SECTION 600

DESIGN CRITERIA
RECYCLED WATER FACILITIES

600.1 GENERAL

All potential uses of recycled water, including, but not limited to, uses for landscape irrigation systems, agricultural irrigation systems, systems used for industrial process or construction purposes, or recreational impoundment systems, or flushing toilets and urinals in non-residential buildings shall be reviewed by the District. If recycled water is to be used, (Refer to the MCWD Code, Title 4.28.080) the facilities shall be constructed in accordance with the procedures and requirements set forth below.

This section is generally divided into seven sub-sections. The sections are:

Section 600.1 General
Section 600.2 Off-Site Recycled Water Facilities Design and Construction Standards
Section 600.3 Recycled Water for Construction Grading or Other Temporary Use
Section 600.4 General Requirements for On-Site Recycled Water Facilities
Section 600.5 Design Requirements for On-Site Recycled Water Facilities
Section 600.6 Inspection Requirements for On-Site Recycled Water Facilities
Section 600.7 Interior Use of Recycled Water in Non-Residential Buildings

The Marina Coast Water District (MCWD) recycled water program is regulated by the California Department of Health Services and the Monterey County Health Agency and permitted by the RWQCB. As set forth in the District's "Water Code for Water, Sewer, and Recycled Water Service," the District shall determine whether a given service will be furnished with recycled water or potable water. The determination shall be in accordance with the standards of treatment and water quality requirements set forth in Title 22, Chapter 4 of the California Administrative Code, with the intent of the District to work in conjunction with the health agencies to protect the public health, and with the availability and/or feasibility of making available recycled water facilities. All on-site facilities using recycled water will have an annual cross connection test and annual backflow prevention certification unless otherwise approved by the state and county health agencies based on a case by case basis. Details of specific cross connection tests can be found in subsequent sections. All inspections and any cross connection found are reportable to both state and county health agencies.

600.1.1 Recycled Water Site Categories

Recycled water facilities are separated into two categories.

Off-site recycled water facilities typically consist of those recycled water facilities, which are, or will be, owned, operated, and maintained by the District such as transmission or distribution mains in public rights of way. Typically these are facilities on the upstream side of the water meter and include the meter.

On-site recycled water facilities typically consist of facilities, which will be owner, operated, and maintained by the customer, and is downstream of the water meter. The District typically constructs, operates, and maintains recycled water facilities, upstream of the water meter, which are 4" and larger. There are two types of on-site recycled water facilities; non-residential on-site recycled water facilities and residential dual plumbed homes.

600.1.2 Recycled Water System Monitoring

Authorized representatives of MCWD shall monitor and inspect the entire recycled water system including both On-site and off-site facilities. MCWD shall conduct monitoring programs, maintain a record as deemed necessary, and provide reports as requested by regulatory agencies. The Manager or authorized representatives of MCWD, in carrying out these functions, shall have the right to enter the customer's premises during reasonable hours for the purpose of inspecting On-site recycled water facilities and areas of recycled water use and to ensure compliance with the Water Code. This shall include the provision that runoff shall be controlled and limited and the provision that cross-connections between potable water facilities and recycled water facilities do not exist.

For single-family residences receiving recycled water, the permit holder shall be responsible for providing access and cooperation to MCWD's representative so that MCWD's representative can perform an annual cross-connection inspection. This inspection shall include pressure testing of the recycled water system to verify that no cross-connections have been made. The permit holder will be responsible for correcting any work which violates MCWD regulations at their expense including any costs associated with repairing and testing the backflow device. In addition, if the permit holder changes, an AWWA certified cross-connection specialist from the Water Quality Dept. of MCWD will perform a cross-connection survey to verify that no cross-connections exist.

600.2 OFF-SITE RECYCLED WATER FACILITIES DESIGN AND CONSTRUCTION STANDARDS

600.2.1 Minimum Size

The typical minimum size distribution main shall be a 4-inch looped line. Smaller diameter mains may be individually approved by the District Engineer on dead-end mains or the possibility of future tie-ins with other mains. These mains shall be sized so that sufficient water is regularly drawn to prevent stagnation. Only 1-inch and 2-inch copper or polyethylene and 4-inch, Class 150 PVC are approved for service lines.

Developer facilities will be those recycled water mains of any diameter found interior to the developer's project, refer to MCWD In-Tract Policy.

Developer facilities designed by the developer shall be approved by the District and transferred to the District upon satisfactory completion of final inspection. Capital facilities will be designed and constructed by the District in most cases. The facilities found on the private parcels downstream of the meter shall remain in the ownership of the developer.

600.2.2 Approved Pipe Materials

C-900 PVC pipe Class 150 shall be used for recycled water mains up to 12-inch in diameter. The pipe shall be purple in color and shall be marked in accordance with District standards to warn anyone who sees it that there is recycled water in the pipe. A purple polyethylene sleeve may be provided in lieu of a purple pipe. DIP may be used if properly sleeved and marked with purple marking tape.

600.2.3 Minimum cover requirements

The top of all recycled water distribution mains shall be a minimum of 48 inches below the finished street grade unless indicated otherwise on job plans or directed otherwise by the District Inspector because of unusual field conditions.

600.2.4 Separation between Water, Sewer, and Recycled Water Lines

See Section 400 and District Standard Plan W-17.

600.2.5 Standard location

Recycled water pipes shall typically be located either four (4) feet, or eight (8) feet from the curb face on the opposite side of the street from the potable water mains.

600.2.6 Standard Off-Site Recycled Water Notes

The following notes must appear on all plans for construction of off-site recycled water facilities and be identified as "Recycled Water Notes". In addition the Standard Water Notes shown in Section 400 of these Guidelines must appear on the plan as well.

1. Recycled water systems shall be constructed in accordance with the requirements of the Districts potable water system design requirements.

2. Recycled water pipe shall be purple PVC C-900 pipe, Class 150, marked as required by District standards to identify it as recycled water. DIP may be used with the approval of the District, marked with purple sleeve and marking tape.

3. All 1-inch and 2-inch copper or polyethylene services shall be wrapped continuously with purple marking tape or sleeve from end to end.

600.3 RECYCLED WATER FOR CONSTRUCTION GRADING OR OTHER TEMPORARY WATER USE.

The following are MCWD procedures and guidelines for the specific use of recycled water for construction grading, dust control, compaction and temporary reservoirs.

Recycled water is to be used only for the above mentioned uses and may not be used for any other purpose than stated above. There are no exceptions. If there is a need for water other than the above approved uses, i.e.: water to construction trailers, hand washes, hose bibs, and temporary sprinklers etc., one must obtain an approved potable connection from MCWD.

1. All construction connections shall be tagged with warning tags, as follows:

   “Warning - Recycled Water, Do Not Drink"
   "Aviso - Agua Impura, No Tomar"

   Use tags as manufactured by T. Christy Enterprises or approved equal. Tags shall be affixed to stationary tanks, water trucks, and all service points or any other inlet or outlet using recycled water.

2. Water trucks, water tanks, or any other receptacle, including but not limited to pipe or hose used for storage or conveyance of recycled water, shall be dedicated solely to that use. Any use other than recycled water must be approved through MCWD and the cognizant health agencies.

3. No fittings, hose or pipe, or any other appurtenance using recycled water shall connect to a potable water source.

4. All PVC pipe extending from the point of connection shall be purple, and read:

   "Warning - Recycled Water, Do Not Drink"

   The PVC piping shall conform to all material specifications as set forth by MCWD.

5. Any water truck, water tank, or other storage receptacle to be converted from recycled water to potable water shall be thoroughly cleaned and disinfected to the satisfaction of MCWD and the jurisidctional health agencies.

6. Contact MCWD prior to connection at (831) 384-6131 and arrange for an inspection to ensure compliance with District standards.

Failure to comply with any or all of the above requirements places your construction site in violation of District Water Code, and will result in termination of service until the appropriate corrective steps have been taken.

600.4 GENERAL REQUIREMENTS FOR ON-SITE RECYCLED WATER FACILITIES

Plan check procedures shall follow the guidelines outlined in Section 100.5, Application Processing.

