STATION
N.C.S.D. UTILITIES
NORTHSTAR C.S.D.
WATER SYMBOLS LEGEND
908 NORTHSTAR DR. TRUCKEE, CA
DATE: APR. 2003
DRAWN: JW
APPROVED: MS
SCALE: NONE
DIR.: WATER
DWG. FILE: WO-19
FIGURE: 19



NOTES:

1. INSTALL MARKER AS CLOSE AS POSSIBLE FACING FACILITY PER AGENCY ENGINEER.

2. ALL NUMBERS AND LETTERS SHALL BE STENCILED BLACK WITH EXTERIOR ENAMEL IN A PROFESSIONAL MANNER.

3. WHEN INSTALLATION IS NOT IN A PAVED AREA, PLACE A MARKER AT EACH FACILITY SHOWN ON DRAWINGS AND EVERY 250 L.F. ON WATER LINE.

LEGEND:

__" BV - BUTTERFLY VALVE

__" GV - GATE VALVE

__" AVRV - AIR / VACUUM RELEASE VALVE

PRV - PRESSURE RELIEF VALVE

PRS - PRESSURE REDUCING STATION

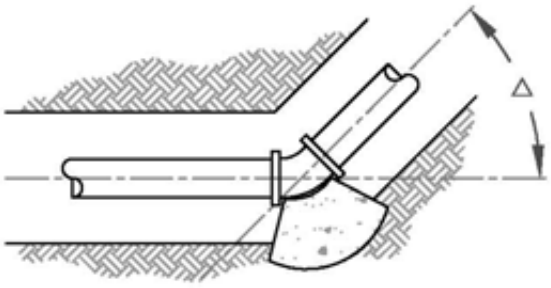
__" BOV - BLOW OFF VALVE

IRR - IRRIGATION WATER FACILITY

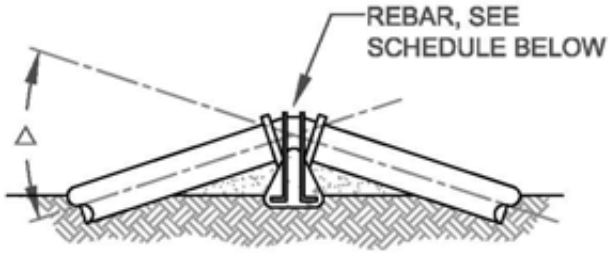
__" WL - WATER LINE

AP - HORIZONTAL ANGLE POINT

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	WATER FACILITY MARKER	DRAWN: JW	DWG. FILE: WO-20
		APPROVED: MS	FIGURE: 20
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	



PLAN - HORIZONTAL THRUST BLOCK
NO SCALE



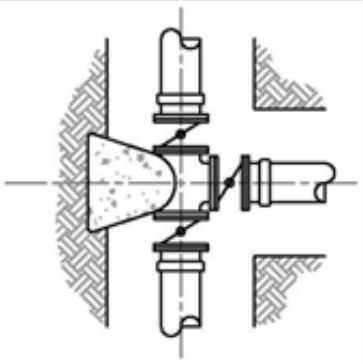
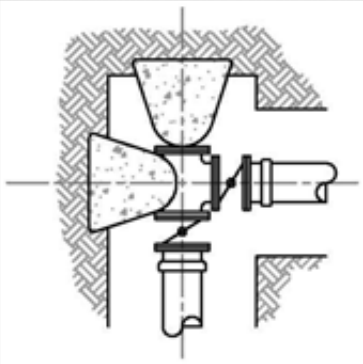
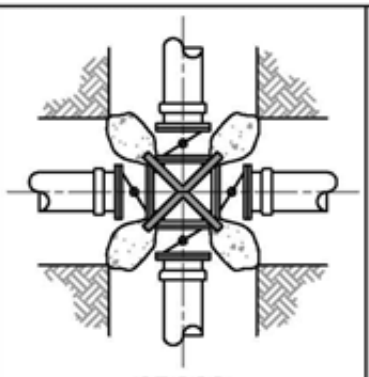
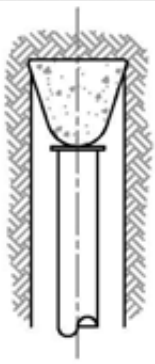
ELEV. - VERTICAL THRUST BLOCK
NO SCALE

PIPE DIA. (in.)	HORIZONTAL THRUST BLOCK BEARING AREA (S.F.)				VERTICAL THRUST BLOCK VOL. OF CONCRETE (C.Y.)			
	△ = 11-1/4°	△ = 22-1/2°	△ = 45°	△ = 90°	△ = 11-1/4°	△ = 22-1/2°	△ = 45°	△ = 90°
4 & 6	1.0	1.1	2.2	4.0	0.3	0.5	1.1	2.0
8	1.0	1.9	3.7	6.9	0.5	0.9	1.8	3.4
10	1.6	3.1	6.2	11.4	0.8	1.6	3.0	5.6
12	2.2	4.4	8.7	16.1	1.1	2.2	4.3	7.9
14	3.0	6.0	11.8	21.9	1.5	3.0	5.8	10.8
16	4.0	7.9	15.4	28.5	2.0	3.9	7.6	14.1
18	5.0	10.0	19.7	36.4	2.5	5.0	9.7	----
20	6.3	12.5	24.5	45.2	3.1	6.2	12.1	----
24	9.1	18.0	35.3	65.3	4.5	8.9	16.9	----
30	13.3	26.3	51.5	95.4	6.6	12.9	24.1	----

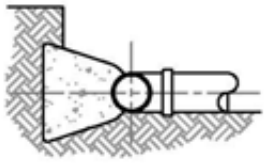
NOTES:

1. TEST PRESSURE = 150 PSI, SOIL BEARING PRESSURE = 2000 LBS/S.F.. USING HIGHER PRESSURE OR LOWER SOIL BEARING PRESSURE SHOULD BE ADJUSTED ACCORDINGLY, SUBJECT TO APPROVAL BY THE AGENCY ENGINEER.
2. THRUST BLOCKS TO BE CONSTRUCTED OF CLASS "B" CONCRETE, SUBJECT TO APPROVAL BY THE AGENCY ENGINEER.
3. THRUST BLOCKS TO BE PLACED AGAINST UNDISTURBED SOIL.
4. JOINTS, FACE OF PLUGS, NUTS AND BOLTS TO BE KEPT CLEAR OF CONCRETE AND MUST BE ABLE TO BE OPERATED WITHOUT DISTURBING THRUST BLOCK.
5. EXPOSED REBAR TO BE SHAPED WITH 90° BEND AT END, COATED WITH TWO COATS OF KOPPERS 505, TNEMEC 46-450, AMERON OR EQUAL 15 MILS EACH COAT.

