

SECTION VII: CONSTRUCTION STANDARDS POLICY
Greenferry Water and Sewer District, Inc.

A. GENERAL

1. All work shall conform to the "Idaho Standards for Public Works Construction", current edition, and the DISTRICT Standard Drawings & Notes/Specifications. In the case of conflict, the most stringent standard shall apply.
2. All materials shall be new and AWWA approved, where applicable unless otherwise approved by the Board.
3. No revisions shall be made to the DISTRICT Standard Drawings or Notes/Specifications without written approval of the DISTRICT. Approved revisions of DISTRICT Standard Drawings or Notes/Specifications shall be clearly identified upon the approved construction drawings.
4. All safety standards and requirements shall be the responsibility of the Contractor and complied with as set forth by the U.S. Department of Labor Occupational Safety and Health Organization (OSHA).
5. A recorded easement of the new mainline extension or domestic/irrigation delivery must be executed and recorded prior to water service.
6. Preserve and protect all existing District services.
7. Existing utilities shall be located by contacting CALL BEFORE YOU DIG at 811 at least 48 hours prior to starting any excavations. The Contractor shall notify the appropriate utility companies prior to starting work near any facilities and shall coordinate their work with company representatives.
8. Work shall not begin until written notice to proceed is issued by the DISTRICT.
9. Changes proposed to the approved plans and specifications must be made in writing and approved by the District in writing.
10. The Engineer of Record shall notify the DISTRICT at least 48 hours prior to starting work or proceeding with new phases of construction. All inspections shall be scheduled with a minimum 48-hour notice prior to testing.
11. An approved complete set of construction drawings and specifications shall always be kept on the site.
12. The Contractor shall maintain the streets, sidewalks, and all other public rights-of-way in a clean, safe and useable condition. All soil, rock, or construction debris shall be removed from the public right-of-way at the end of each workday, and upon completion of the project. All adjacent property; private or public, shall be maintained in a clean, safe and useable condition.
13. The Engineer of Record shall be responsible for all project inspections, including materials testing and quality control. Copies of daily reports, test results, project certification and as-built drawings shall be submitted to the DISTRICT throughout the course of construction in a timely manner; as appropriate with phasing of the project, and prior to final acceptance.
14. Existing property corners or survey monuments shall be protected during construction. Any damaged or obliterated corners or monuments shall be re-established by professional surveyors, licensed to work in the State of Idaho, prior to final acceptance.

15. Trees not identified for removal shall be preserved or protected in an approved manner prior to commencement of grading operations.
16. The Engineer of Record shall verify the adequacy of erosion and sedimentation control measures prior to the start of construction, as necessary during the project. Erosion and sedimentation control measure shall be installed in accordance with these plans, as prepared by the IDEQ.
17. All projects having the potential for runoff discharge to any surface water body shall a Notice of Intent (NOI) with the EPA. When a Storm Water Pollution Prevention Plan (SWPPP) is required by the EPA and provided to the District.
18. At least 72 hours prior to disruption, shut-off or connection to existing water systems; the Engineer of Record shall inform and receive written approval from the DISTRICT. All such costs associated with the notification shall be passed on to the party requesting such shut down, as determined by the Board.
19. Any and all fittings or appurtenances removed from the DISTRICT water system, as part of the project, shall be salvaged and returned to the DISTRICT by the Contractor at the sole discretion of the District.
20. The Contractor shall be responsible for all traffic control, in accordance with the Manual on Uniform Traffic Control Devices, current edition. Prior to the disruption of traffic, an encroachment permit shall be obtained from the Highway District and a copy submitted to the District.

B. CONSTRUCTION SEQUENCE

The following is a general construction sequence followed by the District. The sequence can be modified on a project by project basis by the Board.