600.4.1 Scope

Design and construction standards for sites using recycled water are provided for non-residential and residential dual plumbed home sites.

- Non-residential on-site recycled water facilities include, but are not limited to: landscape irrigation systems, systems used for industrial processes, construction purposes, and toilet and urinal flushing in non-residential buildings. Users shall comply with these standards, the On-Site Recycled Water User Plan, and to any conditions, standards, and requirements set forth by the District in addition to these standard specifications.

- Residential dual plumbed homes using recycled water for landscape irrigation systems shall comply with these standards set forth herein, the Engineer's Report, and to any conditions, standards, and requirements set forth by the District in addition to these standard specifications. Residential indoor water use of Recycled Water is prohibited.

600.4.2 Interpretation

The District Engineer shall decide all questions of interpretation of "good engineering practice," guided by the various standards and manuals.

600.4.3 Applicable Codes and Policies

Ordinances, requirements, and applicable standards of governmental agencies having jurisdiction within the District's service area shall be observed in the design and construction of on-site recycled water systems. Such requirements include but are not limited to current revisions of the following:

- The Uniform Plumbing Code.
- Marina Coast Water District Water Code, as applicable.
- State of California, Department of Health Services, Title 22.
- Regional Water Quality Control Board Regulations.

600.4.4 Marina Coast Water District Jurisdiction

The District is responsible for the approval of plans and inspection of all on-site recycled water systems within the District's service area. Where repairs or replacement of a service line on the upstream side of the meter is required, it shall be the responsibility of the District, unless it is a system upgrade, in which case the owner or customer will be billed for the work. Conversely, the cost of repairs or replacement of the on-site facilities shall be the responsibility of the property owner.

600.4.5 Developer's Engineer/Landscape Architect Responsibility

These standards establish uniform policies and procedures for the design and construction of on-site recycled water facilities. They are not intended to be a substitute for knowledge, judgment, or experience. The contained procedures shall be reviewed by the engineer/landscape architect and shall be applied as necessary to the project. Proposed deviations to these standards shall be submitted in writing in conjunction with the plan review submittal. The plans shall be revised or supplemented at any time it is determined that the District's requirements have not been met.

Before design, the developer should obtain the following from the District:

1. Approval to use recycled water for the proposed system, as stated in the previous section.
2. Verification of locations and size of proposed points of connection (meter facilities).
3. Design pressures for the proposed facilities.

600.4.6 Reference Specifications

References to standards such as the Standard Drawings of the District, AWWA, ASTM, UBC, UPC, and UFC shall refer to the latest edition or revision of such standards unless otherwise specified.

600.4.7 Guidelines For Landscape Irrigation with Recycled Water

The following guidelines have been established by the Marina Coast Water District in conjunction with the Monterey County Health Department and the Central Coast Regional Water Quality Control Board. They are intended to provide the basic parameters for the use of recycled water in landscape irrigation. To operate your system in compliance with these guidelines you must:

1. Irrigate between the hours of 9:00 p.m. and 6:00 a.m. only. Watering outside this time frame must be done manually with qualified supervisory personnel on-site. No system shall at any time be left unattended during use outside the normal schedule.

2. Irrigate in a manner that will minimize runoff pooling and ponding. The application rate shall not exceed the infiltration rate of the soil. Timers must be adjusted so as to be compatible with the lowest soil infiltration rate present. This procedure may be facilitated by the efficient scheduling of the automatic control clocks, (i.e., employing the repeat function to break up the total irrigation time into cycles that will promote maximum soil absorption).

3. Adjust spray heads to eliminate overspray onto areas not under the control of the customer. For example, pool decks, private patios, streets and sidewalks.

4. Monitor and maintain the system to minimize equipment and material failure. Broken sprinkler heads, leaks, unreliable valves, etc., should be repaired as soon as they become apparent.

5. Educate all maintenance personnel, on a continuous basis, of the presence of recycled water, and the fact that it is not approved for drinking purposes. Given the high turnover rate of employees in the landscape industry, it is important that this information be disseminated on an almost daily basis. It is you, the landscape contractor, who is responsible for educating each and every one of your employees.

6. Obtain prior approval for all proposed changes and modifications to any on-site facilities. Such changes must be submitted to, and approved by, the Engineering office and designed in accordance with District standards.

Failure to comply with any or all of the above guidelines puts your system in violation of the District's Water Code, and will result in termination of service until the appropriate corrective steps have been taken.

600.4.8 Prohibitions and Limitations

Design of on-site recycled water facilities shall conform to the following:

- The recycled water system shall be separate and independent of any potable water system. Cross connections between potable water facilities and recycled water facilities are prohibited.

- Hose bibs on recycled water facilities are prohibited. Quick couplers are prohibited for residential dual plumbed homes. Where potable and recycled water is used on-site, potable water hose bibs must be attached to the building.

- Drinking fountains shall be protected from the spray of recycled water in a manner approved by the On-Site Recycled Water User Plan, prior to installation.

- Patios, swimming pools, and spas, etc. shall be protected from the spray of recycled water.

- Overspray and run-off shall be limited or prevented.

- Potable and recycled water lines must maintain proper separation at all times.

- Recycled water shall not be used for any purpose other than the approved uses as set forth in the On-Site Recycled Water User Plan.

- The system shall be designed to irrigate the on-site area within the allowable time periods as set forth in the On-Site Recycled Water User Plan.

600.4.9 Backflow Prevention and Cross Connection

Backflow prevention devices will not be required on the recycled water service connected to a recycled water main. However, in accordance with Section 400, District's Regulation Regarding Cross Connection, reduced pressure backflow prevention devices will be required on the potable water service, when a parcel receives potable and recycled water service. No connection between the recycled waterline and the potable waterline is allowed.

600.4.10 Conversion from Potable to Recycled Water System

In general, all irrigation facilities converting from a potable to a recycled water supply shall conform to the District's construction specifications and the On-Site Recycled Water User Plan. The District will notify the required state agencies of the intent to convert and solicit their involvement through out the process. The facilities to be converted shall be investigated in detail including review of any record drawings, preparation of the required On-Site Recycled Water User Plans, potholing of existing facilities, and determinations by the District of measures necessary to bring the system into full compliance with these standard specifications. The applicant, owner, or customer shall pay all costs to convert the system.

600.4.11 Conversion from Recycled to Potable Water System

If due to any system failure, use violations, or other reasons as determined by the District, it becomes necessary to convert from a recycled water supply to a potable water supply, it shall be the responsibility of the owner, applicant, or customer to pay all costs for such conversion. After notifying state and county health agencies of the intent of the conversion, the recycled water service shall be removed and plugged at the District main or abandoned in a manner approved by the District and State Agencies. The on-site non-residential facilities shall be modified, as required by the District and State Agencies, for use as a potable water system. The onsite system will then be disinfected in accordance with the following procedures.

1. Disinfect the water line following AWWA Standard C651 and District Standard Specification 15041. The final test results must be acceptable to MCWD before recharging the system.
2. Install approved backflow devices on any and all meter connections.
3. Remove the special recycled water quick couplers and their replacement with approved quick coupler valves for potable water systems.
4. Notify all personnel involved.
5. Remove all warning labels.

Installation of all potable water lines and payment of all connection fees due, as provided for in the Summary of Fees and Charges, Appendix 11.

600.4.12 Recycled Water Facilities with Temporary Potable Water Service

As set forth in the MCWD Water Code, where recycled water is not immediately available for use when the design area is ready for construction, and if the District has determined that recycled water will be supplied in the future, the on-site facilities shall be designated to use recycled water. The on-site system shall be designed and constructed to the District's construction specifications as set forth herein. Provisions shall be made as directed by the District and these specifications to allow for connection to the recycled water facilities when they become available. In the interim, potable water will be supplied to the recycled water facilities through a temporary potable water connection. Until recycled water is available, potable water rates will be charged as set forth in the District's published rate schedule..

A backflow prevention device acceptable to the local Health Department and the District will be required on all non-potable systems served from a potable water main. If a recycled water distribution system is constructed as part of a subdivision development, the backflow prevention device may be installed at the point where the recycled main is connected to the potable system, instead of installing devices at every irrigation meter.

