

Appendix 3C

Sample Notes for Water Plans

All notes in these sets are illustrative and require review and revision by the Engineer for each project and specific project conditions. **Yellow highlights indicate a note to the designer.**

WATER NOTES Unless Otherwise Noted:

1. ALL MATERIALS FOR WATER DISTRIBUTION MUST BE NEW IN ACCORDANCE WITH SECTIONS 7-11 TO 7-15 AND 9-30 OF THE CITY OF SEATTLE STANDARD SPECIFICATIONS.
2. PIPE (W) 4" AND LARGER MUST BE DUCTILE IRON PIPE (DIP) CLASS 52 CONFORMING TO AWWA C-151 WITH DOUBLE THICK CEMENT MORTAR LINING CONFORMING TO AWWA C-104. UNLESS OTHERWISE NOTED, JOINTS MUST BE RESTRAINED JOINT. LATERALS FOR HYDRANTS AND 4" AND LARGER SERVICES MUST BE DIP WITH MECHANICAL JOINTS (MJ).
3. FITTINGS ON RESTRAINED JOINTED (RJ) PIPE (W) 4" AND LARGER MUST BE DUCTILE IRON, RESTRAINED JOINTED FITTINGS. RJ FITTINGS MUST CONFORM TO STANDARD SPECIFICATIONS 9-30.2(3). MECHANICALLY JOINTED (MJ) FITTINGS MUST BE DUCTILE IRON AND CONFORM TO AWWA C-110 AND C-111, OR AWWA C-153. ALL RJ AND MJ FITTINGS MUST BE DOUBLE-THICK CEMENT MORTAR LINED CONFORMING TO AWWA C-104.
4. ALL MECHANICAL JOINTS ON DUCTILE IRON PIPE MUST BE RESTRAINED WITH WEDGE RESTRAINT GLANDS (WRG). WEDGE RESTRAINT GLANDS MUST NOT BE USED ON CAST IRON PIPE.
5. **INSTALL CORROSION PROTECTION AS DETAILED IN THE DRAWINGS: Note to engineer: This note must be revised for each specific site based on soil corrosivity, consult with a corrosion protection engineer as needed.**
 - 5.1. ALL PIPE (W) 4" AND LARGER MUST BE POLYETHYLENE ENCASED (FILM WRAPPED) PER STANDARD SPECIFICATIONS 7-11.3(6)B AND 9-30.1(4)D. EXTEND ENCASEMENT OVER DIP TO CIP FITTING CONNECTIONS TO THE TRENCH-END WALL AND SECURE TIGHTLY AROUND PIPES WITH DUCT TAPE.
 - 5.2. CONTRACTOR MUST BOND ALL DIP JOINTS PER STANDARD PLAN NO. 362. INSTALL 17LB (MIN) HIGH POTENTIAL MAGNESIUM ANODE EVERY 36', BONDED TO DUCTILE IRON PIPE. DIGITAL LOW RESISTANCE OHMMETER TESTING PER CITY OF SEATTLE STANDARD SPECIFICATION 7-11.3(15)D IS REQUIRED. NOTES TO ENGINEER, ANODE SELECTION AND SPACING VARY. AND TESTING WITH OHMMETER IS NOT ALWAYS REQUIRED.
6. PIPE (W) 4" AND LARGER MUST BE SUBJECT TO SEATTLE PUBLIC UTILITIES TASTE AND ODOR TESTING PROCEDURES PER STANDARD SPECIFICATIONS 7-11.2(2) AND 7-11.2(3).

