Chapter 10
RECLAIMED WATER

10.0 RECLAIMED WATER

10.010 General

This specification prescribes standards for utility water mains and related facilities for the purpose of conveying, under pressure, Class A reclaimed water for permitted reuse. Installation of reclaimed water mains shall be constructed in accordance with these specifications for materials, installation, and identification. In addition to these standards, construction, installation, and operation of the reclaimed water system must adhere to an "End User" Service Agreement (see Appendix 2) which is required to be established with the City prior to using reclaimed water. The Service Agreement specifies the Terms and Conditions of Service provided by the City to the End User of reclaimed water.

Any extension of the Olympia reclaimed water system must be approved by the Public Works Department, and all extensions must conform to Washington State Department of Health and Department of Ecology standards, the Uniform Plumbing Code, and the City of Olympia Water System Plan requirements.

Anyone who wishes to extend or connect to the City's reclaimed water system should contact the Community Planning and Development Department for a reclaimed water extension/connection fee estimate. This fee estimate is an estimate of the costs due the City for a reclaimed water line extension or connection.

Class A reclaimed water shall be discharged to the sanitary sewer system in order to remain in compliance with LOTT's State Reclaimed Water Permit. Where sanitary sewers are not accessible, dechlorinated Class A reclaimed water may be discharged to the stormwater system with approval from the Department of Ecology. This includes any reclaimed water from blow-offs, line flushing, line breaks, and/or approved beneficial uses.

10.020 Design of Reclaimed Water Main Piping

A. The design of the reclaimed water facilities, including the preparation of plans and specifications, shall be under the responsibility of a professional engineer registered with the State of Washington and will be in accordance with these *City of Olympia Engineering Design and Development Standards*. A preconstruction meeting shall be held with the City prior to the start of construction.

B. The reclaimed water service lines shall be extended to a curb line, or property line of the customer's property, abutting upon a public street, highway, road, or City's easement in which reclaimed water distribution mains are installed.

C. Reclaimed water mains shall be sized in accordance with accepted design procedures to provide adequate pressures throughout the system or as directed by the City Engineer. The minimum pipe diameter for reclaimed water mains shall be two (2) inches.

D. The top of distribution main piping shall have thirty-six (36) inches of cover.

10.030 Separation of Reclaimed Water Main Piping From Other Utilities

A. A 10-foot horizontal separation shall be maintained between any reclaimed water pipeline and potable water or sanitary sewer pipelines as shown in Standard Drawing 10-1. At sites where this is not possible, review and approval procedures and design considerations described in Departments of Ecology and Health's Municipal Pipeline Design & Location Accepted Procedure (September 30, 2005 or as updated) shall be used.

B. When crossing, a minimum vertical separation of 18 inches shall be maintained between reclaimed water lines and potable water lines as shown in Standard Drawing 10-1. At sites where this is not possible, review and approval procedures and design considerations described in Departments of Ecology and Health's Municipal Pipeline Design & Location Accepted Procedure (September 30, 2005 or as updated) shall be used.

C. On new systems, potable water, reclaimed water, and sewer lines shall be located from the ground surface in order of descending quality. Potable water shall be above reclaimed water which shall be above sewer. Minimum vertical separation shall be 18 inches between top and bottom surfaces of pipes. An exception to this general rule follows:

   On sites using pressurized irrigation laterals with valve-in-head sprinklers, the potable water line(s) may be placed under the reclaimed water laterals if additional protection is provided for the potable line. Common protective practices include sleeving and/or automatic flow control/shut-off devices installed and functioning properly on each lateral that crosses a potable water line.

10.040 Reclaimed Water Main Piping Materials

A. All reclaimed water main pipes will have flexible, gasketed joints and will comply with the following type:

   1. PVC pipe: All PVC pipe will conform to the following:

      a. No solvent weld joint pipe will be allowed within the City system.

      b. All 2-inch closing connections from valves or tapped flanges connected to 2-inch PVC pipe will be with brass nipples and compression couplings. No plastic-threaded connections will be allowed.

      c. Two-inch through 10-inch pipe will meet PVC AWWA Class 200, C900.

      d. All reclaimed water pipe shall be purple (Pantone 512).

10.050 Staking

A. All surveying and staking will be performed by an engineering or a surveying firm capable of performing such work. The engineer or surveyor directing such work will be licensed by the State of Washington. Staking will be maintained throughout construction.