Reduced pressure backflow prevention devices are required on all potable water services to sites served with recycled water. The backflow prevention device shall be downstream of the meter and a part of the on-site facilities. If recycled water is not available at the time of construction and potable water is used for irrigation as described above, backflow prevention devices will not be required on the potable services, but sites must be plumbed to allow the addition of these devices at the time recycled water becomes available.

600.4.13 On-Site Recycled Water User Plan Preparation

Upon receipt of a request for recycled water service and irrigation or building plans, an On-Site Recycled Water User Plan will be prepared. The On-Site Recycled Water User Plan (URP) may be prepared by a Registered Engineer of the Owner's choice or by the District staff, at the Owner's expense. The District has available a sample copy of a URP which may be used in preparation.

600.4.13.1 Owner Responsibilities

The applicant, owner, or customer shall have the following responsibilities in relation to operation of On-Site facilities:

1. To make sure that all operations personnel are informed and familiarized with the use of recycled water.

2. To furnish their operations personnel with maintenance instructions, controller charts, and record drawings to ensure proper operation in accordance with the On-site facilities design and these Water Code.

3. To notify MCWD of any and all updates or proposed changes, modifications, or additions to the On-site facilities, which changes shall require approval by MCWD and shall be designed and constructed according to these requirements and standards and in the Water Code. In accordance with the above, changes must be submitted to MCWD for plan review and approval prior to construction. The construction shall be inspected by MCWD, and revised record drawings shall be approved by MCWD. MCWD may, if it deems such to be in the best interest of MCWD, waive or modify any of the foregoing.

4. The recycled water facilities must be maintained in accordance with the Water Code including MCWD's requirements and standards.

5. The operation and control of the on-site system shall prevent direct human consumption of recycled water and control and limit runoff. The applicant, owner, or customer shall be responsible for any and all subsequent uses of the recycled water. Operation and control measures to be utilized in this regard shall include, where appropriate, but not be limited to the following:

   A. On-site recycled water facilities shall be operated to prevent or minimize discharge onto areas not under control of the customer. If sprinklers are used adjacent to sidewalks, roadways, and property lines, they shall be adjusted to confine the discharge from the sprinklers to the design area.

   B. The operation of the On-site recycled water facilities shall be during the periods of minimal use of the service area. Consideration shall be given to allow a maximum dry-out time before the design area will be used.

   C. Recycled water shall be applied at a rate that does not exceed the infiltration rate of the soil. Where varying soil types are present, the design and operation of the recycled water facilities shall be compatible with the lowest infiltration rate of the soil present.

   D. When the application rate exceeds the infiltration rate of the soil, automatic systems shall be utilized and programmed to prevent or minimize the ponding and runoff of recycled water. The sprinkler shall not be allowed to operate for a time longer than the landscape's water requirement. If runoff occurs before the landscape's water requirement is met, the automatic controls shall be reprogrammed with additional watering cycles of shorter duration to meet the requirements. This method of operation is intended to control and limit runoff.

   E. Report shall be made to MCWD of any and all failures in applicant, owner, or customer's system that cause an unauthorized discharge of recycled water.

6. Project shall comply with any and all applicable Federal, State, and local statues, ordinances, regulations, contracts, the Water Code, and all requirements prescribed by the District Manager and the Board. In the event of violation, all charges and penalties shall be applied and collected by MCWD.

600.4.13.2 Data Required for On-Site Recycled Water User Plan

Specific information is required to be incorporated in the On-Site Recycled Water User Plan. A list of the required information and an example of the URP can be found in Appendix19.

General guidelines for the On-Site Recycled Water User Plan should conform to the following:

1. The on-site recycled water irrigation facilities shall be designed to meet the peak moisture demand of all plant materials used within the design area. Comply with the irrigation design requirements of Section 700.

2. On-site recycled water facilities shall be designed to prevent discharge onto areas not under control of the customer. Part circle sprinklers shall be used adjacent to roadways and property lines to confine the discharge from sprinklers to the design area.

3. On-site recycled water irrigation facilities shall water only between the hours of 9 p.m. and 6 a.m., or as directed by the District Engineer. Consideration shall be given to allow a maximum dry out time before the design area will be used by the public.

4. The total time required to irrigate the design area shall not exceed 9 hours in any 24-hour period. Irrigation systems shall be designed to operate within this time requirement.

Recycled water shall be applied at a rate that does not exceed the infiltration rate of the soil or the ET requirements of the plantings. Where varying soil types are present, the design of the recycled water facilities shall be compatible with the lowest infiltration rate present. Copies of the developer's soils test reports shall be made available to the District upon request. The MCWD water conservation requirements shall apply.

600.4.13.3 User Supervisor

MCWD shall be kept informed of the identity of the person responsible for the water piping systems on all premises covered by these regulations. At each premise a "User Supervisor" shall be designated. This User Supervisor shall be responsible for the installation and use of pipelines and equipment and for the prevention of cross-connections.

In the event of contamination or pollution of the potable water system due to a cross-connection on the premises, the local health officer and District shall be promptly notified by the person responsible for the water system so that appropriate corrective measures may be taken.

1. User Supervisor Training Program - If there is a non-resident owner, a local User Supervisor shall be appointed. For single-family residences which have a recycled water service connection, the owner shall be considered to be the "User Supervisor" unless otherwise indicated on the application for the service connection request. In the event that someone other than the owner is designated as the "User Supervisor" and this person is no longer associated with the property, the owner shall again be considered the "User Supervisor" until written notification is made to MCWD.

2. Water Service Termination - When MCWD determines that water uses or conditions encountered by MCWD represent a clear and immediate hazard to MCWD's water supply that cannot be immediately abated, MCWD shall institute the procedure for discontinuing water use.

   Conditions or water uses that create a basis for water service termination shall include, but are not limited to, the following.

   A. Refusal to install a required backflow prevention device.

   B. Refusal to test a backflow prevention device.

   C. Refusal to repair a faulty backflow prevention device.

D. Refusal to replace a faulty backflow prevention device.

E. Refusal to install a RPBP on the potable service when recycled water is provided on site.

F. Director or indirect connection between the potable water system and a sewer or recycled water system.

G. Unprotected direct or indirect connection between the potable water system and a system or equipment containing contaminants.

H. Unprotected direct or indirect connection between the potable water system and an on-site auxiliary water system.

I. A situation which presents an immediate health hazard to the potable water system, as determined by the health agency or MCWD.

J. At single-family residences where copper piping is not installed for the water service or purple PVC pipe not meeting District Procedural Guidelines and General Design Requirements is not installed for the recycled water service.

MCWD will terminate service to a customer's premise after written notices have been sent specifying the corrective action needed and the time period in which it must be completed. If no action is taken within the allowed time period, water service may be terminated in accordance with the District Water Code.

MCWD will make reasonable effort to advise the water user of intent to terminate water service. Then, MCWD will terminate the water service and lock the service valve in the closed position. Water service will not be reinstated until correction of all violations has been approved by MCWD. Failure to correct the violations may result in permanent termination of water service in accordance with District Water Code.

600.4.13.4 On-Site Recycled Water User Plan Acceptance

Once the On-Site Recycled Water User Plan has been prepared, it will be submitted to the State of California, Department of Health Services and Regional Water Quality Control Board for review. Once comments have been received from each agency and incorporated into the document, an agreement has been signed by the user, proper signage has been installed, and training in the use of recycled water has been provided, recycled water service can be delivered to the site.

600.4.14 Agreements

Before recycled water can be supplied to a site, a Standard Agreement for Use of Recycled Water must be signed and recorded. The Agreement sets forth the requirements for service and includes guidelines for the use of recycled water.

In a residential dual plumbed subdivision, all homes are required to use recycled water for landscape irrigation. Deed restrictions are detailed in the documents "Declaration of Restrictions Regarding The Use of Recycled Water for Landscape Irrigation" (See Appendix 20) and "Homebuyer Notification, The Use of Recycled Water for Landscape Irrigation" (See Appendix 21).

