



Sunnyvale

Recycled Water Program

DESIGN AND CONSTRUCTION STANDARDS

Environmental Services Department
Department of Public Works

November 2, 2018

This Page Intentionally Left Blank

Contents

PURPOSE AND INTENT	1
Recycled Water Availability	1
Authorized Uses of Recycled Water	1
General Requirements for Recycled Water Systems	1
Current Standards	2
Service and Lateral Meters	2
Recycled Water Permits	3
OFF-SITE RECYCLED WATER FACILITIES	4
Restrictions and Required Separations.....	4
Depth of Pipeline Cover	4
Separation from other Utility Pipelines	4
Alternative Construction Criteria.....	5
Identification of Pipes, Fittings, and Equipment	5
Pipeline Identification	5
Meters, Valves, and Boxes	5
Blow-Off and Air Release Valves	6
Other Equipment	6
Tracer Wire	6
Signage and Public Notification	6
ON-SITE RECYCLED WATER SYSTEMS	7
Restrictions and Required Separations.....	7
Exceptions	7
Backflow Prevention	8
Identification of Pipes, Fittings, and Equipment	8
Pipeline Identification	8
Irrigation Systems	9
Quick-Coupling Valves	9
Booster Pumps	10
Storage Tanks.....	10
Seal Water	10
Construction	10
Equipment and Facilities Cleaning.....	11

Contents

Signage and Public Notification 11

Customer Documentation 11

 Contract Documents 11

 Site Plans and Specifications 12

 Irrigation Systems 12

 Dual-Plumbed Systems 12

APPENDICES14

PURPOSE AND INTENT

The *Recycled Water Design and Construction Standards* (RW Standards) are intended to assist with planning, designing, and constructing recycled water systems to ensure uniformity in design concepts, format, methodology, procedures, construction materials, and quality of work products. They are complimentary to the operation and maintenance requirements contained in the *Recycled Water Rules and Regulations* (RW Rules and Regulations), and when applied appropriately provide assurances for the health, safety, and general welfare of City of Sunnyvale (City) residents and customers that are consistent with State law.

The RW Standards do not limit the responsibility of the design consultant or customer. They instead assist in providing professionally sound, efficient, uniform, and workable criteria and requirements for recycled water improvements and use. The RW Standards do not address all aspects of a complete design. For areas not addressed in the RW Standards, the design consultant and customer must use good engineering judgment and practices.

RECYCLED WATER AVAILABILITY

Unless required under a City-adopted area specific plan or Project Condition of Approval, the use of recycled water in Sunnyvale is voluntary. Recognizing the benefits of recycled water, many potential customers have actively sought recycled water service for irrigation or indoor use, particularly in cases of new construction. The City's Community Development staff and Water and Sewer Division staff can advise prospective customers if recycled water is available in a particular area. The City is not obligated to provide recycled water service, and may deny a prospective customer's request based on cost or other considerations. A customer may, at their own expense and without expectation of reimbursement by the City, extend a recycled water main to a particular area but only upon approval by the City.

AUTHORIZED USES OF RECYCLED WATER

The City provides high-quality recycled water to its customers that meets or exceeds the rigorous standards for tertiary disinfected recycled water contained in California Code of Regulations (CCR) Title 22 by subjecting wastewater entering the Sunnyvale Water Pollution Control Plant to multiple treatment processes. The State Water Resources Control Board's (SWRCB) Division of Drinking Water (DDW) lists tertiary disinfected recycled water as having the most available approved uses out of all the recycled water options available.

GENERAL REQUIREMENTS FOR RECYCLED WATER SYSTEMS

The design of recycled water systems and the preparation of applicable documents shall be under the direction of a responsible professional landscape architect, civil engineer, or mechanical engineer registered in the State of California. A recycled water system is separate and independent of any potable water system. Components of on-site and off-site recycled water systems shall be identified with appropriate signage, tags, tape, color, or other means in conformance with these Standards and with the most current versions of the standards listed below to differentiate them from a potable system and to protect against cross-connections.

Current Standards

- City of Sunnyvale Recycled Water Rules and Regulations.
- City of Sunnyvale Standard Details and Standard Specifications.
- City of Sunnyvale Standard Construction Notes.
- City of Sunnyvale Municipal Code (SMC).
- Laws and Standards of the State of California State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) relating to Recycled Water.
- California Building Code (CBC) as amended by SMC.
- California Plumbing Code (CPC) as amended by SMC.
- California Code of Regulations Title 17, regulations relating to cross-connections.
- California Code of Regulations Title 22, Division 4 Wastewater Recycling Criteria.
- University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
- San Francisco Bay Regional Water Quality Control Board (RWQCB). City of Sunnyvale Water Reclamation Requirements (Order 94-069).
- American Water Works Association (AWWA). Guideline for Distribution of Non-Potable Water and Guidelines for the On-Site Retrofit of Facilities Using Tertiary Recycled Water.

Service and Lateral Meters

Prior to performing any work in the public right-of-way, the customer must first obtain an Encroachment Permit from the Department of Public Works. For all on-site work, the customer must also obtain a Building Permit from the Community Development Department.

For new recycled water service laterals, the City will, at the expense of the customer, perform the tap at the main, and furnish and install the meter and meter box in accordance with its *Standard Details and Standard Specifications*. Installation of the lateral between the tap and the meter is the responsibility of the customer. After a lateral is installed and passes City inspection, it becomes the property of the City. All meters and meter boxes are the sole property of the City, and may only be repaired, replaced, or removed by the City. The customer shall exercise reasonable care to prevent the meters and appurtenances installed upon the premises from being damaged or destroyed. If any defects are noted, the Water and Sewer Division must be notified. Any damage occurring to a meter or other appurtenance or pipes owned by the City shall be paid for by the customer. The customer is responsible for all maintenance and repairs of piping downstream of the meter.

Note: *It is strictly forbidden for any person other than City staff to operate any valves or touch or modify any portion of the recycled water piping upstream of and including the meter and meter box.*

Recycled Water Permits

Prior to activating recycled water service at a facility or site, an application for a Permit to Use Recycled Water must be submitted to the Water and Sewer Division of the Environmental Services Department for each site or service connection. After determining that the application is complete and the site meets all design requirements, the City will conduct a cross-connection test and issue a permit. The City's permitting process and cross-connection testing protocol are described in more detail in the RW Rules and Regulations.

OFF-SITE RECYCLED WATER FACILITIES

The following requirements apply to facilities located upstream of the recycled water meter, which are typically but not necessarily in the public right-of-way. Operation and maintenance of all off-site recycled water systems, including recycled water pipelines, valves, connections, storage facilities, and other related equipment and property up to and including the meter, shall be under the management and control of the City. No other persons except authorized representatives of the City shall have the right to enter upon any of the off-site facilities. Only City personnel and their representatives shall operate, adjust, change, alter, move, or relocate any portion of the off-site recycled water system.

RESTRICTIONS AND REQUIRED SEPARATIONS

The following requirements are to be implemented at off-site facilities and are derived from the recycled water series contained within the *City of Sunnyvale Standard Details and Standard Specifications*.

Depth of Pipeline Cover

The top of recycled water distribution pipelines must be a minimum of 4-feet below the finished grade, unless otherwise approved. The depth of cover on service lines must be a minimum of 30-inches below the finished grade.

Separation from other Utility Pipelines

The minimum separation requirements vary depending on the recycled water pipe material to be used during construction and the contents of the nearby utility. Refer to City Standard Detail RW series (**Appendix A**) for more detailed information and possible joint control requirements associated with these separations

Horizontal

A 5-foot horizontal separation outside of pipe to outside of pipe must be maintained when a new recycled water pipeline is built parallel to an existing potable water pipeline, an existing sanitary sewer, an existing sewage force main, or an existing recycled water pipeline. For new lateral lines, a minimum separation of 4-feet from a potable water line as measured from outside of pipe to outside of pipe must be maintained unless otherwise approved by the City on a case-by-case basis.

Vertical

At crossings of potable water, recycled water, and/or sewer pipelines, recycled water pipelines must be located from the ground surface in the order of descending quality, with potable water above recycled water and recycled water above sewer. Provide a minimum of 1-foot vertical separation between outside top and bottom surfaces of pipes.

Note: *A pipeline tap must be no closer than 18-inches from a valve, coupling, joint, or fitting unless it is at the end of the pipeline.*

Alternative Construction Criteria

When new recycled water mains are being installed in existing developed areas, local conditions (e.g. available space, limited slope, existing structures) may create a situation in which there is no alternative but to install recycled water mains at a distance less than that required by these standards. In such cases, the design consultant must obtain approval from the SWRCB Division of Drinking Water per CCR Title 22, Section 64572.

IDENTIFICATION OF PIPES, FITTINGS, AND EQUIPMENT

Painting and tagging/labeling of recycled water system components is required to clearly differentiate them from a potable water, wastewater, and/or storm drain system and to prevent possible contamination through an illicit cross-connection. The following requirements are to be implemented at off-site facilities and are derived from the recycled water series contained within the *City of Sunnyvale Standard Details and Standard Specifications*.

Pipeline Identification

All transmission/distribution pipelines in the recycled water system, including service pipelines, valves, and other appurtenances, both above and below ground, shall be colored purple using Pantone 522C and embossed or integrally stamped and/or marked: “CAUTION: RECYCLED WATER – DO NOT DRINK,” and “PELIGRO: AGUA IMPURA – NO BEBER.” As an alternative, standard pipe may be wrapped with purple plastic and tape containing the warning notice. The tape shall cover the circumference of the pipe and be securely fastened.

Identification tapes for protection and identification of the pipeline are prepared with black printing on a purple field having the words “CAUTION – RECYCLED WATER – DO NOT DRINK” and “PELIGRO: AGUA IMPURA – NO BEBER” or some equivalent alternately on the tape. The overall tape width must be at least 3-inches and cover the width of the pipe and non-metallic. The tape shall be installed 1-foot over the pipe longitudinally, and be continuous in its coverage. Metallic pipe (steel and ductile iron) used for recycled water shall be poly-wrapped and taped for corrosion protection per City specifications applicable to potable water, using purple wrap containing the appropriate language.

