NORTH MARIN
WATER DISTRICT

EXCERPT FROM NMWD TITLE 22 REPORT APPROVED 2016*

Appendix D - NMWD Recycled Water Users Manual

Includes:

Recycled Water Program Manual and Appendices (Title 22 Report)
Residential Recycled Water Pick-Up Program Guidelines and Application Agreement
Recycled Water Guidelines Manual and Training Material
Recycled Water Truck Program Recycled Water Use Permit
Recycled Water Truck Permit - Recycled Water Load Form
Recycled Water Truck Program Guidelines
Recycled Water Use Quiz
Recycled Water Truck Checklist
Recycled Water Truck Program - RW Water Hydrants

SEE WEBSITE FOR UPDATES ON SPECIFIC SECTIONS
www.nmwd.com/your-water/recycled water/

*includes updated forms

Recycled Water Program Manual

APPENDICES TO RECYCLED WATER PROGRAM MANUAL

RECYCLED WATER PROGRAM MANUAL
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Chapter 1
ADMINISTRATIVE PROCEDURES FOR PROGRAM STAFF

INTRODUCTION

This chapter serves as a guidance document for the North Marin Water District (NMWD) and Novato Sanitary District (NSD) Recycled Water Program (Program). NMWD issues permits to users of recycled water produced at NSD's Recycled Water Facility (RWF). NMWD monitors user compliance with all governing regulations for recycled water use.

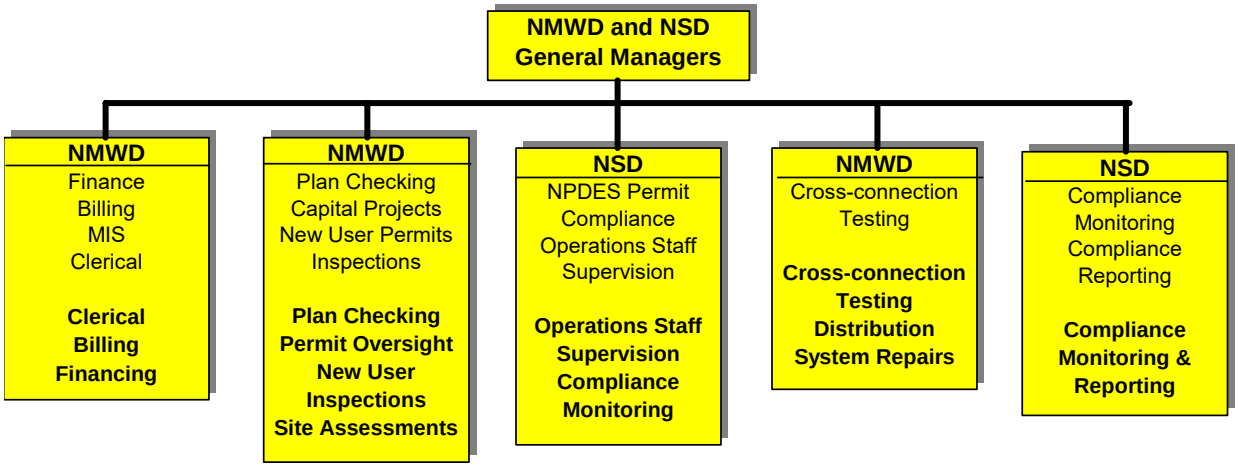
The NMWD manages the recycled water distribution system and complies with regulatory requirements by issuing, reviewing and enforcing Recycled Water Use Permits. The Permit process ensures that recycled water is used in accordance with the Guidelines for Recycled Water Use, the General Water Reuse Permit (RWQCB Order 96-011) and the State of California Water Reclamation Criteria (Title 22).

PROGRAM ORGANIZATION AND STAFFING

The Novato Sanitary District is the Producer of the recycled water and the North Marin Water District is the Distributor of the recycled water. Figure 1-1 indicates the organization chart for the Program. The responsibilities for administering the Recycled Water Program are as follows:

- The General Managers of NMWD and NSD have overall responsibility for the Recycled Water Program.
- The Administrative Department of NMWD performs clerical, billing, and financing functions
- The Engineering Department of NMWD is responsible for plan checking, user permitting, new user inspections, and user site assessments.
- The Novato Sanitary District is responsible for overall operations and maintenance of the treatment facilities and the portion of the distribution facilities up to their property line. The North Marin Water District is responsible for operation and maintenance of the distribution system outside of NSD's property line.
- The NSD Plant Manager is responsible for operating the treatment facilities to meet Title 22 requirements
- The NMWD Maintenance Manager supervises cross-connection testing and distribution system repairs
- The NSD Lab Director supervises monitoring for Title 22 compliance at the treatment facility.

Figure 1- 1 Recycled Water Organization Chart



Legend
Bold print indicates Recycled Water Program responsibilities
Non-bold print indicates partial list of duties related to other NMWD and NSD operations to show responsibilities and commonality with Recycled Water responsibilities.

RECYCLED WATER PRODUCTION AND DISTRIBUTION

RECYCLED WATER PRODUCTION

The RWF is designed to treat up to 0.5 MGD of secondary effluent from Novato Sanitary District. Secondary effluent is diverted from the plant effluent pipeline containing final effluent from NSD's Novato and Ignacio treatment plants. The secondary effluent undergoes further treatment including chemical addition, filtration and disinfection at new Recycled Water Facilities located at the Effluent Storage Ponds before being distributed to Recycled Water Users. Recycled water quality meets or exceeds the Title 22 water quality requirements for recycled water use. Chapter 4 contains further information on treatment and production of recycled water.

RECYCLED WATER DISTRIBUTION

Recycled water is distributed to users through a distribution system owned and operated by NSD (within NSD's property boundaries) and NMWD (outside the NSD's property line). The system initially serves only irrigation needs of the Stone Tree Golf Course. Other customers may be served in the future. Pumping facilities are located at the RWF site. Chapter 4 contains further information on distribution of the recycled water.

PERMITTING PROCESS FOR RECYCLED WATER CUSTOMERS

NMWD's permit process for recycled water use ensures that all regulatory requirements are met and properly documented. NMWD is responsible for administering the Permit process for all

Users. Table 1-1 lists the forms and procedures used for permitting. The forms are included in Appendices A through F. Figure 1-2 illustrates the permitting process.

NEW CONSTRUCTION PERMIT APPLICATION

NMWD provides an Application for a Permit to Use Recycled Water (Form A-1) and the Guidelines for Recycled Water Use (Guidelines from Chapter 2) to the Applicant. NMWD staff is available to answer questions related to design, recycled water use, and permitting. For sites that include dual plumbing or other "in-building" uses of recycled water, an Engineering Report for Dual Plumbed Systems is also required (Form A-4). The Dual Plumbed Systems Report will be submitted to NMWD for review as part of the permitting process, and then forwarded to regulatory agencies by the Applicant. For sites not requiring a Dual Plumbed Systems Report, the Permit application provides the information required for coverage under NMWD's Water Reuse Permit.

The permit application contains information about the site, a site map, and the designation of the Recycled Water User Supervisor (User Supervisor) for the User. The application is tracked by the NMWD staff responsible for maintaining Recycled Water User Site and Permit files. When an applicant files for a Permit, a set of construction plans for the site must be submitted to NMWD and a plan check for recycled water use is then performed. The Recycled Water Service Plan Checklist (Form A-2) provides guidance to NMWD staff conducting the plan check. Program comments and changes are sent back to the Applicant. The plans must be approved by NMWD before a Recycled Water Use Permit is issued.

NMWD may choose to perform inspections during construction to verify that the work is in accordance with the approved plans, and the Guidelines. NMWD staff performs a post construction inspection using the Field Verification of Recycled Water Service Plan form (Form A-3).

RETROFIT SITES: ON-SITE EVALUATIONS AND IDENTIFICATION OF RETROFIT REQUIREMENTS

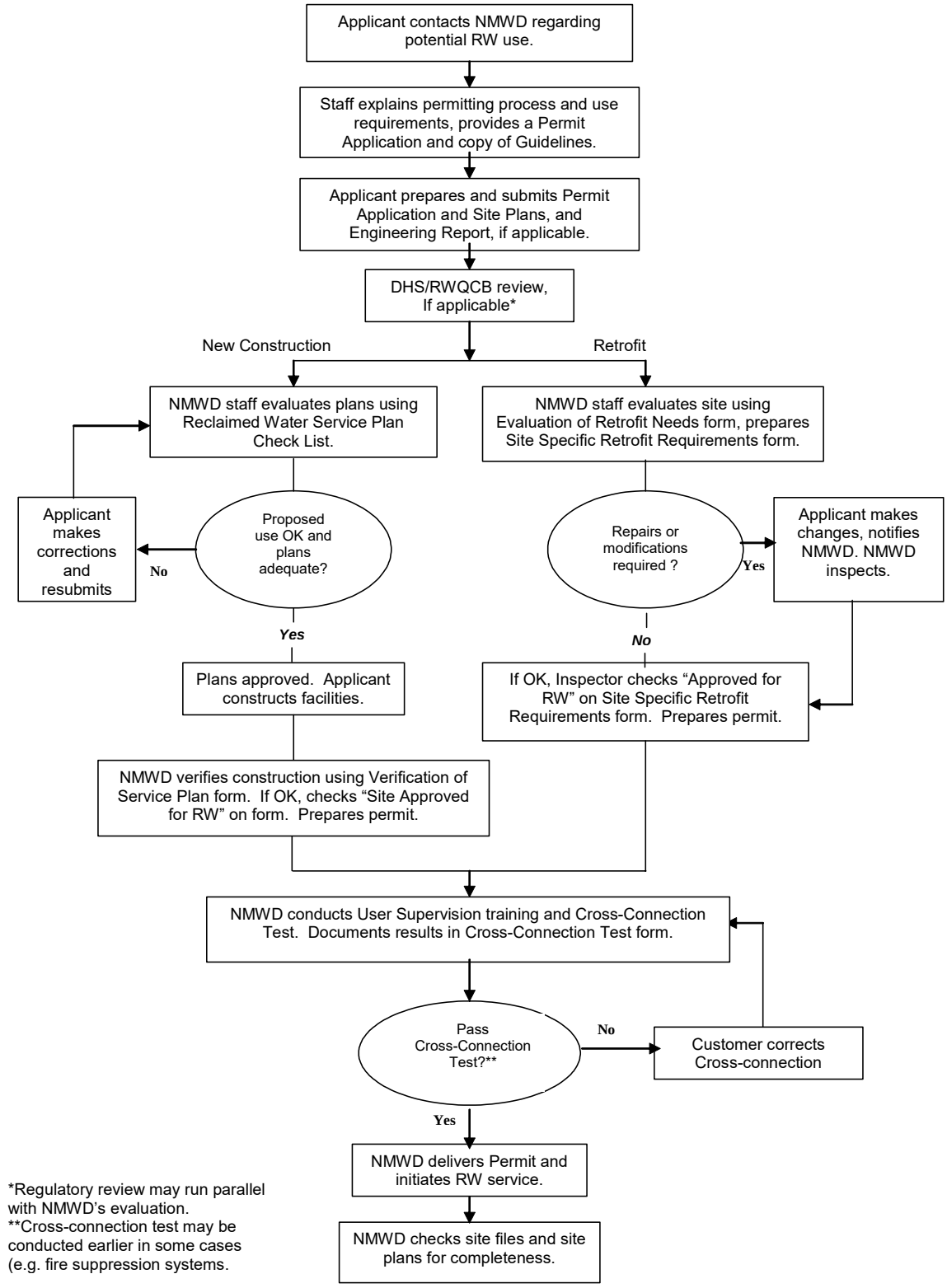
For sites involving retrofit of existing facilities for recycled water use, NMWD staff conduct a site visit to evaluate site repairs and retrofit requirements, and identify potential cross-connections between the potable and proposed recycled water systems. The Evaluation of Retrofit Needs checklist (Form B-1) is used by NMWD staff to facilitate and document field evaluation. On the basis of this evaluation, NMWD staff completes the Site Specific Retrofit Requirements form (Form B-2), which lists specific actions that must be completed in order to establish a recycled water service. The latter form is sent to the user.

Retrofit sites also must submit an Application for a Permit to Use Recycled Water (Form A-1). Repairs and retrofit of on-site facilities as specified in the Site Specific Retrofit Requirements form must be completed and approved by NMWD staff prior to issuance of a Permit to Use Recycled Water. An NMWD staff person inspects the repairs and retrofit, and if correctly completed, approves the site for recycled water use. NMWD staff also verify that any "as-built" changes are recorded on-site maps or drawings.

Table 1-1 List of Permit-Related Forms and Procedures

Form	Document Name	Comment
Customer Permitting Forms		
A-1	Application for a Permit to Use Recycled Water	Contains required site information. Becomes part of RW permit.
A-2	Recycled Water Service Plan Check List	Checklist to be used by NMWD during plan checking to confirm adequacy of site plans.
A-3	Field Verification of Service Plan	Checklist to be used by NMWD for post-construction field verification of RW requirements.
A-4	Requirements for Engineering Reports for Dual Plumbed Systems	Guidelines for preparing Engineering Reports for Dual Plumbed Systems
A-5	Permit to Use Recycled Water	Issued to customer. Space for additional terms and conditions.
Retrofit Site Forms		
B-1	Evaluation of Retrofit Needs	Checklist/Documentation for use by NMWD staff during site retrofit evaluation..
B-2	Site-Specific Retrofit Requirements	To be completed by NMWD staff after retrofit evaluations. Lists corrective actions needed, and block for final NMWD approval.
B-3	Instructions for Completing Site-Specific Retrofit Requirements Form	Guidance to NMWD staff for completing the Site Specific Retrofit Requirements Form.
Cross-Connection Testing Forms		
C-1	Cross-connection Test and Discovery Procedures for Landscape Irrigation systems Using Recycled Water	General procedures for most irrigation sites. Includes preliminary test procedure and what to do if cross-connection is discovered.
C-2	Cross-connection Test and Report	Checklist/Documentation for test.
C-3	Procedure if Cross-connection is Discovered	Guidance and documentation for NMWD staff
Monitoring Forms		
D-1	NMWD Inspector's Monitoring Report	Form for NMWD's use when inspecting sites.
D-2	Customer's Self-Monitoring Report	Form for customer's use if self-monitoring is specified. Attaches to Permit.
Construction Water Forms		
F-1	Construction Water Permit	Permit form for construction water issued to Customer by NMWD
F-2	Construction Water Release Form	Documentation volume of recycled water received by water trucks for construction water
F-3	Construction Water Inspection Checklist	Form for NMWD's use when inspecting trucks or construction water sites

Figure 1- 2 Permitting Process Flowchart



PERMIT TO USE RECYCLED WATER

If field verification of new construction or retrofit work shows that requirements have been met, NMWD staff generates a Recycled Water Use Permit (Form A-5). The Permit has space for any additional site-specific requirements, and includes the Recycled Water User's Self-Monitoring Report form (Form D-2). The signed Application for a Permit to Use Recycled Water is part of and attached to the Permit. Initiation of recycled water service will not occur until the final cross-connection test is completed.

RECYCLED WATER SERVICE INITIATION

NMWD cross-connection control specialists conduct the final cross-connection test, as described in Chapter 3, Cross-Connection Control Program. The Cross-Connection Test Report (Form C-1) documents the result of the test. If the test is successful, the Permit to Use Recycled Water is delivered to the user, and recycled water service is activated.

DOCUMENTATION

NMWD maintains a file for each user including all permitting forms, site drawings, cross-connection tests, field notes, and customer correspondence. Future site inspections and cross-connection reports, field notes, and correspondences are maintained in the user file.

MONITORING

IN-PLANT WATER QUALITY MONITORING

Monitoring of RWF effluent quality is conducted by the NSD Lab staff as part of NSD's self-monitoring program. Monitoring criteria and frequency are described in Chapter 4 Plant Operations Plan.

RECYCLED WATER USE AREA MONITORING

The Recycled Water Use Permit specifies the monitoring for individual Recycled Water User sites. The monitoring is consistent with the RWQCB's requirements. The frequency of monitoring is annually at a minimum, and more frequent if deemed necessary by the NMWD staff. Annual inspections are done by NMWD. NMWD may also require the Recycled Water User to conduct self-monitoring at a frequency specified in the Recycled Water Use Permit. The Inspector's Monitoring Report is a checklist used to document NMWD's inspections. In the event that self-monitoring is specified, the Recycled Water User's Self-Monitoring Report will be attached to the Permit for use by the User. Annual inspections will look for the following:

- Excessive runoff and/or overspray
- Ponding
- Evidence of leaks or breakage in the irrigation system
- Broken or defective sprinklers or emitters
- Posted signs, tags and/or labels

- Any overflow or leaks from storage facilities or impoundments

In addition, inspections review general permit compliance, backflow and cross-connection testing compliance, and a review of User Supervisor and employee training needs. NMWD maintains a calendar for scheduling site monitoring, inspections and cross-connection tests. For self-monitoring sites, a notice is sent to remind customers of self-monitoring requirements.

COMPLIANCE VIOLATION PROCEDURES

Noncompliance with provisions set forth in the users Recycled Water Use Permit results in immediate action by NMWD. Minor infractions, such as improper signage or excess runoff, are handled informally through site visits or phone calls, with the appropriate follow-up by NMWD staff. More serious infractions, or minor infractions that are not corrected in a timely manner, result in a formal Notice of Violation, followed if necessary by more stringent enforcement actions as allowed under NMWD Regulations or State Codes and Regulations. Serious violations of the Guidelines that impact or threaten to impact public health or water quality will be reported by the District to the RWQCB by phone within 24 hours, followed by a written report within 15 days describing the corrective actions taken. Recycled Water Users are required by the Guidelines to immediately report any emergencies or serious violations to NMWD. 24 hour notification numbers are listed in the telephone directory and in the Guidelines.

Enforcement is handled by NMWD staff. A record of all actions, whether formal or informal, is maintained in the Recycled Water User file. NMWD will terminate recycled water service to users who fail to correct non-compliant conditions

REPORTING

NSD as Producer and NMWD as Distributor will report violations of DHS reuse criteria that impact or threaten to impact public health or water quality to the RWQCB and DOHS within 24 hours of the violation notification, followed by a written report within 15 days describing corrective actions taken.

NMWD and NSD submit annual Producer and User Monitoring reports to the Regional Water Quality Control Board. The report includes:

- Tabulation of recycled water quality results
- A tabulation of recycled water use by each customer by billing period
- A list of new authorized recycled water customers, including name, application, source and projected annual flow to be delivered
- A summary of total daily recycled water delivered
- A summary of effluent violations related to recycled water use, violations found during inspections of user sites, corrective actions taken, and any changes to, or revocation of Recycled Water User Permits.
- An update regarding current and future development of the recycled water program, including planning, design and construction of facilities, preparation of required reports and technical documents and progress toward regulatory approvals
- Progress and evaluation of any special studies or projects being undertaken related to the recycled water program.

Chapter 2
Guidelines for Recycled Water Users

INTRODUCTION

PURPOSE

This document serves as a guidance document for potential users of recycled water produced at the NMWD/NSD Recycled Water Facility (RWF). Recycled water produced by the Novato Sanitary District (NSD) is treated to comply with current regulations governing recycled water. The recycled water is distributed by the North Marin Water District (NMWD). Legislation governing production, distribution and use of recycled water is contained in California's Health and Safety Code and Water Code. This legislation is implemented through the California Code of Regulations Title 17 and Title 22. Title 17 establishes backflow protection for the potable water supply, and Title 22 sets the requirements for recycled water treatment, quality, and allowable uses.

SUITABLE USES OF RECYCLED WATER

The California Department of Health Services (DOHS) has designated suitable uses of recycled water based upon the level of treatment received prior to use. The level of treatment provided by the RWF corresponds to "tertiary recycled water". This is the highest level of treatment and has the greatest number of allowable uses including unlimited bodily contact, but is not suitable for drinking or for use in food preparation.

SERVICE REQUIREMENTS

SERVICE AREAS

Recycled water may be provided to all customers within the boundaries of all approved service areas for recycled water. The use of recycled water shall only be allowed in accordance with all Federal, state and local regulations.

CONDITIONS OF SERVICE

Service to recycled water customers may be terminated or interrupted due to the following:

- The quality of the recycled water does not comply with the requirements of the Regulatory Agencies.
- The customers' use of the recycled water does not conform to all applicable regulations.

If the pressure of the recycled water is higher than the customer needs, it is the responsibility of the customer to provide a pressure-reducing valve downstream of the service meter.

RECYCLED WATER USE PERMIT

Prospective recycled water customers must submit to the Recycled Water Program an Application for a Recycled Water Use Permit (Form A-1).

For sites where recycled water is to be used inside a building, a more formal Engineering Report must be filed. Requirements for preparing an Engineering Report are included as Appendix A.

The Application for a Recycled Water Use Permit should be filed concurrently with the application for water service. Upon receipt of the permit application, NMWD will conduct a plan check to verify that all design conditions are met. If not, NMWD may require resubmittal of the missing information and/or drawings. For retrofit sites, NMWD will conduct a site inspection, and notify the customer of any repairs or modifications required.

Upon completion of construction (or site modifications), NMWD will conduct a final inspection to verify that all design requirements have been met, and a cross-connection test to verify that there are no interconnections between the potable and recycled water systems. All final conditions must be recorded on the site drawings. Final approval for service shall be indicated by NMWD issuing a Recycled Water Use Permit. The Permit includes the customer's signed permit application, along with a listing of site-specific requirements, if any. The permit shall be the binding agreement between NMWD and the user.

PROTECTION OF WATER RESOURCES

Potable Water System Protection

On premises using both recycled water and potable water, the potable water supply must be protected against any accidental cross connections by the use of methods described in Chapter 3 Cross Connection Control Plan. All cross connection control assemblies must be on NMWD's "Approved Backflow Device List". The testing requirements for backflow devices will be specified by NMWD, and may be quarterly, semi-annual, or annually depending on the site's degree of hazard.

Groundwater Protection

The irrigation or impoundment of recycled water shall be prohibited within 50 feet of any potable water reservoir or well. Irrigation or impoundment of recycled water within 100 feet of any non-potable well shall require the approval of the Marin County health department.

Recycled Water System Protection

NMWD must ensure that the recycled water system is not compromised by any customer. Therefore, in some cases NMWD may require "Approved Backflow Devices" (see above) on the customer's recycled water system. An example of where such protection might be required would be when chemicals may be injected into a recycled water line by the customer. Backflow devices must be properly inspected, maintained, and tested as mentioned above. Backflow devices on the recycled water system shall be marked and color-coded as noted elsewhere in these guidelines. Backflow device testing equipment used in the recycled water system must not be used in the potable water system.

RECYCLED WATER USER SUPERVISOR

A User Supervisor must be designated by the Recycled Water User and approved by NMWD for every site where recycled water is used. NMWD's approval will be based on the individual's familiarity with the recycled water system, authority, and training. NMWD will provide training for the User Supervisor as described below. Although NMWD retains ultimate responsibility for use of recycled water at all sites, the User Supervisor has the primary responsibility for ensuring safe use of recycled water at a given site. The following are the responsibilities of the User Supervisor:

Control of On-Site Uses of Recycled Water

The User Supervisor is required to be familiar with the entire on-site recycled water system, and all applicable conditions governing recycled water use at the site. The User Supervisor shall ensure that recycled water use complies with those conditions. The User Supervisor shall also be responsible for proper operation and maintenance of the recycled water system and of all backflow prevention devices.

Training

NMWD will provide training to the User Supervisor. The training covers NMWD's Guidelines for Recycled Water Use, and NMWD will participate or assist in any additional training, as necessary, for User operating personnel training. During the District's annual inspection of the facility, the District will discuss the customer's method of informing their employees about recycled water use on site.

Contact Information and Notification of Changes

The User Supervisor shall provide NMWD with an address and phone number(s) where he or she can be contacted at all times. The User Supervisor shall notify NMWD of any change in the individual designated to be User Supervisor, or of any planned modifications or planned additions to the recycled water system. These shall be reviewed and approved by NMWD before any modifications are made.

Failures and Violations

The User Supervisor (or their designated emergency contact) is responsible for notifying NMWD of any failure of the on-site recycled water system, of any cross-connection between the recycled and potable water systems, or of any inappropriate uses that may occur. For any condition which has the potential to endanger public health, such as a cross connection, the User Supervisor shall immediately notify NMWD at 415-897-4133.

Monitoring

The User Supervisor shall be responsible for any monitoring specified in the customer's Recycled Water Use Permit, and may participate in monitoring the use of recycled water on-site.

TRAINING OF PERSONNEL

NMWD will provide training for the User Supervisor. The User Supervisor is responsible for ensuring that on-site operations personnel (i.e. those who use or maintain the recycled water system) are familiar with the proper use of recycled water. Operations personnel need to be aware of the following:

- There is never to be a direct connection between the recycled water system and any other water system.
- Recycled water, though highly treated, is non-potable. Recycled water is never to be used for human consumption.
- Working with recycled water is safe if the appropriate regulations are followed. Personnel should exercise good hygiene when working around recycled water, e.g. wash hands before eating or drinking.
- The operation and maintenance of the recycled water system must conform to requirements describe in these Guidelines.

The User Supervisor should review these requirements with the User operating personnel prior to working with recycled water.

OPERATION AND MAINTENANCE REQUIREMENTS

Customer use of recycled water shall at all times conform to the following prohibitions and requirements:

Prevention of Cross Connections - A cross connection is defined as an unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and the recycled water system (or any other unapproved water source or substance). Cross connections between the recycled water system and the potable water system are strictly prohibited by Title 17, California Code of Regulations. There shall never be a physical connection between the recycled water system and the potable water system anywhere on the customer's premises.

Unapproved Uses - Use of recycled water for any purpose other than those explicitly allowed under the customer's Recycled Water Use Permit is strictly prohibited.

Equipment Maintenance - All equipment shall be kept in good working condition. Broken or faulty irrigation component shall be promptly repaired. All signs, equipment identification devices, and color-coding shall be maintained.

Runoff - All systems shall be designed, constructed, and operated to minimize to the fullest extent the runoff of recycled water outside of the approved use area.

Ponding - All systems shall be designed, constructed, and operated to minimize to the fullest extent the ponding of recycled water both inside and outside the approved use area.

Windblown Spray - All systems shall be designed, constructed, and operated to minimize to the fullest extent the possibility of recycled water spray being carried outside the approved use area.

Overspray - Recycled Water shall not be sprayed on people, food handling facilities, drinking fountains, or eating areas.

Hours of Operations - The use of recycled water for irrigation shall be limited to the hours of least use of the area by the public. The operation of the system at other times may be requested and considered on a case-by-case basis. Consideration shall be given to allow a maximum dry out period, before the area is used by the public. The recycled water shall not be used for periods of time that are greater than that needed to satisfy the watering requirements of the landscaping.

MONITORING AND INSPECTIONS

NMWD will inspect customer's recycled water systems annually, or on a more frequent basis if warranted by the size and complexity of the site or other considerations. The inspections include (at a minimum) a visual inspection of all backflow prevention assemblies, exposed piping, valves, pressure reducing valves, sprinklers, controllers, signs, labels, tags, and all points of connection. The inspection also checks for proper use (minimization of runoff, overspray, ponding, etc). The User Supervisor's records will be inspected to review the maintenance and training since the last inspection. The NMWD inspector will complete an inspection form, and transmit any deficiencies observed to the User Supervisor for correction. In some cases, NMWD may require customers to conduct self-monitoring of recycled water use sites. If so the customer's Recycled Water Use Permit will designate the monitoring frequency and reporting requirements, and will include a form for the Customer's use.

NOTIFICATION OF REPAIRS OR MODIFICATIONS

Customers shall notify NMWD in writing of any significant proposed repairs and of all proposed modifications to the on-site recycled water system. Notification shall include a sketch or drawing clearly delineating all changes. Repairs and modification must be reviewed and approved by NMWD prior to implementation. Customers shall record all changes on the site's record drawings.

VIOLATIONS

Violations of the customer's Recycled Water Use Permit include, but are not limited to, the following:

- Failure to maintain equipment and identification devices (signs, coatings, etc) in good working condition
- Use of recycled water which results in excessive run-off, overspray, or ponding
- Failure to report changes to recycled water system to NMWD, including a change in the site's User Supervisor
- Use of recycled water for purposes other than specified in customer's permit
- Use of hose bibs on the recycled water system
- Creating an interconnection between the potable and recycled water systems

EMERGENCY PROCEDURES

In the event of an emergency involving the recycled water system, the user shall immediately notify NMWD by calling 415-897-4133. Emergencies include, but are not limited to, line breaks

in the distribution system and cross-connections between the user's potable and recycled water systems.

In the event of a cross-connection on the user's site, the user shall immediately stop using potable water at the site, and shall isolate the on-site potable water system from the public supply at the point of connection. Before potable water service can be resumed, the cross connection must be removed, and the site inspected and approved by NMWD. If it is determined that recycled water has entered the user's potable water system, the system must also be disinfected and tested before service can be resumed. The District may, at its discretion, perform such disinfection and testing charge the user, or may provide instructions to a qualified contractor retained by the user.

In the case of a major earthquake, the User Supervisor should inspect the recycled water and potable water systems. If either of the systems is damaged, both the potable water system and the recycled water system should be shut off at their respective points of connection The User Supervisor should then notify NMWD for further instructions.