600.5 DESIGN REQUIREMENTS FOR ON-SITE RECYCLED WATER FACILITIES

The Marina Coast Water District provides the highest quality unrestricted use recycled water for public landscape irrigation as well as residential irrigation. This section provides detailed steps for design review, construction inspection, compliance inspections, and tests for non-residential and residential dual plumbed irrigation systems.

600.5.1 Data Required on Plans

Specific information is required to be included in the plan set as described below.

1. General On-Site Recycled Water Notes - On-site recycled water notes are to be shown on all on-site recycled water system construction plans. The notes shall be as shown in Appendix 22.

2. Water service, meter and piping details, as required for potable systems in Section 400.

3. Irrigation details, as required in Section 700.

600.5.2 Drinking Fountains

Exterior drinking fountains must be shown and called out on the recycled water system plans. For schools, parks and sports fields, if no exterior drinking fountains are present in the design area, it must be specifically stated on the plans that none exist. The potable water line supplying the drinking fountain must have a warning tape and maintain proper separation from recycled water lines. Drinking fountains must be protected from the direct spray of recycled water either by proper placement within the design area or the use of a covered drinking fountain approved for this purpose.

600.5.3 On-Site Materials and Installation Requirements

600.5.3.1 Pipe Selection

All buried on-site piping in the recycled water system shall be purple PVC pipe with stenciling identifying it as recycled water in accordance with the AWWA Guidelines for the Distribution of Nonpotable Water. Stenciling shall include; CAUTION RECYCLED WATER - DO NOT DRINK; nominal pipe size; PVC-1120; pressure rating in pounds per square inch at 73 degrees; and ASTM designations such as 1785, 2241, 2672, or 3139. Stenciling shall be placed continuous on two sides of the pipe. All on-site recycled water piping shall be installed in accordance with the Uniform Plumbing Code and all other local governing codes, rules, and regulations.

For Non-Residential Sites use:

- PVC constant pressure main line piping, 2 inches and larger, shall be rubber-ring joint, PVC Class 160, or solvent weld joint, PVC Class 315.
- PVC constant pressure main line piping, 1-1/2 inches and smaller, shall be solvent weld joint, PVC Schedule 40.

For Residential Dual Plumbed Homes use:

- Irrigation Mainline: Schedule 40 PVC solvent weld purple pipe with bell ends.
- Irrigation Lateral Lines: Class 150 PVC solvent weld purple pipe with bell ends.

- Irrigation Sleeving: Schedule 40 PVC purple pipe.
- All potable water lines in landscapes shall be copper lines. Examples of potable water uses are a pool, fountain, or other uses not designated as acceptable for recycled water.

600.5.3.2 Pipe and Fittings

PVC plastic pipe fittings shall conform to the following:

- PVC plastic pipe fittings shall be installed below grade.

- All PVC plastic pipe fittings shall be rigid PVC virgin Type I, minimum Schedule 40, with working pressure no higher than that of the pipe. Sockets shall be tapered to conform to the outside diameter of the pipe, as recommended by the pipe manufacturer. All Schedule 40 fittings shall conform to ASTM D 2466. Schedule 80 fittings shall conform to ASTM D 2464 and D 2467.

- PVC fittings shall be Schedule 40 solvent weld and factory manufactured, or Schedule 40 with rubber-ring joint.

600.5.3.3 Depth of Piping

For on-site non-residential recycled water piping, the minimum depth from finished grade to top of pipe (minimum cover) shall be eighteen (18) inches. When crossing potable water mains, the recycled pipe shall be under the potable pipe.

600.5.3.4 Separation Requirements

See Section 400 and District Standard Plans W-20.

600.5.3.5 Warning Tape

1. General - Warning tapes shall be installed longitudinally above and centered on all pressurized mains (between the meter and the building or the irrigation control valve). The warning tape shall be installed continuous for the entire length of the pipe. All risers between the main line and control valves shall be installed with warning tape.

2. Recycled Water - Warning tape shall be purple plastic with black printing having the words "CAUTION: RECYCLED WATER LINE BURIED BELOW." See District Standard Specification 15151.

3. Potable Water - Warning tape shall be blue plastic with black printing having the words "CAUTION: DOMESTIC WATER LINE BURIED BELOW." See District Standard Specification 15151.

600.5.3.6 Sprinklers

Sprinklers shall be easily recognized as being used in a recycled water system. All sprinklers shall be purple in color or have purple snap-on caps for easy identification.

600.5.3.7 Quick-Couplers (Permitted for Non-Residential Sites Only)

Recycled Water - Quick-couplers may be used in recycled water systems and shall conform to the following:

A. Quick-couplers shall be constructed of brass with a purple snap-on cover and shall have a ¾ or 1-inch inlet. All recycled water quick-couplers shall be installed below grade in a purple round box designed for recycled water use.

B. The box cover shall have a warning with the following information: "RECYCLED WATER – DO NOT DRINK" in English and Spanish and shall be permanently stamped or molded into the cover. Also, the warning must have the international "Do Not Drink" symbol such as a glass of water with a slash through it. Locking covers may be required where accessible by the public.

Potable Water -

A. Quick-coupling valves used in potable water systems shall have a cover made of brass, metal, or yellow rubber or vinyl.

B. Quick-coupling valves intended for recycled water use are not to be used on potable water systems.

600.5.3.8 Warning Labels

Warning labels shall be installed on designated facilities, such as controller panels, water trucks, and temporary construction connections where designated by the District. The labels will notify the public that the system contains recycled water that is unsafe to drink. Warning labels shall be constructed of a purple weatherproof material with the warning permanently stamped or molded into the label, per District standard Specification 15151. The warning shall read: "RECYCLED WATER – DO NOT DRINK" in English and Spanish and include the international "Do Not Drink" symbol, such as a glass of water with a slash through it.

Irrigation controllers shall be labeled in English "ATTENTION – CONTROLLER UNIT FOR RECYCLED WATER." Attach inside controller cabinet door.

600.5.3.9 Valve Boxes

Valves, both above and below grade, shall be housed in an approved lockable purple valve box. A sign reading "CAUTION: RECYCLED WATER – DO NOT DRINK" shall be installed, as approved by the District. Other means of restricting public access may be required by the District.

All gate valves, manual control valves, electrical control valves, and pressure reducing valves for on-site non-residential recycled water systems shall be installed below grade in a purple valve box. Electrical and manual control valve boxes shall have a warning label permanently molded into or affixed onto the lid with rivets, bolts, etc.

600.5.3.10 Warning Tags

Tags shall be weatherproof plastic, 3" by 4", purple in color, with the words "WARNING - RECYCLED WATER - DO NOT DRINK" in English and Spanish, per District Standard Specification 15151.

All recycled water sprinkler control valves, pressure regulators, quick couplers, and isolation valves shall be tagged with purple warning tags.

One tag shall be attached to each appurtenance in one of the following manners:

1. Attach to valve stem directly with plastic tie wrap, or
2. Attach to solenoid wire directly with plastic tie wrap, or
3. Attach to the body of the relative appurtenance with a plastic tie wrap.

600.5.3.11 Signage

All areas where recycled water is used, shall be posted with conspicuous signs in a size no less than 8-inches high by 12-inches wide, that include the following wording: "RECYCLED WATER - DO NOT DRINK " in English and Spanish. Each sign shall also display the international “DO NOT DRINK” symbol, such as a glass of water with a slash through it.

600.5.4 Control of Runoff and Application Areas

On-site recycled water facilities shall be designed to prevent discharge or runoff onto areas not under control of the user.

The design of the on-site non-residential recycled water facilities shall provide for use during the periods of minimal access by the public. This time of day is as set forth in the On-Site Recycled Water User Plan. Consideration shall be given to allow a maximum dry out time before the design area will be used by the public.

Recycled water shall be applied at a rate that does not exceed the infiltration rate of the soil. Where varying soil types are present, the design of the recycled water facilities shall be compatible with the lowest infiltration rate present. Copies of the developer’s soils test report shall be submitted with the plan set for District review.

