

**State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

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**ORDER NO. R4-2011-XXXX AMENDING
ORDER NO. R4-2008-0083
(File No. 08-070)**

**WATER RECYCLING REQUIREMENTS AND WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF OXNARD
GROUNDWATER RECOVERY, ENHANCEMENT, AND TREATMENT PROGRAM –
NONPOTABLE REUSE PHASE I PROJECT**

ISSUED TO

CITY OF OXNARD

The California Regional Water Quality Control Board, Los Angeles Region, (hereinafter, Regional Water Board), finds:

PURPOSE OF AMENDMENT TO ORDER NO. R4-2008-0083

The Ventura County Farm Bureau expressed concern by email on October 27, 2010, regarding the use of recycled water produced at the Advanced WastewaterWater Purification Facility (AWPF) from its Groundwater Recovery, Enhancement, and Treatment (GREAT) Program on agricultural lands relative to Section IV.9.B:

"Any irrigation runoff shall be confined to the recycled water use area and shall not be allowed to escape as surface flow, unless the runoff does not pose a public health threat and is authorized under a national Pollutant Discharge Elimination System (NPDES) permit..."

Irrigation runoff from growers' operations is regulated by the Conditional Waiver of Waste Discharge Requirements for Irrigated Lands (Agricultural Waiver Program), not by an NPDES permit. Therefore, at the request of the Ventura County Farm Bureau, the Regional Water Board has added the Agricultural Waiver Program to Section IV.9.B in order to promote the use of recycled water on agricultural lands.

INTRODUCTION

1. The current water supply sources are insufficient to meet the City of Oxnard's (City's) current and growing demand and have limitations with respect to economics and reliability. The City's total water supply sources in 2008 is approximately 27,000 acre-feet per year (AF/Y), and it is projected that the City's demand will near 44,000 AF/Y over the next 20 years. In order to meet the current and future water demand, the City proposes to produce and distribute treated recycled water produced at the AWPF from its GREAT Program. The GREAT Program is a water resource project that combines wastewater recycling and

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reuses; groundwater injection, storage, and recovery; and groundwater desalination to provide more efficient uses of existing local water resources. The GREAT Program would provide regional water supply solutions to western Ventura County, allow the groundwater basin to reach safe yield levels sooner (i.e., reducing the effects of groundwater overdraft conditions), and provide the City with needed local water resources. Additional benefits would include increased spare capacity of the City ocean outfall, which could be used toward other beneficial uses and more reliable irrigation water supplies to growers at equal or better quality than its existing irrigation water supplies.

2. The GREAT Program contains three sub-projects subject to three different permitting activities. These three sub-projects are:
 - A. **Nonpotable Recycle Project** (Project) reuses AWPf-treated recycled water (recycled water) including landscape and agricultural irrigation, industrial process water, and recreational purposes. These proposed Waste Discharge Requirements and Water Recycling Requirements regulate this use.
 - B. **Groundwater Injection Project** injects recycled water into the aquifers along the coastal area. Groundwater Injection Project will be regulated with a separate future permit containing the Groundwater Recharge Reuse requirements issued by this Regional Water Board.
 - C. **Groundwater Desalination Project** desalts brackish groundwater for potable uses. Groundwater Desalination Project will be regulated with a drinking water permit issued by the California Department of Public Health (CDPH). The discharge of brine from this activity will be covered under a future NPDES permit.

PROJECT SPONSOR

3. The City owns and operates the Oxnard Wastewater Treatment Plant (Oxnard Plant) and the GREAT Program. The City is the primary purveyor of recycled water, distributed both within and outside of the City, for irrigation, industrial, and recreational, and other non-groundwater recharge uses.

REGULATORY AGENCIES

4. The Regional Water Board is the permitting agency for this Project involving the use of recycled water for nonpotable uses. The Regional Water Board issues Waste Discharge Requirements (WDRs) and Water Recycling Requirements (WRRs) to assure that this Project does not adversely affect receiving water quality. In addition, the Regional Water Board is guided by California Department of Public Health's (CDPH's) requirements.
5. On June 12, 2008, the CDPH provided the Regional Water Board with the comments on the Title 22 Engineering Report. These comments have been incorporated into the Order. The CDPH is the agency with the primary responsibility for establishing criteria, under Title 22 and Title 17 of the Code of Regulations, to protect the health of the public using the recycled water and potable water supplies through control of cross-connections with potential contaminants.

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PURPOSE OF ORDER

6. On January 9, 2007, the City submitted a Report of Waste Discharge (ROWD) and applied for Water Recycling Requirements, pursuant to California Water Code Section 13522.5, for the nonpotable reuse of recycled water.
7. This Order is a master water recycling permit issued to the City, pursuant to California Water Code Section 13523.1. This Order prescribes the City responsibilities for the production, distribution and application of recycled water. The City is also responsible for processing individual end-users' applications, inspecting point-of-use facilities, and ensuring end-users' compliance with the water recycling requirements contained in this Order. The actual delivery of recycled water to end-users is subject to approval by the CDPH, and/or its delegated local health agency.

OXNARD WASTEWATER TREATMENT PLANT

8. The City owns and operates the Oxnard Plant, a publicly owned treatment work (POTW). The Oxnard Plant is a secondary treatment facility located at 6001 South Perkins Road, Oxnard, California. Figure 1 provides a map of the area around the Oxnard Plant. The Oxnard Plant has a dry weather design capacity of 31.7 million gallons per day (mgd). The treatment system consists of bar screening, aerated grit removal, primary clarification, bio-filtration, activated sludge, secondary clarification, flow equalization, chlorine disinfection, and dechlorination. Solid fractions recovered from wastewater treatment processes include screenings, grit, primary sludge and skimmings, thickened waste activated sludge. The fine solids (screenings and grit) which are primarily inorganic materials are hauled away to a landfill. The remaining solid fractions (primary sludge, skimmings, and thickened waste activated sludge) are anaerobically digested at the treatment plant. In addition, the City operates the oil and grease program through which it cleans interceptors for food establishments and uses the oil and grease in its digesters to increase methane production. The methane is then used to generate electricity, which occupies approximately 60% of total electricity uses, for the Oxnard Plant. The digested solids are dewatered using belt filter presses. The dewatered cake contains approximately 20% solids (Class B biosolids). The Oxnard Plant generates approximately 500 wet tons of Class B biosolids per week. The biosolids are managed by composting operations in Kern County. Figure 2 shows a flow schematic of the Oxnard Plant.
9. Treated wastewater is discharged to the Pacific Ocean off Ormond Beach, a water of the United States, under NPDES Order No. R4-2008-0029, adopted by the Regional Water Board on May 1, 2008.
10. The Oxnard Plant is located at the Oxnard Plain, and the proposed recycled water use areas are the Oxnard Plain and Pleasant Valley located above the Ventura Central Groundwater Basin.

GROUNDWATER RECOVERY, ENHANCEMENT, AND TREATMENT (GREAT) PROGRAM

11. The City plans to construct an AWPf nearby the Oxnard Plant for the GREAT Program in two phases (See Figure 1), which treats the secondary effluent, for reuse in Nonpotable

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Reuse and Groundwater Injection Projects. Table 1 presents the proposed quantity of recycled water to be produced for each phase.

Table 1 – Projected Recycled Water Production Capacity		
Phase	Secondary Effluent (mgd)	Product Recycled Water (mgd)
I	8 - 9	6.25
II	32 - 36	25

The AWPf is designed to produce 6.25 mgd and 25 mgd of recycled water for Phases 1 and 2, respectively. At buildout (Phase 2), the treatment equipment will consist of four full treatment trains, each capable of producing 6.25 mgd of recycled water. Thus, the operators have the ability to remove trains from service for maintenance or repair. When a train is out of service, less water will be available for recycled use. Flow that is not treated through the AWPf will be discharged through the ocean outfall.