Emergency modifications or repairs may be made by the customer to their system without the prior approval of NMWD when this action will prevent contamination, other damage to the systems, or prevent a public health hazard. The customer shall notify the District of the modifications as soon as possible, but not later than 24 hours following the completion of the modification or repair.

TECHNICAL REQUIREMENT AND FACILITIES DESIGN

RECYCLED WATER SIGNAGE

Posting of Use Areas

Recycled water use areas shall have one or more signs posted to inform the public that recycled water is used at that location. Signs shall be measured no less than 8" x 8" with white type against a purple background. An example of a use area sign is included in Appendix E.

Signs at Points of Access

In addition to use area signs, individual fixtures and points of access to the recycled water system, such as, quick connects, blow-off points, inspection ports, etc. shall have signs with the text: **"Recycled Water – Do Not Drink"** superimposed over the universal **"Do Not Drink"** symbol.

In cases where there is potential for an improper interconnection to the recycled water system, the sign shall also include the wording **"Recycled Water – Do Not Interconnect"**. Examples of suitable signs are included in Appendix E.

COLOR CODING

Recycled water facilities shall be color coded as follows:

Pipe Material – All pipe material used for the distribution of recycled water shall be purple. For PVC pipe, this requirement is met through the use of commercially available purple pipe. For other types of piping, and for valves and other appurtenances, this requirement shall be met using purple paint or purple adhesive tape wrap.

Valve Lids – All recycled water valve lids shall be colored purple and marked "**Recycled Water**" in the center of the lid.

Water Meters – All recycled water meters shall be painted purple.

Marking Tape – All marking tape for recycled water facilities shall be purple, with white lettering stating "**Caution: Recycled Water – Do Not Drink**".

Adhesive Tape – All adhesive tape for wrapping recycled water piping shall be purple, with white lettering stating "**Caution: Recycled Water – Do Not Drink**".

Irrigation Controllers – Irrigation controllers shall be posted with a purple recycled water sticker. The message on the sticker shall be printed in both English and Spanish. An example of an irrigation controller sticker is included in Appendix E.

Other Components – Other components of the recycled water system shall be identified by purple paint, adhesive wrap, or means of identification approved by the Recycled Water Program.

SEPARATION OF POTABLE AND RECYCLED WATER SYSTEMS

The separation of potable and recycled water piping shall be in accordance with Chapter 3 Cross-Connection Control Program.

HOSE BIBS

Hose bibs on the recycled water system are prohibited. Quick couplers may be used for recycled water, but must be different from those used on the potable water system. Quick couplers on the recycled water system shall be labeled with "**Recycled Water – Do Not Drink**" as described elsewhere in these Guidelines.

CONSTRUCTION WATER

Recycled water may be used for construction purposes (soil compaction, dust control, roadway landscaping, etc). A different type of permit from that issued for permanent uses is required, and these forms are found in Appendix G.

If authorized by the permit, trucks may be filled with recycled water from designated hydrants. Filling operation shall be monitored at all times. Recycled water shall be used only for purposes designated in the permit, and water shall be transported in a manner that prevents spillage. Drivers shall be apprised of procedures for safe handling of recycled water, as describe in the "Training of Personnel" provisions of these Guidelines. Trucks must have signs clearly identifying the water as either recycled water or non-potable and stating "**Do Not Drink**".

Chapter 3
Cross Connection Control and Prevention Program

INTRODUCTION

PURPOSE

The purpose of this document is to define the Cross Connection Control Program for the delivery and use of recycled water from the Recycled Water Facility (RWF). The document establishes the role of the NMWD, the Recycled Water Users (Users) and the regulatory agencies involved with the protection of potable water supplies from contamination by cross-connection with recycled water system pipelines. The installation, maintenance, and testing of approved backflow prevention devices is described, as well as the required monitoring, testing, and reporting procedures.

BACKGROUND

This document was prepared in accordance with the State of California Department of Health Services (DOHS) Guidance Manual for Cross-Connection Control Programs. The Program is in accordance with the California Code of Regulations Title 17 requirements for backflow prevention.

PROGRAM AUTHORITY

The Cross-Connection Control Program is maintained by NMWD. NMWD's responsibility for the recycled water system begins at NSD's property line and ends at the User connection as defined in each User's Permit issued by the District. NSD's responsibility for the recycled water system begins at the RWF treatment facility and ends at their property line. The User has the primary responsibility for protecting the potable water system. This responsibility begins at the User connection and includes all of the water distribution piping on the User premises. A User Supervisor will be designated by the User to monitor and enforce compliance with the Recycled Water Program.

The California Department of Health Services (DOHS) has the responsibility for promulgating and enforcing the laws, rules, regulations, and policies to be followed in controlling cross-connections. In addition, the local health agency has the authority to ensure that adequate protection is provided within a User's premises. NMWD will administer the entire Recycled Water Program, including cross-connection testing and backflow prevention assembly testing.

USER SUPERVISOR

A User Supervisor must be designated by the User and approved by NMWD for every site where recycled water is used. The District's approval will be based on the individual's familiarity with the recycled water system, authority, and training. NMWD will provide training for the User Supervisor as described below. Although NMWD retains ultimate responsibility for use of recycled water at all sites, the User Supervisor has the responsibility for ensuring safe use of recycled water at a given site. User Supervisor responsibilities are described in Chapter 2, Guidelines for Recycled Water Users, and are summarized as follows:

- Knowledge of the entire on-site recycled water system;
- Knowledge of applicable conditions governing recycled water use at the site;
- Assurance that recycled water use complies with the conditions governing use at the site;
- Proper operation and maintenance of the recycled water system and of all backflow prevention devices;
- Assurance that cross-connections are not made during the installation, operation, and maintenance of the User's piping and equipment; and
- Knowledge of the practices and regulations regarding cross connection control and plumbing.

Contact Information and Notification of Changes

The User Supervisor shall provide NMWD with the address and phone number(s) where he or she can be contacted at all times. The User Supervisor shall notify NMWD of any change in the individual designated to be User Supervisor, or of any planned modifications or planned additions to the recycled water system. These shall be reviewed and approved by the District before any modifications are made.

Failures and Violations

The User Supervisor is responsible for notifying NMWD of any failure of the on-site recycled water system, of any cross-connection between the recycled and potable water systems, or of any inappropriate uses that may occur. For any condition that has the potential to endanger public health, such as a cross-connection, the User Supervisor shall notify NMWD immediately.

Monitoring

The User Supervisor shall be responsible for any monitoring specified in the User's *Recycled Water Use Permit* issued by NMWD.

TRAINING OF PERSONNEL

NMWD will provide training for the User Supervisor. The User Supervisor is responsible for ensuring that on-site operations personnel (i.e. those who use or maintain the recycled water system) are familiar with the proper use of recycled water. The User's operations personnel need to be aware of the following:

- There is never to be a direct connection between the recycled water system and the potable water system;
- Recycled water, though highly treated, is non-potable, and is never to be used for human consumption;
- Working with recycled water is safe if both common sense is used and the appropriate regulations are followed;
- Personnel should exercise good hygiene when working around recycled water, e.g. wash hands before eating or drinking; and

- The operation and maintenance of the recycled water system must conform to all requirements set forth by NMWD.

The User Supervisor should review these requirements with operating personnel prior to working with recycled water.

CROSS-CONNECTION PREVENTION

A cross-connection is defined as an unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and the recycled water system. Cross-connections between the recycled water system and the potable water system are strictly prohibited by California Code of Regulations Title 17. There shall never be a physical connection between the recycled water system and the potable water system anywhere on the User's premises.

SEPARATION OF POTABLE AND RECYCLED WATER SYSTEMS

The separation of potable and recycled water piping shall be in accordance with DOHS guidelines, and shall be maintained to the greatest extent possible in both new construction and retrofit applications. The minimum separation standards are as follows:

The horizontal distance between pressurized potable water and recycled water lines shall be at least ten feet. Potable and recycled lines should not be installed in a common trench. Potable water lines shall be at least one foot above recycled water lines where these lines cross.

Where a ten foot horizontal separation cannot be achieved, a minimum horizontal separation of four feet will be maintained. At locations where this horizontal separation is between four feet and ten feet, special pipe will be used, as defined in the DHS *Criteria for the Separation of Water Mains from Sanitary Sewers and Pipes Carrying Reclaimed Water*. In addition, at locations where the horizontal separation is between four feet and ten feet, recycled water pipes will be at least one foot below potable water pipes, and trench tape will be used in the potable water system trenches. Where recycled water pipes and potable water pipes cross, recycled water pipes will be installed at least one foot below potable water pipes.

Exceptions to the alternative criteria will be evaluated by NMWD staff on a case-by-case basis, and only when it has been demonstrated that neither the basic nor the alternative criteria can be met.

SYSTEM CROSS-CONNECTION TESTING

At sites where both recycled water and potable water systems are present, a cross-connection test shall be performed before final approval is given to energize the two systems. This test is to ensure that there is absolute separation between the two systems. During the test, one system (e.g. the potable) is pressurized, while the other (e.g. the recycled) is depressurized. All outlets are then checked for presence or absence of flow. The test is then reversed, (i.e. recycled system is pressurized, and the potable system is depressurized), and all outlets are again checked for the presence or absence of flow.

The cross-connection test is coordinated by NMWD, in the presence of the User Supervisor and, if necessary, representatives of the regulatory agencies. The cross-connection test shall be

conducted or observed by NMWD's Cross-Connection Control Specialist (Specialist) by the methods specified in the UPC, Appendix J 8 (2) and J (8) 3.

The *Cross-Connection Test Report* prepared by the Specialist documents the results of the test (Appendix C). Cross connection tests must be conducted prior to approving operation of the recycled water and potable water systems, and periodically thereafter, at a minimum frequency of every four years. NMWD may specify more frequent tests for large or complex sites, after modifications to the User's potable or recycled water systems, or when there is any concern regarding a possible-cross connection at the site.

BACKFLOW PREVENTION ASSEMBLIES

On premises using both recycled water and potable water, the potable water supply must be protected against any accidental cross-connections by the use of an approved backflow prevention assembly. A backflow prevention device is required at all potable water connections to the local potable water distribution system at the meter on a site where recycled water is present. The DOHS regulations allow two types of assemblies for abatement of cross-connection hazards at a User's service connection. Approved types of backflow prevention assemblies for recycled water use areas include the following listed below.

Air-Gap Separation

An air gap must be at least double the diameter of the supply pipe measured vertically above the top rim of the receiving vessel, and in no case less than one-inch. An air gap must be located as close as practical to the User's connection, and all piping between the User's connection and receiving vessel must be entirely visible unless otherwise approved in writing by NMWD and the health agency.

Reduced Pressure Principle Backflow Prevention Assembly (RP)

The regulations require that all RPs conform to AWWA Standard C506-78(R83). An RP must be located as close as practical to the User's connection. This type of assembly must be installed at least twelve inches and not more than thirty-six inches above grade (measured from the lowest point of the assembly), and must have adequate side and top clearance to allow access for testing and maintenance. A minimum side and top clearance of twelve inches should be allowed.

BACKFLOW DEVICE TESTING

All assemblies must be on NMWD's "Approved Backflow Device List." The regulations require that assemblies be tested immediately after they are installed, relocated, or repaired, and not be placed in service unless they are functioning as required. The testing requirements for backflow devices will be specified by NMWD, at a frequency that may be quarterly, semi-annual, or annually depending on the site’s degree of hazard.

The regulations require that backflow assemblies be tested at least annually by an AWWA certified backflow prevention tester. NMWD Cross-Connection Control Specialist will conduct or observe all backflow prevention tests on the recycled water system including at the recycled water User sites. Backflow device testing equipment used in the recycled water system must not be used in the potable water system. Repair or replacement of the backflow prevention assembly is the responsibility of the recycled water User.

MONITORING & INSPECTION

USER SITE SURVEYS

NMWD will inspect the User's recycled water system at least annually, as a requirement of the User's *Recycled Water Use Permit.* The inspections will include a visual inspection of all backflow prevention assemblies, exposed piping, valves, pressure reducing valves, sprinklers, controllers, signs, labels, tags, and all points of connections. The User Supervisor's records will be inspected to review the maintenance and training done since the last inspection. NMWD's inspector will complete an inspection form, and transmit any deficiencies observed to the User Supervisor for correction. The District inspector's report will include the following:

- The service location and identification;
- The backflow prevention assembly or assemblies required for minimum protection;
- A list of backflow prevention assemblies that are acceptable to the utility and the health agency;
- The requirements for installing the backflow prevention assembly or assemblies;
- The requirements for testing backflow prevention assemblies;
- The date by which corrective action must be completed;
- The authority under which the backflow protection requirement is made;
- The contact person at NMWD, including address and phone number;
- The consequence of failure to install, test, or maintain backflow prevention assemblies.

NMWD, the local health agency, and the RWQCB reserve the right to make unannounced inspections of the User's site and recycled water system.

USER SELF MONITORING

The User may be required under their *Recycled Water Use Permit* to submit a Self-Monitoring Report to NMWD. If so, the permit will specify the monitoring frequency and reporting requirements. In this report, the User will document the condition of the on-site recycled water system and all backflow prevention devices.

SYSTEM NOT IN COMPLIANCE

If at any time the recycled water system is found to be out of compliance, NMWD shall issue an Order specifying the corrections required to bring the system into compliance. A site inspection shall be scheduled after a reasonable period of time to ensure compliance with the Order. Failure to comply with the Order within the period of time specified will result in NMWD terminating delivery of recycled water to the User.

EMERGENCY PROCEDURES

Emergencies include, but are not limited to, line breaks in the distribution system and cross-connections between the User's potable and recycled water systems.

NOTIFICATION

It is the responsibility of the User Supervisor to notify NMWD of any failure or cross connection in the recycled water or potable water system, whether or not the User Supervisor believes a violation has occurred. It is also the responsibility of the User Supervisor to notify NMWD of any violation that might occur because of any action the User personnel might take during the operation of the recycled water or potable water systems. If there are any doubts whether a violation has occurred, it is the responsibility of the User Supervisor to report each occurrence to the District so a decision can be made.

RESPONSE

In case of a major earthquake, flood, fire, tornado, structural failure, or other incident that could likely damage the recycled or potable water systems, the User Supervisor should inspect the domestic and recycled water systems for damage as soon as it is safe to do so. If either system appears damaged, both the domestic and recycled water systems should be shut off at their points of connection. If the User Supervisor cannot inspect the site and damage is expected, then both water systems should be shut off at their points of connection. The User Supervisor should immediately contact the District and implement the *Emergency Cross-Connection Response Plan* described below.

EMERGENCY MODIFICATIONS

Emergency modifications or repairs can be made by the User to said system without the prior approval of NMWD to prevent contamination, damage, or a public health hazard. As soon as possible after the modification, but no more than three days after the modification, the User shall notify NMWD of the emergency modifications and file a written description of action taken.

EMERGENCY CROSS-CONNECTION RESPONSE PLAN

In the event that a backflow incident or cross-connection is suspected or occurs, the following procedures shall be implemented immediately.

1. Notify NMWD by phone. This notification is to be followed by a written notice within 24 hours. The written notice is to include an explanation of the nature of the cross-connection, date and time discovered, and the steps taken to mitigate the cross-connection(s).
2. Immediately stop using potable water at the site and isolate the on-site potable water system from the public supply at the point of connection. Keep the potable water system pressurized and post "Do Not Drink" signs at all potable water fixtures and outlets.
3. Immediately shut down the recycled water supply to the facility at the meter.
4. Provide bottled water for employees until the potable water system is deemed safe to drink.
5. Collect water samples from the potable water system and perform a 24-hour bacteriological analysis. Water samples should be collected from the closest acceptable point to the cross-connection. NMWD may supply the appropriate sample bottles, obtain the samples, and arrange for laboratory analysis. See NMWD's Supplementary Guidelines for additional information.
6. Identify the cause and location of backflow and eliminate the cross-connection(s).

7. Conduct a cross-connection test to verify that all cross-connections were eliminated.
8. Obtain approval from NMWD before bringing the recycled water system back into service.
9. Coordinate with NMWD laboratory staff to disinfect the potable water system as follows:
    a. If the bacteriological analysis conducted in Step 5 is positive, chlorinate the potable water system maintaining a chlorine residual of at least 50 mg/l for 24 hours. Otherwise proceed to Step c.
    b. Flush the potable water system after 24 hours and perform standard bacteriological analysis.
    c. If the results from Step b are acceptable, proceed to Step d. Otherwise, repeat Steps a-b.
    d. Obtain final approval from NMWD and the State DOHS before removing signs.

SERVICE TERMINATION

NMWD and the local health agency reserve the right to take any action necessary with respect to the operation of the User's recycled water system to safeguard the public health. If at any time during construction or operation of the recycled water system, real or potential hazards are evidenced, NMWD reserves the right and has the authority to terminate immediately, without notice, recycled water service in the interest of protecting the public health. These hazards could include situations such as cross-connections with the potable system, improper tagging, signing, or marking, or unapproved/prohibited uses.

Chapter 4
Recycled Water Facility Operations Plan

INTRODUCTION

The Recycled Water Facility (RWF) at the Novato Sanitary District (NSD) will produce tertiary treated recycled water meeting the State of California Title 22 requirements for unrestricted bodily contact. The RWF includes the following treatment processes:

- Chemical addition;
- Filtration; and
- Disinfection.

This Operations Plan includes an overview of each unit process; the overall instrumentation and control philosophy; reliability features; and monitoring, and general staffing and maintenance requirements. Detailed operating and maintenance requirements are contained in the RWF Operations and Maintenance Manual.

UNIT PROCESS DESCRIPTION

DIVERSION PIPELINE

Secondary effluent is diverted from the existing secondary effluent pipeline, which carries the combined treated secondary effluent of NSD's Ignacio and Novato wastewater treatment plants to the Effluent Storage Ponds (ESP). Water in the ESP is currently used for irrigation of pasture land in accordance with existing NSD discharge permits. A portion of this flow will be diverted from the effluent pipe and will be conveyed to the new recycled water facility for additional treatment to meet DOHS requirements for unrestricted bodily contact.

INFLUENT PUMP STATION

The Influent Pump Station will consist of a pair of variable-speed submersible centrifugal pumps (one duty, one standby) installed in a concrete vault. Each pump will be sized for the full proposed facility capacity of 0.5 MGD. The design intent of this facility is to operate at a constant output of 0.5 MGD until the golf course irrigation storage pond is full, at which point the treatment facility will stop feeding recycled water to the golf course. The variable-speed capability of the influent pump station is provided to allow for flow trimming to match influent and effluent pumping rates while accommodating varying backwash filter rates, and maintain a desired water level in the disinfection effluent channel. An electromagnetic flow meter will be installed on the influent pump station discharge pipeline to continuously monitor influent flow and to flow pace the addition of coagulants.

CHEMICAL ADDITION

Chemical storage will consist of two 800-gallon coagulant storage tote bins and two 75-gallon polymer tote bins, each located adjacent to their respective feed pumps. Each tote bin will provide at least 10-days of chemical supply to the treatment facility at maximum flow and

average dose. Typically both tote bins at each facility will be used simultaneously, providing additional storage duration.

The coagulant feed facility will include a pair of diaphragm metering pumps (one duty and one standby) with local control panels integrated into the computerized control system. The polymer feed facility will use a pair of package blending units (one duty and one standby) that meter the polymer into an integrated mixing chamber, where the required amount of dilution water is added and mixed using a special low-shear mixer to develop optimal polymer chains. Polymer blending units will also have integrated controls tied into the computerized facility control system. Coagulant will be diffused directly into the influent pump station discharge pipeline near an area of high turbulence using a four-port ring diffuser. The diffusers will be designed to maximize dispersion and initial mixing of the chemical into the main process flow stream. The turbulence inherent in the flow stream will provide additional coagulant mixing. Polymer will be diffused into the same pipeline immediately upstream of the filters. A static inline mixer may be used to enhance mixing.

The feed pumps at each chemical feed facility will be controlled by the computerized control system. The control system will be configured with several available modes of operation for automated chemical feed. The primary method of control will be DOSE mode, where the system automatically maintains an operator-designated chemical dosage rate, in mg/l, based on the influent flow rate and a programmed algorithm. Based on the results of initial facility testing, higher level control schemes may be added, including a TURBIDITY mode which adjusts dosage automatically to produce an operator-specified filter effluent turbidity.

FILTRATION

Filtration of chemically-conditioned influent is performed by upflow deep bed continuous backwash filters (Parkson Dynasand, or equal). The configuration of the filter system consists of three package filter units preassembled in stainless steel tanks, each unit containing two filter cells operating in parallel. An isolation valve upstream of each 2-cell unit will allow individual units to be taken offline for maintenance. In order to maximize process reliability, the filter system is sized to allow a maximum filter loading rate of 2.8 gpm/ft^2 (including backwash allowance) with all filter cells online. The DHS limit for this filter technology is 5.0 gpm/ft^2.

A duplex air compressor located in the Irrigation Pump Station provides air to each filter. This process air provides the motive force to recirculate and backwash the filter sand beds. For more detailed information regarding the operating philosophy of this type of filter, refer to the Operations & Maintenance Manual.

DISINFECTION

Disinfection will be performed in a conventional chlorine contact basin using liquid sodium hypochlorite as the disinfectant and a flash mixer at the chemical injection point. The proposed contact basin will be configured with three serpentine channels, each having a length of 62 feet. Baffles will be installed at the beginning of each pass to prevent short-circuiting. The contact basin is designed to provide a theoretical contact time of 120 minutes. With an assumed baffling efficiency of 75%, the design modal contact time at peak flow is 90 minutes. A mechanical flash mixer will thoroughly mix the hypochlorite solution with the filtered effluent flow stream prior to discharging into the serpentine channels. Minimum volume within the basin needed to meet the contact time requirements will be maintained with an effluent weir. The basin will be designed to allow future retrofit to three parallel ultraviolet light (UV) disinfection process trains

A 15% solution of liquid sodium hypochlorite will be stored on-site in a single 1,500-gallon non-metallic storage tank mounted in a secondary containment structure. This tank will provide a 30-day supply of sodium hypochlorite at maximum plant flow and average dosage. The containment facility will be sized to hold 2,250-gallons of liquid (150 percent of total storage volume).

Sodium hypochlorite will be injected into the filtered effluent to achieve a total CT (chlorine concentration times modal contact time) of at least 450-mg-min/l at maximum plant flow. Hypochlorite will be fed to the flash mixing chamber from the chemical storage and feed facility. Two positive displacement diaphragm metering pumps (one duty, one standby), capable of delivering up to 4.4-gallons per hour each, will deliver the chemical to the flash mixing chamber.

The hypochlorite feed pumps will be installed with local control panels that provide pump speed and stroke length adjustment capability. The computerized control system, discussed further in the next Section, will have remote control capability of these functions. The primary method of dose control will be RESIDUAL mode. In this mode, the control system automatically sets the metering pump flow rate based on a dosage setpoint in mg/l and the recycled water flow rate, and trims this dosage to achieve a target chlorine residual at the effluent chlorine analyzer. The effluent residual target will typically be set at 5-mg/l. The anticipated dosage required at the flash mixing chamber will be approximately 10 mg/l.

RECYCLED WATER DISTRIBUTION

The proposed Recycled Water Pump Station will consist of one duty and one standby constant speed horizontal end-suction centrifugal pumps that draw disinfected tertiary effluent directly from the effluent channel of the chlorine contact basin. The recycled water pumps will be sized to overcome the static and friction losses of the pipeline to deliver recycled water to the golf course irrigation pond. Delivery pressure will be based on free discharge to the golf course irrigation pond. The golf course will utilize on-site pumping facilities to deliver water from the irrigation pond to the irrigation system at sufficient pressure.

A dedicated recycled water transmission pipeline will convey recycled water from the recycled water treatment facility to the Stone Tree Golf Course. The pipeline will be 8-inches in diameter and approximately 9,300 feet-long, and will exclusively serve the golf course.

RECYCLED WATER BYPASS

Upon detection of water that does not meet the minimum quality requirements for turbidity or chlorine residual measured at the contact basin effluent channel, the control system will initiate an emergency shutdown of the effluent pump station. This will cause the chlorine contact basin effluent to overflow a weir at the pump station and flow back to the existing Effluent Storage Ponds for distribution to the pasture irrigation system.

INSTRUMENTATION AND CONTROLS

A computerized control system, also known as a Supervisory Control and Data Acquisition (SCADA) system, will be installed at the recycled water treatment facility. The SCADA will have full monitoring and remote control capability for all critical functions at the recycled water treatment facility, including the following items:

- Influent and recycled water magnetic flowmeters
- Influent and effluent pump start/stop and speed controls, and run status
- Turbidity analyzers at the influent and filter effluent

- Filter system run status
- Chlorine contact basin flash mixer run status and start/stop control
- Chlorine contact basin influent and effluent chlorine analyzers
- Coagulant, polymer, and hypochlorite metering pump run status, start/stop control, speed and stroke control
- Sodium hypochlorite tank level

FACILITY ALARMS

The major RWF alarms, action, and setpoint criteria are shown in the table below. All alarms are annunciated through the SCADA system to the NTP control center.

The key alarms for the RWF are as follows:

- High Filter Influent Turbidity
- High Filter Effluent Turbidity
- High Filter Head Loss
- Process Air Low Pressure
- Chemical Feed Fail
- Low Chlorine Residual
- Recycled Water Bypass

RELIABILITY FEATURES

Reliability features will be provided with the recycled water treatment facility to meet the requirements of CCR Title 22. In general, the reliability features consist of three key components: (1) features at the treatment facility that provide treatment system and recycled water quality reliability; (2) a large on-site storage pond at the golf course and (3) a supplemental (backup) supply of potable water for the golf course customer, which will enable the customer to continue irrigating indefinitely without a supply of recycled water.

Reliability and redundancy features of the RWF include the following:

Power Supply: A single non-redundant power supply will provide power to the recycled water treatment facility. When loss of main power occurs, all treatment and pumping facilities will stop operating, and recycled water delivery will cease. The golf course customer will draw irrigation water from storage and the supplemental water supply as needed. An uninterruptible power supply (UPS) may be installed on the control system to shorten the duration for facility restart once main power is restored.

Emergency Diversion and Disposal: Provisions for emergency diversion and disposal of flow involves shutting down the recycled water pumps which automatically activates the recycled water waste bypassing system to the effluent storage ponds. Upon detection of water that does not meet the instantaneous minimum quality requirements (turbidity of 10 NTU or more or chlorine residual less than 5 mg/l), the control system will shut down the recycled water pump station. This will effectively isolate the treatment facility from the customer.

After the operators have corrected any process or equipment problems causing the Title 22 violation, the process will be re-started. Recycled water will continue to be bypassed until Title 22 compliance is achieved.

Existing NTP and ITP Reliability Features: The existing treatment plants continuously monitor treatment process status and effluent quality using a combination of operator observation, online instrumentation and laboratory testing. Should process failure or effluent quality degradation at NTP or ITP endanger the recycled water facility's ability to meet CCR Title 22 recycled water quality requirements, the monitoring already in place at NTP and ITP will provide early warning to the operators.

Recycled Water Facility Process Train Reliability: Should failure of major process units occur, recycled water delivery will immediately cease, and the golf course customer will utilize storage and the supplemental water supply as needed.

Control Systems: Reliability features in the control system, as discussed previously, will include a staged alarm system, software interlocks for automatic flow stoppage (pump station shutdown) under certain alarm conditions, backup power supply, and programmed logic that will automate emergency diversions when water quality requirements are not being met.

The staged alarm system will consist of two levels of alarm conditions for certain critical parameters. The initial alarm level will be used to indicate potential problems with treatment facility operations, such as effluent turbidity exceeding 2 NTU, to alert operators of potential problems that could result in a stoppage of recycled water deliveries. This would give operators time to correct problems and maintain production. The second level of alarm would result in the stoppage of recycled water delivery and automatic shutdown of the influent pump station and process trains.

The control system will have the ability to identify out-of-range signals from online instrumentation and initiate an alarm to the operators, indicating a failure of that instrument. If a critical instrument fails, such as the filter effluent turbidimeter, the recycled water treatment facility will be shut down until corrective action is taken.

All equipment will include provisions for remote and local manual override in the event of automated system failure or problems.

Standby Water Supply: Potable water will be retained as a supplemental water supply to the golf course for irrigation.. The potable water will be delivered to the golf course irrigation pond in a separate pipeline from the recycled water delivery pipeline.

REGULATORY MONITORING AND COMPLIANCE

PERFORMANCE MONITORING PROGRAM

The monitoring program complies with DOHS and RWQCB requirements for water reuse. Grab and composite samplers are located on site for regulatory monitoring. The table below lists the monitoring criteria and frequency.

