

STANDARD SPECIAL PROVISIONS

PART 00200 – TEMPORARY FEATURES AND APPURTENANCES

Section 00220 – Accommodations for Public Traffic

00220.02 Public Safety and Mobility - In the eighth “bulletized” item, delete the words “as shown on the Plans”.

00220.40(d) Adjacent to Excavations - In the first “bulletized” item, delete the words “as shown on the standard drawings”.

00220.40(e)(1) Closed Lanes - Add the following to the subsection:

Unless otherwise authorized by the City Engineer, the Contractor shall maintain two lanes of traffic on all streets affected by construction between the hours of 6:00 p.m. and 7:00 a.m.

Detours and closures will be allowed, but must be approved by the City Engineer in advance.

Section 00225 – Work Zone Traffic Control

00225.00 Scope - Delete the phrase “according to the standard drawings, the traffic control plan (TCP) for the Project, these Specifications, or as directed” and replace with the phrase “traffic control plan (TCP) for the Project submitted by the Contractor and accepted by the City Engineer, these Specifications, or as directed”.

00225.05 Contractor Traffic Control Plan - Delete the subsection in its entirety and replace with the following:

The Contractor shall submit a proposed TCP prepared by an engineer currently licensed in Oregon for the City Engineer’s review and acceptance at least 14 days prior to start of any construction. The proposed TCP shall address all operational aspects of the Contractor’s work, and shall include provisions for areas used by the Contractor for staging and storage of materials and equipment. The proposed TCP shall include order and duration of the TCP, all TCMs, TCDs, lane and street closures, and detours. If additional modifications are proposed by the Contractor to the Contractor’s TCP as accepted by the City Engineer, submit modifications prepared by an engineer currently licensed in Oregon at least 7 days before beginning the construction activities that require the TCP changes.

The following parameters shall apply to the Contractor’s Traffic Control Plan:

- Traffic control shall be designed to move traffic past the area smoothly, with proper and adequate advance signing.
- Wherever the existing roadway surface is disturbed by construction and except where temporary paving is required, the Contractor shall regularly grade and maintain a smooth gravel surface for vehicular traffic traveling through and within the project area until the project is complete.
- Access for Emergency vehicles shall be accommodated at all times.
- The Contractor shall have the responsibility of coordinating the needs of the abutting residents and businesses for parking and access. Temporary on-street parking changes during construction may be allowed, but must be approved by the City Engineer.
- The Contractor shall retain a Traffic Control Supervisor for the project, with responsibility and authority to continuously monitor and direct traffic control operations at all times on the project. The Traffic Control Supervisor shall have specific training in temporary traffic control for construction. The Contractor shall provide the Traffic Control Supervisor’s name and phone number and training credential documentation to the City Engineer at the pre-construction conference. The Traffic Control Supervisor shall not be changed

by the Contractor without prior notification to the City Engineer and providing the same information for the new Traffic Control Supervisor and receiving City Engineer acceptance of the change.

Section 00280 – Erosion and Sediment Control:

00280.04 Erosion and Sediment Control Plan on City Controlled Lands - In the last sentence of the first paragraph, delete “before” and replace with “after”.

00280.05 Erosion and Sediment Control Plan on Non-City Controlled Lands - In the last sentence of the first paragraph, delete “before” and replace with “after”.

00280.30 Erosion and Sediment Control Manager - In the second paragraph, delete “10 days before” and replace with “at”.

Section 00290 – Environmental Protection

00290.20(b) Fuel Storage – Delete the second sentence of the second paragraph.

00290.30(b) Pollution Control Plan: In the first paragraph, delete the phrase “for approval 10 calendar days before the preconstruction conference”.

Delete the last paragraph which begins “A Pollution Control Plan Contractor Packet...”

00290.32 Noise Control – Delete the first “bullet” and replace with the following:

The Contractor shall comply with all requirements regarding noise control, as in accordance with Chapter 5, Offenses, in the Astoria Code.