B. A preconstruction meeting will be held with the City prior to commencing staking. All construction staking will be inspected by the City prior to construction.

C. The minimum staking of reclaimed water lines will be as follows:

   1. Stake centerline alignment every 25 feet (50 feet in tangent sections) with cuts and/or fills to the bottom of the trench, maintaining 36 inches of cover over the pipe. Centerline cuts are not required when road grade is to the finished sub-grade elevation.

   2. Stake location of all tees, reclaimed water meters, setters, and other fixtures with cut or fill to finished grade.

10.060 Trench Excavation

A. Call Underground Locate at 1-800-424-5555 a minimum of 48 hours prior to any excavations.

B. Clearing and grubbing, where required, will be performed within the easement or public right-of-way as permitted by the City and/or governing agencies. Debris resulting from the clearing and grubbing will be disposed of by the owner or contractor in accordance with the terms of all applicable permits.

C. Trenches will be excavated to the line and depth designated by the City to provide a minimum cover of 36 inches. Except for unusual circumstances where approved by the City, the trench sides will be excavated vertically and the trench width will be excavated only to such widths as are necessary for adequate working space as allowed by the governing agencies. All necessary shoring operations will be performed to ensure that the excavation can be carried out in accordance with WISHA and OSHA safety standards. The trench will be kept free of water until joining is complete. Surface water will be diverted so as not to enter the trench. The contractor will maintain sufficient pumping equipment on the job to ensure that these provisions are carried out.

D. The contractor will perform all excavation of every description and whatever substance encountered, and boulders, rocks, roots, and other obstructions will be entirely removed or cut out to the width of the trench and to a depth six (6) inches below the reclaimed water main grade. Where materials are removed from below the reclaimed water main grade, the trench will be backfilled with material satisfactory to the City and thoroughly compacted.

E. Trenching and shoring operations will not proceed more than 100 feet in advance of pipe laying without approval of the City and will be in conformance with WISHA and OSHA safety standards.

F. The bottom of the trench will be finished to grade with hand tools in such a manner that the pipe will have bearing along the entire length of the barrel. The bell holes will be excavated with hand tools to sufficient size to make up the joint.

G. The contractor will maintain the presence of a "competent person" as defined by the Washington State Department of Labor and Industries when any trench excavation and backfill work is being done at the project site.

10.070 Backfilling

A. Backfilling will not commence until the pipe installation has been inspected and approved.

B. Backfilling and surface restoration will closely follow installation of pipe so that not more than 100 feet is left exposed during construction hours without approval by the City. Selected backfill material will be placed and compacted around and under the reclaimed water mains by hand tools to a height of 6 inches above the top of the reclaimed water main. The remaining backfill will be compacted to 95 percent of the maximum density in traveled areas and 90 percent outside traveled areas. Where governmental agencies other than the City have jurisdiction over roadways, the backfill and compaction will be done to the satisfaction of the agencies having jurisdiction. Suitable backfill material, as determined by the City, shall conform to the current WSDOT/APWA Section 7-09 with the exception of gradation of the bedding material to be a maximum size of 1-inch.

10.090 Pavement Restoration

For street patching and trench restoration requirements, see Chapter 4, Section 4B.175.

10.100 Reclaimed Water Valves

A. All valves and fittings will be ductile iron with ANSI flanges or mechanical joint ends.

B. All valves shall be of a type, or secured in a manner, that permits operation only by authorized personnel.

C. Valves will be installed in the distribution system at sufficient intervals to facilitate system repair and maintenance, but in no case will there be less than one valve every 600 feet. Generally there will be 3 valves on each tee and 4 valves on each cross. Specific requirements for valve spacing will be made at the plan review stage.

D. Valves will have stainless steel stems. Bonnet bolts will not be exposed to the environment and shall be covered by manufacturer's minimum 10-year warranty.

E. Butterfly valves will conform to AWWA C504-87, Class 150B, with cast iron short body and O-ring stem seals. Butterfly valves will be Mueller, M&H, Clow, Kennedy, or American Flow. Butterfly valves may be used for 12-inch lines and will be used on all lines 14 inches and larger.

F. Valve marker posts will be 4-inch carsonite CWV-116 posts stamped with "Caution Reclaimed Water Valve."

G. Reclaimed water valve handles shall be affixed with tags in accordance with this Section. Tags shall be securely fastened in a manner that ensures their visibility.