Table 4-1. Regulatory Monitoring Criteria and Sampling Frequency

Constituent	Location	Limit	Type	Monitoring Frequency
Total coliform	Recycled Water	2.2 MPN/100 ml (median)	Grab	1/day
Turbidity	Filter Influent	<10 ntu	Continuous (analyzer & recorder	
Turbidity	Recycled Water	(Note 1)	Continuous (analyzer & recorder)	
Total Chlorine	Recycled Water	5 mg/l min	Continuous (analyzer & recorder)	
Dissolved Oxygen	Recycled Water	1.0 mg/l min	Grab	3/week
Dissolved Sulfide	Recycled Water	0.1 mg/l max	Grab	3/week

Note 1: Turbidity shall not exceed the following limits:

- 2 NTU, daily average
- 5 NTU no more than 5% of any 24 hour period
- 10 NTU at any time

RECORD KEEPING AND REPORTING

Any violations of DOHS criteria that impact or threaten public health or water quality shall be reported to the Board by phone within 24 hours, followed by a written report within 15 days describing the corrective actions taken.

An annual report will be submitted to the Board by March 15 of each year. The report will include a tabulation of the recycled water analyses listed above. A summary of effluent violations and subsequent corrective actions will be reported as well.

MONITORING DEVICE CALIBRATION

Calibration of monitoring devices is done once monthly for turbidimeters and chlorine analyzers. Verification of instrument readings is done bi-weekly by taking a grab sample. The following table lists the monitoring equipment calibration criteria.

Table 4-2. Monitoring Equipment Calibration Criteria and Frequency

Constituent	Location	Type	Monitoring Frequency
Turbidity	Secondary Effluent	Grab	Once every 2 weeks
Turbidity	Recycled Water	Grab	Once every 2 weeks
Total Chlorine	Recycled Water	Grab	Once every 2 weeks

TREATMENT PLANT OPERATIONS STAFFING

All RWF alarms are annunciated at the NTP central control room. The NTP is staffed for 8hours per day, and operators are on-call 24 hours per day. Alarms occurring after hours are handled like the other alarms at the NTP, i.e. they are automatically routed to the operator on-call for response. Operators are trained in emergency and alarm responses.

Prior to startup, NSD and NMWD staff will be trained in the operation and maintenance of the treatment and distribution facilities.

MAINTENANCE

Detailed operations and maintenance manuals will be provided by each manufacturer for the specified piece of equipment. All equipment will be maintained in accordance with the manufacturer's specifications.

ABBREVIATIONS

BOD	Biochemical Oxygen Demand
DOHS	Department of Health Services
MCC	Motor Control Center
NMWD	North Marin Water District
NSD	Novato Sanitary District
NTP	Novato Treatment Plant
NTU	Nephelometric Turbidity Unit
OSHA	Occupational Safety and Health Administration
PLC	Programmable Logic Controller
RWF	Recycled Water Facility
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
TSS	Total Suspended Solids

Appendix A: Customer Permitting Forms

A-1 Application for a Permit to Use Recycled Water
A-2 Recycled Water Service Plan Check List
A-3 Field Verification of Service Plan
A-4 Requirements for Engineering Reports for Dual Plumbed Systems
A-5 Permit to Use Recycled Water

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
APPLICATION FOR A PERMIT TO USE RECYCLED WATER

SITE WHERE USE IS PROPOSED	(Program Use Only)
Name or Description of Site:	Date Received / /
	Date Distributed / /
Location or Address:	Date of Determination / /
	☐ Accepted ☐ Returned ☐ Rejected
	Customer Number:
	Notes:

APPLICANT INFORMATION

Applicant is	☐ Owner	☐ Lessee	☐ Other (describe)
Applicant's Name			Title
Address			Telephone No.
City		State	Zip
Owner's Name (if different)			
Contact Person			Telephone No.
Address			
City		State	Zip

CUSTOMER'S DESIGNATED RECYCLED WATER SUPERVISOR (See Note 1)

Relationship to Applicant:	☐ Same	☐ Partner	☐ Employee	☐ Other:
Name				Title
Business Address				
City		State		Zip

The Customer's Recycled Water Supervisor must be reachable at all times in case of emergency.

All numbers are for District use only.

Telephone number during regular business hours:

EMERGENCY NUMBERS: ☐ Evening: ☐ Message:

☐ Beeper: ☐ Cellular:

PROPOSED RECYCLED WATER USES

☐ Landscape Irrigation:	Approx. area_____	☐ Ornamental Pond	☐ Recreational
☐ Agriculture:	Approx. area_____	☐ Fire Suppression	☐ Industrial
		☐ Construction	☐ Other

Briefly describe the proposed use checked above. include types of plants to be irrigated. industrial process served, etc.

_____

_____

_____

_____

_____

_____

RECYCLED WATER DEMAND ESTIMATES			FIRE SUPPRESSION
Name or Description of Site:			Peak Design Flow GPM
Estimated Annual Use	☐ CCF	☐ Gallons	Service Line Size in inches
Peak Use in Gallons/Minute (GPM)			
Hours of Use			
Days of Use			
☐ Dry Season Only	☐ Year-round		

ATTACHMENTS

☐ Site Drawing (all projects)

☐ Impoundment O&M Plan (if serving a reservior or pond)

☐ Other:

IS RECYCLED WATER TO BE PIPED OR USED WITHIN AN OCCUPIED BUILDING? ☐ Yes ☐ No
(If yes, a Building Permit is required, and Engineering Report must be submitted.)

RECYCLED WATER USER SUPERVISOR	APPLICANT
I have read and understand the *Guidelines for Recycled Water Users.* I will operate the recycled water system in compliance with all conditions of the Permit to Use Recycled Water.	I designate the named person as the Recycled Water User Supervisor in accordance with the *Guidelines for Recycled Water Users.* I am a principal owner of this site or a duly authorized representative and certify that the information contained in this application is true and correct to the best of my knowledge.
Print Name _____	Print Name _____
Signature _____	Signature _____
Date _____	Date _____

Note 1: Recycled Water User Supervisor: It is the responsibility of the User to provide surveillance and supervision of the recycled water system in a way that assures compliance at all times with the Guidelines. To accomplish this, the User shall designate, with the approval of the District, Recycled Water User Supervisor (User Supervisor) to provide liaison with the District. This person may represent the owner, tenant, or property manager as appropriate; however, he/she must be responsible for the recycled water system at the site and available at all times, with authority to carry out any requirements of the Guidelines.

Refer to the Section 2 of the Recycled Water Program Manual, *"Guidelines for Recycled Water Users"* for more comprehensive description of the responsibilities of the recycled water supervisor.

Copies: _____ Field Inspector
_____ File (Original)

INDEM

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NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
RECYCLED WATER SERVICE PLAN CHECK LIST
(To be completed by District)

SITE WHERE USE IS PROPOSED	REVIEW STATUS
Name of Description of Site:	
Location or Address:	Date Received / /
	Date Reviewed / /
	Reviewed by:
Contact Person Name and Telephone:	☐ Approved ☐ Returned ☐ Rejected
	Site Number:

THIS IS ☐ New Construction ☐ Existing Facility Converting to Recycled water Use
THE SITE AND PIPING PLANS ARE ☐ Separate ☐ Combined Number of Sheets_____

A. FIELD VERIFICATION OF SITE PLAN

ARE THE FOLLOWING SHOWN ON THE SITE PLAN?

Yes	No	N/A	General	Yes	No	N/A	
☐	☐	☐	All Buildings on the Site	☐	☐	☐	Adjacent Streets
☐	☐	☐	The Boundaries of the Intended Use Area	☐	☐	☐	Locations of All Major Improvements on the Site

Public Facilities Supplied with Recycled Water or Potable Water Source PLANS INDICATE NONE ☐

☐	☐	☐	Drinking Fountains	☐	☐	☐	Swimming and Wading Pools
☐	☐	☐	Restrooms	☐	☐	☐	Decorative Fountains
☐	☐	☐	Outdoor Eating Areas	☐	☐	☐	Showers
☐	☐	☐	Snack Bars	☐	☐	☐	Other:_____

Water Features Within 100 feet of Site Plan (may be off property)

☐	☐	☐	Wells	☐	☐	☐	Reservoirs
☐	☐	☐	Lakes	☐	☐	☐	Storage Tanks
☐	☐	☐	Ponds	☐	☐	☐	Other:_____

B. ADEQUACY OF PIPING PLANS

ARE THE FOLLOWING SHOWN ON THE PIPING PLANS?

Yes	No	N/A		Yes	No	N/A	
☐	☐	☐	Potable Water Service Connection(s)	☐	☐	☐	Fire Service Connection(s)
☐	☐	☐	Recycled Water Service Connection(s)	☐	☐	☐	Other:_____
☐	☐	☐	The complete recycled water system(s)				
☐	☐	☐	The potable system in the vicinity of the recycled water connection				
☐	☐	☐	All sources of recycled water and potable water				
☐	☐	☐	The location and type of all existing and new backflow prevention devices				
☐	☐	☐	The location and type of all existing and new water meters				
☐	☐	☐	The location of outdoor hose bibs, quick couplers and other points of ready access to recycled or potable water systems				
☐	☐	☐	The location of irrigation controllers, valves, and fixtures (sprinklers, etc.)				
☐	☐	☐	Other relevant items:_____				

C. PLAN ADEQUACY DETERMINATION

Yes	No	N/A	
☐	☐	☐	Plans are adequate for determining compliance
☐	☐	☐	Plans are incomplete; in order to continue the recycled water application process, please make the following changes to the site plan or piping plans:

_____

_____

_____

_____

_____

D. COMPLIANCE REQUIREMENTS

Yes	No	N/A	GENERAL
☐	☐	☐	Are the proposed uses of recycled water and use areas approved under Title 22?

SEPARATION OF RECYCLED AND POTABLE PIPING

Note: Review separation of recycled water and potable water piping relative to DHS guidelines:

☐	☐	☐	Are "basic separation" standards met (10' horizontal, 1' vertical, potable above recycled)
☐	☐	☐	If No, are "alternative construction criteria" met as defined in DHS Separation Criteria
☐	☐	☐	If No, describe deviations and require applicant to justify why standards or alternative criteria cannot be met.

_____

_____

_____

BACKFLOW PREVENTION DEVICES

Note: All premises served by <u>both</u> potable water and recycled water shall have an air gap or reduced pressure principal backflow prevention device (RP) on the potable water supply.

☐	☐	☐	Are the potable water and recycled water systems completely separated, with no cross connections[?]
☐	☐	☐	Are the proper backflow prevention devices shown in the proper locations for protection of the public potable water distribution system, per Title 17 requirements? (Reduced pressure principal backflow prevention devices should be located as close as possible to all potable water meters and at least 12 inches above grade).
☐	☐	☐	Do conditions of use dictate that the recycled water distribution system be protected by a backflow prevention device? (Such protection would be indicated in cases such as: recycled water system feeds an industrial process that involves chemicals; the recycled water irrigation system has chemical fertilizer injection; recycled water connects to an irrigation water storage pond without air gap).
☐	☐	☐	Are the proper backflow prevention devices shown in the proper locations for protection of <u>on-site</u> potable water supply per applicable UPC requirements? (Though not specifically related to recycled water, these devices should be shown on the plans. Backflow prevention devices are required at non air-gap points of connection to ponds, wading pools, swimming pools, fountains, etc., where the impoundment is supplied by the potable water on-site piping. Usually atmospheric vacuum breakers located near the point of connection are adequate, unless there is valving downstream of the protection device, in which case pressure vacuum breakers are required).

Comments: _____

_____

D. COMPLIANCE REQUIREMENTS (continued)

WELLS

☐ ☐ ☐ If there are wells located on-site or near the use site, are the wells separated from all recycled water irrigation use areas by at least 50 feet and from all recycled water impoundments by at least 100 feet?
Comments:_____

CONSTRUCTION DETAILS

☐ ☐ ☐ If plans are used for construction, do the plans show all necessary details to properly construct the system?

☐ ☐ ☐ Do plans Identify the appropriate materials for recycled water use? (e.g. purple pipe or wrap)

☐ ☐ ☐ Are the appropriate types and locations of signs and other identification devices indicated?

☐ ☐ ☐ If the design calls for an air gap, is a suitable detail provided?

☐ ☐ ☐ Are there any hose bibs shown on the recycled water system? (Hose bibs are not permitted on the recycled system)

☐ ☐ ☐ If quick connects are used on the recycled system, are they of a different type than on the potable system?

Comments:_____
_____

E. COMPLIANCE DETERMINATION

☐ Approved. The recycled water system shown on this service plan complies with the Guidelines for Recycled Water Users and other applicable criteria.

☐ **Not Approved.** The following corrections must be made before site plan is approved:

_____ _____
Date Signed

COPIES: _____ File (Original)
_____ Applicant
_____ Field Inspector

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
FIELD VERIFICATION OF RECYCLED WATER SERVICE PLAN
(To be completed by District)

SITE WHERE USE IS PROPOSED	REVIEW STATUS
Name or Description of Site:	Data of Site Inspection:
Location or Address:	Inspected By: ☐ Approved ☐ Not Approved (see Section D)
Contact Person Name and Telephone:	

THIS IS ☐ New Construction ☐ Existing Facility Converting to Recycled water Use
THE SITE AND PIPING PLANS ARE ☐ Separate ☐ Combined Number of Sheets_____

A. FIELD VERIFICATION OF SITE PLAN

ARE THE FOLLOWING ACCURATELY SHOWN ON THE "AS-BUILT" SITE PLAN?

Yes	No	N/A	General	Yes	No	N/A	
☐	☐	☐	All Buildings on the Site	☐	☐	☐	Adjacent Streets
☐	☐	☐	The Boundaries of the Intended Use Area	☐	☐	☐	Locations of All Major Improvements on the Site
			Public Facilities Supplied with Recycled Water or Potable Water Source	PLANS INDICATE NONE ☐			
☐	☐	☐	Drinking Fountains	☐	☐	☐	Swimming and Wading Pools
☐	☐	☐	Restrooms	☐	☐	☐	Decorative Fountains
☐	☐	☐	Outdoor Eating Areas	☐	☐	☐	Showers
☐	☐	☐	Snack Bars	☐	☐	☐	Other:_____
			Water Features Within 100 feet of Site Plan (may be off property)				
☐	☐	☐	Wells	☐	☐	☐	Reservoirs
☐	☐	☐	Lakes	☐	☐	☐	Storage Tanks
☐	☐	☐	Ponds	☐	☐	☐	Other:_____

B. FIELD VERIFICATION OF PIPING PLANS

ARE THE FOLLOWING ACCURATELY SHOWN ON THE "AS-BUILT" PLANS?

☐	☐	☐	Potable Water Service Connection(s)	☐	☐	☐	Fire Service Connection(s)
☐	☐	☐	Recycled Water Service Connection(s)	☐	☐	☐	Other:_____
☐	☐	☐	The complete recycled water system(s)				
☐	☐	☐	The potable system in the vicinity of the recycled water connection				
☐	☐	☐	All sources of recycled water and potable water				
☐	☐	☐	The location and type of all existing and new backflow prevention devices				
☐	☐	☐	The location and type of all existing and new water meters				
☐	☐	☐	The location of outdoor hose bibs, quick couplers and other points of ready access to recycled or potable water systems				
☐	☐	☐	The location of irrigation controllers, valves, and fixtures (sprinklers, etc.)				
☐	☐	☐	Other relevant items:_____				

C. VERIFICATION OF COMPLIANCE REQUIREMENTS

BACKFLOW PREVENTION DEVICES

Note: All premises served by both potable water and recycled water shall have an air gap or reduced pressure principle backflow prevention device (RP) on the potable water supply.

Yes	No	N/A	
☐	☐	☐	Are the potable water and recycled water systems completely separated, with no cross connections?
☐	☐	☐	Are the proper backflow prevention devices installed in the proper locations for protection of the public potable water distribution system, per Title 17 requirements? (Reduced pressure principal backflow prevention devices should be located as close as possible to all potable water meters and at least 12 inches above grade).
☐	☐	☐	If a backflow device on the recycled water system was required, was it properly installed?
☐	☐	☐	If additional backflow devices were required to protect the on-site potable water system, were the devices properly installed?

Comments: _____

WELLS

☐	☐	☐	Are irrigated use areas separated by at least 50 feet from any domestic water supply well or water supply reservoir?
☐	☐	☐	If there are wells located on-site or near the use site, are the wells separated from all recycled water irrigation use areas by at least 50 feet and from all recycled water impoundments by at least 100 feet?

Comments: _____

CONSTRUCTION DETAILS

☐	☐	☐	Was purple pipe or wrap used for recycled water piping?
☐	☐	☐	Are the appropriate types and locations of signs and other identification devices in place?
☐	☐	☐	Are there any hose bibs shown on the recycled water system? (Hose bibs are not permitted on the recycled system)
☐	☐	☐	If quick connects are used on the recycled system, are they of a different type than on the potable system?

Comments: _____

D. FIELD VERIFICATION - SUMMARY

☐	☐	☐	"As-built" Plans are representative of recycled water use area
☐	☐	☐	Site meets compliance requirements for use of recycled water

If "no" is checked on either of the above two lines, the as-built plans or on-site systems must be corrected as follows before recycled water service can be initiated (return copy of form to customer):

_____

_____

_____

_____

_____

_____

If yes - is checked for both of the above, and the site is otherwise cleared for use of recycled water, inspector shall complete the following:

☐ Site approved for recycled water service upon successful completion of cross connection test.

Inspector Signature: _____ Date: _____

COPIES: _____ File (Original)

_____ Applicant

North Marin Water District Water Reuse Program
Requirements for Engineering Reports for Dual Plumbed Systems

Facilities where both recycled water and potable water are present inside a building are referred to as "dual plumbed systems". Examples would include facilities that use recycled water for toilet flushing, fire suppression, or in industrial processes[1]. California Regulations require that a special report be submitted to the California Regional Water Quality Control Board for facilities with dual plumbed systems. The District's Water Reuse Program places responsibility for preparing this report on the recycled water user. The report must include:

1) A detailed discussion of the facility including the following:[2]

   - The location and type of facility proposing to use a dual plumbed system
   - The average number of persons estimated to be served by the facility on a daily basis.
   - The specific boundaries of the facility This is best delineated using a site map.
   - The person(s) responsible for operation of the dual plumbed system A facility must have a designated recycled water supervisor, who is familiar with and responsible for the proper use of recycled water. Requirements for proper use are described in the District's *Guidelines for the Use of Reclaimed Water*.
   - The specific use of recycled water at the facility.

2) Plans and specification which describe the following:

   - Proposed recycled water piping system(s) to be used
   - Pipe locations for both the recycled and potable systems
   - Type and locations of the outlets and plumbing fixtures that will be accessible to the public
   - Methods and devices to be used to prevent back flow of recycled water into the public (potable) system.

   If construction plans and specifications are used to meet this requirement, only the relevant plan sheets and specification sections should be included in the report. Drawings should be "as-built" versions. The recycled and potable water systems should be clearly delineated (and differentiated from each other) using highlighters or other suitable means. Show points-of-connection to District mains, meters, and backflow devices.

3) The methods to be used to assure that the installation and operation of the dual plumbed system will not result in cross connections between the recycled water system and the potable water system. This would typically include a description of "in-house" controls and procedures to prevent cross-connection, and a description of procedures for initial and periodic cross connection testing. For the latter, recycled water users may use the procedure specified in the Uniform Plumbing Code (1994) Appendix J. Cross-connection testing must be done by an AWWA-certified Cross Connection Control Specialist, and shall be performed at a minimum of every year, or more frequently if required by the District.

NOTES:

1. Fire suppression and certain industrial uses may not technically Constitute dual plumbed systems according to the most recent draft (March 1997) draft Title 22 revision. However, the District requires submission of an engineering report for all "In building" uses of recycled water.
2. From Article 5 , section 60314 of the draft (March 1997) Title 22 revisions. If the recycled water use area includes more than one facility with a dual plumbed system, provide the required information for each facility.

RECYCLED WATER PROGRAM
PERMIT TO USE RECYCLED WATER

PERMIT NO:

ISSUED TO:

FOR USE AT:

EFFECTIVE DATE:

EXPIRATION DATE:

The above named applicant is hereby authorized to use recycled water subject to compliance with a) the North Marin Water District's Guidelines for Recycled Water users, b) applicable state regulations related to the use of recycled water, c) operation in accordance with the current *Application for a Permit to Use Recycled Water*, and d) the attached additional terms and conditions.

The applicant shall report any changes (permanent or temporary) to the premises or operation that significantly change the volume or uses of recycled water, or any change in ownership of the facility.

This permit may be revoked prior to the expiration date if found to have been obtained through submittal of false information or if there is unapproved deviation from the terms and conditions under which it has been granted. This permit is issued solely to the facility named above for the operation and ownership in effect at the time of the application and is not transferable.

_____

for the North Marin Water District
Recycled Water Program
Phone 415-897-4133

North Marin Water District
Recycled Water Program
Telephone: 415-897-4133

PERMIT TO USE RECYCLED WATER
ADDITIONAL TERMS AND CONDITIONS

Permit No:

Issued to:

Effective Date:

Monitoring Requirements:

- ☐ Recycled Water Customer Self-Monitoring Frequency_____
  - ☐ Self-monitoring form attached
- ☐ District Monitoring Frequency_____

Training of Customer's Recycled Water Supervisor:

- ☐ Received overview of Water Reuse Program.
- ☐ Received training from representative of Water Reuse Program.

Initial Permit Conditions:

On-going Permit Conditions:

Appendix B
Forms for Retrofit Sites

B-1 Evaluation of Retrofit Needs
B-2 Site-Specific Retrofit Requirements
B-3 Instructions for Completing Site-Specific Retrofit Requirements Form

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
EVALUATION OF RETROFIT NEEDS
(To be completed by District)

Site Name

Site Address

Date of Site Visit Form Completed by

Accompanying Site Representative

Site Plan Attached? ❑ Yes ❑ No, why:

Instructions to Field Inspector: The checking of any shaded box indicates that action is required and will need to be described in the form entitled "Site Specific Retrofit Requirements."

A. SEPARATION OF RECYCLED AND POTABLE WATER SYSTEMS

1. Does the irrigation system have its own (separate) service from the main? ❑ No ❑ Yes
2. If yes, does irrigation system have multiple points of connection to the main? ❑ No ❑ Yes
3. Does the Customer have adequate as-built drawings of the irrigation system? ❑ No ❑ Yes
4. Is any portion of the irrigation system not designated for retrofit? ❑ No ❑ Yes

If yes, locate on site plan and describe: _____

_____

Notes regarding potential cross-connections, adequacy of information on piping systems, and any special considerations, such as multiple connection points:

_____

_____

_____

B. IRRIGATION EQUIPMENT

1. What material is the irrigation system piping?

❑ PVC, schedule: _____ ❑ other: _____

2. Does the irrigation equipment appear to be in disrepair and poor condition? ❑ No ❑ Yes
3. Approximate age of system? __ years
4. Is irrigation system automatically controlled? ❑ No ❑ Yes

If yes, make and model of controller: _____

If no, how then? _____

5. Are there hose bibs on the site? ❑ No ❑ Yes
6. Are any hose bibs on the irrigation system? ❑ No ❑ Yes
7. After conversion, will there be hose bibs on the potable water system? ❑ No ❑ Yes

Notes: Special Repair Requirements: _____

_____

_____

_____

_____

____

C. RUNOFF AND OVERSPRAY

Turn on irrigation system and observe runoff patterns. Record locations of runoff on site map.

Identify Location

1. Does runoff go beyond RW use area? ❑ No ❑ Yes _____
2. Is runoff excessive? ❑ No ❑ Yes _____

   Due to:

   ___ Slopes, berms, raised areas ___ Heavily compacted ___ Bare ground

3. Does spray, mist or runoff enter a:

   dwelling ❑ No ❑ Yes _____

   designated outdoor eating area ❑ No ❑ Yes _____

   playgrounds ❑ No ❑ Yes _____

   pools ❑ No ❑ Yes _____

   food handling facility/cooking areas ❑ No ❑ Yes _____

   adjacent property ❑ No ❑ Yes _____

4. Does spray, mist or runoff come in contact with drinking fountains? ❑ No ❑ Yes
5. Are there areas of overspray? ❑ No ❑ Yes

   ___ Narrow parking and planting strips

   ___ Oddly shaped areas

   ___ Other: _____

6. Does the site appear to have poor drainage? ❑ No ❑ Yes

   Indicated by:

   ___ Standing water ___ Flooding ___ Soggy areas ___ Other:_____

   Where?

Notes:_____

_____

_____

___

D. BACKFLOW PREVENTION

1. After conversion to AW, will the site continue to receive potable water?
   (i.e., is there a domestic demand in addition to irrigation?) ❑ No ❑ Yes
2. Is the Customer planning to use potable water as a backup to the RW supply? ❑ No
   ❑ Yes
3. Does the site have backflow prevention devices? ❑ No ❑ Yes
4. Does the site have any of the following backflow prevention devices on the:
   Show location and number on the site plan. *potable service* *irrigation system*

4a. pressure vacuum breaker	❑	❑
4b. double check valve assembly (DC)	❑	❑
4c. reduced pressure principal backflow prevention (RP)	❑	❑
4d. air gap separation (AG)	❑	❑

Notes:_____

_
_____

_
_____

_

E. SIGNAGE

1. Are any of the RW use areas accessible to the public (i.e., non-employees)? ❑ No ❑ Yes
   If yes, show on site map.
2. Recommend possible location for signs or other forms of RW identification, note on site map.
   Typical locations:
   ___ area where public can enter RW use area.
   ___ quick couplers (former hose bibs)
   ___ meters ___ valves & valve boxes ___ auto. controls (tags, stickers, embossed covers)
   Total number of signs ___
3. What is the primary language of the landscape workers/gardeners?
   ❑ English ❑ Spanish ❑ Mandarin ❑ Cantonese
   ❑ other: specify: _____
4. For the facility's maintenance workers (plumbers, mechanics), what is the primary language?
   ❑ English ❑ Spanish ❑ Mandarin ❑ Cantonese
   ❑ other: specify: _____

Notes:_____

_____

_____

F. RECYCLED WATER STORAGE IMPOUNDMENTS

1. Does the Customer propose to store recycled water on site ❑ No ❑ Yes

If no, skip to Section G

If yes, locate impoundment on map and answer the rest of the questions.

2. What is the impoundment(s) used for? (mark all that apply)

❑ to store irrigation water, non-body contact
❑ decorative water feature, non-body contact
❑ decorative fountain, non-body contact
❑ non-body-contact recreation (boating, fishing)
❑ body-contact recreation
❑ other _____

3. What does impoundment Consist of?

❑ unlined earthen pond ❑ steel tank
❑ pond lined with _____ ❑ other:_____

4. Is impoundment covered? ❑ No ❑ Yes, with:_____
5. Impoundment dimensions: ____ feet deep surface:_____feet by_____feet
6. Capacity of impoundment: ____ gallons
7. Does the impoundment have any mixing equipment? ❑ No ❑ Yes

8. To where would the impoundment overflow if overfilled?
   ❑ conveyed in a pipe to the storm sewer ❑ conveyed in a pipe to the sanitary sewer
   ❑ overflow to the surrounding ground ❑ other _____
9. Discharge is by: ❑ gravity ❑ pumped ❑ none
   9a. Disposal is to? ❑ storm ❑ sanitary ❑ surface
10. Other water sources serving this impoundment? _____

Notes:_____

_____

_____

G. WELLS

1. Is there a well(s) on site? ❑ No ❑ Yes, quantity: _____
   If no, skip to Section 4.

If yes, locate well on map and answer the rest of the questions.

2. If yes, is it a domestic well? ❑ No ❑ Yes
   2a. Is domestic well within 50 feet of the RW use area? ❑ No ❑ Yes
   2b. Is dom. well within 100 feet of a RW impoundment? ❑ No ❑ Yes
3. Does the well provide water for irrigation? ❑ No ❑ Yes
   3a. If yes, will that continue after conversion? ❑ No ❑ Yes
4. Does the well provide water for on-site domestic uses? ❑ No ❑ Yes
   4a. If yes, will that continue after conversion? ❑ No ❑ Yes

H. NON-IRRIGATION RECYCLED WATER USE

1. Does the Customer intend to use recycled water within a building? ❑ No ❑ Yes
2. Does the Customer anticipate to use RW for any use other than irrigation? ❑ No ❑ Yes

I. OTHER COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
SITE-SPECIFIC RETROFIT REQUIREMENTS

Site Name and Address: Account No:	FINAL APPROVAL BY DISTRICT Site approved to use RW: ___ yes Date:
Prepared By: Title: Phone:	Inspectors:
	Signature:
Date of "Evaluatlon of Retrofit Needs" site visit: Date Site-Speciflc Retrofit Requirements delivered:	

The State of California regulates the uses of recycled water. The North Marin Water District surveyed your site. This document lists what changes, if any, need to be made before the site can be permitted for use of recycled water. The District may provide assistance in making the corrections. You are encouraged to contact the Water Reuse Program to discuss such assistance.

A. SEPARATION OF RECYCLED WATER AND POTABLE WATER SYSTEMS

☐ 1. Drawings which show the current piping system must be prepared. These drawings must show points of connection to potable system. As-built drawings preferred, if available.

☐ 2. Plans which show where and how the recycled water system will be separated from the potable water system need to be prepared.

☐ 3. Arrange a preliminary cross-connection test with the District by calling 415-897-4133.

☐ 4.
Other:_____
_____
_____

B. IRRIGATION EQUIPMENT

☐ 1. The following irrigation equipment requires repair:
_____
_____
_____

☐ 2. The irrigation system needs to be converted from manual to an automatic control. (The controller should be capable of limiting irrigation to the nighttime hours.)