The use of recycled water will replace imported potable water. The City will be actively pursuing additional users for Phase I. Any additional recycled water produced in future phases may be used for various irrigation, industrial uses, and recreational impoundments.

SOURCE AND TREATMENT OF RECYCLED WATER

12. The Oxnard Plant treats wastewater from industrial, commercial and residential sources generated by a population of approximately 220,000 in the City of Oxnard, the City of Port Hueneme, the US Naval Base, Ventura County, and some unincorporated areas of Ventura County. Approximately 20 percent of wastewater comes from industrial source, and the remaining 80 percent from commercial and residential sources. In addition to wastewater, infiltration and inflow of clear water is present in the collection system and is approximately 11 to 20 percent of the total flow depending on the season. In compliance with 40 Code of Federal Regulations part 403 and the NPDES permits for the Oxnard Plant, the City developed and has been implementing a Pretreatment Program. Two of the four primary objectives of the Pretreatment Program are to prevent to pass through of pollutants or to cause interference in the operation of the Oxnard Plant by regulating the discharge of toxic pollutants into the Oxnard Plant. The Pretreatment Program reduces the likelihood of toxic contamination of the effluent and provides reliability in the treatment process.
13. For the GREAT Program – Phase I, approximately 6 - 8 mgd of secondary-treated effluent will flow by gravity to the AWPf lift station wet well where lift pumps will feed to the strainers. The remaining secondary treated effluent will continue to be discharged to the Pacific Ocean. Figure 3 depicts the schematic of Phase I AWPf treatment process. The AWPf is comprised of the following:
 - A. **Strainer System:** Strainers installed prior to the microfiltration/ultrafiltration system will remove the fine particles from the secondary effluent.
 - B. **Microfiltration/Ultrafiltration (MF/UF) System:** MF/UF is a low-pressure filtration process and will be used to pretreat the secondary effluent prior to reverse osmosis (RO). As results of removing particulate and microbial contaminants, including

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- turbidity, *Giardia*, and *Cryptosporidium*, MF/UF increases system reliability and reduces RO membrane fouling. The MF units will be periodically back washed to clean the membranes. However, the backwash is not 100 percent effective at removing particulates and foulants accumulating on the membrane surface. Therefore, a chemical cleaning process of feeding sodium hypochlorite to MF/UM is also needed. The chemical cleaning interval is 30 days or greater. The backwash will be sent back to the Oxnard Plant's headworks for reprocessing.
- C. **Reverse Osmosis (RO) System:** RO is a pressure-driven membrane-separation process that removes dissolved contaminants (i.e., salts, minerals, metal ions, and organic compounds) and viruses from water. Filtered water will continuously be pumped at elevated pressure to the RO system. RO feed pumps are equipped with variable frequency drives to allow constant flux operation. The RO system will be designed for a finished water production capacity of 6.25 mgd for the AWPf Phase 1 and 25 mgd for Phase 2. It will have three stages to allow water recovery of 80 to 85 percent, where concentrate from the first stage will be applied to a second stage, and concentrate from the second stage will be applied to a third stage. Permeate from the three stages will be blended into a final product water and will constitute the feedwater to the UV/AOX system. Similar to the MF/UF system, the membranes will foul with accumulation of particulates. Chemicals are used to routinely clean the membranes. Cleaning chemicals are returned to the Oxnard Plant's headworks.
- D. **Ultra Violet/Advanced Oxidation and Reduction (UV/AOX) System:** UV/AOX process is used for both disinfection and advanced oxidation and reduction of micropollutants at the AWPf. Recycled water destined for groundwater recharge, and agricultural and landscape irrigation will normally undergo UV/AOX treatment at all times. However, in those instances when only UV light disinfection is required, the AWPf will have the capability to apply a lower UV dose required for disinfection of water for "unrestricted reuse," also referred to as "disinfected tertiary recycled water" or "Title 22 recycled water," as defined by the CDPH.
- E. **Post-Treatment Systems:** The post-treatment systems include decarbonator towers and liquid lime injection downstream of the UV/AOX process. Following UV/AOX, the water quality is projected to be very aggressive with an LSI in the range of -3.3 to -2.5; also, the water will have high concentrations of carbon dioxide, up to 50 mg/L. Lime is needed to increase the pH and achieve an Langelier Saturation Index (LSI) of +2. A portion of the carbon dioxide must be removed to reduce the lime dose needed for stabilization. If the water is not stabilized, it will be very corrosive and will not be suitable for recycled water uses or groundwater recharge. In order to remove carbon dioxide, water is distributed over media packed in the decarbonator towers. Air flow through the media strips the carbon dioxide and other volatile compounds. Liquid lime is then dosed to add calcium and alkalinity, thereby increasing the pH.
- F. **Chemical Systems:** Chemicals are used throughout the processing of the water. Membrane cleaning systems, water stabilization, and treatment involve chemical usage. Chemicals for this project are split into *continuously fed* chemicals and *batch cleaning* chemicals. Continuously fed chemicals are flow paced. These chemicals include hydrogen peroxide, sulfuric acid, threshold inhibitor, and liquid lime. Batch

cleaning chemicals include sodium hypochlorite, sodium hydroxide, citric acid, and sodium bisulfite.

PUMP STATION, AND TRANSMISSION OF RECYCLED WATER

14. The finished water pump station will provide the AWPf-treated water to the recycled water transmission lines. Initially, the finished water pump station will have two duty pumps and one standby pump. Each of the finished water pumps will be provided with variable frequency drives. The finished water pump station discharge header also will be provided with a flow meter to monitor the amount of finished water delivered from the AWPf.
15. Recycled water will be distributed through a combination of existing and new transmission lines. Figures 4 shows existing water facilities in the Oxnard Plain. Figures 5 and 6 show the proposed locations of the recycled water transmission lines for Phase 1 (initial) and Phase 2 (build-out) respectively. All pipelines and valves will be installed with purple identification tapes or purple polyethylene vinyl wraps according to “Guidelines for Distribution of Nonpotable Water - American Water Works Association (AWWA) California-Nevada Section” published in 1992.

A. Transmission Lines of Agricultural Irrigation Uses

The following existing transmission lines will be used to distribute recycled water to agricultural users:

- a. Recycled water will be distributed through the existing United Water Conservation District (UWCD) Pumping Trough Pipeline (PTP) and Pleasant Valley County Water District (PVCWD) irrigation networks for agricultural irrigation by growers served by these networks.
- b. Recycled water will be distributed through either (1) the existing Ocean View Municipal Water District (OVMWD) potable pipeline for agricultural irrigation by growers along this pipeline, or (2) a new parallel pipeline. The supply to meet the potable demand would be replaced by other means if the existing pipeline is converted to nonpotable use.
- c. A transmission system to distribute recycled water to duck clubs has not yet been identified.

For Phase 1 of the GREAT Program, the following recycled water delivery system alternatives are:

- a. Establish recycled water delivery system to 6.25-mgd capacity.
- b. Convert existing OVMWD pipeline from potable to nonpotable use for delivery of recycled water.
- c. Construct new OVMWD potable pipeline – 22,300 feet of 12-inch pipeline.
- d. Construct tie-in to former OVMWD pipeline – 2,500 feet of 24-inch pipeline.

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- e. Construct tie-in to pumping-trough pipeline irrigation system for delivery of recycled water.

Phase 2 of the GREAT Program would expand the recycled water delivery system to a 25-mgd capacity.

- a. Construct Phase 2 recycled water delivery system – 25,000 feet of 30-inch pipe, parallel to ocean view pipeline to provide a tie-in to the PVCWD.
- b. Construct tie-in to PVCWD irrigation system.

These recycled water delivery systems are still in the planning stages. The UWCD, PVCWD, and OVMWD will maintain their own pipeline systems in different stages.