PART 00300 – ROADWORK

Section 00310 – Removal of Structures and Obstructions

00310.42 Salvaging Drainage Structure Fittings – Add the following to subsection:

Manhole frames and lids, and catch basin frames and grates not reused on new structures shall be salvaged and provided to the City at its maintenance shop at 550 30th Street, Astoria, OR 97103.

00310.44 Earthwork in Connection with Removal – Add the following to subsection:

Catch basins and manholes removed shall be backfilled with compacted Class B Backfill in accordance with 00405.14 from the bottom of the excavation to the top of the street subgrade.

Section 00330 – Earthwork

00330.41(a)(9)c Unstable Subgrade Material - Add the following to subsection:

Where unsuitable foundation is encountered and over-excavation is required, the Contractor shall excavate to a depth as directed by the City Engineer and replace the resultant void with 2-1/2" – 0" aggregate base material.

Section 00350 – Geosynthetic Installation

00350.10 Materials – Add the following to subsection:

Woven geotextile in accordance with 02320.20 (Table 02320-4) shall be used for separation between subgrade and aggregate base material.

PART 00400 – DRAINAGE AND SEWERS

Section 00405 – Trench Excavation, Bedding, and Backfill

00405.02 Definitions

Pipe Bedding: Add the following:

The total bedding depth shall be a minimum of 6 inches below the bottom outside surface of the barrel of the pipe for the full width of the trench.

Pipe Zone: Delete “8 inches” and replace with “12 inches”.

Trench Backfill: Add the following:

Imported Trench Backfill shall be imported crushed aggregate materials free from wood waste, organic material, and other extraneous or objectionable materials.

Lateral Restraint Shoring System: Add the following:

Lateral Restraint Shoring System is defined as a shoring system with full face braced shields tightly against the trench sidewalls throughout trench excavation and pipe installation to maintain lateral stability.

00405.11 Trench Foundation - Delete the four “bulleted” items and replace with the following: 2-1/2”-0 base aggregate in conformance with 02630.10.

00405.12 Bedding – Add the following to subsection:

Pipe Bedding material shall be ¾” – 0 base aggregate material in conformance with 02630.10.

00405.13 Pipe Zone Material – Add the following to subsection:

Pipe Zone Material shall be ¾” – 0 base aggregate material in conformance with 02630.10.

00405.14 Trench Backfill - Add the following to subsection:

Trench Backfill shall be Class B Backfill.

00405.16 Pipe Zone Locate Wire – Add this subsection:

The Contractor shall install 14 gauge locate wire 6 inches above all non-ferrous pipe. Sanitary Sewer wire shall be green, water wire blue, storm drain wire white. Run wires into valve, cleanout and meter boxes, manholes and other structures to a point accessible from the cover. Locate wires to not hinder access into manholes.

00405.41(c) Trench Width – Delete third and fourth sentences of subsection.

00405.41(f) Trench Excavation, Trench Protection - This section is supplemented with the following:

The Contractor shall be responsible for providing Trench Protection as follows:

1. The Contractor is solely responsible to design, install and maintain shoring, sheeting, bracing and sloping necessary to support the sides of the excavation and to prevent any movement that may trigger landslides, damage adjacent structures and facilities, endanger life and health, or pose a threat to the environment. Conform to the requirements of applicable governmental regulations and agencies.
2. All sheeting, bracing, shoring and trench shields shall be designed or certified by a currently registered Oregon professional engineer and meet the requirements of all applicable local, state, and federal safety codes. The designer shall comply with all applicable codes, ordinances and statutes, and bear sole responsibility for any and all penalties imposed for noncompliance.
3. Do not install sheeting and shoring using vibratory methods.
4. Make and maintain all excavations in a safe manner.
5. Carefully reconsolidate the bedding and side support outside a trench shield prior to placing backfill.