H. Reclaimed water valve tags shall be inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in soil. The tags shall be purple (Pantone 512) and shall have the words "CAUTION: RECLAIMED WATER-DO NOT DRINK" or similar wording printed in black lettering. The lettering shall be a minimum of 1/2 inch high.

I. Valve box: If valves are not set in a paved area, a 1-foot by 6-inch-thick circular concrete pad shall be placed around the valve box. In areas where the valve box falls in the road shoulder, the ditch and shoulder will be graded before placing asphalt or a concrete pad. Valve box lids shall be triangular and use triangular nuts per Standard Drawing 10-3. Valve box lids shall be stamped with the words or shall have raised lettering with the words "RECLAIMED WATER."

10.110 Reclaimed Water System Air and Vacuum Release Valves

A. Air and vacuum release valves (ARV) will be APCO 147C or Clay valve combination air release valve. Installation will be as shown on Standard Drawing 10-5.

B. The installation will be set at the high point of the line when required. Where possible, pipes are to be graded to prevent the need for an air release valve. Air release valves may not be required when services are in the vicinity.

C. Valve lids shall be shall be purple (Pantone 512) in color.

10.120 Blow-off Assemblies

A. A blow-off assembly shall be installed at the end of every main and approximately every 1,000 feet throughout the system such that all blow-offs discharge directly to the sanitary sewer. On reclaimed water mains that will be extended in the future, the valve that operates the blow-off assembly will be the same size as the main and provided with a concrete thrust block. The pressure rating for blow-off assemblies will be 200 psi. Installation will be as shown on Standard Drawing 10-6.

10.130 Thrust Blocking

A. Location of thrust blocking will be shown on the plans. Thrust block concrete will be Class B poured against undisturbed earth. A plastic barrier will be placed between all thrust blocks and fittings. See Standard Drawings 10-7 and 10-8 for thrust block locations and calculations.

B. MJ Mega Lug retainers, restraining rods, or Romac Grip Ring Retainers can be used in lieu of concrete thrust blocking.

10.140 Hose Bibs and Quick Couplers

No customer shall use or install any hose bibs or quick couplers on a reclaimed water system regardless of style, construction, or identifications.

10.150 Fire Hydrants

No customer or other party shall use or install fire hydrants and other connections for fire services on any piping system that presently operates or is designed to operate with reclaimed water, regardless of the construction and identification of the fire hydrant and other connections for fire services.

10.160 Reclaimed Water Service Connections and Setters

A. All new reclaimed water service connections will be of the appropriate size as determined by industry standard and approved by the Public Works Director and installed by the developer at the time of mainline construction.

B. The developer's engineer will be responsible for determining the scope of work for connection to existing reclaimed water mains. It will be the contractor's responsibility to field-verify the location and depth of the existing reclaimed water main and the fittings required to make the connections to the existing reclaimed water mains. All excavation, connections, piping, tapping, valve fittings, services, anchors, blocking, bedding, backfill, compaction, restoration, or other labor and materials required will be furnished and placed by the contractor. A list of City of Olympia-approved tapping contractors can be obtained at the Community Planning and Development Department. The City of Olympia Drinking Water Operations will be notified 48 hours (two working days) prior to the contractor performing the tap. The City of Olympia Drinking Water

Operations will make all shutdowns on existing mains. The contractor may operate the valve under the immediate supervision of a Drinking Water Operations Supervisor.

C. After the reclaimed water lines have been constructed, tested, and approved, the owner may apply for a reclaimed water meter. The City will install a reclaimed water meter after the application has been made and all applicable fees have been paid. Reclaimed water meters will be set only after the system is inspected and approved.

D. Reclaimed water service lines shall be purple (Pantone 512), domestic, high-density polyethylene pipe, minimum pressure, Class 200 psi, Grade PE 3408. Glued joints will not be accepted. Service lines will be installed a minimum of 45 degrees off the main. Tracer tape and 14-gauge purple-coated wire wrapped around the pipe will be installed on all service lines.

E. Service saddle will be ductile iron with double stainless steel straps. All clamps will have rubber gaskets. Service saddles shall have tapped IP threads.

F. Corporation stops will be all US brass and will be Ford, Mueller, or AY McDonald with IP threads conforming to AWWA C800. Stainless steel inserts will be used with pack joints or Mueller 110 compression joints and polyethylene pipe.