Meters, Valves, and Boxes

Water meters and boxes used for recycled water service are provided and installed by the City and shall be tagged accordingly and/or painted purple using Pantone 522C. The tag shall have the following bilingual wording: “WARNING Recycled Water Do Not Drink / AVISO Agua Reciclada No Beber” or equivalent. These meters shall not be interchanged or used for potable water service after repairs and/or meter testing has been performed.

Main and lateral line valve boxes shall be Christy G-5 or approved equal with steel frame and heavy duty cover, and must have a recognizable inscription cast on the top surface, such as “Reclaimed/Recycled Water Do Not Drink – No Beber” or equivalent. Covers must be painted purple by using Pantone 522C.

Blow-Off and Air Release Valves

Blow-offs must be installed at low points along pipelines and at the ends of pipelines (where a pipeline may be extended in the future). This is necessary to drain the pipeline and to remove accumulated sediment.

Note: *Discharge of recycled water to storm drains is prohibited. Prior to any discharge to the sanitary sewer system, the discharger must contact the Water and Sewer Division.*

Local high points in the pipeline profile are to be avoided. A local high point is acceptable only if there is a service connection at this location, to allow trapped air to escape via the service. If no service is present at such locations, the pipeline profile may be deepened as needed to prevent local high points, and to prevent the need for air release valves (ARVs). In such instances, the pipeline designer must receive approval from City during the design process to determine the appropriate pipeline profile and placement of ARVs.

All above-ground and most below ground appurtenances for blow-offs and ARVs shall be consistently color-coded purple by using Pantone 522C and marked to differentiate recycled water facilities from potable water and/or wastewater facilities. A pipeline tap for blow-off or ARV must be no closer than 18-inches from a valve, coupling, joint, or fitting unless it is at the end of the pipeline.

Other Equipment

Other equipment such as backflow prevention devices, pumps, tanks, etc., shall be painted purple using Pantone 522C and have an approved purple identification tag equivalent or similar to those for meter and valve boxes.

Tracer Wire

Tracer wire must be installed along all recycled water pipelines. Wire shall be accessible with a minimum of 12-inch slack in all surface valve boxes and other features along the pipeline that are accessible from the ground surface, as specified in the *City of Sunnyvale Standard Details and Standard Specifications 32B*.

SIGNAGE AND PUBLIC NOTIFICATION

Adequate means of notification must be provided to inform the public, employees, and others that recycled water is being used. Conspicuous signs with appropriate wording that can be clearly read must be placed at site entrances and, if required by the City, at adequate intervals around the authorized use area. Signs shall be a minimum of 9" x 12" and shall include wording such as "Irrigated with Recycled Water" or "Using Recycled Water" and "Do Not Drink". Signs shall display a universal symbol identifying non-potable water.

ON-SITE RECYCLED WATER SYSTEMS

The requirements of this section apply to facilities located downstream of the recycled water meter, which are typically on the customer or site owner's property. All on-site recycled water facilities that benefit specifically from the use of recycled water are provided by the site owner or customer at their own expense. The customer, at their own expense, shall make all modifications to the potable water system on the premises required by the City to permit the use of recycled water, including the installation of approved backflow prevention devices.

RESTRICTIONS AND REQUIRED SEPARATIONS

Horizontal and vertical utility separations for on-site facilities shall follow the same requirements as those specified in the previous Chapter for off-site facilities unless specific exceptions listed below apply and are approved by the City. In addition, the following requirements and restrictions apply to all on-site facilities:

- 1 Areas irrigated with recycled water must be kept completely separated from domestic water wells and reservoirs. No irrigation with recycled water shall take place within 50-feet of any domestic water supply well, and no impoundment of recycled water shall take place within 100-feet of any domestic water supply well.
- 2 Connections to supplement the recycled water system with potable water may be made only through an air-gap separation.
- 3 Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the City.
- 4 No recycled water for irrigation shall be used during periods of rainfall or when soils are saturated such that runoff can occur.
- 5 Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.
- 6 Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.
- 7 Cooling towers shall employ drift eliminators and/or biocides if the public or employees can be exposed to the mist.
- 8 Garden hose bibs shall not be installed on any recycled water system. The use of quick couplers is permitted, subject to the identification requirements described in this Chapter.
- 9 Recycled water shall not be used as a domestic or animal water supply.

Exceptions

Exceptions to the general rule of a 1-foot minimum vertical separation between potable and recycled water for on-site facilities are as follows:

- 1 On irrigation systems where intermittently pressurized recycled water lines (service lines) serve sprinkler heads, the potable water line(s) may be placed under the recycled water service lines. No

special construction requirements are necessary if the 1-foot vertical separation is maintained.

- 2 On sites that use pressurized irrigation service lines with valve-in-head sprinklers, the potable water line(s) may be placed under the recycled water service lines, if additional protection is provided for the potable line. Common practices include sleeving or automatic flow control and/or shutoff devices that are installed and function properly on each lateral that cross a potable line.

BACKFLOW PREVENTION

Requirements governing backflow prevention are intended to protect the City's potable and recycled water supplies, and are not intended to protect customers from potential hazards of cross-connections within their own property. All backflow prevention devices are to meet the *City of Sunnyvale Standard Details and Standard Specifications* (18B through 32B).

The provision of recycled water to a site constitutes an auxiliary water supply not approved for potable use as described in Sunnyvale Municipal Code 12.28.190. All premises served by both potable water and recycled water shall have but not necessarily be limited to air gaps and/or reduced pressure principle devices (RP) on the potable and recycled water system. Additional pressure regulating devices may be required to further protect the potable water system, as the Water and Sewer Division deems necessary.

Approved RPs on potable water services, as required in these provisions, shall be provided, installed, tested, and maintained by the customer at the customer's expense. Test reports shall be submitted to the Utility Billing Division as directed. RPs shall be located on the property served immediately downstream of the meter and shall not be on City property or the public right of way. All devices shall be readily accessible for testing and maintenance and no device shall be submerged at any time.

IDENTIFICATION OF PIPES, FITTINGS, AND EQUIPMENT

Painting and tagging/labeling of recycled water system components is required to clearly differentiate them from a potable water, wastewater, and/or storm drain system and to prevent possible contamination through an illicit cross-connection. The following identification requirements are to be implemented at on-site facilities and are derived from the *Standard Details and Standard Specifications* recycled water series.

All above-ground equipment which may contain recycled water, including but not limited to pumps, storage reservoirs, piping, valves, strainers, controllers, and quick-couplers, shall be clearly and adequately identified by purple color-coding, tags, stickers, and/or signage as indicated below. The City will provide examples of identification devices and approved wording for such devices. Customers shall maintain all signage and identification devices, and replace, repair or refurbish all devices as needed.

Pipeline Identification

New on-site pipelines must be identified as recycled water pipelines by using a purple color-code that differentiates them from potable water pipelines. Piping shall be embossed or integrally stamped and/or marked: "CAUTION: RECYCLED WATER – DO NOT DRINK", and "PELIGRO: AGUA IMPURA –NO BEBER" or equivalent.

As an alternative, standard pipe may be wrapped with purple plastic and tape containing the warning notice. The tape shall cover the circumference of the pipe and be securely fastened.

Note: *For dual plumbing systems, piping shall be manufactured with purple color integral to the materials or shall be labelled using purple-colored adhesive Mylar tape along the entire length of the pipe as required in California Plumbing Code Section 16A.*

All temporary and permanent connections to a recycled water system must be identified in the manner described above to differentiate them from connections to a potable water system.

Conversion of a Potable System

When converting an existing on-site potable water system to recycled water usage (retrofit), the potable water system must be accurately located and tested in coordination with the Water and Sewer Division. The City will abandon the potable tap on the main line and establish a new connection to the recycled water main. Necessary actions shall be taken to bring the retrofitted system into compliance with the RW Standards. If the existing system is approved by the City, except for pipe identification, the line can be considered approved for recycled water service. If the acceptability of the existing line cannot be verified, the line must be uncovered and inspected, and deficiencies identified before use. However, all replacements of an existing recycled water irrigation system must be color-coded for identification in accordance with the RW Standards. Refer to the RW Rules and Regulations for more information on the requirement for converting a potable water system for recycled water use.

Irrigation Systems

Irrigation system valve boxes shall be Carson Purple Irrigation Valve Boxes or approved equal, and must have a recognizable inscription cast on the top surface, such as “Reclaimed/Recycled Water Do Not Drink – No Beber” or equivalent. Alternatively, the irrigation valve boxes may have a 2-inch x 3-inch minimum tag securely affixed to the outside of lid. The tag shall have the following bilingual wording: “Reclaimed/Recycled Water Do Not Drink – No Beber” or equivalent. Irrigation controllers shall have the same tag as specified for meter and valve boxes, located on the inside and outside of the box.

Retrofits will not be required to replace existing green valve boxes. However, green boxes are required to have a warning label or nameplate permanently attached onto the lid with rivets, screws or bolts. Warning labels shall read “Recycled Water – Do Not Drink – Beber” or equivalent.

Sprinkler heads should be ordered with purple markings or fabricated with purple components. Retrofit projects will not be required to change out non-purple sprinkler heads and bubblers.

Quick-Coupling Valves

Quick-coupling valves on recycled water systems shall be visibly different from those used on the potable system. The use of Acme threaded couplings for recycled water is preferred, and shall be required for sites where both recycled water and potable water quick coupling valves are present.

Newly constructed sites shall have quick coupling valves installed in purple valve boxes and recycled water identification tags attached to the valve or to the inside of the box so that the tag is clearly visible when the box lid is removed. Retrofit sites will not be required to change-out existing green valve boxes. However, warning labels or nameplates must be permanently installed onto the lid with rivets, screws or bolts. Warning Labels shall read “Recycled Water – Do Not Drink – No Beber” or equivalent.

Quick coupling valves shall be fitted with a permanently attached and locking cover made of purple rubber or vinyl and imprinted with the words “RECYCLED WATER.” Any wands, hoses, sprinkler heads, fittings, or other attachments used in conjunction with quick coupling valves shall be labeled with the words, “RECYCLED WATER – DO NOT DRINK.” Attachments used in a recycled water system shall not be used on a potable water system and shall be removed when not in use to prevent unauthorized use and accidental consumption of recycled water.