6. Leave in place those portions of sheeting extending below the crown elevation of the pipe, unless the bedding and side support can be reconsolidated to the satisfaction of the City Engineer.
7. Where removal of sheeting would result in damage to adjacent utilities or other property, the Engineer may order all or a portion of sheeting to be cut off and left in place.
8. Do not use horizontal strutting below the barrel of a pipe.
9. Do not use the pipe as support for trench bracing.
10. Contractor shall restore all existing facilities damaged, destroyed, or altered by soil movements resulting from temporary shoring movements or nonperformance.
11. Detrimental Movements or Settlements: Work shall be stopped immediately and the causes of detrimental movements be ascertained if:
 - (a) Damage is noted on adjacent structures.
 - (b) Total settlements of an adjacent structure are noted to be 1/4-inch or larger.
 - (c) Total horizontal movements of an adjacent structure are noted to be 1/4-inch or larger.
 - (d) Shoring systems horizontal movements are noted to be 1/4-inch or larger.
 - (e) Total ground settlements, when measured at settlement measurement points, are noted to be 1/2-inch or larger.
 - (f) There is a trend or a rate of change of any settlement or movement that indicates the maximum movements given above will be exceeded.
 - (g) Work is directed to stop by the City Engineer due to other detrimental effects or factors.
12. The causes of the detrimental movements or excessive settlements must be identified by the Contractor. Corrective measures must be proposed to and approved by the City Engineer before further Work.

00405.43 Dewatering - This section is supplemented as follows:

Dewatering equipment shall be provided to remove and dispose of all surface water and groundwater entering excavations, trenches, or other parts of the work.

1. The Contractor is solely responsible to design, furnish, install, maintain, and operate all necessary dewatering wells, sump/pumps and other devices for dewatering all excavations. The Contractor's plan for the dewatering system shall be submitted to the City Engineer for review.
2. At all times have on the project sufficient dewatering devices for immediate use, including standby pumps in case other pumps become inoperable.
3. Provide a sufficient number of dewatering devices so as to hold the groundwater level at an elevation of not less than 1 foot below the lowest elevation of the pipe or other material to be placed. When groundwater is encountered, the Contractor shall assess the situation and develop a plan to accommodate dewatering. The Contractor shall be solely responsible for control of groundwater through dewatering and trench excavation control Plan.
4. The dewatering operation shall be continuous, so that the excavated areas shall be kept free from water during subgrade preparation, while pipes are installed, and until backfill has been placed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.
5. Continue dewatering during backfilling operations such that the groundwater is at least 1 foot below the level of the compaction effort at all times. No compaction of saturated materials will be allowed.
6. If pumping is required on a 24 hour basis, requiring engine drives, then engines shall be equipped in a manner to keep noise to a minimum.
7. Dewatering devices must be adequately filtered to prevent the removal of fines from the soil.
8. Settle and/or filter all dewatering system collected flow through Contractor provided settling tanks and systems in order to meet Water Quality Standards; Beneficial Uses, Policies, and Criteria for Oregon (OAR 340-041-0036) prior to discharging.

9. Dispose of water in such a manner as to cause no injury or nuisance to public or private property, or be a menace to the public health.
10. The Contractor shall be responsible for any damage to existing structures, pavement, utilities, or of the new works caused by Contractor's dewatering activities or failure of any part of the Contractor's dewatering activities.

The Contractor shall be responsible for furnishing temporary drainage facilities to convey and dispose of surface water falling on or passing over the site.

00405.44 Trench Foundation - Delete the third sentence of the second paragraph and replace with the following: Place the trench foundation material in no more than 12-inch layers and compact according to 00330.43.

00405.45 Pipe Bedding - Add the following paragraph to subsection:

The Contractor shall place subsequent lifts of not more than 6-inches in thickness up to one foot above the top of the pipe, bringing lifts up together on both sides of the pipe.

Bedding material shall be compacted to 95% of the Standard Proctor maximum dry density (ASTM D698, AASHTO T-99). For the case that bedding material is not density testable, procedures in accordance with 00405.46(c) (2) shall be followed. In this case, the bedding materials should be compacted using suitable compaction equipment until non-yielding.

Bedding disturbed by pipe movement, by removal of shoring, or by movement of a trench box or shield shall be recompacted prior to backfill. Special care shall be taken to provide adequate bedding support at wye or tee connections, at Fernco connections and adjacent to other structures so as to avoid bending or shearing stresses at these critical points. The Contractor shall prevent pipe movement either horizontally or vertically during placement and compaction of pipe bedding material.

