

RECYCLED WATER STANDARDS



**RANCHO MURIETA COMMUNITY
SERVICES DISTRICT**

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1.0 Introduction and General Guidelines

The Rancho Murieta Community Services District (District or RMCS D) is expanding its recycled water program in response to District Policy No. 2011-07. This policy requires the use of recycled water in all future residential and commercial developments where determined to be cost-effective. The District falls within the jurisdiction of the Central Valley Regional Water Quality Control Board (Regional Board), whose mission is to preserve, enhance, and restore the quality of California's water resources and to ensure their proper allocation and efficient use for the benefit of present and future generations. A specific goal of the Regional Board is to promote and expand the beneficial use of recycled water. In an effort to support this goal, the District has chosen to offer recycled water to future customers to protect, preserve, and conserve ground and surface water resources in the District and Sacramento County. To achieve this goal, the District is pursuing a master reclamation permit to allow for distribution and use of recycled water within its service area on land owned by various entities including individual homeowners for landscape irrigation as defined in Table 1. In response, the District will be expanding the existing recycled water system to serve recycled water for landscape irrigation of new residential homes located within future developments and existing and future parks, athletic fields, commercial landscaping, etc.

1.1 Purpose

The purpose of this document is to establish minimum standard procedures, specifications and limitations to ensure the health, safety, and general welfare of the citizens of Rancho Murieta when installing infrastructure for, and the use of, recycled water, consistent with the laws and regulations of the State of California. The Recycled Water Standards (Standards) have been developed to ensure uniformity in design, format, methodology, construction materials, and quality of work products of the facilities associated with the expanded recycled water system. These Standards are intended to assist Applicants, Authorized Contractors, Customers, and Design Consultants with the planning, design, repair, and construction of the expanded recycled water system.

It is the intent of this document to be consistent and ensure compliance with the District's Recycled Water Code¹ and other governing policies, instructions, and regulations related to the use of recycled water. These Standards do not limit the responsibility of the Applicants, Authorized Contractors, Customers, and Design Consultants, but assist in providing professionally sound, efficient, uniform, and workable criteria and requirements for recycled water improvements. These Standards do not address all aspects of a complete design. For areas not addressed in these Standards, the Applicants, Authorized Contractors, Customers, and Design Consultants must use good engineering judgment and practices compliant with the most recently adopted State and Federal regulations.

The Applicants, Authorized Contractors, Customers, and Design Consultants responsibilities include 1) submitting a written request for approval of procedures, specifications, design

¹ Chapter 17, The Recycled Water Code, adopted by Ordinance No. 2011-05 on January 18, 2012.

concepts, etc. that differ from these Standards, 2) performing calculations or studies as requested by the District, and 3) coordinating and resolving issues with appropriate regulating agencies, departments, or divisions, if necessary.

This document is organized into the following chapters:

- Chapter 1 – Introduction and General Guidelines
- Chapter 2 – System Design and Construction Standards
- Chapter 3 – Standard Details

1.2. Definitions

The following are definitions of service terms used throughout this document.

Table 1. Definitions

Air Gap Separation	A physical separation between the free flowing discharge end of a recycled water supply pipeline and an open or non-pressurized receiving vessel such as a storage tank.
Applicant	Owner or agent of the owner of the property for which recycled water service is being requested.
Authorized Contractor	District-approved contractor who has completed all appropriate education requirements in order to perform work associated with the District's or User's recycled water system.
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BMP	Best Management Practice. Method or technique found to be the most effective and practical means of achieving an objective.
Board	Board of Directors of the Rancho Murieta Community Services District.
CDPH	California Department of Public Health
Contract Documents	Agreement, general and supplementary conditions, addenda, drawings, and specifications describing the scope of a

	particular project.
Cross Connection	Any physical connection between any part of a water system used or intended to supply water for drinking purposes and any source or system containing water or substance that is not or cannot be approved for human consumption. This includes direct piping between the potable water and recycled water systems, regardless of the presence of valves, backflow prevention devices, or other appurtenances.
CSI	Construction Specifications Institute
Customer or Recycled Water Customer	Owner or agent of the property owner receiving recycled water service.
Disinfected Tertiary Recycled Water	Wastewater that has been oxidized, filtered and subsequently disinfected in accordance with Section 60301.230, Chapter 3 (Water Recycling Criteria), Title 22, California Code of Regulations.
District	Rancho Murieta Community Services District and/or its representative.
Dual Plumbed System	A system that utilizes completely separate piping systems for recycled water and potable water within a facility and where the recycled water is used to either serve plumbing outlets within a building or outdoor landscape irrigation at individual residences.
General Manager	General Manager of the Rancho Murieta Community Services District
Inspector	Any person authorized by the District or local health agencies to perform inspections on or off a Use Area before, during, or after construction and during operation.
Landscape Irrigation	The use of recycled water to irrigate: parks, greenbelts, and playgrounds; school yards; athletic fields; golf courses; cemeteries; residential landscaping, common areas;

	commercial landscaping; industrial landscaping; and freeway, highway, and street landscaping.
Offsite Facilities	Recycled water system up to (e.g., upstream of) and including the Point of Connection (recycled water meter).
Onsite Facilities	User's or Customer's recycled water system located downstream of the Point of Connection.
Point of Connection	The location of the recycled water meter located adjacent to the curb, where downstream is the Customer-owned recycled water line and upstream is the District-owned infrastructure. The Point of Connection is the recycled water meter for residential landscape irrigation which is provided to each residential home served with recycled water by the District.
Record of As-Built Drawings	Engineering plans that correctly show (1) all onsite and/or offsite recycled water facilities as constructed or modified and (2) all potable water and sewage pipelines as constructed or modified.
Recycled Water Permit	The District's written approval or authorization for recycled water service. A Recycled Water Permit may only be issued by the District upon completion of the appropriate District application form, payment of all applicable fees and charges, and compliance with all applicable District ordinances, rules and regulations, as well as local, state, and federal law.
Recycled Water Service Connection	Pipe, valves, and other appurtenances by which recycled water is conveyed from the recycled water main to the premises, and includes the tap, corporation stop, curb stop or shut-off valve, recycled water meter, and valve box.

Regional Board	Central Valley Regional Water Quality Control Board
Runoff	Flow of water along the surface of the ground or other natural or manmade surfaces, including but not limited to, pedestrian walkways, streets, playground surfaces, and grassy slopes. Runoff can be caused by over irrigation or overspray.
Ponding	Retention of piped water on the surface of the ground or manmade surface for a period of time following the cessation of an approved recycled water use activity such that potential hazard to the public health may result. Ponding can be caused by over irrigation.
Site Supervisor	A qualified person designated by the User and approved by the District who shall be responsible for the installation, operation and maintenance of the onsite recycled water facilities, the prevention of Cross-Connection and compliance with the District Standards and other regulations.
Supplemental Water	Potable water used to increase recycled water production in order to satisfy recycled water demands.
User	Any individual or entity issued a Recycled Water Permit by the District. They may be the property owner, tenant, or property manager as appropriate.
Use Area	A site with well-defined boundaries designated, on a District-approved Recycled Water Plan, to receive recycled water.
Violation	Noncompliance with any condition of the Recycled Water Permit by any person, action or occurrence, intentional or unintentional.
Windblown Spray	Dispersed, airborne particles of water transmitted through the air to a location other than that for which the direct application of

	recycled water is approved. Windblown spray can be caused by over spray or irrigating during windy conditions.
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1.3. General Requirements

On July 20, 2011, the District adopted Policy 2011-07 which mandates the use of recycled water for irrigation purposes, wherever economically and physically feasible as determined by the District’s Board of Directors (Board). In general, the lands subject to this policy are defined as future residential parcels located within the District’s service area and existing parks, median landscaping, and commercial landscaping areas. All recycled water systems must be metered separately from the potable water supply system and must have no Cross-Connections to the potable water supply system.

The design of offsite facilities, including the preparation of Contract Documents, is to be prepared under the supervision of a responsible Professional Engineer registered in the State of California. The District shall review and approve Contract Documents prior to construction and shall inspect all public water, sewer, and recycled water pipelines and infrastructure. The design of onsite facilities that will use recycled water for landscape irrigation shall be prepared under the direct supervision of a responsible registered landscape architect or civil engineer in the State of California. Due to the nature of recycled water use requirements, including identification and periodic onsite inspections, the District will provide onsite recycled water permitting and inspection. The recycled water system, including offsite and onsite facilities, shall be separate and independent of any potable water system.

1.3.1. Protection of Public Health and the Environment

The District and regulatory agencies reserve the right to take any action necessary, with respect to the operation of the recycled water system, to safeguard the public health. If real or potential hazards are evidenced any time during construction or operation of the recycled water system serving a particular User, the District reserves the right and has the authority to terminate recycled water service to that particular User immediately, without notice. These hazards include, but are not limited to, Cross-Connections with the potable water system and any other water system, improper tagging, signing, or marking, or unapproved/prohibited uses, including irrigation practices that result in runoff, particularly where such runoff flows to a surface water body.

Application of recycled water to the landscape irrigation Use Areas shall be at reasonable agronomic rates and shall consider soil, climate, and nutrient demand. Application rates shall ensure that a nuisance is not created. Degradation of groundwater, considering soil, climate, and nutrient demand, shall be minimized consistent with applicable provisions of the State of

California's Recycled Water Policy.²

The seasonal nutritive loading of the landscape irrigation Use Areas including the nutritive value of organic and chemical fertilizers and of the recycled water, shall not exceed the nutritive demand of the landscape.

1.3.2. Approved Uses of Recycled Water

Recycled water may be used for a variety of uses approved by the California Department of Public Health (CDPH). In Rancho Murieta, approved recycled water uses are for irrigation of the two local golf courses, Van Vleck Ranch, and in the future, irrigation of parks; greenbelts; playgrounds; athletic fields; residential front and backyard landscaping; common areas; commercial, freeway, highway, and street landscaping; and dust control once approved in a master reclamation permit. Each residential home using recycled water for front and backyard irrigation must obtain a Recycled Water Permit prior to use. The State of California regulates the use of recycled water, as directed under the California Code of Regulations Title 22. The District, Regional Board, and CDPH, at their discretion, can require or specify what sites and/or uses of recycled water are to be utilized in the service area, so long as they comply with State requirements. Sites must use recycled water only for those uses approved by the District, Regional Board, and CDPH.

Certain uses are considered "dual plumbed" and thus, are required to undergo formal testing for Cross-Connection prior to receiving recycled water service and every four years thereafter (minimum) in accordance with Section 60316 (a) of the California Code of Regulations Title 22. Any site using separate piping systems for recycled water and potable water, including single family residences using recycled water for irrigation, is considered to be dual plumbed.

1.3.3. Recycled Water Permit

Each Use Area must obtain a Recycled Water Permit prior to receiving recycled water. Permits will describe the conditions of use, including the requirements that the User follow the rules and regulations of the most recently adopted District Code and the most recently adopted Standards. Typically, these conditions also include construction inspection, Cross-Connection certification, User monitoring and inspection requirements, and a schedule of the hours that recycled water can be utilized. Following Recycled Water Permit issuance, a Use Area may receive recycled water in accordance with the requirements set forth in the Recycled Water Permit. The District has the authority to revoke the Recycled Water Permit at any time or modify it to reflect requirements included in the District master reclamation permit.

If the User is found to be in violation of the Recycled Water Permit, the District has the authority to immediately terminate recycled water service. Alternatively, the District may direct the User to mitigate for these violations. A site inspection will be scheduled after a reasonable mitigation period to ensure compliance. Failure to comply will result in termination of recycled water

² State Water Resources Control Board Resolution Nos. 2009-0011 and 2013-0003.

service.

1.3.4. Procedures for Obtaining Onsite Recycled Water Service

An abbreviated description of the procedures for obtaining landscape irrigation recycled water service is provided below. A more detailed description of these procedures is provided in the next chapter.

1. Attend District-sponsored Recycled Water Orientation.
2. Recycled Water Plan is developed and drawn in accordance with the District's Standards.
3. Three hardcopy sets of Recycled Water Plan, and one electronic version (in District approved software format), are submitted to the District for review and comment; the designer should retain a copy for the User.
4. District staff shall review the Recycled Water Plan; allow up to 15 working days for processing.
 - a. If discrepancies are found, the Recycled Water Plan is returned to the designer and the User is notified by the District. Recycled Water Plan must be revised and corrected by the designer and resubmitted in accordance with Step 2.
 - b. If Recycled Water Plan is approved, the District will mail notification to the designer and User.
5. Construction may begin by one of the contractors listed on the District's Approved Contractor List.
6. Open trench inspection is to be scheduled when irrigation pipe construction is ready. Please call (916) 354-3700 and allow a minimum of 48 hours of advance notice for inspection, excluding Saturdays, Sundays, and District holidays. Each site will be inspected to ensure prevention of any Cross-Connection between the potable and recycled water systems and that the pipeline separations, materials of construction, quality of work products, etc. conform to the standards described in this document. A written certification of open trench inspection shall be issued by the District to those that qualify.
7. Final inspection will be scheduled after the approval of open trench inspection, the landscape construction is completed, and irrigation timers are set. Please call (916) 354-3700 and allow a minimum of 48 hours of advance notice for inspection, excluding Saturdays, Sundays, and District holidays. Either the User or contractor is required to be present during Final Inspection. No facilities shall be connected to the District's recycled water system until the District has performed final testing and has determined that that the new construction is satisfactory.

8. Two hardcopy sets and one electronic version (in District approved software format) of As-Built Recycled Water Plan shall be submitted to the District. Once as-built drawings have been filed and final inspection successfully completed, a certification of final inspection shall be issued in writing by the District along with a Recycled Water Permit. The User may now initiate recycled water service.

1.4. System Responsibilities

The District is responsible for production, distribution, operation, and maintenance of its recycled water system up to the Point of Connection. In addition, the District must conduct periodic Cross-Connection, backflow prevention, and coverage inspections of the recycled water system. The District reserves the right to control and schedule the use of recycled water to maintain acceptable working conditions within the District's recycled water system. These and other recycled water distribution conditions will be administered by the District at its discretion.

It is the responsibility of the User to maintain its recycled water system downstream of the Point of Connection. The User is responsible for ensuring that the recycled water is used on its site according to all the rules and regulations regarding such use. Specifically, the User is responsible for the following:

- Obtaining all permits and payment of all fees required for the establishment, operation and maintenance of the User's recycled water system.
- Ensuring that all materials used during the design, construction and maintenance of the system are approved or recommended for recycled water use.
- Routinely monitoring and inspecting the recycled water system for any situation that may not be in conformance with the regulatory requirements. Problems such as irrigation controller malfunctions, irrigation schedule adjustments, excessive ponding or runoff of recycled water, broken or out-of-adjustment sprinkler heads, etc. must be corrected as soon as they become apparent.
- Maintaining the Use Area's recycled water system downstream of the Point of Connection.
- Reporting all violations and emergencies to the required local governing agencies. A listing of these agencies is provided in Appendix A.
- Obtaining prior written authorization from the District and any required regulatory agency before making any modifications to an approved recycled water system, or the potable water system if it is in close proximity to the recycled water system.

1.5. Applicable Codes, Policies, and Regulatory Requirements

Rules and regulations for the end use of recycled water are established and/or enforced by the Regional Board, CDPH and the local county Health Department. These rules and regulations will be contained in Waste Discharge Requirements (WDR) and a Master Reclamation Permit

(MRP) that will be issued to the District, the Rancho Murieta Country Club, and the Van Vleck Ranching and Resources, Inc. in the future. All Use Areas must be designed, constructed, operated, and maintained to meet the most recently adopted standards of the Federal, State and local governing codes, rules and regulations.

District Code, Chapter 17 (Recycled Water Code) sets forth rules and regulations regarding the use of recycled water in Rancho Murieta. The Recycled Water Standards is defined in the District Code as the document that describes “all procedures, design, work, materials, capacities, facilities and other improvements on recycled water facilities or connections.” Together the Recycled Water Code and Recycled Water Standards establish, and provide the means to enforce, rules and regulations for recycled water users, design and construction of recycled water facilities, and the use of recycled water in accordance with the uniform statewide reclamation criteria.

The Recycled Water Standards have been prepared under the direction of the General Manager and can be updated as rules and regulations change over time through the modification/addition of either the standard details (Chapter 3) or design and construction standards (Chapter 2). As the industry becomes more experienced with recycled water use, there may be changes to existing regulations. These changes may be made without the consent of the User or the District and will be enforced upon their effective date.

This document draws from a number of references concerning the use of recycled water. Of primary importance are the California Code of Regulations Title 22 and Title 17, the California Health and Safety Code, the California Water Code, the Guidelines for Distribution of Nonpotable Water³, and Chapter 16A of the 2010 California Plumbing Code. In the future, this document should be modified to draw upon the regulations contained in the Waste Discharge Requirements (WDR) and Master Reclamation Permit (MRP) issued by the Regional Board. Given that these particular requirements will be developed specifically for Rancho Murieta Users, the WDR and MRP take precedence over general guidelines where differences are noted.

The District does not assume any liability for errors in this document, as codes, laws, statutes and regulations can change without prior approval or knowledge. Within the Rancho Murieta service area, various Users may have site-specific requirements depending on their circumstances, which are usually set forth in their individual Recycled Water Permit. It is the responsibility of the User to check with the District before initiating any changes to their onsite recycled water system.

If any section, subsection, sentence, clause, phrase, part, or portion of these Standards is for any reason held to be invalid or unconstitutional, such invalidity shall not affect any of the remaining portions. These Standards shall be interpreted so as to comply with applicable Federal, State and local laws and regulations.

³ Prepared by the California-Nevada Section of the American Water Works Association, 1992.

1.6. District Jurisdiction

The District is responsible for obtaining a Waste Discharge Requirements and Master Reclamation Permit and approval of plans and inspection of all recycled water systems and Use Areas within its service area. Where repairs, improvements, replacement of a service pipeline on the upstream side of the Point of Connection is required, it shall be the responsibility of the District, unless it is a system upgrade needed to serve a specific User or group of Users, in which case the owner(s) or customer(s) will be billed for the work. Conversely, the cost of repairs or replacement of components downstream of the Point of Connection shall be the responsibility of the User.

1.7. Developer's Engineer's Responsibility

These Standards establish uniform policies and procedures for the design and construction of the District's offsite recycled water system. They are not intended to be a substitute for engineering knowledge, judgment, or experience. These Standards shall be reviewed by the developer's engineer and applied as necessary to a project. Proposed deviations from these Standards shall be submitted to the District for approval, in writing, prior to tentative map and/or development project approval.

All plans, specifications, reports, or documents shall be prepared by a registered civil engineer licensed by the State of California or by a subordinate employee under the licensed civil engineer's direct supervision, and shall be signed and stamped with the civil engineer's seal to indicate responsibility for each plan, specification, report, or document.

A "Reviewed" and/or "Accepted" signature of the District on the plans does not in any way relieve the developer's engineer of responsibility to meet all of the District's requirements. The plans may be revised by change order. However, plans that are signed as being authorized for construction generally will not require revisions based upon subsequent revisions to these Standards, unless in the District's opinion, a change is necessary due to a significant change in the Standards, or unless a developer does not proceed to construction within a reasonable time.

The District will not recommend that a recycled water system or improvement be accepted until all applicable requirements of these Standards have been met. Acceptance by the Board shall be done in total with all other improvements of a development project.

1.8. Landscape Architect / Engineer Responsibility

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

The design of the onsite landscape irrigation system shall be prepared by or under the direct supervision of a responsible registered landscape architect or civil engineer in the State of

California. In addition, all landscape architects/civil engineers are required to attend a District-sponsored Recycled Water Orientation every 24 months.

Before design, the landscape architect/civil engineer should obtain the following from the District:

- Approval to use recycled water for the proposed system.
- Verification of locations and size of proposed Point of Connection (recycled water meter).
- Design pressure for the proposed facilities.

1.9. User Liability and Responsibility

The User assumes all liability and responsibility for all phases of construction, operation, and maintenance of the recycled water system downstream of the Point of Connection (onsite facilities), unless such responsibility is otherwise clearly outlined in the Recycled Water Permit. The District is responsible for water quality and operation and maintenance of the recycled water system upstream of the Point of Connection (offsite facilities).

The District shall not be liable for any water or other damage caused by the User due to defective or broken plumbing or faulty service, nor shall the District be liable for damage caused by the User's recycled water system.

All Users are required to have a designated Site Supervisor. Specific Site Supervisor requirements are to:

- Receive training by attending a District-sponsored Recycled Water Orientation or be able to demonstrate knowledge of the application and maintenance of their recycled water system.
- Be aware of, and familiar with, this document.
- Be knowledgeable about the practices and procedures of using recycled water.
- Be available to the District and have the authority to carry out any requirements of the District relating to the onsite recycled water system. At a minimum, the Site Supervisor shall participate in the following inspections:
 - Backflow prevention testing to be conducted annually in accordance with Section 7605 of the California Code of Regulations Title 17.
 - Cross-Connection testing to be conducted every four years and at change of ownership in accordance with Section 60316 (a) of the California Code of Regulations Title 22.

- Coverage testing to be conducted annually to verify that system has not been modified and that the irrigation system is being maintained in the proper manner and that overspray, ponding and runoff are being controlled.
- Be responsible for the installation, operation and maintenance of the recycled water and potable water systems, and for the prevention of potential hazards.
- Maintain irrigation system records.
- Be familiar with the basic concepts of backflow and Cross-Connection prevention, system testing, and related emergency procedures.
- Immediately inform the District of any failures, violations and emergencies so that appropriate measures may be taken.

For single-family residences which have a recycled water service connection, the owner shall be considered to be the Site Supervisor unless otherwise indicated on the application for recycled water service. In the event that someone other than the owner is designated as the Site Supervisor and this person is no longer associated with the property, the owner shall again be considered the Site Supervisor until written notification is made to the District.

1.10. Rates, Fees, and Other Charges

The District shall determine all recycled water rates, fees, and charges concerning recycled water service. These may be changed at the discretion of the District and may be subject to the same, or similar, conservation pricing levels as potable water to encourage the efficient use of this resource. The rates, fees, and charges shall be determined by Board Resolution.

1.11. Recycled Water Infrastructure and Service Areas

Figure 1 shows the existing and planned recycled water distribution systems, most likely residential landscape irrigation Use Areas, location of the Wastewater Reclamation Facility and the approximately alignments of existing and proposed recycled water transmission and distribution pipelines.

2.0 Design and Construction Standards

The recycled water system (both offsite and onsite facilities) shall be completely separate and independent from the potable water system. Cross-Connection between potable water and recycled water facilities is strictly prohibited along with the following:

- Recycled water hose bibs, quick connections, etc. are prohibited.
- Fire hydrants are not allowed to be connected to the recycled water system.
- Spray, mist, or runoff of recycled water shall not enter dwellings, designated outdoor eating areas, or food handling facilities.
- Drinking fountains located within recycled water Use Areas shall be protected from the spray of recycled water in a manner approved by the District prior to construction.
- Recycled water overspray, ponding and runoff will be prevented using Best Management Practices (BMPs) as approved by the District prior to construction.
- Potable and recycled water pipelines shall never be installed in the same trench and shall adhere to specific horizontal and vertical separation requirements.
- Recycled water will not be used for any other purposes except as those approved uses described in Section 1.3.2.

To protect the public water supply system, a double check valve assembly (see RW-27) shall be installed on each potable water service line serving a recycled water customer. Where potable water is served using the recycled water system for a prolonged period of time, the recycled water service line shall also be equipped with a double check valve assembly as well (see RW-23 and RW-24).

Design and construction standards for recycled water facilities have been separated into two categories – offsite and onsite facilities. Offsite recycled water facilities typically consist of those recycled water facilities which are, or will be, owned, operated and maintained by the District such as transmission or distribution mains located in public rights-of-way and relatively large landscape irrigation facilities for greenbelts, parks, common areas, etc. Onsite recycled water facilities typically consist of facilities that will be owned, operated and maintained by a User or Customer, and are located downstream of the recycled water meter or Point of Connection.

2.1 Offsite Recycled Water Facilities

All offsite recycled water facilities, to the extent determined by the District, required to serve specific developments in the District's service area, shall be provided by the applicant, owner, or customer at their expense, unless the District determines it is appropriate to construct these capital facilities. Plans and specifications for all offsite recycled water facilities shall be submitted to and approved by the District in advance of construction.

The District will assume responsibility for providing recycled water service to the Point of Connection of such developments upon title transfer to the District of all offsite recycled water systems and all necessary easements. Easements shall be in a form acceptable to the District and not subject to outstanding obligations to relocate such facilities or any deeds of trust, except as approved by the District.