1. Plat approval by Kootenai County.
2. Submittal of Design Plans and Specifications by Project Engineer.
3. Approval of Design Plans and Specifications by District Engineer and DEQ.
4. Pre-construction meeting organized by Contractor to include the Contractor, DISTRICT inspector, project engineer, District Engineer, Highway District official, and all utilities involved including Avista, Kootenai Electric, Telephone, Cable TV, etc.
5. Notice to Proceed issued by the District.
6. Changes proposed to the approved plans and specifications must be made in writing and approved by the District in writing.
7. Construction with inspections as determined by the DISTRICT Board.
8. Testing
9. Final Inspection/Punch list
10. Completion of punch list items
11. Substantial Completion
12. Project Engineer Submits as-build drawings
13. Water District Accepts ownership and operation
14. Water District receives a warranty bond at 150% of the value of the improvements.
15. One-year Warranty Bond Inspection

C. WATER DISTRIBUTION

1. The water distribution system shall be designed in accordance with the requirements as described in the Idaho Standards for Public Works Construction, the "Idaho Rules for Public Drinking Water Systems" (IDAPA 58.01.08), and the Recommended Standards for Water Works (10 State Standards), most current edition.
2. The water system shall be designed to provide fire flows at a minimum of 1000 gpm for a 2-hour duration unless more stringent requirements are dictated by the fire authority and/or District.
3. Fire hydrants shall be placed at a spacing not to exceed 1,000 feet.
4. Water mains shall be PVC AWWA C900 DR 25, Class 165 pipe, unless otherwise specified by the District.
5. Inline and isolation valves shall be placed within the distribution system as determined by the DISTRICT. Generally, isolation valves shall be placed at all connection points and inline valves at a spacing not to exceed 1,000 feet.
6. Water service lines shall be constructed of Class 250 polyethylene tubing conforming to AWWA C901 and located and sized as shown on the construction plans.
7. All water mains and service lines shall be constructed with the top of the pipe a minimum of 4.5 feet below finish grade, except where otherwise indicated with specific elevations and approved by the DISTRICT.
8. No connections for the purpose of obtaining water supply during construction shall be made, without first obtaining written permission from the DISTRICT.
9. All water mains, fire hydrants, blowoffs and services shall be installed with continuous #10 Copper Stranded THHN tracer wire and plastic marker tape with the words "WATER LINE BELOW". Tracer wire shall be extended to the ground surface in valve boxes, meter boxes, fire hydrants or vaults as applicable. Tracer wire shall be tested prior to paving. All splices shall be done in a junction box with wire nuts as recommended by the wire manufacturer and as approved by the District.
10. All water mains shall be separated at least 10 feet horizontally from sanitary or storm sewer systems. Crossing of water mains and sewer systems shall have a minimum 18-inch vertical separation, with the water main being centered over the sewer. All crossings shall conform to the Idaho Rules for Public Drinking Water IDAPA 58.01.08
11. Maximum limits of water main joint and pipe deflection shall be obtained from the manufacturer and submitted to the Engineer of Record and DISTRICT prior to construction. Where laying conditions require pipe/joint deflection in excess of limits specified by the manufacturer, a fitting with a thrust block shall be used.
12. Pipe installation alignment shall not deviate more than 6" from design location unless approved by the District.
13. All thrust blocking shall be formed in place against undisturbed or compacted soil and conform to the minimum dimensions shown in the standard details. The use of pre-cast thrust blocks can be used upon written approval from the district

All bolts and nuts shall be free of concrete and accessible by wrench. Restrained joints on fittings and pipe may be substituted for thrust blocking as approved by the District on a case by case basis.

14. All concrete for thrust blocks, unless otherwise specified, shall be commercial grade Portland Cement with air entrainment (2-4%), and a minimum 28-day compressive strength of 3,000 psi. Slump shall be 2 ½ to 5 inches and verified through on-site testing.
15. All water mains, fire mains, valves, fire hydrants, services and appurtenances shall be installed, tested and approved, in accordance with referenced standards prior to paving.
16. All water mains shall be chlorinated in accordance with Idaho Standards for Public Works Construction. Results of chlorination and bacteria tests shall be submitted and approved by the DISTRICT prior to operating valves to put new mains into service.
17. All water mains shall be pressure tested at 150 psi or 1.5 times the working pressure, whichever is greater, for a minimum of 2 hours. The DISTRICT shall be notified 48 hours prior to testing and a representative of the DISTRICT shall be present for all testing. A certified gauge shall be used for all testing.

