

**SECTION 15151
RECYCLED WATER FACILITIES (OFFSITE)**

PART 1 GENERAL

1.01 DESCRIPTION

This section includes special provisions, materials, and identification of offsite recycled water systems.

1.02 REFERENCE STANDARDS

The publications listed below form part of this specification to the extent referenced and are referred to in the text by the basic designation only. Reference shall be made to the latest edition of said standards unless otherwise called for.

AWWA Guidelines for Distribution of Nonpotable
Water California Code of Regulations (CCR), Title 22
and Title 17
County of San Diego, Department of Environmental Health Recycled Water Plan
Check and Inspection Manual

1.03 RELATED WORK SPECIFIED ELSEWHERE

Standard Drawings
Standard Specifications 02202, 02223, 03000, 09900, 15000, 15041, 15044, 15056,
15057, 15061, 15064, 15074, 15100, 15102, 15108, and 15112.

1.04 APPROVED USE

All potential applications of recycled water shall be reviewed and approved by the District prior to installation of facilities. The facilities shall be constructed in accordance with the procedures and requirements of the District. No connections to recycled water main(s) shall be installed unless shown on the Approved Plans or permission has otherwise been granted in writing by the District.

1.05 OFFSITE AND ONSITE CRITERIA

Recycled water facilities are separated into two categories:

- A. "Offsite" (pre-meter, public) recycled water facilities consist of those facilities which are on the upstream side of the meter. These facilities are, or will be, owned, operated and maintained by the District. This Specification Section will detail the requirements for construction of Offsite Recycled Water Facilities, refer to Article 175 for additional rules and regulations.
- B. "Onsite" (post-meter, private) recycled water facilities consist of those facilities which are on the downstream side of the water meter. These are facilities which will be owned, operated and maintained by the customer. Refer to

Section 15152 for the detailed requirements of onsite irrigation and plumbing systems.

1.06 DESIGN CRITERIA

- A. A licensed Civil Engineer registered in the State of California shall be responsible for the design of offsite recycled water facilities, including the preparation of plans and specifications.
- B. Plans for offsite potable and recycled water systems in the same street or easement shall show both potable and recycled water mains on the same sheets of plans.
- C. The minimum depth of cover for recycled water mains shall be in accordance with Section 02223 or as shown on the Approved Plans. In general, where both recycled and potable water mains are to be installed in the same street or easement, the top of pipe of the recycled water main shall be (12") below the top of the potable water main.
- D. A horizontal separation of (10'), and a vertical separation of (12") shall be maintained between recycled water lines and potable water lines, and between recycled lines and sanitary sewers. Recycled water lines shall be designed to cross under potable water mains and above sanitary sewers.
- E. In the event that it is not possible to maintain the required separation and relative positions between recycled water lines, potable water lines, and sanitary sewers, special construction shall be required in accordance with the Standard Drawings and as directed by the District Engineer.
- F. The minimum size distribution main shall be (4"). The District shall be the final authority concerning the size and pressure rating of the distribution main.
- G. Offsite recycled water mains shall typically be located on the opposite side of the street or easement from the potable water main.
- H. Offsite recycled water mains shall be designed with service laterals perpendicular to the main. Service laterals shall be a minimum of (1") in size. Larger sized laterals may be required. A service lateral shall be designed for each lot or area to be served with recycled water. A service lateral shall not be designed to serve opposite sides of a street or easement and shall not be located in street medians or center islands.
- I. Offsite recycled water systems shall not be designed with fire hydrants, wharf heads, or other appurtenances which would allow recycled water to be used for other than the approved uses unless the appurtenances are expressly approved by the District.
- J. Offsite recycled water mains shall not be designed with temporary connections unless expressly approved by the District. When permitted, temporary connections shall be located, sized, and designed according to the requirements

of the District.

1.07 PROVISIONS FOR FUTURE USE OF RECYCLED WATER

In those areas where the District has determined that recycled water will be supplied to the subject area in the future but is not currently available, recycled facilities shall be installed as detailed in this Section. Provisions for future connection to the permanent recycled water system shall be included in the initial installation of the system as directed by the District. In the interim, the new recycled system will be supplied with potable water via a temporary connection performed by the Contractor as directed by the District. This temporary service connection shall be provided in accordance with the Standard Drawings and shall incorporate a master backflow prevention device located and installed in accordance with Section 15112. Connections between offsite recycled water mains and potable water mains shall only be permitted when the recycled water main is to temporarily convey potable water. No connection of any other kind shall be permitted between the potable water and recycled water mains. In the future, the Owner shall be responsible to remove the temporary service and transfer the main to a permanent connection to the recycled system when it becomes available.