The property owner, proponent, or developer may request that the District enter into a reimbursement agreement for the portions of a system which are required to be oversized with respect to hydraulic capacity to supply more recycled water than the property owner, proponent or developer requires in accordance with District Code Chapter 17. The decision to enter into a reimbursement agreement shall be made by the District.

2.1.1. Pipe Size and Maximum Velocity

Flow of recycled water in the delivery system may not be constant and may continually vary from no flow to a maximum rate depending on demand and other conditions. Due to these varying conditions, transmission and distribution mains will be subject to cyclic surging. Its magnitude shall be minimized to keep the stress of the pipe, due to water hammer effects, within the design strength of the pipe by limiting the allowable operating velocity of the mains. Recycled water transmission and distribution mains shall be sized in accordance with the District's preliminary design of the expanded recycled water system shown in Figure 1. Variation from this preliminary design will require special permission from the District. Recycled water mains shall be sized based on a peaking factor of 11.5⁴ applied to the annual average recycled water demand rate, and a maximum pipeline velocity of 7 feet per second. Recycled water transmission and distribution mains shall be 6-inches in diameter or greater unless otherwise approved by the District.

Flow and sizing of offsite facilities shall be performed under the direction of the District. Substantiating engineering calculations for demands and pressures shall be prepared on a project-by-project basis. Application of recycled water on landscape areas using spray irrigation shall be typically limited to a period of 10 p.m. to 6 a.m. during irrigation seasons. Recycled water drip irrigation systems may be operated at any time.

2.1.2. Pressure Criteria

The District shall determine residential service pressure requirements and the responsible engineer shall design offsite facilities to meet these requirements. The operating pressure of the offsite recycled water system is anticipated to be in the range of 40 to 200 pounds per square inch (psi).

When reasonable recycled water service pressure is not available, the property owner,

⁴ This peaking factor is based on the irrigation schedule (10 p.m. to 6 a.m.) and 31 percent of the annual average recycled water demand (in acre-ft per day) occurring during the 30-day peak month irrigation demand season.

proponent, or developer is responsible for providing booster pumps to increase the pressure. A pressure regulator located downstream of the recycled water meter shall be installed by the owner, proponent, or developer to maintain the correct pressure for landscape irrigation at all times.

Recycled water pipelines shall be sized to deliver recycled water within the required pressure range at a minimum diameter of 6-inches or larger.

2.1.3. Depth of Pipeline Cover

The top of recycled water transmission pipelines should be a minimum of 36 inches below the finished street grade and one foot lower than potable water pipelines, unless otherwise approved by the District.

Typical water distribution system depths are described in Section SS-93 of the District's Standard Construction Specifications. In general, depths of cover are to range between 30 and 60 inches within roads of from the finished grade of roadway areas, unless specifically shown in Contract Drawings.

For areas that do not have public access or do not contain potable water or sewer pipelines (e.g., conveyance and distribution pipelines serving the Van Vleck Ranch), the recycled water transmission and distribution pipelines may be laid on the ground surface.

2.1.4. Pipeline Separations and Easement Requirements

Offsite recycled water mains shall typically be located in streets a minimum of three (3) feet from the curb face and on the opposite side of the street from the potable water mains. A minimum ten (10) foot horizontal separation and one (1) foot vertical separation shall be maintained at all times between a potable water pipeline and a parallel recycled water pipeline. If the required horizontal separation is not possible, the special construction requirements described in the District's Recycled Water Standard Drawing No. (Standard Detail) RW-3 (see Chapter 3) shall apply.

At crossings of potable water, recycled water, and/or sewer pipelines, pipelines should be located from the ground surface in the order of descending quality, with potable water above recycled water and recycled water above sewer pipelines. The minimum vertical separation should be one (1) foot between outside top and bottom surface of pipes and the full standard pipe length should either be centered over the crossing or the recycled water pipelines is installed in a sleeve which extends a minimum of ten (10) feet on either side of the potable water pipe.

If a one (1) foot vertical separation is not possible, the special construction requirements described in Standard Detail RW-3 apply.

Location within Easement

1. All recycled water mains not located within the public right-of-way shall be provided

within a minimum of a twenty (20) foot wide recycled water easement. In some cases a wider easement may be required; size shall be determined by the District.

2. Where recycled water and sewer mains are located within the same easement, the minimum easement size shall be thirty (30) foot wide.
3. Where potable water, sewer, and recycled water mains are located within the same easement, the minimum easement shall be forty (40) foot wide.
4. Easements shall be easily accessible to District maintenance equipment. Access shall be unobstructed with all-weather driveways.
5. No trees, plantings, structures or building overhang shall be located within the easement.
6. Homeowners who purchase property containing a District easement will be responsible for the maintenance and accessibility of that easement property.

2.1.5. Identification

All new recycled water pipe shall be permanently marked to identify that it contains recycled water by labeling either using purple-colored (Pantone 512) adhesive Mylar PVC tape along the entire length of the pipe or using non-metallic pipe manufactured with purple integral to the material. For either method, the identification system shall be installed so the wording below is clearly visible.

Purple-colored pipe shall be embossed with the words: "CAUTION: RECYCLED WATER -- DO NOT DRINK -- AVISO -- NO ES PARA BEBER" on opposite sides of the pipe and repeated every three feet. Piping must be laid in the trench with wording facing upwards. All marking and coloring shall be durable enough to be easily recognizable and legible for the design life of the pipe.

If tape is used to label the pipe, it shall have black printing on a purple field (Pantone 512 or equivalent) with the words: "CAUTION: RECYCLED WATER -- DO NOT DRINK -- AVISO -- NO ES PARA BEBER" in one (1) inch minimum lettering. The overall width shall be a minimum of three (3) inches. The tape shall be installed on the top of the pipe longitudinally and centered. The tape shall be continuous in its coverage of the pipe and fastened to each pipe section no more than ten (10) feet apart. Taping attached to sections of pipe before being placed in the trench shall have overlaps sufficient for continuous coverage.

When potable water is being supplied to an area which is also being supplied with recycled water, the new potable water transmission or distribution pipelines, including service pipelines, shall also be identified. A color-coded tape, as determined by the District, with the words "Drinking Water Line" shall be fastened directly to the top of the potable water pipe and run continuously the entire length of the pipe. This tape shall be at least three (3) inches in width. The color code for potable water shall be determined by the District to differentiate it from recycled water.

Valve boxes shall be heavy-duty traffic rated and of a size and type designed for the appropriate type and size of valve. Valve boxes for traffic service shall be of precast concrete, and shall have a cast iron triangular face and a cast iron triangular traffic lid. Valve boxes out of traffic areas shall also be of precast concrete, with a cast iron triangular lid. All new recycled water valve covers shall have a recognizable "RW" inscription cast or otherwise permanently marked on the top surface as shown on Standard Detail RW-5. All riser pipes for recycled water valves and blow-off assemblies shall be purple piping.

All new exposed or above-ground equipment, such as valves, blow-off assemblies, and other appurtenances shall be color-coded purple (Pantone 522) and identified using recycled water identification tags. Tags shall be UV resistant and weatherproof plastic, 3-inch by 4-inch, purple in color with the words: "CAUTION: RECYCLED WATER – DO NOT DRINK," on one side and "AVISO -- NO ES PARA BEBER" on the other. Imprinting shall be permanent and black in color. One tag shall be attached to each valve as follows:

1. Attach to valve stem directly or with plastic tie wrap; or
2. Attach to solenoid wire directly or with plastic tie wrap; or
3. Attach to valve cover with existing valve cover bolt.

Where curb and gutter exists, or is to be constructed concurrently with the improvements, the location of each service shall be permanently indicated by stamping the letters "RW" in the curb directly above the pipeline where the service is perpendicular to the street centerline. Otherwise, the "RW" mark for a skewed or angling service shall be placed at a right angle to the end of the service. When recycled water services are installed in street with existing curb, the curb mark shall be placed at the time the service is installed to assure proper location. In new subdivisions when the services are installed before the curb is constructed, it shall be the Contractor's responsibility to establish the exact location of each service and to furnish this information to the curb and gutter subcontractor, if any, in order that he or she may place the "RW" in the curb after it is poured. In no case shall the "RW" be placed more than 6" from the service.

The Contractor shall also furnish this information to the Inspector. The Contractor may arrange with the Consulting Engineer for the subdivision, to resurvey and reestablish the end of each service before the curb and gutter is placed in lieu of the above requirements to insure that the "RW" is properly placed.

Cross-country mains must be isolated with valves in the public right-of-way and must be identified with locating posts at 500 foot intervals, at any angle point, and at the entrances to easements.

All runs of non-metallic recycled water pipe, including services, shall have a No. 10 gauge solid, soft drawn copper wire laid along the pipe to facilitate locating the pipe at a later date once it has been buried. The wire shall be stubbed up inside each valve box, and be placed as shown in the standard details. Continuity testing shall be conducted on each splice at all locations.

2.1.6. Pipeline Materials

Recycled water pipeline materials shall be either polyvinyl chloride (PVC) or ductile iron pipe and comply with the District's Standard Construction Specifications for potable water except as noted below.

A newly installed recycled water main or recycled water main that has been taken out of service for maintenance or repair shall be disinfected and sampled for bacteriological quality in accordance with American Water Works Association Standard C651-02. Samples from new mains shall be negative for coliform bacteria prior to the new mains being placed into service.

2.1.6.1. Certa-Loc Pipe and Fittings

The following material requirements apply specifically to those recycled water Use Areas that do not have public access or contain potable water or sewer pipelines (e.g., recycled water conveyance and distribution pipelines serving the Van Vleck Ranch).

- 6- through 12-inch diameter: SDR 32.5 Mainline Irrigation Pipe
- 4-inch diameter: SDR 21 Mainline Irrigation Pipe
- 3-inch diameter: SDR 17 Mainline Irrigation Pipe
- Fittings (3- through 12-inch): SDR 32.5 Mainline Irrigation and Schedule 80 PVC
- 40 mm K-Line portable lines with 8 sprinklers and pods per distribution line
- Nelson R2000WF Sprinklers
- Nelson Mini Regulator Drain Check Valve

2.1.6.2. Polyvinyl Chloride (PVC) Pipe and Fittings

2.1.6.2.1. PVC Pipe

PVC pipe shall conform to the requirements of AWWA C900, which covers PVC pipe in diameter sizes between four (4) and twelve (12) inches, or AWWA C905, which covers PVC pipe in diameter sizes fourteen (14) inches and larger. Outside diameter shall be manufactured to cast iron pipe equivalent. Each length of pipe shall be clearly marked with the following:

- Nominal size and O.D. base (e.g., 8" cast iron pipe size)
- Material code (e.g., "PVC 1120");
- Dimensional ratio (e.g., DR 14 where DR is equal to outside diameter divided by thickness);
- AWWA pressure class (e.g., PVC 200);

- AWWA designation (e.g., “AWWA C900” or “AWWA C905”);
- Manufacturer’s trade name and production record code, and
- Seal (mark) of testing agency.

The standard laying length shall be twenty (20) feet (plus or minus 1 inch) in all classes and sizes. A maximum of fifteen (15) percent may be furnished in random lengths of not less than ten (10) feet each.

One (1) gasket shall be furnished with each length of elastomeric-gasket bell-end pipe and two (2) gaskets shall be furnished with each coupling where couplings are used.

Pipe surfaces shall be free from nicks, scratches and other blemishes. The joining surfaces shall be free from gouges or other imperfections that might cause leakage.

2.1.6.2.2. Joint Mechanisms

The joints shall be either of the following:

- Integral wall – thickened bell end (bell and spigot with rubber gasket)
- Integral sleeve reinforced bell end
- Elastomeric gasket coupling

PVC solvent cement joints shall not be used on offsite pipelines or fittings.

2.1.6.2.3. Couplings and Fittings

Where couplings are used, they shall meet the requirements of AWWA C900 for PVC pipe sizes less than fourteen (14) inches in diameter or AWWA C905 for PVC pipe sizes fourteen (14) inches in diameter or larger. All testing shall be done by a certified testing laboratory with such testing available for inspection by the District. If requested by the District, the manufacturer shall supply a letter of certification attesting to their pipe meeting these specifications.

All fittings for PVC pipe twelve (12) inches in diameter and smaller shall be ductile iron compact fittings conforming to AWWA C153 Class 350. Fittings for PVC pipe fourteen (14) inches in diameter and greater shall be standard mechanical joint connections conforming to AWWA Standard C110 or restrained to the satisfaction of the District.

2.1.6.2.4. Physical Test Requirements

Inspection and testing by the manufacturer shall be in accordance with AWWA C900 for PVC pipe twelve (12) inches in diameter or less or AWWA C905 for PVC pipe fourteen (14) inches in diameter or larger. All testing shall be done by a certified testing laboratory with such testing available for inspection by the District. If requested by the District, the manufacturer shall supply a letter of certification attesting to their pipe meeting these specifications.

2.1.6.3. Ductile Iron Pipe and Fittings

- Pipe shall conform to AWWA C151 for both quality and strength. Each pipe shall include the letter “DI” or word “DUCTILE” to indicate the pipe material.
- Joints shall be of the rubber gasket push-on type conforming to the requirements of AWWA C111 and being of the “tyton” type designed for a working pressure of 250 to 350 psi.
- Fittings shall conform to AWWA C110.
- Unless otherwise approved by the District, the internal surfaces shall be lined with a uniform thickness of cement mortar and then sealed with a bituminous coating in accordance with AWWA C104. With the approval of the District, ductile iron fittings can be coated with fusion-bonded epoxy in accordance with AWWA C116.
- The outside pipe surface shall be protected with a polyethylene encasement furnished and installed in accordance with AWWA C105.

2.1.6.4. Service Lines

Except for identification (e.g., marking and embossing) service pipelines for recycled water shall confirm to District standard specifications for potable water, SS-89.

2.1.7. Valving

Valves shall be located in the main distribution system to facilitate repair, maintenance, servicing, and extension of the recycled water system. Valves are also used to isolate sections where serious leakage or pipe breakage may occur that may cause property damage and loss of a large volume of recycled water, if not repaired promptly.

Valves shall be located on all branches of the transmission and distribution mains. As a minimum, valves shall be installed on all new recycled water mains within the distribution system as follows:

1. No farther than 1,320 linear feet apart for all mains.
2. At each tee or crossing connection between mains. Valving shall be located within 100 feet of the tee or crossing connection with the primary main.

Dead ends for future expansion shall be provided with a valve and temporary two (2) inch blowoff. All taps to existing recycled water mains shall be provided with tapping valves.

All recycled water valves shall comply with the District’s Standard Construction Specification SS-86 except as noted below:

- All valves shall be located within a valve box as shown in Standard Detail RW-5 and have a recognizable “RW” inscription case or otherwise permanently marked on the top

of the surface.

- Valve box shall be installed over each buried valve stem to aid in locating and operating the valve.
- For valves buried in trenches greater than five feet below finished grade, either a valve stem riser to permit the use of a normal key or a notation on valve records indicating that a long key will be required shall be provided.

All valves and valve boxes shall be raised to grade within forty-eight (48) hours of final paving.

2.1.8. Blow-off Assemblies

In-line and end-of-line blow-off assemblies shall be installed to remove water or sediment from recycled water pipelines. At a minimum, blow-off assemblies shall be installed on low points of the recycled water pipeline; on all permanent dead-end runs, including cul-de-sacs; or at other locations required by the District. Recycled water blow-off drains shall be located within twenty-five (25) feet of sewer manholes. Preferably, recycled water blow-offs shall be aligned in the same traffic lane as the sewer manhole. The pipeline tap for the assembly shall be no closer than eighteen (18) inches from a valve, coupling, joint, or fitting unless it is at the end of the pipeline. The discharge from blow-off assemblies shall be designed to drain into a sewer. Discharge of recycled water to storm drains, natural drainages, water bodies, etc. is restricted.

Wherever possible, the blow-off assemblies shall be installed in the street right-of-way, a minimum distance of three (3) feet from the lip of the gutter. In no case shall the location be such that there is a possibility of back-siphonage into the recycled water distribution system.

See Standard Details RW-6A, RW-6B, RW-7A, and RW-7B for blow-off assembly materials, configurations, and other requirements. Typically, a two (2) inch blow-off assembly can be provided for recycled water pipelines up to twelve (12) inches in diameter, depending on the distance between assemblies. Larger diameter pipelines typically require a four (4) inch or six (6) inch blow-off assembly depending of the pipeline diameter and distance between assemblies.

All below ground appurtenances for blow-off and air and vacuum assemblies shall be consistently color-coded purple (Pantone 522) and marked to differentiate recycled water facilities from potable water and/or wastewater facilities.

Blow-off assemblies shall be installed as shown on Standard Details RW-6A, RW-6B, RW-7A, and RW-7B. The developer/contractor shall locate the blow-off vaults in a suitable location with respect to the adjacent properties. This shall include locating the vaults closer to property lines rather than in the middle of a property where there could be future objections from the property owner. The service line to the assembly shall have a positive grade to prevent the accumulation of air.

Dielectric connections with PVC tape wrap shall be provided at all connections between steel, brass, or bronze.

2.1.9. Combination Air and Vacuum Valves

Air valve assemblies are used to provide adequate ventilation during filling and draining of a pipeline, to permit the release of small quantities of air that would otherwise accumulate at high points in the pipeline, and to protect the pipeline from vacuum pressures caused by surge conditions or a pipe break. The location of air valves are generally determined by the topography of the pipeline system and, accordingly, should be installed at high points and at long downsloping gradients. Air valves should also be installed on the low side of the pipeline. These valves allow for air intake and release from that portion of the pipeline. Combination air and vacuum valves should also be placed down slope of a permanently closed valve separating two different pressure zones.

At a minimum, combination air and vacuum valves shall be placed at high points and/or at other locations required by the District for recycled water pipelines twelve (12) inches in diameter and larger. For recycled water pipelines on very steep slopes and for pipelines twelve (12) inches in diameter and larger, calculations to determine the size of combination air and vacuum valves are required. Air valve assemblies for pipelines twelve (12) inches in diameter and smaller may be excluded if a manual air release is located near the high point. In general, a one (1) inch combination air and vacuum valve, automatic type, is adequate for recycled water pipelines up to twelve (12) inches in diameter.

Combination air and vacuum valves shall be sized for the air evacuation rate associated with maximum recycled water discharge rates at affecting blow-offs in accordance with the valve manufacturer's recommendations. However, in no case may the design differential pressure for air entering the pipeline being greater than 5 psi or the differential pressure which could collapse the pipeline using the factor of safety recommended in AWWA M11. The drawings and specifications must state the design pressure range for each combination air and vacuum valve.

Combination air release assemblies shall be installed as shown on Standard Detail RW-9. The developer/contractor shall locate air release vaults in a suitable location with respect to the adjacent properties. This shall include locating the vaults closer to property lines rather than in the middle of a property where there could be future objections from the property owner. Each new air-release, air vacuum, or combination valve, and any such valve installed shall be:

1. Installed such that its vent opening is above the calculated 100-year flood water level and, if recorded data are available, above the highest recorded water level.
2. Readily accessible for inspection, maintenance, and replacement.
3. Constructed and designed to prevent exposure to rainwater or runoff, vandalism, and birds, insects, rodents, or other animals.
4. Fitted with a downward-facing screened vent or a domed and screened cap.
5. Installed pursuant to American Water Works Association Standard C512-04 and Manual M51 (2001).

Dielectric connections with PVC tape wrap shall be provided at all connections between steel, brass, or bronze.

2.1.10. Design for Proper Flushing

Proper flushing of recycled water transmission and distribution mains and the prevention of sediment buildup are important aspects of the District's maintenance program. Therefore, the following criteria apply:

- Low points in the pipelines shall be eliminated wherever possible to prevent sediment accumulation.
- Piping systems shall be looped wherever possible. Dead-end pipelines may be approved by the District on a case-by-case basis.

2.1.11. Booster Pumping Stations

Booster pumping stations are required to increase the operating pressure downstream of recycled water storage tanks shown in Figure 1. These stations must be clearly identified as recycled water and designed to avoid the release of recycled water in an uncontrolled manner while providing proper drainage of the packing seal water. All pumps used to distribute recycled water shall be capable of automatically shutting down in case of over-current to minimize the potential for recycled water spills. For example, in the event of a pipe failure, the pump will run outside its curve, setting an over-current alarm which will subsequently shut down the pump.

At least one sign must be posted on the booster pump station premises. The signage must be readily seen by all operations personnel that are in the working area (see Standard Detail RW-18). The District may require backflow prevention assembly to protect the recycled water distribution system from back pressure that may be caused by using booster pumps. Any potable water used as seal water for the recycled water pumps must be adequately protected against backflow.

Recycled water booster pumping stations are considered to be specialized facilities. The design of a booster pumping station must be reviewed and approved in writing by the District prior to construction.

2.1.12. Storage Tanks

Storage tanks may be required to supplement recycled water supply during the peak month irrigation season and provide backup supply. Recycled water storage tanks may have a potable water connection for supplementation. In all cases and under all circumstances, an approved air gap separation must be provided between the storage tank and the potable water discharge point (see Standard Detail RW-17). A copy of the proposed air gap assembly plans shall be submitted to the District review and approval prior to construction.

Each recycled water storage tank must be clearly identified as recycled water with the words: "RECYCLED WATER – DO NOT DRINK" as shown in Standard Detail RW-18.

A newly installed recycled water storage tank or recycled water storage tank that has been taken out of service for repair or inspection shall be disinfected and sampled for bacteriological quality in accordance with American water Works Association Standard C652-02. If the results of the bacteriological sampling are positive for coliform bacteria, the storage tank shall be resampled for bacteriological quality and the test results shall be submitted to the Department for review and approval before the storage tank is placed into service.

Where potable water is to be used for makeup to a recycled water storage tank, the flow must be controlled from the remote supervisory control and data acquisition (SCADA) system. Flow and pump run, stop, and/or fail status information, where applicable, must be available at the remote SCADA system. In addition, the water level in each recycled water storage tank must be monitored continuously and made available to the SCADA system.

Recycled water storage tanks are considered to be specialized facilities. The design of a recycled water storage tank must be reviewed and approved in writing by the District prior to construction.

2.1.13. Temporary/Emergency Connections to the Potable Water System

Prior to recycled water being available, potable water will be supplied in lieu of recycled water via the recycled water distribution system and service pipelines until golf course irrigation demands are completely satisfied by recycled water. Once the District has sufficient recycled water supply, all parcels connected to the recycled water system shall accept recycled water. The District shall notify in advance their schedule for furnishing the recycled water subsequent to the applicant's construction.

If, in the opinion of the District an emergency exists, or is threatened to occur, whereby all or a portion of the recycled water system is not available, the District may approve a temporary connection to the potable water system. Such a temporary connection shall be made in accordance with these Standards. The decision to allow temporary service to the potable water system shall be at the sole discretion of the District and the District shall maintain and operate all such connections.

Before such temporary connection is made, the portion where potable water is to be supplied shall be isolated by an air gap separation from the remainder of the recycled water system. This isolation shall occur at either individual services or on the offsite system, as determined by the District. An approved backflow prevention device shall be installed on the potable water lines in accordance all applicable regulations. The emergency connection shall be removed before connection is re-established to the recycled water system. Re-establishment of recycled water service must be inspected and approved by a District inspector prior to resuming delivery of recycled water.

2.1.14. Swivel EII Connections

When the recycled water supply is temporarily unavailable, potable water may be used as an emergency source of supply. This is acceptable only in cases where there is an unplanned, short-term interruption of recycled water service. No concurrent use of the potable water supply

and the recycled water supply will be allowed. In areas where a storage tank with an appropriate air gap from potable water supplementation is not provided for the recycled water system, a swivel connection could potentially be used to allow augmentation with potable water. The potable water supply must never be directly connected to the recycled water supply. To ensure that this requirement is achieved, a swivel ell connection (see Standard Detail RW-20) could be used on a temporary basis to preclude connecting both water and recycled water sources to the distribution system or Use Area at the same time.

CDPH Policy Memo 2003-03, dated May 7, 2003 describes the requirements for swivel ell connections (see Appendix B). The design, maintenance, and operation of swivel ell connections shall be in compliance with the Policy Memo 2003-03. A copy of the swivel ell connection detail shall be submitted to the District for review and approval.

Swivel ell connections and details are illustrated in Standard Detail RW-20. In an emergency, the swivel ell is switched from the normal recycled water connection to the potable connection. This procedure is reversed once recycled water service is restored. The potable water supply must be protected by a reduce pressure principle backflow preventer. In no case will it be acceptable for the potable supply to be directly connected to a recycled water supply.

2.1.15. Materials, Installation and Testing

All pipe used in the construction of the offsite recycled water system shall be the regular product of a firm which has successfully manufactured comparable pipe for at least 3 years. The District will maintain a listing of approved materials for the various recycled water system components which establish a standard of quality. Materials used shall be limited to those on this listing. Alternative materials may be added to this list upon review and/or testing by the District.