☐ 3. Review the need for each hose bib. All unnecessary hose bibs need to be removed and capped. Remaining hose bibs on recycled water system must be replaced with District-approved quick couplers.

☐ 4.
Other:_____
_____
_____

C. RUNOFF AND OVERSPRAY CORRECTIONS

☐ 1. Corrections (such as the installation of berms) need to be made to keep runoff in use area in the following location:

_____

☐ 2. Adjust or replace sprinklers heads to prevent spray from hitting non-landscaped ground in the following location:

_____

☐ 3. Adjust sprinkler or irrigation system to prevent spray, mist or runoff from entering the following specific locations:

☐ dwelling:

_____

☐ designated outdoor eating area:

_____

☐ food handling facility:

_____

☐ adjacent property:

_____

☐ 4. Drinking fountains in the following locations need to be covered or replaced with District approved protected fountains:

_____
_____

☐ 5. Sprinklers need to be modified in the following locations to reduce overspray:

☐ narrow parking planting strip:

_____

☐ oddly shaped area:

_____

☐ 6. Drainage needs to be improved in the following areas to minimize standing water, flooding:

_____
_____

☐ 7.
Other:_____
_____
_____

D. BACKFLOW PREVENTION

☐ 1. A Reduced Pressure Principal Backflow Prevention device (RP) needs to be on the water service, as close to the meter as practical.

☐ 2. An air gap separation between the potable water system and the recycled water system needs be installed or created.

☐ 3. Remove all backflow prevention from the irrigation system.

☐ 4. A reduced Pressure Principal Backflow Prevention Device needs to be installed on the well discharge line.

☐ 5. An air gap separation between the well discharge and the recycled water system needs to be installed or created

☐ 6.
Other:_____

_____
_____

E. SIGNAGE

☐ 1. District-provided recycled water use signs need to be installed at the following locations. Obtain signs through the Water Reuse Program

☐ Use areas accessible to the public:

_____

☐ On all recycled water:

meters, number: _____ valve boxes, number: _____
valves, number: _____ automatic controls, number: _____
quick coupler, number: _____ other: _____

☐ 2. Hose bibs on the potable system should be identified as "potable".

☐ 3. Words on external equipment signs shall be in English and ☐ Spanish or ☐ Other_____
☐ 4. Words on internal equipment signs shall be in English and ☐ Spanish or ☐ Other_____

F. RECYCLED WATER STORAGE IMPROVEMENTS

☐ 1. A detail description of the on-site recycled water storage impoundment needs to be prepared. See Section 4 of DHS Guidelines for the Preparation of an Engineering Report for the Production, Distribution, and Use of Recycled Water.

☐ 2.
Other:_____
_____
_____

G. WELLS

☐ 1. Recycled water cannot be used within 50 feet of a domestic well. You have the option of choosing one of the following actions. Notify the Water Reuse Program of which action you intend to take.

A. Modify the irrigation system so only potable water is used for Irrigation within 50 feet of the well, or
B. Change landscaping so there is no irrigation within 50 feet of the well, or
C. Properly abandon the well per applicable regulations, or
D. Prove that all of the following five conditions are met:
   a. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface.
   b. The well contains an annular seal that extends from the surface into the aquitard.
   c. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.
   d. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.
   e. The owner of the well approves of the elimination of the buffer zone requirement.

☐ 2. A recycled water impoundment must be beyond 100 feet of a domestic well. You have the following options:

A. Abandon impoundment. or
B. Move impoundment beyond 100 ft from a domestic well, or
C. Properly abandon the well per applicable regulations.

☐ 3. The following type of backflow prevention device needs to be added to the well discharge line:
_____

H. FOR SITES PROPOSING TO USE RECYCLED WATER FOR USES OTHER THAN IRRIGATION

☐ 1. Non-irrigation outdoor uses. A report that describes in detail the proposed non-irrigation outdoor uses of recycled water must be prepared. See Section 4 of DHS "Guidelines for the Preparation of an Engineering Report for the Production, Distribution, and Use of Recycled Water".

☐ 2. Indoor uses of recycled water. If use of recycled water within a building is proposed, a report, as outlined in the attached "Requirement for Engineering Reports for Dual Plumbed Systems", must be prepared.

I. OTHER REQUIREMENTS

Describe:_____
_____
_____

ATTACHMENTS

_____ Preliminary Cross-Control Test Procedure
_____ Guidelines for the Preparation of an Engineering Report for the Production, Distribution, and Use of Recycled Water
_____ Requirements for Engineering Reports for Dual Plumbed Systems

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM

INSTRUCTIONS
for completing
SITE-SPECIFIC RETROFIT REQUIREMENTS FORM

PURPOSE

The District inspector uses the *Evaluation of Retrofit Needs* Form B-1 for guidance and documentation of the inspector's field evaluation of a prospective recycled water use site. The inspector then identifies those changes or improvements that need to be made at a Customer's site on the *Site-Specific Retrofit Requirements* Form B-2, which is given to the user. These instructions connect the two forms and by explaining what needs to be done on *Site-Specific Retrofit Requirements* when a shaded box on the *Evaluation of Retrofit Needs* form is checked.

These two forms, plus the permit application, are used for existing sites which are converting (retrofitting) to recycled water. The forms are designed primarily for irrigation sites, but can be applied to other retrofit situations. For new construction, the *Use Area Service Plan Checklist* and corresponding *Field Verification of Recycled Water Use Area Service Plan* forms will generally be used instead, along with the permit application.

The two forms *(Evaluation of Retrofit Needs* and *Site-Specific Retrofit Requirements)* are divided into parts which are paralleled in each form. A check in a shaded box on the *Evaluation of Retrofit Needs* indicates that something Customer's site needs to be modified before receiving recycled water. The specific action is called out on the *Site-Specific Retrofit Requirements* form.

If this is checked on *Evaluation of Retrofit Needs*	Do this on *Site-Specific Retrofit Requirements*

Part A. Separation of Recycled Water and Potable Water Systems

#3 No	Check boxes #1 and/or #2. If necessary, describe deficiencies in #4 (notes).
Notes: If there is any concern about potential cross-connections at the site	Check box #3, discuss in #4, add Preliminary Cross-Control Procedure" as Attachment

Part B. Irrigation Equipment

#2 Yes	Check #1, list repairs noted, be specific
#4No	Check#2
#6 Yes	Check#3
#7 Yes	Under Part E Signage: Check #2
Notes	#4 List anything else which has to do with bringing the irrigation system into good working condition.

Part C. Runoff and Overspray

#1 Yes	Check *#1* and fill in location
#2 Yes	Check #2 and fill in location
#3 Yes, for each subpart	Check #3 and the subpart box, fill in location
#4 Yes	Check #4 and fill in location
#5 Yes	Check #5 and fill in location
#6 Yes	Check #6 and fill in location
Notes	#7, add any other changes to keep runoff and overspray in the use area.

Part D. Backflow Prevention

#1 Yes	Check #1
#2 Yes	Check #2
#4a, #4b, if either is checked under *potable service*	Check #6, add "replace with RP"
#4b, #4c, #4d, if checked under the *irrigation system*	Unless there will be chemical injection to the RW system, or some other potential hazard, these devices are not required on the RW service. Check #3

If this is checked on *Evaluation of Retrofit Needs*	Do this on *Site-Specific Retrofit Requirements*

Part E. Signage

#1 Yes	Check #1, and first box. List use areas accessible to the public
#2, any markings	Under #1, indicate where and how may signs for the specific locations
#3, each language check	#3, mark same languages
#4, each language check	#4, mark same languages

Part F. Recycled Water Storage Impoundments

#1 Yes	Check #1

Part G. Wells

#2a Yes	Check#1
#2b Yes	Check #2
#3a Yes	Check #3 and discuss site specific backfiow prevention requirements with District's Water Section
#4a Yes	Check #3 and discuss site specific backflow prevention requirements with District's Water Section

Part H. Non-Irrigation Recycled Water Use

#1 Yes	Check #1, and add report outline as attachment
#2 Yes	Check #2, and add report outline as attachment

Attachments Check appropriate boxes

Appendix C
Cross-Connection Test Forms

C-1 Cross-connection Test Procedures for Landscape Irrigation
C-2 Cross-Connection Test and Report
C-3 Procedure if Cross-Connection is Discovered

APPENDIX C-1
CROSS-CONNECTION TEST AND DISCOVERY PROCEDURES FOR LANDSCAPE IRRIGATION SYSTEMS USING RECYCLED WATER

Introduction

The following procedures are to verify the absence of cross-connections between the potable water and recycled water supplies at sites which are served by both. These procedures also describe what to do in case cross-connection is discovered.

These procedures are to be used by the NMWD Recycled Water Program, which will be the lead agency for conducting cross-connection testing. The procedures cover cross-connection testing only, and do not incorporate other requirements related to the use of recycled water, which are described elsewhere. The procedures are modeled after the Cross-Connection Test Procedures described in Uniform Plumbing Code Appendix J. **1**

Testing Frequency

The initial cross-connection test shall consist of the *Pre-Test Requirements and Visual Inspection* and the *Cross-Connection Control Test,* as described in the Cross-Connection Test and Report Form. This initial test shall be performed and passed at all sites converting to recycled water use prior to the site receiving approval to use recycled water. Thereafter, the procedures listed under *Pre-Test Requirements and Visual Inspection (Part I)* shall be performed annually, and the *Cross-Connection Control Testing* (Part II) shall be successfully performed a minimum of once every four years. The Program may require more frequent testing if conditions dictate.

Testing by NMWD's CCCS is doen on a 4-yr cycle.

Inspection Team

All inspections and testing will be conducted by an Inspection Team consisting of a certified AWWA Cross-Connection Control Specialist, a representative from the NMWD's Water Reuse Program, the Customer's designated Recycled water Supervisor, and other personnel as required.

Inspection is currently done by one of the team members described above

Pre-Test Requirements and Visual Inspection

Prior to the cross connection testing, a visual inspection of the dual system shall be conducted by the Inspection Team. If possible, the visual inspection should be conducted prior to the date scheduled for cross-connection testing. The visual inspection should include the following elements:

1) The Customer shall provide the Inspection Team with drawings of the recycled and potable water systems. Team members shall review the drawings.

2) Discuss any changes to recycled and potable water systems since the last cross-connection test, and verify that all changes have been recorded on the appropriate record drawing(s). If possible, visually inspect changes to verify that no cross-connection has been created.

3) Verify that appropriate backflow prevention devices are installed and have been tested annually in accordance with California Title 17 Regulations. Devices are typically located on the potable water line, downstream of the meter.

4) Check meter locations of the recycled water and potable water lines to verify that no modifications have been made and no cross connections are visible.

5) Discuss who has access to the recycled water system (e.g., gardeners, maintenance and facilities workers). Establish if they are employed by the Customer or a contractor, if they can read and speak English and what type of training have they had this past year on the use of recycled water.

6) Verify that required signs are in place and in good condition.

7) Verify that all portable recycled water fixtures (e.g., hose, quick connect valves) are permanently marked to indicate that they are only to be used on the recycled water system.

Cross-Connection Control Testing

The *Cross-Connection Test and Report Form C-2* should be completed in conjunction with the testing.

The basic concept employed in checking for cross-connections between the potable water and recycled water systems is to pressurize one system at a time, and to then check the other system for flow, which would indicate that a cross-connection exists.

The following procedure shall be used to determine if a cross-connection exists.

1. The potable water system shall be activated and pressurized. The recycled water system shall be shut down at the service connection only, depressurized, and where feasible, drained. Verify that all other valves on the recycled system, downstream of service connection, are open.
2. The potable water system shall remain pressurized for a minimum of one hour.
3. All outdoor potable water fixtures and all indoor drinking fountains shall be tested for flow. No flow from a potable water outlet would indicate that it could be connected to the recycled water system.
4. The recycled water system shall be tested for flow. This shall be done by opening all quick connect bibs, sprinkler heads, and any other outlets on the irrigation system. Flow from any recycled water outlet shall be an indication that a cross-connection exists.[2]
5. Any drain points or outlets, on the recycled water system shall be checked for flow during and at the end of the test period.
6. The potable water system shall then be shut down, and where feasible, drained. The recycled, water system shall then be re-activated and pressurized.
7. The recycled water system shall remain pressurized for a minimum of one hour. Recycled water fixtures shall be tested for flow to verify that the recycled water system is fully pressurized.
8. All outdoor potable water fixtures and all indoor drinking fountains shall be tested and inspected for flow. A representative number of other indoor potable water fixtures shall be tested. This

should include one fixture in each rest room and at least 10 percent of the fixtures on each floor. The specific number will be determined by the Inspection Team based on the site's recycled and potable water systems drawings. Flow from any potable water outlet shall be an indication that a cross-connection exists.

9. If no flow is detected in any fixture which would have indicated a cross-connection, the test is complete and the system may be re-pressurized.

Procedure if Cross-Connection is Discovered

The *Procedure if Cross-Connection is Discovered Form C-3* should be used to document the procedure if a cross-connection is discovered. The following procedure shall be activated immediately, in the presence of the NMWD's Cross-Connection Control Specialist.

1. Recycled water piping to the facility shall be shut down at the meter, and the recycled water system shall be depressurized and drained where feasible.
2. Potable water service shall be shut down at the meter.
3. The cross-connection shall be determined and disconnected.
4. The systems shall be tested again as described above (under "Cross-Connection Control Testing form C-2").
5. The potable water system shall be chlorinated with 50 ppm chlorine for 24 hours, per methods described in AWWA Standard for Disinfecting Water Mains (ANSI/AWWA 065 1-92). A bacteriological test shall be performed. If test results are acceptable, the potable water system may be recharged. If not, repeat to step 5.
6. The retrofit plans must be revised to reflect any changes required to eliminate the cross-connection and the revised plans must be resubmitted to NMWD for review.

Notes:

1. Appendix J of the 1994 UPC covers Recycled Water Systems for Non-Residential Buildings, and the cross-connection test described therein was developed specifically for dual plumbed systems inside buildings. Strict adherence to this procedure is not possible when applied to irrigation systems. Appendix J recognizes that alternative requirements may be appropriate for institutional buildings and for recycled water uses located outside of structures.

2 Because of difficulties in completely draining the irrigation system, drainage flow from the recycled water system could persist for some time. In this case, the duration of the test shall be extended as necessary.

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
CROSS-CONNECTION TEST AND REPORT

Site Name:

Address:

Form Completed by: Test Date:

Site Cross-Connection Testing History
(To be completed by Water Reuse Program Coordinator prior to test)

Is this the site's first cross-connection test? ❑Yes. Skip to Today's Scheduled Testing ❑ No, continue

Date of last Pre-Test and Visual Inspection / / ❑ passed ❑ failed

Date of last complete testing (Parts I & II) / / ❑ passed ❑ failed

If failed, attach a copy of the failed "Testing Report" form.

Today's Scheduled Testing

❑ Part I, Pre-Test and Visual Inspection, only ❑ Parts I and II

Note: Initial test shall consist of Parts I and II. Thereafter, Part I is required annually, Part II is required at least once every 4 years.

Names of Inspection Team

Water Reuse Program Inspector: _____

NMWD Cross-Connection Control Specialist: _____

Customer's Supervisor: _____

Others Present	Affiliation/Title
Name: _____	_____
Name: _____	_____
Name: _____	_____

PART 1: PRE-TEST AND VISUAL INSPECTION

Note: Cross-connection testing shall be performed as described in the applicable "Cross-Connection Test Procedures"

YES	NO	For any "no" response, an explanation must be given below under No. 8	
		1a.	User provided record drawings of recycled and potable water system?
		1b.	Inspection team reviewed drawings?
		2a.	Discuss any changes made to recycled and potable system since last test?
		2b.	Have changes (from 2a) been recorded on record drawings?
		2c.	Team visually inspected changes to verity absences of cross-connections?
		3a.	Team accounted for all backflow prevention devices on site?
		3b.	Have all backflow preventers been tested annually in accordance with California Title 17regulations?
		4a.	Team field checked location of recycled water meter and potable water meter?
		4b.	Do all meters appear to be correctly installed?
		4c.	Are water meters free of visible cross-connections?
		5a.	Customer has provided a list of the individuals with access to use recycled water system?
		5b.	Discussed training of recycled water supervisor and workers?
		6a.	Are RW quick couplers and other recycled water access points easily identified as RW fixtures by signs or color coding?
		6b.	Is a "Recycled Water - Do Not Drink" sign posted where the public enters a recycled water use area?
		6c.	Are appropriate signs or other markers in place at recycled water meters, valve boxes, controllers?

PART 1: PRE-TEST AND VISUAL INSPECTION			
		6d.	Are all the signs in good condition, legible and visible?
		7.	Are all portable fixtures and hoses used on the RW system (quick connect valves, hoses, etc) permanently labeled to indicate they are for use only on the RW system?
❑ 8. An explanation must be given for any "NO" response above. (identify by number)			

RESULTS OF PRE-TEST AND VISUAL INSPECTION TEST

❑ **PASSED.** If scheduled, proceed with the Cross-Connection Program

❑ **FAILED.** The following action must be completed by the Customer prior to re-testing and must be done by (date) _____. When the corrections are made, the Customer must call the recycled water coordinator to reschedule a test.

By:_____ NMWD Cross-Control Specialist Date: _____	Received by:_____ Customer Representative Date: _____

Filing instructions: Retain original in NMWD files, send copy to Customer.

PART II CROSS-CONNECTION CONTROL TEST		
A. TEST OF POTABLE WATER SYSTEM	**Check When Complete**	**✔**
Step 1.	Turn off recycled water system at meter	
Step 2.	Open all valves on the recycled water supply, downstream of the meter.	
Step 3.	Depressurize and drain (if possible) recycled water system. Record pressure in potable water system _____ psi	
Step 4.	Confirm potable system is activated and pressurize by operating a few potable fixtures. Record pressure in potable water system _____ psi	
Step 5.	Potable water system must remain pressurized after recycled water system has been depressurized, while Steps 6 through 10 are performed	
Step 6.	Identify the location, and obtain access, to all the potable water fixtures to be tested in Steps 7 and 8	
Step 7.	Open all (one at a time) outdoor potable water fixtures and note any fixtures that have no flow.	
Step 8.	Try all indoor drinking fountains, and note any that have no flow List potable fixtures with no flow in Steps 7 and 8: _____	

PART II CROSS-CONNECTION CONTROL TEST		
	_____	
Step 9.	Step 9. Open (one at a time) all fixtures on the recycled water system. Note if water flows through any: Quick connects _____ Sprinkler heads_____ Other_____	
Step 10.	Check to see if there is any flow from any fixture or drain point. Note location of flow	
Step 11.	If no flow was found in Steps 9 and 10, proceed to Step 13. Otherwise a cross-connection has been indicated. Flow discovered in Steps 9 and 10 may be caused by an incomplete drainage of the recycled system. If inspection team suspects this is the case, the duration of the test shall be extended.	
Step 12.	If a valid cross-connection is discovered, continue with testing of recycled water system, then proceed with "Procedures if Cross- Connection is Discovered". Note locations of Cross-Connections: _____ _____	
B. TEST OF RECYCLED WATER SYSTEM	**Check When Complete**	✔
Step 13.	Turn off potable water supply at meter.	
Step14.	Drain and depressurize potable water supply by opening fixtures downstream of meter. Record pressure in potable water system:_____psi.	
Step15.	Turn on recycled water system and pressurize. Confirm recycled water system is pressurized by operating a few sprinklers. Record pressure in recycled water system (if available): _____psi.	
Step16.	Recycled water system must be pressurized while Steps 17- 20 are performed.	
Step17.	Select the indoor potable water fixtures which will be tested in Steps 18 and 19. This should include all drinking fountains, one fixture in each restroom and at least 10 percent of the fixtures on each floor. (Note: In buildings with dual plumbing, all potable fixtures must be tested).	
Step18.	Check to see if any flow comes out of any of the indoor fixtures identified in Step 16. Flow from any fixture indicates a cross-connection exists. Note location of cross connections: _____ _____	
Step19.	Turn on, one at a time, all outdoor potable water fixtures. Flow from any fixture indicates a cross-connection exists. Special attention shall be given to those fixtures listed in Steps 6 and 7. Note location of cross-connections. _____ _____	
Step20.	Record pressure in recycled water system (if available): _ psi	

RESULTS OF CROSS-CONNECTION TESTING

❑ **PASSED**, turn on the potable water supply
❑ **FAILED**, immediately follow "Procedures if Cross-Connection is Discovered"

By: _____ Received by:_____
Cross-Connection Control Specialist Customer Representative

Date: _____ Date: _____

Filing instructions: Retain original in NMWD files, send copy to Customer.

_____ File (Original) _____ Customer

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
PROCEDURE IF CROSS-CONNECTION IS DISCOVERED

In the event that a cross-connection is discovered, the following procedure shall be activated immediately in the presence of the District's Cross-Connection Specialist.

Site Name:

Site Address:	Date of Procedure:

NAMES OF PEOPLE PRESENT DURING PROCEDURE

District Cross Control Specialist:

Water Reuse Program Coordinator:

Customer's Representative:

Others:	Affiliation/Title:
Name: _____	_____
Name: _____	_____
Name: _____	_____

PROCEDURE		**Check When Complete**	✔
Step 1.	Turn off the recycled water service at the meter.		
Step 2.	Depressurize the system by turning on a few sprinklers and drain the recycled water system, where feasible.		
Step 3.	Fine the cross-connection and disconnect.		
Step 4.	Complete the 19 steps in Part II of the "Cross-Connect Testing and Report" and pass test.		
Step 5.	Disinfect the potable water system with 50 ppm chlorine for 24 hours per ANSI/AWWA C651-92.		
Step 6.	Flush the potable water system.		
Step 7.	Coordinate with the NMWD laboratory to arrange for sampling.		
Step 8.	Analyze the sample for coliform bacteria.		
Step 9.	Review the lab results. If the results are negative in the confirmed coliform tests, the potable water system may be recharged and put back into service. If the results are positive in a confirmed coliform test, repeat Steps 6 – 9.		
Step 10.	Customer to revise drawings of the recycled and potable water systems to reflect changes made in eliminating the cross-connection		
Step 11.	Customer to submit revisions to District for review within two weeks of correction by _____ (date).		

Describe nature and location of cross-connection and means of correction.

Appendix D
Site Monitoring Forms

D-1 District Inspector's Monitoring Report
D-2 Customer's Self-Monitoring Report

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
DISTRICT INSPECTOR'S MONITORING REPORT

Name/Location of Site: Customer No.:

Date of Inspection: Name of Inspector:

☐ Scheduled ☐ Unannounced ☐ Customer representative present:

GENERAL PERMIT COMPLIANCE

1.	Is recycled water used for any purposes not listed in the permit?	Yes* ☐	No ☐
2.	Are use rates consistent with those listed in the permit?	Yes ☐	No* ☐
3.	Is irrigation limited to areas shown in the original permit application?	Yes ☐	No* ☐
4.	Have any alterations been made to the recycled water system since the permit was issued?	Yes* ☐	No ☐
5.	Is the on-site recycled water supervisor the same person specified in the permit?	Yes ☐	No* ☐
6.	Has the on-site staff been trained in the use of recycled water and measures to protect personal and public health?	Yes ☐	No* ☐
7.	Has Customer been conducting self-monitoring and filing report in accordance with their permit?	Yes ☐	No* ☐

PROHIBITIONS

8.	Is recycled water escaping the use area through surface runoff or airborne spray? (If yes, note affected area and estimate volume)	Yes* ☐	No ☐
9.	Are any odors associated with use of the recycled water? (Note source, characterization and travel distance below).	Yes* ☐	No ☐
10.	Is there prolonged ponding of recycled water due to over-irrigation or evidence of mosquito breeding as a result of ponding?	☐ Yes*	☐ No
11.	Are any notification signs and markings identifying recycled water missing, non-legible, or obstructed?	Yes* ☐	No ☐
12.	Are there leaks or breaks in the irrigation system piping or evidence of plugged, broken, or otherwise faulty irrigation system components?	Yes* ☐	No
1 3.	Is recycled water being sprayed directly on people, dwellings, food-handling facilities, or drinking fountains?	Yes* ☐	No ☐

BACKFLOW/CROSS-CONNECTING TESTING

14.	Have backflow prevention devices been tested in last 12 months? Date:_____	Yes ☐	No* ☐
15.	The most recent cross-connect testing conducted: Part I Pretest and Visual Test Date: _____ Part II Cross-Connect Control Test Date: _____	Pass ☐ Pass ☐	Failed* ☐ Failed* ☐
16.	Is the site due for cross-connection testing?	Yes* ☐	No ☐

NMWD enters data via it's Asset management program (NEXGEN)

FORM D-1

IMPOUNDMENTS, IF APPLICABLE

	Yes*	No
17. Is there evidence of overflows, leaks, erosion of dikes, etc. of storage ponds or impoundments?	☐	☐

REQUIRED ACTION

☐ None By District: _____ _____ _____ _____	Compliance Date
By Customer: _____ _____ _____ _____ _____ _____	Compliance Date

COMMENTS

All responses to a box with an asterisk **(*)** requires an explanation. Comments should be identified by item number.

_____
_____
_____
_____
_____

SIGNATURE

Signature and date

Copies: _____ File (Original)
_____ Customer

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM

CUSTOMER'S ANNUAL SELF-MONITORING REPORT

Name/Location of Site:	Monitoring frequency specified in permit: **Annual –Due July 15th**	Customer's Designated Recycled Water Supervisor:

MONITORING DATA

Observer's initials and date monitored →	July – Sept	Oct – Dec	Jan – March	April – June
Is recycled water escaping the use area through surface runoff or airborne spray? (If yes, note affected area and estimate volume)	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Are any odors associated with use of the recycled water? (Note source, characterization and travel distance below.)	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Is there prolonged ponding of recycled water due to over-irrigation or evidence of mosquito breeding as a result of ponding?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Are any warning signs, labels or markings identifying recycled water damaged, missing or not visible?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Are there leaks or breaks in the irrigation system piping or evidence of plugged, broken, or otherwise faulty irrigation system components?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Is recycled water being sprayed directly on people, dwellings, food-handling facilities, or drinking fountains?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Explain any "yes" answers. Note date of comment and specific locations within site. Attach additional sheets if necessary.

NOTES

Note any recommended improvements or changes:

List any changes in recycled water piping system from previous monitoring report. Explain.

_____ Customer's Recycled Water Supervisor (date)	This report shall be submitted to the Water Reuse Program or maintained on-site as specified in the customer's permit.

CHANGE OF ON-SITE SUPERVISOR, OWNERSHIP, OR MANAGEMENT

If the on-site supervisor, property ownership, or management has changed since the last inspection, fill out the following change of information.

New Owner/Mgmt:_____

Address:_____

Phone:_____

email:_____

New Contact:_____

Address:_____

Phone:_____

email:_____

New On-Site Supervisor:_____

Address:_____

Phone:_____

email:_____

ADDITIONAL COMMENTS / INFORMATION:

RETURM COMPLETED FORM TO:

North Marin Water District
P.O. Box 146
Novato, Ca 94948

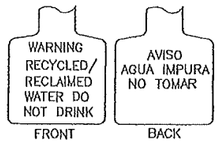
Or email to: dladd@nmwd.com

Appendix E
Examples of Recycled Water Signs

E-1 Examples of Recycled Water Signs

RECYCLED WATER

RECYCLED WATER COLOR: PURPLE



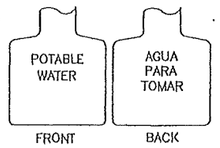
SAMPLE WARNING TAG,
BACKGROUND PURPLE
(PANTONE 512) WITH BLACK LETTERING.

