CUSTOMER GUIDELINES
FOR RECYCLED WATER USE

Revised October 2009
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## Abbreviations and Glossary
What is recycled water?

Recycled water is an alternative water source that can safely replace potable water in a variety of uses. Recycled water has been used globally for decades for: landscape irrigation, irrigation of food crops, and various commercial and industrial uses. Using recycled water significantly reduces demands on the potable water supply, conserving this valuable resource.

Recycled water has a number of uses that have been approved by the California State Department of Health (DPH), but it is not approved for drinking. As such, the City works closely with recycled water customers to ensure that a customer’s recycled water system is designed, constructed, operated and maintained for safe use.

Recycled water is produced from wastewater that undergoes a high level of additional treatment, including disinfection, transforming it to a quality approved for the uses noted below. In this set of Guidelines, “Recycled Water” is wastewater that has been treated to the highest classification of recycled water as defined by the State Department of Public Health—disinfected tertiary recycled water.

Redwood City’s recycled water is of the quality approved by DPH for use in:

- Landscape irrigation
- Flushing toilets and urinals
- Water Features (fountains, running streams, etc.)
- Wash-down
- Cooling and air conditioning
- Commercial laundry
- Car washing
- Construction
- Dust control on streets, sidewalks and walkways
- Backfill consolidation
- Soil compaction
- Mixing concrete
- Fire fighting (installed fire control systems and/or fire hydrants)

Prior to signing up to receive recycled water, prospective customers should discuss their intended recycled water applications with the City and understand the physical (piping changes) and possible chemical changes (processes adjustments) to be made to a retrofit system. Additionally, for certain applications Customers may want to consider the need for on-site storage or a back-up supply if processes demand a high volume of water in a short duration of time. These cases should be thoroughly discussed with the City prior to signing up for recycled water.
How is recycled water produced?

In Redwood City, recycled water originates at the South Bayside System Authority (SBSA) wastewater treatment plant in Redwood City. Treated wastewater effluent, otherwise discharged into the San Francisco Bay, undergoes additional filtration and disinfection to become disinfected tertiary recycled water.

The treatment process generally consists of:

**Primary Treatment:** Removal of organic and inorganic solids by settling or flotation. Primary treatment separates suspended solids and greases from the wastewater.

**Secondary Treatment:** Biological process utilizing bacteria to remove dissolved organic matter from wastewater. The microorganisms use organic matter from sewage as their food supply. After the biological treatment, the wastewater is clarified, filtered and disinfected before discharge to the Bay.

**Tertiary Treatment:** Polishing process utilizing additional filtration and more chemicals for disinfection to kill viruses, bacteria, and other organisms.

How can I get recycled water?

It’s simple; the first step is to file an application for recycled water service with the City. Representatives from eligible sites will be contacted by the City. Additionally, interested parties may contact the City to receive Project information and indicate their interest in receiving recycled water. The City will set up initial meeting(s) with the interested party to familiarize the potential customer with recycled water, answer any questions, and collect site information. City representatives will leave Project information and a service application with the potential customer to begin the process.
Customers using recycled water for commercial and industrial uses will be responsible for design and construction of the retrofit. City staff will work closely with the Customer throughout design and construction periods. And as with any public utility, experienced City staff will continue to be available to assist customers after connection to the recycled water system.

**What assistance can I expect from the City?**

From the time that a potential recycled water customer is first contacted by the City about recycled water service, through connection, and continuing for as long as he or she is a customer, the City will provide high-quality information, training, and technical assistance. The City and its team are happy to address any questions associated with the use of recycled water. The City is fully committed to working closely with customers and supporting them in the successful and beneficial use of recycled water.

**What are My Responsibilities as a Customer?**

As a recycled water customer, your overall number one responsibility is to use recycled water *responsibly*! As a recycled water customer, you are responsible for the safe and proper use of recycled water on the site, and are accountable for operating and maintaining the distribution pipelines and appurtenances from the downstream end of the meter box. These Customer Guidelines provide the necessary information for the safe use and maintenance of your recycled water system.

**What are the City’s Responsibilities?**

In addition to the City’s commitment to working closely with the Customer during conversion of a site to recycled water, the City has a responsibility to enforce the safe and proper use of recycled water for protection of the public water supply and public health. If there is a violation of the Guidelines, whether accidental or intentional, the City will work with the Customer to ensure that the problem is promptly rectified.

The City maintains records of all warnings, violations, and correspondence. The City reserves the right to take all action necessary to ensure compliance with these Guidelines as noted in the Terms & Conditions of the Customer’s Application for Recycled Water Service.

**What’s in these Guidelines?**

The intent of these Guidelines is to provide the Customer and Site Supervisor with guidance for proper design, construction and operation of their on-site recycled water facilities for their intended recycled water application.

These Customer Guidelines provide Customers with information on:

- Understanding what is recycled water and how it is produced
- Customer responsibilities
- City responsibilities
- Design, installation, and operation requirements
Why is there such a complicated set of Guidelines?

When used properly and for its intended uses, recycled water is safe. These Guidelines provide the requirements for design, construction, and operation of a recycled water system for the safe use of recycled water. The Guidelines incorporate the State requirements for recycled water use (California Code of Regulations (CCR), Titles 17 and 22) intended to minimize any potential risk associated with recycled water. Regulatory guidelines are enforced by the State Department of Public Health and the Regional Water Quality Control Board (RWQCB). These Customer Guidelines provide the Customer with an overview of the regulatory requirements for proper design and operation of a safe recycled water system.
Site Retrofit

Landscape irrigation retrofit customers will work with the City as the City develops the site retrofit plans in accordance with these Guidelines and applicable requirements of Titles 22 and 17. Commercial and industrial customers are responsible for designing and retrofitting their site to conform to the design requirements described in these Guidelines, and with the applicable requirements of Titles 22 and 17.

These procedures provide direction for landscape irrigation, commercial and industrial retrofit sites. Newly designed or redesigned sites that require a building permit fall under separate City permitting requirements and procedures.

Off-Site Facilities

The City is responsible for all facilities associated with the delivery of recycled water to a site and to the Recycled Water Customer meter. These facilities are owned, operated and maintained by the City and include all recycled water transmission lines and related appurtenances.

On-Site Facilities

On-site facilities are owned, operated and maintained by the Recycled Water Customer. On-site facilities include all piping and related appurtenances downstream of the Recycled Water meter. These Guidelines pertain to the on-site facilities.

Dual Plumbed System

A dual plumbed system refers to a building that utilizes both potable and recycled water systems to serve interior fixtures.

Landscape Irrigation Conversion Process

Retrofit design at landscape irrigation sites will be completed by the City. The design must be in compliance with Titles 17 and 22 and with these Guidelines. All designs must be reviewed and approved by the City and DPH prior to construction. Once the City has approved the plans and specifications, the City will expedite DPH review and approval of plans.

Understanding the challenges at a site will require that the City conduct a preliminary site evaluation, review design drawings and conduct the final cross connection test by
certified personnel. Before construction begins the City and DPH must approve all plans, standard details and specifications for each site. Below are the detailed steps necessary for performing site retrofit work.

The steps required to complete the retrofit process are:

☑️ The Customer’s designate Site Supervisor must attend the Site Supervisor Training workshop before connection to the recycled water system.

☑️ The City (with the assistance of the Customer) develops Site Retrofit Plans and submits them to DPH for review and approval. Plans shall include scope of work, points-of-connection (existing meter or new meter locations), standard details, and cost estimates.

☑️ City and DPH review the plans for conformance with state regulations and City standards.

☑️ City gives final approval to Retrofit Plan.

☑️ An AWWA-certified cross-connection control specialist performs a cross connection test on the site.

☑️ The City issues a call for bids and selects lowest responsible bidder.

☑️ The Contractor begins constructing the piping necessary to convert the existing irrigation system to recycled water per approved plans.

☑️ City inspectors review system during and after construction to determine compliance with the plan. Outstanding items and issues are compiled into a close-out checklist.

☑️ The Contractor submits a completed copy of the close-out checklist to City.

☑️ The City re-inspects as necessary and signs off satisfactorily completed work. This inspection will observe the system in operation in its final configuration looking for overspray, ponding and coverage.

☑️ Contractor submits one set of 11” x 17” “as-built” drawings and one electronic copy in AutoCad format to City.

☑️ City coordinates meter installation with Customer.

☑️ The City converts the site from potable to recycled water. The City coordinates and inspects this switchover including a cross-connection test by AWWA-certified personnel.
Commercial and Industrial Systems Conversion Process

For commercial and industrial applications, the Customer is responsible for design and construction of the retrofit. The design must be in compliance with Titles 17 and 22 and with these Guidelines. All designs must be reviewed and approved by the City and DPH prior to construction. Once the City has approved the plans and specifications, the City will expedite DPH review and approval of plans.

Understanding the challenges at a site will require that the City conduct a preliminary site evaluation, review design drawings and conduct the final cross connection test by certified personnel. Below are the detailed steps necessary for performing site retrofit work in commercial and industrial areas interested in utilizing recycled water.

Before construction begins the City and DPH must approve all plans, standard details and specifications for each site. To receive approval, designs must meet all applicable requirements for recycled water systems and be capable of operating in accordance with these Customer Guidelines. Customers are responsible for meeting all operating requirements including those not shown on approved plans.

The steps required to complete the retrofit process are:

✔ Submit to the City a proposed written description of the intended recycled water use.
✔ Hire appropriate professionals to prepare retrofit plans.
✔ Obtain a plumbing permit from the City.
✔ Submit retrofit plans to City for review and approval.
✔ The Site Supervisor must attend workshop before connection to the recycled water system.
✔ Revise plans as noted by City and re-submit plans to the City for final review and approval.
✔ Coordinate for either qualified in-house staff or an outside contractor to retrofit site per the approved plans.
✔ Notify City of planned construction schedule at least two (2) weeks prior to the start of construction. The City will arrange to have an inspector periodically inspect the construction. City inspectors review system during and after construction to confirm compliance with the plans. Outstanding items and issues are compiled into a close-out checklist.

✔ Coordinate meter installation with the City.
✔ Submit completed close-out checklist to the City.
✔ City conducts final inspection and test. The City re-inspects as necessary and signs off satisfactorily completed work. This inspection will observe the system in operation in its final configuration looking for overspray, ponding and coverage and the location of signage and tags.
✔ City coordinates test of any new backflow prevention device that is installed.
✔ City coordinates final cross connection shut-down test. The test must be performed by a certified Cross-Connection Control Specialist. The City will work
closely with the Customer to schedule a time for the shut-down test so as to minimize disruption to the occupants of the facility.

☑ Submit one set of 11" x 17" “As-Built” drawings and one electronic copy in AutoCad format to City.
Purpose

For protection of public health, recycled water systems must be completely separated from the potable water system. A cross connection is an illegal connection between a potable water system with a recycled water system. Cross connections are never allowed. The following design, construction and system identification requirements are intended to minimize the potential for cross connections.

Design Requirements

Off-Site Facilities

All recycled water facilities upstream of the recycled water meter are the property and responsibility of the City. These facilities include all recycled water transmission line and appurtenances required to deliver recycled water up to the location of the meter (normally at the edge of public rights-of-way).

On-Site Facilities

On-Site Facilities are all piping and appurtenances located downstream of the recycled water meter. All on-site facilities are owned, operated, and maintained by the Customer. The following design and identification requirements are for on-site facilities.

Existing Pipe Systems

Existing buried pipe in irrigation systems converted from potable to recycled water is exempt from meeting the pipe identification and separation requirements specified below. However, any new pipe added to the existing buried pipe must meet the identification and separation requirements. Any existing buried pipe that is uncovered during the retrofit process must be marked in accordance with these guidelines to the extent feasible.

Pipe Depth and Separation Requirements for New Buried Pipe

Pipe Depth

The minimum depth of cover from finished grade to top of pipe for on-site recycled water pipeline shall be 24 inches.