All pipes, valves, fittings and appurtenances shall be installed and tested in accordance with District's Standard Construction Specification SS-93 Water Systems Installation. Recycled water piping shall be tested using potable water with an approved backflow prevention device. Disinfection is not required for recycled water mains unless the pipelines will be temporarily used as a potable water main as determined by the District.

After completion of the testing, the Contractor shall thoroughly flush all water from the pipeline to remove debris from the pipeline in accordance with the District's flushing procedures. The Contractor is responsible for proper disposal of the flush water in a manner that will not cause damage and/or nuisance to the environment and is in compliance with Federal, State, and District regulations.

2.2. Onsite Recycled Water Facilities

Onsite recycled water facilities are defined as those facilities which are owned and operated by private or public entities. All potential onsite uses of recycled water shall be reviewed and approved by the District. If recycled water is to be used, the facilities shall be designed and constructed in accordance with the provisions set forth herein. Where a unique situation exists that is not covered by onsite specifications, offsite specifications may apply as determined by the District in addition to Federal, State, and local regulations regarding recycled use.

Recycled water landscape irrigation areas shall be constructed pursuant to the California State Building Codes otherwise known as the “CalGreen Code” and equipped with District-approved water efficient irrigation controllers and equipment pursuant to the CalGreen Code and be USEPA WaterSense labeled products.

2.2.1. Temporary Potable Water Service

Where recycled water is not immediately available for use when the onsite Use Area is completed, and if the District has determined that recycled water will be supplied in the future, the onsite facilities shall be designated to use recycled water and designed and constructed to the District Standards set forth herein. Provisions shall be made as directed by the District to allow for recycled water service when it becomes available. In the interim, potable water will be supplied to the recycled water facilities through a temporary potable water connection. A backflow prevention device (see Standard Details RW-23 and RW-24), approved by the District, will be required as long as the onsite facilities serve potable water. The backflow prevention device shall be located downstream of the recycled water meter and be a part of the onsite facilities. When recycled water becomes available, the backflow prevention device will be removed by the User, with coordination and approval of the District, and the onsite facility reconnected to the recycled water meter.

2.2.2. Depth of Pipeline Cover and Vertical Separation

On new systems, potable water, recycled water, and sewer pipelines should be located from the ground surface in order of descending quality. Potable water shall be above recycled water which should be above sewer. Minimum vertical separation should be one (1) foot between top and bottom surfaces of crossing pipes. Exceptions to this general rule are as follows:

- On landscape irrigation systems where intermittently pressurized recycled water pipelines (laterals) serve sprinkler heads, crossing potable water pipeline(s) may be placed under the recycled water laterals. No special construction requirements are necessary provided that one (1) foot vertical separation is maintained.
- On sites using pressurized irrigation laterals with valve-in-head sprinklers, crossing potable water pipeline(s) may be placed under the recycled water laterals if additional protection is provided for the potable pipeline. Common practices include sleeving (see Section 2.1.4) or automatic flow control/shut off devices installed and functioning properly on each lateral that crosses a potable pipeline.

Drip lines shall be installed four (4) inches below finished grade unless otherwise specified and approved by the District.

2.2.3. Horizontal Pipe Separations

Recycled water pipelines shall be installed with the greatest possible horizontal separation from potable water pipelines. A ten (10) foot separation of the recycled water pipeline shall be maintained at all times between potable water or sanitary sewer pipelines. If a ten (10) foot separation is not possible, the approval for special construction requirements shall be obtained from the District prior to commencement of construction. In any event, a horizontal separation

less than 4 feet shall not be allowed. Common trench construction shall not be permitted.

2.2.4. Identification

New onsite pipelines shall be identified as recycled water pipes by using a purple color code (Pantone 512) differentiating them from potable water piping. All recycled water valves and appurtenances must also be appropriately labeled.

All subdivisions approved for recycled water use shall be posted with precautionary signs as shown on Standard Detail RW-16.

When converting an existing water service to recycled water usage, the affected water pipelines shall be located and tested in coordination with the District to ensure isolation from the potable water system. All necessary actions will be taken to bring the water pipelines into compliance with these Standards. It is not necessary to provide identification of all existing buried pipelines, unless verification of isolation from the potable water system cannot be confirmed by the Cross-Connection test. Any existing buried pipelines that are uncovered shall be identified prior to use. The existing water facilities must have the approval of the District prior to initiating recycled water service.

The use of purple colored pipe (Pantone 512), with the words "CAUTION: RECYCLED WATER- DO NOT DRINK – AVISO -- NO ES PARA BEBER" embossed or integrally stamped/marked on new pipe is the preferred method of identification. Continuous sleeve is an acceptable alternative to the colored pipe. This warning shall be stamped/marked on opposite sides of the pipe, repeated every three feet.

A continuous polyethylene sleeve shall be installed on all new recycled water pressure and/or non-pressure pipelines if purple colored pipe is not available. A purple sleeve with black lettering stating "CAUTION: RECYCLED WATER-- DO NOT DRINK – AVISO -- NO ES PARA BEBER" shall run continuously the entire length of the pipe. Each sleeve should overlap the next section a minimum of twenty (24) inches and should be secured at each sleeve joint.

All connections, temporary and permanent, to a recycled water system shall be identified in such a manner as to differentiate them from connections to a potable water system.

When potable water is being supplied to an area which is also being supplied with recycled water, new potable water pipelines shall also be identified. A color-coded tape, as determined by the District, with the words "DRINKING WATER LINE" shall be fastened directly on the top of the potable water pipe and run continuously the entire length of the pipe. This tape shall be at least three (3) inches in width. The color code for potable water shall be determined by the District to differentiate it from recycled water.

All backflow prevention devices and gate, manual control, electrical control, and pressure reducing valves for onsite recycled water systems shall be installed below grade in an approved purple valve box. All valve boxes shall have a warning label permanently molded into or affixed onto the lid. A tag reading "CAUTION: RECYCLED WATER-- DO NOT DRINK – AVISO -- NO ES PARA BEBER" shall be installed on each valve or device as shown in Standard Detail RW-

21.

All irrigation rotors, sprays, drip heads, spray heads and drip lines shall be easily recognized as being used in a recycled water system as shown in Standard Detail RW-31. All sprinklers shall be equipped with purple identifier caps or collars.

2.2.5. Pipeline Materials

All onsite irrigation piping materials shall be in accordance with the latest edition of the California Plumbing Code and all other local governing codes except as noted below.

All piping shall be continuously and permanently marked with the manufacturer's name or trademark, nominal size, and schedule or class indicating the pressure rating. All onsite irrigation piping shall be purple PVC pipe in accordance with the requirements specified herein.

The minimum class or schedule of purple PVC piping and fittings shall be as follows:

- PVC constant pressure piping 2 inch diameter and larger: Solvent weld joint, PVC Class 315. PVC pipe shall conform to CSI 256 and ASTM D 2241 in accordance with Section 20 of the County of Sacramento Standard Construction Specifications.
- PVC constant pressure piping 1-1/2 inch diameter and smaller: Solvent weld joint, PVC Schedule 40. PVC pipe shall conform to CSI 256 and ASTM D 2241 in accordance with Section 20 of the County of Sacramento Standard Construction Specifications.
- PVC intermittent pressure piping: Solvent weld joint, PVC Class 200. PVC pipe shall conform to CSI 256 and ASTM D 2241 in accordance with Section 20 of the County of Sacramento Standard Construction Specifications.
- PVC fittings: PVC Schedule 40 solvent weld and factory manufactured or Schedule 40 with rubber-ring joint.

Minimum marking requirements for constant pressure piping in pounds per square inch (psi) at 73 degrees; ASTM designations such as 1785, 2241, 2672, 3139; and printing shall be placed continuously on opposite sides of the pipe.

2.2.6. Service Pressure and Pressure Reducing Valve Requirements

The District's recycled water system is designed to provide recycled water at pressures between 40 (minimum) and 200 psi depending on where the recycled water service connection is located. Landscape irrigation designers should contact the District to determine the pressure available at their specific Point of Connection. Onsite facilities shall include a recycled water pressure reducing valve (PRV) to protect the system against excess pressures that may occur during the daily operations of the District's system. The size of the PRV shall be the same size as the meter that provides recycled water service. The PRV shall be installed immediately downstream of the recycled water meter in accordance with Standard Detail RW-25. Exceptions must be approved in writing by the District prior to installation.

Irrigation operating pressures should be maintained near 30 psi, or per manufacturer's specifications, to eliminate misting and run-off potential.

All recycled water customers shall hold the District harmless from any and all damages and liabilities caused in whole or in part by pressure conditions, recycled water quality variations, or interruptions in service.

2.2.7. Strainers

Depending on the quality of the recycled water and type of storage utilized, strainers may be required at the User's recycled water meter. Strainers of the following types are generally satisfactory:

- Wye Strainers: Not recommended for below ground (in vaults) installations.
- Basket Strainers: Suitable for above or below ground (in vaults) installations.
- Filter Strainers: Normally used above ground on drip irrigation systems.

Strainers are normally the same size as the pipeline and should generally be installed downstream of the meter.

- Before Meter Installation: Installation before the recycled water meter should only be used where protection of the meter as well as the onsite system is necessary, as determined by the District.
- After Meter Installation: Installation may be provided after the meter to benefit the onsite system, and maintenance in this case is the responsibility of the User, not the District. However, it should be determined in advance whether there is a potential for debris in the recycled water that would plug the meter.

Strainers can range in mesh size from 20 to 325. A mesh of 80 is the minimum allowable. An analysis of potential debris will aid in prescribing the optimum size. In order to reduce maintenance requirements, material that will not plug onsite landscape irrigation equipment and spray nozzles should normally be allowed to pass.

2.2.8. Backflow Prevention and Cross-Connection

Backflow prevention devices are not normally required on recycled water systems, but shall be installed for temporary potable water service as described in Section 2.2.1 or on a case-by-case basis as required by the District if a potential for back-siphonage or backpressure of recycled water exists.

Backflow prevention devices are required on potable water connections for all landscape irrigation systems. A double check valve assembly (DC) is required to be installed on the potable water system downstream of the water meter in accordance with Standard Details RW-

23, RW-24, and RW-27 for all residential recycled water customers. Other types of backflow prevention devices, such as reduced pressure principal backflow prevention device (RP) and air gap separations, may be required for other landscape irrigation uses. Regulations governing backflow prevention devices are intended to protect the District's potable water supplies and are not intended to protect users from potential hazards of Cross-Connections in onsite Use Areas.

Backflow prevention devices for potable water supply shall be provided by the User and comply with the current version of the County of Sacramento Standard Construction Specifications (see Section 50-43.25). Provision, installation, maintenance, and inspection of backflow prevention devices shall be the sole responsibility and duty of the User, and at the User's expense. Inspection of backflow prevention devices shall be performed at least once a year in accordance with Title 17 of the California Code of Regulations, or more often in those instances where successive inspections indicated repeated failures.

Provided that the District has personnel who are certified to perform annual testing of the backflow prevention device, upon the User's request, the District will perform the annual testing on a time-and-material basis charged to the User and collectible as any other District fee. Otherwise, the annual backflow testing shall be performed by a certified third party vendor.

2.2.9. Control of Runoff, Ponding, and Overspray in Application Areas

Conditions that directly or indirectly cause runoff or windblown spray to pass outside of approved recycled water Use Areas or cause ponding or overspray of recycled water whether by design, construction practice, or system operation shall be eliminated or controlled to the greatest extent possible through the use of the following Best Management Practices (BMPs):

- Proper design, selection, operation, and maintenance of sprinkler heads.⁴
- Implementation of operations and management plans that provide for detection of leaks, and correction within 72 hours of learning of a leak or prior to the release of 1,000 gallons.⁵
- Refraining from application during precipitation events.⁴
- Management of any impoundment such that no discharge occurs unless the discharge is a result of a 25-year, 24-hour storm event or greater. In the event of an unauthorized discharge, the Executive Officer of the appropriate Regional Board shall be notified in writing within thirty (30) days.⁴

Areas irrigated with recycled water shall be managed to prevent ponding and conditions conducive to the proliferation of mosquitos and other disease vectors, and to avoid creation of a public nuisance or health hazard. The following practices shall be implemented, at a minimum:

⁵ One of the four required Administrator BMPs as required by Recycled Water Specification B. 15 of WQO No. 2009-0006-DWQ

1. Irrigation water must infiltrate completely within a 48-hour period.
2. Ditches receiving irrigation runoff, not serving as wildlife habitat, shall be maintained free of emergent, marginal and floating vegetation.
3. Low-pressure and unpressurized pipelines and ditches that may be accessible to mosquitos shall not be used to store recycled water.

For control of runoff and control of the areas to which recycled water is applied, the design of the irrigation system shall conform to the following:

1. No irrigation with recycled water shall take place within fifty (50) feet of any domestic water supply well unless specific conditions have been met as per Title 22, Section 60310 (a) of the California Code of Regulations.
2. No impoundment of recycled water shall occur within one hundred (100) feet of any domestic water well.
3. In conformance with Title 22 of the California Code of Regulations, all piping and irrigation shall be designed so that spray or runoff shall not enter a dwelling or food handling facility and shall not contact any drinking water fountain. Drinking water fountains shall not be located in landscaped areas irrigated by recycled water spray-type irrigation devices. Concrete patios, walls, shrubbery irrigated by drip or bubbler systems, or other barriers shall be used to physically separate drinking fountains from areas irrigated with recycled water by spray-type devices.
4. All piping and irrigation shall be designed so that spray or runoff shall not enter a pool. A five foot (minimum) setback shall be provided between the edge of a pool and irrigation system using recycled water.
5. Onsite facilities shall be designed not to exceed the evapo-transpiration requirements for the types of plants used, with standard and reasonable allowances for irrigation inefficiencies and storage of moisture in the soil column. The use of automatic weather- or soil moisture-based irrigation system controllers to automatically adjust the amount of applied irrigation water is mandated in accordance with the CalGreen Code.
6. Onsite recycled water facilities shall be designed to prevent discharge of recycled water outside of the designated Use Area. Part circle sprinklers shall be used adjacent to pools, roadways, and property lines to confine the discharge from sprinklers to the Use Area.
7. The design of onsite recycled water irrigation facilities shall provide for watering periods that minimize the potential for human contact. Spray irrigation is prohibited between the hours of 10:00 p.m. and 6:00 a.m. Additional prohibitions shall be as directed by the District.

8. Where practical, drip irrigation and/or bubblers should be used instead of spray irrigation to reduce drift.
9. Recycled water shall not be allowed to escape from the designated Use Areas as surface flow that would either pond and/or enter waters of the State.
10. The peak rate at which recycled water is applied shall not exceed the infiltration rate of the soil. Where varying soil types are present, the design of the peak rate of application of recycled water shall be compatible with the lowest infiltration rate present. Copies of the Applicant's soil test reports shall be made available to the District upon request. No recycled water shall be applied to the irrigation area during periods when soils are saturated.
11. No onsite facilities shall use or install hose bibs or quick connectors on a recycled water system regardless of style, construction, or identifications.
12. Fire hydrants or other connections for fire services shall not be installed on any onsite system.

2.2.10. Prohibitions and Limitations

Design of onsite recycled water residential irrigation facilities shall conform to the following:

1. The recycled water system shall be separate and independent of any potable water system. Cross-Connections between potable water facilities and recycled water facilities are prohibited.
2. Hose bibs or quick connectors on recycled water facilities are prohibited. Where potable water is used onsite, potable water hose bibs must be attached to the house.
3. Patios, swimming pools, spas, etc. shall be protected from the spray of recycled water.
4. Overspray and runoff shall be limited or prevented. Irrigate in a manner that will minimize runoff, pooling, and ponding.
5. Potable and recycled water pipelines must maintain required separation at all times.
6. Recycled water shall not be used for any other purposes other than landscape irrigation.
7. The system shall be designed to irrigate the onsite turf areas within the hours of 10:00 p.m. and 6:00 a.m. Drip systems may operate at any time.

2.2.11. Permit Procedure for Recycled Water Service

Every site where recycled water is to be used for landscape irrigation must obtain a Recycled Water Permit prior to receiving service from the District. Permits will be issued after the applicant has met the following permit requirements:

1. Attendance at District-sponsored Recycled Water Orientation
2. Submission of Application for Recycled Water Permit and Recycled Water Plan
3. Recycled Water Plan preparation and approval by the District
4. Installation of recycled water irrigation system consistent with District Standards
5. District inspection and approval of exposed landscape irrigation system
6. Construction completion and successful completion of District final site inspection including backflow prevention device, coverage, and Cross-Connection testing
7. Submission of as-built Recycled Water Plan

Following Recycled Water Permit issuance, a site may receive recycled water in accordance with these Standards. If the system is found to be inconsistent with these Standards, the District will advise the applicant on corrective actions. A site inspection will be scheduled after a reasonable period to ensure compliance.

2.2.11.1. Recycled Water Orientation

A potential customer must attend an orientation prior to initiating landscape design or installation. This orientation is designed to explain the District's recycled water guidelines, uses, requirements, and the process by which recycled water service can be achieved. Applicants as well as designers and contractors working in dual-plumbed subdivisions are required to attend a District orientation. All designers and contractors are required to attend the orientation every 24 months.

A schedule of the upcoming recycled water orientations will be posted on the District's website.

2.2.11.2. Application of Recycled Water Permit

Applicants meeting the requirements for recycled water service shall file an application for recycled water service with the District on a standard form provided by the District for that purpose (see Appendix C for sample Application for Recycled Water Permit).

The application form shall contain detailed information concerning the application as follows:

1. The name of the property or development that will be irrigated with recycled water.
2. The applicant's relationship to the property for which recycled water service is requested. In cases where the applicant is not the legal owner of the property, the legal owner shall consent to the application on a supplemental notarized form.
3. The address, legal description, and parcel number of the property covered by the application.
4. The proposed use of recycled water within defined designated Use Area on the property.

5. The current source of irrigation water (if any).
6. The estimated service requirements for recycled water (i.e. pressure and flow).
7. The designation of a proposed applicant's Site Supervisor.
8. Any special condition for service pursuant to these Standards.

2.2.11.3. Recycled Water Plan

Completed construction drawings for all recycled water landscape irrigation systems must be submitted to the District for review and approval prior to construction. Each application for a Recycled Water Permit shall be accompanied by three (3) hardcopy sets and one (1) electronic set of the irrigation plan and specifications depicting the proposed onsite landscape irrigation system and Use Area. Plans shall be 8 ½" by 11" or 11" by 17" in size. The design of the onsite landscape irrigation system shall be prepared under the direct supervision of a responsible registered landscape architect or civil engineer in the State of California.

The District will review the submittal and will return one set with a description of the required corrections (if needed) within fifteen (15) working days.

The irrigation plan shall delineate the proposed recycled water Use Area, recycled water meter location, size and type of all recycled water service connections and onsite facilities. The plans shall include the layout of existing and proposed potable water and sewer pipelines and facilities including any areas in which recycled water must be specifically excluded.

2.2.11.3.1. Information on Recycled Water Plans

The following information shall be provided on the plans for every customer applying for recycled water service:

1. Information specified in the standard application form provided by the District for that purpose (see Appendix C for sample Application for Recycled Water Permit)
2. Standard notes as defined below in Section 2.2.11.3.4
3. Recycled water meter size (inch diameter). The size of the recycled water meter serving a premise shall be approved by the District in advance of service. The standard size recycled water meter serving a townhouse lot, or equivalent, shall be a 5/8 inch or 3/4 inch meter, for all other residential lots, it shall be a 3/4 inch or 1 inch meter
4. Irrigated area to be served through the recycled water meter (square feet or acres)
5. Peak flow through the recycled water meter (gpm)
6. Estimate of the yearly recycled water requirement (acre-ft or hundreds of cubic feet)
7. Service pressure required at the recycled water meter as provided by the District in

pounds per square inch (psi)

8. Topographic contours of the Use Area, or if not available, sufficient information to determine elevation differences within the Use Area served by the recycled water meter
9. Direction of overland drainage pattern
10. Location and description of wells (if applicable)
11. Boundary location of 100 year flood plain (if applicable)
12. Vertical and horizontal location of potable water and storm drain pipelines, fire hydrants, pools, drinking fountains, and sanitary sewers within recycled water metered service area

2.2.11.3.2. Information Required for Recycled Water Irrigation Systems

The following information regarding the materials used for the landscape irrigation system shall be included on the Recycled Water Plan:

1. A pipe schedule listing pipe sizes and materials of construction
2. Valve types and/or sizes
3. The following information for each type of sprinkler head:
 - a. Sprinkler radius (feet)
 - b. Operating pressure (psi)
 - c. Flow [gpm or gallons per hour (gph)]
 - d. Sprinkler pattern
 - e. Manufacturer, model number and all pertinent information
4. Drip irrigation information and all pertinent information
5. Estimate of application rate, acres to be irrigated, soil texture and soil infiltration rate, and information on pressure requirement, hourly delivery rate, and the wetting pattern of sprinklers

2.2.11.3.3. Information to Be Called Out On Plans

Exterior drinking fountains, pools, and potable water hose bibs shall be shown and called out on the plans. If no exterior drinking fountains or pools are located in the Use Area, then it shall be explicitly stated on the plans that none exist.

2.2.11.3.4. Standard Notes for Inclusion on Recycled Water Plans

As a minimum, provide the following notes as applicable on the Recycled Water Plan under the heading “*Recycled Water General Notes – Rancho Murieta Community Services District*.”

1. All work shall be done in accordance with Rancho Murieta Community Services District’s Recycled Water Standards and Standard Construction Specifications. The installation of the landscape irrigation recycled water system shall be accomplished under the approval, inspection, and to the satisfaction of the Rancho Murieta Community Services District (District).
2. The District will inspect the construction of recycled water landscape irrigation installations prior to backfilling. The District shall be provided forty-eight (48) hours advance notice, excluding Saturdays, Sundays, and District holidays, of the desired inspection date by the owner or the owner’s representative at (916) 354-3700. In no case shall landscape irrigation pipelines be backfilled before inspection by the District.
3. After installation of the recycled water and potable water service, backflow prevention, Cross-Connection, and coverage tests and final inspection of the irrigation system shall be performed as directed by the District. The Applicant shall arrange with the District for testing and final irrigation system inspection. The District shall be provided forty-eight (48) hours advance notice, excluding Saturdays, Sundays, and District holidays, of the desired inspection date at (916) 354-3700.
4. An annual inspection shall be performed by the District. These inspections may include:
 - a. Site inspection and record check to determine if significant changes to the irrigation system have occurred since the last inspection and establish that the Use Area is still in compliance with the Standards.
 - b. Irrigation system coverage test and functional operation test to verify that the irrigation system is being maintained in the proper manner and that overspray, ponding and runoff are being controlled.
 - c. Verification that Site Supervisor certification is current and that backflow device certifications are also current.
5. The User shall be responsible for providing access to and cooperation with the District inspector to perform all testing and inspections.
6. Recycled water shall not be used for any purpose other than landscape irrigation.
7. There shall be no direct connections between the potable and recycled water systems.
8. Hose bibs and quick connectors are prohibited on the recycled water system. Water used in hose bibs shall be potable water and hose bibs shall be attached to the house.

9. The potable water system shall be protected by a District approved backflow prevention device.
10. The recycled water landscape irrigation system shown on these plans may use potable water until the District makes recycled water available to this site. In these instances, a District approved backflow prevention device has been provided on the recycled water system to protect the potable water system.
11. A minimum of ten (10) feet horizontal separation must be maintained at all times between pressurized recycled and potable water pipelines. A minimum of one (1) foot vertical separation must be maintained at all times between the pressurized recycled and potable water pipelines with the recycled water pipeline below the potable water pipeline. If a pressurized recycled water pipeline must be installed above a potable water pipeline or less than one (1) foot below a potable water pipeline, then the recycled water pipeline shall be installed in a protective sleeve. The sleeve shall extend ten (10) feet from each side of the centerline of the potable water pipeline, for a total of twenty (20) feet.
12. Recycled water piping shall be purple (Pantone 512) and identified as recycled water pipes by continuous marking on opposite sides. The markings shall include the following: "CAUTION: RECYCLED WATER -- DO NOT DRINK -- AVISO -- NO ES PARA BEBER", nominal pipe size, pressure rating, and ASTM and/or AWWA designations. All recycled water piping shall be installed with stenciling oriented toward the top of the trench.
13. All recycled water sprinkler control valves, isolation valves, regulators and other devices shall be tagged. Identification tags shall be weatherproof purple plastic, 3-inches by 4-inches with the words: "CAUTION: RECYCLED WATER -- DO NOT DRINK -- AVISO -- NO ES PARA BEBER". Imprinting shall be permanent and black in color. Use tags manufactured by T. Christy Enterprises or approved equal.
14. All spray heads shall be identified with weatherproof purple plastics rings or equivalent identification. Contractor shall adjust sprinkler heads to prevent overspray onto adjacent hardscapes (e.g., sidewalks, patios, walkways, streets, etc.) or into pools.
15. The hours for sprays irrigation with recycled water shall be from 10:00 p.m. to 6:00 a.m., unless otherwise approved by the District.
16. Failure to comply with any of the District's Standards may result in termination of recycled water and/or potable water service.