Spray heads shall be adjusted to eliminate overspray onto areas not under the control of the customer, i.e. pool decks, private patios, streets, and sidewalks.

600.5.5 Recycled Water System Design Guidelines for Front Yards – General Requirements

1. Recycled water service and domestic potable water service for each residential lot will be provided by the subdivision developer. The recycled water service is typically provided at the opposite lot end from the potable service.

2. Recycled water shall not be used for any other purpose except for irrigation. Recycled water lines shall not enter the house. Recycled water is prohibited for backyard irrigation.

3. The piping system for the recycled water irrigation system will be constructed and maintained to be easily differentiated from the potable water piping system. The recycled water system piping will be purple plastic pipe. See Recycled Water Irrigation System materials list for more information.

4. Drip irrigation systems are required for shrub plantings and some groundcover plantings. The use of drip systems within the dripline of the canopy of existing oak trees is required. This type of

irrigation system tends to be more water efficient and water conserving than other systems due to the slow delivery rate of water (low volume) via plastic tubing directly to the rootball of the plant material. Environmental factors such as evaporation and wind tend to have the least effect on this type of irrigation system. Physical maintenance of this type of system is usually higher. Additionally, drip irrigation systems contribute minimally to soil erosion problems on sloped planting areas.

5. It is recommended to install purple irrigation PVC sleeves beneath driveways, walkways or other paved areas. Install the necessary number of sleeves, properly sized, to accommodate the irrigation system mainline, lateral lines, and controller wiring.

6. Sprinkler heads and spray patterns shall be contained within the home lot property line and shall not overlap or overspray into the adjacent property. Adjust sprinkler heads and spray patterns to eliminate overspray onto adjacent hardscapes, patios, decks, pools, fences, etc.

7. Space and install sprinklers and turf rotors no more than 80% of the manufacturer's recommended radius listing for that particular head. Ensure head to head coverage of the spray pattern with no dry spots.

8. The maximum flow for each valve system shall not exceed 15 gallons per minute, nor shall operating flows exceed 15 gallons per minute at any one time.

9. For drip irrigation systems, install an in-line pressure- reducing valve down stream of the remote control valve. The pressure- reducing valve shall be placed below grade in a plastic valve box and adjusted to the proper operating pressure for the drip system.

10. For drip irrigation systems, install an in-line Wye filter down stream of the remote control valve and upstream of the pressure reducing valve. The filter shall be placed below grade in a plastic valve box. Install drip tubing a minimum of four inches below grade.

11. No backflow device is required on recycled water service.

12. A pressure reducing valve will be required by the District downstream of the recycled water meter below grade in a rectangular box of sufficient size to easily allow repair or replacement. Pressure reducing valve shall be pre-set at 40 psi.

13. Hose bibs and quick coupling valves are PROHIBITED on the recycled water systems serving residential front yards.

14. No white PVC piping will be allowed for recycled water irrigation system mainlines and laterals.

15. Overhead irrigation systems for turf will only be operated between the hours of 9:00 p.m. and 6:00 a.m. Drip irrigation systems will be allowed to be operated at anytime.

16. Monitor and maintain the system to minimize equipment and material failure. Broken sprinkler heads, leaks, unreliable valves, etc., should be repaired as soon as they become apparent.

17. Recycled water is not potable water and therefore not suitable for human consumption.

18. Recycled water is highly treated domestic wastewater and its clarity to the human eye is indistinguishable from domestic water. The standards imposed for treatment of recycled water quality are established by various governmental regulatory agencies, including the State of California Department of Health Services, California Code of Regulations, Title 22, and these standards may change from time to time.

19. Irrigate in a manner that will minimize runoff, pooling, and ponding. The application rate shall not exceed the infiltration rate of the soil. Timers will be adjusted so as to be compatible with the lowest soil infiltration rate present. This procedure may be facilitated by the efficient scheduling of the automatic control clocks (i.e., employing the repeat function to break up the total irrigation time into cycles that will promote maximum soil absorption). When using any type of irrigation system, care will be exercised by controlling the delivery rate of water so as not to overcome the soil's water absorption rate. Overwhelming the soil absorption rate may cause water run-off and soil erosion. Proper programming of the automatic irrigation controller, knowing the plant material's water needs, familiarity with the soil's water absorption characteristics and slope aspects are necessary for responsible water resource management and good irrigation practice.

20. All remote control valves shall be set below grade in an appropriate box. Anti-siphon control valves will NOT be allowed.

21. Educate all maintenance personnel, family members, and guests, on a continuous basis, of the presence of recycled water and that it is not approved for drinking purposes.

600.5.6 Potable Water System Design Guidelines – General Requirements

1. The potable water service and the recycled water service for each residential dual plumbed home will be provided by the homebuilder's underground contractor. See Section 400 for information regarding the District's regulations regarding cross connections.

2. The potable water system will be protected by an appropriate backflow prevention device at the potable water meter. An approved backflow prevention (BP) device is required on each residential potable water supply line, where a separate recycled water system will be used to irrigate the landscape. Assemblies will be installed downstream of, but immediately next to, the potable water meter and the pressure-reducing valve.

3. The BP device will be installed above grade and have a minimum clearance of twelve inches between the bottom of the assembly and the finished grade of the surrounding landscape or splash pad. Do not disturb the BP device or modify the grade around the assembly when landscaping the front yard. BP device that do not meet MCWD standards will be corrected at the owner's expense. Neither the owner nor their contractor may remove or modify the water meter or the BP device.

4. Warning tape shall be used on all constant pressure main line piping carrying potable water from the meter to the house. The tape shall start at the meter or pressure regulator, be visible in the valve box, and continue to where the pipe enters the house.

5. The water used within the residence and outside in the yard(s) through hose bibs will be potable water. All hose bibs shall be connected to the house.

6. Fill lines for pools and/or water features of any kind are prohibited on the recycled water system. These uses shall be connected to the potable water system. Copper pipe will be used for all potable lines. The location of the copper lines shall be indicated on the plans. The District requires the inspection of the installation prior to the covering of the pipe.

7. All pressure main line piping from the recycled water system shall be installed to maintain 10 feet minimum horizontal separation from all potable water piping. Where recycled and potable water pressure main line piping cross, the recycled water piping shall be installed below the potable water piping in a Class 200 purple-colored PVC sleeve which extends a minimum of 5 feet on either side of the potable water piping. Provide a minimum vertical clearance of 12 inches

600.6 INSPECTION REQUIREMENTS FOR ON-SITE RECYCLED WATER FACILITIES

600.6.1 General

The District will inspect the construction of on-site non-residential facilities and shall be notified two working days in advance of construction by the applicant, owner, or customer. The District Office shall be called at (831) 384-6131. In no case shall irrigation lines be backfilled before inspection by the District. If the residential dual plumbed on-site irrigation system is installed prior to plan approval and/or inspection, all or any portion of the system must be exposed and corrected as directed by the District in accordance with these standard specifications. Failure to comply will result in termination of service as provided for in the District Water Code.

Subsequent to plan approval, field conditions may dictate modifications to the on-site system either in material or in intended use. If directed by the District Inspector the owner, applicant, or customer shall perform all changes or modify the on-site system to bring the system or use into full compliance with these construction specifications and with the MCWD Water Code. If for any reason the system cannot be corrected or modified to the satisfaction of the District Inspector, the system will be subject to conversion to a potable water supply, as set forth herein.

At the start of construction of each house, MCWD inspectors will verify the following:

A. A backflow prevention device has been installed prior to any potable water use.
B. Water used during construction and for pipe testing is potable water and not recycled water.
C. Curb markings for potable and recycled water services are correct.

600.6.2 Documentation

Forms. All forms completed with regards to review and inspection will be kept on file at the MCWD offices for review by the Regional Water Quality Control Board or the Department of Health Services.

Landscape Record Drawings. MCWD will keep on file a copy of all landscape record drawings for both the front and back yards. The production houses front yard drawings, prepared by the homebuilder will be typical drawings that apply to many houses in the subdivision. Back yard drawings are prepared individually by homeowners or a landscape architect and therefore are individual to each house.

