

---

## 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.

**End 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.