2.2.11.4. District Review of Recycled Water Plans

The submission of a Recycled Water Plan is required to ensure that the proposed use of recycled water conforms to the approved uses and Standards. Fifteen (15) working days should typically be allowed for review and processing. If the Recycled Water Plan is approved, the District will mail notification to the designer and Applicant.

Upon approval of the recycled water plan, an open trench inspection may be scheduled by contacting the District at (916) 354-3700. A minimum of forty-eight (48) hours advance notice, excluding Saturdays, Sundays, or District holidays is required.

2.2.11.5. Irrigation System Installation

Upon approval of the Recycled Water Plan, the contractor may proceed with the installation of the proposed irrigation system in accordance with the District's Standards and the approved Recycled Water Plan.

If the landscape irrigation system is installed prior to Recycled Water Plan approval and/or open trench inspection, all or any portion of the system must be exposed and corrected as directed by the District. Failure to comply may result in termination of service as provided for in the District's Water Code (Chapter 14) and Recycled Water Code (Chapter 17).

2.2.11.6. Open Trench Inspection

The District shall conduct an open trench inspection to verify that no Cross-Connection between the recycled and potable water systems exist and that the materials of construction, quality of work products, etc. conform to the Standards. In addition, all dual plumbed residences are required to have the potable water pipeline between the water meter and the home inspected by the District.

A written certification of open trench inspection shall be issued by the District upon successful completion.

Upon approval of the open trench inspection, the final inspection may be scheduled by contacting the District at (916) 354-3700. A minimum of forty-eight (48) hours advance notice, excluding Saturdays, Sundays, or District holidays is required.

2.2.11.7. Complete Installation

Upon successful completion of the open trench inspection, installation of both the potable water and recycled water systems may be completed.

2.2.11.8. Final Inspection

Final inspection may be scheduled following the successful completion of open trench inspection, the landscape construction is completed, and irrigation timers are set. Initially, before activation of recycled water service, and annually thereafter, the District will inspect both the exterior potable and recycled water landscape irrigation systems. Cross-Connection and coverage tests shall be performed as part of final inspection of the recycled water landscape irrigation system. The District will perform a Cross-Connection shutdown test initially, once every four (4) years, and at changes of ownership in accordance with the procedure described in Appendix D. Additional Cross-Connection tests shall be performed by the District if deemed necessary. In the event that a Cross-Connection is discovered, both systems shall be shut down and the recycled water system drained immediately and the following procedure shall be carried out in the presence of the Inspector:

1. The Cross-Connection shall be uncovered and disconnected.
2. The recycled water landscape irrigation system shall be retested in accordance with the procedures described in Appendix D.
3. The potable water system shall be chlorinated with 50 parts per million (ppm) chlorine for 24 hours, minimum.
4. The potable water system shall be flushed after 24 hours, and standard bacteriological tests shall be performed by the Inspector. If test results are acceptable, the potable water system may be recharged.

The irrigation system shall be pressure tested at a minimum of 50 psi above the rating of its pipe class or as required by the District and shall be maintained for a minimum of two (2) hours.

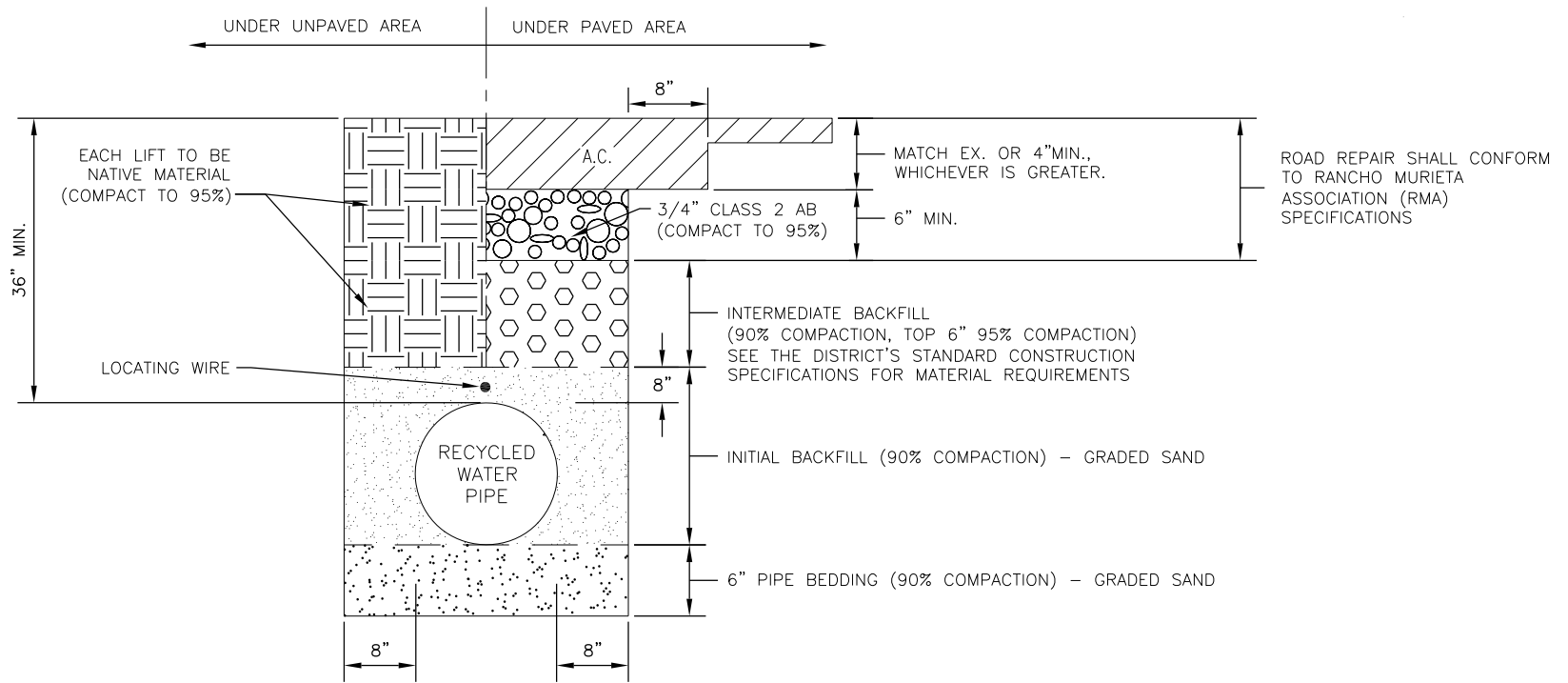
Owners, applicants, or customers shall be responsible for controlling overspray and runoff from recycled water landscape irrigation systems. To ensure that overspray or runoff is in accordance with all federal, state, and local regulations, inspection by District staff prior to recycled water service is required.

The owner, applicant, or customer is responsible for controlling overspray, ponding and runoff of the system. To ensure the limitation of overspray and runoff, an inspection of the completed onsite irrigation system shall be conducted by the District as part of final inspection. The owner or owner's representative must be in attendance and have persons capable of making system adjustments. If modifications to the system are required, other than minor adjustments, the owner will be notified in writing of the changes required. To avoid termination of service, system modifications must be made within 72 hours of learning of a potential recycled water leak or excessive runoff or ponding event, or prior to the release of 1,000 gallons. All modifications to the system are the responsibility of the owner, applicant, or customer and said owner, applicant, or customer shall pay all costs associated with such modifications.

2.2.11.9. As-Built Recycled Water Plans

Record drawings or an as-built Recycled Water Plan shall be prepared and submitted to the District prior to receiving recycled water service. These plans shall correctly show all onsite recycled water, potable water, and sewer facilities as constructed or modified.

3.0 Standard Details



NOTES:

1. SEE DISTRICT DESIGN AND CONSTRUCTION STANDARDS FOR OTHER REQUIREMENTS.
2. ALL PIPING, INCLUDING SERVICE LINES, SHALL BE PURPLE PVC OR SHALL BE INSTALLED WITH PURPLE IDENTIFICATION TAPE SECURED TO PIPE EVERY 10 FEET. PURPLE PVC PIPE TO BE LAID WITH LABEL UP.
3. SEWER, WATER, OR STORM DRAIN UTILITIES ARE NOT PERMITTED WITHIN 10' HORIZONTALLY AND/OR 1' VERTICALLY OF RECYCLED WATER PIPE.
4. INSTALL #10 TRACER WIRE ON ALL APPURTENANCES. SECURE TO PIPE WITH PLASTIC ADHESIVE TAPE EVERY 10 FEET. INSTALL A PULL BOX EVERY 1000 FEET INTERVAL OF TRACING WIRE ALONG THE PIPE MAIN.
5. 6" & 8" DIMENSIONS SHALL INCLUDE DISTANCE BETWEEN PIPE BELL AND TRENCH WALL.
6. PLACE INITIAL SAND BACKFILL TO TOP OF PIPE, SPRAY WITH WATER TO COMPACT. THEN PLACE INITIAL SAND BACKFILL TO AT LEAST 8" ABOVE TOP OF PIPE, SPRAY WITH WATER TO COMPACT. AFTER SPRAYING WITH WATER, USE MECHANICAL COMPACTION METHODS IF NEEDED.
7. COORDINATE COMPACTION TESTS WITH DISTRICT INSPECTORS.
8. JETTING WILL NOT BE ALLOWED FOR COMPACTION OF BACKFILL OR PIPE BEDDING MATERIAL.
9. IN UNPAVED AREAS, PIPE BEDDING MATERIAL, AND INITIAL BACKFILL MATERIALS SHALL BE COMPACTED THE SAME AS IN PAVED AREAS.

RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

TRENCH DETAIL

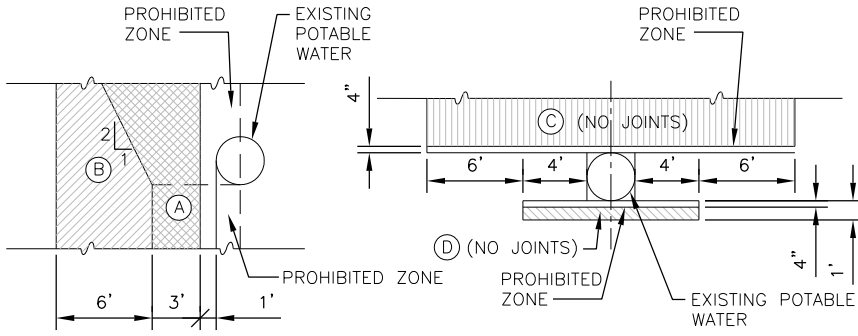
DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-1</i>
APPROVED K. KENNEDY	DATE 08/19				

RW-2 *Not Used*

BASIC SEPARATION STANDARDS:

1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE DOMESTIC WATER AND RECYCLED WATER MAINS AND SEWER LINES SHALL BE AT LEAST 10 FEET.
2. PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST ONE FOOT ABOVE RECYCLED WATER LINES WHERE THESE PIPELINES MUST CROSS.
3. SPECIAL PROVISIONS: ALTERNATIVE CONSTRUCTION CRITERIA WHERE THE BASIC SEPARATION STANDARDS CANNOT BE ATTAINED ARE SHOWN BELOW:

NEW RECYCLED WATER PIPELINE NEAR EXISTING POTABLE WATER PIPELINE

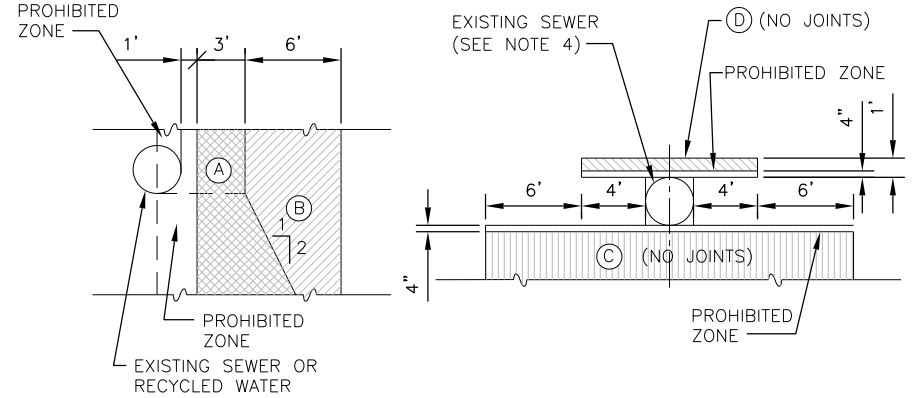


PARALLEL CONSTRUCTION

PERPENDICULAR CROSSING

IF A NEW RECYCLED WATER PIPELINE IS TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES. SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

NEW RECYCLED WATER PIPELINE NEAR EXISTING SEWER AND/OR RECYCLED WATER PIPELINE



PARALLEL CONSTRUCTION

PERPENDICULAR CROSSING

IF A NEW RECYCLED WATER PIPELINE IS TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES. SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

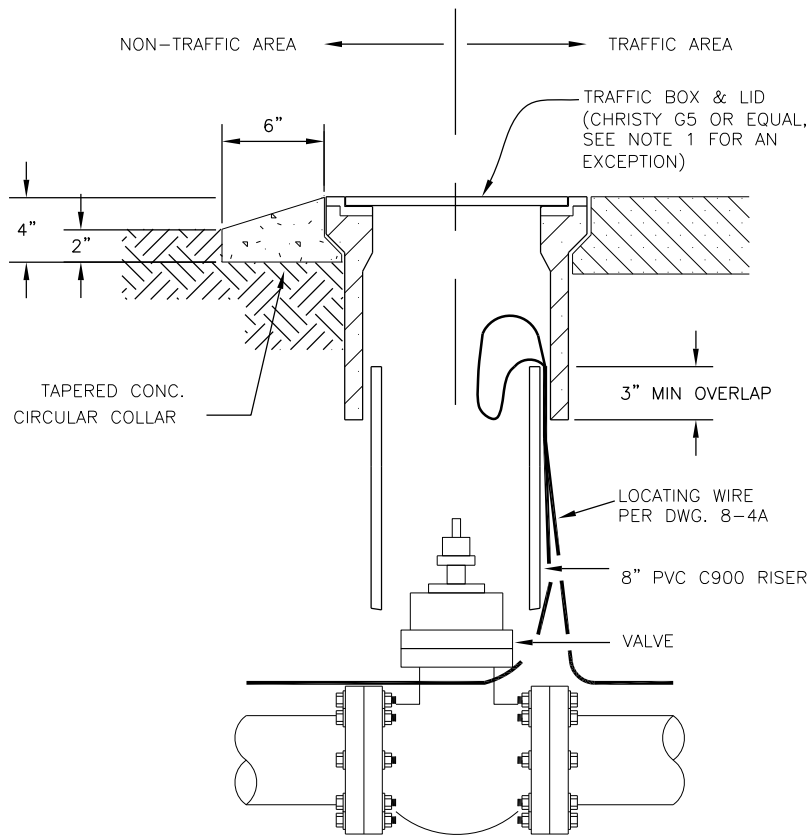
ZONE	REQUIREMENT
①	DO NOT LOCATE ANY PARALLEL RECYCLED WATER LINE IN THE AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL
②	USE CLASS 200 D.I.P. OR CLASS 200 P.V.C. - AWWA C900
③	USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900
④	USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900

NOTES:

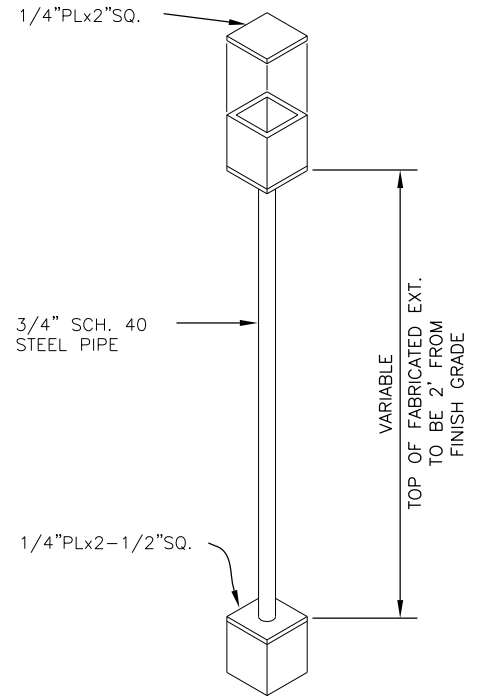
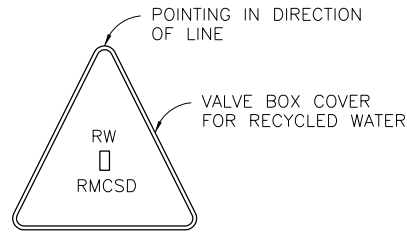
1. NO PIPE JOINTS SHALL BE PERMITTED WITHIN ZONES C AND D.
2. ALL D.I.P. MUST HAVE HOT DIP BITUMINOUS COATING AND ALL CLASS 200 P.V.C. MUST MEET DR-14 PER AWWA C900 OR EQUIVALENT.
3. SEWER FORCE MAINS SHALL NOT BE PERMITTED IN ZONES A THROUGH D.
4. THIS CRITERION DOES NOT APPLY FOR A RECYCLED WATER LINE CROSSING ANOTHER RECYCLED WATER PIPELINE.
5. THE CONSTRUCTION CRITERIA SHOULD APPLY TO THE HOUSE LATERALS THAT CROSS ABOVE A PRESSURE WATER MAIN BUT NOT TO THOSE HOUSE LATERALS THAT CROSS BELOW A PRESSURE WATER MAIN.

<p>RANCHO MURIETA COMMUNITY SERVICES DISTRICT</p>					
<p><i>SEPARATION REQUIREMENTS FOR RECYCLED WATER PIPELINES</i></p>					
DRAWN BY V. FELIX	SCALE NTS	REVISION	DATE	BY	STANDARD DRAWING NO. RW-3
APPROVED K. KENNEDY	DATE 08/19				

RW-4 *Not Used*



TRAFFIC VALVE BOX



VALVE OPERATING NUT EXTENSION

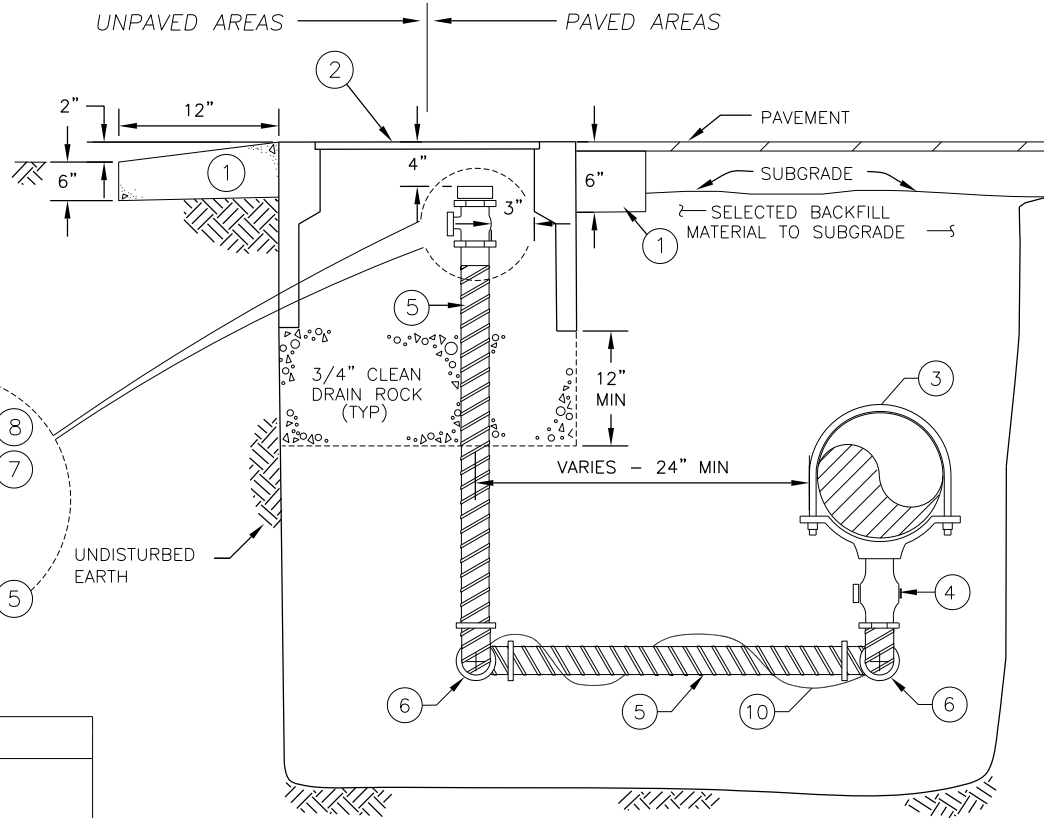
REQUIRED WHERE VALVE NUT IS IN EXCESS OF 10 FEET BELOW FINISH GRADE.

* FINAL AS-BUILT PLANS TO DENOTE LOCATION WHERE INSTALLED.

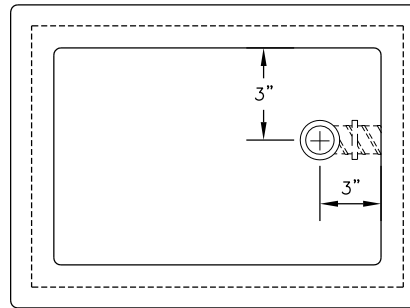
NOTES:

1. VALVE BOX AND RISER SHALL BE SET PLUMB AND CENTERED OVER VALVE NUT.
2. SET VALVE BOX TO FINAL FINISH GRADE. IN AREAS WHERE FINISH GRADE HAS NOT BEEN DEFINED, PLACE 4"x4" LOCATING POST WITHIN 1 FOOT OF VALVE BOX. POST SHALL BE 6 FEET IN LENGTH AND BURIED 3 FEET. PAINT POST PURPLE FOR RECYCLED WATER.
3. RISER PIPE SHALL BE PURPLE FOR RECYCLED WATER.
4. LIDS SHALL BE LABELED WITH CAST OR BEAD WELDED LETTERS: "RECYCLED WATER" FOR RECYCLED AND NONPOTABLE WATER.
5. PAVEMENT TO COMPLY WITH JURISDICTIONAL AGENCY PERMIT CONDITIONS AND SPECIFICATIONS.
6. AS-BUILT PLANS TO SHOW ALL LOCATIONS WHERE VALVE BOXES ARE INSTALLED.