B. Transmission Lines of Municipal and Industrial Uses

The GREAT Program did not consider municipal and industrial use within the City for the recycled water. However, the City recently abandoned the Redwood Trunk Sewer line that extended from the northwestern portion of the City to the Oxnard Plant. The abandoned sewer line could potentially carry a pipe from the AWPF to the northwestern portion of the City and serve municipal and industrial facilities along its route. The future project is called the Recycled Water Backbone System (RWBS).

The transmission lines for both phases and the RWBS line are shown in Figure 7. The distribution area for each line is identified in Figure 7, as well.

APPLICABLE PLANS, POLICIES AND REGULATIONS

- 16. **Basin Plan** - The Regional Water Board adopted a revised *Water Quality Control Plan for the Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) on June 13, 1994, and amended by various Regional Water Board resolutions. This updated and consolidated plan represents the Board's master quality control planning document and regulations. The Basin Plan (i) designates beneficial uses for surface and groundwater, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated (existing and potential) beneficial uses and conform to the State's antidegradation policy, and (iii) includes implementation provisions, programs, and policies to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Water Board plans and policies and other pertinent water quality policies and regulations. This Order implements the applicable plans, policies, and provisions of the Board's Basin Plan.
- 17. The beneficial uses of the Ventura Central Groundwater Basin are municipal and domestic supply, industrial process supply, industrial service supply, and agricultural supply.
- 18. Section 13523 of the California Water Code provides that a Regional Water Board, after consulting with and receiving recommendations from CDPH or its delegated local health agency, and after any necessary hearing, shall, if it determines such action to be necessary to protect the health, safety, or welfare of the public, prescribe water recycling requirements for water that is used or proposed to be used as recycled water. Section

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13523 further provides that the recycling requirements shall include, or be in conformance with, the statewide water recycling criteria established by CDPH pursuant to Water Code section 13521.

19. The City proposes to use recycled water for irrigation and other industrial uses. All these reuse applications could affect the health, safety, and welfare of the public; therefore requirements are necessary.
20. Pursuant to the California Water Code section 13523, the Regional Water Board has consulted with the CDPH regarding the proposed recycling project and has incorporated its recommendations in this Order.
21. CDPH adopted revised Water Recycling Criteria (Chapter 3, Division 4, Title 22, California Code of Regulations) that became effective on December 2, 2000. Applicable criteria to this recycling project are prescribed in this Order. The GREAT Program's recycled water is treated through reverse osmosis and disinfection, and exceeds the quality of recycled water required for the applications proposed in this Order.
22. The City had prepared an Engineering Report on its proposed production, distribution, and use of recycled water for irrigation in March 2008, as required by Section 60323 of Title 22, California Code of Regulations. On June 12, 2008, the CDPH provided the Regional Water Board with comments on the Title 22 Engineering Report.
23. The requirements contained in this Order are in conformance with the goals and objectives of the Basin Plan and implement the requirements of the California Water Code and Water Recycling Criteria.
24. The City prepared and certified the "Final Program Environmental Impact Report", State Clearinghouse No. 2003011045, in compliance with the California Environmental Quality Act (Public Resources Code Section 21000, et seq.). This report was prepared by CH2MHILL for the City of Oxnard in May 2004. The project consists of upgrades to the Oxnard Plant to achieve water recycling and construction of a backbone recycled water distribution system.
25. This issuance of water recycling requirements by a regulatory agency for the protection of the environment is exempt from the provisions of Chapter 3 [commencing with Section 21100, et seq., Division 13 (California Environmental Quality Act), Public Resources Code] in accordance with Section 15308, Title 14, California Code of Regulations.
26. Pursuant to California Water Code section 13320, any aggrieved party may seek review of this Order by filing a petition with the State Water Resources Control Board. A petition must be sent to the State Water Resources Control Board, 1001 I Street, Sacramento, California, 95814, within 30 days of adoption of the Order.

The Regional Water Board has notified the City of Oxnard, interested agencies and persons of its intent to issue Master Water Recycling Requirements for the production, distribution and use of recycled water, and has provided them with an opportunity to submit their written views and recommendations.

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The Regional Water Board, in a public meeting, heard and considered all comments pertaining to these water recycling requirements.

IT IS HEREBY ORDERED that the City of Oxnard shall comply with the following:

I. AWPf INFLUENT SPECIFICATIONS

For purposes of this Order, the AWPf includes Strainer, Microfiltration/Ultrafiltration, Reverse Osmosis, Ultra Violet/Advanced Oxidation and Reduction, Post-Treatment, and Chemical Systems. The influent to the AWPf is secondary treated effluent from the Oxnard Plant.

The influent shall, at all times, be adequately oxidized. The influent shall be considered adequately oxidized when it meets the following characteristics:

1. The monthly average Biochemical Oxygen Demand (BOD₅ 20°C) value does not exceed 30 mg/L. Compliance shall be determined monthly using the average of the analytical results of all 24-hour composite samples taken at least weekly during the month.
2. The monthly average Total Suspended Solids (TSS) concentration does not exceed 30 mg/L. Compliance shall be determined monthly using the average of the analytical results of all 24-hour composite samples taken daily during the month.

II. RECYCLED WATER LIMITATIONS

1. The AWPf-treated recycled water shall not contain constituents with concentrations in excess of the following limits (Table 2):

Table 2 – Recycled Water Limitations			
Constituent	Units	Monthly Average	Daily Maximum
Oil and grease	mg/L	10	15
Total dissolved solids	mg/L	--	700
Chloride	mg/L	--	150
Sulfate	mg/L	--	300
Boron	mg/L	--	1.0
Total nitrogen*	mg/L	--	10

Total nitrogen is sum of nitrite-N, nitrate-N, NH₃-N, and organic-N.

2. The turbidity of the reverse osmosis product water prior to disinfection shall not exceed 0.2 NTU more than 5 percent of the time within a 24-hour period and 0.5 at NTU at any time. The turbidity shall be continuously measured with at least one reading every 1.2 hours and recorded. When the turbidity requirements are exceeded, delivery of recycled water shall be suspended until such time the cause of the exceedance has been identified and corrected. The City shall notify and submit a report according to Provision VII.8. of this Order.

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3. Recycled water shall be, at all times, adequately disinfected such that the number of total coliform bacteria shall not exceed any of the following, based on daily grab samples:

- A. A 7-day median of 2.2 most probable number (MPN) per 100 milliliters;
- B. 23 MPN per 100 milliliters in more than one sample in any 30 day period prior to delivery of recycled water; and,
- C. 240 MPN per 100 milliliters in any sample prior to delivery of recycled water.

By March 31, 2011, the City shall send the report to the Regional Water Board and the CDPH that demonstrates equivalency of UV/AOX disinfection to chlorine disinfection as used in recycled water treatment plants. Equivalency of UV disinfection to a conventional process used in wastewater recycling and reuse must be demonstrated by the following criteria:

- A. Total coliform count equal to or less than 2.2 MPN/100 ml met with the sample statistical frequency as required for chlorine disinfection; and,
- B. Virus inactivation efficiency equivalent to that achieved with chlorine disinfection 4 log of inactivation (i.e., 99.99 percent reduction), based on plaque-forming units of F-specific bacteriophage MS2 or polio virus in wastewater.

4. The pH of the recycled water shall be, at all times, within the range of 6.5 to 8.5 pH units. Excursions from this range shall not be considered a violation provided the duration is not more than 10 minutes in a 24-hour period, and the pH shall at all times be within 6 to 9.

5. The recycled water shall not contain trace, toxic and other constituents in concentrations exceeding:

- A. The current applicable Maximum Contaminant Levels (MCLs) for drinking water established by the CDPH included in the Attachments A-1 to A-5;
- B. Any new Federal or State MCL upon adoption; or,
- C. At levels that adversely affect the beneficial uses of receiving groundwater.