Inspections. MCWD staff will refer to previously completed forms as necessary when performing compliance inspections, cross connection tests, and inspections.

600.6.3 Testing of Backflow Prevention Devices

Backflow prevention assemblies require annual testing in accordance with the MCWD Water Code. See section 400.

600.6.4 Initial Cross Connection Test for Final Approval

If the on-site system is installed prior to plan approval and/or inspection, all or any portion of the system must be exposed and corrected as directed by the District in accordance with these standard specifications. Failure to comply will result in termination of service as provided for in Section 600.14 herein.

Notify in writing the state and county health agencies of the initial test date with intent that both agencies will attend. For the initial cross-connection test, recycled water will be used for the irrigation piping system. A cross connection shut down test form shall be completed (see Appendix 23). The procedures for the initial cross-connection test shall be as follows:

- Verify that the recycled water system is under pressure and operating normally. This is done by manually operating each valve and quick coupler attached to the recycled water system.

- Shut down the recycled water system at the meter service connection.

- Verify that the recycled water system does not have any pressure. This is done by opening a valve downstream of the recycled water connection to relieve pressure, allowing one hour of time to pass, closing the valve, then manually operating each valve and any quick couplers attached to the recycled water system.

- Verify that the potable water system to the lot is under pressure and operating normally. This step is done while the recycled water system is shut off at the meter. The test is accomplished by manually operating all fixtures being supplied by the potable meter, both interior and exterior of the home or buildings.

- Shut down the potable water system at the backflow. Open the recycled system at the meter connection.

- Verify that the recycled water to the lot is under pressure and operating normally.

- Verify that the potable system does not have any pressure. This is accomplished by opening a valve downstream of the potable water backflow to relieve pressure, closing the valve, then manually operating all fixtures on the interior and exterior of the house or building being supplied by the potable water meter.

- Open the potable water system at the backflow. The test is now complete.

- Perform shutdown test on potable and recycled water systems at least once every four years and at change of occupant (rental or sale). Test shall be performed as outlined in Cross Connection Shutdown Test form.

600.6.5 Cross Connection Actions

On suspicion of existence of a cross connection, repeat the shutdown test. If the results confirm a cross connection, then proceed with the following:

- Inform the homeowner and contact MCWD Staff.
- Instruct the homeowner not to drink the tap water in the house.
- Turn off the recycled water to the property at the meter.
- Expedite the testing of the water quality in the house as well as in the supply system in the street.
- Investigate the source of the cross connection and eliminate it.
- If disinfection of the house potable water supply is necessary, it should be expedited with the cooperation of the homeowner.
- MCWD and DHS will determine when it is safe for the homeowner to resume the safe use of the recycled and potable water.

600.6.6 Annual Cross Connection Test for Individual Residential Lots

Annual testing for cross connections will be conducted on the on-site recycled water system by MCWD staff. The state and county health agencies will be notified of the annual test date and again the subsequent outcome of the test(s). The annual cross connection test shall in no case be less than 60 minutes and may be longer if site situations pose complications. The procedures for the annual cross-connection test shall be as follows

1. Verify the recycled water system is under pressure and operating normally. This is done by manually operating a valve or quick coupler attached to the recycled water system.

2. Leaving the valve or quick coupler open and running while shutting down the recycled water meter at the service connection. The recycled water system will be drained and remain inactive for 60 minutes.

3. At the end of the 60 minute shut down period, verify that the pressure in the recycled water system has completely dissipated through the open valve or quick coupler. A cross-connection is detected if the pressure has not completely dissipated, and the valve at the service connection is not leaking.

4. Open the recycled water service connection if a cross-connection was not detected.

5. The potable water shall remain pressured at all times during the annual recycled water shut down.

600.6.7 Coverage Test

The owner, applicant, or customer is responsible for controlling overspray and runoff of new systems. To ensure the limitation of overspray and runoff is in accordance with the On-Site Recycled Water User Plan, an inspection of the completed on-site non-residential system by the District is required. When the sprinkler system is completed and the planting installed, the owner or owner's representative shall contact the District at (831) 384-6131 and arrange for a coverage test walk through. The owner or owner's representative must be in attendance and have persons capable of making system adjustments. If modifications to the system are required, other than minor adjustments, the owner will be notified in writing of the changes required. To avoid termination of service, the modifications must be made in a

timely manner. All modifications to the system are the responsibility of the owner, applicant, or customer and said owner, applicant, or customer shall pay all costs associated with such modifications.

600.6.8 Compliance Inspection and Testing

A. Testing and inspection of water systems in dual plumbed homes receiving recycled water will be in accordance with these procedures and the on-site Recycle Water User Plan. Random inspections may also occur. Complete Compliance Inspection Form (See Appendix 24)

B. Initially, before activation of recycled water service, and annually thereafter, MCWD will inspect both the exterior potable and full yard recycled water irrigation systems on the site. MCWD will perform a cross connection shutdown test initially, and thereafter, once every four years, and at changes of ownership. However, cross-connection tests may be performed by MCWD where, when, and if needed.

C. Backflow prevention assemblies shall be tested annually by the owner, with a copy of the results provided to the District.

D. For single-family residences receiving recycled water, the owner shall be responsible for providing access and cooperation to the District representative, to perform an annual cross-connection inspection or other system inspections that the District requires. This inspection shall include a visual check of the entire system to verify that no cross-connections have been made. The owner will be responsible for correcting any work, at their sole expense, which violates the District regulations. Complete Front Yard Design Review and Inspection Form (See Appendix 25) and the Back Yard Design Review and Inspection form (See Appendix 26).

E. No Recycled Water to Back Yard Irrigation. If a back yard irrigation system is installed, verify that it is connected to the potable water system through a backflow prevention device.

F. Homeowner Information. Provide the homeowner with literature regarding the design and construction and use guidelines of recycled water irrigation systems. (See Appendix 21)

G. Notice of Violation will be issued if the recycled water system does not comply with MCWD procedures. (See Appendix 27)

H. Inspect front and back yard annually for proper irrigation system and absence of cross connection.

600.6.9 District Acceptance

Upon completion of construction, final inspection by the District, submission of record drawings, approval of the On-Site Recycled Water User Plan, cross connection test, signing of a recycled water agreement, training, completion of the initial cross-connection test, and payment of any outstanding monies, the project shall be accepted by the District. The on-site Recycle Water Final Inspection Form will be completed. (See Appendix 27) At that time, service connection to the recycled water line may be made. The facilities shall be owned, operated, and maintained by the Owner.

600.6.10 Record Drawings

Record drawings shall be prepared and submitted to the District in accordance with the requirements of

Section 300.

600.6.11 Failure to Comply

Failure to comply with any or all of the standards herein is a violation of the District Code and will result in termination of service until the appropriate corrective steps have been taken. Non-compliance with these standards may result in fines and other remedies available to the District.

600.7 INTERIOR USE OF RECYCLED WATER IN NON-RESIDENTIAL BUILDINGS

This comprehensive section, Interior Use of Recycled Water in Non-Residential Buildings, is written to address the planning, design, construction, operation and maintenance procedures, and responsibilities relative to non-residential buildings equipped with dual-plumbed water systems (potable water and recycled water). The recycled water portion of these dual systems provides water for toilet and urinal flushing, and floor drain trap priming. All other water demands in these buildings will be served from the potable water system.

This section is written in five parts to cover the five phases of development for a dual-plumbed non-residential building. These phases are planning, design, construction, start-up, and ongoing operations/monitoring. This five parts address the following:

1. The responsibilities and procedures of the Marina Coast Water District (MCWD).

2. The involvement of the state and county health agencies and the cognizant building authority.

3. The responsibilities and procedures to be followed by building owners, developers, contractors, and building maintenance personnel.

4. MCWD Water Code for the use of recycled water.

It is the intent of this section to ensure the safe and effective use of recycled water, and thereby conserve potable water resources.

600.7.1 Planning Phase

The planning of dual-plumbed non-residential buildings is a combined effort of MCWD, the cognizant building department, state and county health agency representatives, local building developers, and engineers. The processing of a proposed non-residential building follows the steps listed below.