00405.46(b) Pipe Zone - Add the following to the subsection:

Pipe zone material shall be compacted to 95% of the Standard Proctor maximum dry density (ASTM D698, AASHTO T-99).

00405.46(c)(2) Class A, B, C, or D Backfill – Delete the second paragraph of the subsection and add the following:

Within rights of way and paved surfaces, trench backfill shall be compacted to 98% of the Standard Proctor maximum dry density within two feet of final pavement subgrade elevation and to 95% of the Standard Proctor maximum dry density below two feet of final pavement subgrade elevation. Water jetting is not acceptable as a method of compaction.

Contractor shall remove and recompact material that does not meet specified requirements.

For materials where a compaction curve cannot be developed in accordance with ASTM D698 or AASHTO T-99, compaction and field verification procedures for non-testable soils in ODOT Section 00330.43(c) should be followed. Deflection testing is not required.

When the backfilling is complete, the Contractor shall finish the surface area as specified. In paved areas, the Contractor shall maintain the surface of the trench backfill level with the existing grade, until final pavement replacement is completed and accepted by the City Engineer.

Add the following at the end of the subsection:

When crossing below an existing natural gas pipeline main or service of any size, the Contractor shall provide and install sand drainage material conforming to 00360.10 to provide a 12-inch envelope in all directions around the existing gas piping.

00405.48(c) Pavement, Curb and Sidewalk

Add the following to the first paragraph, after the second sentence:

Saw cut to nearest joint, panel or as indicated in the Standard Drawings.

In second paragraph, delete "6 inches" and replace with "12 inches" and add the following:

The Contractor is responsible for any damage to the sawcut trench edges between the time of excavation and paving. Trenches excavated for paving may not be left open for more than one day without steel plates or backfilling.

Section 00415 – Video Pipe Inspection

00415.00(c) Inspection – Delete the last sentence of the first paragraph and replace with the following:
Stop and inspect the full circumference of all pipe joints.

Section 00430 – Subsurface Drains

00430.10 Materials - Interceptor drain, underdrain/slotted pipe and drain pipe shall be Perforated Polyvinyl Chloride Pipe.

00430.11 Granular Drain Backfill Material - Material shall be 1-1/2" - 3/4" size.

00430.46(a) Special Filter Material - Material is not required.

Section 00445 – Sanitary, Storm, Culvert, Siphon, and Irrigation Pipe

00445.11 Materials – Sanitary sewer and storm drain pipe shall be Polyvinyl Chloride Pipe (PVC) conforming to ASTM D 3034.

00445.11(e) Tracer Wire

In first sentence, delete "12-gauge" and replace with "14-gauge".

Delete the second sentence and replace with the following:

The HMW-PE insulated cover shall be green for sanitary sewer and white for storm drain and a minimum 45 mil thick.

00445.11(h) Sanitary Sewer Laterals – Add this subsection:

Construct sanitary sewer laterals per the Standard Drawings - Detail S-8 including the "Y" fitting in the main. Tee's consisting of a PVC hub, rubber sleeve and stainless steel band are not acceptable.

00445.43(a) General – Add the following to subsection:

Replace existing sewer laterals that are disturbed by new pipe construction a minimum of 2 feet outside the new pipe trench.

00445.48 Tracer Wire - Add the following to the first paragraph:

Run wires into cleanouts, manholes and other structures to a point accessible from the cover and not to impede access.

In the second sentence of the first paragraph, delete "and on top of the pipe zone" and replace with "as shown in the Standard Drawings".

Section 00470 – Manholes, Catch Basins and Inlets

00470.00 Scope – Add the following to subsection:

This Work shall consist of installing storm sewer and sanitary sewer manholes.

Storm sewer manholes shall be constructed per the Standard Drawings – Details S-3 and S-4, 12-inch depth sump.

Sanitary sewer manholes shall be constructed per Standard Drawings – Details S-3 and S-4.