6. The radioactivity of the recycled water shall not exceed the limits specified in Sections 64441 and 64443, Article 5, Chapter 15, Title 22 of the California Code of Regulations, or subsequent revisions.

7. The recycled water shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect the beneficial uses of the receiving groundwater.

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8. The recycled water shall not cause a measurable increase in organic chemical contaminants in the groundwater.

III. SPECIFICATIONS FOR USE OF RECYCLED WATER

1. The AWPf-treated recycled water may be used for the following:
 - A. Surface irrigation in the following areas:
 - a. Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop;
 - b. Parks and playgrounds;
 - c. School yards;
 - d. Residential and freeway landscaping;
 - e. Unrestricted access golf courses; and,
 - f. Other allowable irrigation applications specified in the Water Recycling Criteria, Chapter 3, Title 22, CCR, provided approval from CDPH and Regional Water Board Executive Officer are obtained prior to delivery.
 - B. Industrial or commercial cooling tower;
 - C. Industrial boiler feed; and,
 - D. Recreational Impoundments.
2. The recycled water shall not be used for any other uses than those specified in section III.1 unless an engineering report has been submitted for such other uses, except for groundwater recharge reuse, and has been approved in writing by the Executive Officer and CDPH.
3. Recycled water shall not be used for direct human consumption or for the processing of food or drink intended for human consumption.
4. The delivery of recycled water to end-users shall be subject to CDPH approval and/or its delegated local agency.
5. The dual pumped system may be used to deliver recycled water to end-users. The detailed dual pumped system requirements are available at Section V. of this Order.

IV. USE AREA REQUIREMENTS

Use area is an area of recycled water use with defined boundaries, which may contain one or more facilities where recycled water is used. The City shall be responsible to ensure that all users of recycled water comply with the following:

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1. The City has the option of a public educational program¹ or signage. Except where the CDPH and the Regional Water Board, acting through the CDPH and the Regional Water Board, have approved an educational program that assures an equivalent degree of public notification, All-all use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches high by 8 inches wide, that include the following wording: “RECYCLED WATER – DO NOT DRINK”. Each sign shall display an international symbol similar to that shown in Figure 8 to alert people who do not read English.
2. No physical connection shall be made or allowed to exist between any recycled water piping and any piping conveying potable water, except as allowed under Section 7604 of Title 17, California Code of Regulations.
3. The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibbs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access.
4. Recycled water use shall not result in earth movement in geologically unstable areas.
5. No impoundment or recycled water holding ponds of disinfected recycled water shall occur within 100 feet of any domestic water wells, potable water reservoirs, and streams used as sources of water supply.
6. Whenever a cooling system, using recycled water in conjunction with an air conditioning facility, utilizes a cooling tower or otherwise creates a mist that could come into contact with employees or members of the public, the cooling system shall comply with the following:
 - A. A drift eliminator shall be used whenever the cooling system is in operation.
 - B. A chlorine, or other, biocide shall be used to treat the cooling system recirculating water to minimize the growth of *Legionella* and other microorganisms.
7. No irrigation areas with recycled water shall be located within 50 feet of any domestic water supply well unless all of the following conditions have been met:
 - A. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface;

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¹ The public educational program is based on Title 22 Code of Regulations, Chapter 3 Water Recycling Criteria, Article 4 Use Area Requirements, Section 60310(g), stating: “The Department (CDPH) may accept alternative signage and wording, or an educational program, provided the applicant demonstrates to the Department that the alternative approach will assure an equivalent degree of public notification.”

- B. The well contains an annular seal that extends from the surface into the aquitard;
 - C. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities;
 - D. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well; and,
 - E. The owner of the well approves of the elimination of the buffer zone requirement.
8. No irrigation shall take place within 50 feet of any reservoir or stream used as a source of domestic water.
 9. Use of recycled water shall comply with the following:
 - A. Recycled water shall be applied at such a rate and volume as not to exceed vegetative demand and soil moisture conditions. Special precautions must be taken to: prevent clogging of spray nozzles, prevent over-watering, and minimize the production of run-off. Pipelines shall be maintained so as to prevent leakage;
 - B. Any irrigation runoff shall be confined to the recycled water use area and shall not be allowed to escape as surface flow, unless the runoff does not pose a public health threat and is authorized under a National Pollutant Discharge Elimination System (NPDES) permit, Waste Discharge Requirements, Conditional Waiver of Waste Discharge Requirements for Irrigated Lands, State Water Board, or other orders issued by this Regional Water Board. For the purpose of this requirement, however, minor amounts of irrigation return water from peripheral areas shall not be considered a violation of this Order;
 - C. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities, and shall not contact any drinking water fountain and public present. Drinking water fountains must be equipped with hoods or covers;
 - D. Recycled water shall not be used for irrigation during periods of rainfall and/or run-off;
 - E. Recycled water used for irrigation shall not be allowed to run off into recreational lakes unless it meets the criteria for such lakes; and,
 - F. Recycled water use should be limited to times when public is not present.
 10. All above ground irrigation appurtenances need to be marked appropriately.
 11. The area using recycled water shall be inspected annually by the City.
 12. Supervisors must be appointed for the recycled water use areas and their staff must be trained on the hazards of working with recycled water and periodically retrained.

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13. The City will develop the User Agreements and Ordinances with the potential agricultural, industrial, and recreational users of recycled water. Copies of the User Agreements and Ordinances shall be provided to the Regional Water Board and the CDPH for review and approval.
14. If the recycled water system lateral pipelines are located along the property lines of homeowners, there may be a potential for cross connections. A buffer zone between the recycled water lines and the property owners is necessary. However, if the City cannot maintain adequate control of the recycled water system pipelines, the pipelines will need to be relocated or a physical barrier needs to be installed to prevent this type of potential problem. The homeowners need to be educated on the use of recycled water in the area. The City shall specify a plan to interface with the homeowners as a part of the Rules of Service Agreement in an adjacent property awareness program. The City shall submit this plan to the Regional Water Board and the CDPH by March 31, 2009 for review and approval.

V. REQUIREMENTS FOR DUAL PLUMBED SYSTEM

1. The public water supply shall not be used as a backup or supplemental source of water for a dual-plumbed recycled water system unless the connection between the two systems is protected by an air gap separation that complies with the requirements of Sections 7602 (a) and 7603 (a) of Title 17, California Code of Regulations.

Air gaps shall be at least twice the pipe diameter and be located above ground.

2. The City shall not deliver recycled water for any internal use to any individually-owned residential units, including free-standing structures and multiplexes, with the exception of condominium projects pursuant to Section 13553 of the California Water Code as enacted on October 12, 2007.
3. The City shall not deliver recycled water for internal use, except for fire suppression system, to any facility that produces or processes food products or beverages.
4. The City shall not deliver recycled water to a facility using a dual plumbed system unless the report required under Section 13522.5 of the Water Code, which meets the requirements set forth in section IV.8 and/or IV.9., has been submitted to, and approved by, the Regional Water Board and CDPH.
5. The City that shall submit a report to CDPH pursuant to Section 13522.5 of the Water Code and Section 60414 of the Health and Safety Code, which shall contain the following information for dual plumbed systems, in addition to the information required by Section 60323 of Title 22 of the California Code of Regulations:
 - A. A detailed description of the intended use site identifying the following:
 - a. The number, location, and type of facilities within the use area proposing to use dual plumbed systems;

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- b. The average number of persons estimated to be served by each facility on a daily basis;
 - c. The specific boundaries of the proposed use site including a map showing the location of each facility to be served;
 - d. The person or persons responsible for operation of the dual plumbed system at each facility; and,
 - e. The specific use to be made of the recycled water at each facility.
- B. Plans and specifications describing the following:
- a. Proposed piping system to be used;
 - b. Pipe locations of both recycled and potable systems;
 - c. Type and location of the outlets and plumbing fixtures that will be accessible to the public; and,
 - d. The methods and devices to be used to prevent backflow of recycled water into the public water system.
- C. The methods to be used by the City to assure that the installation and operation of the dual plumbed system will not result in cross connections between the recycled water piping system and the potable water piping system. These shall include a description of pressure, dye or other test methods to be used to test the system every four years.
6. Prior to the initial operation of the dual-plumbed recycled water system and annually thereafter, the dual plumbed system within each facility and use site shall be inspected for possible cross connections with the potable water system. The recycled water system shall also be tested for possible cross connections at least once every four years. The testing shall be conducted in accordance with the method described in section III.5.c. above. The inspections and the testing shall be performed by a cross connection control specialist certified by the California-Nevada section of the American Water Works Association or an organization with equivalent certification requirements. A written report documenting the result of the inspection and testing for the prior year shall be submitted to the CDPH within 30 days following completion of the inspection or testing.
7. Any backflow prevention device installed to protect the public water system serving the dual-plumbed recycled water system shall be inspected and maintained in accordance with Section 7605 of Title 17, California Code of Regulations.