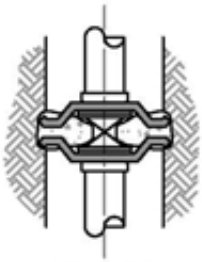
N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	THRUST BLOCK DETAILS	DRAWN: JW	DWG. FILE: WO-21
		APPROVED: MS	FIGURE: 21
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PIPE DIA. (In.)	 TEE	 TEE W/ CAP OR BLD. FL..	 CROSS	 END OF LINE
	HORIZONTAL THRUST BLOCK BEARING AREA (S.F.)			
4 & 6	2.8	2.8	2.8	2.8
8	4.9	4.9	4.9	4.9
10	8.1	8.1	8.1	7.7
12	11.4	11.4	11.4	11.0
14	15.5	15.5	15.5	15.0
16	20.2	20.2	20.2	19.6
18	25.7	25.7	25.7	24.8
20	32.0	32.0	32.0	30.6
24	46.2	46.2	46.2	44.1
30	72.2	72.2	72.2	68.9

REBAR SIZES (EPOXY COATED OR WRAPPED)		
PIPE SIZE	△	REBAR
4 - 10	0 - 90°	#5
12 - 20	0 - 22-1/2°	#5
24 - 30	0 - 22-1/2°	#6
12 - 20	45°	#7
24 - 30	45°	#8
12 - 30	90°	#8



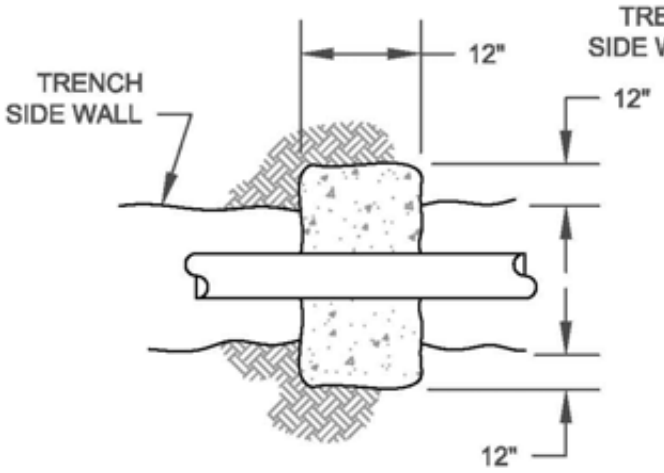
ELEVATION - HORIZONTAL BEND



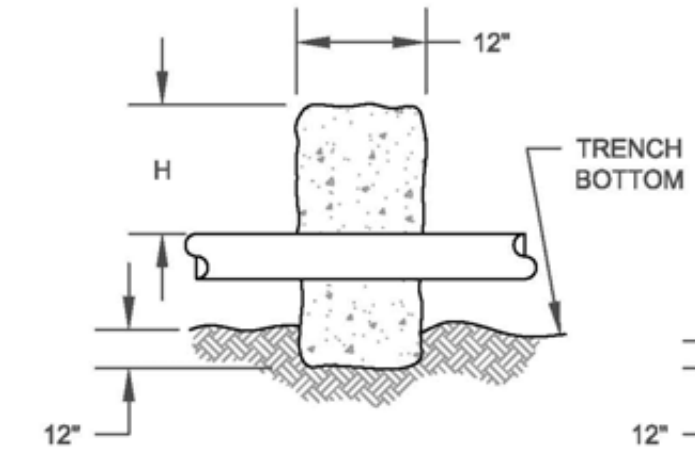
IN - LINE GATE VALVE

NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
THRUST BLOCK DETAILS	DRAWN: JW	DWG. FILE: WO-22
	APPROVED: MS	FIGURE: 22
908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