<h2 style="margin: 0;">RANCHO MURIETA COMMUNITY SERVICES DISTRICT</h2> <h3 style="margin: 0;">VALVE BOX INSTALLATION</h3>					
DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-5</i>
APPROVED K. KENNEDY	DATE 08/19				



ELEVATION



PLAN

ITEM #	DESCRIPTION
①	6"x6" CONC. COLLAR (PAVED) 6"x12" CONC. COLLAR (UNPAVED)
②	PRECAST CONCRETE METER BOX WITH STEEL COVER MARKED RECYCLED WATER. (SEE RW-5)
③	2" SERVICE SADDLE, AWWA I.P.T.
④	2" CORPORATION STOP, AWWA I.P. INLET x FIP OUTLET
⑤	2" SCH. 40 BRASS OR POLYETHYLENE TUBING TYPE K, DOUBLE WRAPPED WITH 10 MIL. PURPLE PVC TAPE
⑥	"SWING JOINT" 2" 90° ELL & 2" 'STREET 90', AS REQUIRED
⑦	CURB STOP W/ LOCKWING- FIP x FIP
⑧	2" BRASS OR SCHEDULE 80 PVC PLUG
⑨	RECYCLED WATER TAG. (SEE RW-21)
⑩	#10 TRACER WIRE

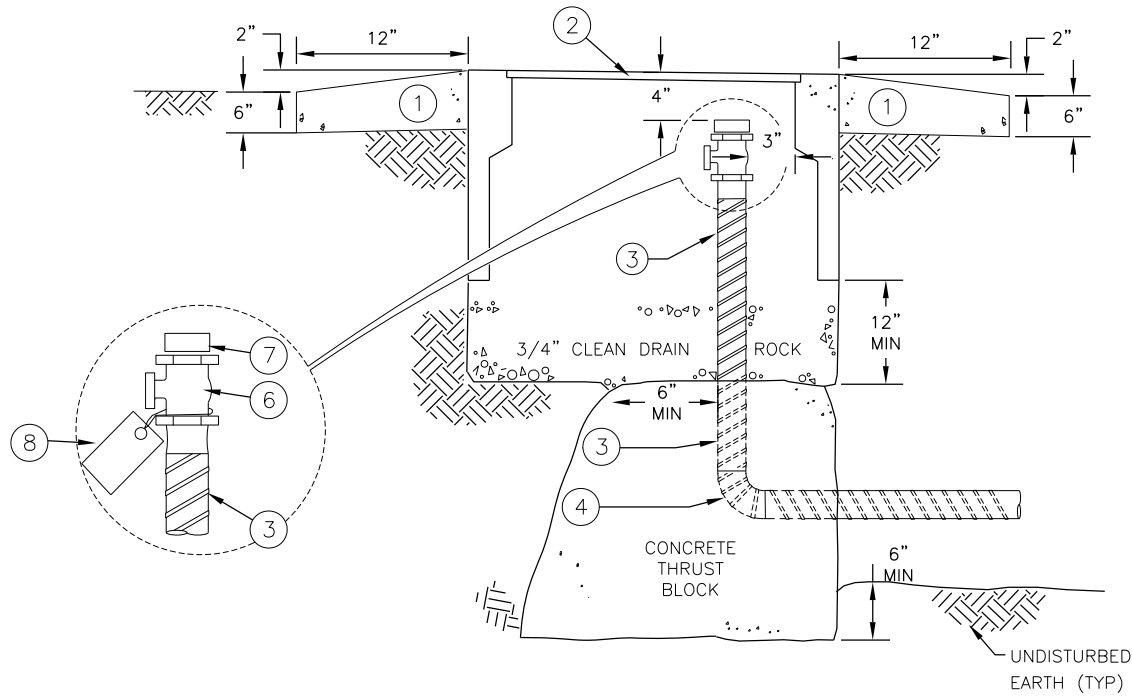
NOTES

- 2" BLOW-OFFS TO BE INSTALLED ON 8" MAINS AND SMALLER. FOR MAINS LARGER THAN 8", BLOW-OFF SIZE SHALL BE NOTED ON PLAN AND PROFILE.
- BOXES FOR BLOW-OFF ASSEMBLY SHALL BE INSTALLED BEHIND CURB OR BACK OF WALK. BOXES CANNOT BE INSTALLED IN ROADWAY.

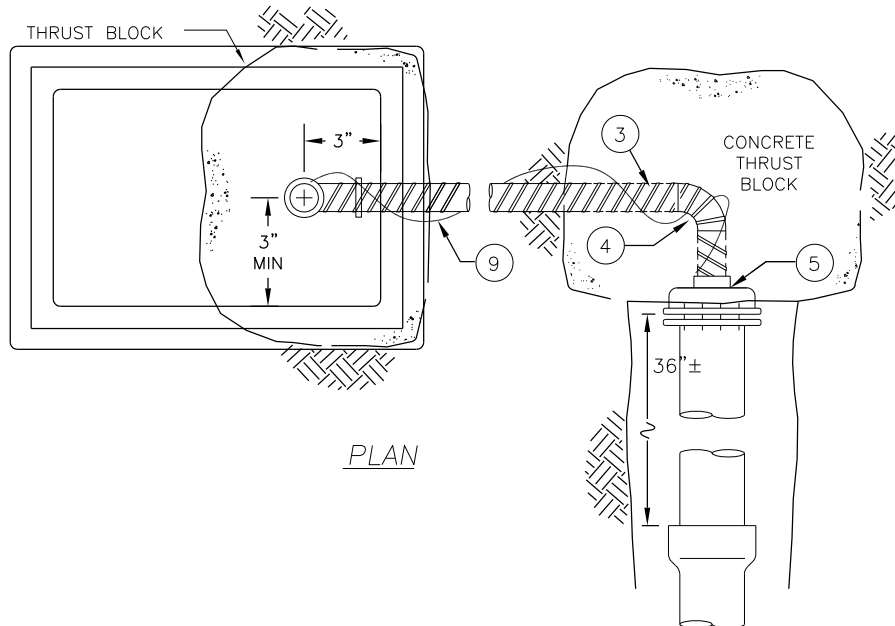
RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

2" BLOW-OFF
VALVE ASSEMBLY

DRAWN BY	SCALE	REVISION	DATE	BY	STANDARD DRAWING NO.
E. BULLOCK	NONE				RW-6A
APPROVED K. KENNEDY	DATE 08/19				



ELEVATION



PLAN

ITEM #	DESCRIPTION
①	6"x6" CONC. COLLAR (PAVED) 6"x12" CONC. COLLAR (UNPAVED)
②	PRECAST CONCRETE METER BOX WITH STEEL COVER MARKED RECYCLED WATER (SEE RW-5)
③	2" SCH. 40 BRASS OR POLYETHYLENE TUBING TYPE K, DOUBLE WRAPPED WITH 10 MIL. PURPLE PVC TAPE
④	2"-90° THREADED BRASS ELBOW
⑤	M.J. TAPPED CAP
⑥	CURB STOP W/ LOCKWING-- FIP x FIP
⑦	2" BRASS OR SCHEDULE 80 PVC PLUG
⑧	RECYCLED WATER TAG (SEE RW-21)
⑨	#10 TRACER WIRE

NOTES

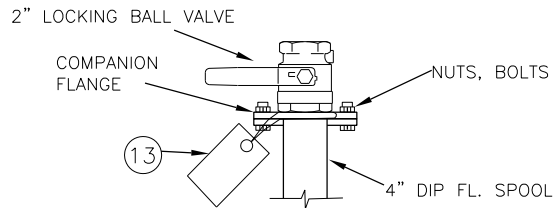
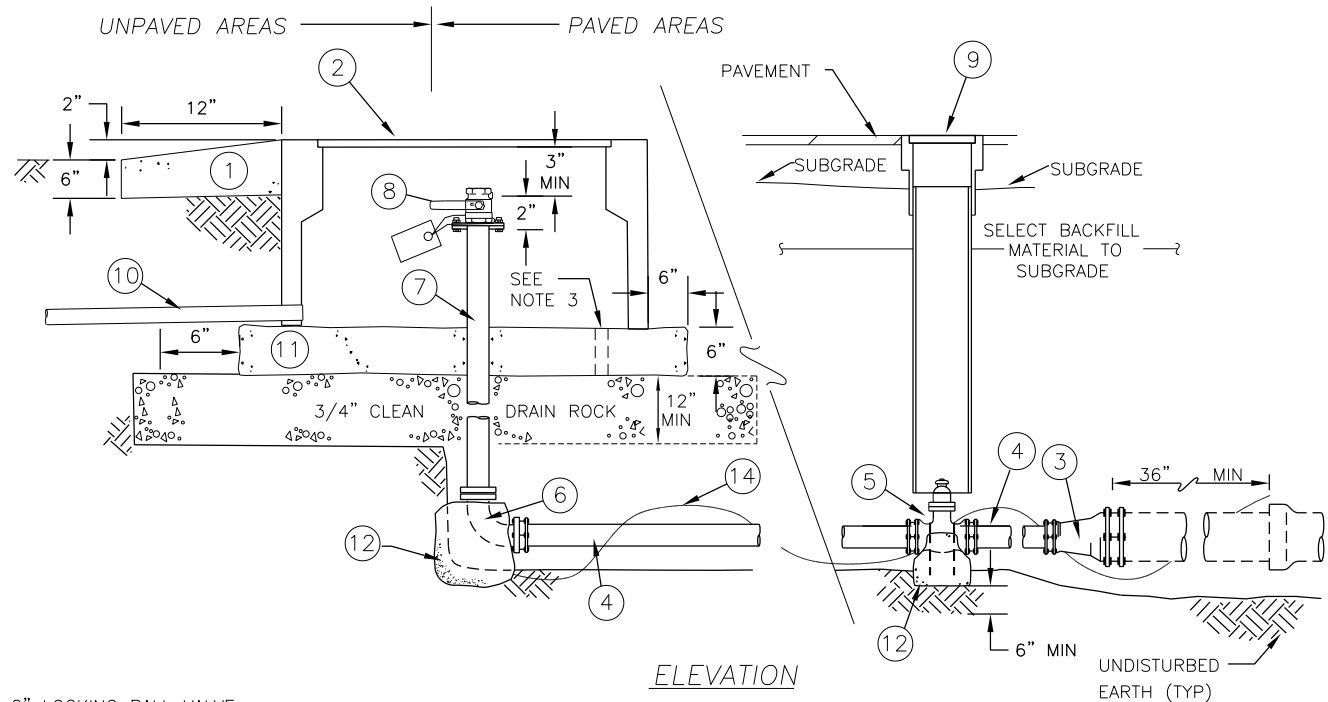
- 2" BLOW-OFFS TO BE INSTALLED ON 8" MAINS AND SMALLER. FOR MAINS LARGER THAN 8", BLOW-OFF SIZE SHALL BE NOTED ON PLAN AND PROFILE.
- BOXES FOR BLOW-OFF ASSEMBLY SHALL BE INSTALLED BEHIND CURB OR BACK OF WALK. BOXES CANNOT BE INSTALLED IN ROADWAY.

RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

2" END OF PIPELINE
BLOW-OFF VALVE ASSEMBLY

DRAWN BY	SCALE	REVISION	DATE	BY	STANDARD DRAWING NO.
E. BULLOCK	NONE				RW-7A
APPROVED	DATE				
K. KENNEDY	08/19				

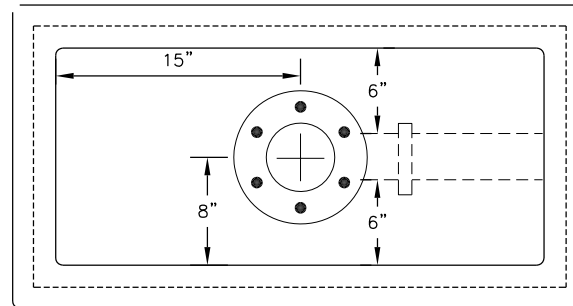
ITEM #	DESCRIPTION
①	6"x6" CONC. COLLAR (PAVED) 6"x12" CONC. COLLAR (UNPAVED)
②	PRECAST CONCRETE UTILITY BOX WITH STEEL COVER MARKED RECYCLED WATER (SEE RW-5)
③	M.J. REDUCER
④	4" PIPE, P.V.C. C-900 OR D.I.
⑤	4" M.J. GATE VALVE
⑥	4" 90° BEND M.J.xFL.
⑦	4" D.I.P. FL. SPOOL CONTAINED WITHIN A PURPLE SLEEVE
⑧	COMPANION FLANGE, NUTS, BOLTS & 2" LOCKING BALL VALVE
⑨	VALVE BOX PER RW-5
⑩	2" PVC DRAIN LINE TO SEWER. INSTALL WHERE SHOWN.
⑪	CONCRETE SLAB
⑫	THRUST BLOCK PER W-3
⑬	RECYCLED WATER TAG (SEE RW-21)
⑭	#10 TRACER WIRE



NOTE: CENTER BLOW-OFF IN BOX.

NOTES

1. LOCATION OF BLOW-OFF BOX TO BE SHOWN ON PLANS AND FIELD VERIFIED.
2. BLOW-OFFS LARGER THAN 4" SHALL HAVE PRIOR DISTRICT APPROVAL.
3. 2" DRAIN AND DRAIN ROCK TO BE INSTALLED ONLY WHEN PVC DRAIN (#10) CANNOT BE INSTALLED. PRIOR DISTRICT AND REGIONAL BOARD APPROVAL REQUIRED.
4. BOXES SHALL BE INSTALLED BEHIND CURB OR OR BACK OF WALK. BOXES CANNOT BE INSTALLED IN ROADWAY.
5. 4" BLOW-OFF TO BE INSTALLED ON 10" MAINS AND LARGER.

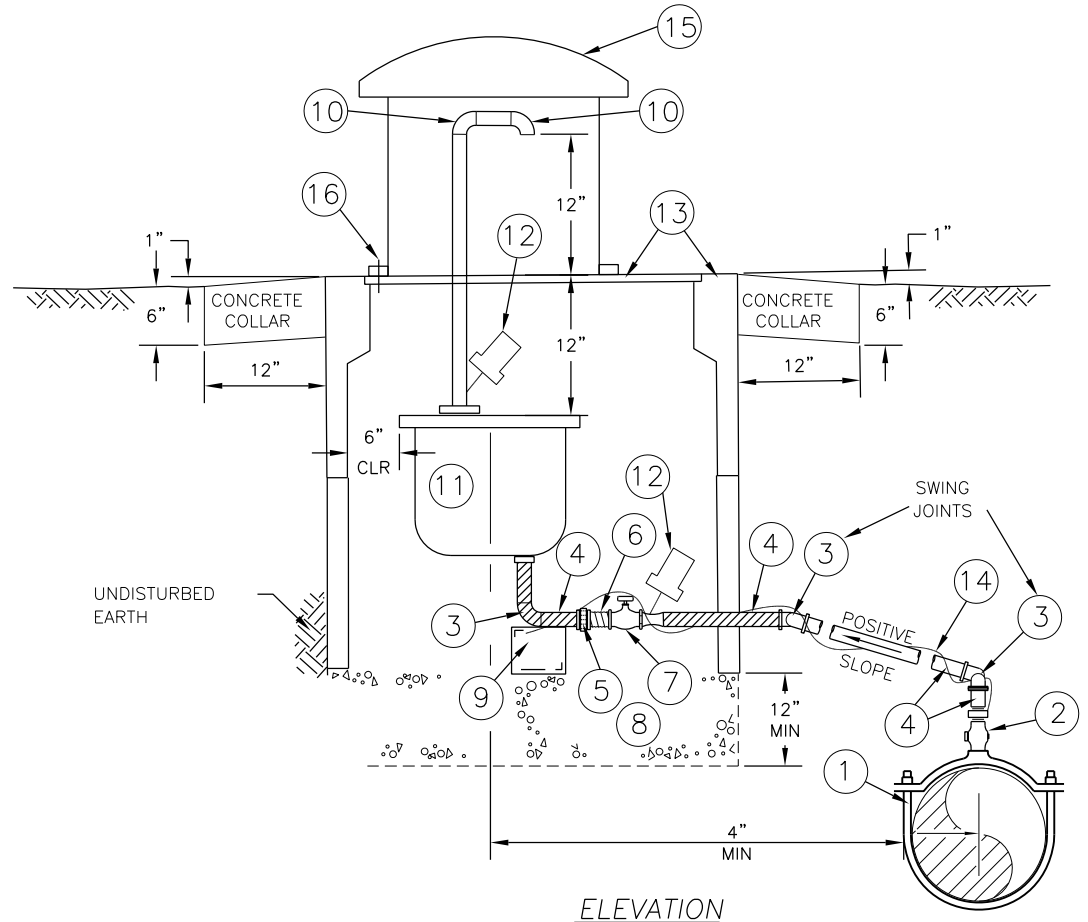


PLAN

RANCHO MURIETA COMMUNITY SERVICES DISTRICT					
4" END OF PIPELINE BLOW-OFF VALVE ASSEMBLY					
DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO.
APPROVED K. KENNEDY	DATE 08/19				RW-7B

RW-8 *Not Used*

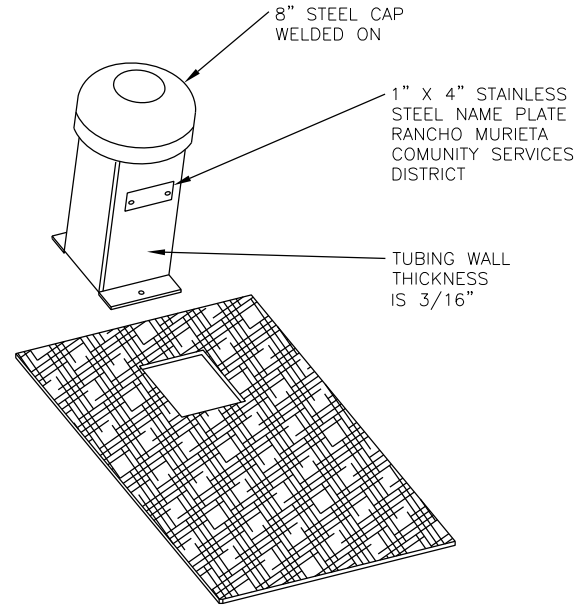
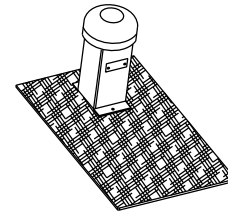
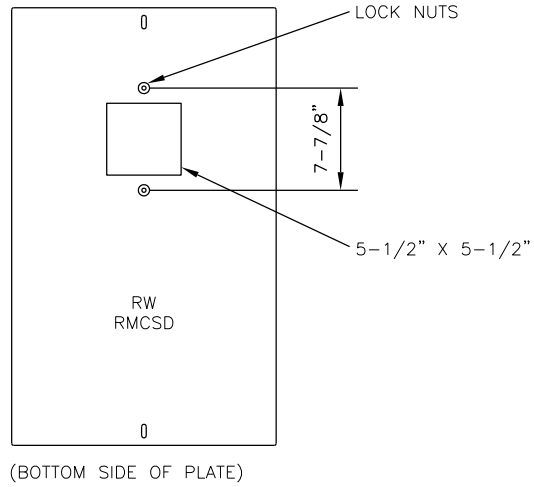
ITEM #	DESCRIPTION
①	BRASS SERVICE SADDLE
②	BRASS CORPORATION STOP AWWA I.P.T. x F.I.P.
③	FITTINGS SAME AS PIPE MATERIAL
④	SCH 40 BRASS W/PVC TAPE 20 MIL DOUBLE WRAP AND PURPLE SLEEVE
⑤	BRASS UNION
⑥	BRASS NIPPLE
⑦	BRASS BALL VALVE F.I.P. x F.I.P.
⑧	3/4" CLEAN DRAIN ROCK
⑨	SUPPORT BLOCK, BRICK
⑩	STREET ELBOW
⑪	COMBINATION AIR RELEASE/VACCUUM VALVE UNLESS OTHERWISE SPECIFIED ON PLANS
⑫	RECYCLED WATER TAG (SEE RW-21)
⑬	CONC. BOX & STEEL LID, SEE NOTE 6
⑭	#10 TRACER WIRE
⑮	PLACER WATER WORKS PW/AV 18-S OR EQUAL
⑯	ANCHOR BOLT



NOTES

1. SIZE OF PIPING SHALL MATCH SIZE OF AIR VALVE.
2. ENGINEER TO SPECIFY TYPE & SIZE OF VALVE.
3. AIR VALVES LARGER THAN 2" SHALL BE BY SPECIAL DESIGN.
4. AIR VALVE SHALL BE PLACED OUTSIDE OF TRAFFIC AREAS.
5. CENTER VALVE IN LONGITUDINAL DIRECTION IN BOX.
6. B36 FOR 1" ARV, B40 FOR 2" ARV, MARKED RECYCLED WATER ON LID. SEE RW-5.

<p>RANCHO MURIETA COMMUNITY SERVICES DISTRICT</p> <p><i>COMBINATION AIR RELEASE AND VACCUUM VALVE INSTALLATION</i></p>					
DRAWN BY E. BULLOVK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. RW-9
APPROVED K. KENNEDY	DATE 08/19				



CAT# PWAE118M	16-3/8" X 27" X 1/4"
CAT# PWAE218M	20-1/4" X 33-1/4" X 3/8"

NOTES:

1. VALVE COVER TO BE PLACER WATERWORKS NO. PWAE118M/PWAE218M, OR APPROVED EQUAL.
2. CLEAN INTERIOR AND EXTERIOR OF STEEL WITH DEVPREP 88 METAL CLEANER, OR APPROVED EQUAL WATER-BASED CLEANER.
3. APPLY PRIMER 2-3 MILLS THICK WITH TWO PART EPOXY PRIMER 224HS CATALYZED POLYAMID EPOXY PRIMER (PURPLE PANTONE 512) OR APPROVED EQUAL PRIMER.
4. APPLY ALIPHATIC URETHANE FINISH TOP COAT OF DEVTANE 379, OR APPROVED EQUAL FINISH.
5. VALVE COVER TO BE PAINTED PURPLE PANTONE 512.

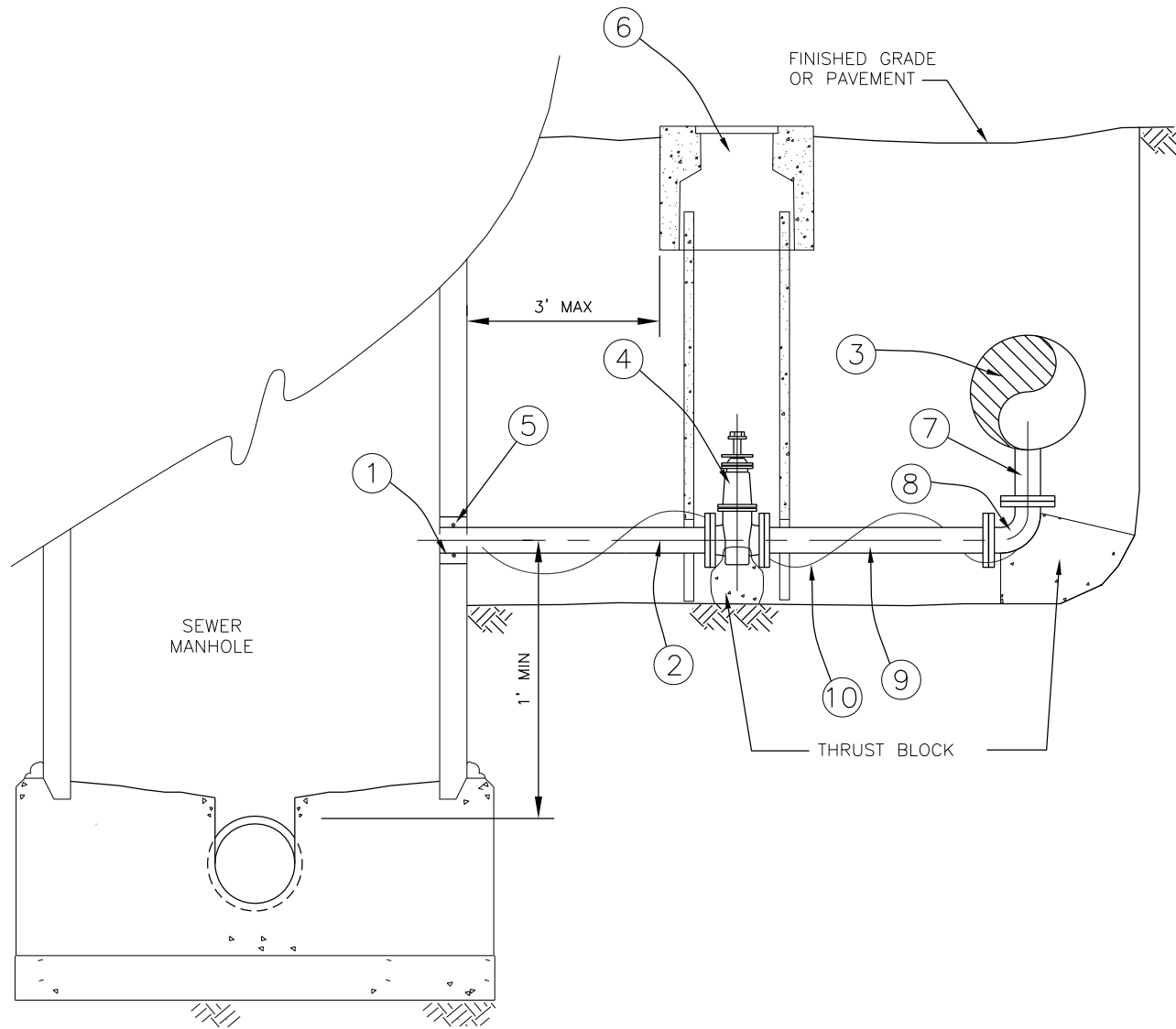
RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

AIR RELEASE & VACUUM RELIEF

DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-10</i>
APPROVED K. KENNEDY	DATE 08/19				