Catch basins shall be constructed per the Standard Drawings.

00470.10 Materials – Grout shall be Hey'di Powder X System mix for grouting inside of manholes and catch basin structures.

00470.11 Precast Concrete Manholes and Bases – Storm sewer manholes shall be core drilled in the field for catch basin laterals.

00470.72 Adjusting Manholes and Catch Basins to Grade – Add this subsection:

Manhole structures and catch basins shall be set to grade of preliminary asphalt surface and adjusted to final grade of surface at the time of final asphalt paving.

Section 00490 – Work on Existing Sewers and Structures

00490.40 General – Add the following to subsection:

Contractor shall be solely responsible for safety during the performance of the Work. No one shall enter into any sewer segment, or structure, where hazardous conditions may exist until such time as the source of these conditions is identified and eliminated by the Contractor and/or City. The Contractor shall perform all tests that may be required to identify and assess unsafe conditions and shall perform all work in accordance with the latest OSHA confined space entry regulations. Contractor will coordinate its work with local fire, police and emergency rescue units so they are aware of his working conditions. Access for cleaning purposes shall be via existing manhole openings.

00490.43 Abandoning Pipe in Place - Abandoned pipes shall be filled with controlled low-strength material in accordance with Section 00442 and capped.

00490.50 Sanitary Sewer and Storm Drain Connections – Add this subsection:

Connecting new sanitary sewer or storm drain pipe larger than 6-inch diameter to existing sanitary sewer or storm drain pipe shall be with a Romac 501 coupling, Romac Macro HP coupling or Fernco coupling with shear rings. Connecting new PVC pipe to existing tile drains shall be with a Fernco coupling (shear rings not required).

Section 00495 – Trench Resurfacing

00495.10 Materials - Permanent trench surfacing materials in existing paved areas shall be Asphalt Concrete Pavement (ACP) to in accordance with Section 00744.

PART 00600 – BASES

Section 00610 – Reconditioning Existing Roadway

00610.40 Removal and Replacement of Unsuitable Materials - Delete the last three sentences of the subsection and replace with the following:

Replace the removed materials with successive courses of 2-1/2"-0 base aggregate.

Section 00641 – Aggregate Subbase, Base, and Shoulders

00641.10(a) Base and Shoulder Aggregate - After the second sentence, add the following:

Base aggregate shall consist of both leveling rock and base rock as shown on the Standard Drawings. Leveling rock and base rock shall conform to Section 02630.10 for 3/4"-0 and 1-1/2"-0, respectively.

PART 00700 – WEARING SURFACES

Section 00744 – Asphalt Concrete Pavement

00744.12(a) Mix Type - Mix Type shall conform to 1/2" ACP.

00744.13 Job Mix Formula Requirements - JMF shall conform to Level 3.

00744.42 Tack Coat - Delete the last sentence of the first paragraph and replace with the following:

Tack coat asphalt shall be approved by the Engineer prior to application. Hot tack is required prior to all applications of asphalt concrete pavement.

00744.43(c) Placing - In last paragraph of subsection, delete the third sentence and replace with the following:

Where 4-inches of ACP is required for trench pavement patching or street section, place in two separate 2-inch lifts.

Section 00748 – Asphalt Concrete Pavement Repair

00748.10 Materials - Add the following to subsection:

Aggregate base shall consist of both leveling rock and base rock as shown on the Standard Drawings.

Leveling rock and base rock shall conform to Section 02630.10 for 3/4"-0 and 1-1/2"-0, respectively.

Asphaltic Concrete Pavement shall conform to Section 00744.

Emulsified Asphalt Concrete shall not be allowed.

Section 00759 – Miscellaneous Portland Cement Concrete Structures

00759.12 Sidewalk Ramp Treatment - Detectable warning surfaces shall be color red.

00759.41 Earthwork - Excavation for curb shall be performed at the same time as excavation for roadway section, and shall extend to 1-foot beyond the back of curb.

00759.42 Foundations - Delete the words "using selected granular backfill material according to Section 00330 or".

00759.50(b) Curbs, Islands, and Stairs - Curbs shall be stamped with the letters "SS", while the concrete is still wet, at the location where sanitary sewer side laterals cross beneath the curb.