VI. GENERAL REQUIREMENTS

- 1. Bypass, discharge, or delivery to the use area of inadequately treated wastewater, at any time, is prohibited.

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2. The recycling facility shall be adequately protected from inundation and damage by storm flows and run-off.
3. Adequate freeboard and/or protection shall be maintained in the recycled water storage tanks, process tanks, and impoundments to ensure that direct rainfall will not cause overtopping.
4. The wastewater treatment and use of recycled water shall not cause pollution or nuisance.
5. The wastewater treatment and use of recycled water shall not result in problems caused by breeding of mosquitoes, gnats, midges, or other pests.
6. The use of recycled water shall not impart tastes, odors, color, foaming, or other objectionable characteristics to the receiving groundwater.
7. The use of recycled water, which could affect the receiving ground water, shall not contain any substance in concentration toxic to human, animal, or plant life.
8. Odors of sewage origin shall not be perceivable beyond the limits of the property owned or controlled by the City and/or recycled water user.

VII. PROVISIONS

1. This Order includes the attached "Standard Provisions Applicable to Waste Discharge Requirements". If there is any conflict between provisions stated hereinbefore and said "Standard Provisions", those provisions stated hereinbefore prevail.
2. This Order includes the attached Monitoring and Reporting Program. If there is any conflict between provisions stated in the Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the Monitoring and Reporting Program prevail.
3. A copy of these requirements shall be maintained at the water recycling facility so as to be available at all times to operating personnel.
4. The City shall furnish each purveyor and user of recycled water a copy of these requirements and ensure that the requirements are maintained at the purveyor and user's facilities so as to be available at all times to operating personnel.
5. The City shall be responsible to ensure that all users of recycled water comply with the specifications and requirements for such use.
6. The City shall, at all times, properly operate and maintain all treatment facilities and control systems (and related appurtenances) that are installed or used by the City to achieve compliance with the conditions of this Order. Proper operation and maintenance includes: effective performance, adequate funding, adequate operator

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- staffing and training, and adequate laboratory and process controls (including appropriate quality assurance procedures).
7. The City shall submit to the Regional Water Board and CDPH, for approval of the Executive Officer, within 90 days of adoption of this Order an operating and maintenance management plan, including a preventive (fail-safe) procedure and contingency plan for controlling accidental discharge and/or delivery to users of inadequately treated wastewater.
 8. For any violation of requirements in this Order, the City shall notify CDPH and the Regional Water Board within 24 hours of knowledge of the violation either by telephone or electronic mail. This notification shall be followed by a written report within 5 working days of notification, unless otherwise specified in this Order. The report shall include, but not limited to, the following information, as appropriate:
 - A. Nature and extent of the violation;
 - B. Date and time: when the violation started, when compliance was achieved; and, when delivery was suspended and restored, as applicable;
 - C. Duration of violation;
 - D. Cause/s of violation;
 - E. Corrective and/or remedial actions taken and/or will be taken with time schedule for implementation; and,
 - F. Impact of the violation.
 9. Supervisors and operators of the wastewater recycling facility shall possess a certificate of appropriate grade as specified in Title 23, California Code of Regulations, Section 3680 or subsequent revisions.
 10. In accordance with Section 13522.5 of the California Water Code, and Title 22, Division 4, Chapter 3, Article 7, Section 60323 of the California Code of Regulations, the City shall file an engineering report, prepared by a properly qualified engineer registered in California, of any material change or proposed change in character, location or volume of the recycled water or its uses to the Regional Water Board and to the CDPH.
 11. For any extension or expansion of the recycled water system or use areas, the City shall submit a report detailing the extension or expansion plan for approval of the CDPH. Following construction, as-built drawings shall be submitted to the CDPH for approval prior to delivery of recycled water. The Executive Officer shall be furnished with as-built drawings and a copy of the CDPH approval.
 12. The City shall notify the Executive Officer, in writing, at least 30 days in advance of any proposed transfer of ownership and/or operation of the recycling facility and responsibility for complying with this Order. The notice shall include a written agreement between the existing and new recycled water producer indicating the

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specific date for the transfer of responsibility for compliance with this Order. The agreement shall include an acknowledgement that the City is liable for any violations that occurred up to the transfer date and the new recycled water producer is liable from the transfer date on.

13. The City shall allow the Regional Water Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:
 - A. Enter upon the City's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and,
 - D. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order, or as otherwise authorized by the California Water Code, any substances or parameters at any location.
14. The City must comply with all conditions of these water recycling requirements. Violations may result in enforcement actions, including Regional Water Board orders or court orders, requiring corrective action or imposing civil monetary liability, or in modification or revocation of these requirements.
15. These requirements do not exempt the City from compliance with any other laws, regulations, or ordinances that may be applicable; they do not legalize the recycling and use facilities; and they leave unaffected any further constraint on the use of recycled water at certain site/s that may be contained in other statutes or required by other agencies.
16. This Order does not alleviate the responsibility of the City to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency. Expansion of the recycling facility shall be contingent upon issuance of all necessary requirements and permits, including a conditional use permit.
17. The provisions of these water recycling requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.
18. In an enforcement action, it shall not be a defense by the City that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the City shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative

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method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost.

19. After notice and opportunity for a hearing, this Order may be modified, revoked and reissued, or terminated for cause, which include but is not limited to: failure to comply with any condition of in this Order; endangerment of human health or environment resulting from the permitted activities in this Order; obtaining this Order by misrepresentation or failure to disclose all relevant facts; acquisition of new information that could have justified the application of different conditions if known at the time of Order adoption.

The filing of a request by the City for modification, revocation and reissuance, or termination of the Order; or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

20. The City shall furnish, within a reasonable time, any information the Regional Water Board or the CDPH may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The City shall also furnish the Regional Water Board, upon request, with copies of records required to be kept under this Order.

VIII. EFFECTIVE DATE OF ORDER

This Order takes effect upon adoption.

I, Samuel Unger, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region on April ~~7~~¹⁴, 2011.