1 SACK/CY CEMENT SLURRY

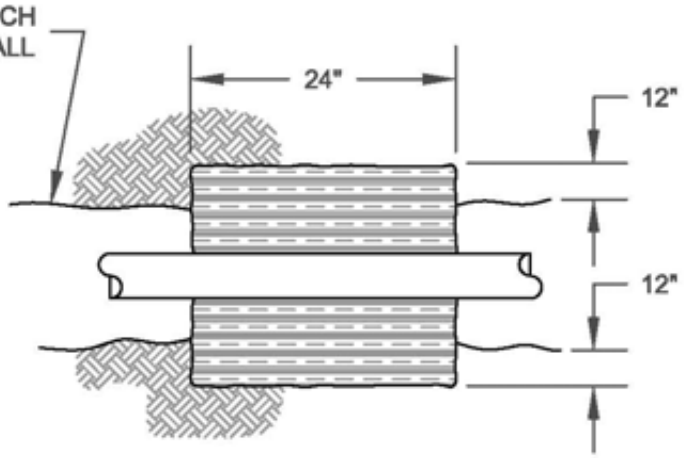


PLAN VIEW

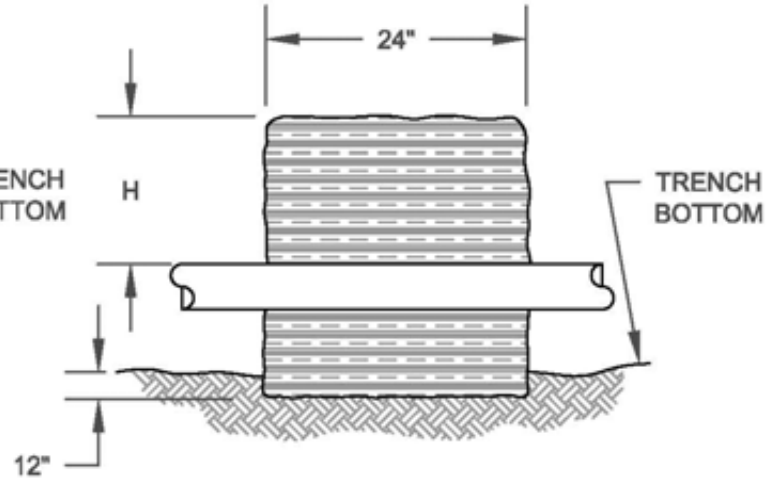


PROFILE VIEW

BENTONITE CLAY



PLAN VIEW

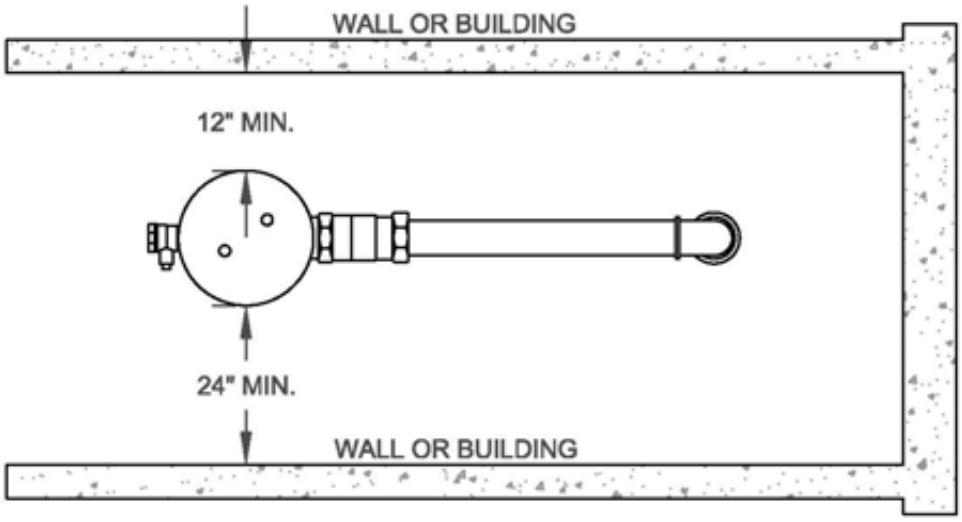


PROFILE VIEW

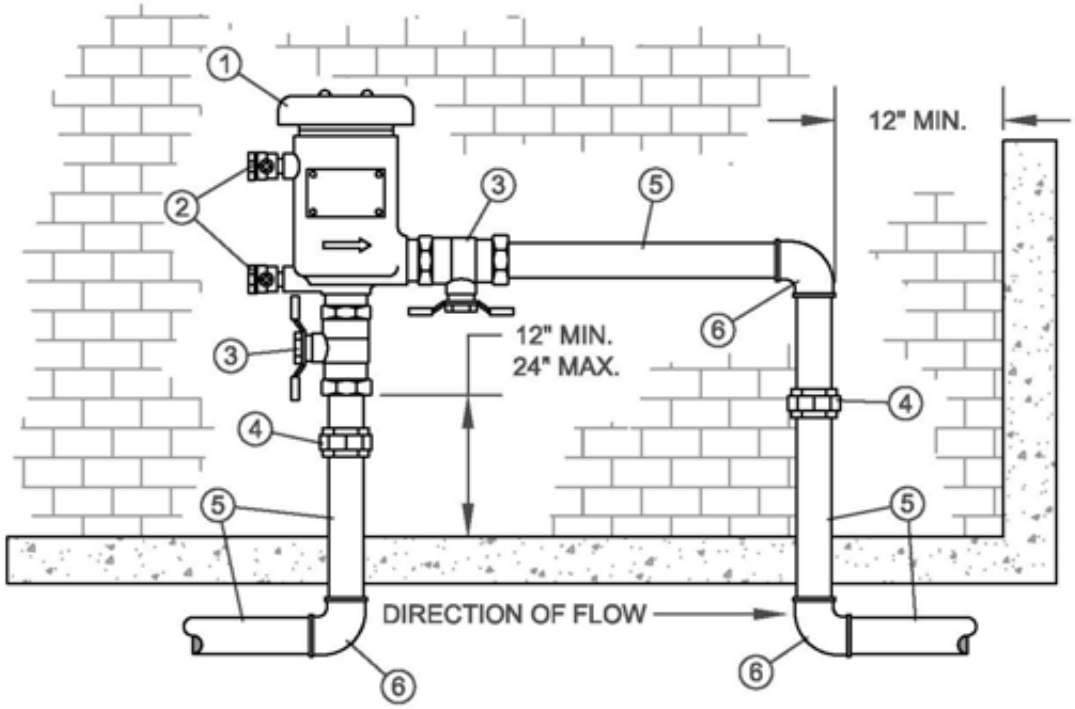
H = 12" ABOVE SEASONAL HIGH
GROUNDWATER TABLE (36" MIN.)

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	TRENCH CUT-OFF BLOCK	DRAWN: JW	DWG. FILE: WO-23
		APPROVED: MS	FIGURE: 23
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW



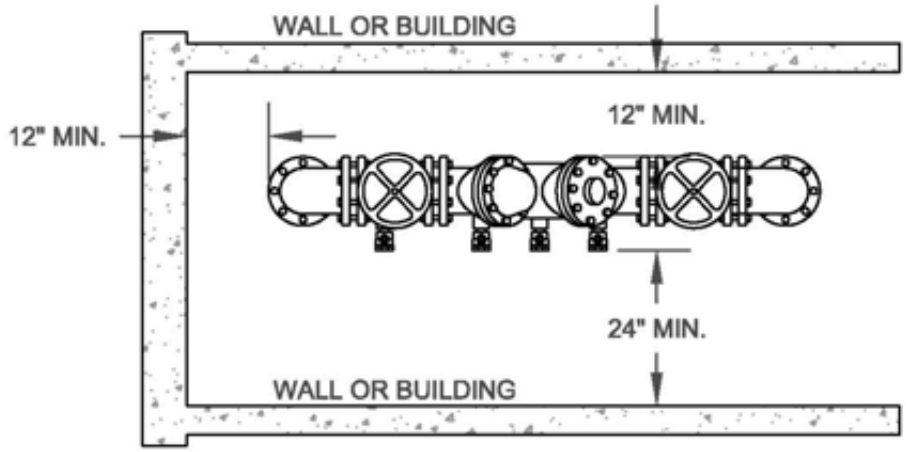
PROFILE VIEW



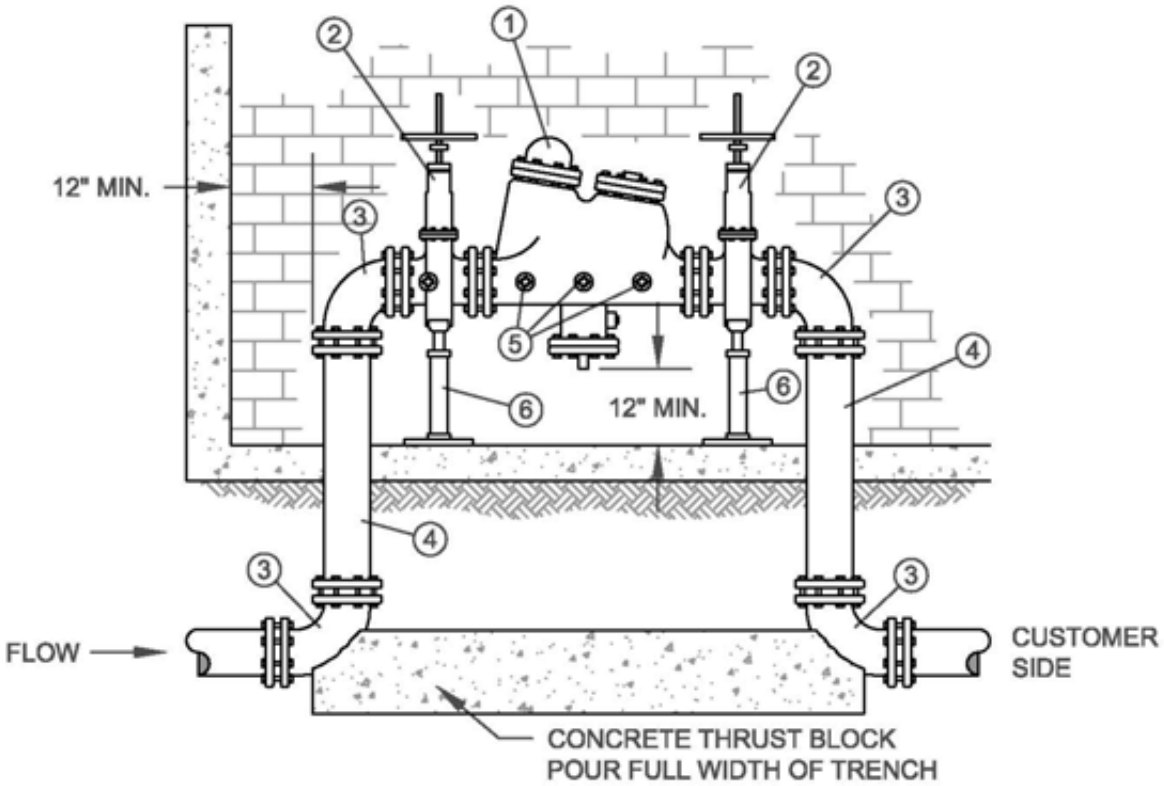
1. APPROVED PRESSURE VACUUM BREAKER BACK FLOW ASSEMBLY
2. TEST COCKS
3. BALL VALVE
4. BRASS UNION
5. TYPE "K" COPPER TUBING
6. BRASS ELBOW