Horizontal Pipe Separation

For new construction, a horizontal separation maintained at 10 feet between buried recycled and potable water lines is preferred. Where this separation is not feasible, either the potable pipe or the recycled water pipe must be sleeved. A horizontal separation of less than four feet is not permitted.
**Vertical Pipe Separation for Retrofit Sites**

Recycled water pipes must be at least one foot below potable water pipelines. Recycled water pipe less than one foot below or less than one foot above a potable water pipeline is not permitted. Recycled water lines installed above a potable water line must be at least one foot above the potable water line, and the recycled water line must be sleeved a minimum of 10 feet on either side of the potable water pipe.

**Pressure**

Pressure requirements vary from site to site. The Customer should consult with the City to determine the recycled water pressure that will be delivered to the specific site. The Customer should be familiar with the site’s pressure requirements when designing the on-site facilities. The design should include the appropriate appurtenances to provide adequate pressure to the site. For instance, if a site requires less pressure than that being delivered, the Customer should include a pressure reducing valve downstream of the recycled water meter. If a higher pressure than that being delivered is required, the Customer should provide booster pumping downstream of the recycled water meter. Booster pressure applied on-site must first be approved by the City.

**Hose Bibs**

Hose bibs are not permitted on recycled water systems. Instead of hose bibs, quick couplers approved for recycled water should be used. Quick couplers must be tagged with the appropriate recycled water signage.

**Appurtenances**

The recycled water system and the potable water system within the building must be provided with the required appurtenances (valves, air vacuum relief valves etc.) to allow for deactivation or drainage as required for cross connection testing.

**Valves**

**Quick Coupling Valves**

New quick coupling valves, made specifically for recycled water use, shall be 3/4-inch or 1-inch nominal size and of brass construction with a normal working pressure of 150 PSI. The covers on all new quick coupling valves must be permanently attached and made of purple rubber or vinyl with the words “RECYCLED WATER” imprinted on the cover, and must be provided with a lock. To prevent unauthorized use, the valve must be operated only with a special coupler key for opening and closing the valve. New quick coupling valves must be installed approximately 12 inches from walks, curbs, headboards or paved areas. All new and existing quick coupling valves must be identified with an identification tag and installed in a marked valve box.

**Gate Valves**

New gate valves must be installed in a marked valve box with crushed rock in the base and a notification tag on the valve operator.
Backflow Prevention

Recycled water shall not enter into the potable water system under any circumstances. The purpose of a backflow prevention device is to prevent water from flowing back into the distribution system. All domestic water lines are required to have a Reduced Pressure Principle Backflow Assemblies installed at the domestic meter feeding into a recycled water site and labeled with a blue tag to identify the device as belonging to the potable system.

To protect the quality of the recycled water in the distribution system, the City may require a backflow prevention device be installed downstream of the recycled water meter, or at a specific location on the site where a specific activity occurs that could impact the quality of the recycled water in the distribution system. For example, a backflow prevention device is required where chemical use or pipe configurations may affect recycled water quality.

The Customer should consult with the City during the design phase to identify the necessity of a backflow prevention device on the recycled water system. The location of backflow prevention devices should be indicated on the plans, along with the size, make and model. All backflow prevention devices must be of a make and model approved by the City. Backflow prevention devices must be checked annually by a certified backflow prevention assembly tester. Refer to Chapter 4 of these Guidelines for additional information on backflow device testing.

On-Site Back-up Potable Water Source
Some recycled water applications may require an on-site back-up water source. Consult with the City if a back-up water source is required. All potable water back-up sources must be approved by the City and must be equipped with an air gap.

Requirements for Use in Cooling Systems
Where recycled water is used for industrial or commercial cooling and a cooling tower or other facility that creates a mist that could come into contact with employees or members of the public, a drift eliminator must be used whenever the cooling system is in operation. Additionally, a chlorine or biocide must be used.

Runoff, Ponding and Overspray
Design and operate systems to minimize runoff outside of the approved use area, ponding outside of or within the approved use area, and overspray outside of the use area.

Protection of Drinking Water Fountains and Designated Outdoor Eating Areas
Drinking water fountains and designated outdoor eating areas should be protected from recycled water overspray and runoff. These facilities should be shown on the retrofit plans.
System Identification

It is important that all recycled water equipment and appurtenances be identified as conveying recycled water and that the water is not for drinking. Clearly identifying recycled water pipes and appurtenances, as well as other pipelines located near recycled water lines, will reduce the risk of mistakenly connecting a recycled water pipe to a non-recycled water pipe.

Potable Water Piping Identification

Above Grade Potable Water Piping

Above-grade potable water pipelines must be labeled and color-coded blue to differentiate potable water pipelines from recycled and non-potable water pipelines. Potable water pipelines may be wrapped with blue identification tape having the words “POTABLE WATER” visible in contrasting white letters. Above-grade non-potable water pipelines must be appropriately labeled and color coded yellow to differentiate non-potable water lines from recycled water and potable water lines. Non-potable water lines may be wrapped with yellow identification tape having the words “NON-POTABLE WATER -- DO NOT DRINK” visible in contrasting letters.

Exposed valve boxes, vaults, quick coupling valves, outlets and related appurtenance must be color-coded, labeled or tagged, to differentiate recycled water from potable water (that is, “CAUTION – RECYCLED WATER -- DO NOT DRINK” in black or white contrasting lettering on a purple background, or “POTABLE WATER” in white lettering on a blue background or “NON-POTABLE WATER -- DO NOT DRINK” in contrasting lettering on a yellow background). Tags must be identified with the appropriate wording on both sides. Tags identifying recycled water must have both the appropriate wording and the “Do Not Drink” symbol.

Buried Potable Water Piping

New Pipes: All new buried potable lines must be identified by continuous lettering on 3-inch minimum width blue tape with 1-inch white lettering bearing the wording “POTABLE WATER” permanently affixed at 10 foot intervals atop all horizontal piping, laterals and mains. Identification tape must extend to all valve boxes, vaults and exposed piping.

Identification tape is not necessary for extruded blue-colored PVC with continuous wording “POTABLE WATER” printed in contrasting lettering on opposite sides of the pipe.

Existing Pipes: Existing piping need not be marked unless exposed during construction or maintenance. The exposed section of pipe should be appropriately marked as “POTABLE WATER” to the extent feasible.
Recycled Water Piping Identification

Above-Grade Recycled Water Piping
All above-grade recycled water pipelines must be appropriately labeled and color coded purple to differentiate recycled water pipelines from potable and non-potable water pipelines. If purple pipe is not used, recycled water pipelines may be wrapped with purple warning tape having the words “CAUTION -- RECYCLED WATER” visible in contrasting black letters.

Flexible conduits or hoses must be clearly labeled “CAUTION -- RECYCLED WATER” with each adapter or fitting painted purple.

Recycled water piping and fittings, newly installed or existing, must be identified by the application of Mylar tape with wording identifying the pipe as recycled-water piping.

Buried Recycled Water Piping

New Pipes: All new recycled water piping must be purple colored and continuously marked with the wording “RECYCLED WATER – DO NOT DRINK” on opposite sides of the pipe. Tape that is at least 3-inches in width and runs continuously along the length of the pipe containing the words “RECYCLED WATER – DO NOT DRINK” is an acceptable alternative to printed pipe. The letters must be at least 1-inch in height and either black or white contrasting lettering. The tape must be permanently secured to the top of all pipes, mains and laterals.

Existing Pipes: Existing piping need not be marked unless exposed during construction or maintenance. The exposed section of pipe should be marked as “RECYCLED WATER – DO NOT DRINK” to the extent feasible.

Purple Wrapping Tape Specifications
Where it is not feasible to use purple pipe, exposed recycled water pipes should be wrapped with purple tape. Wrapping should be as follows:

- Tape shall be fabricated of polyvinyl chloride with a synthetic rubber adhesive and a clear polypropylene protective coating or approved equal.

- Wrapping tape shall have a minimum nominal thickness of five ten-thousandths (0.0005) inch and a minimum width of two 2 inches.

- Tape must be purple in color and shall be imprinted in nominal 1/2 inch high black, uppercase letters, with the words “CAUTION: RECYCLED WATER, DO NOT DRINK”.

- The lettering shall be imprinted in two 2 parallel lines, such that after wrapping the pipe with 1/2 width overlap, 1 full line of text shall be visible.
Wrapping tape is not required for buried PVC pipe manufactured with purple color integral to the plastic and marked on opposite sides to read “CAUTION: RECYCLED WATER, DO NOT DRINK” in intervals not to exceed three 3 feet.

**Appurtenances Identification**

All recycled water appurtenances must be identified with tags or labels as belonging to the recycled water system. Recycled water tags or labels must have a purple background with black lettering stating “RECYCLED WATER -- DO NOT DRINK,” and a “Do Not Drink” symbol.

Where a potable water appurtenance is located near a recycled water appurtenance, the potable water appurtenance should be tagged or labeled as part of the potable water system. Labels must have a blue background with “POTABLE WATER” in white lettering.

Examples of appurtenances that must be identified are:

- Valves (including air/vacuum relief valves, pressure reducing valves, pump control valves, etc.) See below for specific valve identification requirements
- Pumps
- Pressure regulators
- Flow meters
- Quick couplers
- Strainers
- Other related components (i.e. trap primers, shock arresters)

**Valves**

All valves must have an identification tag on the valve operator. Additionally quick coupling valves must also be installed in a valve box with the valve box cover imprinted with the words “RECYCLED WATER”.

**Valves and Mechanical Equipment**

- All valves, except fixture supply control valves, shall be equipped with a locking feature.
- All mechanical equipment, which is appurtenant to the recycled water system, shall be painted purple to match the wrapping tape.

**Valve Seals**

Seal each valve or appurtenance after the reclaimed system has been approved, and placed into operation. These seals shall either be a crimped lead wire seal, or a plastic break-away seal which, if broken after system approval, shall be deemed conclusive evidence that the reclaimed water system has been accessed. The seals should be purple with the words “RECYCLED WATER”.

Design, Construction and & System Identification

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Storage Tanks and Impoundments

All storage tanks, either stationary or portable, must be structurally sound and free from leaks. Each tank must be conspicuously marked with signs with the words “RECYCLED WATER -- DO NOT DRINK” in black letters 2-inches high on a purple background. The “Do Not Drink” symbol should be present on all recycled water storage tanks.

Impoundments (lakes) that receive recycled water are classified as “unrestricted” (swimming and body contact allowed), “restricted” (no swimming or body contact, but non-contact activities such as fishing and boating allowed) or “ornamental” (no recreational activities allowed). All of these impoundments must have the recycled water valves and outlets marked or tagged with the words “RECYCLED WATER -- DO NOT DRINK.” At restricted and ornamental impoundments, adequate measures must be taken to prevent body contact. All recycled water impoundments must be kept separate from potable water wells and reservoirs.

If any storage tank or impoundment receives both recycled and potable water, the potable water supply must be properly equipped with an air-gap.

Use Area Signage

It is important that individuals in recycled water use areas are aware that the recycled water is not for drinking, therefore signage at locations where recycled water is being used is imperative. Place recycled water signs at obvious locations in areas where recycled water is used. Where recycled water is used on landscape, place signs at obvious locations such as entrance points, specific work areas, and areas where recycled water equipment is housed or stored. When used in decorative fountains, signage should be included at or near the fountain. Where recycled water is used indoors, such as in industrial processes and for toilet flushing, the room or area must contain a clearly visible sign indicating that recycled water is being used and identify what the water is being used for. Design plans should indicate the location of signs planned for the site.

Signs to be used at a site must be approved by the City.

Decorative Fountains

Signs to be placed at decorative fountains will be provided by the City and will contain the wording:

THIS WATER FEATURES USES RECYCLED WATER

Signage around the fountain must be located on or near the fountain and clearly visible to passer-bys.
Room Entrance Signs
Signs in water closets and/or urinals using recycled water shall contain 1/2-inch letters of a highly visible color on a contrasting background. Room entrance signs should contain text similar to the following:

TO CONSERVE WATER, THIS BUILDING USES RECYCLED WATER TO FLUSH TOILETS AND URINALS.

