

California Regional Water Quality Control Board
North Coast Region

**Order No. R1-2011-0007
WDID NO. 1B10078RSON**

CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS

For

**Sonoma County Junior College District
Shone Farm Reservoir and Frost Protection System
Forestville, California**

Sonoma County

The California Regional Water Quality Control Board, North Coast Region (hereinafter Regional Water Board), finds that:

1. On July 6, 2010, the Regional Water Board received a Report of Waste Discharge (ROWD) and \$2,040 filing fee from Sonoma County Junior College District (hereinafter Discharger) for the construction and operation of a recycled water storage reservoir and Frost Protection system at 7450 Steve Olson Way, Forestville, California (APN 110-210-008). The site location is identified on the location map included as Attachment A. The ROWD includes a *Technical Memorandum: Impacts to Groundwater Quality from Shone Farm Reservoir and Frost Protection* and the *Shone Farm Accidental Discharge and Emergency Response Plan (June 2010)*. Supplemental information was requested by Regional Water Board staff on September 9, 2010 and received on September 21, 2010. The ROWD was deemed complete on October 12, 2010.
2. The Project involves the construction and use of an 8 million gallon earth dam and reservoir and associated pumping facilities on approximately two acres of the 365 acre Santa Rosa Junior College Shone Farm property, owned by Sonoma County Junior College District, use of the reservoir to store recycled water produced by the Town of Windsor's wastewater treatment plant, and use of the recycled water for frost protection of vineyards on the Shone Farm property. The proposed reservoir is surrounded by farm fields owned by Shone Farm.

The proposed reservoir will be constructed with embankments on all four sides in a natural northeast trending swale and will include a main dam embankment with a maximum height of approximately 25 feet from normal high water level to the toe of the dam. The main dam embankment will be a zoned embankment dam that will consist of a zone of low permeability clayey soil on the upstream face and a zone of slightly greater permeability fill for the downstream portion of the dam and minor fills of the side embankments.

3. The proposed reservoir, pumping system and reclamation system will be operated and maintained by the Discharger. The reservoir will be filled with recycled water (tertiary treated, disinfected municipal wastewater effluent) by the Town of Windsor's reclamation distribution system through an existing 16-

inch recycled water irrigation main that currently serves the Shone Farm site. The reservoir will retain approximately 7 MG of recycled water during the period of February 1st and May 30th for vineyard frost protection. The reservoir and pumping facilities will also provide recycled water to supplement recycled water provided directly from the Town of Windsor recycled water distribution system to irrigate Shone Farm agricultural fields during the summer months.

4. The Town of Windsor is currently operating pursuant to Order No. R1-2007-0013 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0023345, *Waste Discharge Requirements and Master Reclamation Permit for the Town of Windsor Wastewater Treatment Reclamation and Disposal Facility*. The Town of Windsor provides tertiary treatment, nutrient removal and ultraviolet disinfection for up to 2.25 mgd (average dry weather flow) of municipal wastewater for distribution to urban and agricultural irrigation sites in and around Windsor, as well as for toilet flushing at Windsor High School.
5. Title 27 of the California Code of Regulations (CCR) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for containment of classified waste, and requires extensive monitoring of groundwater. Generally, no degradation of groundwater quality by waste is acceptable under Title 27 regulations.

Section 20090 of Title 27 identifies several conditional exemptions to meeting the prescriptive standards of Title 27. Section 20090(b) allows conditional exemptions for discharges of wastewater to land, including, but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met: (1) the applicable Regional Water Board has issued WDRs, reclamation requirements, or waived such issuance; (2) the discharge is in compliance with the applicable water quality control plan; and (3) the wastewater does not need to be managed according to CCR Chapter 11, Division 4.5, Title 22 as a hazardous waste.

6. The ROWD requests an exemption from requirements for waste impoundments contained in the California Code of Regulations (CCR), Title 27, Division 2, Subdivision 1, Chapter 1, Article 1, Section 20090(b) and contains the following discussion of the conditions identified in the referenced section of Title 27 to support the request for an exemption from Title 27 requirements:
 - (1) *The applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;*

This Order will satisfy this requirement.

- (2) *The discharge is in compliance with the applicable water quality control plan;*

Requirements of the Water Quality Control Plan for the North Coast Region (Basin Plan) applicable to the Project are Groundwater Objectives and the General Objective. Information presented in the Technical Memorandum submitted with the ROWD demonstrates that the Project will not cause any exceedance of the Groundwater Objectives.