Note: *The use of garden hose bibs on the recycled water system is strictly prohibited.*

Booster Pumps

Customers that provide booster pumps to increase the operating pressure must identify the pumping systems as recycled water, avoid the release of recycled water in an uncontrolled manner, and provide proper drainage of the packing seal water. The signage must be readily seen by all operations personnel that are in the working area.

Storage Tanks

Recycled water storage tanks may have potable water connections for makeup from potable water sources. 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. A copy of the proposed air gap assembly plans shall be submitted to the Water and Sewer Division for review and approval.

Seal Water

Any potable water used as seal water for recycled water pump seals must be adequately protected against backflow.

Construction

Recycled water for construction may only be used for soil compaction during grading operations, dust control, and consolidation and compaction of backfill in trenches for non-potable water, sanitary sewer, storm drain, gas pipelines, and electric conduits. Recycled water may not be used for water jetting and consolidation or compaction of backfill in trenches for potable water pipelines.

Recycled water for construction purposes is obtained from a permanent water tanker filling station located at the Sunnyvale Water Pollution Control Plant and is subject to availability. The use of recycled water for construction purposes must be approved by the City of Sunnyvale Environmental Services Department. A permit must be obtained from the Water Pollution Control Plant before construction

begins. The permit application and other applicable forms and program requirements are included in **Appendix B**.

Note: *Recycled water from the tank filling station may not be used for residential purposes, including construction.*

Equipment and Facilities Cleaning

Any equipment or facilities such as storage ponds, tanks, temporary piping or valves, and portable pumps used with recycled water must be cleaned and disinfected before being removed from the approved use area(s) for use at another jobsite.

SIGNAGE AND PUBLIC NOTIFICATION

Adequate means of notification must be provided to inform the public, employees, and others that recycled water is being used. Conspicuous signs with appropriate wording that can be clearly read must be placed at site entrances and, if required by the City, at adequate intervals around the authorized use area. Signs shall be a minimum of 9" x 12" and shall include wording such as "Irrigated with Recycled Water" or "Using Recycled Water" and "Do Not Drink". Signs shall display a universal symbol identifying non-potable water. Languages in addition to English must be used on signs where appropriate.

The City can assist the customer with the proper placement of signage, equipment tags, and other notifications during the design and construction of the recycled water system, as part of the annual site inspections or permit renewal process, or as requested by the customer.

CUSTOMER DOCUMENTATION

Contract Documents must delineate the proposed recycled water service area, the proposed facility location, the sizes and types of all potable and recycled water pipelines and service connections and other on-site facilities. The Contract Documents must include the layout of existing potable water pipelines and facilities, including any areas from which recycled water must be specifically excluded.

Plans and drawings must be prepared by a professional civil engineer, a mechanical engineer, or landscape architect registered in the state of California for the construction of on-site recycled water facilities must be submitted during the Plan Check process for review and approval by the Environmental Services Department. For dual plumbed facilities, refer to additional requirements included in the RW Rules and Regulations.

Contract Documents

The following information is to be provided on the Contract Documents by every customer applying for a permit to use recycled water:

- 1 Meter size (inch diameter).
- 2 Irrigated area to be served through the recycled water meter (square feet or acres).
- 3 Peak flow required through the meter (gpm).

- 4 Estimate of the yearly recycled water requirement (acre-feet or CCF).
- 5 Direction of overland drainage pattern.
- 6 Location of existing wells (if applicable).
- 7 Boundary location of 100-Year Flood Plan (if applicable).
- 8 Location of potable water pipelines and sanitary sewers within metered service area.
- 9 Location of storm drains within metered service area.

Site Plans and Specifications

The drawings shall indicate locations of drinking fountains, designated food preparation areas and/or designated outdoor eating areas on this site.

Include City of Sunnyvale Recycled Water Design Drawing General Notes (Drawings RW-3A and RW-3B) and Public Works Department/Engineering Division Construction General Notes on all recycled water improvement and irrigation drawings. Also include Recycled Water Labels (Drawings RW-1A, RW-1B, and RW-1C) as applicable.

Irrigation Systems

If on-site facilities include a landscape irrigation system, the following data for the materials used in the irrigation system must be included on the plans:

- 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:
 - Sprinkler radius (feet).
 - Operating pressure (psi).
 - Flow [gpm or gallons per hour (gph)] Sprinkler pattern.
 - Manufacturer, model number, and all pertinent information.
- 4 Drip irrigation information and all pertinent information.

Dual-Plumbed Systems

Dual-plumbed systems occur when both potable water and recycled water are present inside a building. For example, a building where recycled water is used for toilet flushing is a dual-plumbed facility. In these instances, a *Dual-Plumbing Engineering Report* must be submitted as part of the permit application packet, demonstrating compliance with the applicable CCR Title 22 and California Plumbing Code requirements. Refer to the RW Rules and Regulations for additional requirements for dual-plumbed systems.

Note: *The City may require submission of an Engineering Report, or its equivalent, for other “in-building” uses of recycled water which do not fall under the Title 22 definition of “dual-plumbed”, but which*

raise similar concerns and necessitate more detailed documentation for City approval. Examples include recycled water being used in an industrial process, fire suppression systems, or cooling towers.

Appendices

Appendix A

Sunnyvale Standard Detail Recycled Water Series

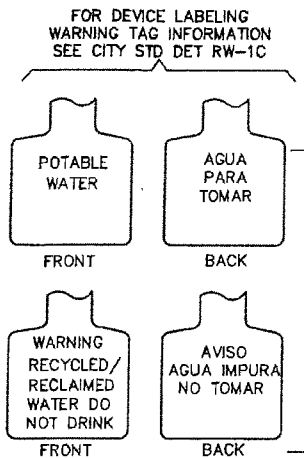
Appendix B

Sunnyvale Recycled Water Truck Program

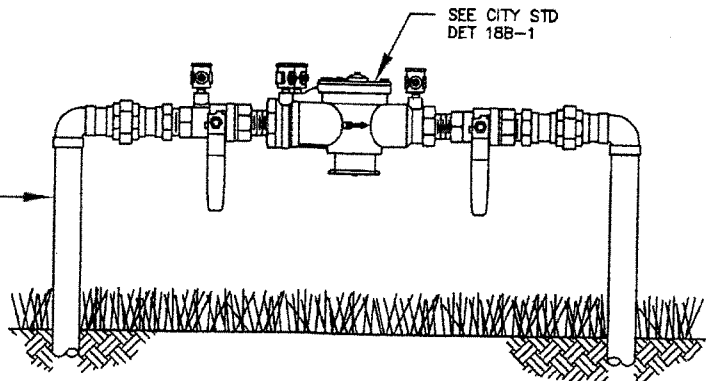
This Page Intentionally Left Blank

Appendix A

Sunnyvale Standard Detail Recycled Water Series



IDENTIFY
WATER
USAGE
DEVICE



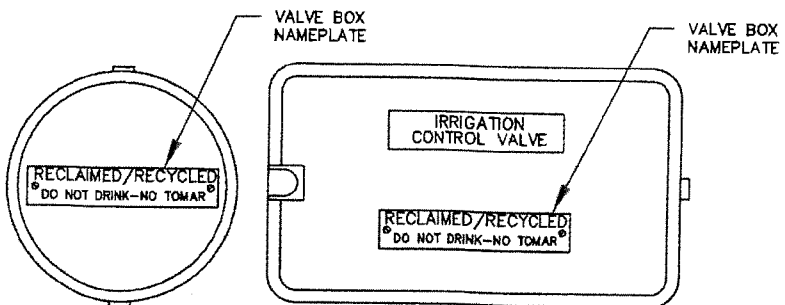
NOTE: ALL WATER METERS, AIR/VACUUM RELIEF VALVES, VALVES, PRESSURE REDUCING VALVES, PUMPS, PUMP CONTROL VALVES, ETC., SHALL BE TAGGED OR LABELED INDICATING WHETHER THE DEVICES ARE ON RECYCLED WATER OR POTABLE WATER SYSTEM.

WATER CONTROL DEVICE DETAIL

NOT TO SCALE

IRRIGATION VALVE BOX NOTES:

1. FOR NEW INSTALLATIONS, INSTALL CARSON PURPLE IRRIGATION VALVE BOXES (OR EQUAL) THAT ARE USED FOR RECYCLED WATER APPLICATIONS. BOXES SHALL BE IMPRINTED WITH THE INFORMATION THAT IS SHOWN ON THE VALVE BOX NAMEPLATE. SEE RIGHT -->



VALVE BOX NAMEPLATE INFO: T. CHRISTY ENTERPRISES, INC. CATALOG P/S: 3800 (OR APPROVED EQUAL).

IRRIGATION BOX COVERS/LIDS DETAIL

NOT TO SCALE

RECYCLED WATER LABELS - 1

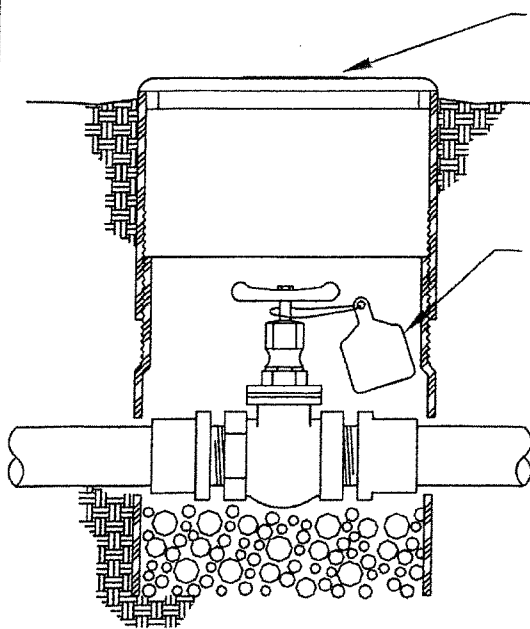


DATE : DEC 2014
REVISED : -

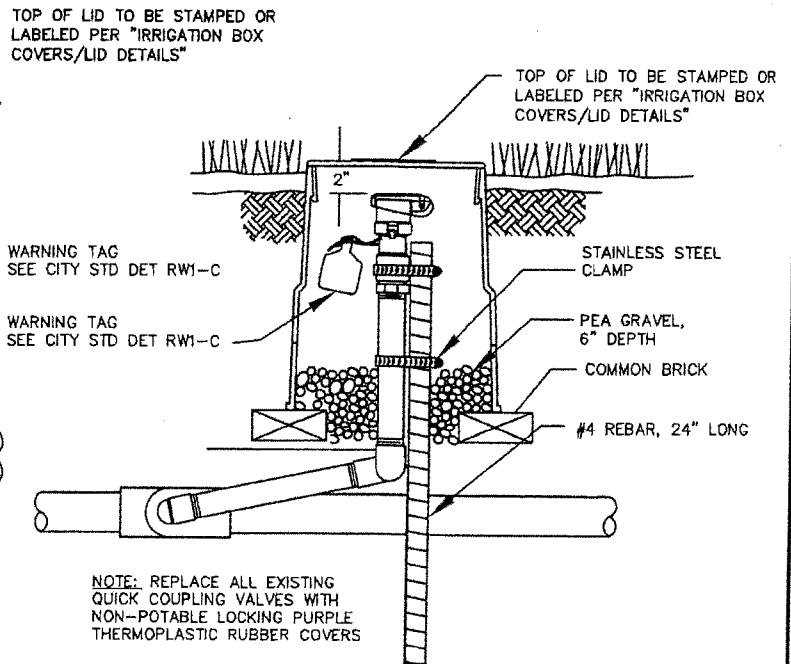
APPROVED BY:

DWG.