Equipment Room Signs
Signs in equipment rooms containing recycled water equipment shall contain 1-inch letters on a purple background with text similar to the following:

CAUTION
RECYCLED WATER, DO NOT DRINK.
DO NOT CONNECT TO DRINKING WATER SYSTEM.

NOTICE
CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

Additionally, the signs shall contain an international symbol that conveys that the water is not intended for drinking. The symbol shall be similar to Figure 60310-A, Section 60310, Title 22, California Code of Regulations or similar to the symbol found on the Project recycled water sign.

Tank-type Water Closet Signs
Tank-type water closets that are flushed with recycled water should be labeled:

RECYCLED WATER – DO NOT DRINK

Additionally, the signs shall contain an international symbol that conveys that the water is not intended for drinking. The symbol shall be similar to Figure 60310-A, Section 60310, Title 22, California Code of Regulations or similar to the symbol found on the Project recycled water sign.

Valve Access Door Signs
Each recycled water valve within a wall should have its access door into the wall equipped with a warning sign approximately 6 x 6 inches with wording in 1 and 1/2 inch letters on a purple background. Attach signs inside the access door-frame and hang in the center of the access door frame.
Purpose

This section provides the guidelines for operation and maintenance of the on-site recycled water facilities.

Operation

At all times, the recycled water system must be operated in accordance with these Guidelines. A Site Supervisor must be designated to operate and maintain the recycled water system.

Training

Proper training on the use of recycled water will minimize the potential for cross connections and will educate employees on the benefits of recycled water use, as well as hygienic practices that should be observed when working with or in areas of recycled water. The Customer’s designated Site Supervisor must attend the City’s Site Supervisor Training workshop.

Additionally, the Customer should provide training to all employees working with or in areas of recycled water use. These employees should be familiar with these Guidelines, and have the following understanding:

- Recycled water is not intended for drinking.
- The use of recycled water is safe for its intended uses.
- Recycled water should be used only in applications approved by the State Department of Public Health and only on areas of a site that have been approved by the City.
- Good hygiene should be practiced when working in areas using recycled water. Wash hands with soap and potable water before eating, touching eyes, nose or mouth, and smoking.
- Who to contact if there is a problem with the facilities using recycled water.
- Who to call if there is a suspected cross connection.

Site Supervisor

The Site Supervisor is responsible for operation and maintenance of the recycled water system in compliance with these Guidelines and all recycled water DPH regulations and City ordinances.
It is important that the City have the name and contact information for the current Site Supervisor at all times. Promptly notify the City in writing when there is a change in Site Supervisors. The new Site Supervisor must complete the City’s training program if he/she has not already done so.

**Site Supervisor Responsibilities**

Site Supervisor responsibilities include but are not limited to:

- Accountable for site compliance with DPH regulations, City ordinances and California Code of Regulations Title 17 and Title 22
- All site reporting to the City
- Avoidance and detection of cross connections to the potable water system
- Minimization of overspray
- Prevention of leaks
- To serve as a liaison between the City and the Customer during normal operations and specifically when the system is under cross-connection tests
- Responsible for training of site personnel in the safe use and handling of the recycle water, including any third-party contractors who may conduct work on the site and use recycled water (refer to section on “Third-Party Contractors” for additional detail)
- Notifying and submitting plans to the City for authorization on proposed modifications to any part of the recycled water or potable system.

**Site Supervisor Training**

The City provides a free Site Supervisor Training course that is mandatory for Site Supervisors and is recommended for other property management and personnel who will be working with recycled water. Specifically the training shall cover the following syllabus:

1. General attributes of recycled water.
2. Legal aspects of recycled water use.
3. Recycled water production and the Redwood City system.
4. Recycled water’s effects on operations and maintenance of commercial and industrial systems.
5. Specific expectations for recycled water sites including maintenance.
6. Inspection documentation with specifications, schedules and reporting requirements.
7. Potential for problems with cross connection created with particular system configurations.
Commercial and Industrial Use Permits

Sites using recycled water for a non-irrigation application must adhere to specific use conditions dependent on the type of use. Please refer to Appendix F for the specific use conditions required per use type. Each non-irrigation use must be approved by the City. A non-irrigation use application is included in Appendix E.

Non-Irrigation Use Third-Party Contractors

For non-irrigation recycled water use at a site involving a third-party contractor, the following requirements apply:

- The third-party contractor must file a recycled water application and appropriate condition of use agreement with the City.
- The designated Site Supervisor for the site is responsible for training the third party contractor.
- Training of third party contractors should include, but is not limited to:
  - General attributes of recycled water
  - Proper use of the water
  - Practice of good hygiene
  - Minimizing worker exposure
  - Prevention of cross connections and cross contamination (i.e. any equipment used on the recycled water system must not be then used on the potable water system)
  - Implementation of any required Best Management Practices (BMPs)

Site Monitoring

Self Monitoring

Site Supervisors must monitor the recycled water use area at the frequency specified in the Customer’s Recycled Water Permit and complete an inspection report to be submitted to the City. This report shall include the observation results and descriptions of any corrective actions taken. A Site Supervisor Monitoring Form is provided in Appendix B.

In particular, at a minimum the monitoring should consider the following:

1. If recycled water is used for irrigation on the site, are there any irrigation system defects including:
   - Runoff of recycled water from the site? If so, document the affected area on a plot plan and estimate the volume.
   - Overspray from sprinklers into non-irrigated areas or hard surfaces?
- Evidence of leaks or breaks in the system piping, tubing, drip emitters or spray sprinklers?
- Recycled water ponding, and/or evidence of mosquitoes breeding within the irrigation area due to ponded water?

2. Are there recycled water system defects including:
   - Evidence that all valves and appurtenances are working: Are all valves and appurtenances in the recycled water system working? Document and inspect all valves in the system and make notes on their conditions affected area on a plot plan and estimate volume?
   - Evidence of leaks or breaks in the system piping?

3. Are all recycled water warning signs, tags, stickers, and above ground pipe markings properly located and visible?

4. Is there an odor of wastewater origin at the site? If yes, indicate apparent source, characterization, direction of travel, and any public use areas or off-site facilities affected by the odors.

5. Has the designated Site Supervisor changed in the past year? If so note new Site Supervisor with appropriate contact numbers.

For dual plumbed sites, see the cross connection test requirements below in addition to these self monitoring requirements.

**City Monitoring**

In addition to the required self-inspections, City Recycled Water Specialist or designees may conduct a “snap” (unscheduled) or scheduled inspection of a recycled water use site at any time. A report will be prepared from the inspection results and a copy will be provided to the Site Supervisor (see Appendix C for a sample City inspection form). Any defects identified must be corrected within ten working days of receipt of the inspection report. Serious violations of the recycled water use permit require immediate rectification.

**Significant Violation Reporting**

Site Supervisors shall report any significant violations of these Guidelines to the City within 24 hours of the occurrence. Within 15 days, a written documentation of the incident, including the problem, how and when the problem was discovered, and the corrective response actions taken should be submitted to the City.

**Backflow Prevention Device Testing**

All backflow prevention devices, whether on the potable water or recycled water system, must be tested annually by a Certified Backflow Prevention Assembly Tester approved by the City. Backflow devices must be tested immediately after being installed, relocated or repaired and shall not be placed into service until functioning as required.
Backflow prevention assemblies are required to be tested on an annual basis and all test results must be submitted using the City’s Backflow Prevention Assembly Field Testing and Maintenance Reports.

**Cross Connection Prevention**

A cross connection occurs when a recycled water line is connected to a potable water line. Cross connections are not permitted. Although recycled water has been treated to meet high quality water standards and is approved for many uses, including bodily contact, it is not approved for drinking. Every effort must be made to prevent recycled water pipelines from being connected to potable water pipelines. A cross connection shut down test will be performed at all retrofit sites before recycled water is delivered. Additional inspection and testing required for dual plumbed sites are described in subsequent paragraphs.

Three indications of a possible cross connection are:

1. Change in the drinking water pressure or in the irrigation system pressure
2. Change in the appearance of drinking water
3. Change in the taste and/or smell of drinking water

At any time that a cross connection is suspected, the City must immediately be notified.

**Cross Connection Inspection and Testing**

Cross connection tests are required to ensure that no such connection has been made. At dual plumbed sites, a cross connection shut-down test must be completed once every four years and visual inspections performed annually. The test and the inspection must be completed by a certified Cross Connection Control Specialist.1

The City will coordinate all cross connection tests (both visual and physical). The Site Supervisor and a City representative must be present during the inspection or test. The Cross Connection Control Specialist completes a cross connection test form as record of the test and provides a copy to the Site Supervisor and to the City. The City Recycled Water Specialist will submit a written report to DPH documenting the result of the testing within 30 days following completion of the testing.

**Annual Cross Connection Visual Inspection for Dual Plumbed Sites**

At dual plumbed sites, an annual cross connection visual inspection must be completed by a certified Cross Connection Control Specialist.

The annual visual inspection will include a check of the following:

- Meter locations of the recycled water and potable water lines to verify that no modifications were made

---

1 The Cross Connection Control Specialist must be certified by either the California-Nevada section of the American Water Works Association or an organization with equivalent certification requirements.
Any signs of or visible cross connections
- Inspect valve tags, signage and equipment marking
- All pumps and equipment, equipment room signs, and exposed piping in equipment room
- All valves to insure that valve lock seals are still in place and intact
- All valve control door signs are in place
- Maintenance records
- On-site back-up water supply (if applicable)

Cross Connection Shut-Down Test

Prior to receiving recycled water, all retrofit sites must complete a cross connection shut down test. At dual plumbed sites, a cross connection shut down test must also be conducted at least once every four years. All shut down tests must be performed by a certified Cross Connection Control Specialist.

Recognizing that a cross connection test may interfere with normal operations at a Customer site, the City will provide adequate notice and coordinate with the Customer so that the test may be conducted with minimal disruption.

Cross Connection Shut-Down Test Notification Procedures

The City will mail a notice to the Site Supervisor approximately 30 days before the planned schedule test date. The notice will provide a date and time for the test and request that the Site Supervisor confirm the date and either fax or mail the completed form to the City. A sample notification form is included as Appendix D.

Cross Connection Shut-Down Test Procedure

In general, the cross connection test will involve:

1. Pressurization of the potable water system and de-pressurization of the irrigation water system.
2. Verification of flow from the potable water outlets and absence of flow from the irrigation water system outlets.
3. Pressurization of the irrigation water system and de-pressurization of the potable water system.
4. Verification of flow from the irrigation water outlets and absence of flow from the potable water system outlets.

Emergency Cross Connection Response Procedures

In the event of a confirmed or suspected cross connection, the Site Supervisor must be vigilant in exercising a quick response. The City will proactively intervene with the site’s owners, supervisors and occupants to manage the response from initial notification until recycled water service is safely restored to the site.
In the event of an emergency, the necessary repairs can be made by the Customer (or Site Supervisor) without prior consent from the City if the emergency poses a public threat. The Customer (or Site Supervisor) must notify the City immediately of the emergency and the modifications made to the system by phone, and followed by a written report.