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	PRESSURE VACUUM BREAKER BACKFLOW ASSEMBLY	DRAWN: JW	DWG. FILE: WO-24
		APPROVED: MS	FIGURE: 24
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW



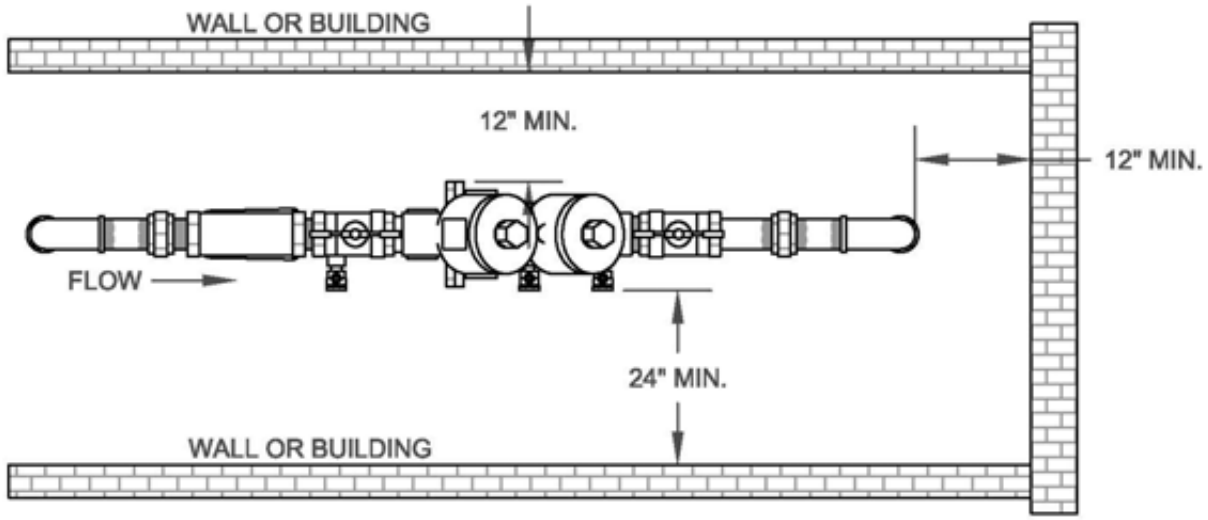
PROFILE VIEW



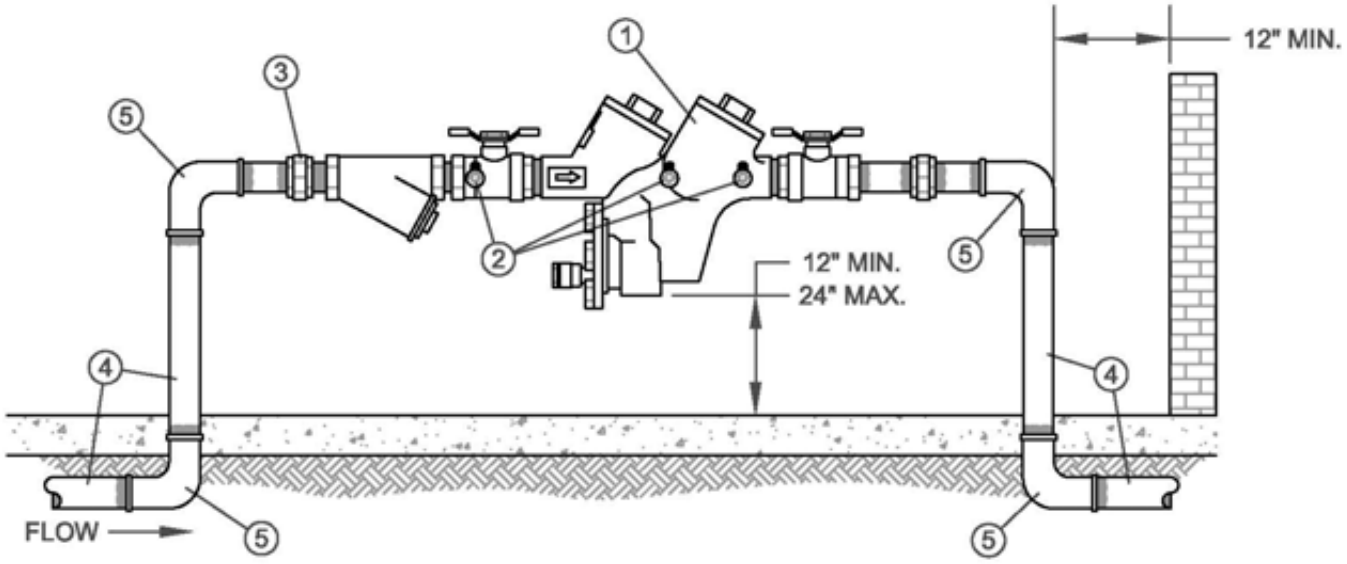
1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY
2. RESILIENT SEATED VALVE
3. 90° ELL. (FLANGED)
4. PIPE SPOOL (FLANGED)
5. TEST COCKS
6. ADJUSTABLE PIPE SUPPORTS

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	REDUCED PRESSURE PRINCIPLE	DRAWN: JW	DWG. FILE: WO-25
	BACKFLOW PREVENTION ASSEMBLY	APPROVED: MS	FIGURE: 25
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW