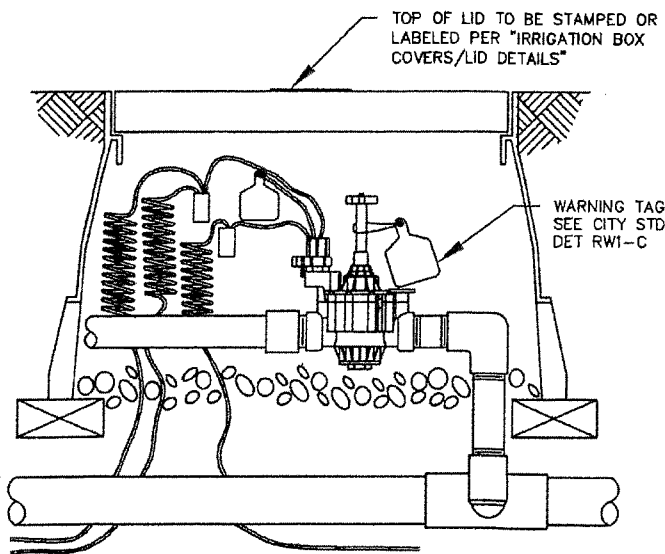
RW-1A



GATE VALVE DETAIL
NOT TO SCALE



QUICK COUPLING VALVE DETAIL
NOT TO SCALE



REMOTE CONTROL VALVE DETAIL
NOT TO SCALE

RECYCLED WATER LABELS - 2



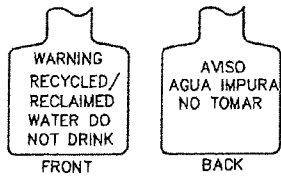
Signature
APPROVED BY:

DATE : DEC 2014
REVISED : -

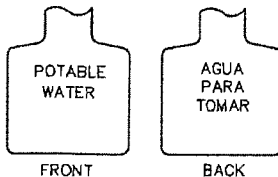
DWG.

RW-1B

RECYCLED WATER
RECYCLED WATER COLOR: PURPLE



POTABLE WATER
DRINKING WATER COLOR: BLUE



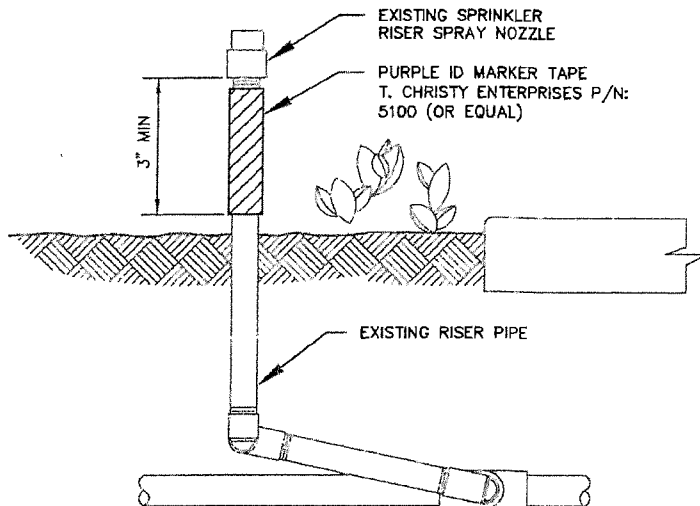
SAMPLE WARNING TAG. BACKGROUND PURPLE
(PANTONE 512) WITH BLACK LETTERING.

NOTE: T CHRISTY ENTERPRISES INC.
P/N: ID-MAX-B1-PW014 (OR APPROVED EQUAL)

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

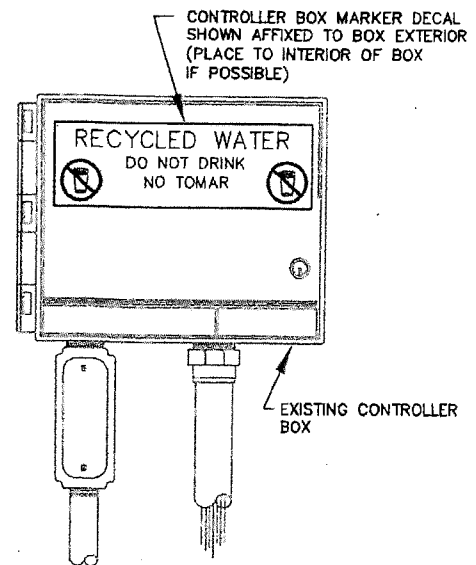
WARNING TAG INFORMATION

NOT TO SCALE



RECYCLED WATER RISER MARKER DETAIL

NOT TO SCALE



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

CONTROLLER BOX MARKER DETAIL

NOT TO SCALE

RECYCLED WATER LABELS - 3



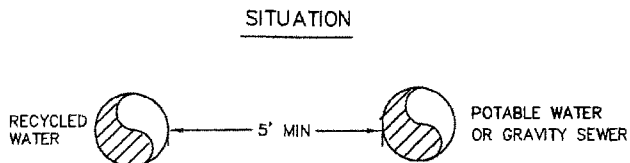
DATE : DEC 2014
REVISED : -

APPROVED BY: *[Signature]*

DWG.

RW-1C

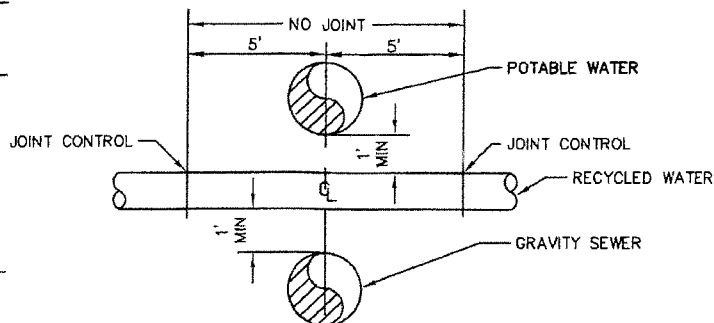
PARALLEL
CASE 1



CRITERIA

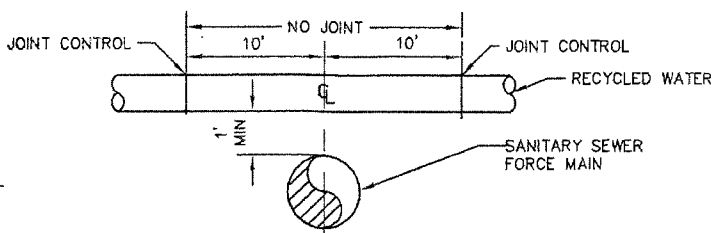
- * NO JOINT CONTROL FOR STEEL, DIP, AND PVC

CROSSING #1
CASE 2A
SEE RW-2B



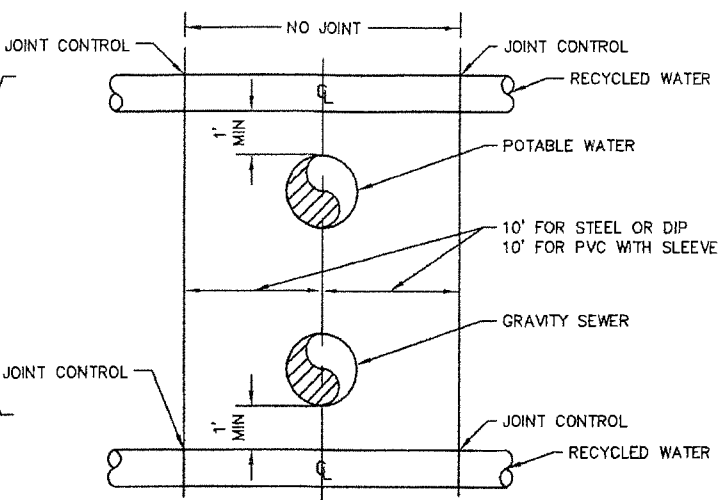
- * JOINT CONTROL FOR STEEL, DIP, AND PVC
- * RECYCLED WATER PIPELINE SHOULD BE BELOW POTABLE PIPELINES AND ABOVE STORM AND SANITARY SEWER PIPELINES.

CROSSING #2
CASE 2B
SEE RW-2B



- * NO PVC
- * STEEL WITH DOUBLE WELDED JOINTS
- * DIP WITH MECHANICAL RESTRAINT JOINTS
- * LOCATE JOINTS MIN. 10' FROM THE CROSSING

CROSSING #3
CASE 2C
SEE RW-2B



- * STEEL WITH DOUBLE WELDED JOINTS
- * DIP WITH MECHANICAL RESTRAINT JOINTS
- * LOCATE JOINTS MIN. 10' FROM THE CROSSING (STEEL & DIP)
- * PVC PIPE WITH JOINT RESTRAINT AND REQUIRED CONTINUOUSLY SLEEVED FOR 20' FROM THE CROSSING

PIPE CLEARANCE REQUIREMENT DETAILS
NOT TO SCALE

**RECYCLED WATER
SEPARATION REQUIREMENTS - 1**



[Signature]
APPROVED BY:

DATE : DEC 2014
REVISED : -

DWG.