NOTE:

T CHRISTY ENTERPRISES INC.
P/N: ID-MAX-P2-RC006
(OR EQUAL)

POTABLE WATER

DRINKING WATER COLOR: BLUE

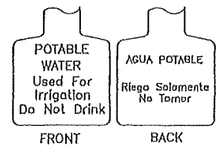


NOTE:

T CHRISTY ENTERPRISES INC.
P/N: ID-MAX-B2-PW015
(OR EQUAL)

POTABLE WATER
(USED FOR IRRIGATION)

PW IRRIGATION WATER COLOR: YELLOW



NOTE:

T CHRISTY ENTERPRISES INC.
P/N: ID-MAX-Y2-PW017
(OR EQUAL)

RECYCLED WATER
(IDENTIFICATION OF EXPOSED EXTERIOR ABOVE-GRADE RW PIPING)

CONTRACTOR TO LABEL ALL ABOVE GROUND PIPING CONVEYING RECYCLED WATER USING THE FOLLOWING:

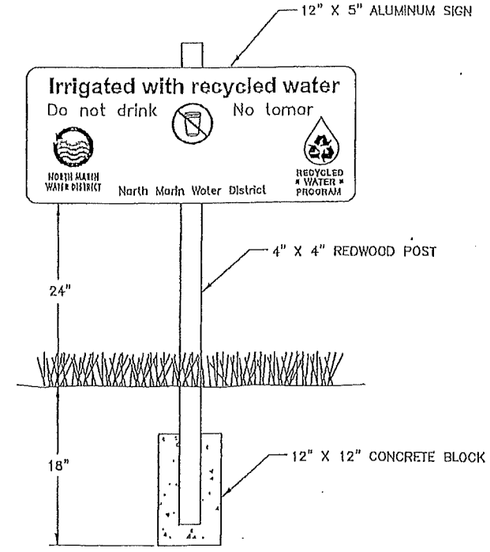
ALL SUCH PIPE MUST BE LABELED WITH THE WORDS "RECYCLED WATER – DO NOT DRINK" AND COLOR-CODED PURPLE TO IDENTIFY IT AS CARRYING RECYCLED WATER. IF PURPLE IDENTIFICATION TAPE OR DECALS ARE USED TO LABEL AND/OR COLOR-CODE THE PIPING, THE TAPE OR DECALS MUST BE ADHESIVE, PERMANENT, AND RESISTANT TO COLOR FADING AND OTHER ENVIRONMENTAL CONDITIONS. THE TAPE OR DECALS MUST BE IMPRINTED IN NOMINAL THREE-QUARTER-INCH (3/4") HIGH (OR OTHER HEIGHT ACCEPTABLE TO THE NMWD INSPECTOR), BLACK, UPPERCASE LETTERS AGAINST A PURPLE (PANTONE COLOR #512) BACKGROUND. TAPE OR DECALS MUST BE AFFIXED ALONG A MINIMUM OF TWO (2) VISIBLE SIDES OF THE PIPING AT TEN-FOOT (10') INTERVALS AND WHEREVER THE PIPING CHANGES DIRECTIONS. PURPLE (PANTONE COLOR #512) BANDS MAY BE ALSO BE PAINTED AROUND THE CIRCUMFERENCE OF THE PIPE FOR COLOR-CODING AT TEN-FOOT (10') INTERVALS AND WHEREVER THE PIPING CHANGES DIRECTIONS.

PURPLE PVC PIPE IS NOT AN ACCEPTABLE ALTERNATIVE FOR COLOR-CODING BECAUSE THE PURPLE COLOR WILL FADE WHEN EXPOSED TO SUNLIGHT.

WARNING TAG DETAIL AND ABOVE GROUND RW PIPE IDENTIFICATION

SCALE: NOT TO SCALE

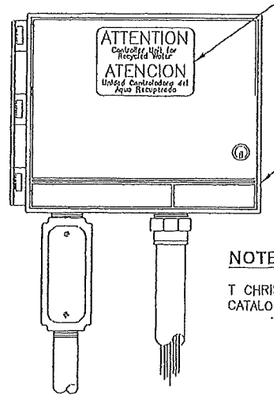
1 RG5



ADVISORY SIGN DETAIL

SCALE: NOT TO SCALE

2 RG5



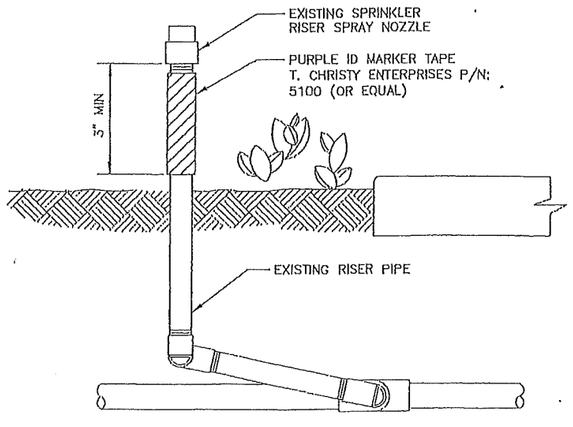
NOTE:

T CHRISTY ENTERPRISES, INC,
CATALOG P/N: 4100 (OR EQUAL)

CONTROLLER BOX MARKER DETAIL

SCALE: NOT TO SCALE

3 RG5



RECYCLED WATER RISER MARKER DETAIL

SCALE: NOT TO SCALE

4 RG5

RECYCLED WATER ONSITE RETROFIT CONSTRUCTION PROJECT
NORTH SERVICE AREA (GROUP 2N)
SOUTH SERVICE AREA (GROUP 2S)

NORTH MARIN WATER DISTRICT

Russell D. Mitchell Associates, Inc.
2160 Contra Diablo
Walnut Creek, CA 94597
tel 925.939.3085 ♦ fax 925.932.5071
www.rmdirrigation.com

NO.	DATE	REVISION	BY	APP.
1	1/25/13	ISSUED FOR BID	CC.	DM

NORTH MARIN WATER DISTRICT
NOVATO, CALIFORNIA

IRRIGATION RETROFITS
STANDARD DETAILS 1

DES	DR	CH	SCALE	: AS NOTED
CH	LB	CC.	DATE	: JANUARY 15, 2013
APPROVED: CHIEF ENGINEER			SHEET NO.	: 5 OF 49 SHEETS
R.E. C40936			SERVICE AREA N/S	JOB NO. 5.6057.00 NO. RG5

Appendix F
Recycled Water for Construction Water

F-1 Construction Water Permit
F-2 Construction Water Release Form
F-3 Construction Water Inspection Checklist

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM

CONSTRUCTION WATER PERMIT

USER INFORMATION

Name of User: _____ Address: _____

_____

Phone: _____ _____

DISTRIBUTOR INFORMATION

Distributor: _____ Address: _____

(if different from above) _____

Phone: _____ _____

TYPE OF WATER USE

Application Method: ☐ Tank Truck ☐ Spray ☐ Wash Water ☐ Other _____

Use of the Water _____

_____

Where Applied: County _____ City _____

CERTIFICATION

I HEREBY CERTIFY UNDER PENALTY OF PERJURY THAT THE INFORMATIONPROVIDED IN THIS APPLICATION AND IN ANY ATTACHMENT IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

Signature of Discharger _____ Title: _____ Date: _____

Signature of User _____ Title: _____ Date: _____

Signature of Distributor _____ Title: _____ Date: _____

See NMWD website for current requirements

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM

CONSTRUCTION WATER RELEASE FORM

DISTRIBUTOR INFORMATION

Distributor: _____

(if different from above)

Phone: _____

Address: _____

_____

_____

DATE	VOLUME COLLECTED	TRUCK LICENSE	DISCHARGE SIGNATURE

COPIES OF THIS FORM SHALL BE KEPT AT PRODUCING FACILITY AND IN TRANSPORT VEHICLE

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM

CONSTRUCTION WATER INSPECTION CHECK LIST

(To be completed by District)

Date and Time of Inspection: _____

Specific uses of Recycled Water _____

Owner/Operator Present: _____

Tank Truck License Number _____

Weather Conditions: _____

Check the appropriate items listed below:

Type of Application: ☐ tank truck ☐ spray ☐ wash water ☐ other _____

Standard Observations:	Yes	No	N/A
a) Recycled Water is used in non-designated areas:	☐	☐	☐
b) Odor Nuisance:	☐	☐	☐
c) Escape of recycled water to areas of potential public health hazards	☐	☐	☐
d) Saturated soils or ponding in the use areas:	☐	☐	☐
e) Vehicle hauling recycled water is leaking or is not properly labeled with warning signs	☐	☐	☐
f) Recycled water sprayed on eating areas or drinking fountains	☐	☐	☐
g) When required, warning signs are not properly posted in use area	☐	☐	☐
h) Buffer zones from sensitive areas not maintained	☐	☐	☐
i) Broken pipes or spray nozzles:	☐	☐	☐

If a "yes" is checked for any of the above, provide explanation below:

_____

_____

_____

Additional Notes: _____

_____

Signature of Inspector: _____ Date: _____

ATTACHMENTS TO RECYCLED WATER USERS MANUAL

Attachment B - Residential Recycled Water Pick-Up Program Guidelines and Application Agreement

Attachment C –Recycled Water Guidelines Manual Training Material

Attachment D – Recycled Water Truck Program Recycled Water Use Permit

Attachment E – NMWD Recycled Water Truck Permit - Recycled Water Load Form

Attachment F – Recycled Water Truck Program Guidelines

Attachment G – Recycled Water Use Quiz

Attachment H – Recycled Water Truck Checklist

Attachment I – Recycled Water Truck Program – RW Hydrants

Attachment B - Residential Recycled Water Pick-Up Program Guidelines and Application Agreement

NORTH MARIN WATER DISTRICT

Residential Recycled Water Pick-Up Program Guidelines and Application Agreement

What is the Residential Recycled Water Pick-Up Program?

North Marin Water District's (NMWD) Residential Recycled Water Pick-Up Program provides clean, safe, tertiary-treated recycled water to residential customers for hand-watering of outdoor plants. There is an annual application fee of $75 which is good until the program ends in the fall. See our website at NMWD.com or call 415-897-4133 for fill station hours of operation.

Who can participate?

Current North Marin Water District Novato residential customers can pick-up recycled water for the use of watering plants; thereby saving drinking water.

Things to Know About Recycled Water:

What is tertiary-treated recycled water and is it safe?
Recycled water is wastewater that has been through an additional treatment process that includes sand filtration and extra disinfection. Recycled water treated to this high level meets the rigorous and protective standards set by the State of California, Division of Drinking Water, and Regional Water Quality Control Board and qualifies for unrestricted non-potable uses.

What can I use recycled water for?
Recycled water is safe to use for watering trees, gardens, lawns, and other outdoor plants.

What is Recycled water is not suitable for?

- Drinking
- Cooking
- Washing hands
- Bathing
- Filling swimming pools or spas
- Children's water toys
- Plumbing into the household's domestic plumbing system

Why is recycled water not suitable for drinking? What if I accidentally drink it?
If recycled water is consumed by humans or pets, there is no need to panic. Recycled water is highly treated and disinfected; just not to drinking water standards. Should any adverse symptoms or unwell feelings occur, please consult your doctor.

Can I water my plants and garden with recycled water?
Recycled water is a drought-proof source of water. By using recycled water, drinking water is saved for more important uses.

Recycled water naturally contains important nutrients that plants thrive on such as phosphorus and nitrogen. It is also important to note that recycled water is slightly saltier than drinking water and application to salt sensitive plants should be monitored and may need to be limited.

How much recycled water can I pick-up?
Recycled water may be picked-up in sealable containers from 35 to 300 gallon per pick-up load. More than one trip per day is allowed.

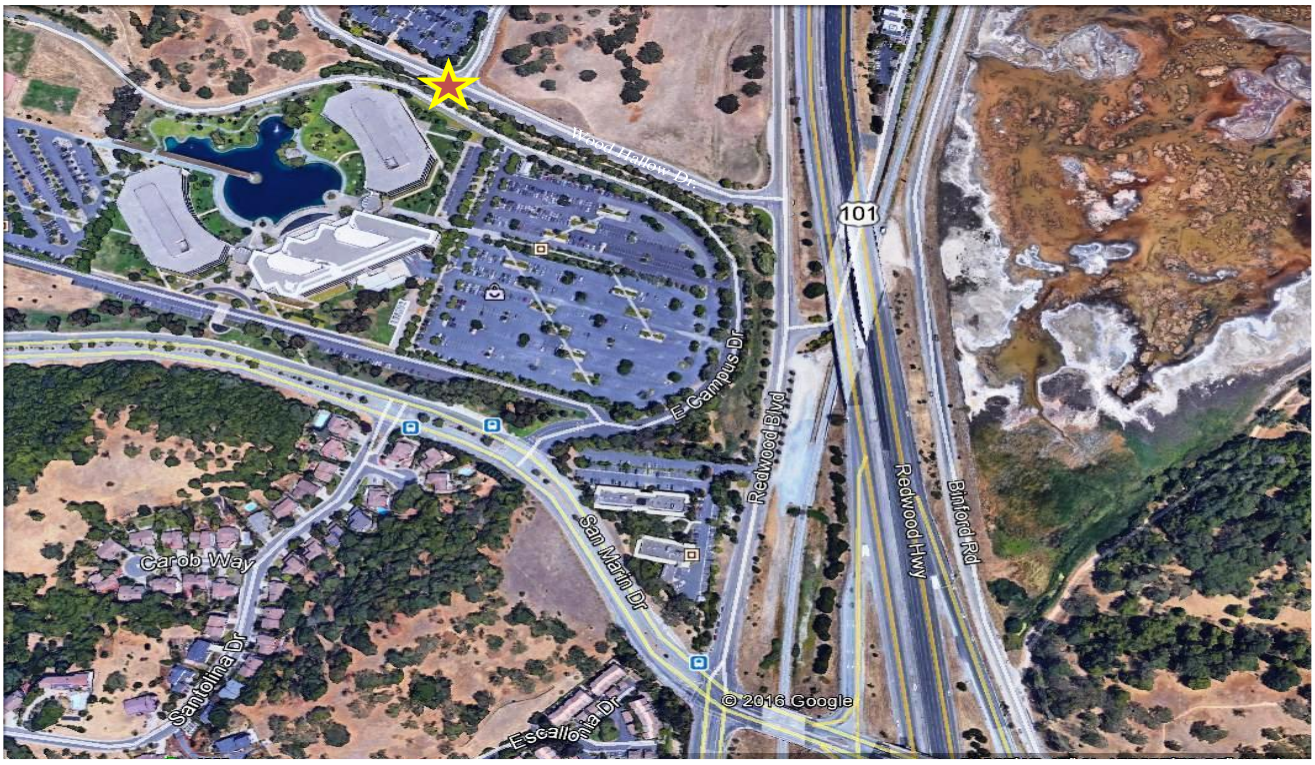
Water is heavy! A gallon of water weighs over 8.3 pounds. Plan accordingly when determining how much water to pick-up and keep in mind the size of your vehicle when selecting transport containers. A 275 – gallon tote of recycled water will weigh 2,294 pounds. **NMWD is not liable for any injuries or damage to your vehicle due to your participation in the Residential Recycled Water Pick-Up Program. Tie-down straps to secure the containers are recommended for your safety.**

What are the Recycled Water Handling Guidelines?

1. Recycled water picked-up under the Residential Recycled Water Pick-Up Program cannot be resold or used indoors.
2. Recycled water picked-up must be used promptly at the property indicated on the application form, no storage is permitted.
3. NMWD's recycled water may only be used within NMWD's Novato service area.
4. Recycled water can only be picked-up in containers with a sealable lid in minimum amounts of 35-gallon containers to a maximum 300-gallons. Each resident can only receive up to a total of 300 gallons per trip. Residents interested in more than 300 gallons of recycled water during one pickup will be required to apply for NMWD's commercial truck water load program.
5. Access to recycled water is restricted to NMWD residential customers who have received the recycled water training and have been issued a wallet card.
6. Signage must be placed on all containers containing or used for storing recycled water. Once a container has held recycled water it cannot be used for holding drinking water.
7. Recycled water cannot be connected to the drinking water system and must be kept separate from all existing landscape irrigation systems. Customers interested in constructing a new separate plumbing system for recycled water are required to meet NMWD's recycled water program standards for recycled water systems and through a separate process, apply and obtain approval from NMWD to ensure requirements are met.
8. Recycled water is not for drinking, playing with, or for use in food preparation or clean-up.
9. After handling recycled water, users should apply hand sanitizer or wash their hands with soap and potable water, especially before eating or smoking.
10. Recycled water shall not be applied within 50 feet of any domestic water well.
11. Wash all fruits, vegetables, or other edible plants, that have been irrigated with recycled water with domestic drinking water prior to cooking or eating.
12. Recycled water shall not be discharged to the street gutter or storm drain system and must not be applied in such a way to create runoff or ponding. It must be disposed of into landscape area or into the sanitary sewer.
13. There must not be any nuisance odors/vectors due to the application of Recycled Water.
14. To ensure the proper use of recycled water, NMWD may visit the user's property where the recycled water is used.

Pick-Up Program Procedures:

1. Residents interested in picking-up recycled water, must fill out the Residential Recycled Water Pick-Up Program Permit Application Agreement located on the last page of the program guidelines (this document) complete the Recycled Water Use Exam, and pay the annual application fee.
2. The Residential Recycled Water Pick-Up Program Permit Application Agreement and annual $75 fee may be submitted in person at the NMWD office located at 999 Rush Creek Place, Novato, CA between the hours of 9am – 4pm Monday through Friday, or brought to the fill station on your first visit. A valid driver's license must be presented when submitting the application.
3. Upon submitting the Residential Recycled Water Pick-Up Program Permit Application Agreement and paying the annual fee, residents will be required to complete training on the proper use of recycled water and procedures for using the fill station prior to receiving recycled water for the first time. After completion of the training and completing the Recycled Water Use Exam, NMWD will issue applicants a wallet card and recycled water notice stickers to be placed on all containers used to transport recycled water.
4. After training is complete and stickers have been installed on the containers, residents are allowed to receive recycled water during fill station operating hours.
5. Residents must present their wallet card to NMWD staff, and fill out the NMWD Residential Recycled Water Pick-Up Record upon filling their tank on each visit. Residents can return as often as needed to pick-up recycled water in their designated containers.
6. The residential recycled water pick-up fill station is located on Wood Hollow Rd. across the street from Meadow Crest Rd. Shown at the yellow and Red Star on the map below.



Fill station is on the South side of Wood Hollow Drive.

Approach from the West, do not block traffic.

- Be aware of other people and vehicles around you
- Complete log sheet prior to leaving with the recycled water
- Please have children and pets stay in vehicle while onsite
- Wait patiently in line if fill station is busy
- During recycled water pick-up, please turn off your vehicle engine and refrain from smoking.

NORTH MARIN WATER DISTRICT

Residential Recycled Water Pick-Up Program Application Agreement

Customer Name:_____
Service Address: _____
Phone: _____
Email: _____
License Plate #'s of vehicles used to collect recycled water: _____
Area to be irrigated (ft^2): _____

Recycled Water Use Information Recycled water will be used for (check all that apply):

☐Irrigation of trees, landscaping, garden
☐Irrigation of turf
☐Other: _____

Applicants may not distribute water on site unless permitted with a recycled water permit from the District. Applicants may not provide water to others unless the others are also signed up for the Residential Recycled water pick-up program and may not charge these others a fee for the delivery.

I have read, understand and agree to abide by the Residential Recycled Water Pick-Up Program Guidelines. I understand that failure to comply with the conditions of the guidelines can lead to revoking the privilege to recycled water for residential pick-up.

Signature:_____ Date: _____

Print Name:_____

Gray Areas to be filled in by NMWD:

Wallet Card Number: _____ Effective Date:_____
$75 Fee Paid _____ Expiration Date:_____
Training provided by: _____ Customer Water Account Number: _____
RW use quiz completed:_____ Number of Stickers Provided:_____

Attachment C – Recycled Water Guidelines Manual and Training Material

Note: The title of this Attachment in NMWD's Title 22 Report is mis-labeled as "Residential Recycled Water Pick-up Program Training Material

NMWD Recycled Water Guidelines Manual

NORTH MARIN WATER DISTRICT

RECYCLED
WATER
PROGRAM

IRRIGATION CUSTOMER GUIDELINES FOR USING RECYCLED WATER

August 2012

NORTH MARIN WATER DISTRICT

IRRIGATION CUSTOMER GUIDELINES FOR USING RECYCLED WATER

TABLE OF CONTENTS

Page No.

Introduction

Recycled water is being used at your site for landscape irrigation. The California Department of Public Health (CDPH) requires that all people working at the site be aware of the precautions that should be taken while working around recycled water. The purpose of this Guidebook is to provide information for the safe use of recycled water (which is reclaimed and purified wastewater) and to identify the customer requirements necessary to meet CDPH guidelines and criteria. The list of “Dos and Don'ts for Recycled Water Irrigation Customers" (see Appendix) should be posted in a prominent place where the customer's employees may see it. Additionally, landscape maintenance employees should receive a copy of this list and attend training provided by his/her employer.

NMWD has provided customers and/or their landscape maintenance contractor with two DVD videos *("Recycled Water Health and Safety"* and *"Landscape Maintenance Using Recycled Water")* to assist with this training. The videos describe the recommended health and safety precautions and provide useful information about appropriate landscape maintenance practices when using recycled water for irrigation.

This Guidebook includes general information about the use of recycled water, key regulations, the benefits of using recycled water, best management practices, and a list of resources for further information (see “Key Contacts and Additional Resources" in Appendix), as well as some additional reference materials. Please refer to the Table of Contents for specific categories of information.

Every customer site is required to have a designated Recycled Water Site Supervisor. His or her responsibilities include:

- Ensuring that the recycled water rules and regulations are followed
- Maintaining records and developing reports
- Training and answering any questions from employees

A more complete list of the Recycled Water Site Supervisor's "Duties and Responsibilities" is included in the Appendix (page A7).

Recycled Water Overview

All Water Is Recycled

Our earth has approximately the same amou nt of water as it did millions of yea rs ago. The amount of water remains con stant as it goes t hrough the hydrological cycle of pr ecipitation in the form of rain or sno w, runoff, and evaporation. In addition to period ic droughts in California , changes in recent times have caused a much greater demand on o ur water supply - these changes include an ever-increasing population and stricter environmental protection standards. Given these facts, we are very hard pressed in California to stretch our existing water supply to meet all the demands on our limited supply, especially in times of drought. Howe ver, there is a source of water that is helping us grow the size of the "water pipe": recycled water.

Recycled Water Helps Conserve Water and Has Other Benefits

Water is in short su pply in Calif ornia. Most of the state's develo ped water supplies ar e transported from water-rich mountain areas for use in Central Valley agriculture an d the urban and suburban areas of the San Francisco Bay region and Southern California. This dependence on "imported" [1] water, coupled with the occurrence of dr ought, makes future w ater supply reliability a concern. W ater conser vation efforts help, but are not eno ugh to offse t increased demands. Each gallon of potable (drinking) water replaced by recycled water helps stretch the local drinking water supply and helps "drought proof" the community.

Some of the many benefits of using recycled water include:

- Saves drinking water for consumptive uses.
- Benefits the environment by red ucing the amount of treated wastewater discharged to rivers, bays, and the ocean and helps maintain adequate freshwater flows in rivers and streams that fish and wildlife depend upon.
- Is a source of important nutrients that may reduce fertilizer needs and costs.
- Is cost effective and drought proof (or "drought resistant" in some areas).
- Protects pu blic and private investments in p arks and la ndscaping. In times of drought, many parks, golf courses and other landscaped areas are required to cut potable water use. It is expected that the recycled water supply will be available in adequate quantities, even in a drought.

History of Recycled Water

Recycled water has be en used in California since the late 1800's, wh en it was fir st used for agricultural irrigation. Municipal use of recycled water in California starte d in 1929 in the City of Pomona. Locally, Golden Gate Park in San Francisco began using recycled water for landscape irrigation in 1932.

NMWD has been using recycled w ater for lan dscape irrigation since 2007. The landscaping includes turf and a variety of trees and plants, all of which are flourishing.

The process to produce recycled water closely mi mics the way nature cleans water, but in a much faster and more controlled manner. The technolog y for producing recycle d water has dramatically improved over the years, ensuring that recycled water remains a safe and valuable resource.

[1] Water that is "Imported" originates in other areas of the state and is conveyed through pipelines, canals or other conveyance systems to its ultimate places of use.

Recycled Water Is Safe

California has an unblemished record of safety using recycled water for irrigation, industrial processes and toilet flushing. Recycled water undergoes a high level of treatment to remove pathogens (disease-causing organisms) from the wastewater. Testing is continuously performed to assure that water quality standards are met. Recycled water has been proven to be a safe source of water for irrigation and industrial uses. However, recycled water is not intended as a source of drinking water or for food preparation or hand washing.

The California Department of Public Health is extremely cautious and rigorous in setting water quality standards and criteria for recycled water and for recycled water systems. In California, recycled water has been safely used in our communities since 1929.

Recycled Water Treatment Process

1. Primary treatment uses mechanical means to remove floating materials, oils and greases, sand and silt, and organic solids heavy enough to settle in the water. The primary treatment steps are prechlorination (for odor control), screening (to remove large objects), grit removal, and primary sedimentation.

2. Secondary treatment biologically removes most of the suspended and dissolved organic and chemical impurities that would rob life-giving oxygen from the receiving waters if allowed to decompose naturally. Secondary treatment uses "good" bacteria or microbes like those found in nature to decompose the organic materials in the wastewater and to destroy harmful organisms. Air is pumped into aeration tanks to keep these microbes alive to do their essential work. The remaining steps in secondary treatment for recycled water involve final clarification and disinfection.

All NMWD recycled water customers receive only:

3. Tertiary-treated recycled water, which involves putting secondary-treated wastewater through a third level of treatment which includes filtration and additional disinfection to remove even more impurities and potential pathogens.

State and Local Standards and Regulations To Protect Public Health

Because recycled water originates from wastewater, the California Department of Public Health has adopted strict public health and safety guidelines. These guidelines are precautionary measures to help protect the public from any potential risk associated with recycled water. Some of the laws that govern recycled water include Title 17 and Title 22 of the California Code of Regulations which can be viewed online at the Department of Public Health' web site which is www.cdph.ca.gov. Type "recycled water" in the Search box on CDPH's home page and look for "The Purple Book."

Recycled water also is regulated by the State Water Resources Control Board, which oversees the production, conveyance, and use of recycled water through its nine Regional Water Quality Control Boards in California.

Throughout the Guidebook, there will be references to the restrictions and guidelines that all recycled water customers must follow.

Recycled Water Purple Pipe System

Guidelines set by the California Department of Public Health mandate that recycled water facilities be clearly distinguishable from other water facilities to avoid mixing of supplies.

Standard practice requ ires separat e pipes for drinking w ater and re cycled water. Recycled water pipes are purple colored and may be made of purple plastic (PVC) or covered with purple tape and labeled with the words "Reclaimed Water - Do Not Drink." All pipes, sprinkler heads, pumps, valves and valve covers will be eit her colored purple or marked with purple tape an d stickers. Th e entire recycled water pipeline syst em will be marked to distingui sh it from th e drinking water pipelines.

Typical Uses of Recycled Water

Recycled water has been proven to be suitable as an irrigation supply for:

- Parks and playgrounds
- Schools
- Golf courses
- Greenbelts and roadways
- Common area landscaping (homeowners' associations)
- Agriculture
- Cemeteries

Recycled water also is used for wetlands and stream flow enhancement, industrial processing and cooling towers, as well as toilet flushing in commercial buildings.

Please see "Recycled Water Uses Allowed in California" section (immediately following) for a more complete listing of recycled water uses that are allowed or not allowed, depending on level of treatment.

Recycled Water Uses Allowed[1] in California

Use of Recycled Water	Treatment Level			
	Disinfected Tertiary Recycled Water	Disinfected Secondary – 2.2 Recycled Water	Disinfected Secondary – 23 Recycled Water	Undisinfected Secondary Recycled Water
Irrigation of:				
Food crops where recycled water contacts the edible portion of the crop, including all root crops	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Parks and playgrounds	**Allowed**	Not Allowed	Not Allowed	Not Allowed
School yards	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Residential landscaping	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Unrestricted-access golf courses	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Any other irrigation uses not prohibited by other provisions of the California Code of Regulations	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Food crops, surface-irrigated, above-ground edible portion, and not contacted by recycled water	**Allowed**	**Allowed**	Not Allowed	Not Allowed
Cemeteries	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Freeway landscaping	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Restricted-access golf courses	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Ornamental nursery stock and sod farms with unrestricted public access	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Pasture for milk animals for human consumption	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Non-edible vegetation with access control to prevent use as a park, playground or school yard	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Orchards with no contact between edible potion and recycled water	**Allowed**	**Allowed**	**Allowed**	**Allowed**
Vineyards with no contact between edible portion and recycled water	**Allowed**	**Allowed**	**Allowed**	**Allowed**
Non food-bearing trees, including Christmas trees not irrigated less than 14 days before harvest	**Allowed**	**Allowed**	**Allowed**	**Allowed**
Fodder and fiber crops and pasture for animals not producing milk for human consumption	**Allowed**	**Allowed**	**Allowed**	**Allowed**
Seed crops not eaten by humans	**Allowed**	**Allowed**	**Allowed**	**Allowed**
Food crops undergoing commercial pathogen-destroying processing before consumption by humans	**Allowed**	**Allowed**	**Allowed**	**Allowed**
Ornamental nursery stock, sod farms not irrigated less than 14 day before harvest	**Allowed**	**Allowed**	**Allowed**	**Allowed**
Supply for impoundment:				
Non-restricted recreational impoundments, with supplemental monitoring for pathogenic organisms	**Allowed**[2]	Not Allowed	Not Allowed	Not Allowed
Restricted recreational impoundments and publicly-accessible fish hatcheries	**Allowed**	**Allowed**	Not Allowed	Not Allowed
Landscape impoundments without decorative fountains	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Supply for cooling or air conditioning:				
Industrial or commercial cooling or air conditioning involving cooling tower, evaporative condenser, or spraying that creates a mist	**Allowed**[3]	Not Allowed	Not Allowed	Not Allowed
Industrial or commercial cooling or air conditioning not involving cooling tower, evaporative condenser, or spraying that creates a mist	**Allowed**	**Allowed**	**Allowed**	Not Allowed

Recycled Water Uses Allowed[1] in California
(continued)

Use of Recycled Water	Treatment Level			
	Disinfected Tertiary Recycled Water	Disinfected Secondary – 2.2 Recycled Water	Disinfected Secondary – 23 Recycled Water	Undisinfected Secondary Recycled Water
Other uses:				
Groundwater recharge	**Allowed** under special case-by-case permits by RWQCBs[4]			
Flushing toilets and urinals	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Priming drain traps	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Industrial process water that may contact workers	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Structural fire fighting	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Decorative fountains	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Commercial laundries	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Consolidation of backfill material around potable water pipelines	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Artificial snow making for commercial outdoor uses	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Commercial car washes, not heating the water, excluding the general public from washing process	**Allowed**	Not Allowed	Not Allowed	Not Allowed
Industrial process water that will not come into contact with workers	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Industrial boiler feedwater	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Non-structural fire fighting	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Backfill consolidation around non-potable piping	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Soil compaction	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Mixing concrete	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Dust control on roads and streets	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Cleaning roads, sidewalks, and outdoor work areas	**Allowed**	**Allowed**	**Allowed**	Not Allowed
Flushing sanitary sewers	**Allowed**	**Allowed**	**Allowed**	**Allowed**

This summary is prepared from the December 2, 2000-adopted Title 22 Water Recycling Criteria and supersedes all earlier versions. Prepared by Bahman Sheikh and edited by EBMUD Office of Water Recycling, who acknowledge this is a summary and not the formal version of the regulations referenced above.