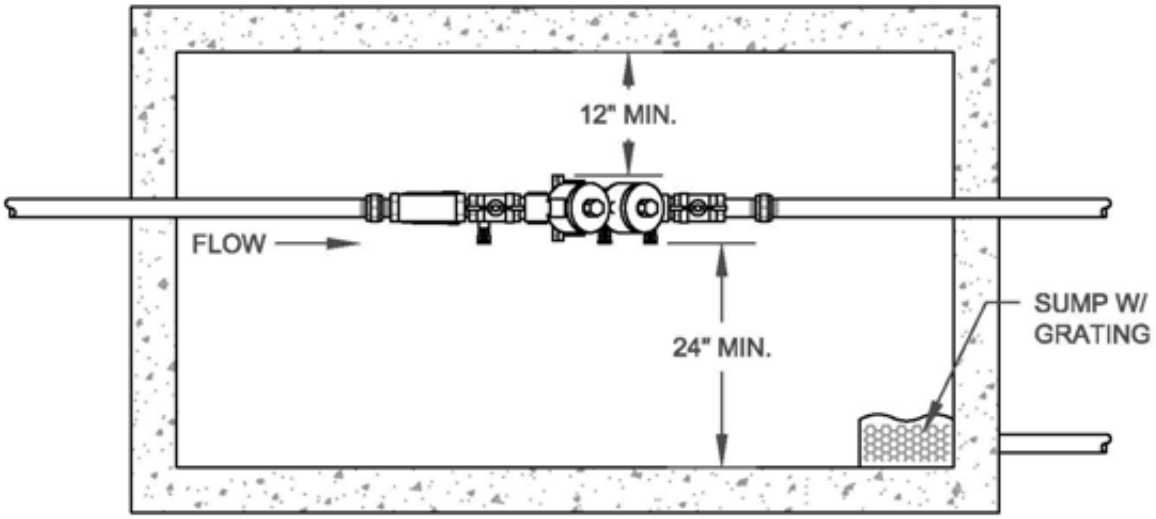
PROFILE VIEW



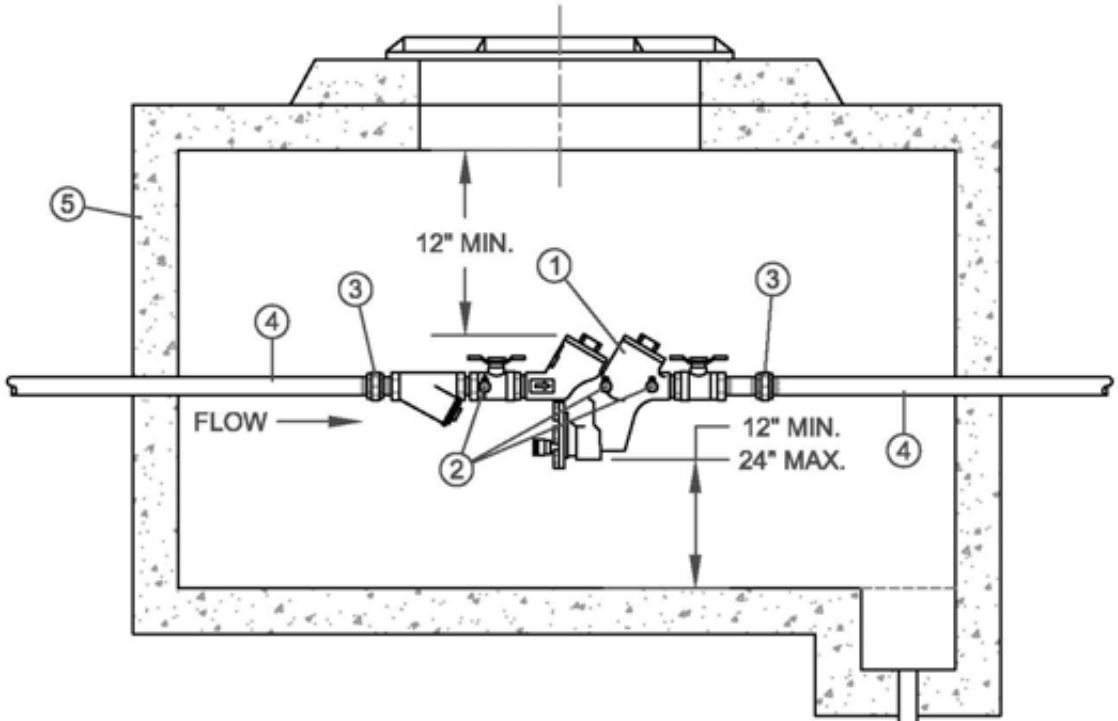
1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY
2. TEST COCKS
3. BRASS UNION
4. TYPE "K" COPPER TUBING
5. COPPER ELBOW

NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
REDUCED PRESSURE BACKFLOW ASSEMBLY (3/4" - 2")	DRAWN: JW	DWG. FILE: WO-26
	APPROVED: MS	FIGURE: 26
908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW



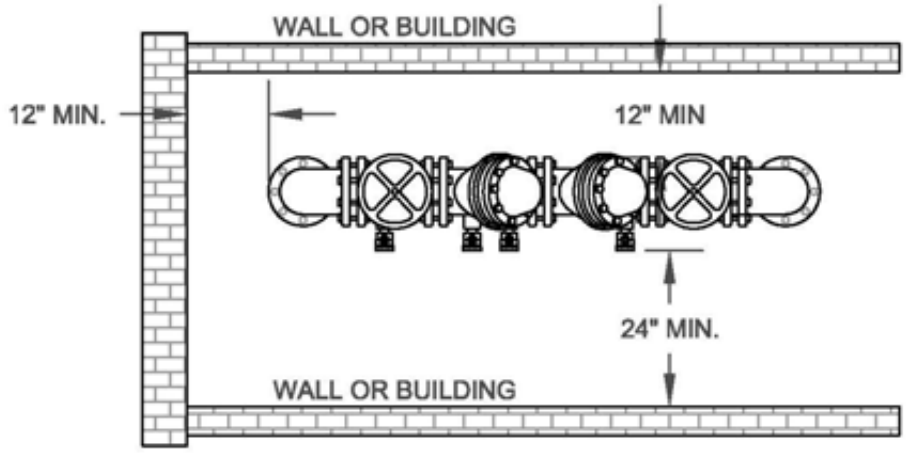
PROFILE VIEW



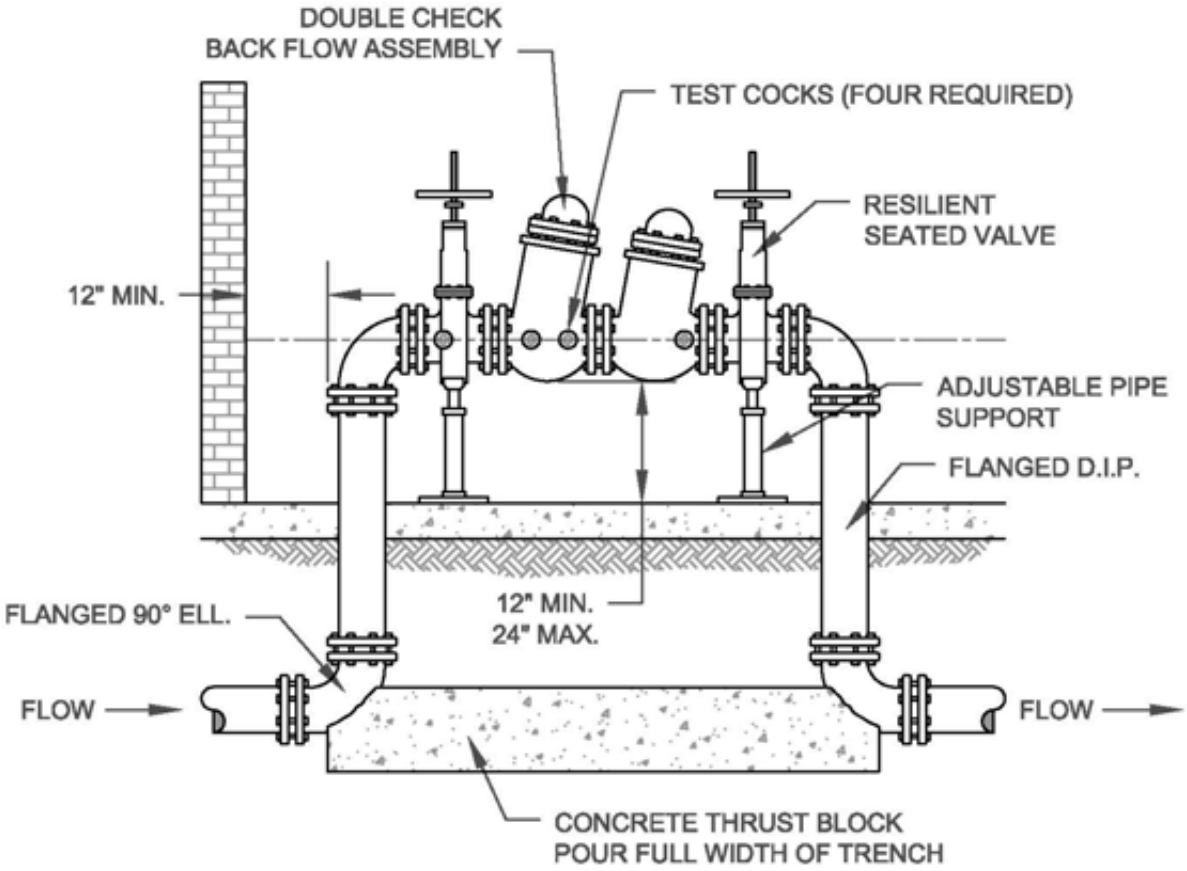
1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY
2. TEST COCKS
3. BRASS UNION
4. TYPE "K" COPPER TUBING
5. CONCRETE VAULT W/ TRAFFIC RATED LID