G. Where applicable, these setback distances shall be used:

1. There shall be a minimum of 50 feet between any reclaimed water pipeline and potable water supply well.

2. Where reclaimed water is used for spray or surface irrigation, there shall be a minimum of 50 feet between the area subject to irrigation and any potable water supply well.

3. Where reclaimed water is used for an impoundment or storage pond or wetland that is not lined or sealed to prevent measurable seepage, there shall be a minimum of 500 feet between the perimeter of the impoundment or wetland and any potable water supply well.

4. Where reclaimed water is used for an impoundment or storage pond or wetland that is lined or sealed to prevent measurable seepage, there shall be a minimum of 100 feet between the perimeter of the impoundment or wetland and any potable water supply well.

H. Precautions shall be taken to assure that reclaimed water will not be sprayed on people or any facility or area not designated for reclaimed

water, including but not limited to buildings, passing vehicles, drinking water fountains, picnic tables, and playground equipment.

I. All piping and valves shall be appropriately labeled per requirements of this Section.

J. Vertical and horizontal separations shall be per this Section.

K. See Standard Drawings 10-9 and 10-10 for setter details.

10.170 Meters

A. All 3-, 4-, and 6-inch meters will be Neptune brand with a remote automated encoder-based meter reading system. Meters must be totally field-programmable, including meter number. Three- and 4-inch meters will be within a manifold system. All meter sizes shall be purple (Pantone 512), reclaimed water register.

B. Lids to meter boxes shall be purple (Pantone 512) in color.

10.180 Sampling Stations

A. Reclaimed water sampling stations will be installed at the end of any dead-end reclaimed water main and at intervals along the main as directed by the City. See Standard Drawing 10-11.

B. Sampling stations will be purple (Pantone 512) in color and stamped "Reclaimed Water" for identification.

10.190 Backflow Prevention

A. Backflow prevention is required on the potable water service connection for all customers with reclaimed water service. See Chapter 6, Section 6.110.

B. A reduced pressure principle backflow prevention assembly approved by Washington State Department of Health and the City of Olympia must be installed. See Chapter 6, Sections 6.111 and 6.112. Such an assembly must contain two independently acting, approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The assembly will include properly located test cocks and tightly closing shutoff valves at each end of the assembly. This assembly is designed to protect against a health hazard.

C. All sites with reclaimed water shall have reduced pressure backflow assemblies on the potable water service at the meter.

D. The Public Works Department will receive the certificate for testing of any backflow prevention assembly before releasing the Certificate of Occupancy on any building. See Chapter 6, Section 6.113.

E. To ensure proper operation and accessibility of all backflow prevention assemblies, the following requirements will apply to the installation of these devices:

1. Assemblies must be installed at the point of delivery of the potable water supply, before any branch in the line, downstream of any pressure-reducing valve on private property, in a location approved by the Public Works Cross-Connection Specialist.

2. Reduced pressure principle assemblies shall not be installed in a vault underground or anywhere subject to flooding. The assembly must be protected from freezing and other severe weather conditions. All installations of reduced pressure principle assemblies shall be above ground with insulated enclosures where needed.

3. The assembly will be readily accessible with adequate room for maintenance and testing. Devices two inches and smaller will have at least a 6-inch clearance on all sides of the assembly. All assemblies larger than two inches will have a minimum clearance of 24 inches on the back side, 24 inches on the test cock side, 12 inches below the device, and 36 inches above the device. A strainer shall be installed immediately upstream of the assembly.

4. The assembly and installation plans shall be submitted to the City of Olympia Community Planning and Development Department and the Public Works Water Quality Program Cross Connection Specialist for approval prior to installation.

5. Upon completion of installation, the City of Olympia Public Works Department Water Quality Program Cross Connection Specialist shall be notified, and all devices must be inspected and tested.

6. All backflow assemblies must be registered with the City of Olympia Public Works Department Water Quality Program. Registration will consist of date of installation; make, model, and serial number of the backflow device; and initial test report.

7. Any variances from these installation requirements must be requested in writing by the owner and approved by the City of Olympia Public Works Department Water Quality Program Cross Connection Specialist prior to device installation.

8. No field modifications shall be made to an approved backflow assembly that will change its configuration or function.

F. Authorized employees of the City of Olympia Public Works Department Water Operations and Water Quality Programs with proper identification will have access during reasonable hours to all parts of a premise or use area.