PART 00800 – PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES

Section 00850 – Common Provisions for Pavement Markings

00850.50 General – Add the following to subsection:

Temporary pavement markings shall be maintained in serviceable condition throughout the project until permanent pavement markings are installed. Temporary pavement markings that are damaged shall be repaired or replaced by the Contractor immediately.

00850.75 Manufacturer's Warranty – In the first sentence, delete “on Agency supplied warranty forms”. Delete the last sentence.

Section 00865 – Longitudinal Pavement Markings – Durable

00865.00 Scope – Add the following to subsection:

Continental style crosswalks shall be High Skid Resistant Pre-formed Thermoplastic.

Crosswalks with standard bars and diagonal striping shall be constructed with a City provided legend using white paint with reflective glass beads.

If any portion of a crosswalk marking is removed or damaged during construction, the entire crosswalk marking shall be replaced with thermoplastic or paint, as applicable. All four sides of the crosswalk marking are to remain consistent.

00865.45 Installation - Method B: Spray Markings, shall apply to this project.

Paint for school crosswalks with standard bars and diagonal crosswalks shall be “Legend Build” by Ennis Flint, white, 985611-5A-5P.

Paint for yellow curb shall be “Legend Build” by Ennis Flint, yellow, 985612-5A-5P.

Paint for centerline striping shall be ORW-21-M-4 waterborne paint by Ennis Flint, applied at 10-11 gallons per mile with 4 pounds of beads/mile.

Section 00867 – Transverse Pavement Markings – Legends and Bars

00867.45 Installation - Type B-HS: Preformed, Fused Thermoplastic Film High Skid material shall apply.

PART 01000 – RIGHT OF WAY DEVELOPMENT AND CONTROL

Section 01040 - Planting

01040.00 Scope - All planting, including sod lawn installation, shall be completed by a professional/licensed landscape company.

01040.48(c) Method “C” (Sod Lawn and Seeded Lawn Areas) – All lawn replacement shall be in accordance with Method “C” for sod lawn.

01040.55(k) Site Specific Restoration – Add this subsection:

At any point of connections to private storm drain catch basins, storm drain lines, water or sewer services, or other facilities, restore the site of connection to existing conditions or better. Lawn sod shall be used for all grass restoration.

PART 01100 – WATER SUPPLY SYSTEMS

Section 01140 – Potable Water Pipe and Fittings

01140.10 Materials – Modify this subsection as follows:

All water lines shall be ductile iron thickness Class 52 meeting the requirements of Section 02470.20.

All ductile iron pipe and fittings and all brass fittings shall be manufactured within the U.S.

01140.40(a) Dewatering Trenches – This section is supplemented with the following:

See subsection 00405.43 Dewatering for additional requirements.

01140.41(a) General – Add the following to subsection:

Pipe shall be installed with 30 inches minimum and 48 inches maximum cover from the top of the pipe to finished grade unless otherwise approved by the Engineer.

01140.41(c) Polyethylene Encasement – Delete this subsection in its entirety.

01140.43 Polyethylene Encasement – Delete this subsection in its entirety.

01140.44(b) Restrained Joints – Delete the first sentence and replace with the following:

In addition to concrete thrust blocks as required in subsection 01140.44(a), mechanically restrain all joints at bends, tees, dead ends and crosses.

01140.47(a) Notification - Delete and replace with the following: The Agency will notify customers impacted by a shutdown, turn off meters as necessary, close valves in the existing system and assist with refilling the line and expelling air.