N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: MAY 2004	DIR.: WATER
	REDUCED PRESSURE BACKFLOW ASSEMBLY (3/4" - 2")	DRAWN: JW	DWG. FILE: WO-27
		APPROVED: MS	FIGURE: 27
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW

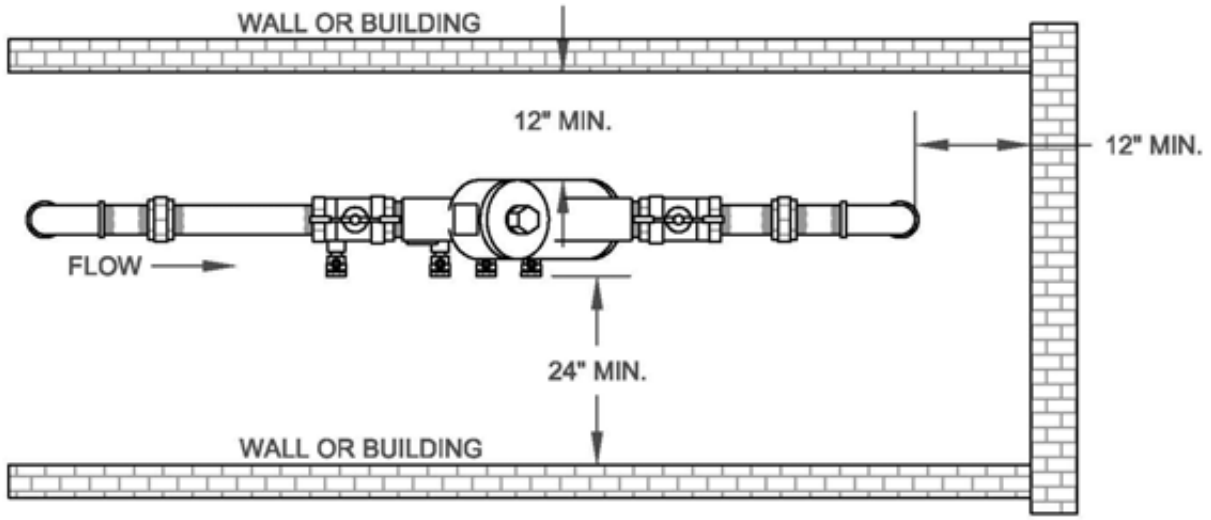


PROFILE VIEW

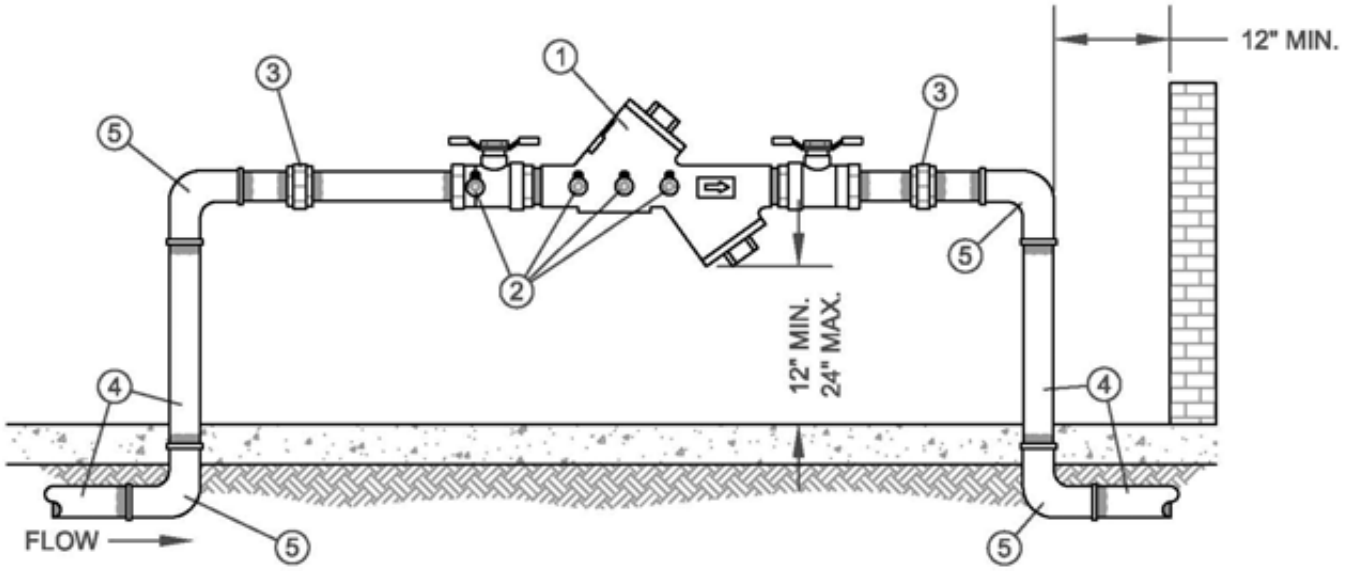


N.C.S.D. UTILITIES	NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
	DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY	DRAWN: JW	DWG. FILE: WO-27
		APPROVED: MS	FIGURE: 28
	908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

PLAN VIEW



PROFILE VIEW



1. APPROVED DOUBLE CHECK BACKFLOW ASSEMBLY
2. TEST COCKS
3. BRASS UNION
4. TYPE "K" COPPER TUBING
5. COPPER ELBOW

NORTHSTAR C.S.D.	DATE: APR. 2003	DIR.: WATER
DOUBLE CHECK BACKFLOW ASSEMBLY (3/4" - 2")	DRAWN: JW	DWG. FILE: WO-28
	APPROVED: MS	FIGURE: 29
908 NORTHSTAR DR. TRUCKEE, CA	SCALE: NONE	

DEFINITIONS AND ABBREVIATIONS

Definitions

The following definitions shall apply to all District work:

AGENCY: Any political subdivision of the State of California acting as a body in accordance with the appropriate enabling legislation.