RW-2A

BASIC SEPARATION STANDARDS:

CASE 1. PARALLEL CONSTRUCTION

WHEN RECYCLED WATER MAINS ARE AT LEAST 5 FEET (MEASURED FROM EDGE OF PIPE-TO-EDGE OF PIPE) FROM POTABLE WATER AND/OR SANITARY SEWER MAINS OR STORM DRAINS, RECYCLED WATER MAIN CAN BE INSTALLED WITH STEEL PIPE (SP), DUCTILE IRON (DIP), AND PLASTIC PIPE (PVC) WITHOUT JOINT CONTROL. WHEN LOCATED NEAR A SEWER FORCE MAIN, RECYCLED WATER MAIN IS TO BE CONSTRUCTED MAINTAINING THE 10 FEET MINIMUM SEPARATION REQUIREMENT AND ONLY SP AND DIP ARE ACCEPTABLE MATERIALS (SEE PARALLEL DETAIL ON CITY STD DETAIL RW-2A).

CASE 2. CROSSING CONSTRUCTION

2A. (SEE CROSSING #1 DETAIL ON CITY STD DETAIL RW-2A) AT CROSSING WHERE RECYCLED WATER MAINS ARE TO BE CONSTRUCTED. MAINTAIN 1 FOOT MINIMUM VERTICAL CLEARANCE (MEASURED FROM EDGE-OF-PIPE TO EDGE-OF-PIPE) FROM ANY UNDERGROUND UTILITIES, INCLUDING POTABLE WATER LINES, SANITARY SEWERS, STORM DRAINS, GAS LINES, ELECTRICAL DUCTBANKS, ETC. WHEN RECYCLED WATER MAINS ARE 1 FOOT BELOW THE POTABLE WATER MAINS AND/OR 1 FOOT ABOVE THE SANITARY SEWER MAINS, THE PIPE JOINTS MUST BE LOCATED AT LEAST 5 FEET FROM THE EXISTING PIPE (MEASURED FROM CENTERLINE OF EXISTING PIPE TO THE JOINT). SP, DIP, AND PVC ARE ALL ACCEPTABLE PIPE MATERIALS.

2B. (SEE CROSSING #2 DETAIL ON CITY STD DETAIL RW-2A) WHEN CROSSING A SANITARY SEWER FORCE MAIN, THE RECYCLED WATER MAIN MUST BE LOCATED AT LEAST 1 FOOT ABOVE THE EXISTING FORCE MAIN. ONLY SP WITH DOUBLE WELDED JOINTS AND DIP WITH MECHANICALLY RESTRAINED JOINTS ARE ACCEPTABLE. RECYCLED WATER PIPE JOINTS MUST BE LOCATED AT LEAST 10 FEET FROM THE CENTERLINE OF EXISTING SANITARY SEWERS FORCE MAIN.

2C. (SEE CROSSING #3 DETAIL ON CITY STD DETAIL RW-2A) WHEN THE RECYCLED WATER MAINS ARE 1 FEET ABOVE THE POTABLE WATER LINES AND/OR 1 FOOT BELOW THE SANITARY SEWER MAINS, SP SHALL BE CONSTRUCTED WITH DOUBLE WELDED JOINTS, DIP USED SHALL HAVE MECHANICAL RESTRAINED JOINTS. BOTH SP AND DIP JOINTS MUST BE LOCATED AT LEAST 10 FEET FROM THE CENTERLINE OF EXISTING SANITARY SEWERS AND/OR EXISTING WATER LINES. IF PVC IS USED FOR RECYCLED WATER PIPELINE AT CROSSING, IN ADDITION TO THE JOINT THRUST RESTRAINT DEVICES, A CONTINUOUS SLEEVE FOR A DISTANCE OF 10 FEET ON EITHER SIDE OF CROSSING SHALL BE INSTALLED.

GENERAL NOTES

1. ALL SP USED FOR PIPING SHALL MEET A MINIMUM INTERNAL PRESSURE OF 200 PSI. NO MINIMUM PIPE WALL THICKNESS REQUIRED. (PIPE WALL THICKNESS SHALL BE CHOSEN BASED ON THE INTERNAL PRESSURES AND EXTERNAL LOADS EXERTED ON THE PIPE, THE MOST CONSERVATIVE DESIGN FOR PIPE WALL THICKNESS MUST BE SPECIFIED).
2. DIP USED FOR PIPING, THE STANDARD PIPE WALL THICKNESS SHALL BE DETERMINED BY THE STANDARD PIPELINE DESIGN, THERE IS NO MINIMUM INTERNAL PRESSURE REQUIREMENT.
3. PVC USED FOR PIPING, A DIMENSION RATIO (DR) OF 14 AND PRESSURE CLASS OF 200 MUST BE SPECIFIED. ALSO REFER TO AWWA C900 REQUIREMENTS.
4. PROPER CORROSION PROTECTION TO PIPELINES IS REQUIRED WHICH INCLUDES BUT IS NOT LIMITED TO OUTSIDE COATING, INSIDE LINING, DIELECTRIC TREATMENT, AND OTHER CATHODIC PROTECTION.
5. ANY EXCEPTIONS TO THE REQUIREMENTS OF THIS DETAIL REQUIRE A SPECIAL REVIEW AND APPROVAL SHALL BE GRANTED BY THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH.

RECYCLED WATER SEPARATION REQUIREMENTS - 2



[Signature]
APPROVED BY:

DATE : DEC 2014
REVISED : -

DWG.

RW-2B

IRRIGATION SYSTEM NOTES:

1. ALL WORK SHALL CONFORM TO EXISTING REGULATIONS INCLUDING, BUT NOT LIMITED TO:
 - 1.1. CITY OF SUNNYVALE RECYCLED WATER PROGRAM SITE DESIGN REQUIREMENTS (PROVIDED BY THE ENVIRONMENTAL SERVICES DEPARTMENT).
 - 1.2. CA DEPARTMENT OF PUBLIC HEALTH REGULATIONS, INCLUDING TITLES 17 AND 22.
2. CHANGES MADE TO THE APPROVED IRRIGATION PLANS SHALL BE SUBMITTED TO THE CITY CROSS CONNECTION SPECIALIST FOR REVIEW AND APPROVAL AT LEAST FOUR WEEKS PRIOR TO START OF CONSTRUCTION.
3. AT LEAST FIVE WORKING DAYS PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR, CUSTOMER, AND CITY CROSS CONNECTION SPECIALIST SHALL HOLD A PRE-CONSTRUCTION MEETING.
4. CONTRACTOR SHALL NOTIFY CITY OF SUNNYVALE, ENVIRONMENTAL SERVICES DEPARTMENT - RECLAIMED WATER USE SECTION AT TELEPHONE NUMBER (408) 730-7900 AND CUSTOMER A MINIMUM OF AT LEAST 2 WEEKS BEFORE WORK BEGINS. THE CONTRACTOR SHALL ALSO NOTIFY ENVIRONMENTAL SERVICES AND CUSTOMER AGAIN AT LEAST 48 HOURS IN WRITING BEFORE STARTING ANY ONSITE WORK. CITY INSPECTOR MUST INSPECT AND/OR VERIFY:
 - 4.1. PRESENCE OF BACKFLOW PREVENTION AT ALL POTABLE POINTS OF CONNECTION.
 - 4.2. NEW UNDERGROUND PIPING (LABELING, CLEARANCES, BURIAL DEPTH, SLEEVING).
 - 4.3. PRESSURE TEST.
 - 4.4. INSTALLATION OF SIGNS, TAGS, LABELS, AND CONTROLLER DECALS.
 - 4.5. SITE PASSED A CROSS-CONNECTION TEST PERFORMED BY A CERTIFIED AWWA CROSS-CONNECTION SPECIALIST.
 - 4.6. NEW METER INSTALLATION.
 - 4.7. COVERAGE TEST.
5. AT NO TIME SHALL CROSS-CONNECTION FROM POTABLE WATER TO RECYCLED WATER BE PERMITTED.
6. ALL NEW ON-SITE BURIED RECYCLED WATER PIPING SHALL BE IDENTIFIED BY THE FOLLOWING METHODS:
 - 6.1. USING PURPLE-COLORED PVC PIPE WITH CONTINUOUS WORDING "CAUTION - RECYCLED WATER" PRINTED ON OPPOSITE SIDES OF THE PIPE. PIPE SHALL BE LAID WITH WORDING FACING UPWARDS.
 - 6.2. WARNING TAPE WITH A MINIMUM WIDTH OF 3 INCHES READING "CAUTION - RECYCLED WATER" (IN BLACK OR WHITE LETTERING ON PURPLE BACKGROUND) SHALL RUN CONTINUOUSLY ON TOP OF PIPING AND SHALL BE ATTACHED TO PIPING WITH PLASTIC TAPE BANDED AROUND THE WARNING TAPE AND THE PIPE EVERY 5 FEET ON CENTER.
7. CONSTANT-PRESSURE MAINLINE PIPING 2 INCHES AND SMALLER SHALL BE PVC PIPE; CONSTANT PRESSURE MAINLINE PIPING 2 1/2 INCHES AND LARGER SHALL BE CLASS 315; AND INTERMITTENT-PRESSURE LATERAL PIPING SHALL BE CLASS 200 OR SCHEDULE 40. COPPER PIPE SHALL BE TYPE "K".
8. ALL ON-SITE RECYCLED WATER PIPING SHALL BE BURIED TO A MINIMUM DEPTH FROM FINISHED GRADE TO TOP OF PIPE (MINIMUM COVER) OF:
 - 8.1. PRESSURIZED LINES OF 3 INCHES AND LARGER: 24 INCHES
 - 8.2. PRESSURIZED LINES 2 1/2 INCHES AND SMALLER: 18 INCHES
 - 8.3. INTERMITTENT-PRESSURE LINES: 12 INCHES
9. ALL RECYCLED WATER PIPING, OTHER THAN PVC PIPING WITH SOLVENT WELDED JOINTS SHALL BE PROTECTED AGAINST MOVEMENT WITH THRUST BLOCKS OR RESTRAINED JOINTS OR OTHER APPROVED METHOD.
10. MAINTAIN A 5-FOOT HORIZONTAL SEPARATION BETWEEN PRESSURIZED RECYCLED WATER IRRIGATION PIPING AND POTABLE WATER PIPING. AT PIPE CROSSINGS, RECYCLED WATER IRRIGATION WATER PIPING MUST BE 12 INCHES BELOW POTABLE WATER LINES. IF RECYCLED WATER PIPING MUST CROSS OVER POTABLE WATER LINES, THE RECYCLED WATER PIPING SHALL BE AT LEAST 12 INCHES ABOVE THE POTABLE LINES AND SHALL BE INSTALLED IN A PVC SLEEVE WHICH EXTENDS A MINIMUM OF 10 FEET ON EITHER SIDE OF THE POTABLE WATER PIPING (SEE CITY STD DET RW-02A).
11. POTABLE WATER AND RECYCLED WATER PIPING SHALL NOT BE INSTALLED IN THE SAME TRENCH.
12. ALL RECYCLED WATER SYSTEM REMOTE CONTROL VALVES, QUICK COUPLING VALVES, GATE VALVES, BLOW OFF VALVES, STRAINERS, AND PRESSURE-REGULATING VALVES SHALL BE INSTALLED BELOW GRADE IN VALVE BOXES. VALVE BOXES SHALL BE LABELED PER CITY RW-1A.
13. NO HOSE BIBS SHALL BE ALLOWED ON THE RECYCLED WATER IRRIGATION SYSTEM. EXISTING HOSE BIBS TO BE CONNECTED TO RECYCLED WATER SHALL BE REPLACED WITH QUICK COUPLING VALVES. QUICK COUPLING VALVES SHALL BE PER CITY STANDARD DETAIL RW-1B AND LABELED PER CITY STD DET RW-1A.
14. LABEL ALL POTABLE WATER METERS AND ABOVE GROUND POTABLE WATER PIPES/DEVICES (BACKFLOW PREVENTERS, HOWE BIBS, ETC.) WITHIN OUR NEAR THE RECYCLED WATER USE AREA WITH TAGS OR LABELS READING "POTABLE WATER" IN BLACK LETTERS ON BLUE BACKGROUND, PER CITY STD DET RW-1A, RW-1B, AND RW-1C.
15. ALL RECYCLED WATER IRRIGATION SYSTEMS SHALL INCLUDE THE FOLLOWING:
 - 15.1. A WYE STRAINER (WITH A 20 MESH OR FINER SCREEN) INSTALLED AS CLOSE AS PRACTICAL TO THE RECYCLED WATER METER BOX.
 - 15.2. A PRESSURE REGULATING VALVE INSTALLED IMMEDIATELY DOWNSTREAM OF THE STRAINER IF BOOSTER PUMP STATION IS NOT PRESENT.
 - 15.3. THESE COMPONENTS SHALL BE INSTALLED WITH ISOLATION VALVES.
16. PLACE RECYCLED WATER ADVISORY SIGNS AT ENTRANCE TO THE RECYCLED WATER USE AREA IN A MANNER THAT DOES NOT OBSTRUCT THEM FROM VIEW.
17. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AND UPDATE AS NECESSARY, A CONSTRUCTION SCHEDULE THAT SHOWS THE START OF EACH CONSTRUCTION ACTIVITY, INCLUDING REQUIRED TESTS, INSPECTIONS AND INITIATION OF RECYCLED WATER SERVICE.
18. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UNDERGROUND SERVICE ALERT (800) 227-2600 AND PROPERTY OWNER TO LOCATE UTILITY CROSSINGS AND TO EXCAVATE WITH CAUTION TO AVOID UTILITY DAMAGE.
19. ALL UTILITIES AND IMPROVEMENTS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE COMPLETED RESTORED TO THE SATISFACTION OF THE ENGINEER.
20. ALL REFUSE AND OTHER DEMOLISHED WORK SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE LEGALLY DISPOSED OF OFF-SITE. EXCEPTION IS ANY EXISTING IRRIGATION SYSTEM BACKFLOW PREVENTER DEVICE - REUSE BACKFLOW DEVICE IS POSSIBLE AND ON THE UNIVERSITY OF SOUTHERN CALIFORNIA (USC) APPROVAL LIST. OTHERWISE CONTACT CITY TO DETERMINE IF SITE OWNER WISHES TO SALVAGE THE DEVICE AND PROVIDE TO OWNER IF REQUESTED, OTHERWISE DISPOSE.
21. CONTRACTOR IS PROHIBITED FROM DISCHARGING POLLUTANTS (OILS, GARBAGE, CHEMICALS, SEDIMENTS, SOILS, ETC.) TO THE STORM DRAIN SYSTEM.