The following steps outline the Site Supervisor and City responsibilities in a Cross Connection Response:

1. Site Supervisor: Shut down all recycled water piping to the building at the meter.
2. Site Supervisor: Shut down all potable water piping to the building at the meter.
3. Site Supervisor or the Building Superintendent: Place “Do Not Drink” signs at sinks and water dispensers.
4. Site Supervisor: Notify the City as soon as possible after reasonable safeguards are implemented, but in no case longer than two hours.
5. City: Provide a reasonable amount of bottled drinking water to those residents and businesses affected by the shut down.
6. City: Immediately report to the scene and investigate the situation. If a cross connection is confirmed, the City will immediately notify the following agencies by phone:
   - Department of Public Health
   - San Mateo County Health Services Agency
   - San Francisco Bay Regional Water Quality Control Board
7. City: Immediately notify local residents and business owners through multiple forms of communication. These may include e-mail broadcasts, hand distributed leaflets, postcard mailings, door to door informant, and reporting through the local media (i.e. local television, newspaper and radio) depending on the response deemed appropriate for the cross connection occurrence. The City will also continue to communicate with affected residents and businesses as to status and conclusion of a reported incident.
8. City, with the DPH and the County: Assess the situation and determine the course of action to be implemented to identify the cause and locations of the cross-connection(s) and eliminate them. This may include bacteriological testing of a water sample that may have resulted from a cross connection. The potable water piping will be disinfected in accordance with DPH recommendations.
9. Site Supervisor and City: Perform a cross connection test prior to returning the potable water system to service.
10. Site Supervisor: Obtain approval from the City and County Health before the recycled water is re-energized.
11. Site Supervisor: Obtain final approval from the City or County Health before removing the Do Not Drink signs.
12. City: Prepare and submit a written report to the Regional Board, San Mateo County Health Services, and DPH.
APPENDIX A:

DRAWING REQUIREMENTS
Drawing Requirements

The following list and table provide information that should be included on the drawings. The Customer is responsible for preparation of a set of retrofit plans. The plans must be reviewed and approved by the City prior to construction. The City will maintain comprehensive files of drawings of each customer site and the proposed recycled water connection. Drawings shall depict the layout of the proposed recycled water system and the existing potable water system, principal potable points of connection, and changes necessary to allow conversion to the recycled supply.

Site drawings shall locate and label the following features where applicable:

1. All sources of water.
2. Where recycled water will be used on the site.
3. All potable and recycled water piping within the recycled water use area. Identify any additional piping that is located near the recycled water pipes.
4. For industrial processes, clearly identify the process to which recycled water will be applied. Identify where in the process recycled water is used and if applicable, where excess recycled water flows.
5. Where used in toilet flushing, identify the location and number of the toilets.
6. Any wells, lakes, ponds, reservoirs, or other water impoundments located on the site or within 100 feet of the site indicating the type of water source and its connections to the appropriate main.
7. The existing and proposed location and size of all water meters (including any adjacent residential potable meters).
8. All backflow prevention devices for potable water systems. Indicate the disposition of backflows that are on systems being converted to the recycled water.
9. If a new backflow prevention device is to be installed on either the potable or recycled water system, indicate the location, size, and make and model. All backflow prevention devices must be of a make and model approved by the California Department of Public Health. If an air gap is used, indicate the discharge pipe diameter and the distance from the discharge end of the pipe to the flood rim of the receiving vessel.
10. If the retrofit design is for a cooling process, add a note to the plans describing the drift eliminator and the use of chlorine or other biocide.
11. All strainers, pressure regulating valves, master valves or other appurtenances.
12. The location of all water pipelines (including potable and well lines) crossing the site.
13. All adjacent streets and locations of all major improvements on the site.
14. If recycled water is being used in an outdoor fountain or impoundment, identify all drinking fountains, outdoor eating areas, and other public facilities supplied with recycled or potable water in the recycled water use area including, but are not limited to, restrooms, snack bars, swimming pools, hot tubs, wading pools, decorative fountains, showers and any other facility which uses water. Show the pipelines feeding all of these facilities.

15. Indicate that the separation between potable and recycled water lines meets minimum design requirements as noted in these Guidelines. Where recycled water pipelines cross over potable water pipelines show sleeving as required by these Guidelines.

16. If potable water piping is not present on the site, state in a note that the cross-connection test required by the City is waived for sites where potable water piping is not present.

17. Show all details necessary to properly construct the system, including the details conforming to the requirements of the City responsible for reviewing the plans. The purpose of the details is to show the materials and methods necessary to clearly identify all water systems on the site.

18. Proposed sign locations on plans. All sites using recycled water must post clearly visible signs conforming to these Guidelines or as specifically instructed by City staff.

19. Include an equipment legend specifying all materials of construction for the system, including:
   - Pipe schedules with sizes
   - Materials of construction
   - Type of water

20. A listing of valve types, including quick coupling valves.

21. Indication of purple-colored pipe with recycled water stenciling and quick coupling valves with purple covers where recycled water is used.

22. Supply the following information, as applicable, for each recycled water connection. Place this information on the same sheet as the pertinent meter/point of connection.

<table>
<thead>
<tr>
<th>Legal Property Owner</th>
<th>Name __________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Manager Contact:</td>
<td>Name __________________________</td>
</tr>
<tr>
<td></td>
<td>Title __________________________</td>
</tr>
<tr>
<td></td>
<td>Telephone number __________________</td>
</tr>
<tr>
<td>Tenant(s): [name(s) &amp; phone number(s); if not applicable, state NOT APPLICABLE].</td>
<td></td>
</tr>
<tr>
<td>Public Access To Site Grounds Is</td>
<td>Unrestricted or Restricted.</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Recycled Water Application:</td>
<td></td>
</tr>
<tr>
<td>Total Landscaped Area:</td>
<td>SqFt</td>
</tr>
<tr>
<td>Recycled Water Landscaped Area - Turf</td>
<td>SqFt</td>
</tr>
<tr>
<td>Recycled Water Landscaped Area – Other including ground cover and tree areas</td>
<td>SqFt</td>
</tr>
<tr>
<td>Potable Water Landscaped Area (if any)</td>
<td>SqFt</td>
</tr>
</tbody>
</table>

For sites where recycled water is used in an outdoor application, include the following information on the plans:

<table>
<thead>
<tr>
<th>On-Site Well Locations:</th>
<th>__________________________ Wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-Site Wells (if located on adjacent sites within 50 ft. of recycled water use area or within 100 ft. of any recycled water impoundment)</td>
<td>__________________________ Wells</td>
</tr>
</tbody>
</table>

Outdoor Drinking Fountains In/Near The Recycled Water Approved Use Area: ☐ YES or ☐ NO

Outdoor Eating Area: ☐ YES or ☐ NO

Water Features:

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity:</th>
<th>Water Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fountain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pond</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. Include two signature lines for the City of Redwood City on all plan sheets, detail sheets, and specification sheets.
APPENDIX B:

SITE SUPERVISOR MONITORING FORMS
Redwood City Recycled Water Project  
Self-Monitoring Monthly Inspection Report  
Landscape Irrigation

<table>
<thead>
<tr>
<th>Site Name:</th>
<th>Site Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Supervisor:</td>
<td></td>
</tr>
<tr>
<td>Site Address:</td>
<td></td>
</tr>
</tbody>
</table>

Has the Site Supervisor changed since the last report?  Yes [  ] No [X]
If so, provide name, phone number and e-mail address:

<table>
<thead>
<tr>
<th>Observation Date: (Some sites may be required to monitor more than once a month)</th>
<th>(Required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there any evidence of recycled water escaping any irrigation site through surface runoff or airborne spray? (If yes, attach a sketch showing the affected area(s).)</td>
<td>Yes [  ] No [X]</td>
</tr>
<tr>
<td>Are there any odors resulting from the use of recycled water? (If yes, note source, characterization and travel distance on the second sheet of this form.)</td>
<td>Yes [  ] No [X]</td>
</tr>
<tr>
<td>Is there evidence of prolonged ponding of recycled water in the irrigation site as a result of excessive spray and evidence of mosquitoes breeding within the irrigation area due to ponded water?</td>
<td>Yes [  ] No [X]</td>
</tr>
<tr>
<td>Are any recycled water warning signs, tags, stickers, and above ground markings missing or improperly located, hidden or illegible?</td>
<td>Yes [  ] No [X]</td>
</tr>
<tr>
<td>Is there evidence of leaks, breaks, or plugs in the irrigation system pipelines, tubing, drip irrigation, sprinkler emitters, or other appurtenances?</td>
<td>Yes [  ] No [X]</td>
</tr>
<tr>
<td>Is there evidence of direct spraying of recycled water on people, streams, passing vehicles, buildings, domestic water facilities (such as drinking fountains), or food handling facilities?</td>
<td>Yes [  ] No [X]</td>
</tr>
<tr>
<td>Have any alterations been made to the plumbing of the recycled water system within the last reporting period?</td>
<td>Yes [  ] No [X]</td>
</tr>
</tbody>
</table>

If the answer is “yes” to any of the above questions, describe the situation on the second sheet of this form. Indicate the date that the problem was noticed, the specific location within the site that the problem occurred, and the corrective action taken. Attach additional sheets if necessary.

Return this form to: Via the internet at: rwspecialist@redwoodcity.org Via mail to: Redwood City Public Works Office Attn: Recycled Water Specialist Via FAX at: (650) 780-7445 1400 Broadway Street Redwood City, CA 94063

X
Signature of Site Supervisor
Date

Rev 10/30/09
Redwood City Recycled Water Project
Self-Monitoring Monthly Inspection Report
Commercial and Industrial Uses

<table>
<thead>
<tr>
<th>Site Name:</th>
<th>Site Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Address:</td>
<td></td>
</tr>
<tr>
<td>Site Supervisor:</td>
<td></td>
</tr>
<tr>
<td>Has the Site Supervisor changed since the last report?</td>
<td>Yes ☐ No ☐</td>
</tr>
<tr>
<td>If so, provide name, phone number and e-mail address:</td>
<td></td>
</tr>
</tbody>
</table>

List the commercial and industrial applications on site:

<table>
<thead>
<tr>
<th>Observation Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there any evidence at meter locations of the recycled water and potable water lines that modifications were made?</td>
</tr>
<tr>
<td>Is there evidence of any signs of or visible cross connections?</td>
</tr>
<tr>
<td>Are all valve tags, signage and equipment marking in place, visible, and undamaged?</td>
</tr>
<tr>
<td>Is there evidence of leaks, breaks, or plugs in the system pipelines or other appurtenances?</td>
</tr>
<tr>
<td>Are all valve lock seals in place and intact?</td>
</tr>
<tr>
<td>Are all recycled water signs, tags, stickers, and above ground markings properly located, visible, and legible?</td>
</tr>
<tr>
<td>Are all maintenance records up to date?</td>
</tr>
<tr>
<td>Is the on-site back-up water supply in operable condition?</td>
</tr>
<tr>
<td>If there is a cooling tower on site that uses recycled water, is the drift eliminator functioning properly?</td>
</tr>
<tr>
<td>If there is a cooling tower on site that uses recycled water, is biocide applied as required?</td>
</tr>
<tr>
<td>Is there any evidence of recycled water escaping the use area through surface runoff or airborne spray? (If yes, attach a sketch showing the affected area(s).)</td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Are there any odors resulting from the use of recycled water? (If yes, note source, characterization and travel distance on the second sheet of this form.)</td>
</tr>
<tr>
<td>Is there evidence of direct spraying of recycled water on people, streams, passing vehicles, buildings, domestic water facilities (such as drinking fountains), or food handling facilities?</td>
</tr>
<tr>
<td>Have any alterations been made to the plumbing of the recycled water system within the last reporting period?</td>
</tr>
</tbody>
</table>

If the answer is “yes” to any of the above questions, describe the situation below. Indicate the date that the problem was noticed, the specific location within the site that the problem occurred, and the corrective action taken. Attach additional sheets if necessary.