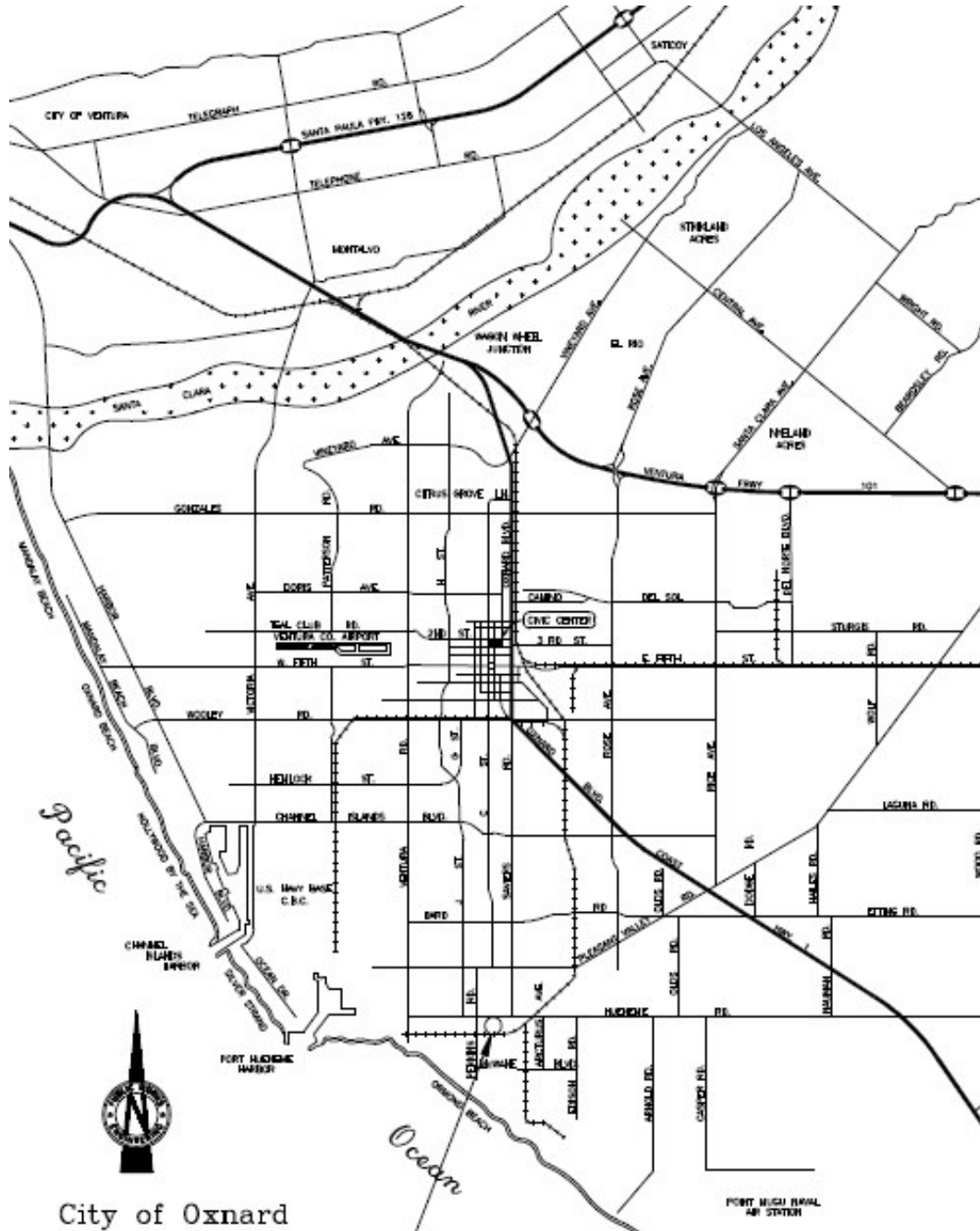
Samuel Unger
Executive Officer

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FIGURE 1 – VICINITY MAP



**OXNARD WASTEWATER TREATMENT PLANT AND
ADVANCED WASTEWATER PURIFICATION FACILITY**