RECYCLED WATER DESIGN DRAWING GENERAL NOTES - 1



[Signature]
APPROVED BY:

DATE : DEC 2014
REVISED : -

DWG.

RW-3A

IRRIGATION SYSTEM NOTES (CONTINUED FROM RW-3A):

22. PRIOR TO TURNING OFF ANY WATER METER OR OTHER UTILITY, THE CONTRACTOR SHALL COORDINATE WITH ENGINEER TO ESTABLISH WORKING HOURS, ACCESS, AND OTHER CONSTRAINTS FOR EACH SITE. THE CONTRACTOR SHALL NOTIFY CUSTOMER AND THE ENGINEER TWO WEEKS BEFORE THE PLANNED OUTAGE AND AT LEAST THREE DAYS IN ADVANCE OF THE ACTUAL OUTAGE.
23. PRIOR TO RECEIVING RECYCLED WATER, EACH SITE MUST BE PERMITTED BY CITY OF SUNNYVALE ENVIRONMENTAL SERVICES DEPARTMENT. A PERMIT WILL BE GRANTED AFTER:
- 23.1. CONSTRUCTION HAS BEEN COMPLETED AND INSPECTED TO SHOW CONFORMANCE TO CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH) APPROVED PLANS.
 - 23.2. SITE HAS PASSED REQUIRED CROSS-CONNECTION TEST PERFORMED BY A CERTIFIED AWWA CROSS-CONNECTION SPECIALIST.
 - 23.3. A FINAL ON-SITE INSPECTION HAS BEEN CONDUCTED TO CONFIRM THAT ALL REQUIREMENTS HAVE BEEN MET.
 - 23.4. THE OWNERS OR OWNER'S REPRESENTATIVE HAS COMPLETED CITY RECYCLED WATER SITE-SUPERVISORY TRAINING. FOR TRAINING CONTACT ENVIRONMENTAL SERVICES DEPARTMENT AT (408) 730-7900.
24. ALL RECYCLED WATER METERS WILL BE IN PLACE AND LOCKED OFF, OR WILL BE SET BY THE ENVIRONMENTAL SERVICES DEPARTMENT, BEFORE CONSTRUCTION IS COMPLETED. AFTER THE SITE PASSES A CROSS-CONNECTION TEST, THE RECYCLED WATER METER WILL BE UNLOCKED BY THE ENVIRONMENTAL SERVICES STAFF.
25. NO OVERSPRAY OR RUNOFF OF RECYCLED WATER SHALL BE ALLOWED ON ANY NON-APPROVED USE AREA. UPON RECEIVING RECYCLED WATER, THE ON-SITE SPRAY MIST OR RUNOFF SHALL NOT ENTER DWELLINGS OR DESIGNATED OUTDOOR EATING AREAS. DRINKING WATER FOUNTAINS BE PROTECTED AGAINST CONTACT WITH RECYCLED WATER SPRAY, MIST, OR RUNOFF.
26. CONTRACTOR SHALL SUBMIT RECORD DRAWINGS SHOWING AS-BUILT CONDITIONS OF IRRIGATION SYSTEM AND RELATED WORK TO THE ENVIRONMENTAL SERVICES DEPARTMENT - RECYCLED WATER SECTION WITHIN 30 DAYS OF SITE RECEIVING RECYCLED WATER.
27. NO IRRIGATION WITH DISINFECTED TERTIARY RECYCLED WATER SHALL TAKE PLACE WITHIN 50 FEET OF ANY DOMESTIC WATER SUPPLY WELL UNLESS ALL OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
- 27.1. A GEOLOGICAL INVESTIGATION DEMONSTRATES THAT AN AQUITARD EXISTS AT THE WELL BETWEEN THE UPPERMOST AQUIFER BEING DRAWN FROM AND THE GROUND SURFACE.
 - 27.2. THE WELL CONTAINS AN ANNULAR SEAL THAT EXTENDS FROM THE SURFACE INTO THE AQUITARD.
 - 27.3. THE WELL IS HOUSED TO PREVENT ANY RECYCLED WATER SPRAY FROM COMING INTO CONTACT WITH THE WELLHEAD FACILITIES.
 - 27.4. THE GROUND SURFACE IMMEDIATELY AROUND THE WELLHEAD IS CONTOURED TO ALLOW SURFACE WATER TO DRAIN AWAY FROM THE WELL.
 - 27.5. THE OWNER OF THE WELL APPROVES THE ELIMINATION OF THE BUFFER ZONE REQUIREMENT.
28. NO IMPOUNDMENT OF DISINFECTED TERTIARY RECYCLED WATER SHALL OCCUR WITHIN 100 FEET OF ANY DOMESTIC WATER SUPPLY WELL.
29. INSTALL BACKFLOW PREVENTER ASSEMBLY ON ALL POTABLE WATER AND FIRE SERVICES PER CITY STD DET 18B-1.
30. PRIOR TO ACTUAL SERVICE CONNECTION TO RECYCLED WATER SYSTEM, CONTRACTOR SHALL PROVIDE TEMPORARY PIPING TO POTABLE SYSTEM SO THAT CITY PERSONNEL MAY PERFORM CROSS-CONNECTION TEST. UPON SUCCESSFUL CROSS-CONNECTION TEST, CONTRACTOR SHALL REMOVE TEMPORARY PIPING AND PERFORM FINAL CONNECTION TO THE RECYCLED WATER METER.
- CONTRACTOR SHALL RESTORE THE AREAS IMPACTED BY THE CONSTRUCTION TO THEIR ORIGINAL CONDITION UNLESS OTHERWISE NOTED.
32. ADD RECYCLED WATER DECAL STICKER TO THE EXTERIOR OF ALL IRRIGATION CONTROLLERS OPERATING IN THE RECYCLED WATER USE AREA.