G. All backflow assemblies installed within the territory served by the City of Olympia will be tested immediately upon installation by the City of Olympia Cross Connection Specialist and at least annually thereafter by a Washington State certified tester or by a City of Olympia Cross Connection Specialist. All such devices found not functioning properly will be promptly repaired or replaced by the reclaimed water user within five (5) working days. If any such device is not promptly repaired or replaced, the City of Olympia may deny or discontinue potable water and/or reclaimed water to the premise or use area. All testing and repairs are the financial responsibility of the water user.

   All testers shall use test procedures approved by the Washington State Department of Health.

H. All costs associated with purchase, installation, inspections, testing, replacement, maintenance, parts, and repairs of the backflow device are the financial responsibility of the assembly user.

I. Failure on the part of any customer to discontinue the use of all cross-connections, except in accordance with the Standard, is sufficient cause for the immediate discontinuance of public water service to the premises (Washington Administrative Code 246-290-490). The City may install the appropriate backflow prevention device at the owner's expense.

10.195 Service Interruption

Following application at the Community Planning and Development Department for connection to the existing reclaimed water main, the contractor will give the City a minimum of ten (10) working days' notice of any planned connection to an existing reclaimed water pipeline, including all cut-ins and live taps. Notice is required so any disruptions to existing reclaimed water services can be scheduled. The City will notify involved or affected customers of the

reclaimed water service interruption 48 hours in advance. The contractor will make every effort to schedule reclaimed water main construction with a minimum interruption of reclaimed water service. In all situations, the City will dictate scheduling of reclaimed water main shutdowns so as not to impose unnecessary shutdowns during specific periods to existing customers.

10.200 Irrigation Systems

A. All above-ground fixtures and appurtenances associated with irrigation systems shall be purple (Pantone 512) in color.

B. Irrigation sprinklers will be situated and operated so as to assure that reclaimed water will not be sprayed at any time on people or any facility, (such as drinking fountain, hose bib) or any area not designated for reclaimed water, including public streets and sidewalks.

10.205 Abandonments

At time of abandonment for any reclaimed water service line, the corporation shall be removed and a full circle stainless steel repair band shall be installed. When a reclaimed water main line is abandoned, the abandonment shall occur back to the closest tee or cross, removing the valve and installing a blind flange or plug. In areas where the tees are lead-in fittings, the whole tee will be removed along with a small section of main.

10.210 Identification

A. All new reclaimed water piping and appurtenances shall be purple (Pantone 512) in color and shall have the words, “CAUTION: RECLAIMED WATER-DO NOT DRINK” printed in black lettering at intervals no greater than 3 feet. Lettering shall be a minimum 1.5 inches high. Spacing between the individual words of the message shall not exceed 3 inches.

B. Identification tapes, which help to trace the pipeline, shall be prepared with black printing on a purple field having the words "CAUTION: RECLAIMED WATER - DO NOT DRINK." The overall width of the tape shall be at least three inches.

C. All pipe and services will be installed with continuous tracer (warning) tape installed 12 inches to 18 inches under the final ground surface as shown in Standard Drawing 10-14. The marker will be plastic, non-biodegradable with metal core, or backing that can be detected by a standard metal detector. Tape with the Terra Tape D or approved equal. The marker will be marked “Reclaimed Water.” The identification shall be continuous in its

coverage on the pipe and shall be fastened to each pipe length. Taping attached to sections of pipe before they are placed in the trench shall have overlaps sufficient for continuous coverage. Other satisfactory means of securing the tape during backfill of the trench may be used if suitable for the work, as determined by the Public Works Department, Water Resources Line of Business.

D. In addition to the trade tape, purple toning (tracer) wire will be installed over all pipe and services. Toning wire will be UL listed, Type UF, 14-gauge coated copper taped to the top of the pipe to prevent movement during backfilling. The wire will be laid loosely enough to prevent stretching and damage. The wire will be brought up and tied off at valve body or meter setter with the end of the wire accessible to hook-up to a locator (2 feet of slack).

E. A 1-pound magnesium anode will be buried with the wire and every 1,000 linear feet thereafter for cathodic protection of the toning wire. All toning wire splices and connections will join wires both mechanically and electrically and will employ epoxy resin or heat-shrink tape insulation. Toning wire will be tested prior to acceptance of the pipe system. A written notice from the contractor to the City two (2) working days prior to the test is required.