01140.47(b) Permission – Delete and replace with the following:

The City will be responsible for shutting down the existing water system when necessary for connection of a new waterline. The Contractor shall notify the City Engineer at least 2 working days in advance of each requested shutdown. Shutdowns shall not be scheduled on Friday or the day before a holiday and shall be planned to take place early in the day. Shutdowns may also have to be scheduled during times other than normal working hours. To minimize the inconvenience to water customers, the Contractor shall plan carefully for the installation of the new pipe by exposing the existing pipe in advance and making sure to have all necessary fittings, tools, equipment and personnel to make the connection in as short a time period as possible. The Contractor shall notify the City Engineer of any changes to the schedule prior to customer notification. If the schedule is changed after Agency staff has spent time or resources preparing for the shutdown, the Contractor will reimburse the City for personnel and equipment time and other expenses. Reimbursement will not be required if circumstances beyond the control of the Contractor cause the schedule change.

01140.51 Hydrostatic Testing – Delete and replace with the following:

Test Pressure - In accordance with AWWA C600, the line shall be subjected to a hydrostatic pressure of at least 1.5 times the working pressure. The test pressure shall be based on the lowest elevation (maximum static pressure) of the section of line to be tested. It is also necessary to carefully choose test sections in lines with large elevation differences to insure compliance with AWWA C600 where it says "the test pressure shall not be less than 1.25 times the working pressure at the highest point along the test section" wherever possible. Water service testing shall be done after all taps and service lines are completed.

For example, a section of line has a working pressure at the low end of 110 psi and 70 psi at the high end. The test pressure at the low end should be 1.5 x 110 psi or 165 psi. This will result in a pressure of 125 psi at the high end which easily exceeds the 1.25 times the working pressure requirement of 87.5 psi.

Required Length of Test - 2 hours

Pass/Fail Determination - If there is any pressure drop during the 2-hour test period, the determination of whether the line can be accepted will be made on the amount of leakage that occurred. The allowable leakage is based on the length of line, diameter and test pressure as shown in Section 4.16 of AWWA C600. The leakage may be measured by pumping the line back to test pressure from a vessel which will permit the determination of the volume of makeup water pumped. Leakage may also be determined by pumping the line back up to test pressure and then measuring the amount of water that must be released to create the same drop in pressure that occurred over the 2-hour test.

The preceding paragraphs are intended to clarify certain portions of AWWA C600. All requirements of AWWA C600 apply to testing of waterlines.

Hydrostatic testing of HDPE pipe shall be to 150% of the working pressure of the piping system at the lowest elevation of the section being tested but not less than 1.25 times the working pressure at the highest point of the test section and shall be performed on all installed pipelines in accordance with the manufacturer's written instructions.

01140.52 Disinfecting – Delete and replace with the following:

Prior to placing new water mains in service, the Contractor shall disinfect new mains, and any repaired portions of, or extensions to, existing mains, and obtain two satisfactory bacteriological reports. Disinfection shall be performed in accordance with AWWA C651, or as directed by the City Engineer. The first sample will be collected and bacteriological tests obtained by the City at its cost. The second sample shall be collected by the Contractor and the Contractor shall be responsible for having the bacteriological test conducted by a State of Oregon certified laboratory at the Contractor's cost. The Contractor shall notify the City Engineer at least 24 hours in advance to schedule bacteriological testing.

No connections will be made to the existing water system until the Contractor has successfully passed specified pressure and bacteriological testing. Temporary piping, valves and connections may be required to maintain water service and complete testing. Contractor is responsible for detailing and providing all temporary piping, valves and connections required.

Section 01160 – Hydrants and Appurtenances

01160.49 Existing Hydrants and Appurtenances – Add this subsection:

The Contractor shall leave existing hydrants in service while the existing water main is in service or until just prior to removing and reinstalling the new hydrant to minimize the length of time the hydrant is non-functional.

Where existing hydrants are shown to be removed, the removal shall include removing and disposing of the existing hydrant and appurtenances including the existing auxiliary gate valve.

Section 01170 – Potable Water Service Connections, 2 inch and Smaller

01170.40 General – Add the following to subsection:

Connect to all water mains, including Class 52 ductile iron, using saddles. Direct taps are prohibited.

01170.40(b) Installation – Add the following to subsection:

When copper tubing is used for service connections, the tubing shall only be bent by using a suitable copper tubing tool to bend. Any divots for bends found in the copper tubing upon installation will be unacceptable. The Contractor shall replace the damaged tubing.