The Basin Plan General Objective seeks to maintain the quality of existing high quality waters. The Technical Memorandum reveals that there would be some degradation of existing groundwater quality directly beneath the reservoir and frost protection areas, but not in locations of existing or likely future beneficial uses which are primarily domestic and agricultural water supply. There are no existing wells, and the potential for future well construction is very small in this location.

The Basin Plan General Objective is based on the State Water Board Resolution No. 68-16, the State Antidegradation Policy, which establishes several conditions that are discussed as follows:

- (a) First the state must determine that lowering of high quality waters:
 - (i) will be consistent with the maximum benefit to the people of the state;

Recycled water is defined in section 13050 of the California Water Code as "water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource." The Project is consistent with the maximum benefit to the people of California because it (1) supports agricultural water recycling, (2) will be used in educating students and the larger community on the value and use of recycled water, (3) puts to use recycled water that would otherwise be discharged to Mark West Creek, and (4) uses recycled water for frost protection lowering the potential for impacts caused by direct diversion of fresh water from the Russian River during frost events.

- (ii) will not unreasonably affect present and anticipated beneficial uses of such water; and

The technical memorandum analysis demonstrates that the Project would not cause groundwater to exceed groundwater objectives immediately beneath the reservoir or the vineyards and that very minor changes (e.g., increases between 0.3 and 7 mg/L) in the concentrations of a few constituents (specific conductance, total dissolved solids, sodium, chloride, sulfate,

and zinc) could possibly be observed at the parcel line down-gradient of the reservoir;

(iii) will not result in water quality less than that prescribed in state policies (e.g., water quality objectives in Water Quality Control Plans).

See discussion under (b) immediately below.

(b) Second, any activities that result in discharges to high quality waters are required to:

(i) meet waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to avoid pollution or nuisance

The Project water will be tertiary treated disinfected wastewater produced by the Town of Windsor Water Reclamation Facilities, which is regulated by the Regional Water Board through an NPDES/Master Reclamation Permit. The Town uses the best practicable treatment methods for municipal wastewater, including nutrient removal, filtration, and disinfection with ultraviolet light. Further Project controls will include the use of best management practices to prevent or minimize the potential for surface runoff or percolation of recycled water and associated pollutants to groundwater. The Project will discharge only Town of Windsor recycled water. There will be no discharge of any other water.

(ii) and maintain the highest water quality consistent with the maximum benefit to the people of the state

Best management practices and mitigation measures incorporated into the Project are identified in Finding 9 below and are designed to prevent or minimize the potential for surface runoff or percolation of recycled water and associated pollutants to groundwater. These measures, in combination with the high level of treatment provided to the recycled water will maintain the highest water quality consistent with the maximum benefit to the people of the state.

(3) *The wastewater does not need to be managed according to Chapter 11, Division 4.4, Title 22 of this code as a hazardous waste.*

The Town of Windsor's recycled water is not regulated as a hazardous waste.

7. Pursuant to the antidegradation policy in State Water Board Resolution No. 68-16, the lowering of water quality can be allowed only if beneficial uses are

- protected, and if there is a maximum benefit to the people of the state. As discussed in detail in Finding 6, the Technical Memorandum demonstrates that beneficial uses will be protected by comparing the measured constituent concentrations in the recycled water with those in the groundwater at the Project site and in the Russian River aquifer and showing that water quality objectives for the protection of the uses of groundwater and the Russian River will not be exceeded. In addition, the Town of Windsor provides a high quality of treatment to its wastewater utilizing tertiary treatment, nutrient removal, and ultraviolet disinfection. The increased cost of additional treatment to reduce concentrations of salts, nutrients and other constituents that may be present in the treated wastewater is not in the best interest of the public given that beneficial uses are already shown to be protected. Therefore, the allowance of an incremental increase in degradation is found to be in the best interest to the people of the state.
8. In addition, the Discharger proposes the following actions and submittals as further conditions for a waiver of waste discharger requirements:
 - a. The Discharger will submit a report to the Regional Water Board that includes the as-built plans and specifications for the recycled water storage reservoir and all of the geotechnical test results associated with the test fill, results from compaction testing of the liner, and the topographic survey that verifies liner thickness.
 - b. The Discharger will develop an Operations and Maintenance Manual for the reservoir and frost protection reclamation use. The manual will be submitted to the Regional Water Board before the reservoir is put into service;
 - c. The Discharger will initiate a Groundwater Monitoring Plan as described in the ROWD, Report of Additional Information. Groundwater data and analysis will be submitted to the Regional Water Board annually for the duration of the groundwater monitoring program;
 - d. The Discharger will submit plans for vineyard frost protection infrastructure and run-off control measures for each vineyard block before using frost protection in the block; and
 - e. The Discharger agrees to allow access to Regional Water Board staff to inspect for compliance with waiver conditions.
 9. The following features will be included in the design, maintenance and operation of the proposed recycled water reservoir and frost protection reclamation system to reduce the potential for impacts to water quality and to prevent nuisance:
 - a. Construction of the recycled water reservoir is scheduled to be completed during the summer and fall dry season. The reservoir construction project requires coverage under the statewide construction stormwater permit and