F. Reclaimed water meter boxes shall be identified per Standard Drawing 10-15.

10.220 Testing and Inspection

A. All reclaimed water used in testing and inspection must be disposed of using the sanitary sewer system. Where sanitary sewers are not accessible, dechlorinated Class A reclaimed water may be discharged to the stormwater system with approval from the Washington State Department of Ecology.

B. Prior to the acceptance of the work, the installation will be subjected to a hydrostatic pressure test by the contractor of 225 psi for 15 minutes, and leaks or imperfections developing under said pressure will be remedied by the contractor. (See Chapter 6, Section 6.180 of the City of Olympia Engineering Design and Development Standards, and Section 7-09.3(23) Hydrostatic Pressure Test of the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction 2006, for more detail). The main will be tested between valves. Insofar as possible, no hydrostatic pressure will be placed against the opposite side of the valve being tested. Test pressure will be maintained while the entire installation is inspected by the City.

C. The contractor will provide all necessary equipment and will perform all work connected with the tests. Tests will be made after all connections have been made and the roadway section is constructed to subgrade. This is to include any and all connections as shown on the plan. The contractor will perform the test to assure that the equipment to be used for the test is adequate and in good operating condition and the air in the line has been released before requesting the City to witness the test. Only authorized personnel of the City of Olympia Public Works Department will operate reclaimed water isolation valves.

D. See Section 10.190 for testing associated with backflow prevention devices.

E. Prior to acceptance of the work, the installation will be required to meet sterilization and flushing requirements. Sterilization of the reclaimed water main will be accomplished by the contractor in accordance with the requirements of the Washington State Department of Health and AWWA Standards and in a manner satisfactory to the City. At no time will chlorinated water from a new main be flushed into a body of water. This includes lakes, rivers, streams, drainage ways, Puget Sound, and any and all other waters where fish or other natural water life can be expected.

   The new line will be super-chlorinated, valves closed and the line left undisturbed for 24 hours. The line will be thoroughly flushed and filled with system water, valves closed and left undisturbed for another 24 hours. The City of Olympia Inspector will submit a New Construction Sample Request Form to the Water Quality Program. Twenty-four to 48 hours after the request is received from the City of Olympia Inspector, the sample will be collected. If the initial sample fails and bacteria are present, the disinfection procedure will be repeated, starting with super-chlorinating the line. This procedure will continue until the sample passes with no bacteria being present. In addition, if the system water in the line has an elevated pH or free chlorine residual above the expected levels in the distribution system, the sample will not be collected and the line will need to be flushed, valves closed and left undisturbed for another 24 hours. A fee will be charged for each additional visit to the sample collection site after the initial visit. The sample can be collected Monday through Thursday at the discretion of the sampler. Testing and sampling will take place after all underground utilities are installed and compaction of the backfill within the roadway section is complete.

10.230 Submittals

A. The following information shall be submitted to and approved by the City prior to commencing any construction.

1. Customer's plans and specifications: Plans and specifications prepared by a civil engineer, a mechanical engineer, and/or a landscape architect registered with the State of Washington, for the construction of onsite reclaimed water facilities shall be submitted to the City for review and approval. The plans shall delineate the proposed reclaimed water service area, the proposed location, size and type of all reclaimed water service connections, and onsite facilities. The plans shall include the layout of existing potable water pipelines and facilities including any areas in which reclaimed water must be specifically excluded.

2. Information required for reclaimed water irrigation systems: If the onsite facilities include a landscape irrigation system, the following data for the materials used in the irrigation system shall be included on the plans:

    a. A pipe schedule listing pipe sizes and materials of construction

    b. Valve types/sizes

    c. The following information for each type of sprinkler head:

        i. Sprinkler radius (feet)

        ii. Operating pressure (pounds per square inch, psi)

        iii. Flow in gallons per minute (gpm) or gallons per hour (gph)

        iv. Sprinkler pattern

        v. Manufacturer, model number, and all pertinent information

    d. Drip irrigation information and all pertinent equipment

    e. Estimates of application rate, acres to be irrigated, soil texture, and soil infiltration rate, and information on pressure requirement, hourly delivery rate, and the wetting pattern of sprinklers

3. Information to be called out on customer's plans: Exterior drinking fountains and potable water hose bibs, and other public facilities shall be shown and called out on the plans. If no exterior drinking fountains or other public facilities are present in the design area, then it shall be specifically stated on the plans that none exist.

