

NORTH MARIN WATER DISTRICT

STANDARD SPECIFICATIONS

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 - American Water Works Association Guidelines for Distribution of Nonpotable Water
CCR - California Code of Regulations, Title 22 and Title 17
CDPH - California Department of Public Health

1.03 RELATED WORK SPECIFIED ELSEWHERE

NMWD Standard Drawings
NMWD Standard Specifications 02202, 02223, 03000, 09910, 15000, 15041, 15044, 15056, 15057, 15061, 15064, 15074, 15100, 15102, 15108, and 15112.

1.04 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.
- 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.

1.05 DESIGN CRITERIA

- A. 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 twelve (12) inches below the bottom of the potable water main.
- B. A minimum horizontal separation of ten (10) feet, and, where mains cross, a minimum vertical separation of twelve (12) inches 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.
- C. 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 as directed by the District Engineer.
- D. The minimum size distribution main shall be six (6) inches. The District shall be the final authority concerning the size and pressure rating of the distribution main.
- E. Offsite recycled water mains shall typically be located on the opposite side of the street or easement from the potable water main.
- F. Offsite recycled water mains shall be designed with service laterals perpendicular to the main. Service laterals shall be a minimum of one (1) inch 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.
- G. 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.
- H. 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.

1.06 PROVISIONS FOR FUTURE USE OF RECYCLED WATER

No connection between the potable water and recycled water mains shall be permitted. 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 and field tested by the District 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. 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 six (6) inches and larger shall be PVC in accordance with Section 15064. PVC pipe for recycled water system applications and related valve riser 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 valve risers, 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 inches or 4 mils minimum thickness PVC, pressure-sensitive adhesive-backed tape in rolls of various widths. The tape shall be color-coded purple and shall bear the designation "RECYCLED WATER" or the equivalent, in contrasting permanent lettering at approximately twelve (12) inch intervals. Identification tape will generally be used in the two (2) inch 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-color coding and identification labels and signs as specified herein.

- A. PVC pipe and related valve riser 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 inches or 8 mils purple-color, 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.
- C. 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 1.06 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