RW-11 *Not Used*

RW-12 Not Used



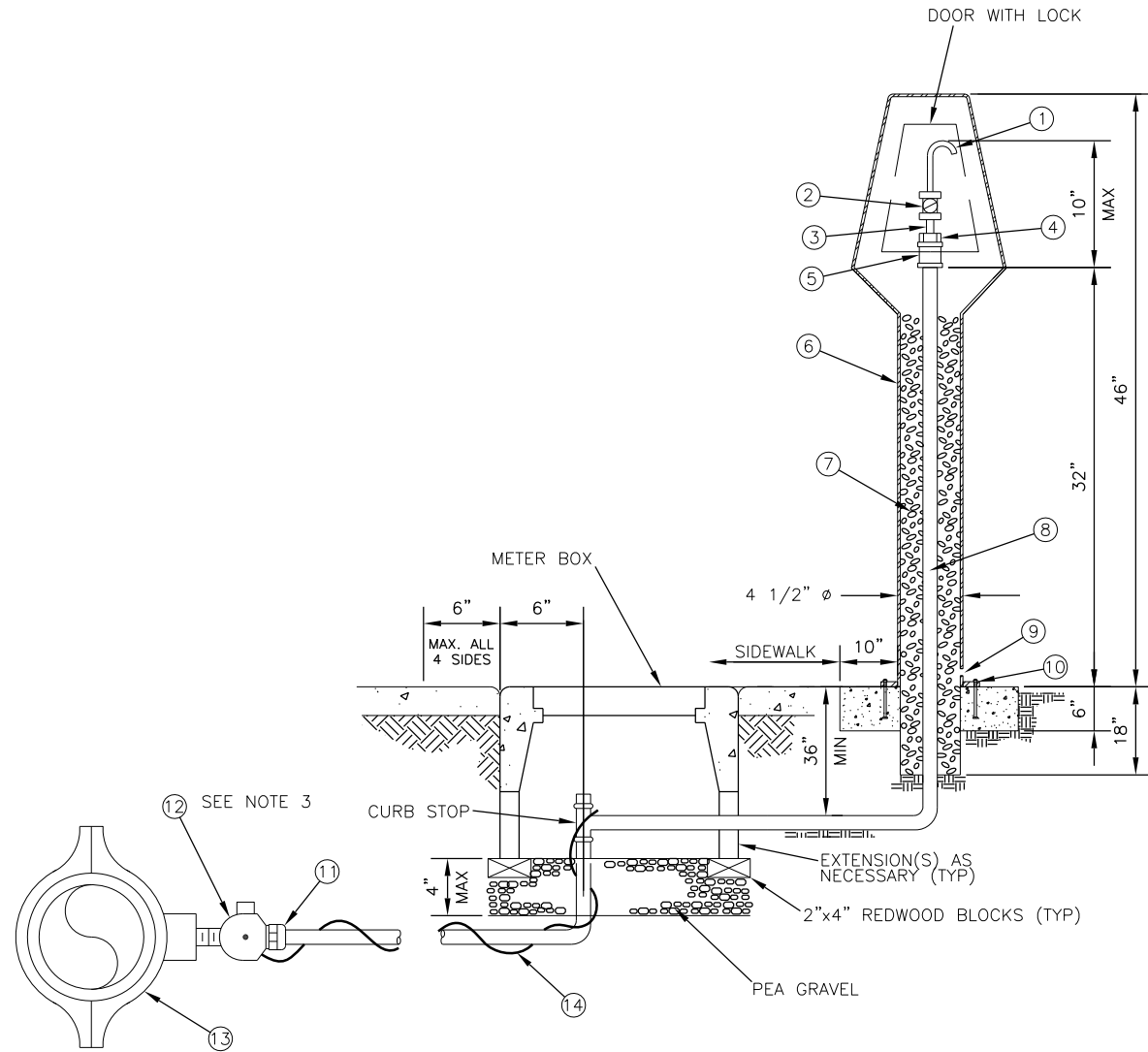
PLAN

ITEM #	DESCRIPTION
①	NON-SHRINK GROUT
②	4" PURPLE PVC PIPE, C-900
③	RECYCLED WATER MAIN
④	4" GATE VALVE FLxM.J
⑤	O-RING GASKET
⑥	VALVE BOX MARKED RECYCLED WATER FLUSH N/C SEE RW-5
⑦	M.J.xM.J.xFL TEE
⑧	4" D.I. 90° BEND FLxFL
⑨	4" D.I. SPOOL - FLxFL IN PURPLE SLEEVE
⑩	#10 TRACER LINE

RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

FLUSHING CONNECTION

DRAWN BY E.BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-13</i>
APPROVED K.KENNEDY	DATE 08/19				



ITEM	DESCRIPTION
1.	3/8" STAINLESS GOOSE NECK
2.	1/2" x 3/8" STAINLESS VALVE
3.	1/2" POLYETHYLENE TUBING
4.	1" x 1/2" BRASS BUSHING
5.	1" STRAIGHT BRASS COUPLING
6.	POWDER COATED EPOXY STEEL HOUSING
7.	PEA GRAVEL
8.	1" COPPER TUBING
9.	1/2"Ø WEEP HOLE
10.	ANCHOR BOLT
11.	FLARE FITTING OR COMPRESSION JOINT
12.	CORPORATION STOP (MUELLER 300 SERIES OR EQUAL)
13.	SERVICE SADDLE - BRONZE (ROCKWELL 323, MUELLER 16100 OR APPROVED EQUAL)
14.	TW #10 TRACER WIRE

NOTES:

1. GRIND ALL CUTS SMOOTH
2. PROVIDE NECESSARY CLEARANCE TO ALLOW HASP TO SHUT. LOCKS TO BE KEYED TO DISTRICT KEY.
3. MINIMUM COVER FOR THE SERVICE LINE SHALL BE 36 INCHES.
3. MINIMUM BENDING RADIUS FOR THE POLYETHYLENE TUBING SHALL BE 8 INCHES.
4. SERVICE LINE SHALL REST ON UNDISTURBED EARTH.

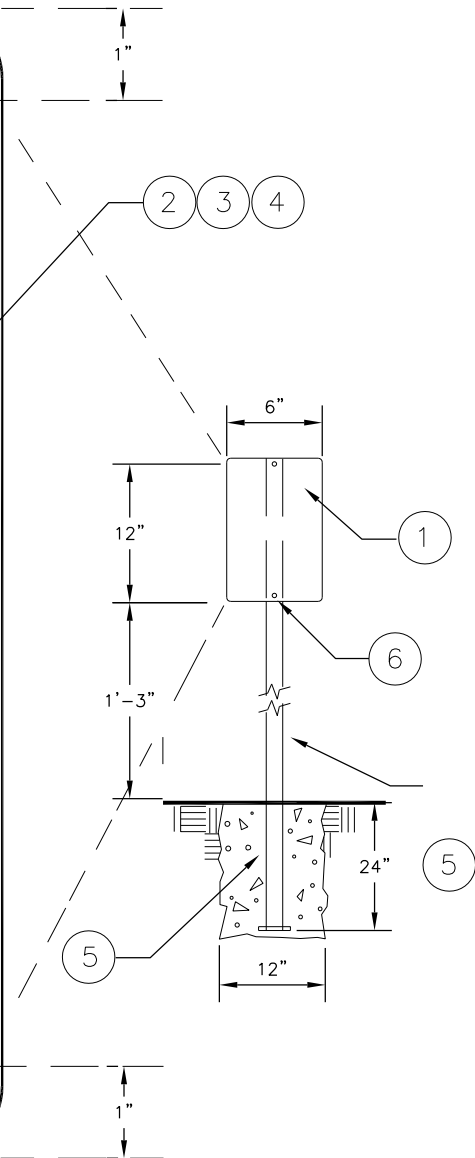
SERVICE WITH 90° TAP
W/ POLYETHYLENE

**RANCHO MURIETA
COMMUNITY SERVICES DISTRICT**

SAMPLE STATION

DRAWN BY E.BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-14</i>
APPROVED K. KENNEDY	DATE 08/19				

RW-15 *Not Used*



NOTES:

1. 6" x 12" ALUMINUM SHEET ALLOY 6061-T6 0.080" GAUGE, ROUNDED CORNERS (1" RADIUS).
2. LETTER HEIGHT & SYMBOL SIZE SHALL BE PROPORTIONAL TO SIGN SIZE.
3. THE BACKGROUND SHALL BE WHITE. THE LETTERING SHALL BE PURPLE. DISTRICT SYMBOL AND LETTERING SHALL BE BLUE.
4. LETTERING AND SYMBOL SHALL BE PRESSURE SENSITIVE VINYL. CLEAR COAT ENTIRE SIGN ONCE LETTERING AND SYMBOLS ARE ATTACHED.
5. 1"x1" SQUARE STEEL POST PAINTED WHITE TO MATCH SIGN BACKGROUND. CAP OFF POST AND FINISH CLEAN. PROVIDE REBAR AT END FOR CONCRETE INSTALLATION AT 24 INCH DEPTH.
6. 5/16"Ø x 4-1/2" ZINC PLATED CARRIAGE BOLT WITH VANDAL PROOF NUTS. PAINT WHITE TO MATCH SIGN.

WHEN MOUNTING ON WALLS OR CHAIN LINK FENCE, PROVIDE 1/4 INCH HOLES IN ALL FOUR CORNERS.

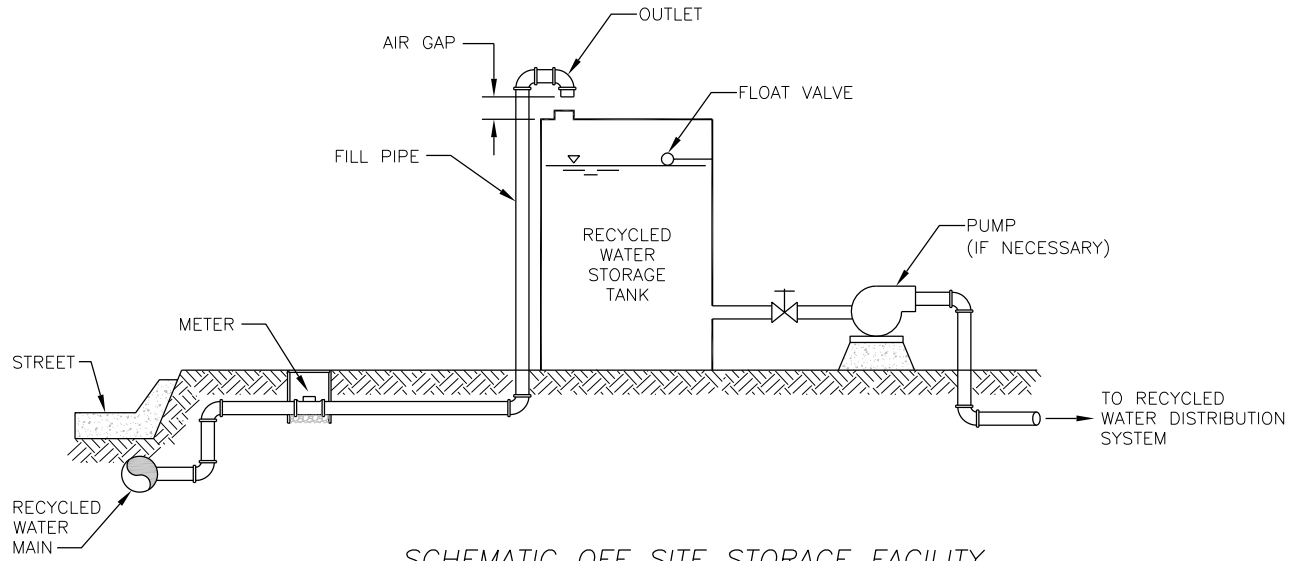
3" x 4-1/2" PRESSURE SENSITIVE DECALS ARE REQUIRED FOR IRRIGATION CONTROLLERS AND OTHER ABOVE GROUND FACILITIES REQUIRING A WARNING SIGN. WHEN CONDITIONS AND/OR FACILITY CHARACTERISTICS RENDER THESE SPECIFICATIONS INAPPROPRIATE, ALTERNATIVE SIGNING MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE DISTRICT.

SIGN, LETTER HEIGHTS, & SYMBOL SIZE SHOWN ARE IN REQUIRED PROPORTIONS

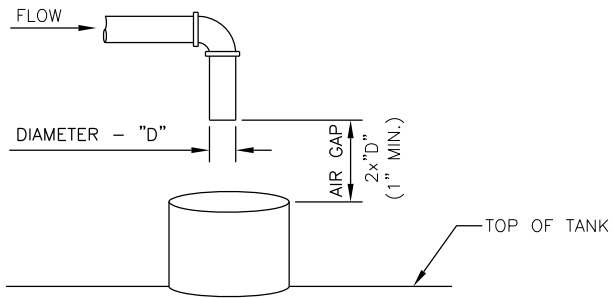
**RANCHO MURIETA
COMMUNITY SERVICES DISTRICT**

RECYCLED WATER SIGN

DRAWN BY	SCALE	REVISION	DATE	BY	STANDARD DRAWING NO.
E. BULLOCK	NONE				
APPROVED	DATE				
K. KENNEDY	08/19				



SCHEMATIC OFF SITE STORAGE FACILITY



AIR GAP

NOTES:

1. THE TERM "AIR GAP" SHALL MEAN A PHYSICAL SEPARATION BETWEEN THE FREE FLOWING DISCHARGE END AND A RECYCLED WATER SUPPLY PIPELINE AND AN OPEN OR NON-PRESSURE RECEIVING VESSEL. AN "APPROVED AIR GAP" SHALL BE AT LEAST DOUBLE THE DIAMETER OF THE SUPPLY PIPE MEASURED VERTICALLY ABOVE THE OVERFLOW RIM OF THE VESSEL - IN NO CASE LESS THAN 1 INCH.

RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

AIR GAP
SEPARATION

DRAWN BY V. FELIX	SCALE NTS	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-17</i>
APPROVED K. KENNEDY	DATE 08/19				

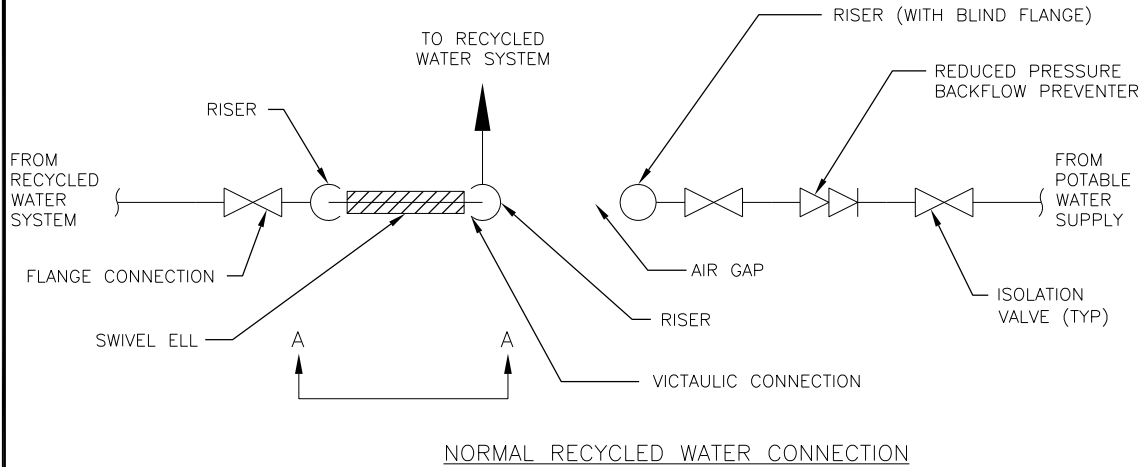


NOTES:

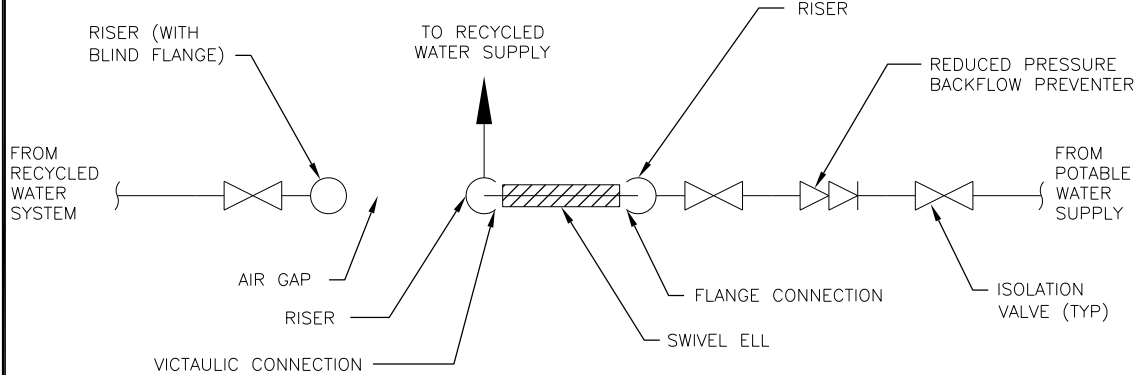
1. RECYCLED WATER NOTIFICATION DECAL TO BE OBTAINED BY DEVELOPER.
2. WARNING SIGN DECALS SHALL BE UV FADE RESISTANT *das* CURB MARKER (www.dasmanufacturing.com) OR APPROVED EQUAL DURACAST STYLE MARKERS PURPLE (PMS #2587) IN COLOR WITH WHITE TEXT. SIGN DECALS SHALL BE ALL-WEATHER AND SLIP RESISTANT.
3. SIGN SHALL STATE "RECYCLED WATER DO NOT DRINK" ACCORDING TO TITLE 22, ARTICLE 4, SECTION 60310(G) OF THE STATEWIDE REGULATION.
4. SURFACE MUST BE DRY AND FREE OF ANY LOOSE DEBRIS. FOLLOW THE ADHESIVE GUIDE. A BEAD OF ADHESIVE SHOULD BE SHOWN AROUND THE ENTIRE EDGE.
5. ADHESIVE SHALL BE CURB MARKER ADHESIVE OR APPROVED EQUAL.

RANCHO MURIETA COMMUNITY SERVICES DISTRICT					
<i>RECYCLED WATER DECAL</i>					
DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. RW-18
APPROVED K. KENNEDY	DATE 08/19	_____	_____	_____	
_____	_____	_____	_____	_____	

RW-19 Not Used



NORMAL RECYCLED WATER CONNECTION








SHORT-TERM POTABLE SUPPLY CONNECTION DURING INTERRUPTION OF NORMAL RECYCLED WATER SOURCE

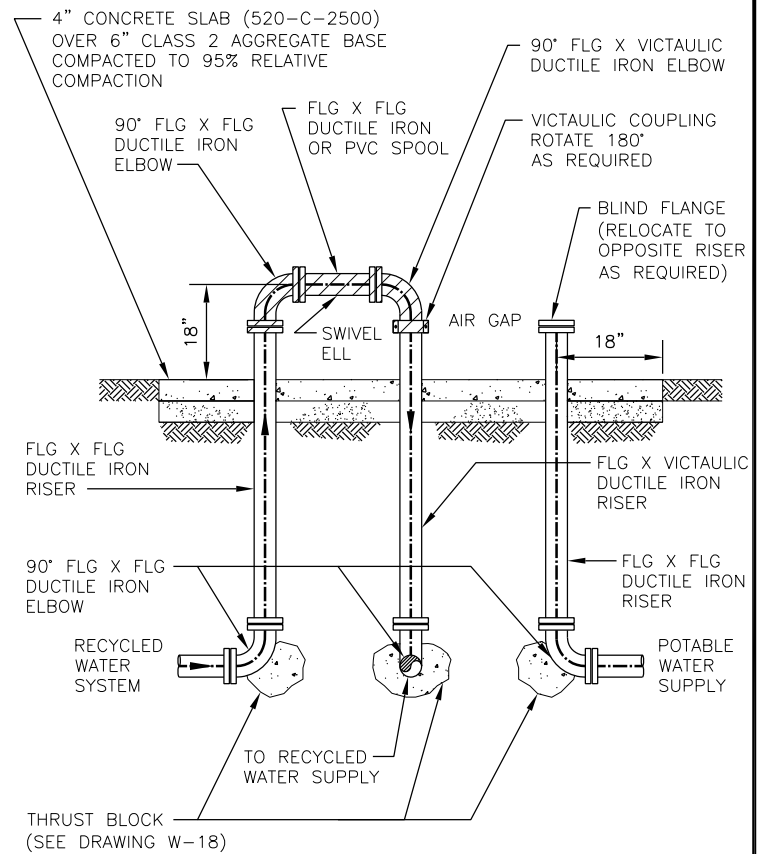
SWIVEL ELL

SCHEMATIC

PLAN-NO SCALE

KEY:

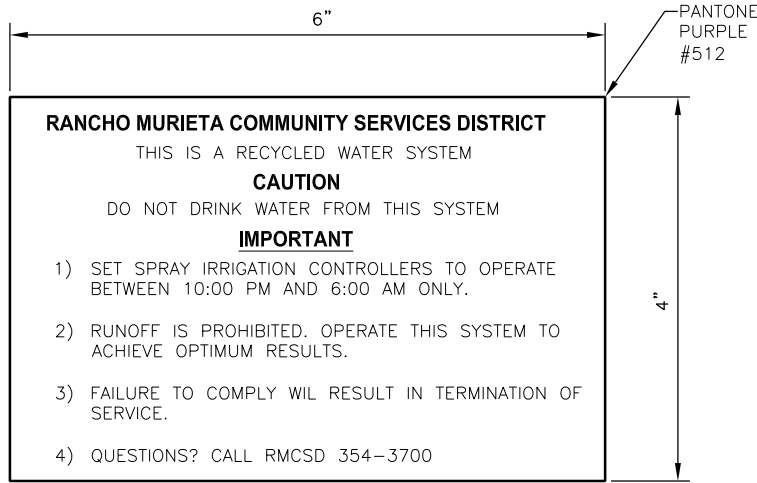
-  RISER WITH ELBOW
-  RISER (WITH BLIND FLANGE)
-  ISOLATION VALVE
-  SWIVEL ELL
-  REDUCED PRESURE BACKFLOW PREVENTER



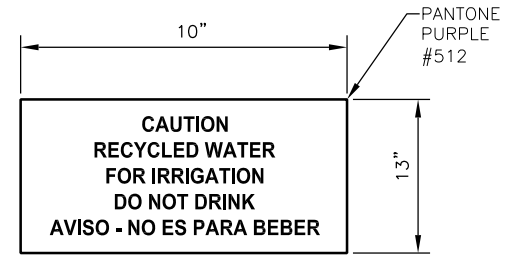
SECTION A-A

NOTE: SWIVEL ELL SHOWN IN NORMAL POSITION (SUPPLY FROM RECYCLED WATER SOURCE)

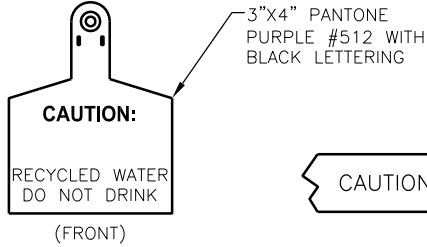
RANCHO MURIETA					
COMMUNITY SERVICES DISTRICT					
<i>SWIVEL ELL CONNECTION</i>					
DRAWN BY	E. BULLOCK	SCALE	NONE	REVISION	DATE
APPROVED	K. KENNEDY	DATE	08/19	BY	STANDARD DRAWING NO.
					RW-20



CONTROLLER ENCLOSURE LABEL (INTERIOR)



CONTROLLER ENCLOSURE LABEL (EXTERIOR)