REVISED TENTATIVE

REVISED TENTATIVE

FIGURE 2 – FLOW SCHEMATIC AT OXNARD WASTEWATER TREATMENT PLANT

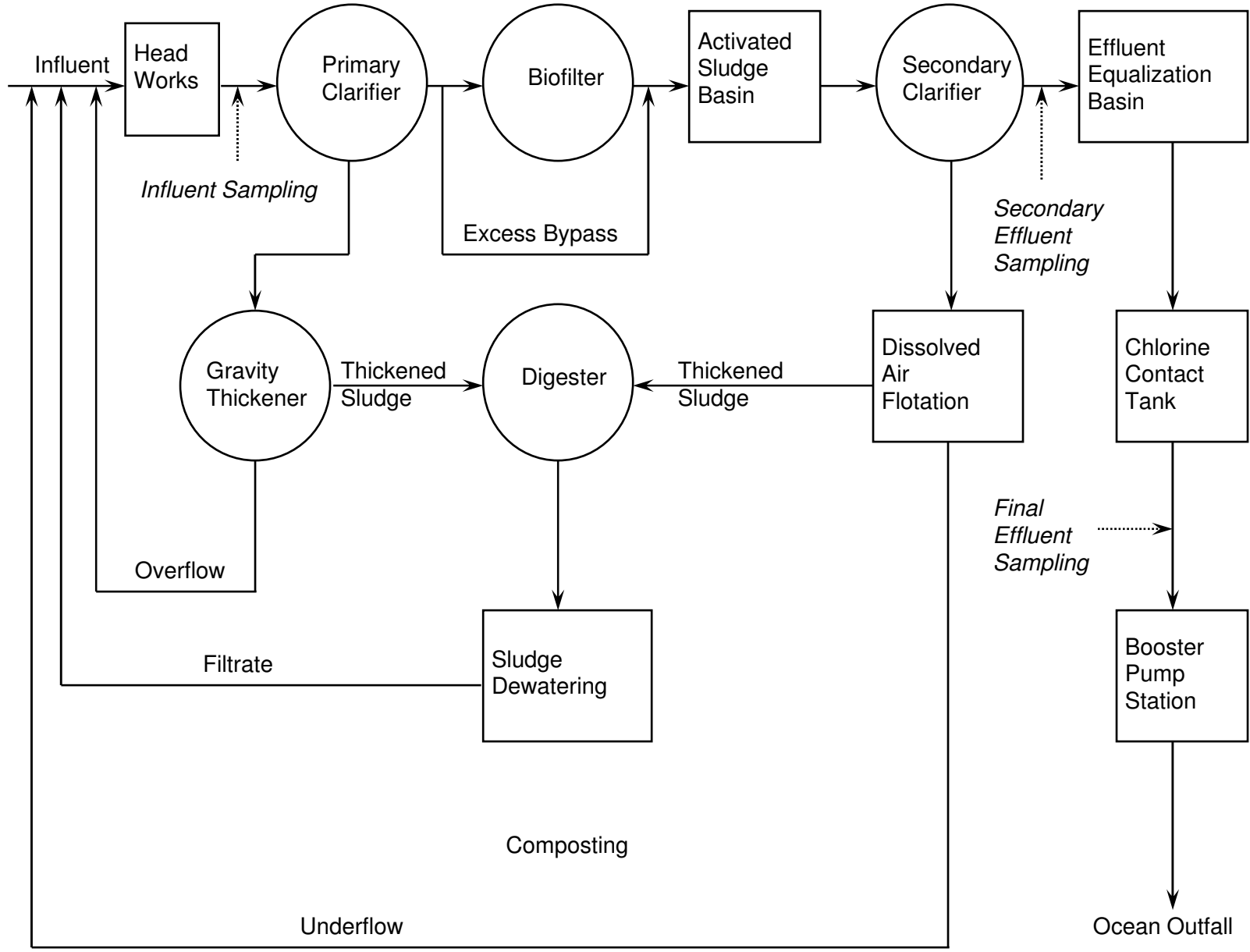
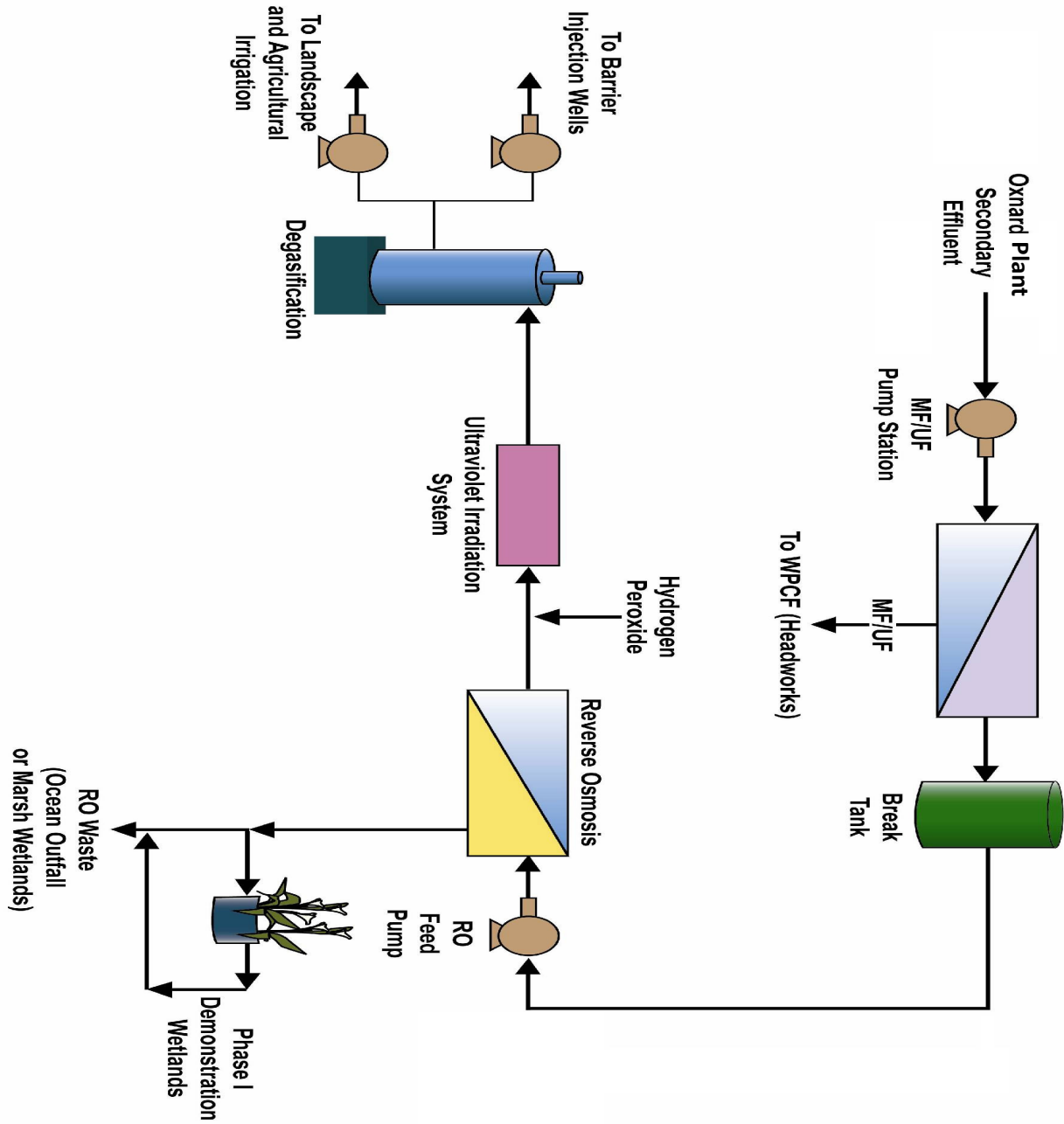
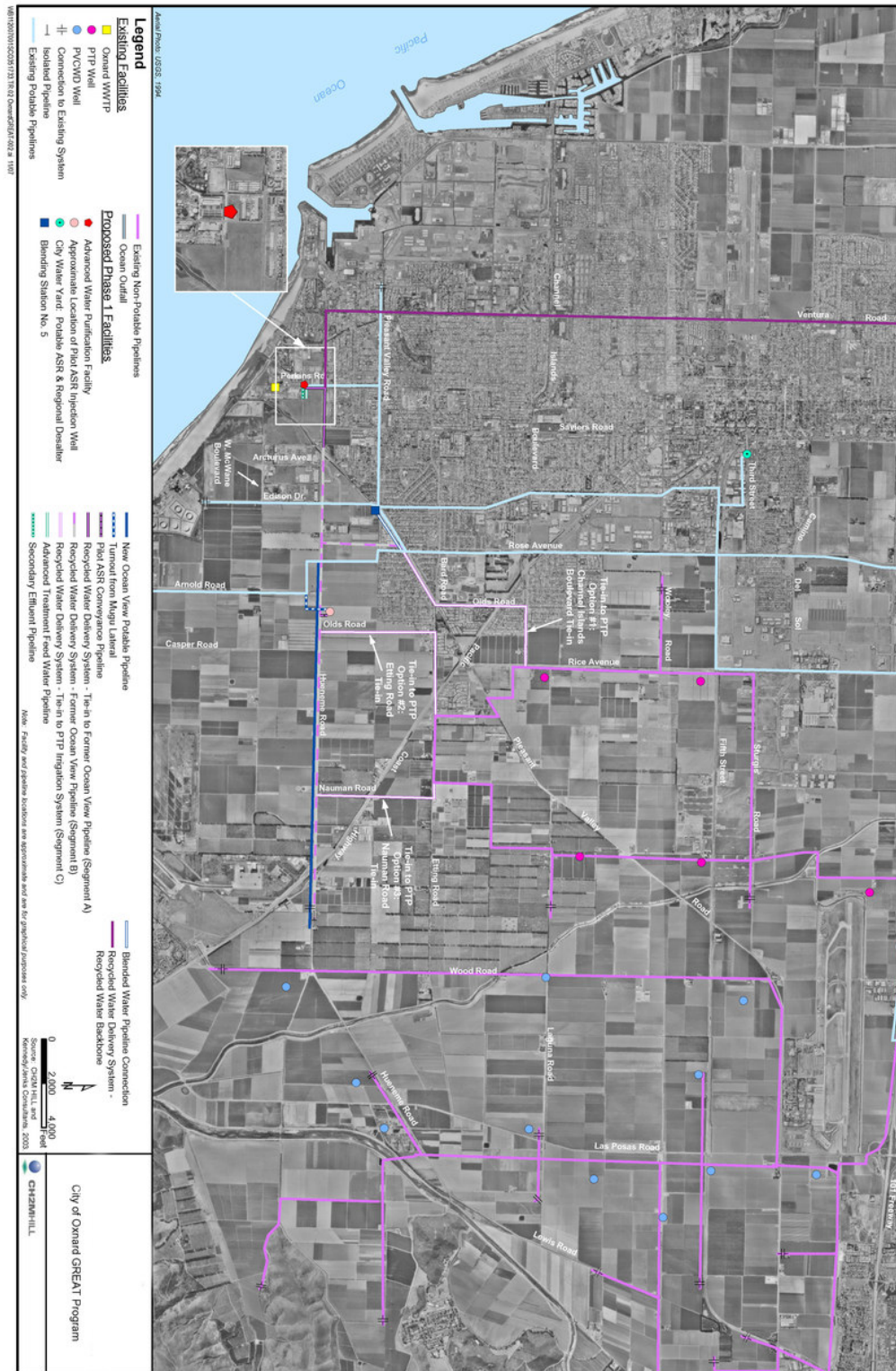