[1] Refer to the full text of the December 2, 2000 version of Title 22: California Code of Regulations, Chapter 3 Water Recycling Criteria. This chart is only an informal summary of the uses allowed in this version.

The complete and final 12/2/2000 version of the adopted criteria can be downloaded from: http://www.dhs.ca.gov/ps/ddwem/publications/Regulations/recycleregs_index.htm

[2] Allowed with "conventional tertiary treatment." Additional monitoring for two years or more is necessary with direct filtration.

[3] Drift eliminators and/or biocides are required if public or employees can be exposed to mist.

[4] Refer to Groundwater Recharge Guidelines, available from the California Department of Health Services.

Landscape Maintenance

Chemical Characteristics of Recycled Water vs. Potable (Drinking) Water
There are two key differences between potable and recycled water. These differences are important to know because you may need to modify your irrigation practices. Typically, recycled water has higher salt and nutrient contents.

Because of the potential higher salt level, it is important to monitor the amount of recycled water you use because a salt build-up can occur from over watering. This also may occur if you have soil that doesn't drain well. If a salt build-up does occur, then leaching the soil can help. In the San Francisco Bay area, the wet season rainfall is usually sufficient to wash away any accumulated salts in the soil. Another way to manage salt build up is to offset soil or irrigation water deficiencies through the application of soil and/or water amendments. Gypsum, or calcium sulfate and sulphur can be added to help counter-balance high sodium levels.

With a few exceptions, recycled water is very similar to potable water. There are some other key specifics about the chemistry of recycled water that you should be aware of, including:

Alkalinity
Recycled water is well within the range of drinking water standards for alkalinity. With all landscaping, **pH** should be regularly monitored.

Bicarbonate
Bicarbonate levels in recycled water are minimal. Higher levels could cause white deposits on plant leaves. To avoid any problems, use soil-applied watering.

Boron
A constituent of almost all natural water, boron is essential to plant growth. The boron level of recycled water meets drinking water standards for safety. High levels of boron can be identified by yellowing, marginal burning and internal spotting of plants.

Chloride
Woody plants are especially sensitive to chloride. Evidence of chloride toxicity is first seen as leaf burn that starts at the tips of older leaves and progresses back to the leaf blade. Using a soil-applied water system will significantly lessen any problems.

Sodium
Individual plant species vary greatly in their sensitivity to sodium. The symptoms of sodium injury include a marginal scorch on the edges of older leaves. This is the effect of the plants taking up sodium from the soil water. As water transpires from the leaf surface, sodium accumulates in the tissue. With overhead irrigation, sodium can be directly absorbed and can accumulate in wet leaves, thereby causing leaf burn. Soil surface irrigation lessens this problem.

For your information, a one-page "Comparison of Potable vs. Treated Recycled Water Quality Data" is included in the Appendix. Please note that recycled water is not a drinking water supply and is ***not*** required to meet drinking water standards. It is interesting to note, however, that where the U.S.E.P.A. sets a Maximum Contaminant level (MCl) for certain water quality parameters for drinking water, recycled water is below almost every one of these MCls. Also note that the water quality data is presented for near comparison purposes only and is not current. Periodically, NMWD's Office of Water Recycling will gather more current data and send you an updated table.

Irrigation Best Management Practices
The following Best Management Practices must be followed:

1. Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency.

2. Spray, mist or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.

3. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

4. All areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public. NMWD supplies recycled water customers with appropriate signage.

5. The sections of the recycled water system that are in areas subject to access by the general public should not include any hose bibs. Only quick couplers that differ from those used on the potable water system shall be used on the sections of the recycled water piping system in areas subject to public access.

It is important that you are knowledgeable about the treatment level of recycled water you are receiving at your site so that you are careful not to contaminate potable well water systems with recycled water. There are distinct differences in the requirements between irrigating with secondary-treated recycled water and tertiary-treated recycled water. In NMWD's service territory, all recycled water is tertiary treated.

Below is a table containing some of the differences:

Distance From	Water Quality	Minimum Distance
Domestic Well	Tertiary	50 ft.
Agricultural Well	Tertiary or Secondary	None
Residence, park or school	Tertiary	None
Domestic Well	Secondary	100 ft.
Residence, park or school	Secondary	100 ft.

Turf Grass
The higher nutrient content of nitrogen, phosphorous and potassium in recycled water is beneficial to turf grasses. In many cases, turf and other landscape plants will be able to obtain from recycled water all the phosphorous and potassium they require, as well as a large part of their nitrogen requirement. Because of the organic nutrients in recycled water, you may need to reduce the amount of fertilizer applied. Recycled water also supplies sufficient micronutrients.

Sensitive grasses used on golf course putting greens may need to be carefully monitored. It is possible that putting greens will need to be irrigated with potable water or occasionally flushed with potable water.

Water Features

While tertiary-treated recycled water is considered safe for body contact, as a precaution adequate measures should be taken to prevent body contact activities, such as wading or swimming at water features containing recycled water. (Please see the Appendix for sample signage for water features.)

There are also important factors to consider when building a new water feature or changing an existing water feature supplied with recycled water. As mentioned previously, all new water features or existing water features using tertiary recycled water must be located at least 50 feet from an existing domestic well. New water features will have to be tested during the first year of existence.

Another consideration for recycled water features is algae growth. There are two factors that contribute to algae growth: sunlight and nutrients. Various techniques can be used to address algae problems, such as:

- Design lakes to minimize exposure to sunlight. Deep, narrow water features have less exposed surface area and will not heat up as much.
- Add trees or hills around ponds to shade the morning and afternoon sun.
- Add blue dye to the water to help absorb the sunlight.
- Introduce aquatic organisms that will help to eat the algae. The California Department of Fish and Game can help determine the best species to use in your area.
- Use aeration fountains, air injection, or waterfalls and streams to help circulate the water.
- Install a filter mat on the downstream side of the pumping plant between the influent pond and any storage ponds.
- Use plants such as cattails or willows to add oxygen to the water.

Glossary of Terms

Contact. The mode of transmission by which a person or animal has the opportunity to acquire an infected agent (pathogenic organism) by means of: inhalation, lesions in the skin, exposure to mucus membranes and skin or ingestion, such as placing objects in the mouth. Contact includes consumption of recycled water.

Contaminant. Any substance or matter, which causes directly or indirectly a detrimental physical, chemical, biological or radiological change in the existing water quality; used interchangeably with pollutant.

Cooling Tower. A device used to cool water and dissipate unwanted heat into the atmosphere through evaporation of a portion of the water being cooled.

Cross Connection. Any physical arrangement whereby a potable water supply is connected, directly or indirectly, with any other potable water supply system, a recycled water system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains, or may contain, contaminated water, sewage, or other waste or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public potable water supply as a result of backflow. By-pass arrangements, jumper connections, removable sections, swivel or changeover devices, and other temporary or permanent devices through which, or because of which, backflow could occur are considered to be cross connections.

Customer. Any person, firm, corporation, association or agency receiving recycled water service.

Disinfection. A process which uses chemical or physical means to inactivate pathogenic (disease-causing) organisms in water or wastewater.

Filter. A unit for carrying out the process of filtration which consists of the combination of a filter medium and suitable hardware for constraining and supporting the filter medium in the path of the water. For example, in the case of a cartridge filter, the filter includes both the cartridge and the housing.

Groundwater. Water located underground in the zone of saturation that moves freely to points of discharge (e.g., springs) and withdrawal (e.g., wells and tunnels). Groundwater includes water impounded by dikes, perched on geologic strata of low permeability, or floating upon and displacing salt water. It includes water which comes from artesian and non-artesian sources, as well as the subflow of streams and underground streams.

Hose Bib. A faucet or similar device to which a common garden hose can be readily attached.

Industrial Cooling. Cooling of material or air and does not include air conditioning for comfort of persons in a building.

Mist. Droplets of water suspended in air that are visible to the eye and fall more slowly than rain.

Municipal Wastewater. Waste discharged from a community sewage system that is comprised of wastewater derived from ordinary human habitation or human activities including, but not limited to, wastewater from dwellings, hotels, hospitals, and comfort stations or a mixture of domestic wastewater and waste from industry or other activity and/or waste or water from other sources.

Nonpotable. Water that is not suitable for drinking by humans (includes recycled water).

Overspray. Water which is transmitted through the air to a location other than where the direct application of recycled water is intended.

Pathogen. Any agent, especially a microorganism, capable of causing disease.

Ponding. Retention of piped water on the surface of the ground or a man-made surface for a period of 1 hour following the cessation of an approved recycled water use activity such that potential risk to the public health may result.

Potable. Water suitable for drinking by humans.

Primary-Treated Wastewater. The first major treatment process in a wastewater treatment plant, usually involving physical sedimentation of suspended particles in a tank large enough to reduce flow velocities so that the particles will settle to the bottom of the tank. Particles that float to the surface are usually skimmed away

Recycled Water. Wastewater that has been treated to reduce contaminants to low enough levels to enable the water to be used again safely for certain beneficial uses or controlled uses that would not otherwise occur.

Recycled Water Supervisor. The person designated by the owner or manager of the property upon which recycled water will be or is applied, who will carry out the responsibility of the owner or manager of the property for: (a) installation, operation and maintenance of the system that enables recycled water to be used; (b) prevention of potential hazards; (c) implementation and compliance with provisions of these guidelines and other associated documents; and (d) coordination with the cross-connection control program of the water supplier.

Residence. A home and the land surrounding the home within the property line of land owned by the home owner; and includes a dwelling, yard area of dwelling, and other place resided in and frequented by children (e.g., day care center, school, park, playground, school yard); and includes a dwelling, yard area of a dwelling, and other place intended especially for persons who are physiologically infirm, ill, or attempting to recuperate from illness (e.g., a hospital, rest home, convalescent center).

Runoff. Flow of water along the surface of the ground or other natural or man-made surfaces, including but not limited to pedestrian walkways, streets, playground surfaces, and grassy slopes.

Secondary Treatment. Treatment of wastewater beyond primary treatment to achieve substantial reduction in biological oxygen demand (BOD) and total suspended solids (T55). Generally, secondary treatment includes biological oxidation and sedimentation processes, which produce at least 85 percent removal efficiencies for BOD and T55.

Secondary-2.2 Recycled Water. Recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.

Secondary-23 Recycled Water. Recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 parts per 100 milliliters in more than one sample in any 30-day period.

Spray Irrigation. Application of recycled water to land to maintain vegetation or support growth of vegetation by spraying it from sprinklers, micro-sprinklers! drip irrigation or orifices in piping.

Tertiary-Treated Water. The treatment of wastewater beyond the secondary or biological stage. Normally implies the removal of a high percentage of pathogens and of suspended solids through filtration and disinfection.

Water Recycling Facility. An arrangement of devices, structures, equipment, processes and controls which produce a recycled water supply suitable for the intended reuse.

NORTH MARIN WATER DISTRICT

NOVATO RECYCLED WATER PROGRAM

Recycled Water: Frequently Asked Questions

Why do we need recycled water?

Recycled water is a safe, effective, and reliable new water supply available to help meet future water supply needs of our community. North Marin Water District (NMWD) was formed by local voters in 1948 due to shortfalls in local groundwater supplies. NMWD built Stafford Dam in 1951, but water supplies still lagged demand. Today, NMWD depends on the Russian River for 80% of Novato's water supply, but this source has been impacted by changed conditions to protect fish and environmental needs. The effects of global warming may further stress available water supplies.

How is recycled water made?

Recycled water is wastewater treated to tertiary recycled water standards (also referred to as advanced water treatment) which is the highest level of treatment defined by the State of California (referred to as Title 22). This level of treatment allows for unrestricted reuse in virtually all recycled water applications. There are three treatment steps that wastewater goes through before it is considered tertiary recycled water: primary treatment, biological treatment (secondary), filtration and disinfection (tertiary). These steps are necessary before recycled water is used for landscape irrigation.

What is the quality of recycled water?

Recycled water meets strict federal, state and county health and safety requirements. While it is not approved for drinking, it is second in purity only to potable water. Of the three quality standards for recycled water in California, NMWD's will be of the highest quality. It is safe, reliable and used in thousands of applications throughout the United States and the world. This water is treated to a quality that could supply a lake used for boating and swimming.

How can I be assured of the quality?

Recycled water treatment is monitored continuously and tested in a certified laboratory daily. The recycled water delivery pipes NMWD will be constructing are completely separate from those delivering drinking water. NMWD will ensure that no cross connections occur between the two systems.

Does recycled water smell or look different than tap water?

Recycled water is clear and colorless and may have a slight chlorine smell. It visibly looks like tap water.

What happens with recycled water now?

Currently, Novato's wastewater undergoes extensive treatment at Novato Sanitary District (NSD) and is then discharged to the Bay during the winter or recycled to irrigate hay fields along Highway 37 during the summer; these activities will not change. It must meet strict governmental regulations on the treatment, timing and quality of the treated water effluent that is released. A small amount is now filtered further enabling this highly polished recycled water to be used for "unrestricted use" as spray irrigation at StoneTree golf course. NMWD's Recycled Water Program will use more of this high quality resource to be reused productively and offset potable supplies now used for landscape irrigation.

Where has recycled water been used?

The most common uses of recycled water in Marin are to irrigate parks, school landscaping, golf courses and other large landscapes. Recycled water is currently being used in Novato, San Rafael, Calistoga, St Helena, Yountville, Napa, Santa Rosa, San Francisco, San Jose, Sunnyvale, Santa Clara, Daly City and many other Bay Area communities. It is also used in Southern California, in Orange County, Los Angeles County, and San Diego County—over 190 California communities in all. Parks are one of the most common uses for recycled water since their landscaping needs so much water. In San Francisco's Golden Gate Park, for example, recycled water has been used for irrigation since 1932.

Where will recycled water be used in Novato?

It may take many years to fully install NMWD's recycled water system. Some of the prominent sites identified for recycled water use expansion include: Fireman's Fund Insurance complex; Valley Memorial Park (cemetery); numerous homeowners association common landscaping areas, including Meadow Park HOA; city parks and recreational fields; and Olive, Hamilton and Novato Charter schools. Construction is likely to begin this summer and the first users will receive recycled water in 2012. It is not planned to use recycled water for single family residential customers.

How safe is recycled water?

For schools and parks. Recycled water served by NMWD will be treated to a very high level and certified safe for contact for all people including children. In over 80 years of use of recycled water in California, there have been no documented cases of any ill effects from proper use. There are 15 parks and playgrounds in Marin as well as 13 schools already using recycled water and around 400 others throughout the state.

For pets. Recycled water is near in quality to drinking water and would be safer than if your pet drank from a pond or ditch. It has been carefully treated and has been disinfected. As a result of this treatment, recycled water is ideal for use on landscapes, especially lawns.

Who develops the health standards for recycled water?

The California Department of Public Health (DPH) establishes and enforces the standards for recycled water. Both NMWD and the customers using the water for irrigation must meet stringent requirements when using recycled water. In addition, the California Regional Water Quality Control Board issues water recycling permits based on the established DPH regulations.

How will I know if the water irrigating parks and other outdoor spaces is recycled water?

A landscape area using recycled water will be clearly marked with signage stating the use of recycled water.

Are there rules and regulations for recycled water use?

Customers are required to adhere to regulations which minimize or eliminate possible misuse. The publication, Rules and Regulations for Recycled Water Use, is available to recycled water customers at nmwd.com.

Is recycled water really good for irrigating?

Recycled water is already being used as a reliable drought-proof source of water for the turf grasses in our area. Recycled water has a higher nutrient content and is beneficial to landscape plants and turf grasses.

Is recycled water cost effective?

The biggest cost for recycled water is building the pipelines to deliver it. NMWD has carefully identified the shortest pipeline routes that can deliver recycled water to the largest landscape areas which are primarily found at multi-family housing developments, schools, parks and large businesses.

Does recycled water save the user money?

Recycled water users will save on their water bill, because they will no longer have to pay the +8% seasonal rate now in place on non residential water use from May through November. Furthermore, NMWD expects to fund retrofit costs to connect recycled water to existing irrigation systems. To help make an easy and successful transition, NMWD will provide an extensive program of informational support services and direct assistance to recycled water customers.

Who pays for the recycled water connections?

For existing customers, such as landscape irrigation accounts, NMWD will pay the connection cost. There will be no connection fees for existing customers. For future new customers, a connection fee will apply.

Where can I get more information on recycled water?

- California Department of Public Health – Recycled Water: Regulations and Guidance (http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Lawbook.aspx)
- Unites States Environmental Protection Agency – Guidance for Water Reuse (http://www.epa.gov/nrmrl/pubs/625r04108/625r04108.pdf
- Water Reuse - www.athirstyplanet.com

Recycled Water FAQs for Landscape Irrigation Workers

Frequently Asked Questions:

Q. Is recycled water safe?

A. **YES!** Recycled water is safe for a variety of intended uses. Recycled water is **not** intended for drinking or for food preparation. Recycled water must meet stringent, protective, and conservative standards set by the California Department of Public Health or a recycled water agency will not be granted regulatory approval to supply recycled water. If a batch of recycled water temporarily does not meet standards, it cannot be put into the recycled water distribution system to be used by customers.

Q. How do I know it's safe?

A. Recycled water is tested at least once a day for total coliform bacteria to ensure that it has been adequately disinfected. Also, testing equipment and a recorder automatically and continuously monitor recycled water at the water recycling treatment plant. An alarm system alerts a trained plant operator if the recycled water does not meet treatment standards and the recycled water is either sent through the treatment process again until standards are met or is discharged in accordance with regulations.

Q. What's the safety record for recycled water?

A. Unblemished! California adopted water reuse regulations in 1918 and continually monitors and improves recycled water standards and requirements, with the most recent standards for non-potable reuse being adopted in 2000. Over the past almost-100 years, there have been no documented diseases or other adverse public health effects related to the proper use of recycled water that meets regulatory requirements. Recycled water is continuously monitored and tested to ensure that its quality is appropriate and safe for specific permitted uses that require different levels of treatment. Similarly, other states and countries with water recycling regulations as protective as California's have experienced no adverse health effects from proper use of disinfected tertiary-treated recycled water, including Florida, Japan, Australia, and several European countries.

Q. What happens if recycled water splashes on me?

A. You'll get wet. There have been no reported instances of skin rashes resulting from contact with recycled water.

Q. What if I get recycled water in my eyes?

A. Recycled water is highly disinfected, so the chlorine **may** cause a mild burning sensation, just as if you opened your eyes while under water in a swimming pool. If you get recycled water in your eyes and feel any discomfort, rinse your eyes with potable water or use eye drops.

Q. What if recycled water comes into contact with a cut or abrasion on my skin?

A. As a precaution, clean the affected area with soap and potable water or an antiseptic towelette, apply an antibiotic ointment, and cover with a bandage.

Q. Will I need to use a special set of tools when I'm working on the recycled water system?

A. No.

Q. Whom should I contact with any additional questions or concerns?

A. Please contact NMWD Recycled Water, at (415) 897-4133.

Do's and Don'ts for Recycled Water Irrigation Customers

Do Not:

- **Don't drink or cook with recycled water**
- **Don't wash hands with recycled water**
- **Don't overspray and don't irrigate so much that you create run-off or ponding conditions**
- **Don't create any cross connection between the recycled and the potable water systems**
- **Don't modify or expand the recycled water system without advance authorization from NMWD's Office**

Do:

- **Use common-sense sanitary practices, such as washing hands with soap and potable water, especially before eating or smoking**
  Disinfect and bandage cuts or abrasions promptly
- **Report immediately to NMWD any major line breaks or instances of large quantities of recycled water leaving your site by calling NMWD's Office at 1-415-897-4133 (24 hours)**
- **Maintain all signs, tags, or taped pipes that inform your employees and the public that recycled water is used to irrigate your site**
- **Maintain as-built drawings of your recycled water system, including all changes or modifications**
- **Repair promptly any leaks or breaks on the recycled water system**
- **Know your plants and how they respond to irrigation with recycled water**
- **Comply with self-monitoring, record-keeping, and reporting requirements**

Key Contacts and Additional Resources

NMWD Contact Information

North Marin Water District
Attn: Recycled Water Customer Compliance Program
PO Box 146
Novato, CA 94948
1-415-897-4133 (Monday-Friday 8:00 a.m – 4:30 pm)
1-415-892-8043 (fax)
www.nmwd.com

Emergency Numbers

Monday – Friday 8:00 a. – 5:00 pm: 1-415-897-4133
Weekdays after 5:00 pm and on weekends: 1-415-897-4133

California Dept of Public Health, Environmental Management Branch
www.cdph.ca.gov

California Dept of Water Resources
www.dwr.water.ca.gov

Golf Course Superintendents Association of America
www.gcsaa.org
(800) 472-7878

Regional Water Quality Control Board, San Francisco Bay Region
www.swrcb.ca.gov/rwqcb2
(510)622-2300

United States Bureau of Reclamation, Water Treatment Engineering & Research Group, Mid Pacific Region
www.usbr.gov.water.water.html
(916) 978-5100

United States Environmental Protection Agency, Office of Water, Region 9
www.epa.gov/ow
(415) 947-8000

WateReuse Association
www.wateruse.org
(703) 548-0880

Recycled Water Guidelines: Customer Duties and Responsibilities

Recycled water use requires strict adherence to the guidelines and practices described in this section. For a complete description of state and local standards and regulations, please refer to '*The Purple Book'* developed by the Department of Public Health and available at its web site: www.cdph.ca.gov.

Designate a Recycled Water Site Supervisor
Each recycled water irrigation customer must designate a Recycled Water Site Supervisor. NMWD recommends that the customer select an employee who is knowledgeable about recycled water practices and the on-site recycled water plumbing system is familiar with the Site Supervisor's duties and responsibilities and is capable of carrying them out. The customer should also designate an Assistant Site Supervisor. The Site Supervisor's duties and responsibilities are described below in this section, as well as consolidated in a separate list in the Appendix, Section 9. Customers whose landscape maintenance is provided by an outside entity may request their landscape maintenance provider to designate a Site Supervisor and an Assistant Site Supervisor. The Recycled Water Site Supervisor is the primary means for ensuring safe and required use of recycled water at the customer's site and is the 24-hour contact person for the recycled water use site.

Participate in Training
NMWD will provide training for the Recycled Water Site Supervisor and Assistant Site Supervisor. This training also is open to the customer's employees involved in the operation and maintenance of the on-site recycled water system or to the customer's landscape maintenance provider. However, it is the customer's responsibility to provide training when and as-needed to all on-site personnel who perform operations and/or maintenance on the recycled water system. The Recycled Water Site Supervisor must ensure that all personnel working on site receive the proper training. Training materials designed to assist with this training responsibility are provided by NMWD to the customer include this Recycled Water Customer Guidebook and two DVD videos related to health and safety and proper landscape maintenance techniques using recycled water. Additional training may be made available by NMWD on an as-requested basis.

Be Familiar with Entire On-Site System and Recycled Water Regulations
The Recycled Water Site Supervisor is required to be familiar with the entire on-site recycled water system and the applicable conditions governing recycled water use at the customer's site. These include Title 22 and Title 17 of the California Code of Regulations, applicable orders of the Regional Water Quality Control Board (RWQCB), and the agreement or permit between NMWD and the customer. The Site Supervisor shall ensure that recycled water use complies with the required conditions. The Site Supervisor is responsible for the proper operation and maintenance of the recycled water system and of all backflow prevention devices on the potable water system. Generally, this means:

- According to state standards, tertiary-treated water is not restricted to irrigating at specific times. However, as an extra precaution, CDPH has stipulated that NMWD recycled water customers receiving tertiary-treated water limit turf irrigation generally to between sunset and sunrise, or when the public is not present at the site.
- Not allowing ponding or runoff to occur from sprinklers.
- Avoiding direct spray or overspray onto drinking fountains, benches, or tables.
- Preventing inadvertent drinking of recycled water by ensuring proper labeling of system plumbing and appropriate signage. (Signage must be approved by NMWD.)

- Maintaining all records regarding the use of recycled water on-site, including self monitoring reports, "as-built" drawings of the recycled water system (and any modification updates), copies of permits or agreements to operate the system, logs of all inspections, including backflow prevention devices.
- Ensuring that annual backflow prevention device testing requirements are met.

Provide Contact Information and Notification of Changes
The customer or the Recycled Water Site Supervisor is required to provide NMWD with an address and phone number(s) where he or she and Assistant Site Supervisor can be contacted at all times. The Site Supervisor is responsible for ensuring that the required information regarding the Recycled Water Site Supervisor and Assistant Supervisor is completed, sent to NMWD, and kept up to date. (See copy of the "Contact Information Form" on page 14 in this Guidebook.)

The Site Supervisor shall notify NMWD of any proposed change in the individual designated as the Recycled Water Site Supervisor or Assistant Supervisor. The customer should not transfer the Recycled Water Site Supervisor or Assistant Supervisor responsibilities until the new person has received the appropriate training from NMWD.

The Recycled Water Site Supervisor shall inform NMWD of any planned modifications or additions to the recycled water system. Any proposed irrigation system modifications or additions should be reviewed and approved by NMWD before being made.

The Recycled Water Site Supervisor shall be responsible for any monitoring specified in the customer's agreement or permit with NMWD. (Please see the "Customer's Self Monitoring Report" form in this Guidebook page 15.) The Site Supervisor shall ensure the accurate completion of self-monitoring reports on a quarterly basis and shall ensure completion and submittal of the required self-monitoring reports to NMWD on an annual basis. The Site Supervisor shall inform NMWD of any missing, damaged, or non-legible signs that need to be replaced.

The Site Supervisor may participate in NMWD's periodic site inspections. (The Appendix contains a copy of the "NMWD Inspector's Periodic Monitoring Report" form, page A8, which will help you prepare for periodic inspections.)

Notify NMWD of Excessive Discharge, Cross Connection, or System Failure
The Recycled Water Site Supervisor (or the designated alternate emergency contact) is responsible for notifying NMWD of any failure of the on-site recycled water system, any cross connection between the recycled and potable water systems, or any discharge of recycled water of **1,000 gallons or more.** For any condition which has the potential to endanger public health, such as a cross connection, the Recycled Water Site Supervisor must notify NMWD immediately in accordance with the "Procedure if Cross Connection is Discovered" outlined in the section starting on page 10. The Site Supervisor must notify NMWD immediately in the event of a recycled water discharge of **1,000 gallons or more** to a stream, flood control channel, or storm drain, as stated on the Self-Monitoring Report (form on page 15), and submit a "Violation Report" to NMWD within one working day of the date of the violation (form on page 16). Failure to report a violation may result in administrative civil liability, including monetary fines. Information relating to the reporting requirements and penalties for failing to report an unauthorized discharge of recycled water is available from the California Water Code, sections 13529.2 and 13529.4, which also are included in CDPH's *"The Purple Book",* available at www.cdph.ca.gov. For your convenience, these two sections of the Water Code (as contained in *"The Purple Book")* are included in the Appendix (page A). Based on the "Violation Report"

submitted, NMWD will report the violation to the Regional Water Quality Control Board.

Cross-Connection Tests
The main concern present when recycled water is used on sites also served with potable water is a cross connection. A cross connection is any actual or potential connection between the potable water system and the recycled water system not separated by the protection of an air gap.

Customer sites that use potable water and have been retrofitted to use recycled water must undergo cross-connection testing prior to recycled water delivery to insure that there are no connections between the potable water and recycled water systems. The customer's Site Supervisor or a representative of the customer will need to take part in cross-connection tests. Cross-connection tests are not required for sites that have irrigation piping only, for example, greenbelts.

The basic concept employed in checking for cross connections between the potable water and recycled water systems is to pressurize one system at a time and to then check the other system for flow, which would indicate that a cross connection exists. Cross-connection testing requires entry into all establishments on the site to ensure complete system shut down.

NMWD will generally uses the following procedure to determine if a cross-connection exists, however some sites will require site specific tests. Each recycled water facility will be provided with the specific test plan to be used at their site prior to testing:

1. The potable water system is activated and pressurized. The recycled water system is shut down at the service connection only, depressurized and, where feasible, drained. Verify that all other valves on the recycled water system, downstream of service connection, are open.