7. ALL CONNECTIONS TO EXISTING WATER MAINS WILL BE MADE BY SPU IN ACCORDANCE WITH CITY OF SEATTLE STANDARD PLAN 300 SERIES.
8. FOUR WEEKS PRIOR TO LAYING PIPE THE CONTRACTOR MUST:
 - 8.1. IN THE PRESENCE OF THE SPU RESIDENT ENGINEER, EXPOSE THE EXISTING WATERMAIN TO DETERMINE ITS ELEVATION AND ALIGNMENT AT CONNECTION POINTS. THE CONTRACTOR MUST EXPOSE THE PIPE ALL AROUND FOR SPU TO OBTAIN OUTSIDE DIAMETER AT THE SAME TIME.
 - 8.2. PROVIDE ALL CONTROL SURVEYS REQUIRED TO DEFINE THE ALIGNMENT AND ELEVATIONS OF THE WATER MAIN IN CONFORMANCE WITH THE APPROVED PLAN. THE SURVEYS MUST BE PERFORMED BY A SURVEYOR LICENSED BY THE STATE OF WASHINGTON. ALL REFERENCE MARKS MUST BE PRESERVED DURING CONSTRUCTION. A GRADE SHEET, IN ACCEPTABLE FORMAT, MUST BE PROVIDED TO SPU PRIOR TO BEGINNING WORK.
9. LOCATIONS SHOWN FOR EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. UTILITIES HAVING NO RECORDED DEPTH ARE SHOWN AT THEIR STANDARD DEPTH. UTILITIES THAT APPEAR CLOSE TO THE PROPOSED WATER MAIN MUST BE EXPOSED BY THE CONTRACTOR PRIOR TO LAYING THE WATER MAIN TO DETERMINE IF CHANGES ARE NEEDED.
10. WHEN EXCAVATING AROUND CHARGED WATER MAIN THE CONTRACTOR MUST EXERCISE CARE IN VICINITY OF THRUST BLOCKS THAT ARE PLACED AT ANY BENDS, TEES OR DEAD ENDS OF WATER MAINS TO AVOID UNDERMINING THE SOIL SUPPORT FOR THE THRUST BLOCKING.
11. WHEN EXCAVATING PARALLEL TO EXISTING WATER MAIN EXERCISE CAUTION TO AVOID LOSS OF THE TRENCH BEDDING OR BACKFILL.
12. WATER/SEWER SEPARATION MUST BE PER COS STANDARD PLAN 286A AND MAY REQUIRE ONE OR MORE OF THE FOLLOWING:
 - 12.1. REPLACEMENT OF EXISTING SEWER OR SANITARY SIDE SEWERS WITH DIP CENTERED AT THE CROSSING. SEE SECTION 7-18.3 OF THE CITY OF SEATTLE STANDARD SPECIFICATIONS (THE ENGINEER SHOULD CONSIDER THE NEED FOR SIDE SEWER WORK AND INCLUDE THEM IN THE PLAN AND BID ITEMS. IF THE SIDE SEWER IS ABOVE THE WATER LINE, AND IF THE SIDE SEWER IS EXPOSED WITHIN THE PIPE ZONE, BACKFILL OR BEDDING. IF THE SEWER LINE IS BELOW THE BEDDING NO NEED TO REPLACE).
 - 12.2. ADJUSTMENT OF EITHER THE SIDE SEWER DEPTH OR THE WATER MAIN DEPTH TO MEET THE 1'-6" SEPARATION REQUIREMENT
 - 12.3. ADJUSTMENT OF THE WATER MAIN RESTRAINED JOINT LOCATION TO CENTER A SINGLE 18' PIECE OF DIP AT THE CROSSING WHICH MAY REQUIRE MJ SLEEVES WITH WEDGE RESTRAINT GLANDS.
13. ALL WATER MAINS MUST BE PRESSURE TESTED IN ACCORDANCE WITH SECTION 7-11.3(11) AND DISINFECTED IN ACCORDANCE WITH SECTION 7-11.3(12) OF THE CITY OF SEATTLE STANDARD SPECIFICATIONS. ALL PRESSURE TESTING MUST BE DONE IN THE PRESENCE OF THE CONSTRUCTION INSPECTOR. THE CONTRACTOR MUST PROVIDE PLUGS AND TEMPORARY BLOWOFF ASSEMBLIES FOR PRESSURE TESTING AND DISINFECTION. SEE COS STD PLAN 300 FOR FLUSHING CONNECTION DETAILS.