Return this form to: Via the internet at: rwspecialist@redwoodcity.org
Via mail to: Redwood City Public Works Office
Attn: Recycled Water Specialist
Via FAX at: 1400 Broadway Street
(650) 780-7445 Redwood City, CA 94063

x ____________________________  Signature of Site Supervisor  ____________________________  Date

NOTES:
APPENDIX C:

CITY INSPECTION FORM
Redwood City Recycled Water Project  
*Annual City Inspection*  

### Site Name:  
Site Number:  

### Site Address:  

<table>
<thead>
<tr>
<th>Inspector:</th>
<th>Customer Representative Present:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the Site Supervisor changed since the last report?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### General Permit Compliance  

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Is recycled water used for any purposes not listed in this permit?</td>
</tr>
<tr>
<td>2.</td>
<td>Are use rates consistent with those listed in the permit?</td>
</tr>
<tr>
<td>3.</td>
<td>Is the use application limited to those specified in the original permit application?</td>
</tr>
<tr>
<td>4.</td>
<td>Have any alterations been made to the recycled water system since the permit was issued?</td>
</tr>
<tr>
<td>5.</td>
<td>Is the Site Supervisor the same person specified in the permit and is the Site Supervisor information in City records current?</td>
</tr>
<tr>
<td>6.</td>
<td>Has the on-site staff been trained in the use of recycled water and measures to protect personal and public health?</td>
</tr>
<tr>
<td>7.</td>
<td>Has Customer been conducting self-monitoring and filing report in accordance with their permit?</td>
</tr>
<tr>
<td>8.</td>
<td>Is there evidence of any signs of or visible cross connections?</td>
</tr>
<tr>
<td>9.</td>
<td>Is there any evidence of recycled water escaping the use area? (If yes, attach a sketch showing the affected area(s).)</td>
</tr>
<tr>
<td>10.</td>
<td>Are there any odors resulting from the use of recycled water? (If yes, note source, characterization and travel distance on the second sheet of this form.)</td>
</tr>
<tr>
<td>11.</td>
<td>Is there evidence of prolonged ponding of recycled water in use area? Is there evidence of mosquitoes breeding within the irrigation area due to ponded water?</td>
</tr>
<tr>
<td>12.</td>
<td>Are all recycled water warning signs, tags, stickers, and above ground markings properly located, visible, and legible?</td>
</tr>
<tr>
<td>13.</td>
<td>Is there evidence of leaks, breaks, or plugs in the recycled water system pipelines or other appurtenances?</td>
</tr>
<tr>
<td>14.</td>
<td>Is there evidence of direct spraying of recycled water on people, streams, passing vehicles, buildings, domestic water facilities (such as drinking fountains), or food handling facilities?</td>
</tr>
</tbody>
</table>
# Backflow/Cross-Connecting Testing (where applicable)

<table>
<thead>
<tr>
<th>Have backflow prevention devices been tested in the last 12 months? Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The most recent cross-connection test was completed on:</td>
</tr>
<tr>
<td>Part I Pretest and Visual Test Date:</td>
</tr>
<tr>
<td>Part II Cross-Connect Control Test Date:</td>
</tr>
<tr>
<td>Is the site due for a cross-connection test?</td>
</tr>
</tbody>
</table>

## Impoundments, if applicable

| Is there evidence of overflows, leaks, erosion of dikes, etc. of storage ponds or impoundments? |

## Required Action

- None

<table>
<thead>
<tr>
<th>Compliance Date</th>
</tr>
</thead>
</table>

### By District:

<table>
<thead>
<tr>
<th>Compliance Date</th>
</tr>
</thead>
</table>

### By Customer:

<table>
<thead>
<tr>
<th>Compliance Date</th>
</tr>
</thead>
</table>

## Comments

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
</table>

## Signature

<table>
<thead>
<tr>
<th>X Inspector Date</th>
<th>X Site Supervisor Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Copies: ________ File (Original)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>________ Customer</th>
</tr>
</thead>
</table>
APPENDIX D:

CROSS CONNECTION TEST
NOTIFICATION FORM
Redwood City Recycled Water Project
Notification Form

☐ Annual Inspection  ☐ Cross Connection Test

Date of Notice:

Our records indicate that your:

Facility was last inspected on

Last cross connection test was

The work noted above is scheduled for

Test Date:  Test Time:

Site Name and Address:

Site Supervisor:  Phone Number:

Please confirm this appointment by signing below and mailing the original form to the City within 10 days of receipt. Retain a copy of this document for your files.

X
Site Supervisor Signature  Date

Mail to:  Redwood City Public Works Services Department
Attn:
1400 Broadway
Redwood City, CA 94063

If the date and time listed above do not fit your schedule, contact the City as soon as possible to reschedule at (650) 780-5730

Rev 10/30/09
APPENDIX E:

NON-IRRIGATION USE AGREEMENT
This document is an agreement between a permitted recycled water customer and the City; which allows a third party to safely and appropriately use recycled water for non-irrigation uses as described in this agreement. This Agreement must be submitted, and approved, to and by the City, following any change of vendor, practice, or use of recycled water.

**ADDRESS OF RECYCLED WATER USE**

**CONTRACTOR INFORMATION**

<table>
<thead>
<tr>
<th>Business Name</th>
<th>Redwood City Business License #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailing Address</td>
<td>Telephone Number</td>
</tr>
<tr>
<td>Contractor Contact</td>
<td>Fax Number</td>
</tr>
<tr>
<td>Contractor Contact Title</td>
<td>E-mail Address</td>
</tr>
</tbody>
</table>

**RECYCLED WATER SITE SUPERVISOR INFORMATION**

<table>
<thead>
<tr>
<th>Name of Redwood City Site Supervisor</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailing Address</td>
<td>Fax Number</td>
</tr>
<tr>
<td></td>
<td>E-mail Address</td>
</tr>
</tbody>
</table>

**RECYCLED WATER USE**

<table>
<thead>
<tr>
<th>Commercial Window Washing</th>
<th>Dust Suppression</th>
<th>Toilet Flushing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Car Washing</td>
<td>Washdown</td>
<td>Other</td>
</tr>
<tr>
<td>Commercial Laundry</td>
<td>Concrete Mixing</td>
<td></td>
</tr>
<tr>
<td>Decorative Fountains</td>
<td>Cooling</td>
<td></td>
</tr>
</tbody>
</table>

**RECYCLED WATER USE OPERATION DETAILS**

<table>
<thead>
<tr>
<th>Name of On-Site Supervisor</th>
<th>Approximate Gallons Used per Day of Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Operation at Site</td>
<td>Times of Operation at Site</td>
</tr>
</tbody>
</table>

Briefly describe the procedures for using recycled water in the space provided below. Attach a separate sheet with a sketch of the recycled water use area. Where applicable, include: the location of any drinking water fountains, eating, or food preparation areas that are located in the immediate vicinity; points of building ingress and egress; general location and description of existing landscaping; the location of storm drains in the vicinity of the operation. (Prepare a separate description for each use.)

Undersigned agrees to the appropriate and safe use of recycled water and shall act in strict accordance to City rules and regulations pertaining to recycled water use; including, but not limited to, the attached guidelines.

**Signature of Contractor Contact** ___________________________ **Date**

Where a third party contractor is involved, the Site Supervisor is responsible for oversight of the contractor's recycled water use. The Site Supervisor agrees to provide training and monitoring of the use of recycled water in a way that assures compliance at all times with current regulations.

**Signature of Redwood City Site Supervisor** ___________________________ **Date**

**Signature of City Representative** ___________________________ **Date**

**Name of City Representative** ___________________________ **Contact Number: 650-780-5733**

*Redwood City Recycled Water Project Office: 303 Twin Dolphin Drive, Suite 400, Redwood City, CA 94065*  
*Office Number: 650-780-5730  Fax Number: 650-594-2832*

Rev_03/04/2009
APPENDIX F:

NON-IRRIGATION USE CONDITIONS
Recycled water may be used for commercial vehicle washing per the following conditions. This use will be permitted on a case by case basis and only after the City has observed the operation.

- Recycled water used for vehicle washing must be contained to within the vehicle washing area.
- Recycled water shall not be discharged to storm drains.
- Recycled water shall not be heated prior to use.
- Recycled water shall not be allowed in food eating or preparation areas.
- Shut off nozzles shall be used on all water hoses transporting recycled water.
- The operation must be conducted in a way that minimizes exposure to workers.
- The operation should be conducted in a manner to minimize misting and spraying.
- The operation should be conducted in an area away from the general public.
- Workers performing the vehicle washing, whether it is site personnel or a third party contractor, must be trained prior to beginning the operation in the safe and proper use of recycled water. The designated Site Supervisor at the recycled water use site is responsible for all training, and for ensuring that the City’s Recycled Water Use Guidelines are followed at all times. The City will provide training assistance and the necessary training materials to the Site Supervisor upon request.
- All equipment (including hoses and where applicable, deionization tank, brushes connected to the recycled water hose and shut off nozzles) that comes into contact with recycled water must be dedicated and properly labeled for use on recycled water systems only. The equipment shall not be re-connected to the potable water system.
- Third-Party Contractors must file a permit application with the City for recycled water use. The permit will be effective for one year and must be renewed thereafter.
City of Redwood City
RECYCLED WATER PROJECT

Conditions for Dust Control
by Truck Application

Recycled water may be used for dust control per the following conditions. This use will be permitted on a case by case basis.

- Truck drivers filling their trucks with recycled water for dust control application must file a recycled water application with the City.
- Truck tanks used to convey recycled water must be identified as carrying recycled water.
- Tanks used to carry recycled water must not be used to transport potable water or other food grade materials after the tank has been in contact with recycled water.
- Recycled water shall not be allowed in food eating or preparation areas.
- The operation must be conducted in a way that minimizes exposure to workers and the general public.
- The operation should be conducted in a manner to minimize misting and spraying.
- Workers, whether it is site personnel or a third party contractor, must be trained prior to beginning the operation in the safe and proper use of recycled water. The designated Site Supervisor at the recycled water use site is responsible for all training, and for ensuring that the City’s Recycled Water Use Guidelines are followed at all times. The City will provide training assistance and the necessary training materials to the Site Supervisor upon request.
- All equipment (including hoses, brushes and nozzles) that comes into contact with recycled water must be dedicated and properly labeled for use on recycled water systems only. The equipment shall not be re-connected to the potable water system.
- Third-Party Contractors must file a permit application with the City for recycled water use. The permit will be effective for one year and must be renewed thereafter.
- The City will issue permits for this use on a site by site basis and only after observing a window washing operation at the site.

Initial  
Date

Rev 10/30/09
City of Redwood City
RECYCLED WATER PROJECT

Conditions for Dust Control in
an Industrial Process

Recycled water may be used for dust control per the following conditions. This use will be permitted on a case by case basis.

- The industrial process receiving recycled water shall not process or come into contact with food grade materials.
- The industrial unit receiving the recycled water shall not be dual plumbed.
- The unit must be clearly marked as using recycled water.
- Recycled water shall not be allowed in food eating or preparation areas.
- The operation must be conducted in a way that minimizes exposure to workers and the general public.
- The operation should be conducted in a manner to minimize misting, spraying and run-off.
- Recycled water shall not be discharged to storm drains.
- The operation should be conducted in an area away from the general public.
- Workers, whether it is site personnel or a third party contractor, must be trained prior to beginning the operation in the safe and proper use of recycled water. The designated Site Supervisor at the recycled water use site is responsible for all training, and for ensuring that the City’s Recycled Water Use Guidelines are followed at all times. The City will provide training assistance and the necessary training materials to the Site Supervisor upon request.
- All equipment (including hoses and where applicable, deionization tank, brushes connected to the recycled water hose and shut off nozzles) that comes into contact with recycled water must be dedicated and properly labeled for use on recycled water systems only. The equipment shall not be connected to the potable water system.
- Third-Party Contractors must file a permit application with the City for recycled water use. The permit will be effective for one year and must be renewed thereafter.
City of Redwood City  
RECYCLED WATER PROJECT  

Conditions for Recycled Water use in  
Concrete Batching  

Recycled water may be used for commercial laundry per the following conditions. This use will be permitted on a case by case basis and only after the City has observed the operation.

Conditions for use:

- The industrial unit receiving the recycled water shall not be dual plumbed.
- The unit must be clearly marked as using recycled water.
- If there is a potable water supply backup, an air gap meeting Title 17 requirements shall be in place.
- The operation must be conducted in a way that minimizes exposure to workers and the general public.
- The operation should be conducted in a manner to minimize misting, spraying and run-off.
- Any employee working handling the concrete batching, whether it is site personnel or a third party contractor must be trained prior to beginning the operation in the safe and proper use of recycled water. The designated Site Supervisor at the recycled water use site is responsible for all training, and for ensuring that the City’s Recycled Water Use Guidelines are followed at all times. The City will provide training assistance and the necessary training materials to the Site Supervisor upon request.
- Third-Party Contractors must file a permit application with the City for recycled water use. The permit will be effective for one year and must be renewed thereafter.
- The City will issue permits for this use on a site by site basis.
City of Redwood City
RECYCLED WATER PROJECT

Conditions for Recycled Water use in
Commercial Cooling Units

Recycled water may be used for commercial laundry per the following conditions. This use will be permitted on a case by case basis and only after the City has observed the operation.