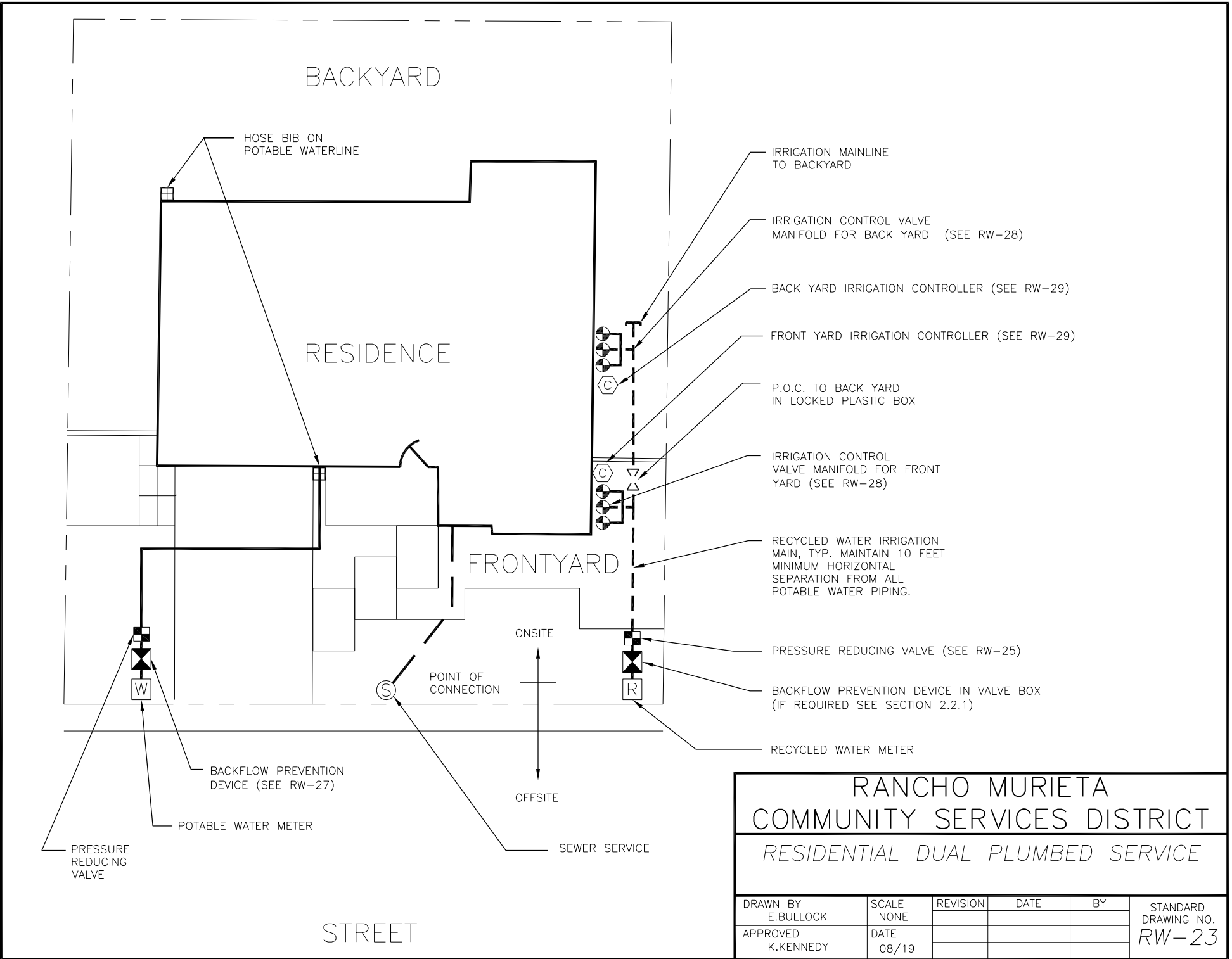
WARNING
 TAPE



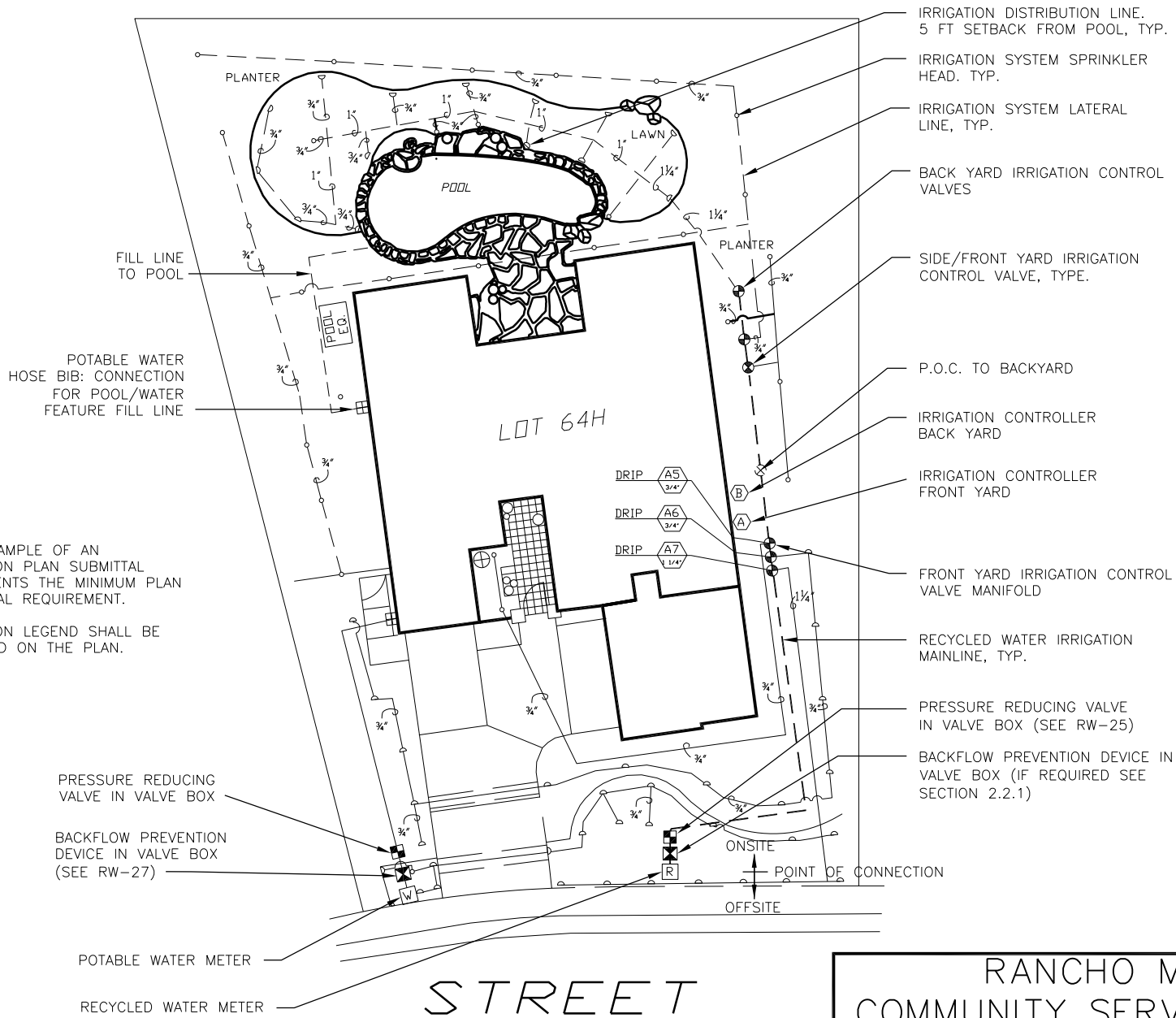
RECYCLED
 WATER
TAGS

RANCHO MURIETA COMMUNITY SERVICES DISTRICT					
<i>IDENTIFICATION TAGS AND LABELS</i>					
DRAWN BY V. FELIX	SCALE NTS	REVISION	DATE	BY	STANDARD DRAWING NO.
APPROVED K. KENNEDY	DATE 08/19				<i>RW-21</i>

RW-22 Not Used



RANCHO MURIETA COMMUNITY SERVICES DISTRICT					
<i>RESIDENTIAL DUAL PLUMBED SERVICE</i>					
DRAWN BY E.BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-23</i>
APPROVED K.KENNEDY	DATE 08/19				



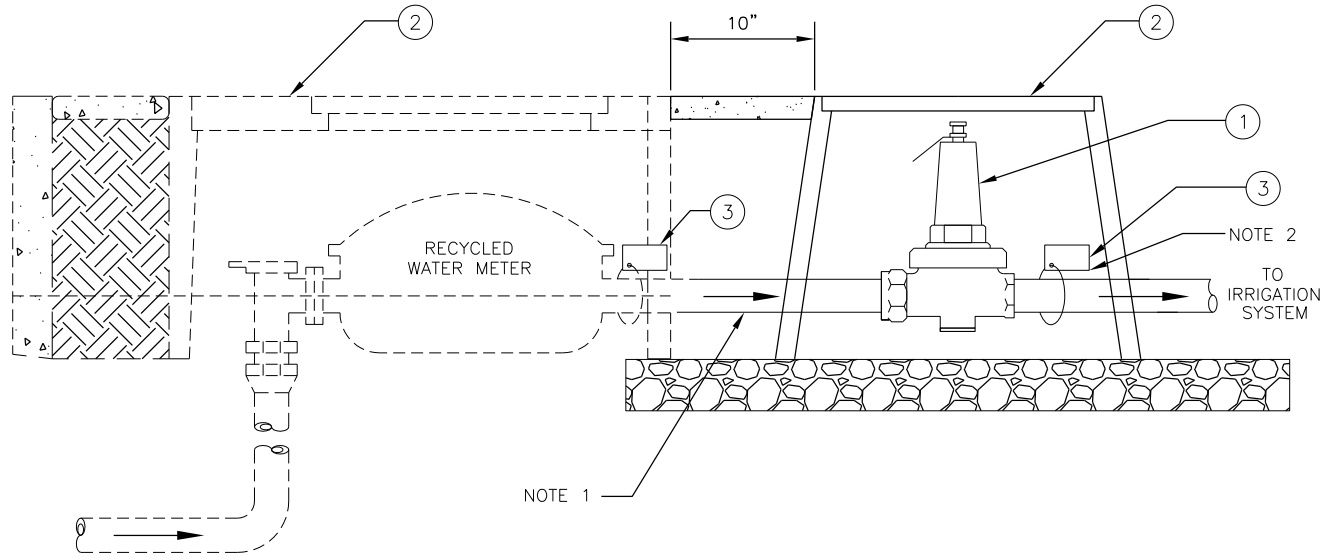
NOTES:

1. THIS EXAMPLE OF AN IRRIGATION PLAN SUBMITTAL REPRESENTS THE MINIMUM PLAN SUBMITTAL REQUIREMENT.
2. IRRIGATION LEGEND SHALL BE INCLUDED ON THE PLAN.

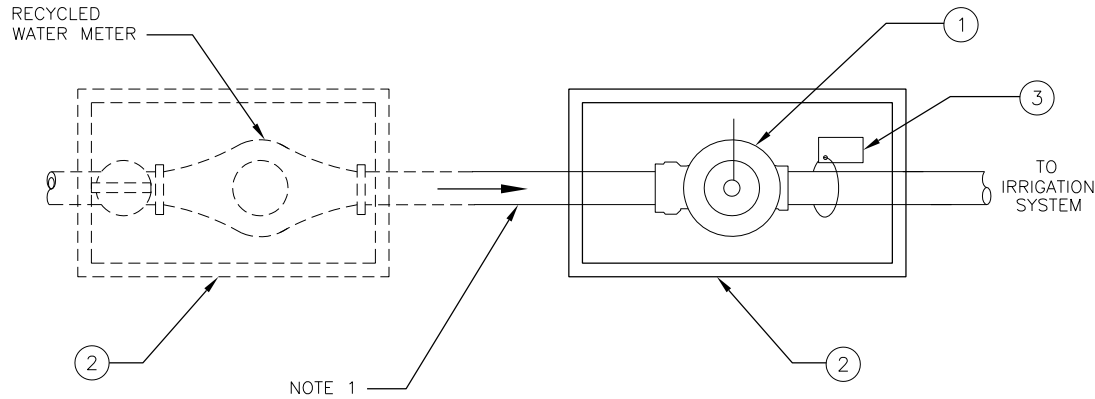
RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

RESIDENTIAL IRRIGATION LAYOUT

DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-24</i>
APPROVED K. KENNEDY	DATE 08/19				



PRESSURE REDUCING VALVE



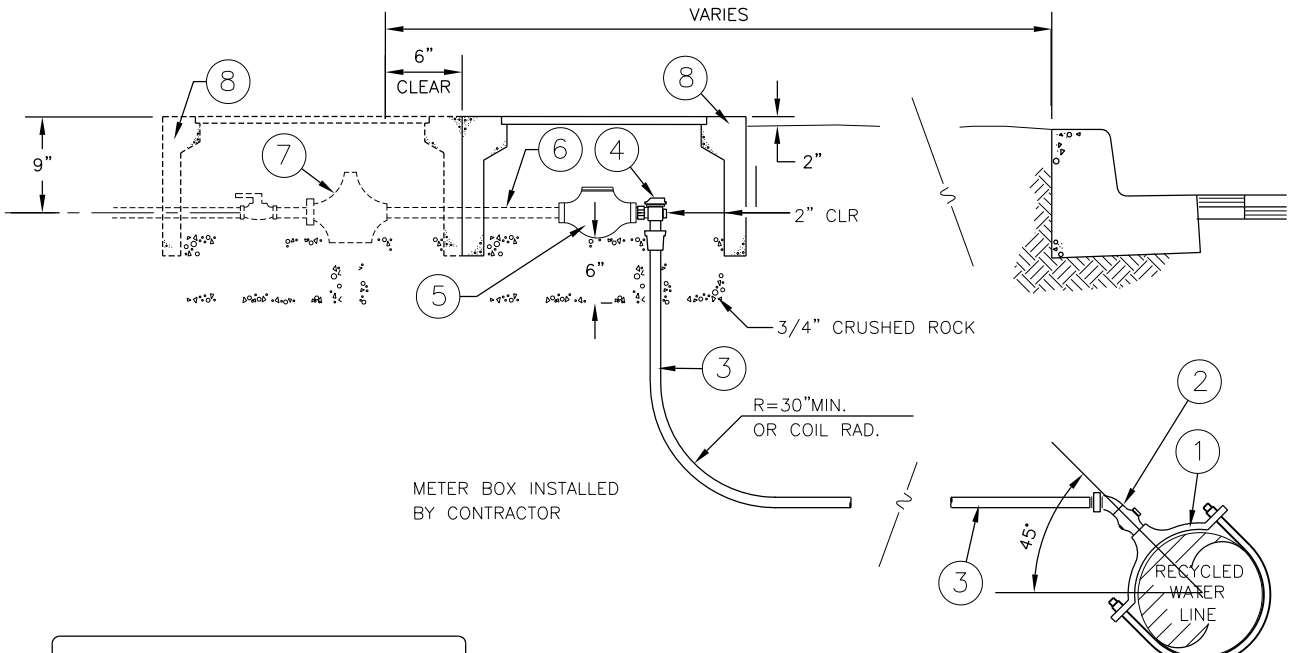
ITEM	DESCRIPTION
1	WILKINS MODEL 500HLR PRESSURE REDUCING VALVE OR EQUAL
2	CHRISTY PURPLE FL9 BOX
3	RECYCLED WATER WARNING TAG (SEE RW-21)

NOTES:

1. NO LINE CONNECTIONS BETWEEN METER & PRV. EXCEPT FOR BACKFLOW PREVENTION DEVICE (IF REQ'D.)
2. RW LABEL: T. CHRISTY 3150 OR EQUIVALENT.
3. PRV SIZE SHALL BE EQUAL TO METER SIZE.

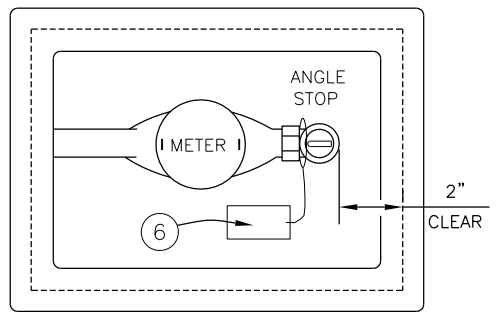
RANCHO MURIETA COMMUNITY SERVICES DISTRICT					
<i>PRV INSTALLATION FOR DUAL PLUMBED SERVICE</i>					
DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO.
APPROVED K. KENNEDY	DATE 08/19				<i>RW-25</i>

SEE W22A FOR
CUT/FILL SLOPES



METER BOX INSTALLED
BY CONTRACTOR

PROFILE VIEW



METER BOX PLAN

NOTES

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, JOINT OR FITTING.
2. SET TOP OF METER BOX FLUSH WITH SIDEWALK OR AS SHOWN.

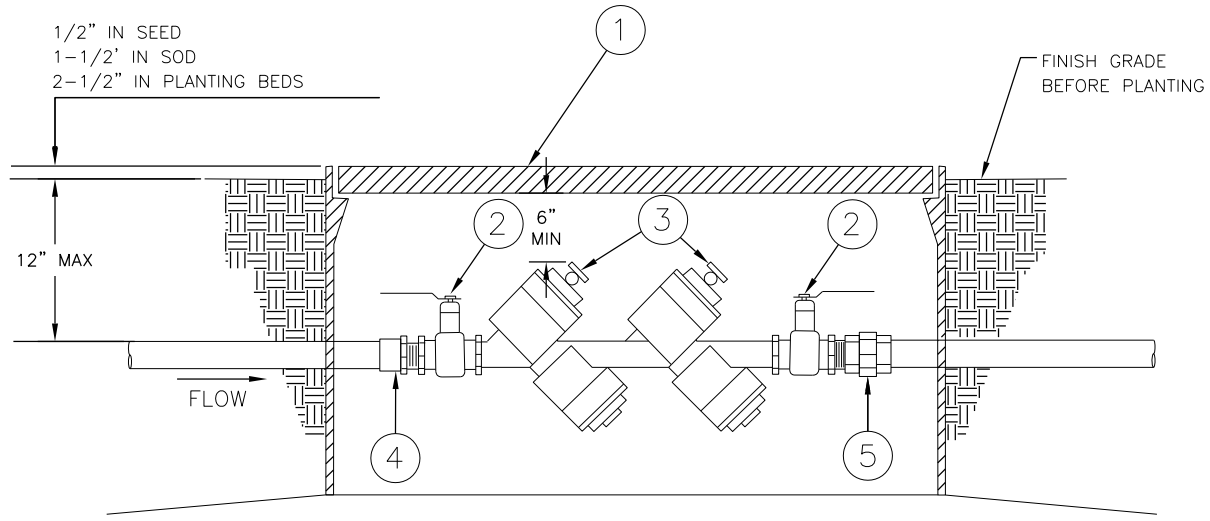
ITEM #	DESCRIPTION
①	BRASS SERVICE SADDLE, 1" AWWA I.P.T.
②	1" CORPORATION STOP, AWWA I.P.T.x F.L.P. W/45° STREET ELBOW, COMPRESSION FITTING
③	1" PURPLE P.E. TUBING, CTS CONTINUOUS WITH TRACER WIRE
④	1" ANGLE METER STOP, METER CPLG NUT x STAB TYPE END
⑤	RECYCLED WATER METER MANUFACTURED BY SENSUS IPERL
⑥	RECYCLED WATER TAG (SEE RW-21)
⑦	PRV W/ RECYCLED WATER TAG. SEE RW-25 FOR MANUFACTURER REQUIREMENTS.
⑧	CHRISTY PURPLE FL9 BOX

NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, JOINT OR FITTING.
2. SET TOP OF METER BOX FLUSH WITH SIDEWALK OR AS SHOWN.
3. ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
4. THE RECYCLED WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE RECYCLED WATER MAIN TO THE RECYCLED METER STOP.
5. PURPLE P.E. TUBING SHALL BE CONTINUOUS WITH TRACER WIRE.
6. ALL FITTINGS SHALL BE BRASS.
7. METER TO HAVE PURPLE LID AND DIAL.
8. RECYCLED WATER METER SHALL BE INSTALLED WITH SENSUS IPERL METER SETTER OR APPROVED EQUAL.

**RANCHO MURIETA
COMMUNITY SERVICES DISTRICT
RECYCLED WATER SERVICE INSTALLATION**

DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. RW-26
APPROVED K.KENNEDY	DATE 08/19				



ITEM #	DESCRIPTION
①	METER BOX 12"x20" CONCRETE BOX & STEEL LID
②	BALL VALVE, SUPPLIED WITH BACKFLOW PREVENTER BY MANUFACTURER.
③	DOUBLE CHECK BACKFLOW PREVENTER
④	BRASS ADAPTOR, TYP.
⑤	BRASS UNION DOWNSTREAM OF VALVE

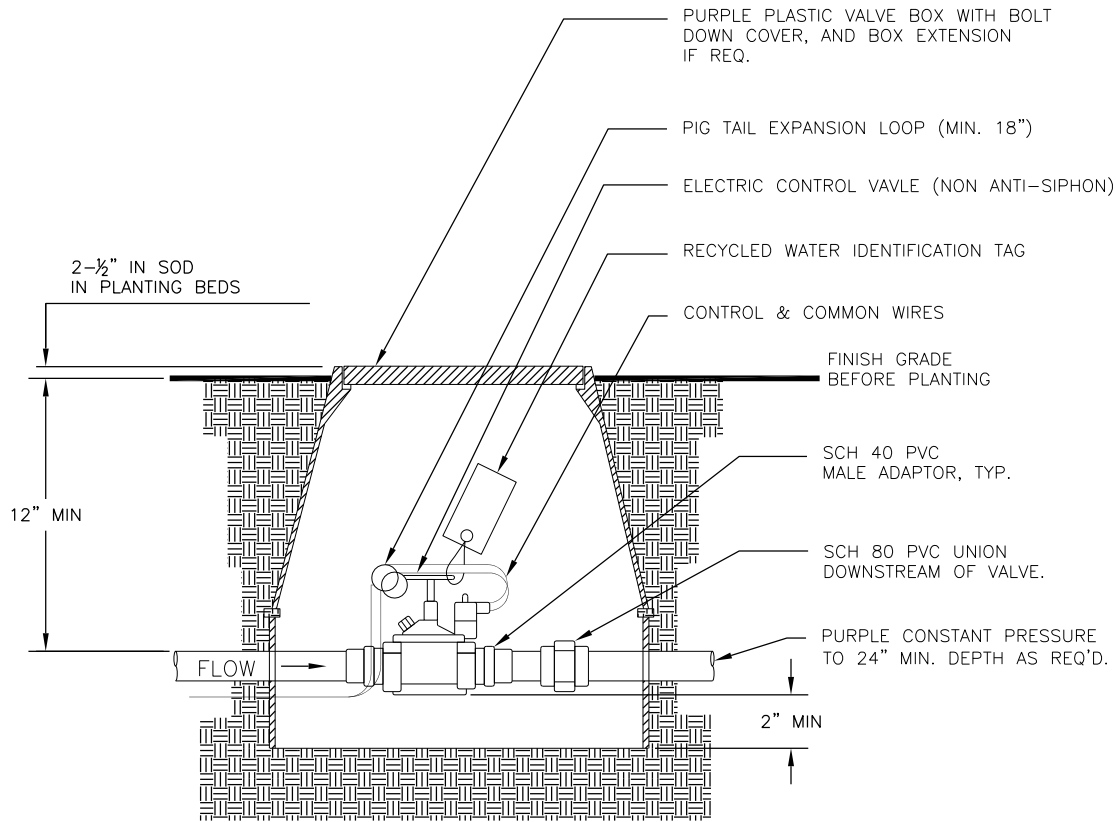
NOTES

1. PLACE VALVE BOX AT RIGHT ANGLES TO STRUCTURES OR HARDSCAPING
2. INSTALL VALVE BOX SO THAT TOP OF VALVE BOX IS FLUSH WITH ADJACENT HARDSCAPING.
3. GATE VALVE AND FITTINGS SHALL BE LINE SIZE UNLESS NOTED OTHERWISE.

RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

POTABLE WATER DOUBLE CHECK VALVE
FOR DUAL PLUMBED RESIDENCES

DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-27</i>
APPROVED K. KENNEDY	DATE 08/19				



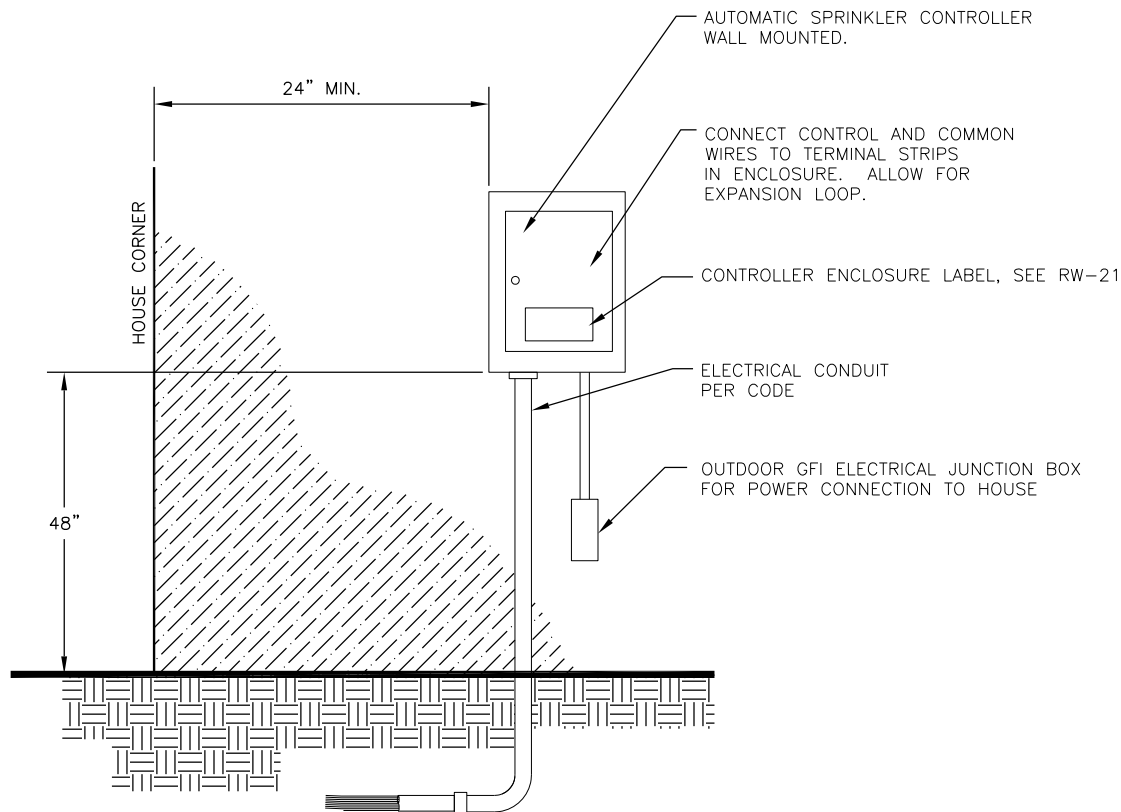
NOTE:

1. ATTACH DOUBLE SIDED IDENTIFICATION TAGS PER RW-21.

RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

ONSITE BURIED ELECTRIC
REMOTE CONTROL VALVE

DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-28</i>
APPROVED K. KENNEDY	DATE 08/19				



NOTES:

1. CONTROL WIRING (AWG. UF #14). SECURE TO TERMINAL STRIP PROVIDED IN ENCLOSURE.
2. COMMON WIRE TO BE WHITE & CONTROL WIRE TO BE RED. BUNDLE AND TAPE WIRING AT INTERVALS OF 10'-0" O.C.
3. NO SPLICES TO BE MADE BETWEEN CONTROLLER AND VALVE.
4. LIST OF APPROVED CONTROLLERS TO BE PROVIDED BY THE DISTRICT.