FIGURE 3 – ADVANCED WASTEWATER PURIFICATION PROCESS



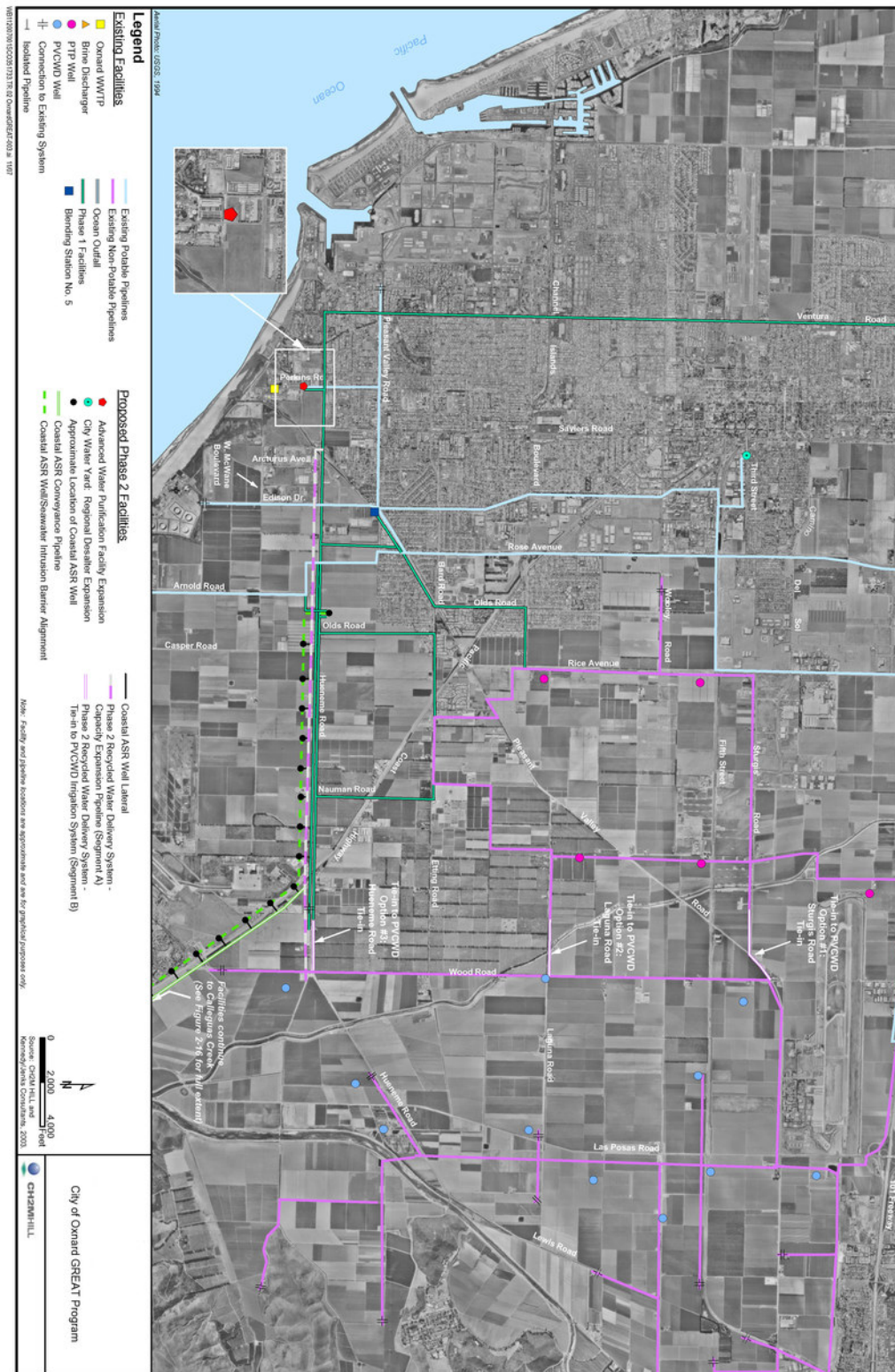
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FIGURE 5 – PHASE 1 RECYCLED WATER TRANSMISSION



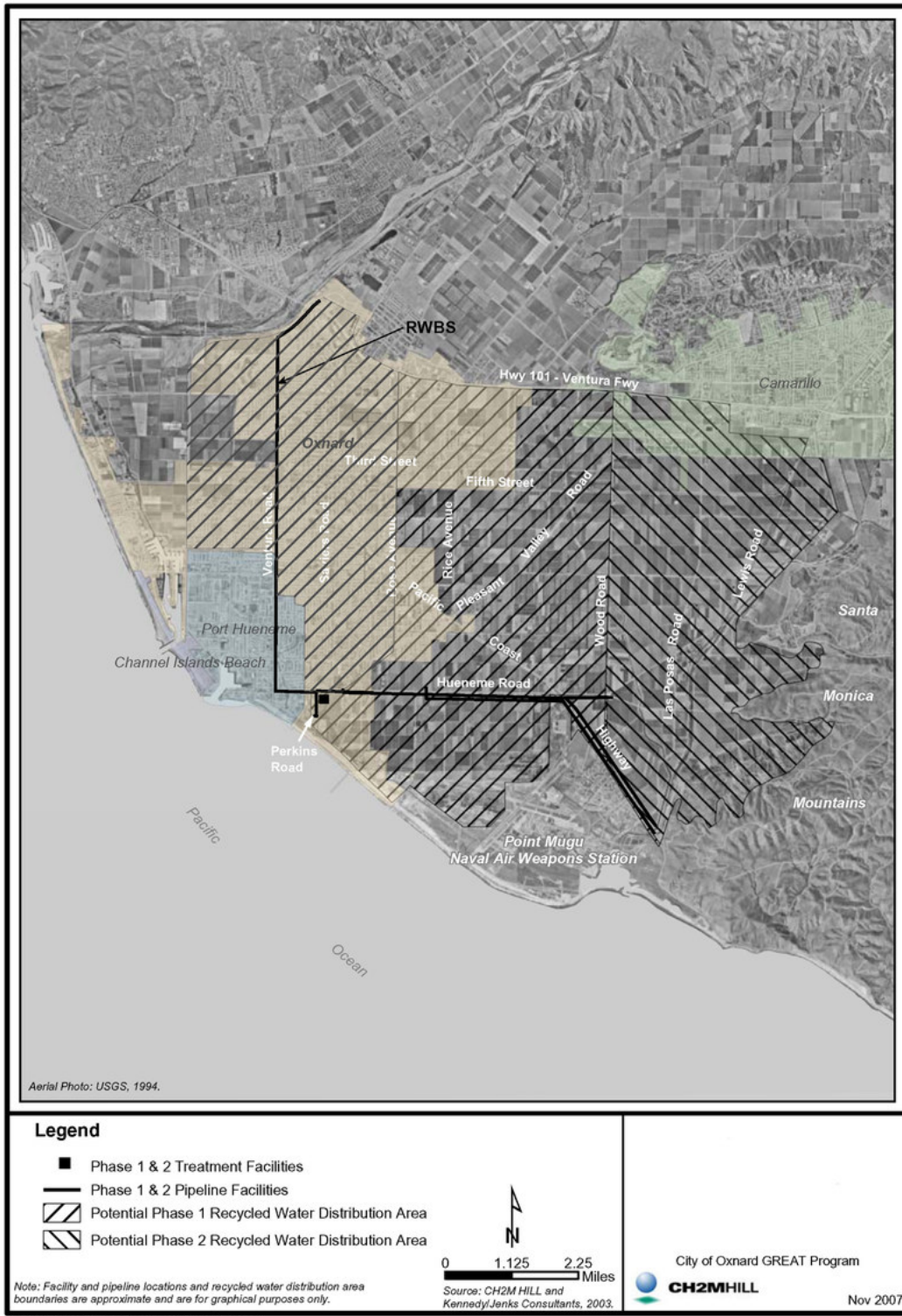
REVISED TENTATIVE

FIGURE 6 – PHASE 2 RECYCLED WATER TRANSMISSION



REVISED TENTATIVE

FIGURE 7 – RECYCLED WATER DISTRIBUTION AREA



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FIGURE 8 – EXHIBITION OF “RECYCLED WATER – DO NOT DRINK”



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