PART 02000 – MATERIALS

Section 02320 – Geosynthetics

02320.10(a)(2) Geogrids – Geogrids shall be TriAx 160 as manufactured by Tensar Corporation, or equal.

Section 02470 – Potable Water Pipe Materials

02470.20(a) General - Delete the last sentence of the subsection and replace with the following:

Ductile iron pipe shall be Standard Thickness Class 52. All ductile iron pipe and fittings shall be manufactured within the United States.

Section 02475 - Potable Water Fitting Materials

02475.20 Ductile Iron Pipe Fittings – Delete the first sentence and replace with the following:

All ductile iron fittings shall meet the requirements of AWWA C153.

02475.50 Restrained Joints – Delete subsection and replace with the following:

Restrained mechanical joints shall be restrained with Romac Grip Rings. Romac Grip Rings are an Agency standard and no substitutions will be accepted.

Restrained push on pipe joints shall be restrained with Field LOK gaskets or equal.

02475.60 Bolted, Sleeve-Type Couplings for Plain-End Pipe - Add the following to subsection:

When connecting ductile iron pipe to ductile iron pipe, the transition couplings shall be a mechanical joint ductile iron Class 350 long body sleeve fitting. If a long sleeve cannot be used to connect to the existing piping material use a Romac Macro HP two bolt wide range coupling or equal.

Transition couplings shall be ALPHA Wide Range Restrained Joints as manufactured by Romac Industries.

Flanged coupling adapters (FCA's) shall be Megaflange 2100 series as manufactured by EBAA Iron or approved equal.

Section 02480 – Potable Water Valve Materials

02480.10 General – Valves shall be manufactured by American Flow Control (AFC).

02480.25 Valve Boxes – Valve boxes shall be East Jordan Iron Works (Riser #363912; Lid #363926) 18-inch overall in accordance with the Standard Drawings.

02480.26 Valve Stem Extensions – Delete last sentence and replace with the following:

Valve stem extensions shall be provided to raise the operating nut to no more than 2 feet below the finished grade.

Section 02485 – Hydrant and Appurtenance Materials

02485.10 Fire Hydrants – Add the following to subsection:

Hydrants shall be Mueller Super Centurion A-423. The fire hydrant tee shall be flanged or mechanical joint as shown on the Standard Drawings.

Section 02490 – Potable Water Service Connection Materials, 2 Inch and Smaller

02490.10 General – Service line materials shall be designed for a minimum working pressure of 150 psi.

02490.20 Saddles – Add the following to subsection:

3/4-inch and 1-inch service saddles shall be Romac 101S. 2-inch service saddles shall be Romac 202S.

This specification for saddles includes saddles shown for installation of blow off assemblies and connecting waterlines 2-inch or smaller as shown on the Standard Drawings.

02490.30(a) Less Than or Equal to 1 Inch – Corporation stops shall be Mueller No. H-15028N.

02490.40 Service Pipe and Fittings – Supplement this subsection with the following:

- (a) Copper Tubing Service Pipe - 3/4-inch and 1-inch services shall be copper; Type K. The tubing shall only be bent by using a suitable copper tubing tool to bend. Any divots or bends found in the copper tubing upon installation will be unacceptable. The Contractor shall replace the damaged tubing.
- (b) Polyethylene Tubing Service Pipe - 2-inch services shall be HDPE tubing, CTS Size, SDR9, 200 PSI, Blue.
- (c) Service Fittings - Service connection fittings shall be low-lead brass. Fittings for copper tubing shall be compression-type. Fittings for polyethylene tubing shall be compression-type (Mueller 110). Fittings for polyethylene tubing shall be same DR as service line tubing.

02490.70 Meter Boxes - Delete subsections (a) and (b) and replace with the following:

Meter boxes shall be in conformance with Standard Drawings – Details W-3 and W-4.

02490.72 Meters – Add this subsection:

Meters shall be Badger Model 25 with cast iron bottom, low lead and read in gallons. 2-inch water services shall be provided with 1-1/2 inch meters, unless approved otherwise by the Engineer.