Conditions for use:

- The cooling tower must be equipped with drift eliminators
- A chlorine or other biocide shall be used to treat the cooling system
- If there is a potable water supply backup, an air gap meeting Title 17 requirements shall be in place.
- The cooling unit shall be enclosed by walls, fences, or by other means to distance the unit from the general public.
- The unit must be clearly marked as using recycled water.
- The operation must be conducted in a way that minimizes exposure to workers and the general public.
- The operation should be conducted in a manner to minimize misting, spraying and run-off.
- Any employee working with the cooling tower, whether it is site personnel or a third party contractor must be trained prior to beginning the operation in the safe and proper use of recycled water. The designated Site Supervisor at the recycled water use site is responsible for all training, and for ensuring that the City’s Recycled Water Use Guidelines are followed at all times. The City will provide training assistance and the necessary training materials to the Site Supervisor upon request.
- Third-Party Contractors must file a permit application with the City for recycled water use. The permit will be effective for one year and must be renewed thereafter.
- The City will issue permits for this use on a site by site basis.
City of Redwood City
RECYCLED WATER PROJECT

Conditions for Washdown Use

Recycled water may be used for cleaning of roads, sidewalks and outdoor work areas per the following conditions. This use will be permitted on a case by case basis and only after the City has observed the operation.

- Washdown should be conducted with either a mobile unit that sprays water from under the washer unit, or using a water broom.
- Cleaning of roads, sidewalks and outdoor work areas with recycled water should be performed at a time such that exposure to the general public is minimized.
- Misting and overspray should be minimized.
- Recycled water should not be discharged to swimming pools, recreational impoundments, or other water features where people may have direct contact.
- Recycled water shall not be discharged to storm drains or other water bodies of the State.
- Appropriate precautions should be taken such that eating areas that may be located near roads or sidewalks are not sprayed with recycled water.
- Workers must be trained on the safe and proper use of recycled water. The designated Site Supervisor at the recycled water use site is responsible for all training, and for ensuring that the City’s Recycled Water Use Guidelines are followed at all times. The City will provide training assistance and the necessary training materials to the Site Supervisor upon request.
- All equipment (including hoses and nozzles) that are connected to the recycled water hose system must be dedicated and properly labeled for use on recycled water systems only. The equipment shall not be connected to the potable water system.
City of Redwood City
RECYCLED WATER PROJECT

Conditions for Commercial Window Washing

Recycled water may be used for commercial window washing per the following conditions. This use will be permitted on a case by case basis and only after the City has observed the operation.

- The third-party contractor must be a professional window washer with a Redwood City business license, and must be under direct contract with the recycled water customer.
- Window washing operations must be conducted during hours that minimize exposure to the public.
- The operation must be conducted in a way that minimizes exposure to workers.
- The operation must involve no misting or spraying.
- The operation must be performed so that water does not drip onto workers or people in the area.
- The operation must be performed so as to minimize incidental runoff.
- Recycled water used for this purpose must not be heated.
- Workers performing the operation, whether it is site personnel or a third party contractor, must be trained prior to beginning the operation in the safe and proper use of recycled water. The designated Site Supervisor at the recycled water use site is responsible for all training, and for ensuring that the City’s Recycled Water Use Guidelines are followed at all times. The City will provide training assistance and the necessary training materials to the Site Supervisor upon request.
- All equipment (including hoses, deionization tank, and the brush that is connected to the recycled water hose) that comes into contact with recycled water must be dedicated and properly labeled for use on recycled water systems only. The equipment shall not be connected to the potable water system.
- Where Third-Party Contractors are performing the operation, they must file a permit application with the City for recycled water use. The permit will be effective for one year and must be renewed thereafter.
ORDINANCE NO. 2335

AN ORDINANCE OF THE CITY OF REDWOOD CITY, CALIFORNIA, ADDING ARTICLE VIII TO CHAPTER 38 OF THE CITY CODE REGARDING RECYCLED WATER USE

WHEREAS, the California Legislature has declared that development of recycled water should be encouraged as a new water supply necessary to meet the future water needs of the State and use of potable domestic water for nonpotable uses that are approved by the State for recycled water use may constitute waste or a unreasonable use within the meaning of the California Constitution, Article X, Section 2 if recycled water is available at a reasonable cost (Water Code §§ 13510 et seq. and 13550 et seq.); and

WHEREAS, the Water Recycling in Landscaping Act, S.B. 2095 enacted in 2000, further encouraged recycling by requiring local agencies, when notified of available recycled water from producers, to adopt an ordinance requiring, in part, that new industrial, commercial and residential projects requiring a tentative map or parcel map and located in the recycled water use area, install separate plumbing systems for nonpotable uses; and

WHEREAS, the City of Redwood City (“City”) has adopted a water conservation policy and guidelines for new and existing industrial, commercial and multi-family common areas requiring conservation in the landscape design; and

WHEREAS, by Resolution No. 14544, the City approved a mitigated negative declaration for the Redwood City Recycled Water Project (“Project”), which consists of infrastructure facilities (transmission and distribution pipelines, pump stations, storage reservoirs and minor appurtenant facilities) to deliver disinfected tertiary treated recycled water from the South Bayside System Authority wastewater treatment plant to customers in the Redwood Shores, Greater Bayfront and Central Redwood City area (“Recycled Water Service Area”), as well as other potential customers inside and outside the City; and

WHEREAS, by Resolution No. 14545, the City found that use of recycled water for landscape irrigation is safe, environmentally responsible and can contribute to the health, safety and welfare of the City; and

WHEREAS, by Resolution No. 14547, the City approved the Project, which will provide recycled water to customers in the Recycled Water Service Area for nonpotable uses approved by the State; and

WHEREAS, the purposes of the Project are to reduce the demand for potable water, which is available in only a limited amount from the San Francisco Public Utilities Commission, and to provide an alternative source of supply; and

Rev 10/30/09
WHEREAS, it is the policy of the City that recycled water shall be used for nonpotable uses within the designated Recycled Water Service Area.

NOW THEREFORE, THE COUNCIL OF THE CITY OF REDWOOD CITY DOES ORDAIN AS FOLLOWS:

Section 1. Findings.

The City Council finds and declares that the State policies encouraging use of recycled water are in the best interest of the City. This ordinance is necessary to protect and enhance the common water supply of the Bay Area which is vital to public health and safety. The City is highly dependent on imported water for municipal and industrial uses. The prospects for additional supplies of imported water is uncertain. By developing and utilizing recycled water, the need for additional imported water can be reduced. In light of these circumstances, certain uses of potable water may be considered unreasonable where recycled water is available.

Section 2 Water Recycling Policy.

It is the policy of the City that recycled water shall be used for nonpotable uses within the designated Recycled Water Service Area wherever its use is consistent with legal requirements, preservation of public health, safety and welfare, and the environment.

Section 3. Municipal Code Amendment. Article VIII is hereby added to Chapter 38 of the City Code of the City of Redwood City to read as follows:

Section 38.50 Definitions.

The following terms are defined for purposes of this ordinance:

A. Commercial Property: Any building for office or commercial uses with water requirements which include, but are not limited to, landscape irrigation, cooling, toilets, urinals and decorative fountains.

B. Recycled Water Distribution System: A system of transmission and distribution pipelines, pump stations, storage reservoirs and minor appurtenant facilities intended for the delivery of recycled water only and which is separate from any potable water distribution system. The Recycled Water Distribution System is owned, operated and maintained by the City.

Recycled water plumbing on the customer’s side of the City’s meter is owned, operated and maintained by the customer, but must still comply with all
applicable requirements, including the requirements of California Code of Regulations, Titles 17 and 22.

C. Landscape Areas or Landscaping: A Landscape Area or Landscaping includes, but is not limited to landscaped streets and medians, golf courses, cemeteries, common areas and parks.

D. Industrial Process Water: Water used by any industrial facility with process water requirements which include, but are not limited to, rinsing, washing, cooling and or circulation.

E. Potable Water: Means water which conforms to the federal, state and local standards for human consumption.

F. Recycled Water: Nonpotable tertiary treated water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See California Water Code Section 13050(n).)

G. Provide For The Use Of Recycled Water: Means providing a separate plumbing system, independent of the plumbing system provided to serve potable water, to serve nonpotable recycled water for all uses approved by Title 22 of the California Code of Regulations (“CCR”), including but not limited to irrigation of landscape areas, toilet and urinal flushing, trap primers, outdoor decorative fountains and other appropriate landscaping, commercial and industrial uses approved by the State.

H. Dual plumbed system or dual plumbed: Means a system that utilizes separate piping systems for recycled water and potable water within a facility and where the recycled water is used for either of the following purposes:

(a) To serve plumbing outlets (excluding fire suppression systems) within a building

Or

(b) Outdoor landscape irrigation at individual residences.

Section 38.51 Use and Distribution of Recycled Water.

The use and distribution of recycled water shall be in accordance with the City’s Customer Guidelines for Recycled Water Use and all applicable federal, state and local laws, permits, and regulations, including Titles 17 and 22 of the CCR, as may be amended from time to time.

Section 38.52 Recycled Water Service Area; Required Use.

The Recycled Water Service Area means the precise geographical area designated by the City and as adopted by resolution of the City Council to which the City will provide recycled water service where it has been determined to be or is expected to be available. The City will maintain a copy of the description of the Recycled Water Service Area, which may be updated by resolution from time to time, on file with the Office of the City Clerk.
A. Requirement For Commercial Properties In Recycled Water Service Area.

Existing Commercial: Existing Commercial properties in the Recycled Water Service Area are required to use recycled water for landscape irrigation. Existing Commercial properties must provide a feasibility study to apply for an exception to this Ordinance.

New Commercial: Projects involving new commercial subdivision of land for which a tentative map or parcel map is required pursuant to California Government Code Section 66426 and Chapter 30, Subdivisions, of the Municipal Code or which require a City permit, or both, and which are located within the Recycled Water Service Area, shall be conditioned to be dual plumbed to provide for the internal use of recycled water and to provide for the use of recycled water for landscape irrigation. The City Manager (or designee) will determine requirements for recycled water plumbing. These requirements and the use of recycled water will become conditions of approval.

B. Requirement For Industrial Projects in the Recycled Water Service Area.

Existing Industrial: Existing Industrial properties in the Recycled Water Service Area are required to use recycled water for landscaping. Existing Industrial properties must provide a feasibility study to apply for an exception to this Ordinance.

New Industrial: New Industrial projects which require a City permit and which are located within the Recycled Water Service Area are required to provide dual plumbing for internal uses of recycled water and to provide for the use of recycled water for landscape irrigation. Such projects must also provide a feasibility study analyzing the possibility of using recycled water for industrial processes and cooling. The City Manager (or designee) will determine requirements for recycled water plumbing. The feasibility study and, if applicable, any City requirements for the use of recycled water will become conditions of approval.

C. Requirement for Institutional and Governmental Use in the Recycled Water Service Area.

New Institutional and Governmental projects: New institutional and governmental projects which are located within the Recycled Water Service Area are required to be dual plumbed to provide for the internal use of recycled water and to provide for the use of recycled water for landscape irrigation. The City Manager (or designee) will determine requirements for recycled water plumbing. These requirements and the use of recycled water will become conditions of approval.

D. Requirement for Residential Uses in the Recycled Water Service Area.

New Apartments and Condominiums: Apartment and Condominium projects involving new commercial subdivisions of land for which a tentative map or parcel map is required pursuant to California Government Code Section 66426 and Chapter 30, Subdivisions, of the Municipal Code or which require a City permit, or both, and which are located within the Recycled Water Service Area, shall be conditioned to be dual plumbed to provide for the internal use of recycled water and to provide for the use of recycled water for landscape irrigation in common areas. The City Manager (or designee) will determine requirements for recycled water plumbing. These requirements and the use of recycled water will become conditions of approval.