14. CONTRACTOR MUST USE A WAX TAPE COATING SYSTEM AS SPECIFIED IN STANDARD SPECIFICATIONS SECTION 7- 11.3(8)A FOR EACH VALVE.
15. CONCRETE THRUST BLOCKING FOR VERTICAL BEND FITTINGS MUST BE PER CITY OF SEATTLE STANDARD PLAN #330A & 330B.
16. CONCRETE THRUST BLOCKING FOR HORIZONTAL FITTINGS MUST BE PER CITY OF SEATTLE STANDARD PLAN #331A & 331B.
17. IF DEFLECTING PIPE JOINTS FOR CURVES, HORIZONTAL AND VERTICAL ANGLE POINTS MUST BE CONSTRUCTED BY DEFLECTING A MAXIMUM ONE-HALF OF THE MANUFACTURER'S ALLOWABLE JOINT DEFLECTION FOR PIPE AND FITTINGS, UNLESS OTHERWISE NOTED.
18. METERS FOR WATER SERVICES LOCATED UNDER DRIVING SURFACES MUST BE PROTECTED BY A FRAME AND COVER WITH INSPECTION COVER (F&C W/IC). THE F&C W/IC MUST BE SIMILAR TO CITY OF SEATTLE STANDARD PLAN 361 BUT INCLUDE AN APPROXIMATE 9" AUXILIARY COVER INSET INTO THE MAIN COVER. THE MAIN COVER MUST BE COMPATIBLE IN ALL RESPECTS WITH THE FRAME IN STD PLAN 361 AND MUST BE INTERCHANGEABLE WITH COVERS CONFORMING TO STD PLAN 361. F&C W/IC MUST BE RATED FOR AASHTO H-20 LOADING OR BETTER. PROVIDE 3 COURSES OF BRICK AND MORTAR UNDER FRAME SIMILAR TO BLOWOFFS IN CITY OF SEATTLE STANDARD PLAN 340B. EJ CO., OLYMPIC, AND NEENAH FOUNDRIES ARE POTENTIAL SUPPLIERS.
19. WHERE AVAILABLE, POTHOLE LOCATIONS AND DEPTH INFORMATION OBTAINED FOR THE WATERMAIN DESIGN ARE SHOWN IN THE DRAWINGS.
20. THE CONTRACTOR MUST POTHOLE OR MAINTAIN AN OPEN EXCAVATION OF 60 FEET MINIMUM AHEAD OF THE WATER MAIN INSTALLATION TO UNCOVER AND OBTAIN LOCATION AND DEPTH INFORMATION FOR EXISTING CROSSING UTILITIES. THE CONTRACTOR MUST NOTIFY THE ENGINEER IF A CONFLICT IS IDENTIFIED TO ALLOW FOR ADJUSTMENTS THAT MAY BE NECESSARY.
21. WHERE THE PROPOSED WATER MAIN DESIGNED ELEVATION OR ADJUSTED ELEVATION CROSSES THROUGH THE LOCATION OF EXISTING WATER SERVICES, THE CONTRACTOR MUST COORDINATE WORK WITH SPU WHO WILL PROVIDE AN OFFSET IN THE SERVICE LINE AHEAD OF THE WATER MAIN WORK.
22. THE CONTRACTOR MUST COORDINATE VERTICAL ADJUSTMENT OF GAS SERVICE LINES WITH THE GAS COMPANY INSPECTOR.
23. TEMPORARY WATERMAIN (TEMP WM): SPU WILL LAY, FLUSH AND TEST TEMPORARY WATER MAINS WITH CONTRACTOR ASSISTANCE. SPU WILL TRANSFER SERVICES WITH CONTRACTOR ASSISTANCE. SPU WILL PROVIDE ALL PIPE MATERIALS AND PERFORM ALL CONNECTIONS. CONTRACTOR MUST EXCAVATE, PROVIDE ALL SAFETY MEASURES, BEDDING, BACKFILL, AND PAVEMENT RESTORATION. Note to the ENGINEER MUST REVIEW FOR EACH SPECIFIC PROJECT AND DECIDE IN ADVANCE WITH CONSULTATION WITH THE LOB IF SPU CREW OR THE CONTRACTOR WILL INSTALL TEMPORARY SERVICES.
24. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF THE TEMPORARY WATERMAINS FROM DAMAGE OR FREEZING.
25. MAINTAIN AT LEAST ONE FOOT VERTICAL AND THREE FOOT HORIZONTAL SEPARATION EDGE TO EDGE BETWEEN WATER LINES AND GAS LINES. MAINTAIN A THREE FOOT VERTICAL SEPARATION FROM HIGH PRESSURE GAS MAINS PER 1-07.17(2)A2 AND 1-07.17(2)D.

26. SYSTEM CONNECTIONS (SYS CONN): CONTRACTOR MUST ASSIST SPU WITH CONNECTIONS TO EXISTING WATERMAINS PER COS STD PLAN NO.S 300A-C AND STD SPEC 7-11.3(9). SPU WILL PROVIDE THE CONNECTION FITTINGS TO EXISTING PIPE. CONTRACTOR MUST SUPPLY CONNECTION FITTINGS TO NEW PIPE. CONTRACTOR MUST FURNISH ALL OTHER MATERIALS INCLUDING ONE FULL STICK OF MJ PIPE AND WEDGE RESTRAINT GLANDS FOR EACH MECHANICAL JOINT ON DIP AT EACH SYSTEM CONNECTION. THE ENGINEER MUST REVIEW FOR EACH SPECIFIC PROJECT AND DECIDE IN ADVANCE WITH CONSULTATION WITH THE LOB IF SPU CREW OR THE CONTRACTOR WILL INSTALL TEMPORARY SERVICES.

FOR PVC WATER LINES ADD THE FOLLOWING:

1. PVC PIPE MUST BE DR - 14 AWWA C900, DI PIPE OD, SLIP JOINT, WITH TRACER WIRE.
2. ALL METALLIC COMPONENTS INCLUDING STAINLESS STEEL AND BOLTING HARDWARE MUST BE COATED WITH A THREE COMPONENT WAX TAPE SYSTEM INCLUDING PRIMER, WAX TAPE AND OUTER WRAPPING WITH FIBERGLASS MESH SEE SECTION 7-11.3(8)
3. WATERMAIN HYDROSTATIC TESTING PROCEDURE MUST BE PER AWWA C605 USING A TEST PRESSURE OF 200 PSI. (THE ENGINEER MUST VERIFY THE PRESSURE FOR EACH SPECIFIC LOCATION IN THE PROJECT)

FOR WATER RELINING PROJECTS ADD THE FOLLOWING:

1. THE MAXIMUM ALLOWABLE ACCESS PIT EXCAVATION FOR FIRE HYDRANTS, NEW VALVES AND FOR RELINING ACCESS HOLES MUST BE 8'X6' FOR PIPES WITH DIAMETERS OF 24-INCHES OR LESS. MAXIMUM ACCESS HOLE EXCAVATION FOR PIPES 24-INCHES AND LARGER MUST BE 10'X6'. SEE SPECIFICATION SECTION 1-07.17(2) FOR MINIMUM CLEARANCES.
2. FIRE HYDRANTS AND GATE VALVES MUST BE REPLACED AFTER THE WATER MAIN IS LINED AND BEFORE IT IS PRESSURE AND BACTERIA TESTED TO BE PUT BACK INTO SERVICE.