2. The potable water system remains pressurized for a minimum of one hour.

3. All outdoor potable fixtures and all indoor drinking fountains are tested for flow. No flow from a potable water outlet would indicate that it might be connected to the recycled water system.

4. The recycled water system is tested for flow. This is done by opening all quick connect bibs, sprinkler heads, and any other outlets on the irrigation system. Flow from any recycled water outlet is an indication that a cross connection exists. (Because of difficulties in completely draining the irrigation system, drainage flow from the recycled water system could persist for some time.)

5. Any drain points or outlets on the recycled water system are checked for flow during and the end of the test period.

6. The potable water system is then shut down and, where feasible, drained (including any hot water heaters and other devices which may repressurize the potable system). The recycled water system is then reactivated and pressurized.

7. The recycled water system remains pressurized for a minimum of one hour. Recycled water fixtures are tested for flow to verify that the recycled water system is fully pressurized.

8. All outdoor potable water fixtures and all indoor drinking fountains are tested and inspected for flow. A representative number of other indoor potable water fixtures are tested. This includes one fixture in each restroom and at least ten percent of the fixtures on each floor. The specific number will be determined by the inspection team based on the drawings for the site's recycled and potable water systems. Flow from any potable water outlet is an indication that a cross connection exists.

9. If no flow is detected in any fixture which indicates a cross connection, the test is complete and the system is repressurized.

Procedure if Cross Connection is Discovered

In the event that a cross connection is discovered after the initial cross-connection testing has been performed, the customer or Site Supervisor must immediately inform NMWD's Office by telephoning 1-415-897-4133 (24 hours a day). An NMWD representative will contact the appropriate NMWD person and the procedure outlined below will be activated immediately in the presence of an NMWD water quality inspector. NMWD uses the "Procedure If Cross Connection Is Discovered" form to document the process (see Appendix, page A9).

1. Recycled service to the facility is shut down at the meter, and the recycled water system is depressurized and drained where feasible.

2. The cross-connection is found and disconnected.

3. The systems are tested again as described under "Cross-Connection Tests."

4. The potable water system is chlorinated with 50 parts per million chlorine for 24 hours methods described in the AWWA's "Standard for Disinfecting Water Mains" (ANSI/AWWA 651-92). The potable water system is flushed after 24 hours, and a standard bacteriological test is performed. If test results are acceptable, potable water system is recharged. If not, Step 4 is repeated.

Be aware of the importance of preventing a cross connection, as there is the potential that ***the site could be without a potable water supply for an extended period of time*** (24 hours or more) while the cross connection point is located and fixed, and the potable supply is chlorinated and tested as outlined above in step #4.

The retrofit or facility plans must be revised to reflect any changes required to eliminate the cross connection, and the revised plans must be resubmitted to NMWD's Office for review.

Conduct Backflow Testing of the Potable Water System

Title 17 of the California Code of Regulations requires that all backflow prevention devices be tested annually to verify that they are working properly. The purpose of backfiow testing is to ensure that the drinking water system is kept separate from the recycled water irrigation system. Careful plumbing practices and using appropriate backflow prevention devices on the potable system can prevent contamination of the drinking water supply. A backflow prevention assembly is a mechanical device that prevents water from flowing in a reverse direction. These required devices are plumbed directly into the potable water supply pipe.

Please see the "Backflow Testing Requirements" section in the Appendix (page A12) for more details.

Precautions and Management Practices

1. Practice good hygiene. Wash hands with soap and potable water before eating, touching eyes, nose or mouth, or smoking.

2. Promptly disinfect and bandage any cuts or abrasions. Also make sure that all existing cuts or abrasions are bandaged before you begin work on the recycled water system.

3. Monitor irrigation to avoid over-watering, over-saturating soils, and irrigating when it is raining.

4. Keep as-built drawings. Maintain current as-built drawings of your potable and recycled water systems.

5. All areas where recycled water is used shall be posted with signs that are visible to the public. Appropriate signs must be approved by NMWD. After your site has been retrofitted, maintain all required signage, as well as tags on pumps, sprinkler heads, pipes, and valves to inform employees and the public that recycled water is used for irrigation.

6. Practice good maintenance and quickly repair any leaks or breaks in the irrigation system.

7. Since NMWD's recycled water supply is tertiary treated, California standards permit you to irrigate during the day or night. However, the California Department of Public Health has stipulated that NMWD recycled water customers set their irrigation controller clocks to irrigate *" ... generally between sunset and sunrise, or when people are not present at the site."*

8. Routine and regular inspections of your irrigation system and site will help detect any leaks and identify: proper irrigation controller operation; signage legibility and proper placement; and problems with ponding, runoff, or overspray.

9. Train staff. NMWD and state regulations require you to train staff in the use of the recycled water irrigation system and safe use practices.

10. Do not drink recycled water. NMWD approved signage posted around your facility caution the public not to drink this water. (See samples of signage in the Appendix.)

11. Do not use recycled water to wash your hands or any part of your body.

12. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.

13. Do not create overspray, runoff, or ponding. By carefully monitoring and inspecting the irrigation system on a regular basis, you can avoid these conditions.

14. Do not cross connect the recycled and potable water systems. This can be avoided by having clearly marked recycled water pipelines and other plumbing devices and conducting cross-connection tests on a periodic basis.

15. Do not use hose bibs. The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access.

16. Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency.

17. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

Reporting and Record Keeping

Copies of the three forms NMWD recycled water customers are required to complete, maintain, and use are found on the following pages:

1. “Contact Information Form”
2. “Customer’s Self-Monitoring Report”
3. “Violation Report”

RECYCLED WATER IRRIGATION CUSTOMER
CONTACT INFORMATION FORM

Name of Customer: _____

Location of Site: _____
Address: _____
Customer Contact/Representative: _____
Phone: _____ Fax: _____
Email: _____

Recycled Water Site Supervisor: _____
Direct Phone: _____ Fax: _____
Cell: _____ Pager:
Email: _____
Home Phone: _____
Work Schedule: _____

Assistant Supervisor: _____
Direct Phone: _____ Pager: _____
Cell: _____ Email: _____

Please complete this form and fax to 1-415-892-8043 or mail form to:

North Marin Water District
Attn: Recycled Water Customer Compliance Program
PO Box 146
Novato, CA 94948

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM

CUSTOMER'S ANNUAL SELF-MONITORING REPORT

Name/Location of Site:	Monitoring frequency specified in permit: **Annual –Due July 15th**	Customer's Designated Recycled Water Supervisor:

MONITORING DATA

Observer's initials and date monitored →	July – Sept	Oct – Dec	Jan – March	April – June
Is recycled water escaping the use area through surface runoff or airborne spray? (If yes, note affected area and estimate volume)	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Are any odors associated with use of the recycled water? (Note source, characterization and travel distance below.)	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Is there prolonged ponding of recycled water due to over-irrigation or evidence of mosquito breeding as a result of ponding?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Are any warning signs, labels or markings identifying recycled water damaged, missing or not visible?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Are there leaks or breaks in the irrigation system piping or evidence of plugged, broken, or otherwise faulty irrigation system components?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Is recycled water being sprayed directly on people, dwellings, food-handling facilities, or drinking fountains?	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Explain any "yes" answers. Note date of comment and specific locations within site. Attach additional sheets if necessary.

NOTES

Note any recommended improvements or changes:

List any changes in recycled water piping system from previous monitoring report. Explain.

_____ Customer's Recycled Water Supervisor (date)	This report shall be submitted to the Water Reuse Program or maintained on-site as specified in the customer's permit.

CHANGE OF ON-SITE SUPERVISOR, OWNERSHIP, OR MANAGEMENT

If the on-site supervisor, property ownership, or management has changed since the last inspection, fill out the following change of information.

New Owner/Mgmt:_____

Address:_____

Phone:_____

email:_____

New Contact:_____

Address:_____

Phone:_____

email:_____

New On-Site Supervisor:_____

Address:_____

Phone:_____

email:_____

ADDITIONAL COMMENTS / INFORMATION:

RETURM COMPLETED FORM TO:

North Marin Water District
P.O. Box 146
Novato, Ca 94948

Or email to: dladd@nmwd.com

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
PROCEDURE IF CROSS-CONNECTION IS DISCOVERED

In the event that a cross-connection is discovered, the following procedure shall be activated immediately in the presence of the District's Cross-Connection Specialist.

Site Name:

Site Address: | Date of Procedure:

NAMES OF PEOPLE PRESENT DURING PROCEDURE

District Cross Control Specialist:

Water Reuse Program Coordinator:

Customer's Representative:

Others: | Affiliation/Title:

Name: _____ _____

Name: _____ _____

Name: _____ _____

PROCEDURE		**Check When Complete** ✔
Step 1.	Turn off the recycled water service at the meter.	
Step 2.	Depressurize the system by turning on a few sprinklers and drain the recycled water system, where feasible.	
Step 3.	Fine the cross-connection and disconnect.	
Step 4.	Complete the 19 steps in Part II of the "Cross-Connect Testing and Report" and pass test.	
Step 5.	Disinfect the potable water system with 50 ppm chlorine for 24 hours per ANSI/AWWA C651-92.	
Step 6.	Flush the potable water system.	
Step 7.	Coordinate with the NMWD laboratory to arrange for sampling.	
Step 8.	Analyze the sample for coliform bacteria.	
Step 9.	Review the lab results. If the results are negative in the confirmed coliform tests, the potable water system may be recharged and put back into service. If the results are positive in a confirmed coliform test, repeat Steps 6 – 9.	
Step 10.	Customer to revise drawings of the recycled and potable water systems to reflect changes made in eliminating the cross-connection	
Step 11.	Customer to submit revisions to District for review within two weeks of correction by _____ (date).	

Describe nature and location of cross-connection and means of correction.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Disinfected Tertiary-Treated
Recycled Water Irrigation Customer

Violation Report

Information on Violation: Customer_____

_____

Location:_____

_____

Affected water body (if any):_____

Violation date & time:_____ Duration:_____

Violation type: ☐ Runoff ☐ Other_____

Estimated gallons:_____

Describe event:_____

_____

_____

_____

Corrective action taken:_____

_____

_____

_____

_____

Violation reported by:_____ Title:_____

Violation reported to:

☐ North Marin Water District Telephone: **415-897-4133**

Person Notified:_____ Date:_____

Please fax this report to 1-415-892-8043 or mail the report within one working day of violation to:

North Marin Water District
ATTN: Carmela Chandrasekera
999 Rush Creek Place
Novato, CA 94948

California Health Laws Related to Recycled Water

"The Purple Book"

Excerpts from the Health and Safety Code, Water Code, and Titles 22 and 17 of the California Code of Regulations

Last Update: June 2001

The document is meant to be an aid to staff of the Drinking Water Program within the Department of Health Services Division of Drinking Water and Environmental Management. It should not be relied upon by the regulated community as the State of California's representation of the law, since the published codes are the only official representations of the law.

Published codes are available on the Internet at http://www.leginfo.ca.gov/ (statutes) and http://ccr.oal.ca.gov/ (regulations). They are also available at law libraries -- call your County Bar Association for the nearest location.

Every effort has been made to assure the accuracy of this compilation. Readers who find and error or who are aware of an omission should contact Jeff Stone of DHS' Recycled Water Unit at jstone1@dhs.ca.gov.

13528. DHS powers

No provision of this chapter shall be construed as affecting the existing powers of the State Department of Health Services.

13529. Unauthorized discharges of recycled water

The Legislature hereby finds and declares all of the following:

(a) The purpose of Section 13529.2 is to establish notification requirements for unauthorized discharges of recycled water to waters of the state.

(b) It is the intent of the Legislature in enacting this section to promote the efficient and safe use of recycled water.

(c) The people of the state have a primary interest in the development of facilities to recycle water to supplement existing water supplies and to minimize the impacts of growing demand for new water on sensitive natural water bodies.

(d) A substantial portion of the future water requirements of the state may be economically met by the beneficial use of recycled water.

(e) The Legislature has established a statewide goal to recycle 700,000 acre-feet of water per year by the year 2000 and 1,000,000 acre-feet of water per year by the year 2010.

(f) The use of recycled water has proven to be safe and the State Department of Health Services is drafting regulations to provide for expanded uses of recycled water.

13529.2. Requirements if unauthorized discharge occurs

(a) Any person who, without regard to intent or negligence, causes or permits an unauthorized discharge of 50,000 gallons or more of recycled water, as defined in subdivision (c), or 1,000 gallons or more of recycled water, as defined in subdivision (d), in or on any waters of the state , or causes or permits such unauthorized discharge to be discharged where it is, or probably will be, discharged in or on any waters of the state, shall, as soon as

(1) that person has knowledge of the discharge,

(2) notification is possible, and

(3) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the appropriate regional board.

(b) For the purposes of this section, an unauthorized discharge means a discharge not authorized by waste discharge requirements pursuant to Article 4 of Chapter 4 (commencing with Section 13260), water reclamation requirements pursuant to Section 13523, a master reclamation permit pursuant to Section 13523.1, or any other provision of this division.

(c) For the purposes of this section, "recycled water" means wastewater treated as "disinfected tertiary 2.2 recycled water," as defined or described by the State Department of Health Services or wastewater receiving advanced treatment beyond disinfected tertiary 2.2 recycled water.

(d) For purposes of this section, "recycled water" means "recycled water," as defined in subdivision (n) of Section 13050, which is treated at a level less than "disinfected tertiary 2.2 recycled water," as defined or described by the State Department of Health Services.

(e) The requirements in this section supplement, and shall not supplant, any other provisions of law.

13529.4. Penalties

(a) Any person refusing or failing to provide the notice required by Section 13529.2, or as required by a condition of waste discharge requirements requiring notification of unauthorized releases of recycled water as defined in Section 13529.2, may be subject to administrative civil liability in an amount not to exceed the following:

(1) For the first violation, or a subsequent violation occurring more than 365 days from a previous violation, five thousand dollars ($5,000).

(2) For a second violation occurring within 365 days of a previous violation, ten thousand dollars ($10,000).

(3) For a third or subsequent violation occurring within 365 days of a previous violation, twenty-five thousand dollars ($25,000).

(b) The penalties in this section supplement, and shall not supplant, any other provisions of law.

Backflow Testing Requirements

The purpose of backflow testing is to ensure that the drinking water system is kept separate from the recycled water irrigation system. Careful plumbing practices and using appropriate backflow prevention devices on the potable system can prevent contamination of the drinking water supply. A backflow prevention assembly is a mechanical device that prevents water from flowing in a reverse direction. These required devices are plumbed directly into the potable water supply pipe.

Title 17 of the California Code of Regulations requires that all backflow prevention devices be tested annually to verify that they are working properly. Records of these tests and all repairs must be kept and made available to the local health department and the local water district. The recycled water customer is responsible for having the tests conducted by qualified backflow inspectors and for having all needed repairs performed. Title 17 contains the following requirements for backflow prevention assembly testing and maintenance:

1. The water supplier shall ensure that adequate maintenance and periodic testing are provided by the water customer to ensure proper operation. The water supplier will notify the water customer when testing of the backflow devices is needed. The notice will contain the date by which the test must be completed.
2. Backflow devices must be tested annually or more frequently if determined to be necessary by the water supplier or health agency.
3. Backflow devices must be tested by certified persons who have demonstrated their competency in testing these devices to the water supplier or health agency. Records must be maintained and submitted to the water supplier annually.
4. Backflow devices must be tested immediately after they are installed, relocated, or repaired and not placed in service unless they are functioning properly.

NORTH MARIN WATER DISTRICT RECYCLED WATER PROGRAM
APPLICATION FOR A PERMIT TO USE RECYCLED WATER

SITE WHERE USE IS PROPOSED	(Program Use Only)
Name or Description of Site:	Date Received / /
	Date Distributed / /
Location or Address:	Date of Determination / /
	☐ Accepted ☐ Returned ☐ Rejected
	Customer Number:
	Notes:

APPLICANT INFORMATION

Applicant is	☐ Owner	☐ Lessee	☐ Other (describe)
Applicant's Name			Title
Address			Telephone No.
City		State	Zip
Owner's Name (if different)			
Contact Person			Telephone No.
Address			
City		State	Zip

CUSTOMER'S DESIGNATED RECYCLED WATER SUPERVISOR (See Note 1)

Relationship to Applicant:	☐ Same	☐ Partner	☐ Employee	☐ Other:
Name				Title
Business Address				
City		State		Zip

The Customer's Recycled Water Supervisor must be reachable at all times in case of emergency.

All numbers are for District use only.

Telephone number during regular business hours:

EMERGENCY NUMBERS: ☐ Evening: ☐ Message:

☐ Beeper: ☐ Cellular:

PROPOSED RECYCLED WATER USES

☐ Landscape Irrigation:	Approx. area_____	☐ Ornamental Pond	☐ Recreational
☐ Agriculture:	Approx. area_____	☐ Fire Suppression	☐ Industrial
		☐ Construction	☐ Other

Briefly describe the proposed use checked above. include types of plants to be irrigated. industrial process served, etc.

_____

_____

_____

_____

_____

_____

RECYCLED WATER DEMAND ESTIMATES			FIRE SUPPRESSION
Name or Description of Site:			Peak Design Flow GPM
Estimated Annual Use	☐ CCF	☐ Gallons	Service Line Size in inches
Peak Use in Gallons/Minute (GPM)			
Hours of Use			
Days of Use			
☐ Dry Season Only	☐ Year-round		

ATTACHMENTS

☐ Site Drawing (all projects)

☐ Impoundment O&M Plan (if serving a reservior or pond)

☐ Other:

IS RECYCLED WATER TO BE PIPED OR USED WITHIN AN OCCUPIED BUILDING? ☐ Yes ☐ No
(If yes, a Building Permit is required, and Engineering Report must be submitted.)

RECYCLED WATER USER SUPERVISOR	APPLICANT
I have read and understand the *Guidelines for Recycled Water Users.* I will operate the recycled water system in compliance with all conditions of the Permit to Use Recycled Water.	I designate the named person as the Recycled Water User Supervisor in accordance with the *Guidelines for Recycled Water Users.* I am a principal owner of this site or a duly authorized representative and certify that the information contained in this application is true and correct to the best of my knowledge.
Print Name _____	Print Name _____
Signature _____	Signature _____
Date _____	Date _____

Note 1: Recycled Water User Supervisor: It is the responsibility of the User to provide surveillance and supervision of the recycled water system in a way that assures compliance at all times with the Guidelines. To accomplish this, the User shall designate, with the approval of the District, Recycled Water User Supervisor (User Supervisor) to provide liaison with the District. This person may represent the owner, tenant, or property manager as appropriate; however, he/she must be responsible for the recycled water system at the site and available at all times, with authority to carry out any requirements of the Guidelines.

Refer to the Section 2 of the Recycled Water Program Manual, *"Guidelines for Recycled Water Users"* for more comprehensive description of the responsibilities of the recycled water supervisor.

Copies: _____ Field Inspector
_____ File (Original)

INDEM

r:\recycled water\nmwd forms as word docs\application for permit to use recycled water.doc

RECYCLED WATER PROGRAM
PERMIT TO USE RECYCLED WATER

PERMIT NO:

ISSUED TO:

FOR USE AT:

EFFECTIVE DATE:

EXPIRATION DATE:

The above named applicant is hereby authorized to use recycled water subject to compliance with a) the North Marin Water District's Guidelines for Recycled Water users, b) applicable state regulations related to the use of recycled water, c) operation in accordance with the current *Application for a Permit to Use Recycled Water*, and d) the attached additional terms and conditions.

The applicant shall report any changes (permanent or temporary) to the premises or operation that significantly change the volume or uses of recycled water, or any change in ownership of the facility.

This permit may be revoked prior to the expiration date if found to have been obtained through submittal of false information or if there is unapproved deviation from the terms and conditions under which it has been granted. This permit is issued solely to the facility named above for the operation and ownership in effect at the time of the application and is not transferable.

_____

for the North Marin Water District
Recycled Water Program
Phone 415-897-4133

North Marin Water District
Recycled Water Program
Telephone: 415-897-4133

PERMIT TO USE RECYCLED WATER
ADDITIONAL TERMS AND CONDITIONS

Permit No:

Issued to:

Effective Date:

Monitoring Requirements:

- ☐ Recycled Water Customer Self-Monitoring Frequency_____
  - ☐ Self-monitoring form attached
- ☐ District Monitoring Frequency_____

Training of Customer's Recycled Water Supervisor:

- ☐ Received overview of Water Reuse Program.
- ☐ Received training from representative of Water Reuse Program.

Initial Permit Conditions:

On-going Permit Conditions:

Residential Recycled Water Pick-Up Program
Attendant Responsibilities

Residential Recycled Water Attendant Responsibilities

All residential recycled water attendants shall attend the NMWD site supervisor training, residential recycled water pick-up training and be checked out on the proper operation of the residential recycled water tank and fill station.

Attendant Training Check List:

Training module	Date Completed	Instructor sign off
NMWD Site supervisor	_____	_____
Residential RW Pick-up	_____	_____
Residential RW Pick-up Program Guidelines	_____	_____
Residential RW Pick-up Application	_____	_____
Residential RW Pick-up Identification Card	_____	_____
Operation of RRW tank And Fill Station	_____	_____

Residential Recycled Water Pick-Up Program Wallet Cards

NORTH MARIN WATER DISTRICT

Customer Name
Address
Account #:

Residential Recycled Water

Recycled Water Do's & Don'ts

Do's

Water trees, gardens, lawns and other outdoor plants.

Don'ts

Drinking, cooking, washing hands, bathing, filling swimming pools, child water toys, store on site, connect to household plumbing system.

Residential Recycled Water Pick-Up Program Log

NMWD RESIDENTIAL RECYCLED WATER PICK-UP RECORD Date:

(RW Fill station Wood Hollow at Meadow Crest, Hydrant RH0011)

Initial meter read:

Final meter read:

Attendant:

By signing this sheet, I aknowladge compliance to all requirements in the Residential Recycled Water Pick-Up Guidelines and Application Agreement

PERMIT NUMBER	PERMIT HOLDER NAME	TANK SIZE (GALLONS)	PERMIT NUMBER	PERMIT HOLDER NAME	TANK SIZE (GALLONS)

Residential Recycled Water Pick-Up Program Training

North Marin Water District Residential Recycled Water Program

Robert Clark
September 2015

NORTH MARIN WATER DISTRICT

What is Recycled Water?

It is wastewater that has received extensive treatment so it can be used for many non-potable uses such as landscape irrigation, surface washing, dust control, food crop irrigation, decorative fountains, toilet flushing, and much more.

Recycled Water Use Milestones

- **1912**
  Irrigation of Golden Gate Park in San Francisco with secondary effluent

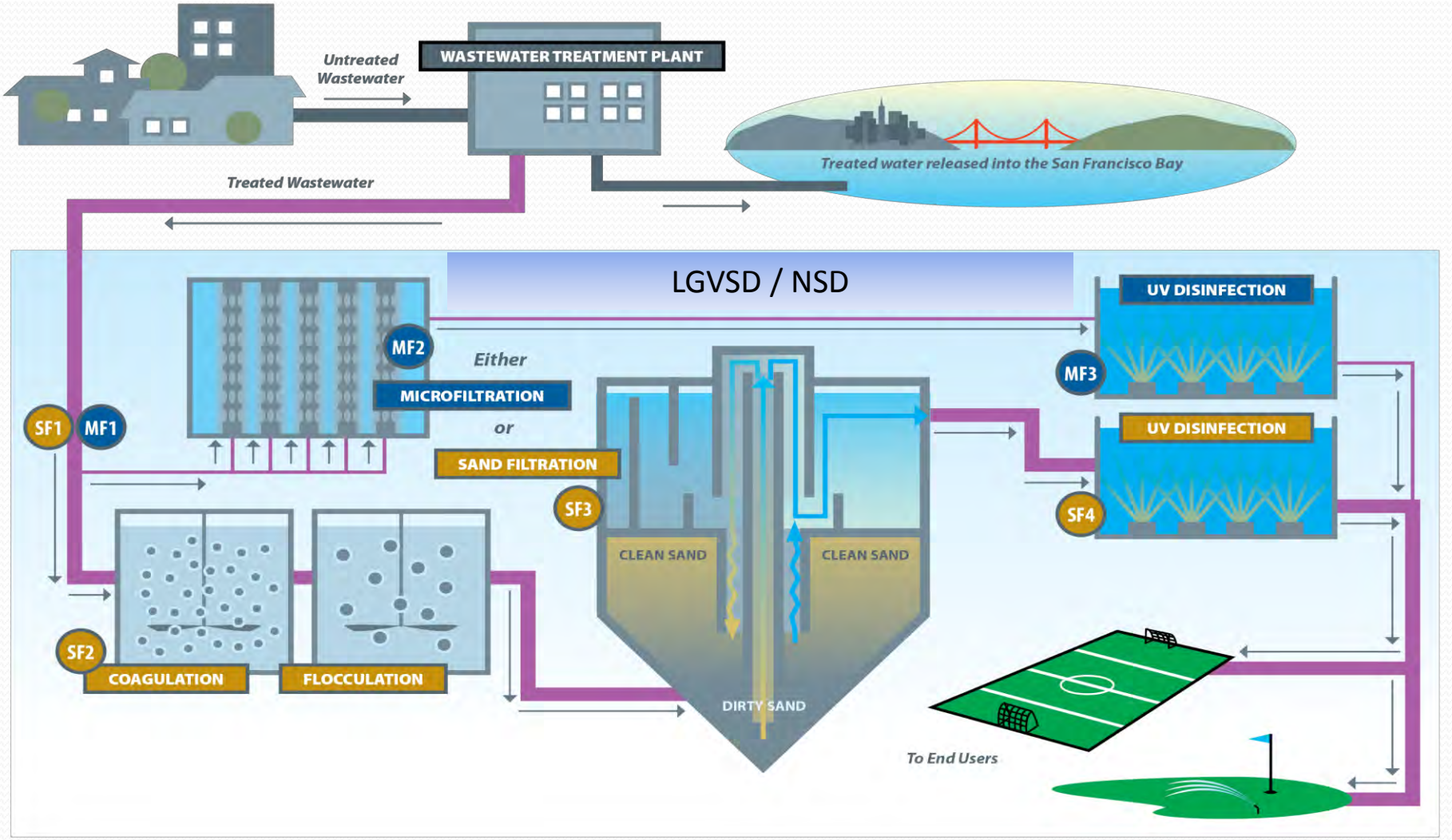
- **1985**
  Marin Municipal Water District begins to deliver recycled water to its customers for landscape irrigation, toilet flushing and other non-drinking purposes

- **1998**
  Monterey County began irrigation with reclaimed water including 12,000 acres of vegetables such as lettuce, strawberries, cauliflower, broccoli, artichokes, celery and fennel. The vegetables continue to be irrigated with reclaimed water

- **2005**
  Florida Department of Environmental Protection's "Water Reuse: Regulatory and Safety Perspectives" report indicates Florida has 40 years of reuse with no illness

2014 - NMWD's Recycled Water Use by Type (Total 450 AF)

- Parks
- Streetscapes/Medians
- Schools
- Golf Course
- Other/Commercial
- Construction Water


Untreated Wastewater
WASTEWATER TREATMENT PLANT
Treated water released into the San Francisco Bay
Treated Wastewater
LGVSD / NSD
UV DISINFECTION
MF2
Either
MF3
MICROFILTRATION
SF1
MF1
or
UV DISINFECTION
SAND FILTRATION
SF3
SF4
CLEAN SAND
CLEAN SAND
SF2
COAGULATION
FLOCCULATION
DIRTY SAND
To End Users

Constituents in Recycled Water vs. Potable Water - 2014 Data

COMPOUNDS (Unit)	RECYCLED WATER	POTABLE WATER
Nitrate as N (mg/L)	11 – 17	-1
Chloride (mg/L)	106 – 149	17 – 70
Potassium (mg/L)	15 – 17	1 – 11
Sodium (mg/L)	59 – 120	9 - 36
Total Coliform Bacteria (MPN)	Recycled Water total coliform organisms shall not exceed: 1. Median value 2.2 MPN/100 ml within last seven days; 2. Maximum value of 23 MPN/100 ml in more than one sample in any 30 day period; 3. No sample shall exceed 240 MPN/100 ml	DHS Requirement < 5% monthly samples are positive (No positives for Ecoli)

Recycled water is NOT suitable for?

- Drinking
- Cooking
- Bathing or showering
- Filling swimming pools or spas
- Children's water toys
- Plumbing it to the household domestic system
- Discharging to the street gutter or storm drain system

When Using Recycled Water

- No one shall play with or drink recycled water
- Do not spray recycled water onto potable water fixtures or food handling areas
- Recycled water shall be used and/or applied promptly
- No storage of recycled water stored onsite at the residential property
- If you must dispose of recycled water either discharge it to a landscape area or to the sanitary sewer via an onsite cleanout

Health and Safety Guidelines

- After recycled water reuse:
  - Use hand sanitizer; or
  - Wash hands with soap and potable water
- May use recycled water to water vegetable and fruit bearing plants
  - Wash vegetables/fruits with potable water prior to cooking or consuming
- For cuts or abrasions:
  - Promptly wash with potable water
  - Disinfect and bandage
- All equipment (hoses, spray nozzles, containers, etc.) that comes into contact with recycled water shall be:
  - Dedicated for use only with recycled water
  - Equipment shall not be re-connected to a potable water system

Plumbing Concerns

- Using a plumbed irrigation system (that is connected to the home's water meter) to distribute recycled water
  - **Is not allowed!**
  - Violation of municipal code

- Hose bibs protection:
  - Hose bibs should be equipped with hose bib vacuum breakers
    - Recommended for all homeowners whether or no recycled water is used


Contact Information:
415-897-4133
or
waterconserve@nmwd.com

Attachment D – Recycled Water Truck Program Recycled Water Use Permit

This Recycled Water Use Permit must be available for inspection at all times. Permit is subject to RWQCB Order 96-011.