E. Construction and Dust Control Activities.

Any person applying for a construction permit for a project that includes dust control activities is required to use recycled water for those activities.
Section 38.53 Voluntary Use Inside and Outside of the Recycled Water Service Area.

A. Existing Commercial Properties in the Recycled Water Service Area.
Existing Commercial properties: Existing commercial properties that are in the Recycled Water Service Area shall consider using recycled water for internal dual plumbing, internal cooling towers and evaporative coolers.

B. Commercial Properties Outside of the Recycled Water Service Area.
New and remodeled commercial properties: New and remodeled commercial properties that are located outside of the Recycled Water Service Area shall consider the feasibility of providing for internal dual plumbing and providing for the use of recycled water for landscape irrigation, as recycled water may be extended beyond the current Recycled Water Service Area.

C. Existing and New Institutional and Governmental Use.
Existing Institutional and Governmental properties: Existing Institutional and Governmental properties in the Recycled Water Service Area shall consider the feasibility of using recycled water for internal dual plumbing and landscape irrigation.
New Institutional and Governmental properties Outside of Recycled Water Service Area: New Institutional and Governmental properties that are located outside of the current Recycled Water Service Area shall consider the feasibility of using recycled water for internal dual plumbing and landscape irrigation, as recycled water is expected to be extended beyond the current Recycled Water Service Area.

D. Residential Uses; Inside and Outside of Recycled Water Service Area.
Remodeled Apartments and Condominiums: Remodeled Apartment and Condominium properties shall consider the feasibility of dual plumbing to provide for the internal use of recycled water and using recycled water for landscape irrigation in common areas.
Existing Apartments and Condominiums: Existing apartment and condominiums shall consider the feasibility of using recycled water for landscape irrigation in common areas.
Home Owner Associations: Home Owner Associations are encouraged to consider the feasibility of using recycled water for landscape irrigation in common areas.
These statements apply to residential uses both within and outside of the current Recycled Water Service Area as recycled water is expected to be extended beyond the current Recycled Water Service Area.

E. Industrial Projects; Inside and Outside of Recycled Water Service Area.

All Existing and New Industrial Projects shall consider the feasibility of providing for the use of recycled water for industrial processes and cooling.

Section 38.54 Procedures.

A. Recycled Water Application Process. Upon a final determination by the City that a property shall be served with recycled water, or adoption of a condition of development approval requiring use or accommodation of the use of recycled water, the water customer, owner or applicant shall complete an application to use recycled water.

B. Existing Potable Water Service: Voluntary Retrofits. Certain
existing potable water customers in the Recycled Water Service Area will be provided the opportunity by the City to retrofit their system to accept recycled water.

Section 38.55  Sanctions.

A. Public Nuisance: The use of recycled water in any manner in violation of this ordinance and the City’s Customer Guidelines for Recycled Water Use, as may be amended, is hereby declared a public nuisance and shall be corrected or abated as directed by City. Any person creating such a public nuisance is guilty of a misdemeanor.

B. Injunction: Whenever the use of recycled water is in violation of this ordinance or otherwise causes or threatens to cause a condition of nuisance, the City may seek injunctive relief as may be appropriate to enjoin such discharge or use.

C. Penalty: Any owner and or operator who violates this ordinance may, for each day of violation, or portion thereof, be subject to penalties in accordance with Chapter 1 of the City Code.

Section 38.56  Conflicting Provisions.

In the event of any conflict, between the provisions of the most current version of the Uniform Plumbing Code, and the provisions of this Chapter, the provisions of this Chapter shall apply.

Section 4.  Severability.

If any section, subsection, provision or part of this ordinance, or its application to any person or circumstance, is held to be unconstitutional or otherwise invalid, the remainder of this ordinance, and the application of such provision to other person or circumstances, shall not be affected thereby and shall remain in full force and effect and, to that end, the provisions of this Ordinance are severable.

Section 5.  California Environmental Quality Act.
The Council finds that this Ordinance was identified as part of the overall Project for which an Initial Study/Mitigated Negative Declaration and Addendum were adopted in accordance with CEQA in 2002. (Resolution No.14544)

Section 6.  Effective Date
This ordinance shall be effective thirty (30) days after its adoption.

*   *   *
APPENDIX H:

RECYCLED WATER SERVICE AREA
APPENDIX I:

CROSS CONNECTION ORDINANCE
Ordinance No. 2331

ORDINANCE ADDING CHAPTER 38, ARTICLE VI TO THE MUNICIPAL CODE OF THE CITY OF REDWOOD CITY RELATING TO THE CROSS CONNECTION CONTROL PROGRAM ORDINANCE

THE COUNCIL OF THE CITY OF REDWOOD CITY DOES ORDAIN AS FOLLOWS:

Section 1. Municipal Code Amendment. Article VI is hereby added to Chapter 38 of the City Code of the City of Redwood City to read as follows:

“Article VI. CROSS CONNECTION CONTROL

Sec. 38.30 Purpose

The City of Redwood City has a responsibility of protecting the public water supply from contamination occurring through backflow. This can only be achieved by implementing an effective cross connection control program. This program has been designed to:

A. protect the public water supply against actual or potential cross-contamination or pollution that may occur because of some undiscovered or unauthorized cross-connection on a customer-user’s system;

B. eliminate existing connections between drinking water systems and other sources of water that are not approved as safe and potable for human consumption;

C. encourage the exclusive use of public sources of water supply for domestic purposes;

D. protect the drinking water supply within the premises where plumbing defects or cross-connections may endanger the drinking water supply available on the customer-user’s system.

Sec. 38.31 Incorporation of Regulations

The regulations of the California Department of Public Health, Title 17, California Code of Regulations, Sections 7583 – 7605, inclusive, herein after referred to as Title 17, and Article VII (Plumbing Code) of Chapter 9 of this Code and all amendments thereto, are hereby adopted, incorporated by references herein and made a part hereof, insofar as the same are applicable to the protection of the City’s water distribution system.
Sec. 38.32  Protection Required for Water Service

No water service connection to any premises shall be installed or maintained by the City unless the water supply is protected as required by state laws and regulations and this Article.

Sec.38.33  Equipment Requiring Backflow Prevention

No person shall advertise, sell or offer for use or sale, any waste-treating chemical or substance, water-using or water-oriented equipment, mechanism or contrivance, which when utilized may cause contamination or pollution of the domestic water supply unless such operation has been equipped with an approved backflow prevention assembly.

Sec. 38.34  Assembly Requirements

Any backflow prevention assembly required herein shall be a model and size approved by the Director and it shall be the customer-user’s property, responsibility and at the customer-user’s expense to install and maintain such assembly.

Sec. 38.35  Responsible Authority

The Director of Public Works Services is invested with the authority and responsibility for the implementation of an effective cross-connection control program and for the enforcement of the provisions of this ordinance.

Sec. 38.36  Right of Entry

The Customer-user’s system should be open for inspection at all reasonable times, or in case of emergency at any time, to authorized representatives of the City to determine whether cross connections or other structural or sanitary hazards, including violations of these regulations, exist.

Sec. 38.37. Definitions

The following words or phrases shall, for the purpose of this Article, have the meanings respectively ascribed to them in this Section:

A. Auxiliary Water Supply: Any water supply on or available to the premises other than the City approved public water supply. These auxiliary waters may include water from another purveyor’s public potable water supply or any natural source(s), such as a well, spring, river, stream, harbor, and so forth; used waters; recycled water; or industrial fluids. These waters may be contaminated or polluted, or they may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.
B. Backflow: The undesirable reversal of flow in a potable water distribution system as a result of cross connection.

C. Backpressure: A pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, or any other means that may cause backflow.

D. Backsiphonage: Backflow caused by negative or reduced pressure in the supply piping.

E. Backflow Prevention Assembly: An assembly or means designed to prevent backflow.

F. City: The City of Redwood City

G. Contamination: An impairment of a potable water supply by the introduction or admission of any foreign substance that degrades the quality and creates a health hazard.

H. Cross Connection: A connection or potential connection between any part of a potable water system and any other environment containing other substances in a manner that, under any circumstances would allow such substances to enter the potable water system. Other substances may be gases, liquids, or solids, such as chemicals, waste products, steam, water from other sources (potable or non-potable), or any matter that may change the color, add odor, or in any way change the quality of the potable water system.

I. Customer-User: Any person or organization with whose premise contains a customer water system and who receives water or water service from the City’s water system and whose name appears on the water bill for water serving that premise.

J. Director: Director of Public Works Services for the City or authorized representative.

K. Hazard, Degree of: The term is derived from an evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system.

L. Industrial-Fluids Systems: Any system containing a fluid or solution that may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration, such as would constitute a health, system, pollution, or plumbing hazard, if introduced into an approved water supply. This may include, but not be limited to, polluted or contaminated waters; all types of process waters and used waters originating from the public potable water system that may have deteriorated in sanitary quality; chemicals in fluid form; plating acids and alkalis; circulating cooling water connected to an open cooling tower; and/or cooling
towers that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters, such as wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, and so forth; oils, gases, glycerin, paraffins, caustic and acid solutions, and other liquid and gaseous fluids used in industrial or other purposes for fire fighting purposes.

M. Pollution: The presence of any foreign substance in water that tends to degrade its quality so as to constitute a non health hazard or impair the usefulness of the water.

N. Public Works Services: The Public Works Services department of the City of Redwood City.

O. Water - Potable: Water that is safe for human consumption as described by the California Department of Public Health.

P. Water – Nonpotable: Water that is not safe for human consumption or that is of questionable quality.

Q. Water - Used: Any water supplied by the City from the public potable water system to a customer-user's water system after it has passed through the point of delivery and is no longer under the sanitary control of the City.

R. Water Service Connection: The terminal end of a service connection from the public potable water system, that is, where the City loses jurisdiction and sanitary control over the water at its point of delivery to the customer-user's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There should be no unprotected takeoffs from the service line ahead of any meter or backflow-prevention assembly located at the point of delivery to the customer-user's water system. Service connection shall also include water service connection from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.

S. Water System, City: The City water system shall consist of the source facilities and the distribution system and shall include all those facilities of the water system under the complete control of the City, up to the point where the customer-user's system begins. The source shall include all components of the facilities utilized in the production, treatment, storage, and delivery of water to the distribution system. This distribution system shall include those parts of the facilities beyond the termination of the City distribution system that are utilized in conveying City delivered domestic water to points of use.

T. Water System, Customer: The customer-user's water system shall include those parts of the facilities beyond the termination of the City distribution system that are utilized in conveying City delivered domestic water to points of use.
Sec. 38.38  Requirements for Backflow Protection

A.  Conditions Necessitating Backflow. In the case of premises having any of the following, the public water system shall be protected against backflow from the premises by installing an approved backflow prevention assembly in the service line, appropriate to the degree of hazard:

1.  An auxiliary water supply or a supply that is not or may not be of safe bacteriological or chemical quality and that is not acceptable as an additional source by the City.

2.  Industrial fluids or any other objectionable substances are handled in such a fashion as to create an actual or potential hazard to the public water system. This shall include the handling of process waters and waters originating from the utility system that have been subject to deterioration in quality.

3.  Internal cross connections that cannot be permanently corrected and controlled.

4.  Intricate plumbing and piping arrangements.

5.  Where entry to all portions of the premises is not readily accessible for inspections purposes, making it impracticable or impossible to ascertain whether or not dangerous cross connections exist.

B.  Type of Backflow Protection. The type of protective assembly required under subsection 38.38(A) shall depend upon the degree of hazard that exists.

1.  The public water system shall be protected by an approved air gap separation, or a reduced pressure principle backflow prevention assembly if approved by the Director, on each service to the premises for the following degrees of hazard.

   a.  In the case of any premises where there is an auxiliary water supply.

   b.  In the case of any premises where there is any material dangerous to health that is handled in such a fashion as to create an actual or potential hazard to the public water system. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries, and plating plants.

   c.  In the case of any premises where there are cross connections, either actual or potential.
d. In the case of any premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete in-plant cross connection survey.