1. Conceptual Design Phase - During this phase of the project, the developer engages the services of their staff or outside consultant to determine the feasibility of constructing a building in the MCWD service area. An assessment of the available water, and sewer service is made, along with the establishment of the requirements for service. In addition, the associated costs of obtaining building department approval, permits, and development credits are determined.

2. Under the current District Water Code, recycled water must be used for non-potable demands in non-residential sites if it is available, or in the determination of MCWD will be available in the near future. Exterior non-potable demands include construction dust control, watering for soil compaction and landscape irrigation. Interior non-potable demands are toilet and urinal flushing,

and priming floor drain traps. Interior use of recycled water for non-potable demands must be approved by the local building department as well as the District.

3. Preliminary Design/EIR Phase - In conjunction with the preparation of preliminary design drawings for the project, the developer must secure development permits. This may involve a Conditional Use Permit (CUP) from the local regulatory agency, or an Environmental Impact Report (EIR) for the project. During the CUP or EIR process, a Notice of Preparation (NOP) is prepared and distributed to all affected agencies, including MCWD. Upon the determination that the proposed building is in an area currently being served recycled water, scheduled for conversion to recycled water, or master planned for recycled water, MCWD will respond back to the NOP that for the project to be supplied with an adequate water and sewer system, the building must be dual-plumbed. This response is then incorporated into the EIR or CUP as a condition of approval or required mitigation measure.

4. Design Phase - All recycled water dual distribution systems are designed in accordance with the Uniform Plumbing Code, the District Design Guidelines and the local building official's guidelines for non-potable water.

600.7.2 Design Phase

1. Recycled Water Use Specified - Recycled water supplied by MCWD, which complies with water quality requirements of the California Code of Regulations, Title 22, section 60307(a), may be used to supply toilets, urinals, and to prime floor drain sewer traps. Use is limited in these types of fixtures or facilities in non-residential buildings. Residential buildings are explicitly excluded from the list of approved uses. In all other uses and occupancies, potable water supply is required.

2. Determination to Use Recycled Water - Approval for the above uses in lieu of Uniform Plumbing Code requirements shall be considered and determined by MCWD (as set forth in MCWD's "Water Code for Water, Sewer, and Recycled Water Service") and the cognizant building authority (e.g., the City of Marina Administrative Authority) on a case-by-case basis. Ultimate use approval is reserved for the State Department of Health Services (DOHS) and the Monterey County Health Care Agency (MCHCA).

3. Design Criteria: Off-Site Recycled Water Facilities - Design of all off-site recycled water facilities shall be as set forth herein except as modified for specific on-site projects requiring approved engineers reports (See Appendix 22 for Design notes).

4. Off-Site Plan Check and Approval - Off-site recycled water facility design plans shall be reviewed and approved in accordance with the procedures outlined in MCWD's "Procedural Guidelines for the Construction of Water, Sewer, and Recycled Water Facilities," as last revised.

5. Design Criteria: On-Site Recycled Water Facilities - Design of all on-site recycled water facilities shall conform to the Uniform Plumbing Code as adopted by the responsible building authority and the following prohibitions and limitations:

    - The recycled water system shall be separate and independent of any potable water system.

    - Cross-connections between any potable water system and the on-site recycled water system are strictly forbidden.

6. On-Site Plan Check and Approval - The on-site recycled water facility construction plans shall be reviewed and approved in accordance with the procedures outlined in the Procedural Guidelines and General Design Requirements.

7. Service Agreement with MCWD - During MCWD's review of water utility plans for any development, the developer shall enter into a standard water service agreement with MCWD as set forth in MCWD's "Standard Agreement for the Construction of Water, Sewer, and Recycled Water Facilities," latest edition.

600.7.3 Construction Phase

1. Pre-Construction Conference - Before plumbing construction begins, the developer's contractor shall arrange a pre-construction conference at which will be present the developer's contractor's job superintendent, the plumbing contractor, and MCWD's On-Site Water Systems inspector. The purpose of this meeting will be to explain MCWD's inspection process, review MCWD's construction specifications, and discuss the construction schedule and any known circumstances that might affect job installation.

2. Inspection - The on-site recycled water and potable water systems shall be subject to inspection by MCWD and shall be left open and uncovered until approved by MCWD's On-Site Water Systems inspector, who should be contacted at MCWD's offices.

3. If any part of an on-site water system is to be installed and concealed within walls, ceilings, floors, or below grade prior to plan check approval and/or inspection, that part must be exposed for inspection approval by MCWD before closure. If any portion is completed without MCWD's inspection and approval, that portion not inspected will be re-exposed at the sole cost of the developer.

4. MCWD on-site inspection approval be secured subsequent to final approval of the water systems by the responsible building authority, and issuing of a final use approval.

5. Record Log - MCWD's Water Systems inspector will maintain a record log of all inspections for the building project. The record log will become a permanent part of MCWD's file for that project. The record log will consist of:

   A. Photographs - Photographs will be taken of the completed recycled water facilities on each floor of the building to document proper installation. Each photo will include a sign, which clearly indicates the name of the project, the number of the floor, and the date of the inspection. The developed photographs will be placed in clear plastic sleeves and kept in MCWD's project file.

   B. Inspection Reports - A written record of each inspection will be kept on a special, triplicate, carbonless-transfer inspection report form prepared by MCWD. All original copies will become a part of MCWD's project file. Copies of all inspection reports will be provided to the contractor's job superintendent, the various health agencies, and the responsible building authority, as requested.

6. Construction Specifications - Construction specifications for all on-site building recycled water systems shall be as set forth in Section 600.17, Appendix Section C, entitled, "Information Required on Plans."

600.7.4 Start-Up Phase

1. Initial Water Service - The on-site building recycled water system shall initially be filled, pressure tested, and operated with potable water.

2. Cross-Connection Testing - The following testing sequence will be followed for buildings that will have the internal recycled water systems connected to MCWD's recycled water supply before the building is occupied, and under certain subsequent circumstances.

   Before the building can be occupied, and before the responsible building authority will issue final use approval, the recycled water system must pass a thorough a cross-connection test. This same testing procedure will be used during the building's subsequent operation and maintenance under circumstances discussed in Part 5, Section A. The cross-connection test will be conducted under the supervision of an AWWA-certified Cross-Connection Control Program Specialist from the Water Systems Management Section of MCWD. The test will be performed in the presence of representatives of DOHS and MCHCA, representatives of the responsible building authority, and representatives of the building owner. MCWD will coordinate the scheduling of the test. Procedures for the cross-connection test shall be as set forth below:

   A. The recycled water to the building will be shut off at the recycled water meter. The recycled water riser will be drained, and the recycled water system will remain de-activated for a period of 24 hours.

   B. At the end of the 24-hour shutdown period, test all recycled and potable water fixtures, floor-by-floor, for cross-connection by operating each fixture and checking for flow or no flow in all restrooms, and where there are recycled and potable water supplied fixtures.

   C. If there is no flow detected in any of the fixtures (indicating no cross connection), reactivate the recycled water riser.

   D. The potable water to the building will be shut off at the back-flow device. The potable water riser will be drained, and the potable water system will remain de-activated for a period of 24 hours.

   E. At the end of the 24-hour shutdown period, test all potable and recycled water fixtures, floor-by-floor, for cross connection by operating each fixture and checking for flow or no flow in all restrooms, and where there are potable and recycled water supplied fixtures.

   F. If there is no flow detected in any of the fixtures (indicating no cross connection), reactivate the potable water riser.

   G. For new installations only, disconnect the recycled water riser from the potable water pipeline, remove the reduced-pressure principle backflow prevention assembly (RPPA) at the potable water connection, and connect the recycled water riser to MCWD's recycled water supply.

MCWD will provide written verification of successful test results to the state and county health agencies and the cognizant building authority.

3. Response to Confirmed Cross Connection - In the event that a cross connection is discovered, the following procedure will be immediately activated:

   A. Shut down the recycled water supply to the building at the meter and drain the recycled water riser.

   B. Shut down potable water to the building at the meter.

   C. Notify both the state and county health agencies, followed by a written notice within 24 hours. This notice will include an explanation of the nature of the cross connection, the date and time discovered, and the steps that were taken to mitigate the cross connection.