AGENT: Any individual, corporation, partnership or other legal entity representing the interests of the owner.

APPLICANT: An individual, agent, owner or agency making application for permission to connect to, and to make use of, the District's Water System facilities.

BACKFLOW: The reversal of the normal flow of water caused by either backpressure or Backsiphonage.

BACKFLOW PREVENTER: An assembly or device used to prevent backflow.

BANQUET FACILITIES: A designated area which is occasionally used by commercial establishments for restaurant seating for groups of customers in addition to the regularly used restaurant seating. The District factor rating for banquet facilities is based upon the maximum number of seats used on the property at any one time. These banquet seats are charged 36 percent of a restaurant seat. Banquet seating shall not be used in the day to day operation of a restaurant; or for more than 50 percent of the time; or for non-banquet purposes. Seats which do not meet the criteria for banquet seats shall be rated as restaurant seats.

BAR SINK: A single square or rectangular sink which does not exceed 15 inches in length or width, and 7 inches in depth; or a round sink which does not exceed 15 inches in diameter. It shall not be the primary sink in a residential unit. If a bar sink is installed in a room which is not made available for rental purposes and does not have a kitchen, kitchenette, or any cooking facilities, and which is located within a residential unit which already contains a kitchen sink, there will be no connection charges or service charges assessed for the room.

BARBER SHOP: An establishment whose primary purpose is washing, cutting, and styling hair, and where color tints or dyes are not used and permanent waves are not usually given.

BEAUTY SHOP: An establishment whose primary purpose is washing, cutting, and styling hair, and where color tints or dyes are used and/or permanent waves may be given.

BENCH SEATING: In an establishment which is rated according to the number of seats, 20 inches of benching will be considered as one seat. Each bench will be counted in increments of 20 inches. Fractional seats will not be charged.

BOOTH SEATING: In an establishment which is rated according to the number of seats,

24 inches of booth seating will be considered as one seat. The booth seat will be counted in increments of 24 inches. Fractional seats will not be charged.

BOARD OF DIRECTORS: The lawfully elected or appointed governing body of the Northstar Community Services District.

BUILDING: Any structure used for human habitation, employment or place of business, recreation or other purpose, containing sanitary facilities.

BUILDING LATERAL/SERVICE LINE: The water system pipeline extending from the building to the service line connection point; meter or a point at the at the property line.

COMMERCIAL ESTABLISHMENT: Any building use other than a residential unit as defined in the District Code, or a building used for manufacturing.

COMMERCIAL WATER USE FACTOR: Commercial factor used to design storage and supply for commercial establishments. Approximately 80 gallons per square foot per year.

CONFERENCE FACILITIES: Facilities are only used for conducting conferences intermittently throughout the year by groups of people, which may vary significantly in number. The factor rating for these facilities is based upon the number of plumbing fixture units in the area used exclusively by the fore-mentioned groups and are generally rated at the public rate.

CONNECTION CHARGE: An amount of money charged for connection to the District Water System pursuant to the District Code. Fixture Unit Equivalents may be amended from time to time, as a result of remodeling, additional building on property, change in usage of the property, or other change in appearance or operations.

CONTRACTOR: The person, firm, partnership, association, corporation or organization, either singular or plural, which is constructing any work authorized to be performed by improvement plans and specifications and approved by the District. The aforementioned entities may act either directly, or through properly authorized agents acting within the scope of the particular duties delegated to them.

COUNTY: The County of Placer in the State of California, represented by the Director of Public Works acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

CROSS-CONNECTION: Any connection or condition that allows used water to be introduced into the public water system.

CUSTOMER: Any person described herein who receives water service from the District Water System.

DEVELOPER: The person, firm, partnership, association, corporation or organization, either singular or plural, which is having constructed any work which is authorized to be performed by improvement plans and specifications and approved by the District. The aforementioned entities

may act, either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

DISTRICT: The Northstar Community Services District, along with its authorized agents and representatives.

DISTRICT ENGINEER: Engineer retained by the District, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

DISTRICT REPRESENTATIVE: Any person delegated to act on behalf of the District.

DISTRICT WATER SYSTEM FACILITIES: The system of pipelines, vaults, storage tanks, valves, pump stations, treatment, distribution systems and/or related appurtenances, under the jurisdiction of the District, that carries potable water to residential, commercial, agricultural, or industrial facilities. Also includes facilities that collects, stores and transports raw water (untreated).

DWELLING UNIT: A living unit with kitchen facilities, including those in multiple dwellings, apartments, motels, hotels, mobile homes, trailers, condominiums or townhouses.

DWELLING UNIT EQUIVALENT SINGLE RESIDENTIAL: (DUE) A single-family residential unit. Based on the use of 500 gallons of water per person per day. One DUE is equal to 500 gallons of water per day.

DWELLING UNIT EQUIVALENT MULTI-FAMILY: (DUE) A single-family residential unit. Based on the use of 500 gallons of water per person per day. One Multi-family DUE is equal to 500 gallons of water per day.

ENGINEER: The person, firm, partnership, association, corporation or organization, either singular or plural, specifically appointed to prepare improvement plans and specifications, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

FACTOR RATING: The number of plumbing fixtures in a commercial establishment related to plumbing fixture unit equivalents in Appendix A-3, page 63, and correlated to the District Fee Structure, Appendix A-2, pages 61 and 62.

FIXTURE UNITS: Plumbing fixture unit equivalent load values for drainage piping and plumbing, as specified in the District Code, the applicable Uniform Plumbing Code or the California State plumbing laws and administrative rules.

GENERAL MANAGER: The General Manager of the Northstar Community Services District.

GUEST HOUSE: A space to be used by members of the family occupying the main dwelling and their non-paying guest, without a kitchen or cooking facilities and containing less than 500 square feet of floor area. All utilities serving the guest-house, such as water, water, electricity and gas shall be common to, dependent on and associated with the main dwelling. Allowable plumbing shall be limited to that required for a single bathroom. There shall be a limit of one guest-house per parcel.

The guest-house must be further covered with a deed restriction or appropriate covenant approved by the District prohibiting the separate sale of the unit and/or independent rental of the unit.

INDUSTRIAL WASTE: Any liquid, gaseous, radioactive or solid waste substance or a combination thereof, resulting from any process of industry or manufacturing, or from the development or recovery of any natural resources.

INSPECTION: The act of reviewing any/or all water construction work for the purpose of determining compliance with the District Code.

INSPECTOR: A District representative, acting within the scope of their designated authority, who shall inspect commercial establishments in order to count the fixture units to determine the factor rating to be charged to the property. Also review any or all construction work for the purposes of determining compliance with the District Code.

KITCHEN FACILITIES: Any kitchen sink(s), kitchen sink with garbage disposal, kitchenette, or cooking facilities.