2. In the case of any premises where there is water or substance that would be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by an approved double check valve assembly.

3. In the case of any premises where, in the opinion of the Director, an undue health threat is posed because of the presence of extremely toxic substances, the Director may require an air gap at the service connection to protect the public water system. This requirement will be at the discretion of the Director and is dependent of the degree of hazard.

**Sec. 38.39 Installation of Backflow Prevention Assemblies:**

A. Where Backflow Prevention Assembly Are Required

In addition to the requirements of Article VII (Plumbing Code) of Chapter 9 of this Code and all amendments thereto, an approved backflow prevention assembly shall be installed on each service line to a customer-user's water system at or as near possible the terminal end of the service connection from the City water system or immediately inside the building being served; but in all cases, before the first branch line leading off the service line.

B. Installation and Permits

Every backflow prevention assembly installed for the purpose of eliminating a cross-connection shall be so installed with all applicable City permits, in accordance with City standards, and at a location approved by the Director. The approval required hereunder shall be in addition to all applicable requirements of Title 17 of the California Administrative Code and Article VII (Plumbing Code) of Chapter 9 of this Code and all amendments thereto.

**Section 38.40 Testing of Backflow Prevention Assemblies:**

A. Customer-User Responsibilities: The customer-user shall have the following responsibilities

1. Testing: It shall be the duty of the customer-user at any premises where backflow prevention assemblies are installed to have certified inspections and operational tests made immediately upon the installation, repair or relocation of such assembly and at least once per year thereafter.
2. Inspection and Testing Costs. Certified inspections and operational tests shall be at the expense of the customer-user.

3. Repair Cost. Backflow prevention assemblies shall be repaired, overhauled, or replaced at the expense of the customer-user whenever said assemblies are found to be defective.

4. Record Keeping. Copies of records of such tests, repairs, and overhaul shall be kept by the customer-user for a period of three (3) years and shall be provided to the Director and maintained by the City for a period of no less than three (3) years.

5. Access. The Customer-user's system should be open for inspection and testing at all reasonable times, or in case of emergency at any time, to authorized representatives of the City to determine whether cross connections or other structural or sanitary hazards, including violations of these regulations, exist.

B. Director Responsibilities. The Director shall have the following responsibilities:

1. It shall be the duty of the Director to see that certified inspections and operational tests are made in a timely manner.

2. At the Director's discretion, certified inspections and operational tests shall be performed by Public Works Services personnel or a contractor hired by the Director.

3. If the Director does not deem it appropriate for Public Works Services personnel to test the assembly, the Director shall notify each affected customer-user when it is time for the backflow prevention assembly installed on the customer-user system to be tested. This written notice shall give the customer-user thirty (30) days to have the backflow prevention assembly tested and the Director will make available the necessary form to be completed and submitted to the Director.

4. The Director shall send a second notice to each customer-user who does not have their backflow prevention assembly tested as prescribed in the first notice within the thirty (30) day period allowed. The second notice shall give the customer-user a two (2) week period to have their backflow prevention assembly tested.

C. Billing for Testing.

The cost of any certified inspection or operational test performed by Public Works Services Personnel or by a contractor hired by the Director shall be included as part of the next ensuing municipal water bill presented to the customer-user.
D. Frequency of Testing.

Tests shall be made immediately upon the installation or relocation of backflow prevention assemblies and at least once per year thereafter. In those instances where the Director determines there is a high degree of hazard, such as a chemical plant, certified inspections may be required at more frequent intervals.

E. Test Failure.

For backflow prevention assemblies which fail to pass certified inspection or operational testing, the customer-user shall, immediately after notification of test results, provide for maintenance and repair of the assembly at their own expense and have the assembly retested.

F. Approved Testers.

No person shall test or shall make reports on backflow prevention assemblies as required in Title 17 of the California Administrative Code and this Article unless such person has received a “Certificate of Competency” issued by the Director.

1. In order to ensure that testing of backflow prevention assemblies is performed by technically competent individuals who are personally responsible and, if other than self-employed, are employed by persons and / or organizations which are also responsible, the Director is authorized to require backflow prevention testers to show evidence that such persons possess a valid contractors license, a Redwood City business license, currently valid Backflow Prevention Testers Certificate issued by the American Water Works Association for any persons who will perform such tests and currently valid calibration certifications for any differential pressure gauges to be used for the purpose of testing backflow prevention assemblies.

2. The Director may conduct examinations to determine the competency of any person desiring to test and make reports on backflow prevention assemblies hereinbefore described. Those persons who have successfully completed such an examination, and who have been determined by the Director to be competent to test and make reports on backflow prevention assemblies shall receive from the Director a “Certificate of Competency.”

3. The approval procedures shall require each prospective tester to submit an application to the Director providing such information as the Director may determine to be reasonably necessary to establish the applicant’s technical competence and personal responsibility. The Director shall compile, and update no less frequently than annually, a list of the names, business addresses and telephone numbers of all approved testers and shall make the current version of such list available to customer-users.
4. The Director may require an approved tester to (1) demonstrate backflow prevention assembly testing procedures in the field, and (2) provide advanced notice to the Director of scheduled backflow prevention assembly testing, installation or repair work so that it may be observed by the Director.

5. The Director may revoke approval of an individual tester and remove them from the list of approved testers if the individual tester, or their employer, fails or refused to comply with City policies and procedures for testing of assemblies, submits incorrect test reports, engages in dishonest business practices in the City, fails to maintain a valid Backflow Testers Certificate issued by the American Water Works Association, or installs, repairs, or tests backflow prevention assemblies in a negligent manner.

6. No person shall perform tests on backflow prevention assemblies in the City unless he or she has been approved to do so by the Director. No person, firm, corporation or other form of business organization shall permit an employee to perform tests on backflow prevention assemblies in the City unless such employee has been approved to do so by the Director.

G. Test Reporting. A record of each test shall be submitted to the Director within thirty (30) days after the test to which such record pertains, upon forms provided by the Director.

**Sec. 38.41 Fees**

A. Administrative Fee

Where backflow prevention assemblies must be maintained and tested, the City shall charge administrative fees at the rate of $60 per backflow prevention assembly annually. The fees shall be included as part of the municipal water bill presented to the customer-user.

B. Testing Fee

When the Director deems it appropriate to test backflow prevention assemblies using City staff or by a contractor hired by the City, the annual fee for such test shall be included as part of the next ensuing municipal water bill presented to the customer-user.
Sec. 38.42 Cross Connection Prohibition

A. It shall be unlawful for any person to construct, install, use, keep, or maintain, or to permit, cause, or allow the construction, installation, use, or maintenance of a cross-connection.

B. It shall be unlawful for any person to construct or install, or to cause to be constructed or installed, a backflow prevention assembly which does not meet pertinent requirements of Title 17 of the California Administrative Code and Article VII (Plumbing Code) of Chapter 9 of this Code and all amendments thereto, and this Article.

C. It shall be unlawful for any person to operate, use or maintain, or to permit, or cause the use, operation, or maintenance of any backflow prevention assembly which is not tested at least once each calendar year.

D. It shall be unlawful for any person to use, operate, or maintain, or to permit or cause the use, operation, or maintenance of any backflow prevention assembly which is not in good repair.

Sec. 38.43 Penalties:

A. Termination of Water Service

In addition to the rights granted herein, the City may terminate water service to any premises served if a required backflow prevention assembly is removed or tampered with by customer-user. The term “tampered with” shall include, but is not limited to, those instances where the City finds evidence that an installed backflow prevention assembly has been by-passed, modified, made or allowed to remain ineffective.

B. Fine and Imprisonment

Any person or persons who willfully fails to install, or permit to be installed, backflow prevention assemblies as required by this Article or who willfully by-passes, alters or refuses to maintain a backflow prevention assembly, shall be guilty of a misdemeanor and upon conviction thereof shall be subject to a fine not exceeding $500 or imprisonment in the County jail for a period not exceeding six months or both fine and imprisonment.

Section 2. Effective Date This ordinance shall be effective thirty (30) days after its adoption.

Section 3. Severability If any section, subsection, provision or part of this ordinance, or its application to any person or circumstance, is held to be unconstitutional or otherwise invalid, the remainder of this ordinance, and the
application of such provision to other person or circumstances, shall not be affected thereby and shall remain in full force and effect and, to that end, the provisions of this Ordinance are severable.

* * *

* * *
APPENDIX J:

BACKFLOW PREVENTION ASSEMBLY
FIELD TESTING AND MAINTENANCE
REPORT
CITY OF REDWOOD CITY
PUBLIC WORKS SERVICES DEPARTMENT
1400 Broadway Street, Redwood City, CA 94063
Phone 650-780-7464 - Fax 650-780-7445

BACKFLOW PREVENTION ASSEMBLY FIELD TESTING AND MAINTENANCE REPORT

<table>
<thead>
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<th>Model</th>
<th>Size</th>
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Check all that apply below:
- [ ] RP
- [ ] DC
- [ ] DCDA
- [ ] PVB
- [ ] SVB
- [ ] Internal Protection
- [ ] Service Protection
- [ ] New Install

### Reduced Pressure Principle Assembly

#### Double Check Valve Assembly

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Comments:

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The undersigned certifies this report be true:

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<th>INITIAL TEST</th>
<th>Name ___________________________</th>
<th>Certified Tester Number ___________________________</th>
<th>Date ___________ Time ___________</th>
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Revised October 18, 2018
White Copy- Redwood City Golden Rod - Assembly Owner Pink Copy- Assembly Tester
ABBREVIATIONS and GLOSSARY

Air Gap  A physical break between the supply line and a receiving vessel

AWWA  American Water Works Association

Backflow Preventer  A device to prevent water from returning to a pipe system

County DPH  San Mateo County Health Services Agency

Cross Connection  An illegal connection between a potable water system with a recycled water system

Cross Connection Test  A test to determine if the potable and recycled water are connected on a site

Customer  The person who signs the Recycled Water Use Application and represents the site to receive recycled water

DPH  California Department of Public Health

Dual Plumbed System  Refers to a building that utilizes both potable and recycled water systems to serve interior fixtures.

Hose Bib  hose bibs are not permitted on the recycled water system, replace all hose bibs with quick couplers

Off-Site Facilities  Pipes and other water carrying devices upstream of the customer water meter

On-Site Facilities  Pipes and other water carrying devices downstream of the customer water meter

Overspray  Water usually sprayed from a sprinkler which lands in an unintended area, particularly on hard surfaces, walks, paths or roads

POC  Point of Connection of the site plumbing system to the main system

Ponding  Irrigation water which forms a puddle on the landscape on or off site

Potable Water  Drinking water

PSI  Abbreviation for pounds per square inch, a unit of
<table>
<thead>
<tr>
<th><strong>Quick Coupler</strong></th>
<th>Measurement of pressure. Below ground device that should be used in place of a hose bib.</th>
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<tbody>
<tr>
<td><strong>Recycled Water</strong></td>
<td>Disinfected tertiary recycled water.</td>
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<tr>
<td><strong>RWQCB</strong></td>
<td>Regional Water Quality Control Board.</td>
</tr>
<tr>
<td><strong>RWQCB Order No. 96-011</strong></td>
<td>Regional Water Quality Control Board General Order No. 96-011; the General Water Reuse Order under which the City of Redwood City is permitted.</td>
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<tr>
<td><strong>RP Device</strong></td>
<td>Reduced pressure backflow prevention device.</td>
</tr>
<tr>
<td><strong>Runoff</strong></td>
<td>Irrigation water which leaves the site in a rivulet or stream.</td>
</tr>
<tr>
<td><strong>Site Supervisor</strong></td>
<td>Designated person responsible for the recycled water system on a site.</td>
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<tr>
<td><strong>State DPH</strong></td>
<td>California Department of Public Health.</td>
</tr>
<tr>
<td><strong>Title 17</strong></td>
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<tr>
<td><strong>Title 22</strong></td>
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