NORTH MARIN WATER DISTRICT

Recycled Water Truck Program
Recycled Water Use Permit

Hydrant No:_____

North Marin Water District
999 Rush Creek Place
Novato, CA 94945

(For NMWD use)
Permit Number: _____ **Effective Date of Permit:** _____

1. Customer Information

Expiration Date of Permit: December 31, 2023

User's Name: _____

Name of Company: _____

Mailing Address: _____

City/State/ZIP Code: _____

Office Phone #: _____ Fax #: _____

Primary Contact: _____ Title: _____

Cell Phone or Other Phone #: _____ Email: _____

2. Truck Information

Provide the following information for the truck(s) for which a permit is requested.

Truck Trailer # (if applicable)	**License Plate Number**	**Capacity of Tank or Storage Containers**	(For NMWD use)	
			Vehicle Equipped with Air Gap?	**# of Decals Issued**

3. Recycled Water Use Information (Check all that apply)

Use of Recycled Water: ☐ Soil Compaction ☐ Dust Control ☐ Mixing Concrete ☐ Backfill Consolidation

☐ Sewer Flushing ☐ Street Cleaning ☐ Irrigation ☐ Other: _____

RECYCLED WATER MUST NOT TO BE USED FOR STORM DRAIN FLUSHING

RECYCLED WATER FROM NMWD MAY BE USED ONLY WITHIN NMWD's NOVATO SERVICE AREA

Where you expect to apply recycled water within NMWD's service area:

Address: _____

Address: _____

Address: _____

Address: _____

Address: _____

(Attach separate sheet if necessary)

4. Recycled Water Use Information

User agrees to install, maintain, and keep in place while using recycled water signs (on both sides and the rear of each truck) identifying that recycled water is in use. The customer will have to pay $10 per sign and each vehicle must have three signs. **User must initial here to acknowledge these requirements**: _____ (initials)

I have received a copy of the Recycled Water Truck Program Guidelines and a copy of the Recycled Water Truck Program in addition to Order 96-011: _____ (initials)

Customer must identify the person responsible for implementing worker/public protection at each site (i.e., that humans are not to drink recycled water or use it for preparing food).
Name of Responsible Person (at jobsite):_____

CERTIFICATION & INDEMNIFICATION

I certify that I am an authorized agent for the company cited in this application and that I have authority to bind the company to the requirements of this permit and program. I hereby certify under penalty of perjury that the information provided in this permit application and in any attachment is true and accurate to the best of my knowledge. I also certify that I have read the applicable rules and regulations of the Regional Water Quality Control Board Order 96-011 and the NMWD Recycled Water Truck Program Guidelines and agree to abide by them.

My company agrees to defend, indemnify, and hold harmless NMWD and its Directors, officers, agents and employees from and against any and all loss, liability, expense, claims, suits, and damages, including attorneys' fees, arising out of or resulting from Permit Holder's, its associates', employees', subconsultants', or other agents' negligent acts, errors or omissions, or willful misconduct, in the operation and/or performance under this Recycled Water Use Permit.

Print Name _____ Signature of User _____
Title _____
Company _____ Date _____

AUTHORIZATION

Customer is authorized to use recycled water from NMWD's Recycled Water Truck Program in accordance with NMWD's Recycled Water Truck Program Guidelines and RWQCB Order 96-011.

Authorized Signature:_____Date:_____

Attachment E – NMWD Recycled Water Truck Permit - Recycled Water Load Form

NORTH MARIN WATER DISTRICT **NMWD RECYCLED WATER TRUCK PERMIT** **SHEET #_____**

Company Name:_____

Billing Address: _____

Contact: _____ **Phone No.:** _____

(Purple) Recycled Water Hydrant No.: _____ **Permit No.:** _____

DATE:	TRUCK TANK CAPACITY	PLACE OF USE	NO. OF LOADS	LOADS FOR THE DAY
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
		HYDT#_____		
SECURITY DEPOSIT	$100.00		TOTAL LOADS	
CR#:			$ AMOUNT	
DATE:			TURN IN DATE	

PLEASE NOTE: Recycled Water Loads are to be turned in at the front desk to cashier. The cashier will submit a copy of the cash receipt and completed load card back to the Engineering Department for processing. Additionally, the cashier will issue a new load card to applicant if requested. For those that will be using the load permit for an extended period, please turn them in on a yearly basis for billing. If you are no longer in need of your permit, please return this card with **truck magnets** to cashier. The final billing will be processed by invoice and the security deposit applied to the amount due.

Thank you.

($5.00 PER LOAD, CHARGE TO 41120.05) - cc: cashier/engineering at date of issue

Attachment F – Recycled Water Truck Program Guidelines

NORTH MARIN
WATER DISTRICT

Recycled Water Truck Program Guidelines

(Updated January 2023)

Recycled Water Quality: NMWD's Recycled Water Truck Program (RWTP) supplies clean, safe tertiary-treated recycled water that has been through a treatment process that includes sand filtration and extra disinfection. Recycled water treated to this high level meets the rigorous and protective standards set by the California Department of Public Health and qualifies for unrestricted uses.

General Program Requirements

1. Customers with trucks interested in getting recycled water must apply for a Recycled Water Use Permit. The application may be obtained as follows:
   - By downloading the form from NMWD's website (www.nmwd.com) under Business and Recycled Water Truck Program.
   - By calling the Office at 415-761-8935 or emailing engineeringservices@nmwd.com , and requesting that the application form is mailed to the customer.
   - Hoses used for the application of recycled water shall be removable and shall be stored in a disconnected condition during transport. Inspect hoses prior to using to ensure they are in serviceable condition and free from leaks.

2. Application forms must be completed and returned, with copies of required documents attached (photocopies, PDFs, scanned documents acceptable) and payment of $100 Application Fee, to NMWD's Office. Options for submitting completed applications include:
   - Mail to NMWD, P.O. Box 146, Novato, CA 94948.

3. NMWD's recycled water may be used **only** within NMWD's Novato service area.

4. Haulers shall not overfill containers or trucks.

5. Tank trucks must be equipped with an air gap.

6. Permit must be renewed annually and refresher is part of that renewal.

7. Before trucks can be filled for the first time, all truck owners and/or drivers are required to have read the applicable rules and regulations of the Regional Water Quality Control Board Order 96-011 and the NMWD Recycled Water Truck Program guidelines and agree to abide by them.

8. Once the customer completes the orientation, training and quiz, NMWD will issue a signed

Recycled Water Use Permit along with three recycled water signs to affix to the customer's truck. The customer will have to pay $10 per sign and each vehicle must have two signs and one for any trailer.

9. Each hauler shall keep a Load form for each vehicle to track all recycled water collected and must be available for inspection at all times.

10. The Recycled Water Use Permit must be available for inspection at all times.

11. If recycled water is obtained for the use in residential landscape irrigation the receiving customer must;

    a. Complete the residential recycled Water pick-up program guidelines and application agreement.
    b. Review the NMWD residential recycled water program overview and,
    c. Take and pass the residential recycled water use quiz.

Requirements at Recycled Water Hydrant Locations

1. Access to recycled water is restricted to those truck customers **only** who have an NMWD-issued permit.

2. Trucks must have appropriately-placed recycled water signage.

3. Please do not block any turnaround areas or nearby driveway entrances/exits when waiting or filling.

4. **NO IDLING**. Please turn off your truck engine while filling or waiting at any filling station.

5. **NO SMOKING** is permitted at the filling stations at any time (smoking is a potential safety hazard).

6. Do **not** leave any trash or debris in the filling station area.

7. PLEASE MAKE SURE THAT NO WATER IS LEAKING FROM THE METER OR HYDRANT.

8. In the event of an emergency concerning the recycled water hydrant, meter, fill pipe or hose (spillage, leaks, etc.), the truck driver needs to call NMWD (415-897-4133).

Recycled Water Handling and Use Requirements/Precautions

1. Do **not** drink recycled water or use it for food preparation. Additionally, the truck driver must notify workers and/or the public when recycled water is used at a site and tell them that they are not to drink recycled water or use it for food preparation.

2. Recycled water users should apply hand sanitizer or wash their hands with soap and potable water after working with recycled water and especially before eating or smoking.

3. Precautions should be taken to avoid food coming in contact with recycled water while the use site is still wet.

4. Truck drivers should be equipped with an adequate first aid kit. Cuts or abrasions should be promptly washed, disinfected, and bandaged.

5. Recycled water shall not be allowed to spray onto external drinking water fountains.

6. Recycled water shall not be applied where it could contact or enter passing vehicles, buildings, areas where food is handled or eaten, or storm drains.

7. Recycled water users shall take adequate measures to prevent overspray, ponding, or run off of recycled water from the authorized recycled water use area.

8. There shall be no irrigation or impoundment of recycled water within a minimum of 50 feet of any domestic (drinking water) well.

9. Vehicles used for transportation and distribution of recycled water must have water-tight valves and fittings, must not leak, and tanks must be cleaned of contaminants prior to use. A truck or tank that has contained material from a septic tank or cesspool shall not be used to convey recycled water.

10. Recycled water must not be introduced into any permanent piping system and no connection shall be made between the tank truck and any part of a potable water system.

11. Tank trucks used to transport recycled water should not be used to carry potable water.

I certify that I have read, understand, and agree to abide by the above guidelines.

Signature _____ Date _____

Print Name _____

Company _____

California Driver License Number: _____

Fill out below for use if Recycled Water will be obtained for residential landscape irrigation.

Residential Customer Information

User Name: _____

Recycled water use site location: _____

Mailing Address (If different): _____

Phone: _____ Email: _____

Driver's License Number: _____

Recycled Water will be used for:

- □ Irrigation of trees with hose/bucket
- □ Irrigation of edible garden with hose/bucket
- □ Irrigation of turf with hose/bucket
- □ Irrigation of shrubs and flowers with hose/bucket
- □ Irrigation through a plumbed system
- □ Other: _____

I have read, understand and agree to abide by the Residential Recycled Water Pick-Up Program Guidelines. I understand that failure to comply with the conditions of the guidelines can lead to revoking the privilege to FREE recycled water for residential pick-up.

Training provided by: _____ Customer Water Account Number: _____

Signature: _____ Date: _____

Print name: _____

Attachment G – Recycled Water Use Quiz

Name _____ **Date Administered:** _____
Signature _____

RECYCLED WATER USE QUIZ

1. Tertiary-treated recycled water is wastewater that has been through an additional treatment process that includes sand filtration and extra disinfection.

   True False

2. Recycled water is safe for non-potable uses such as watering trees, gardens, lawns, and other outdoor plants.

   True False

3. Circle the following uses that recycled water is not suitable for:

   a. Drinking
   b. Cooking
   c. Washing hands
   d. Bathing
   e. Filling swimming pools or spas
   f. Children's water toys
   g. Plumbing into the household's domestic plumbing system

4. Excess recycled water can be discharged into the street and/or storm drains.

   True False

5. *Additional information about the NMWD Residential Recycled Water Program can be found at* www.nmwd.com

   True False

6. There is no need to wash fruits, vegetables or other edible plants irrigated with recycled water.

   True False

7. Recycled water can be connected to a homeowner's existing irrigation system.

   True False

8. Recycled water can be stored for later use.

   True False

9. I can resell my recycled water.

   True False

10. Recycled water can only be used at my residence.

    True False

11. Recycled water can be taken to my friend's house outside of Novato.

    True False

12. I should wash my hands with soap and potable water after handling recycled water, especially before eating or smoking.

    True False

13. Customers interested in constructing a new separate plumbing system for recycled water are required to meet NMWD's recycled water program standards for recycled water systems and through a separate process, apply and obtain approval from NMWD to ensure requirements are met.

    True False

14. All equipment (hoses, spray nozzles, containers, etc.) that have held recycled water can be re-used for drinking water so long as it is disinfected.

    True False

END FOR TRUCK DRIVERS WATER TRUCK PROGRAM

RESIDENTIAL USE CUSTOMERS ALSO COMPLETE THE FOLLOWING:

15. What is the minimum/maximum allowable container size?

    a. 1 / 100 gals. b. 35 / 300 gals. c. 275 / 300 gals. d. 10 / 200 gals

16. Circle the following approved recycled water container styles:

    Open Top Sealable

17. Water weighs over 8 lbs. per gallon.

    True False

18. How much will a 275 gallon container weigh when full of recycled water? (closest answer)

    a. 100 lbs. b. 2294 lbs. c. 3310 lbs. d. 459 lbs.

Attachment H – Recycled Water Truck Checklist

NORTH MARIN WATER DISTRICT
RECYCLED WATER TRUCK CHECKLIST 2015

APPLICANT: _____ PERMIT NO.: _____

PULLING FROM RW **PURPLE** HYDRANT NO.: _____

ROUTING

1. Fill out Recycled Water Truck Program Guidelines _____
   Review NMWD Residential Recycled Water Use Program Presentation if applicable.
   Take and Pass Quiz –**SHEETS 1-3**

2. Fill out Recycled Water Truck Program Guidelines
   (for Residential Customer Information) _____
   If for Residential Recycled Water Use have the customer fill out this information- **SHEET 4**

3. Collect $100 Security Deposit (CR#_____)
   Applicant to receive copy of cash receipt.
   Additional copy for **Engineering** _____
   Not required for Residential, City of Novato, County of Marin, NSD and NUSD.

4. Get approval from Chief Engineer _____

5. **Applicant** to receive completed **copies** of:
   a. Recycled Water Use Permit Application _____
   b. Recycled Water Truck Program Guidelines _____
      (**Engineering keeps** original copies)

6. **Applicant** to receive informational copies of:
   a. Order 96-011 – (may have already been emailed) _____
   b. Magnetic Sign Care _____
   c. Map - (may have already been emailed) _____

7. Magnetic Signs _____
   No. Of signs issued: _____

8. Water Truck Permit Card
   (original current year copy to **Applicant**- make two copies, one for **Cashier** and **Engineering**)
   Final turn in for Original Card goes to Accounting unless Residential, those go to Operations.
   No charge for Residential, City of Novato, County of Marin, and Novato Sanitary District.
   NUSD does pay for water loads. _____

9. Recycled Water Truck Record
   (add the permit # and applicant information to **record sheet** in binder)
   _____

Comments: Recycled Water Loads are to be turned in at front desk to cashier for invoicing. (Charge to 41120.05) A copy of the completed load card should be sent back to the Engineering Department. The cashier should also issue a new load card to applicant if needed.

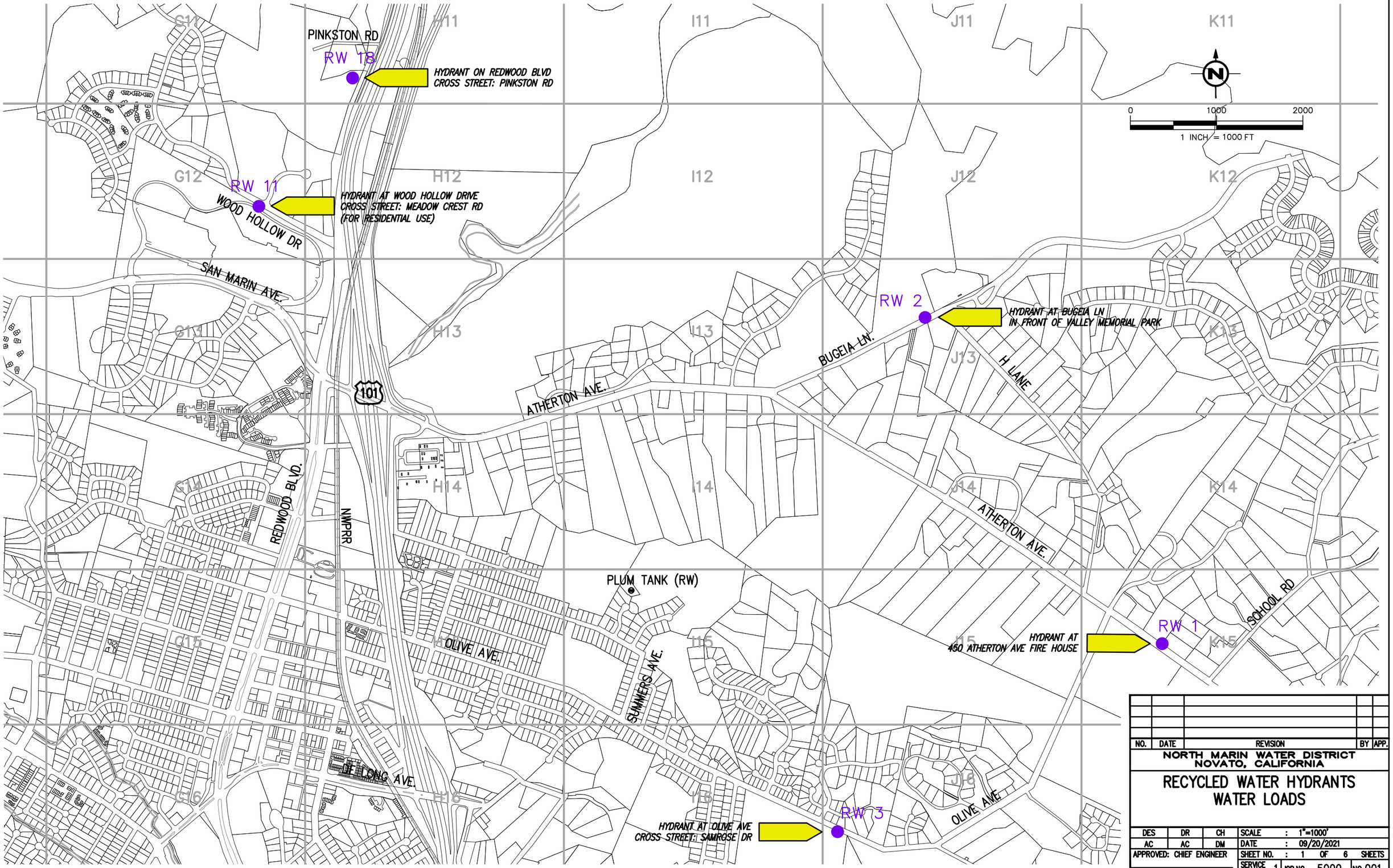
Additional Comments:

_____

Note Allowed Uses: □ Dust control on roads and streets. □ Mixing concrete
□ Cleaning roads, sidewalks, and outdoor work areas. □ Soil compaction .
□ Backfill consolidation around non-potable piping. . □ Sewer flushing
□ Consolidation of backfill material around potable water pipelines. □ Irrigation

Date Completed: _____ By: _____
Engineering Service Rep.

Attachment I – Recycled Water Truck Program Recycled Water Hydrants



NO.	DATE	REVISION	BY	APP.

NORTH MARIN WATER DISTRICT
NOVATO, CALIFORNIA

RECYCLED WATER HYDRANTS WATER LOADS

DES	DR	CH	SCALE	:	1"=1000'
AC	AC	DM	DATE	:	09/20/2021
APPROVED: CHIEF ENGINEER			SHEET NO.	:	1 OF 6 SHEETS
R.E. C40936			SERVICE AREA 1	JOB.NO.	5000 NO. 001

Sep 27, 2022 - 10:35am W:\JOB\MISC\HYDRANTS\RW Hydrant Maps.dwg User: SDOVE

RW 12
HYDRANT ON DAVIDSON ST
AT NOVATO SANITARY DISTRICT

RW 13
HYDRANT IN PARKING LOT
180 ROWLAND WAY (SUTTER HEALTH)

HYDRANT ON REDWOOD BLVD
CROSS STREET: ROWLAND BLVD
RW 15

RW 14
HYDRANT ON VINTAGE WAY (SOUTHBOUND)
ACROSS FROM IN-N-OUT BURGER

DAVIDSON ST
REDWOOD BLVD
ROWLAND WY
ROWLAND BLVD
101
NWPRR
HIGHWAY 37

G17 H17 I17 J17 K17
G18 H18 I18 J18 K18
G19 H19 I19 J19 K19
G20 H20 I20 J20 K20
G21 H21 I21 J21

0 800 1600
1 INCH = 800 FT

NO.	DATE	REVISION	BY	APP.

NORTH MARIN WATER DISTRICT
NOVATO, CALIFORNIA

RECYCLED WATER HYDRANTS
WATER LOADS

DES	DR	CH	SCALE : 1"=800'			
AC	AC	DM	DATE : 09/20/2021			
APPROVED: CHIEF ENGINEER			SHEET NO. : 2 OF 6 SHEETS			
R.E. C40936			SERVICE AREA 1	JOB.NO. 5000	NO.002	

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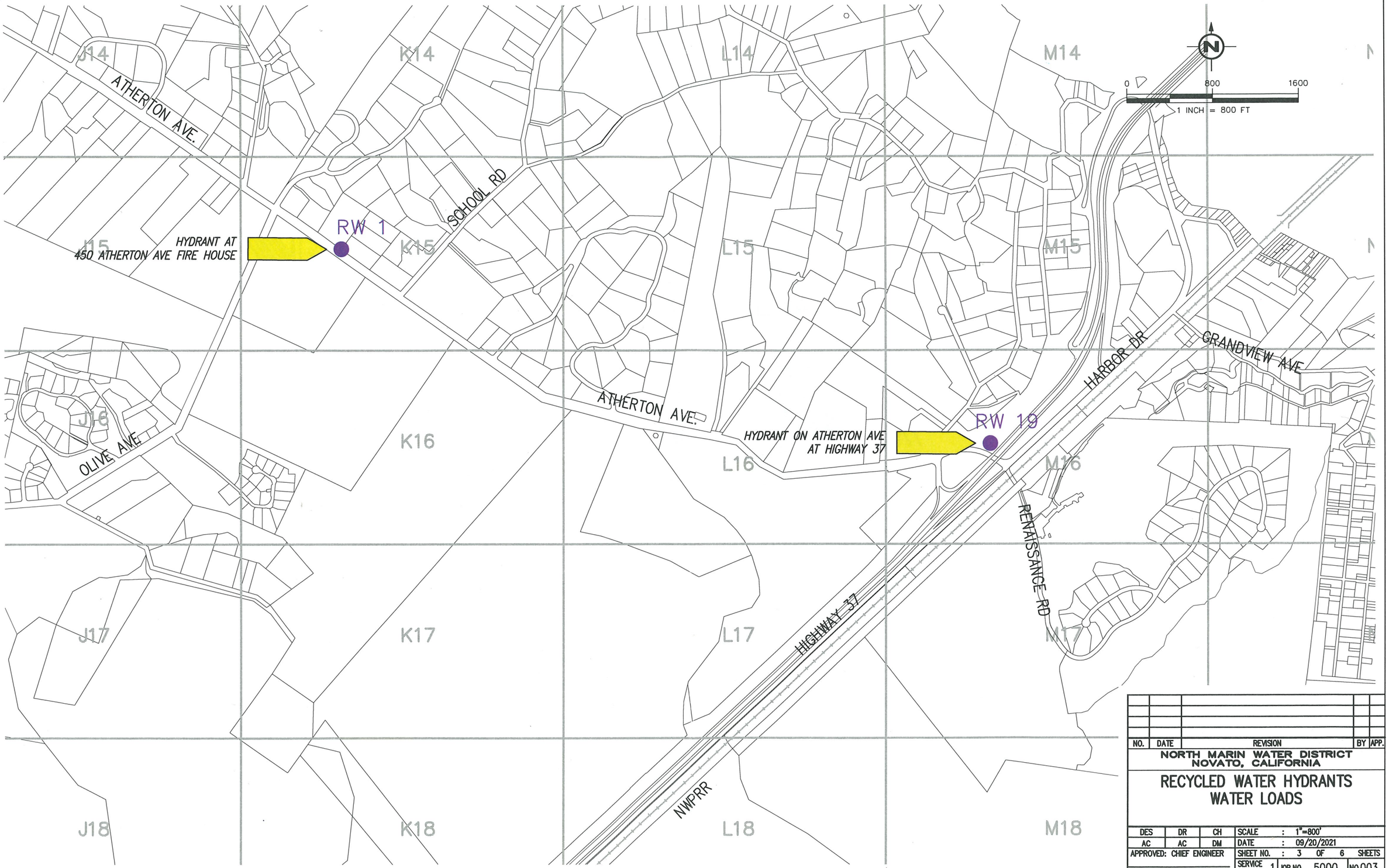

NO.	DATE	REVISION	BY	APP.

NORTH MARIN WATER DISTRICT
NOVATO, CALIFORNIA

RECYCLED WATER HYDRANTS
WATER LOADS

DES	DR	CH	SCALE : 1"=800'	
AC	AC	DM	DATE : 09/20/2021	
APPROVED: CHIEF ENGINEER			SHEET NO. : 3 OF 6	SHEETS
R.E. C40936			SERVICE AREA 1	JOB.NO. 5000 NO.003

East

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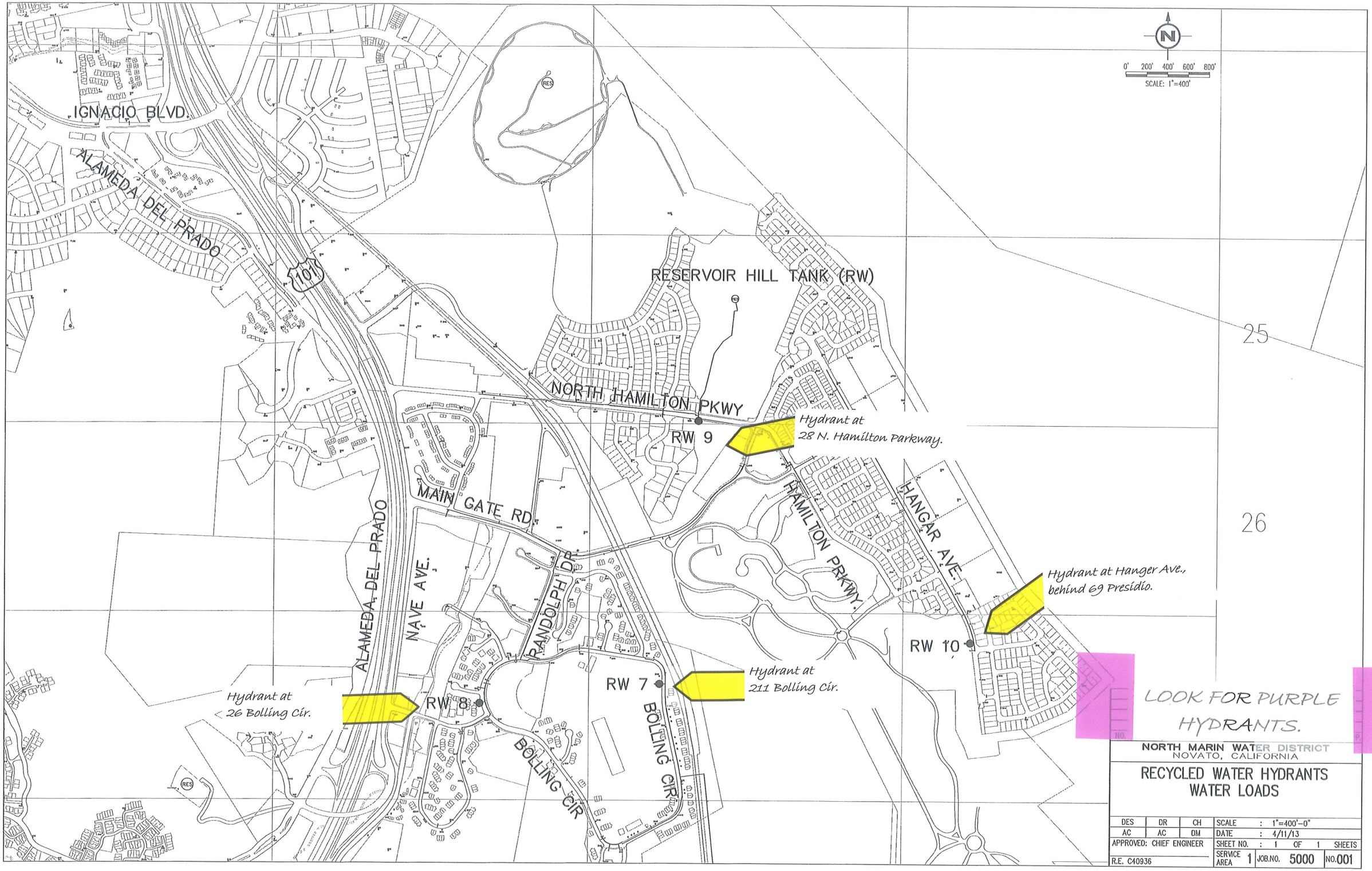

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