LABORATORY: Any testing agency or testing firm which has been approved by the Board of Directors of the Northstar Community Services District.

LICENSED CONTRACTOR: A contractor having a valid license issued pursuant to Chapter 9, Division 3, of the Business and Professions Code, State of California, which license includes the activities applied for and permitted.

LIVING UNIT: A structure or portion of a structure used for human habitation that contains sanitary facilities; shall be equivalent to a Dwelling.

LOT: Any piece or parcel of land bounded, defined, or shown upon a map or deed, recorded or filed in the office of the County Recorder.

MOTEL UNIT/HOTEL UNIT: (Also includes Bed & Breakfast establishments) Shall mean each guest room in a motel or hotel which is made available for use, rental or hire for the purpose of furnishing transient living accommodations on a day-to-day basis.

MULTIPLE USES: 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 formula detailed on Appendix A-4, page 65, will be applied as a credit against the total of plumbing fixture units which are provided for the use of both restaurant and other business patrons.

NOTICE OF NONCOMPLIANCE: A written notice issued by the District to the owner or their agent informing of defective materials, workmanship or procedures which do not conform to District requirements and which must be removed, replaced or remedied.

ORDINANCE: A statute or regulation of the Northstar Community Services District Board of Directors.

OWNER: The person, corporation, partnership, or other legal entity which is shown as the owner of a particular lot on the property tax rolls that are maintained by the Counties of Nevada or Placer.

PERMIT: Formal authorization required pursuant to this District Code for connection to the water facilities of the Northstar Community Services District.

PERMITTEE: The person to whom a permit has been issued pursuant to the provisions of the District Code.

PERSON: The State of California, any individual, public or private corporation, political subdivision, governmental agency, municipality, industry, co-partnership, association, firm, trust, estate or any other legal entity whatsoever.

PLUMBING FIXTURE: Any sink, toilet, shower, tub, faucet, urinal, drinking fountain, etc., or appliance that uses water produced by the District facilities.

POTABLE WATER: Water that meets all State mandated regulations regarding consumption.

PREMISES: Any lot, or any piece or parcel of land comprising of two or more lots of record in one ownership, or any building or other structure or any part of any building or structure used or useful for human habitation or gathering or for carrying on a business or occupation or any commercial or industrial activity.

PRIVATE WATER SYSTEM FACILITIES: The system of pipelines, meters, vaults, valves, pump stations, storage, transmission, and/or related appurtenances, ***not operated or maintained by the District***, that carry water to residential, commercial, agricultural, or industrial facilities.

PUBLIC ENTITY: A city or county, municipal water district, public utility district, county water district, or California water district, organized under the laws of the State of California, or any other public corporation or agency of the State having power to acquire, construct and operate facilities for the collection, treatment and supply of water.

PUBLIC FIXTURES: Are those which are intended for the use of the employees, tenants, or those fixtures in a business which are for unrestricted use by clients or customers of the business, or members of the public; or those which are located in places to which the public is invited, or places which are frequented by the public without special permission, or other installations where fixtures are installed so that their use is similarly unrestrictive.

PUBLIC WATER: Water supply that is controlled by or under the jurisdiction of a public entity.

RAW WATER: Water that is collected diverted or stored and is not treated and does not meet State mandated standards for potable water use.

RESIDENTIAL UNIT: A living unit with a kitchen sink, kitchenette, or any cooking facilities such as: (a) single family dwelling, (b) multiple dwelling, (c) apartment, (d) timeshare unit, (e) mobile home, (f) trailer, (g) condominium, or (h) townhouse. Includes all living units in which the owner is renting or leasing the premises, or any portion of the premises.

SEASONAL SEATING: When an establishment which is rated and charged according to the number of seats has seating which is located outside, those seats which are located outside shall be charged 50 percent of the normal service charges charged for seats and 50 percent of the regular connection charge which is charged for seats.

SERVICE LINE: The water system transmission line, which extends from the District main pipeline to the property line.

SKI CLUB: An establishment, which makes rooms available for use by members of a club or group on a temporary basis for periods of two weeks at a time, shall be rated according to the number of fixture units on the premises and as private fixtures.

SNACK BAR: An establishment that uses only disposable products for food service and does not provide seating for the use of its customers.

SPECIAL DISTRICT: The Northstar Community Services District.

STANDARDS: The Standards for Water Improvements for the Northstar Community Services District.

STANDARD SPECIFICATIONS: Whenever reference is made to the "Standard Specifications" it shall refer to the latest edition of the State of California, Department of Public Works, Division of Highways STANDARD SPECIFICATIONS. Where the terms "State" or "Engineer" are used in the "Standard Specifications" or any documents or instruments where this document or the developers specifications govern, they shall be construed to mean the District, the General Manager, or, District representative as defined in this article.

STATEMENT OF FACTS: Any information or documentation provided to the District by the owner or their agent.

STREET: Any public highway, road, street, avenue, alleyway, public place, public easement or right-of-way.

STREET PROPERTY LINE: A building line, where one has been established by ordinance; otherwise, the street property line itself.

STUB OUT: The connection point to the water system. This point of connection is usually located near the property line at the terminus of the water system or service line. A term also used for a capped extension of the District's Water System for future pipeline extension.

SWIMMING POOL: All swimming or wading pools containing 2,000 gallons of water or more, and all non-residential whirlpool baths and hot tubs. All swimming pools, non-residential whirlpool baths and hot tubs.

If swimming pools, whirlpool baths, hot tubs, are to be filled or otherwise utilize the public water system, written approval must be obtained from the General Manager. No person shall utilize the

public water system without first notifying the District. The General Manger obtains the right to prohibit the use of public water for this purpose when, in his/her opinion, such activity would deleteriously affect the operation of the water system. Filling operations should take place only between the hours of 9 P.M. and 7 A.M. or other times with prior approval of the General Manger.

TAPPING: The forming of a connection to an existing water main or service line by installing a Service Sleeve or Saddle.

TEE: A fitting for a branch on which the spur joins the barrel of the pipe at an angle of approximately 90 degrees.

TOXIC WASTE: Any waste that is poisonous or hazardous to human, animal and/or plant life.

TREATED WATER: Water that has been processed and meets State regulations for potable water use.

U**SED WATER:** Any water that has entered a private water system regardless of condition or content.

USER FEES: A regular charge to a owner or designated representative for the use of the public water system.

WATER MAIN PIPELINE: A water transmission line that carries water to service lines.

WASTEWATER: The spent water of a community, which may be a combination of liquid and water carried wastes from residences, commercial buildings, industrial plants, etc.

WATER PUMPING STATION: Any facilities, works or device used to raise water from a lower to a higher level or to provide adequate pressure in a pipeline.

WATER SERVICE: Granting the privilege of water system facility use to agencies, customers or persons in accordance with specific conditions and requirements.

WATER TREATMENT FACILITY: Any arrangement of devices and structures used for treating raw water for potable water use.

Abbreviations

ASTM	American Society for Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association, Inc.
NCSD	Northstar Community Services District
NEMA	National Electrical Manufacturers Association
NEC	National Electrical Code
UBC	Uniform Building Code
UPC	Uniform Plumbing Code