RECYCLED WATER DESIGN DRAWING GENERAL NOTES - 2

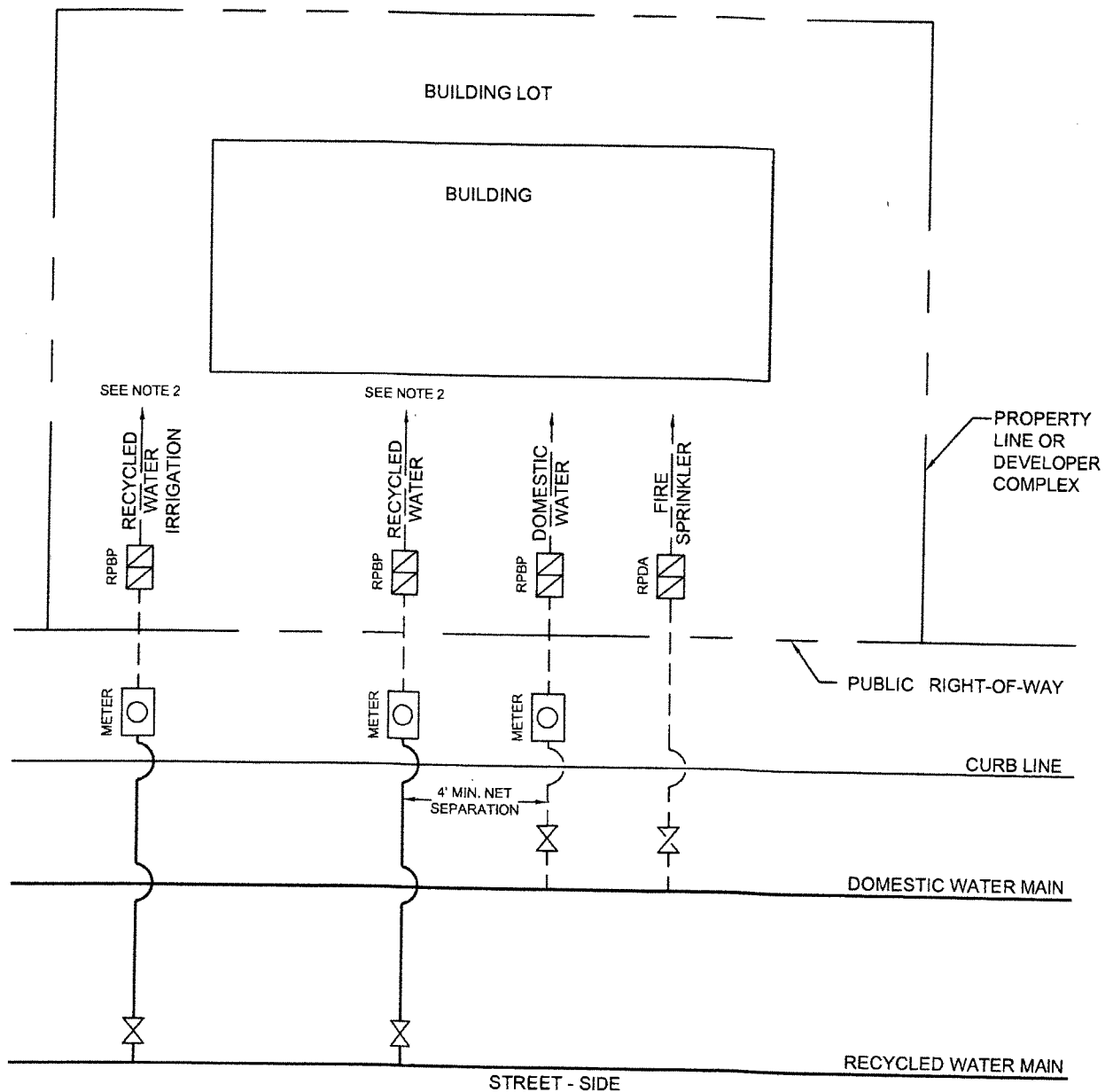


[Signature]
APPROVED BY:

DATE : DEC 2014
REVISED : -

DWG.

RW-3B



NOTE:

1. ALL BACKFLOW PREVENTERS MUST BE APPROVED PER CITY STANDARD DETAIL 20B OR 20B-1.
2. BACKFLOW PREVENTER FOR RECYCLED WATER SYSTEM MUST MEET PLUMBING CODE AND CALIFORNIA CODE OF REGULATION REQUIREMENTS.
3. METERS TO BE INSTALLED PER STANDARD DETAIL DRAWING 4B, 4B-1A AND RW-1A

ABBREVIATIONS:

RPBP REDUCED PRESSURE BACKFLOW PREVENTER
RPDA REDUCED PRESSURE DETECTOR ASSEMBLY

INSTALLATION OF RECYCLED
WATER SERVICE LINES

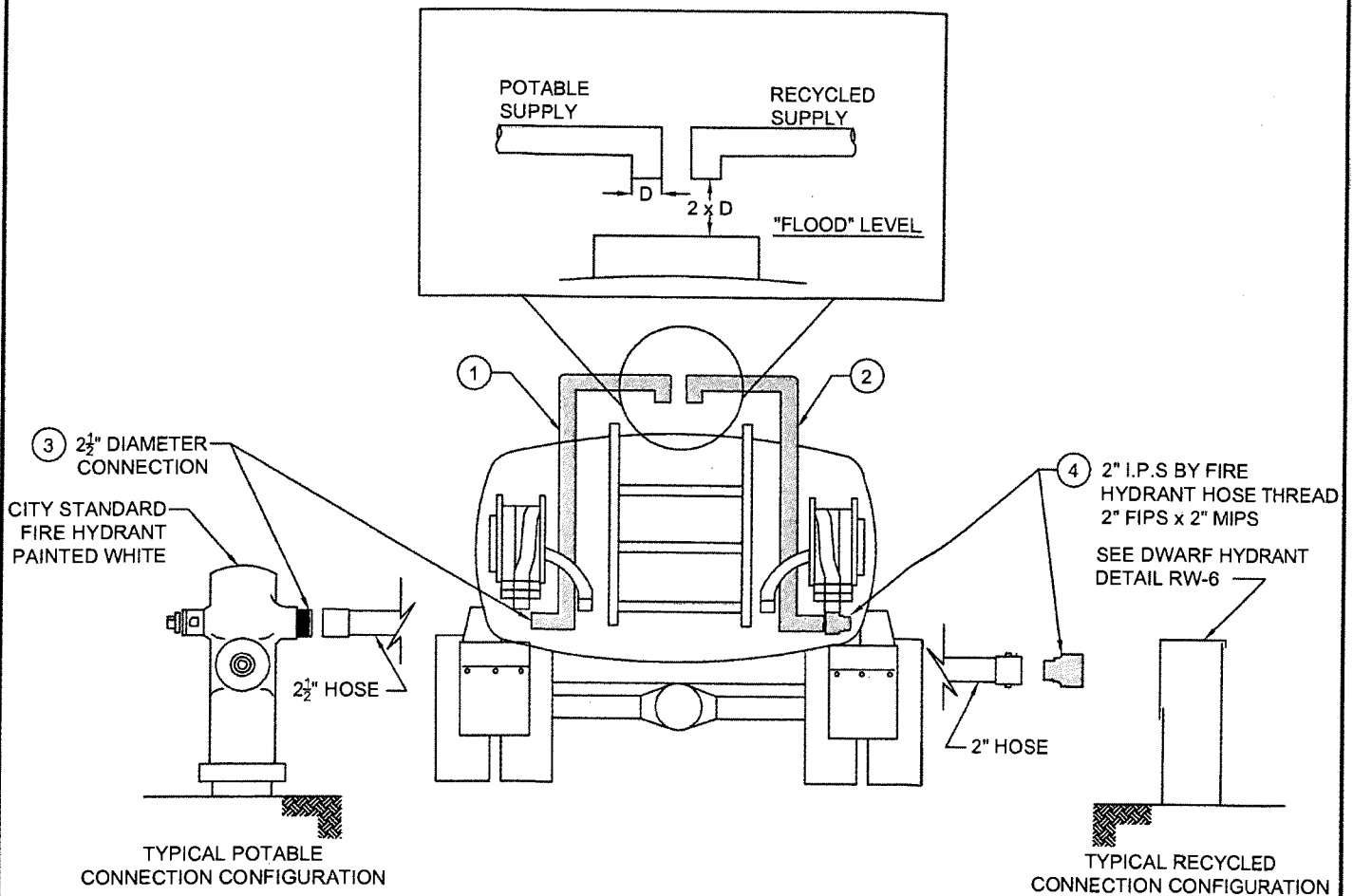


[Signature]
APPROVED BY:

DATE: APRIL 2016
REVISED: FEB 2017

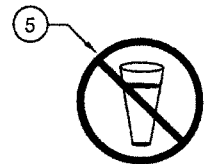
DWG.

RW-4



NOTES:

- ① THE POTABLE SUPPLY PIPELINE ON TRUCK SHALL BE PAINTED BLUE WITH "POTABLE WATER" STENCILED ON THE PIPELINE.
- ② THE RECYCLED SUPPLY PIPELINE ON TRUCK SHALL BE PAINTED PURPLE WITH "RECYCLED WATER" STENCILED ON THE PIPELINE.
- ③ THE POTABLE SUPPLY CONNECTION BETWEEN THE HOSE AND HYDRANT SHALL BE A STANDARD 2 1/2" DIAMETER THREADED CONNECTION
- ④ THE RECYCLED SUPPLY CONNECTION BETWEEN THE HOSE AND HYDRANT SHALL BE A STANDARD 2" DIAMETER THREADED CONNECTION
- ⑤ SIGNAGE IS REQUIRED ON BOTH SIDES, WITH WORDING "RECYCLED WATER - DO NOT DRINK" AND THE INTERNATIONAL SYMBOL SHOWN.



TYPICAL TRUCK AND WATER SUPPLY SYSTEMS



APPROVED BY: *[Signature]*

DATE: APRIL 2016

DWG.