D. BOOSTER STATIONS

1. The booster station shall be located such that it is always accessible by maintenance vehicles and personnel as approved by the District.
2. All booster stations shall be enclosed in concrete, Concrete Masonry Unit or other approved building materials of such size to provide 3 feet of clearance around all piping, pumps, and electrical panels.
3. The building manufacturer shall provide stamped, engineered drawing prior to acceptance. The building shall be placed on a level, 6-inch compacted base of crushed rock over suitable soils compacted to 95% of maximum density. The building shall be supplied with appropriately sized doors or otherwise approved by the District. The building shall be painted inside and out with 2 coats of epoxy-based paint over one coat of primer, with colors as approved by the DISTRICT.
4. The booster station shall have a minimum of two (2) pumps which shall be a vertical, centrifugal pump with an inline design with the suction and discharge ports in a horizontal plane with the same pipe dimensions. Each pump shall be capable of the flows and pressures to meet the demands of the system as determined by the Project Engineer and approved by the DISTRICT.
5. All pumps, valves, fittings and other appurtenances shall be above ground and accessible to maintenance personnel.
6. All pipe fittings shall be cast iron with 150 LB flange. Gaskets shall be full face neoprene rubber. All piping shall be painted blue with 2 coats of epoxy-based paint over one coat of primer.
7. Gate valves shall be AWWA with non-rising stem and wheel operator.
8. Check valves shall be swing type lever operated. The external lever shall have a spring return.

9. A pressure gauge shall be installed on the inlet and outlet sides of the pump. The pressure gauges shall be liquid filled 0-200 psi with a ball valve.
10. All pipe penetrations through the concrete structure shall be sealed with epoxy-based grout finished with a smooth surface to match the concrete.
11. Lighting both inside and outside of the building shall be appropriate as specified by the District.
12. A minimum of 2 GFI protected 120V 20 amps outlets shall be provided within the building.
13. Pump controls shall be housed within a NEMA 4R enclosure mounted to the wall. Each pump shall be supplied with an hour meter, Hand-Off-Auto (HOA) switch amperage meter, and pump run lights.
14. Flow meters will be provided as specified by the District.
15. A minimum of two-unit heaters shall be mounted within the building and shall be controlled by and shall be capable of a minimum of 6 air changes per hour and shall be controlled by a thermostat and humidity switch.
16. Communications equipment shall be supplied with each booster station to be communicated to maintenance personnel as required. At a minimum, the following alarm conditions shall be communicated:
 - a. Loss of Power
 - b. Phase Loss
 - c. Loss of Inlet Pressure
 - d. Reservoir High Level
 - e. Reservoir Low Level
17. The booster station shall be supplied with a generator and automatic transfer switch as specified by the District.
18. The booster station shall be controlled by a programmable logic computer (PLC) capable of controlling and monitoring flows, pump run times, alarms, and other basic functions of the pump station.

E. WELL / WELL HOUSES

1. New wells for supply of potable water within the DISTRICT will be reviewed on a case by case basis by the Board.
2. Well houses shall meet the same standard as booster stations listed above and additional requirements as determined by the Board.

F. RESERVOIRS

1. The minimum reservoir size within the DISTRICT that is used to provide fire flow 120,000 gallons, or as determined by the Board.
2. They shall be designed by a Professional Engineer licensed in the State of Idaho and approved by the DISTRICT Board.
3. All reservoirs shall be accessible by a road meeting the standards for a fire apparatus access road as defined in the International Fire Code.

4. All reservoirs shall be fenced with a 6-foot-high chain link fence as shown in the Standard Details.
5. The reservoir shall be provided with a locking design and locks as approved by the DISTRICT.
6. All reservoirs shall have a drain system that allows the reservoir to be emptied for maintenance as specified by the DISTRICT.