PART 2 MATERIALS

2.01 OFFSITE RECYCLED WATER FACILITIES

- A. Materials for offsite recycled water systems shall generally consist of those specified for potable water systems as detailed within these Standard Specifications, the Standard Drawings, the Approved Materials List, and as modified herein.
- B. Recycled water mains sized (6") and larger shall be PVC in accordance with Section 15064. PVC pipe for recycled water system applications and related gate well casings shall be manufactured in the purple color. Pipe markings shall include the designation "RECYCLED WATER" in addition to the standard factory labeling required by AWWA.
- C. Devices and appurtenances such as air valve assemblies, backflow preventers, blowoff assemblies, butterfly valves, gate valves, services and other items shall be provided in accordance with the various applicable Sections of these Standard Specifications, the Standard Drawings and the Approved Materials List. Color coding and other identification shall be provided as indicated below.
- D. Miscellaneous materials such as gate wells, meter boxes, warning tape, tracer wire, copper tubing, ductile iron fittings, brass and bronze fittings and devices, and all related items shall be provided in accordance with the various applicable Sections of these Standard Specifications, the Standard Drawings and the Approved Materials List. Color coding and other identification shall be provided as indicated below.
- E. Warning/Identification Tape shall be as specified in Section 15000 in accordance with the Approved Materials List.

- F. Paint products for protection and identification shall be provided as specified below and in accordance with Sections 09910, 09915 and the Approved Materials List.
- G. Warning signs and labels shall be post mounted aluminum or vinyl, self-adhesive with peel off paper backing, bearing the warning "RECYCLED WATER - DO NOT DRINK" or the equivalent, in English and Spanish, along with the international "Do Not Drink" symbol. Warning labels and signs shall have a purple background with contrasting lettering and markings.
- H. Utility identification tape shall be (0.004" or 4 mils) PVC, pressure-sensitive adhesive-backed tape in rolls of various widths. The tape shall be colored-coded purple and shall bear the designation "RECYCLED WATER" or the equivalent, in contrasting permanent lettering at approximately (12") intervals. Identification tape will generally be used in the (2") width to identify buried materials and components as detailed below.

PART 3 EXECUTION

3.01 OFFSITE RECYCLED WATER FACILITIES

In general, offsite recycled water facilities shall be installed in accordance with the requirements for potable water materials and facilities within these Specifications, the Standard Drawings and the Approved Plans.

3.02 FIELD IDENTIFICATION - PIPING AND APPURTENANCES

Recycled water mains and appurtenances shall be identified with purple-colored coding and identification labels and signs as specified herein.

- A. PVC pipe and related gate well casings shall be colored purple as manufactured. If purple-colored PVC pipe in the specified size or class is not readily available from suppliers, standard colored PVC pipe may be used and sleeved with a (0.008" or 8 mils) purple-colored, high-density polyethylene encasement sleeve which totally encloses the pipe.
- B. Buried items that are not available from the manufacturer in the purple color shall be identified in the field by means of utility identification tape applied to the surface of the items. Valves, ductile iron fittings and similar items shall receive a band of the tape applied circumferentially at the ends of the fittings adjacent to connections to the adjoining piping sections, and to the operator portions of gate and butterfly valves. The identification tape shall also be used to secure the polyethylene wrap specified for the various piping materials and appurtenances. Copper tubing and appurtenant bronze fittings shall be identified by means of utility identification tape applied continuously along the upper surface of the entire length of the line.

- C. Meter and blowoff boxes shall be colored purple as manufactured.
- D. Accessible items that are not available from the manufacturer in the purple color, such as those located at grade, above ground and within meter boxes and vaults shall be identified in the field by means of a paint coating in the purple color. Meters, blowoff piping and blowoff box covers or blowoff manhole covers, valve box lids, air valves and enclosures, piping, valves, backflow devices and all other items either accessible or exposed to view, shall be identified by means of the purple coating or integral purple color. The coating system shall be suitable for the substrate material and the degree of protection required for the various items, in accordance with Section 09910 and the Approved Materials List.
- E. Tracer wire shall be installed in accordance with Section 15000 and the Standard Drawings.
- F. Warning/Identification tape shall be installed in accordance with Section 15000 and the Standard Drawings.

3.03 LABELS AND SIGNAGE

Labels shall be installed on recycled facilities exposed to view including above ground piping and appurtenances, meter and blowoff box covers, and where indicated on the Standard Drawings and the Approved Plans. Signs shall be installed where necessary and as indicated on the Approved Plans.

3.04 DISINFECTION AND BACTERIOLOGICAL TESTING

In the event the recycled water mains are installed with provisions for future use for transporting recycled water, but, will initially transport potable water, (see item above), disinfection, flushing and bacteriological testing shall be performed in accordance with Section 15041.

3.05 HYDROSTATIC TESTING

Potable water shall be used for filling, flushing, and hydrostatic testing. Field hydrostatic testing shall be performed in accordance with Section 15044.

3.06 BACKFLOW PREVENTION

During the course of flushing and disinfection and hydrostatic testing of the recycled water mains, an appropriate backflow prevention device shall be installed on the potable source piping to isolate the potable from the non-potable system in accordance with Section 15044 and 15112.

END OF SECTION 15151