RW-5

This Page Intentionally Left Blank

Appendix B

Sunnyvale Recycled Water Truck Program

Sunnyvale Recycled Water Truck Program

City of Sunnyvale Environmental Services Department

The City of Sunnyvale's Recycled Water Truck Program supplies clean, safe, tertiary-treated recycled water from the Sunnyvale Water Pollution Control Plant. All recycled water produced in Sunnyvale undergoes a rigorous treatment process to ensure it meets the protective standards set by the California Department of Public Health and qualifies for unrestricted uses.

General Program Requirements

- 1** Customers interested in using recycled water for construction and other non-potable uses approved by the City must first apply for a *Recycled Water Truck Program Use Permit*. Customers can obtain the appropriate application for their desired use by using one of the following three options:
 - Download the form titled *Recycled Water Truck Program Use Permit* from <https://sunnyvale.ca.gov/property/water/recycled/truck.htm>.
 - Contact the Recycled Water Truck Program directly at green@sunnyvale.ca.gov or (408) 730-7260 and request an application form be emailed or mailed to you.
 - Pick-up in person, at the Sunnyvale Water Pollution Control Plant, located at 1444 Borregas Avenue, Sunnyvale, CA 94088.
- 2** Application forms must be completed and returned with copies of valid truck registration (a copy for each truck must be attached to permit application) and driver's license attached (photocopies, PDFs, and scanned documents acceptable). Please allow up to 10-business days for the application to be processed. Options for submitting completed applications include:
 - Email to green@sunnyvale.ca.gov.
 - Deliver in person to the Sunnyvale Water Pollution Control Plant, located at 1444 Borregas Avenue, Sunnyvale, CA 94088.
 - Mail to City of Sunnyvale, Recycled Water Truck Program, 1444 Borregas Avenue, Sunnyvale, CA 94088-3707.
 - Fax to (408) 747-1139.
- 3** Before trucks can be filled for the first time, all truck owners and/or drivers are required to attend a brief on-site training in order to learn about using the filling station and the proper handling and use of recycled water. In addition, each vehicle to be filled must pass a City inspection to ensure that it is fitted with the proper backflow prevention equipment. Tank trucks must be equipped with an air gap. The City will coordinate the training and vehicle inspection once the application packet has been deemed complete. Typically, this will occur on the same day at the Water Pollution Control Plant. The Site Supervisor Training provided by the City to its customers may not be substituted for the on-site fill station training.

- 4 Once the customer completes the on-site training and a Sunnyvale inspector verifies the required air gap, Sunnyvale will issue a signed *Recycled Water Truck Program Use Permit* along with recycled water labels to affix to the customer's truck (both sides and rear). Sunnyvale provides the first set of signs at no charge; the customer will have to pay for any replacement signs.
- 5 The *Recycled Water Truck Program Use Permit* must be available for inspection in the truck(s) and at the job site where the recycled water is applied at all times. The customer must present a copy of their permit and identification during the check-in process at the Water Pollution Control Plant in order to proceed with filling their truck with recycled water.
- 6 Sunnyvale's recycled water may only be used within City boundaries.
- 7 Customers must provide their own hoses to connect to the recycled water hydrant.
- 8 Typical truck and recycled water system details can be found in the *City of Sunnyvale Standard Details and Standard Specifications RW Series*.

Sunnyvale Water Pollution Control Plant Requirements

- 1 Recycled water is offered at the Sunnyvale Water Pollution Control Plant, located at 1444 Borregas Avenue, CA 90488.
- 2 Recycled water is offered to customers M-F, from 7:00 am – 4:00 pm. The fill station's hydrant valves are locked when not in use. If customers wish to use the fill station outside of these hours, please contact the Recycled Water Truck Program at green@sunnyvale.ca.gov or (408) 730-7260. Exceptions may be granted under special circumstances at the City's discretion.
- 3 Prior to each filling operation, the customer is required to check-in at the Administrative Office and sign-in for every load taken. Customers must be able to present a valid *Recycled Water Truck Use Permit* and valid driver's license to City staff at the time they sign-in. City staff will also ensure that the vehicle has passed a City inspection and is approved for use.
- 4 If the driver was not included on the original permit application, the customer will need to submit the *Additional Driver and Vehicle Form* to have the driver added to their permit. The driver will then have to attend an on-site training. Similarly, if the vehicle brought to the fill station location was not included on the original permit application the customer will need to submit the *Additional Driver and Vehicle Form* and pass a vehicle inspection. The City will make every effort to accommodate the addition of new drivers and/or vehicles as soon as possible after receiving the form.
- 5 At the time of filling, trucks must have appropriately-placed recycled water signage to signify that they have been inspected and the air gap approved. If the truck does not have adequate signage, the Operator will not proceed with the fill process.
- 6 Once approved, an Operator from the Water Pollution Control Plant will assist the customer in filling their tank and collect totalizer readings from before and after the filling sequence.
- 7 NO IDLING. Please turn off your truck engine while filling or waiting at the filling station.

- 8 Do not block the road or the public parking spaces at the end of Carl Rd.
- 9 Please do not leave any trash or debris in the filling station area.

Recycled Water Handling and Use Requirements/Precautions

- 1 Do not drink recycled water or use it for food preparation. Additionally, the truck driver must notify workers and/or the public when recycled water is used at a site and tell them that they are not to drink recycled water or use it for food preparation.
- 2 Recycled water customers should apply hand sanitizer or wash their hands with soap and potable water after working with recycled water and especially before eating or smoking.
- 3 Precautions should be taken to avoid food coming into contact with recycled water while the use site is still wet.
- 4 Truck drivers should be equipped with an adequate first aid kit. Cuts or abrasions should be promptly washed, disinfected, and bandaged.
- 5 Trucked recycled water should be used soon after it is picked up. Sunnyvale's recycled water meets state public health requirements immediately after treatment. If a customer stores recycled water at the use site, Sunnyvale does not guarantee the quality of the recycled water over time.
- 6 Recycled water shall not be allowed to spray onto external drinking water fountains.
- 7 Recycled water shall not be applied where it could contact or enter passing vehicles, buildings, areas where food is handled or eaten, or storm drains.
- 8 Recycled water customers shall take adequate measures to prevent overspray, ponding, or run off of recycled water from the authorized recycled water use area unless it is specifically allowed by the Regional Water Quality Control Board or by an attachment to the Recycled Water Use Permit issued by Sunnyvale.
- 9 There shall be no irrigation or impoundment of recycled water within a minimum of 50-feet of any domestic (drinking water) well.
- 10 Vehicles used for transportation and distribution of recycled water must have water-tight valves and fittings, must not leak, and tanks must be cleaned of contaminants prior to use. A truck or tank that has contained material from a septic tank or cesspool shall not be used to convey recycled water.
- 11 Recycled water must not be introduced into any permanent piping system and no connection shall be made between the tank truck and any part of a potable water system.
- 12 Tank trucks used to transport recycled water should not be used to carry potable water unless a thorough cleaning and disinfection process has been completed.



Sunnyvale

RECYCLED WATER TRUCK USE PERMIT

Sunnyvale Recycled Water Program

(For City use)

Permit Number: _____ Effective Date of Permit: _____

CUSTOMER INFORMATION

Name of Company: _____ Contact Name: _____

Contact Title: _____ Mailing Address: _____

City/ZIP: _____ Office Phone: _____

Cell or Other Phone: _____ Email: _____

Please fill out the **Driver Name** and **License Number** before submitting this form. Attach a copy of a current driver's license for each person listed. Please allow 10-business days to process the application. Drivers listed will complete **Driver Signature** in person after the on-site training. All new drivers must be trained and added to the permit. By signing, drivers certify that they have received training and agree to abide by the Truck Program Guidelines provided. *Use Attachment for Additional Drivers if necessary.*

Driver Name	CA Driver License #	Driver Signature (Leave blank until training)	(For City use)	
			Trainer Initials	Date

TRUCK INFORMATION

Provide the following information for the truck(s) for which a permit is requested. Attach a copy of a current vehicle registration for each vehicle. A City inspector must inspect each truck to determine that it is equipped with the necessary backflow prevention. *Use Attachment for Additional Trucks if necessary.*

Truck Trailer # (if applicable)	License Plate Number	Capacity of Tank or Storage Containers	(For City use)
			Vehicle Inspector Initials

RECYCLED WATER USE INFORMATION (Check all that apply)

Use of Recycled Water: ☐ Soil Compaction ☐ Dust Control ☐ Irrigation
☐ Sewer Flushing ☐ Street Cleaning ☐ Other: _____

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

List the location(s) where you expect to apply recycled water within Sunnyvale's boundaries:

Address: _____

Address: _____

Address: _____

(Attach separate sheet if necessary)

RECYCLED WATER ACKNOWLEDGEMENTS

Customer agrees to follow all handling and use requirements for recycled water contained in the Sunnyvale Recycled Water Truck Program Guidelines in a manner consistent with State requirements. Customer agrees to install, maintain, and keep in place signs identifying that recycled water is in use. Sunnyvale provides the first set of signs at no charge; replacement signs to be paid for at cost by customer.

Customer must initial here to acknowledge these requirements: _____ (initials)

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

Name of Responsible Person: _____

CERTIFICATION & INDEMNIFICATION

I certify that I am an authorized agent for the company cited in this application and that I have authority to bind the company to the requirements of this permit and program. I hereby certify under penalty of perjury that the information provided in this permit application and in any attachment is true and accurate to the best of my knowledge. I also certify that I have read the applicable rules and regulations of the Regional Water Quality Control Board Order 94-069 and the Sunnyvale Recycled Water Truck Program Guidelines and agree to abide by them.

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

Signature of Customer: _____ Title: _____

Print Name: _____ Date: _____

Company: _____

AUTHORIZATION

Customer is authorized to use recycled water from Sunnyvale's Recycled Water Truck Program in accordance with the Recycled Water Truck Program Guidelines and RWQCB Order 94-069.

Authorized Signature: _____

Filling Station Representative Signature: _____ Date: _____



Sunnyvale Recycled Water Program

Permit Number (if known): _____

Address: _____

Please list below all drivers/vehicle operators who will access the fill station. All drivers must be trained and added to the permit. By signing, drivers certify that they have received training and agree to abide by the Truck Program Guidelines provided.

[illegible]

Provide the following information for the truck(s) for which a permit is requested. A City inspector must inspect each truck to determine that it is equipped with the necessary air gap before decal issuance.

[illegible]