**RANCHO MURIETA
COMMUNITY SERVICES DISTRICT**

*ONSITE IRRIGATION
AUTOMATIC CONTROLLER*

DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-29</i>
APPROVED K. KENNEDY	DATE 08/19				

RW-30 Not Used



ROTORS



SHRUB SPRAY WITH DECAL



PURPLE DRIP HEAD



PURPLE DRIP LINE



PURPLE SPRAY HEADS

RANCHO MURIETA
COMMUNITY SERVICES DISTRICT

IRRIGATION HEAD AND
DRIP LINE COLOR CODING

DRAWN BY E. BULLOCK	SCALE NONE	REVISION	DATE	BY	STANDARD DRAWING NO. <i>RW-31</i>
APPROVED K.KENNEDY	DATE 08/19				

Appendix A

Contact Agencies and Information

Contact Agencies and Information

Rancho Murieta Community Services District

Paul Siebensohn, Director of Field Operations

Phone No: (916) 354-3730

Fax No: (916) 354-2082

Email: psiebensohn@ranchomurietacsd.com

Edward Crouse, General Manager

Phone No: (916) 354-3700

Fax No: (916) 354-2082

Email: ecrouse@ranchomurietacsd.com

Regional Water Quality Control Board, Central Valley

Phone No: (916) 464-3291

Fax No: (916) 464-4645

Address: 11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

California Department of Public Health, Sacramento District

Phone No: (916) 449-5600

Fax No: (916) 449-5655

Address: 1616 Capital Avenue
PO Box 997377, MS 7407
Sacramento, CA 95899-7377

Appendix B

Swivel Ell Connection Memo

Memorandum

Date: May 7, 2003

To: Regional and District Engineers

From: David P. Spath, Ph.D., P.E., Chief (*Original signed by Dave*)
Drinking Water and Environmental Management
601 North 7th Street, MS 216
Sacramento, CA 95814
(916) 322-2308

Subject: POLICY MEMO 2003-03: GUIDANCE FOR THE ALTERNATIVE USE
OF POTABLE WATER IN RECYCLED WATER SUPPLY USE AREAS
USING A "SWIVEL-ELL" PIPING ARRANGEMENT

RESCINDS POLICY MEMO 95-004

Introduction

This policy provides guidance to staff for applying the California regulations relating to cross-connection control (Title 17, California Code of Regulations, Sections 7583 et seq.). The practices outlined in this policy should be regarded as minimum conditions for providing backflow protection in the situations described. **NOTE that this policy updates and supersedes Policy Memo 95-004 to reflect current Water Recycling Criteria adopted in December 2002, and clarifies that this policy does not apply to dual-plumbed recycled water facilities.**

Statement of Problem

Premises where recycled water is used for on-site non-potable uses may not utilize domestic water from a public water system as a supplemental source of water for the recycled water system unless the public water supply is isolated with an air-gap separation in conformance with Section 7604 of the California Code of Regulations (CCR). This regulatory requirement is based upon the potential for contamination of the public water supply from cross-connections created within a premises which utilizes recycled water for approved non-potable uses.

The Department has become aware of situations where recycled water is used for on-site non-potable uses and the potable supply is available to the premises as an emergency, alternative source of water in the event that the recycled water supply is temporarily unavailable. A swivel-ell type connection is utilized to preclude connecting both sources of supply to the use area at the same time. The swivel-ell is switched from the recycled water connection to the potable connection in an emergency and the procedure is reversed once the recycled supply is available. The potable supply pipeline must be protected by an approved reduced pressure principle backflow preventer. The potential exists for concurrent use of the recycled water and potable water connections in violation of Section 7604 of the CCR. Therefore, special precautions must be taken to prevent the creation of



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www.consumerenergycenter.org/flex/index.html

cross-connections in these situations. In no case will it be acceptable for the potable supply to be directly connected to a recycled water supply.

Legal Status

Section 7604(c)(1), CCR Title 17, requires that an air-gap separation be used for backflow protection for premises where the public water supply is used to supplement the recycled water supply and the two supplies can be used simultaneously.

However, this Section does not address the use of alternative sources of water when the recycled water supply cannot be used simultaneously; this is the situation to which this policy applies.

Section 60315 of the Water Recycling Criteria (CCR, T22, adopted December 2000, following issuance of the original Swivel-El Policy Memo 95-004) includes design requirements for "Dual Plumbed Recycled Water Systems" which specifically exclude using the public water supply as a backup or supplemental source of water for the recycled system. Therefore, this Policy is not applicable to Dual Plumbed Recycled Water Systems as defined by Section 60301.250 (Title 22).

Department Position

It is the opinion of the Drinking Water Program of the California State Department of Health Services that with proper safeguards, a swivel-ell type connection may be used when potable water is used as an alternative water supply to an on-site recycled water distribution system with the exception of dual-plumbed systems as specified in Section 60315. This is acceptable only in cases where there is an unplanned, short-term interruption of the recycled water service.

Directions to Department Staff

No concurrent use of the potable water supply and the recycled water supply will be allowed. Prior to construction of any facilities, written approval shall be obtained from the potable water purveyor and the Department. Water utilities proposing to use potable water as an alternative water supply to an on-site recycled water distribution system at a recycled water use area or facility must demonstrate to the Department that they can comply with the following:

1. Only disinfected, tertiary recycled water is used.
2. The domestic water supplier has a cross-connection control program containing all of the minimum elements required by Section 7584 of the CCR.

The program ordinance or rules of service must address the use of recycled water in these situations and must be acceptable to the Department.

3. Each on-site recycled water distribution system may only be supplied from a single recycled water feed line. There shall be no other inter-connections between the recycled water distribution system and potable water system within the use area or facility.
4. The swivel-ell connection, including the recycled water service, potable water service and the service riser to the facility or use area must be located above ground, color coded in accordance with Section 4049.54 and provided with appropriate signs on both the recycled water and domestic water facilities. Appropriate security precautions must be provided (e.g. locked gate valves, warning signs, etc.) to prevent interconnections, vandalism and unauthorized use. The potable water purveyor shall inspect each location on a minimum annual basis to verify that a switchover has not occurred without the purveyor's approval. Meters must be provided on both connections and records of water use maintained.
5. The potable connection must be protected by an approved Reduced Pressure Principle Backflow Prevention Assembly (RP). Facilities for the swivel-ell connection must be located downstream of this assembly. The need for internal protection must also be evaluated.
6. To avoid concurrent use, swivel-ell connections must be designed such that a tee connection or other prefabricated mechanical appurtenances cannot readily be substituted for the ell. The recycled water and potable water services should not approach the service riser at an angle of 180° (Figure 1).
7. A signed agreement between the public water supplier and recycled water supplier¹ that incorporates the following must be obtained:
 - (a) The RP on the potable water supply line must be tested in accordance with Section 7605 of the CCR immediately prior to a switchover from the recycled water supply to the potable water supply. The completed test report must be sent to the Department and potable water purveyor prior to activation.
 - (b) The potable water purveyor and Department must be notified within 24 hours of each switchover.
 - (c) The potable water purveyor shall supervise the switchover and activation of the potable water service and subsequent deactivation.
 - (d) Upon request, the potable water purveyor must follow up with a written report to the Department within 7 days following the switchover.

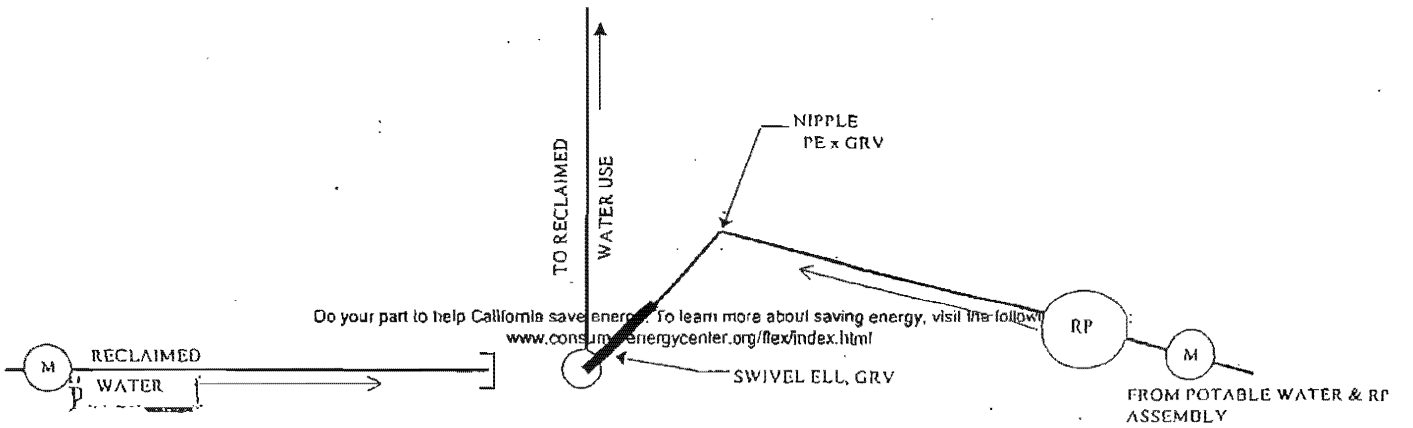
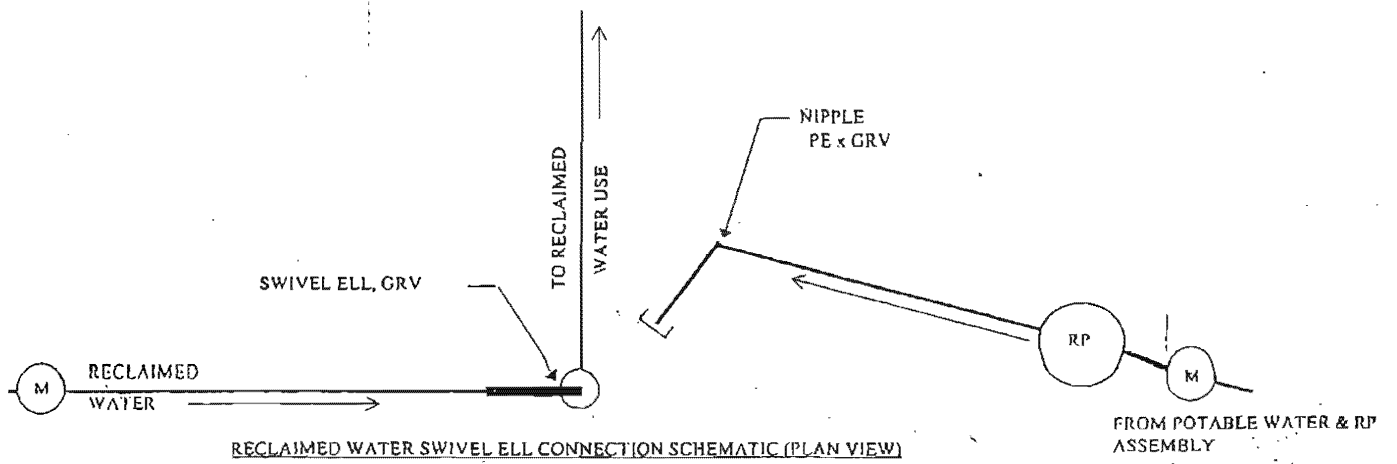
Note 1 - If a common agency has both water and recycled water operations then rules of service incorporating the following items must be in place.

This policy is intended for short-term emergency switch-overs, not to exceed 90 days.

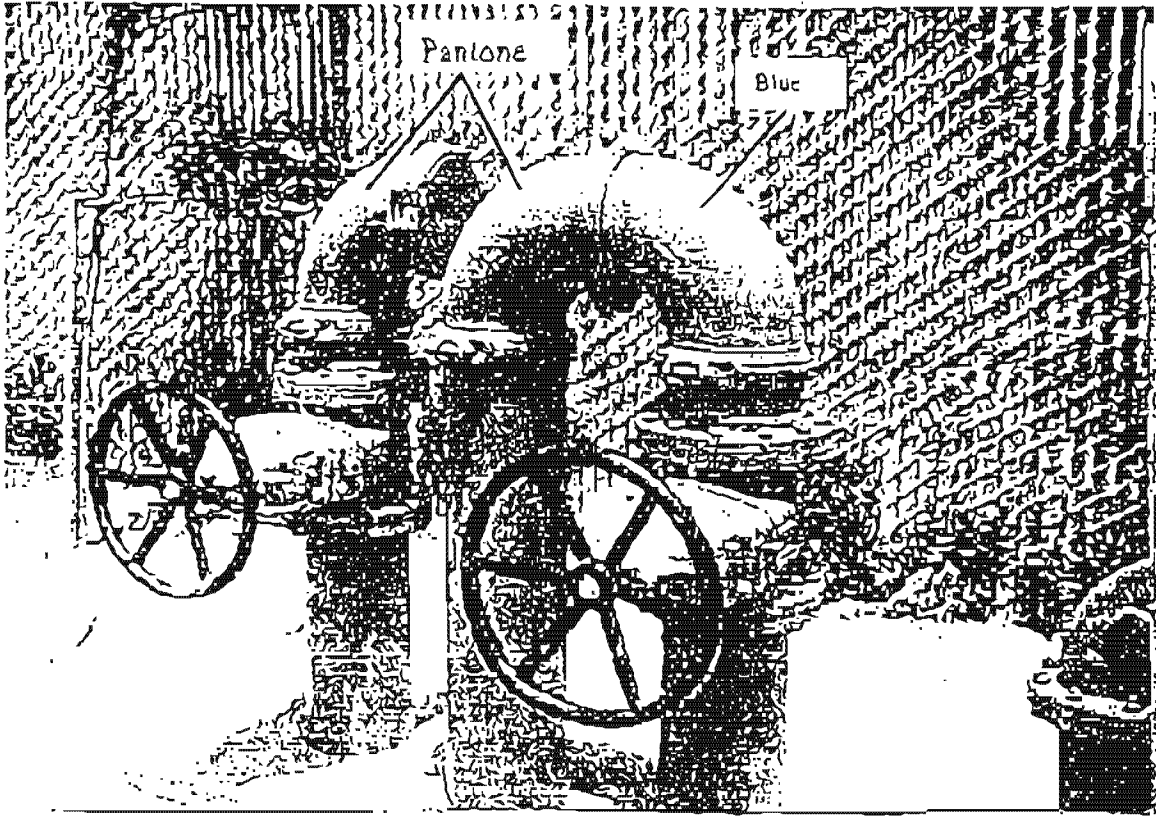
The potable water supplier will have the responsibility for documenting that all conditions of approval have been satisfied. The Department shall require installation of a permanent air-gap separation in accordance with Section 7604 of the CCR in the event that a cross-connection is made between the potable water supply and the on-site recycled water distribution system.

Memorandum

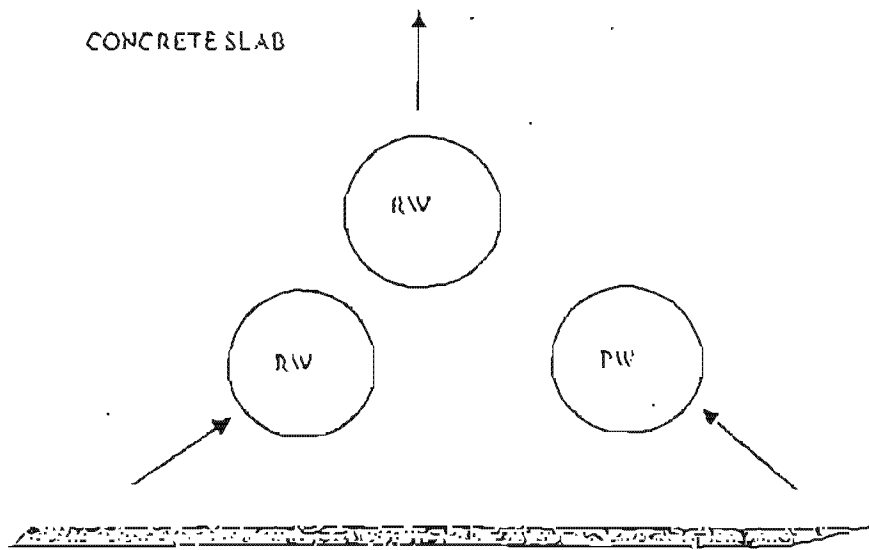
Figure 1 – Connection Schematics



Memorandum

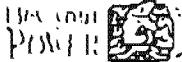


CONCRETE SLAB



EXAMPLE RECLAIMED AND POTABLE RISER LAYOUT
(PLAN VIEW)

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www.consumerenergycenter.org/lex/index.html



Appendix C
Sample Application Form

Rancho Murieta Community Services District
Application for Onsite Recycled Water Irrigation Use Permit

Site Information		District Use Only	
Location or Address:		Date Received	
		Date Distributed	
		Date of Determination	
		<input type="checkbox"/> Accepted <input type="checkbox"/> Returned <input type="checkbox"/> Rejected	
		User Name	
Assessor's Parcel No.		Notes:	
Applicant Information			
Applicant Is <input type="checkbox"/> Owner <input type="checkbox"/> Lessee <input type="checkbox"/> Other (Describe)			
Applicants Name:			
Address (Current)		Telephone No.	
City	State	Zip Code	
Owner's Name (if different)			
Owner's Contact Person			
Address		Telephone No.	
City	State	Zip Code	
User's Designated Site Supervisor			
Relationship to Applicant <input type="checkbox"/> Same <input type="checkbox"/> Partner <input type="checkbox"/> Employee <input type="checkbox"/> Other			
Supervisor's Name			
Business Address		Telephone No. Business Hours: Home: Cellphone:	
City	State	Zip Code	
<i>Note: The User's Site Supervisor must be reachable at all times in case of emergency. All phone numbers are for the use of the Recycled Water Program only.</i>			
Proposed Recycled Water Uses			
Current Water Source (if applicable):			
<input type="checkbox"/> Landscape Irrigation		Approximate Area: _____	

Briefly describe the proposed uses and potential degree of contact with public:	
<input type="checkbox"/> Other Uses	
Briefly describe the proposed uses and potential degree of contact with public:	
Cross-Connection Control ¹	
Has the cross-connection test been completed? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Backflow Prevention ²	
Have your backflow prevention devices been tested within the past year? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Recycled Water Demand Estimates	
Description of Site:	
Estimated Annual Recycled Water Use/Demand (gallons per year):	
Peak Use/Demand (gallons per minute):	
Pressure Requirements (pound per square inch):	
Hours of Use:	
Days of Use:	
Attachments	
<input type="checkbox"/> Recycled Water Plan (see 2.2.11.3 of the District's Recycled Water Standards)	
<input type="checkbox"/> Other: _____	
Site Supervisor	Applicant
I will operate and maintain the recycled water system in compliance with all conditions of the District's Waste Discharge Requirements, Master Reclamation Permit, and the Recycled Water Use Permit.	I designate the named person as the Site Supervisor. I am the 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: _____

¹ An initial cross-connection control test must be performed prior to receiving a Recycled Water Use Permit. If cross-connection test has been completed previous, please attach testing report results.

² All backflow prevention devices must be tested annually. If backflow prevention device tests have been completed previous, please attach the backflow prevention assembly test report and locate the devices on an attached site plan.

Appendix D

Cross-Connection Testing Procedures

Cross-Connection Testing Procedure

The Rancho Murieta Community Services District (District) uses a certified AWWA Cross-Connection Specialist to perform required cross-connection tests. The following general method is used for conducting these tests on all sites where both potable and recycled water are intended to be used in separate piping systems.

PART I: Potable Water System Testing

1. The potable water system shall be activated and pressurized. The recycled water irrigation system shall be shut down at the Point of Connection (usually the meter) and depressurized. Typically this is done by manually bleeding an irrigation control valve that is located at the lowest elevation in the irrigation system.
2. The potable water system shall remain pressurized for a minimum period of time specified by the Cross-Connection Control Specialist while the irrigation system is depressurized. The minimum period of time the recycled water irrigation system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and recycled water systems, but in no case shall that period be less than one hour.
3. All recycled water irrigation control valves, and any features that are approved to be supplied with recycled water from the onsite irrigation systems shall be tested (e.g., turned on or activated) and inspected for flow. Continuous flow from any part of the recycled water irrigation system indicates a cross-connection.
4. All interior and exterior potable water fixtures such as faucets, hose bibs, drinking fountains, toilets, supply lines to decorative fountains, etc. shall be tested and inspected for flow. The absence of flow from any potable water outlet indicates that it may be cross-connected to the recycled water irrigation system.
5. If no cross-connections are discovered, proceed to Part II of the test. If any cross-connections are found, they must be disconnected, and the site must be retested by an AWWA Cross-Connection Specialist in accordance with these procedures.

PART I: Recycled Water System Testing

1. The potable water system shall be shut off at its Point of Connection (usually the meter) and depressurized. In the case of a potable water system in a multi-story building, the potable water system pressure may be reduced by the amount deemed necessary by the Cross-Connection Control Specialist and monitored with a gauge installed at a low point of elevation in the potable water system.

2. The recycled water irrigation system shall then be activated and pressurized.
3. The recycled water irrigation system shall remain pressurized for a minimum period of time specified by the Cross-Connection Control Specialist while the potable water system is depressurized or, in the case of a multi-story building, remains in a state of reduced pressure. The minimum period of time the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall the period be less than one (1) hour.
4. All interior and exterior potable water fixtures such as faucets, hose bibs, drinking fountains, toilets, supply lines to decorative fountains, etc. shall be tested and inspected for flow. Some flow may occur from water breaking loose from an air lock in an overhead water line. The amount of flow to cause a concern is a judgment call by the Cross-Connection Control Specialist. If the potable water system has been truly shut off at its Point of Connection, then continuous flow from any part of the potable water systems (that is beyond the drainage generated by an air lock breaking free) indicates a cross-connection. In the case of a potable water system in a multi-story building, the testing of all fixtures may be used in combination with a pressure gauge (as mentioned in 1 above), or the pressure gauge may be used instead of the testing of all fixtures. If the potable water system has been truly shut down at its Point of Connection, then an increase in the potable water system pressure measured at the gauge over the period of time specified by the Cross-Connection Control Specialist indicates a cross-connection.
5. All recycled water irrigation control valves and other site features approved to be supplied with recycled water from the onsite irrigation system (such as supply lines for decorative fountains) shall be tested and inspected for flow. No flow from a recycled water irrigation control valve or fixture indicates that it may be connected to the potable water system.
6. If no cross-connections are discovered, then the potable water system shall be re-pressurized. If any cross-connections are found, they must be disconnected, and the site must be retested by an AWWA Cross-Connection Control Specialist per these procedures.

Upon successful completion, the certified AWWA Cross-Connection Control Specialist responsible for completing the above test will indicate the results on a Cross-Connection Certification Form and provide the form to the District and a copy to the Owner.