4. Standard notes for inclusion on customer's plans: Provide the following notes as applicable, on the reclaimed water improvement and irrigation plans under the heading "Reclaimed Water General Notes":

a. All public facilities such as comfort stations, drinking fountains, etc. shall be protected from spray by reclaimed water. The notes shall describe protection measures.

b. Conditions that directly or indirectly cause reclaimed water to run-off or run outside of the approved reclaimed water use area, or cause reclaimed water to pond, or permit windblown spray to pass outside of the approved use area, whether by design, construction practice, or system operation, shall be eliminated or controlled to the greatest extent possible with the use of the best practicable technology and methodology as soon as possible.

c. Contractor shall adjust heads to prevent over-spraying onto sidewalks, streets, and off-site.

d. Hose bibs are strictly prohibited.

e. Identification, by means of (Pantone 512) purple color coding, stenciling, and warning tapes, as well as coverage of all wiring and irrigation piping shall conform to all applicable requirements of the engineering standards.

f. All potable water and reclaimed water piping shall be installed with the stenciling oriented toward the top of the trench.

g. A minimum of 10-foot out-to-out horizontal separation between reclaimed water mains and potable water or sanitary sewer mains must be maintained at all times, or as shown on these approved plans.

h. Constant pressure reclaimed water lines shall cross at least 18 inches below potable water lines and maintain a minimum 18-inch crossing separation between other utilities.

i. Inspection and testing of the backflow prevention assembly on the potable water system, located as close to the potable water meter as possible, will be conducted per requirements prior to use of reclaimed water.

j. An annual cross-connection inspection will be conducted by the City of Olympia Cross Connection Specialist.

k. Prior to the conversion to reclaimed water, a signage plan showing the locations and design of reclaimed water “Do Not Drink” signs shall be forwarded to the City for approval.

l. Prior to the conversion to reclaimed water, an on-site user/supervisor shall be designated in writing. This individual shall be familiar with plumbing systems within the property, with the basic concepts of backflow/cross-connection protection, and the specific requirements of a reclaimed water system. Copies of the designation with contact phone number shall be provided to the City.

m. The reclaimed water line(s) and irrigation system(s) shown herein shall be charged with potable water until such time when reclaimed water is available. Prior to conversion of reclaimed water, all temporary connections shall be minimized and acceptable to the City.

Appendix 1: List of Drawings

Title	Drawing No.
Horizontal and Vertical Separation of Reclaimed Water Mains from Other Piping	10-1
Reclaimed Water Valve and Valve Box	10-3
Reclaimed Water Combination Air Vacuum/Air Release Valve	10-5
Reclaimed Water Blow-off Assembly Installation	10-6
Reclaimed Water Standard Blocking Detail	10-7
Reclaimed Water Thrust Loads	10-8
Reclaimed Water Setter – 1" Diameter	10-9
Reclaimed Water Setter – 2" Diameter	10-10
Reclaimed Water Sampling Station	10-11
Reclaimed Water Reduced Pressure Back Flow Assembly 2½" and Larger	10-12A
Reclaimed Water Trench Detail	10-14
Reclaimed Water 1½" 2" Meter Box Cover	10-15
Reclaimed Water Valve Nut Extension	10-16

10-2	Reclaimed Water Valve Key Extension *DELETED*	02/26/2013
10-4	Reclaimed Water Valve Box Lid *DELETED*	02/26/2013
10-12	Reduced Pressure Backflow Assembly – 2" and Smaller *DELETED*	02/26/2013
10-13	Reduced Pressure Backflow Assembly 2½" and Larger *DELETED*	02/26/2013

Appendix 2: Reclaimed Water Service Agreement

CLASS "A" RECLAIMED WATER SERVICE AGREEMENT

END USER:

CONTACT PERSON: **PHONE NO.:** (_____) _____

ADDRESS:

_____

TERMS & CONDITIONS OF SERVICE

The End User identified in this agreement, in receiving Class A Reclaimed Water from the City of Olympia ("City") under this agreement, does hereby agree to the following terms and conditions for the use of Class "A" Reclaimed Water:

1. **Use of Reclaimed Water**
   a. **Location of Use(s)**:
   b. **Intended Use(s)**:
   c. **Period of Use**: End User shall begin using Class A Reclaimed Water upon signing this agreement and availability of Class A Reclaimed Water.