   D. Uncover and disconnect the cross connection.

   E. Shock the potable water system with 50 ppm of chlorine for 24 hours.

   F. Flush the potable system after 24 hours and perform standard bacteriological testing. If test results are acceptable, recharge the potable water system in accordance with MCWD standards.

   G. Re-test the building following the procedures listed in Section B above.

   H. Obtain final approval from the state and county health agencies and the building authority and put the recycled water supply back into service.

4. Final Approval and Activation of Recycled Water Service - When all requirements listed below have been met, the on-site building recycled water system will then be filled and placed into operation with recycled water under the supervision of representatives of MCWD's Water Systems Section.

   A. Both the potable and recycled on-site systems must have received plan approval, and must have been constructed and passed inspection as set forth in the provisions of this section.

   B. Both the potable and recycled on-site systems must have passed the initial cross-connection test.

   C. Final approval to use recycled water must be received from DOHS or MCHCA.

   D. After health agency approvals, all signs must be posted in restrooms, equipment rooms, and plumber's closets, and all recycled water control valves and appurtenances must be sealed and/or tagged as set forth in this section. Signs, seals, and tags shall be installed under the supervision of MCWD.

E. Before recycled water is put into service, the MCWD inspector shall meet with the developer's/owner's designated user supervisor for building maintenance to discuss operating procedures and responsibilities.

600.7.5 Operation and Maintenance

1. Inspection and Testing Frequencies - Ongoing operation and maintenance of non-residential buildings with interior use of recycled water includes both cross-connection control inspection and testing. Inspections will occur annually, with procedures as described below. Testing will occur as often as annually, but no less often than once every four years upon approval by state and local health agencies, with procedures as described below.

   Determination of cross-connection control testing frequency will be based on a combination of factors: particular facility construction and recycled water use features, established facility inspection and testing performance history, cooperation by on-site staff and/or representatives, and ongoing evaluation by MCWD staff in concert with state health agency representatives. The initial testing frequency will not be less than annual. Subsequent lower or higher frequencies will be based on the above-noted factors and mutually declared and documented by MCWD staff and health agency representatives at the close of the previous testing event.

   Water system de-activation duration during testing will depend generally on testing frequency. For annual testing frequencies, a 1-hour water system de-activation will generally be adequate. For testing frequencies of greater than one year, a 24-hour water system de-activation will generally be adequate. Alternative water system de-activation duration will be used only by mutual consent of MCWD staff and health agency representatives.

2. Cross-Connection Testing - All buildings with interior recycled water systems will undergo a cross-connection test in accordance with the determinations of Section A above. Prior to commencing the cross-connection test, a dual system inspection will be conducted by MCWD's Cross-Connection Control inspector and the cognizant building authority in the presence of representatives of the state health agencies and representatives of the building owner, as follows:

   A. Check meter location of the recycled water and potable water systems; verify that no modifications have been made, or cross connections are visible.

   B. Check the potable water RPBP.

   C. Check all pumps and equipment, equipment room signs, and exposed piping in the equipment room.

   D. Check all recycled water control valves to make sure that seals are still in place and intact.

   E. Check all valve control door signs to verify that none has been removed.

   F. Check all restroom entrance signs to make sure they are in place and visible.

   G. Check all plumbers' closets and verify that all signs are in place.

For those circumstances requiring cross-connection testing with a 24-hour system de-activation, the procedures of Section 600 will be followed. For those circumstances requiring a 1-hour de-activation, the following procedures will be used:

The following testing sequence will be followed for buildings that will have the internal recycled water systems connected to MCWD's recycled water supply after the building is occupied, and under certain subsequent circumstances.

After the building can be occupied, but before the internal recycled water system can be connected to MCWD's recycled water supply, the recycled water system must pass a thorough a cross-connection test. Buildings that have been previously approved for internal recycled water use, and have been tested for cross connections will also use this sequence, under circumstances discussed in Section A above. All testing will be conducted under the supervision of an AWWA-certified Cross-Connection Control Program Specialist from the Water Quality Department's Cross-Connection Control Group of MCWD. The test will be performed in the presence of representatives of DOHS and MCWD, representatives of the responsible building authority, and representatives of the building owner. MCWD will coordinate the scheduling of the test. Procedures for the cross-connection test shall be as set forth below:

A. The recycled water to the building will be shut off at the recycled water meter. The recycled water riser will be drained, and the recycled water system will remain de-activated for a period of 1 hour.

B. At the end of the 1-hour shutdown period, test all recycled and potable water fixtures, floor-by-floor, for cross connection by operating each fixture and checking for flow or no flow in all restrooms, and where there are recycled and potable water supplied fixtures.

C. If there is no flow detected in any of the fixtures (indicating no cross connection), reactivate the recycled water riser.

D. The potable water to the building will be shut off at the back-flow device. The potable water riser will be drained, and the potable water system will remain de-activated for a period of 1 hour.

E. At the end of the 1-hour shutdown period, test all potable and recycled water fixtures, floor-by-floor, for cross connection by operating each fixture and checking for flow or no flow in all restrooms, and where there are potable and recycled water supplied fixtures.

F. If there is no flow detected in any of the fixtures (indicating no cross connection), reactivate the potable water riser.

G. For new installations only, disconnect the recycled water riser from the potable water pipeline, remove the reduced pressure principle backflow prevention assembly (RPPA) at the potable water connection, and connect the recycled water riser to MCWD's recycled water supply.

MCWD will provide written verification of successful test results to the state and county health agencies and the building authority. This verification will be accompanied by the

declaration, mutually agreed among MCWD and the health agencies, of subsequent testing frequency for the subject site.

3. Emergency Response to Confirmed Cross Connection - In the event that a cross connection is discovered, the procedures detailed in section 600.14.4, START-UP PHASE, Section B, will be immediately followed.

4. Cross-Connection Inspection - In addition to the detailed cross-connection control testing described herein, MCWD's Cross-Connection Control Specialists will perform annual inspection of all buildings with dual-plumbed systems. This will consist of at a minimum, visual inspection of pump rooms, all bathrooms, signs, tags, etc. Other elements of the annual inspection may consist of, but are not necessarily limited to, the following specific items:

   A. Run random water sample tests (laboratory samples) on recycled water and potable water.

   B. Check walls for visible repairs that might indicate that plumbing changes may have occurred.

   C. Check plumber's closets to see if valve seals have been broken.

   D. Check with the user supervisor to ask whether any routine operations or maintenance work has been performed on plumbing systems.

   MCWD personnel will keep a record of all inspections, which will become a part of MCWD's project file for each related building. As a general guideline, MCWD will randomly select and inspect 10 percent of the water related facilities within a building and will consider the results.

5. User Supervisor Responsibilities - Each building provided with recycled water for the flushing of toilets, urinals, and floor drain trap priming shall have a user supervisor designated by the owner/developer to maintain strict control over interior recycled water usage. MCWD will provide the name of this person to the responsible building authority and to the state and county health agencies. The user supervisor is responsible for the following:

   A. Maintaining strict control over the building's water systems.

   B. Controlling cross connections.

   C. Immediately informing MCWD's Engineering Department at (831) 384-6131 of any water system failures or emergency shut downs.

   D. Informing MCWD's Engineering Department in advance of scheduled shut-downs for system maintenance.

   E. Informing and providing MCWD's Engineering Department with plans for proposed changes to the plumbing systems.

6. Non-Compliance - Failure to comply with the published "MCWD Water Code," and with the provisions of SECTION 600.17, shall constitute the basis for terminating recycled water service to the building for all approved uses. The specific procedures and conditions for the termination

of recycled water service are contained in the service agreement, and in the "MCWD Water Code."

7. MCWD Records - MCWD will maintain a database and written records of all dual-plumbed non-residential buildings in the MCWD service area in order to document, track, and schedule all tests. Reports will be provided to the state and county health agencies and the responsible building authority for all dual-plumbed facilities in the MCWD service area.

END OF SECTION