2. **Quantity of Reclaimed Water**: Class A Reclaimed Water will be provided by the City as follows:
   a. Minimum Quantity: _____
   b. Maximum Quantity: _____
   c. Landscape irrigation application rate shall be limited to agronomic rates.

3. **Price of Reclaimed Water**:

   70 percent of the irrigation rate set forth in *OMC 4.24.010.A.8.a* except as provided in Section 7 below.

4. **Restrictions on Use**: Class A Reclaimed Water provided under this Service Agreement shall not be used in any place or manner except as specified in the "Location of Use(s)" and "Intended Use(s)" designations above, without written approval of the City, which shall not be unreasonably denied.

   a. Class A Reclaimed Water shall not be used for human consumption or in the preparation of foodstuffs or other products intended for human consumption.

   b. Class A Reclaimed Water shall not be discharged or released to any surface water body or stormwater collection or conveyance facility, unless said water body or facility is a non-restricted recreational impoundment or a wetland created for and identified as a beneficial use.

   c. Class A Reclaimed Water shall not be sold, conveyed, gifted, or otherwise transferred to any other party.

   d. Use area protections and User Notifications: All locations served with both potable water and Class A reclaimed water shall be provided with a reduced pressure backflow prevention assembly on the potable water service. All Class A reclaimed water piping and appurtenances shall be color coded and employees and public users of the use area shall be provided with adequate notification of the use of reclaimed water the use site.

5. **Interruption or Change of Supply**: In case of emergency repairs or other necessary work, or whenever the public health or safety so demands, the City may change, reduce, or limit the time for, or temporarily discontinue the supply of- Class A Reclaimed Water. Before so changing, reducing, limiting or discontinuing the supply of Class A Reclaimed Water, the City shall, insofar as practicable, notify all water consumers affected. The City shall not be responsible for any damage resulting

from interruption or change of the Class A Reclaimed Water supply, or for any damages incurred by the End User arising out of the use or transportation of the Class A Reclaimed Water.

6. **Disclaimer, Indemnity, and Hold Harmless**: To the extent permitted by law, the End User shall hold harmless, indemnify, and defend the City, whether acting as a separate municipal entity or as a member of the LOTT Alliance, from any claims, suits, actions, losses, penalties, judgments, awards for damages of any kind arising out of, or in connection with, the use of Class A Reclaimed Water provided under this Service Agreement, except to the extent arising out of the negligence or other fault of the City.

7. **Termination**: Class A Reclaimed Water service may be terminated, without cause, upon thirty (30) days written notice by the City; provided, however, that if the City terminates Class A Reclaimed Water service without cause prior to the expiration of five (5) years from the date of this Agreement, the City will provide potable water to the End User in the same quantities and prices set forth in Section 3 above until five (5) years from the date of this Agreement. Termination for violation of the requirements described in Section 8.b below shall not trigger the City's obligations under this Section 7.

8. **Compliance with Laws Governing Reclaimed Water**:

   a. The City agrees that it will comply with all applicable federal, state, and local laws, regulations and standards governing the generation and delivery of Class A Reclaimed Water.

   b. The End User's use of Class A Reclaimed Water will meet all applicable requirements contained in the *Water Reclamation and Reuse Standards*, issued by the Washington State Departments of Health and Ecology, and *Ordinance No. 6359, Chapter 13.24* of the *Olympia Municipal Code*, including those listed on

the back of this Agreement, as amended from time to time, or contained in any successor standards or ordinances.

c. Violations of these Terms and Conditions or of State standards and regulations may result in termination of Class A Reclaimed Water Service under this Service Agreement.

9. **Third Party Beneficiary**: The LOTT Alliance shall be considered a third party beneficiary under this agreement.

I, the undersigned, do hereby affirm that I have the legal authority to enter into this Agreement for the Class A Reclaimed Water service on behalf of the End User identified above, that I have read the terms and conditions specified in this Agreement and references herein, and that the End User identified above agrees to and shall be bound by said terms and conditions for the use of such water as specified in this Agreement and the references herein:

By:_____ _____

Printed Name: Date:_____

Approved:

By: _____

CITY OF OLYMPIA