- a Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented. Erosion control best management practices will include preservation of existing vegetation where possible, stabilized construction access roads, silt fences and straw bale barriers, covering of soil piles during rainfall events, use of staging areas or off-site storage for equipment to prevent release of hazardous materials and petroleum products into groundwater or runoff, routine inspections of construction sites before and after storm events and every 24 hours during storm events, and hydroseed/plant soils exposed during grading and fill activities.
- b. The interior of the reservoir will be blanketed with a minimum 2-foot thick liner of low-permeability clayey soil amended with bentonite clay to achieve a maximum hydraulic conductivity of no greater than 1×10^{-6} cm/sec, designed and installed in accordance with specifications identified in the September 21, 2010 letter titled *Shone Farm Reservoir: Request for Waiver of Waste Discharge Requirements*.
 - c. A layer of rock-slope protection will protect the reservoir interior slopes from erosion and potential wave action, and will reduce the potential for cracking by slowing the drying of the liner when exposed to air. Grass sod will protect the exterior slopes, with rock-slope protection at the toe of the main dam embankment.
 - d. The recycled water storage reservoir design precludes stormwater from entering the reservoir. Only rain that falls directly on the pond surface and minor amounts of rainfall from the top of the pond berm will enter the reservoir.
 - e. In the event that trench and excavation dewatering is needed during the construction of the reservoir and associated facilities, the Discharger will require the contractor to obtain a groundwater dewatering permit from the Regional Water Board and implement an approved groundwater dewatering plan.
 - f. Post-construction water quality controls will be implemented including the use of gravel on access roads, vegetation on reservoir embankment slopes, and vegetated and rip-rapped swales along the south and west sides of the reservoir. Swales will direct storm water around the reservoir to existing natural drainage courses.
 - g. A groundwater monitoring plan to monitor for potential impacts of reservoir seepage on the site groundwater will be implemented. Groundwater monitoring for total dissolved solids, nitrate and coliform is proposed twice annually, in wet and dry conditions.
 - h. A minimum of approximately one foot of water will be maintained in the reservoir at all times to protect the clay liner from potential cracking.

- i. The reservoir will have an electronic level transducer to continuously monitor the reservoir level to prevent the pond from overflowing. A minimum two foot freeboard will be maintained.
- j. The Discharger will prepare a Facilities Operations and Maintenance Manual, which will include reservoir and frost protection protocol.
 - i. Reservoir protocols will include regular reservoir inspections to identify potentially serious conditions and to facilitate maintenance in advance of deterioration of reservoir facilities and the development and use of a rating curve to identify appropriate reservoir levels for different times of the year.
 - ii. Frost protection protocols will include pre-season system inspections and testing, regular in-season system checks, checks during spray events that include checking for ponding and runoff, and logging of spray events. A cover crop will be maintained between vineyard rows, providing capacity for retention and limited treatment.
- k. The Discharger will provide training to employees involved with the reclamation system.
- l. Operation of the frost protection pump station will be manual and will be actively managed. Remote telemetry alarms and status will also be included to monitor the operation and annunciate upset conditions.
- m. Frost protection use of recycled water will occur on land that ranges from flat to no more than a six percent slope (in limited areas), with vegetated buffers between the proposed frost protection areas and the surrounding property lines. According to the Report of Waste Discharge, setbacks to on-site drainage swales generally exceed 100 feet.
- n. Frost protection application of recycled water will not occur during rainfall events.
- o. Frost protection recycled water will be applied at rates not to exceed 50 gallons per minute per acre, equivalent to 0.11 inches per hour. Frost protection will typically occur approximately five days per year, typically for approximately seven hours, between 2:00 am and 9:00 am, as needed. Typical application would average approximately 0.8 inches per event.
- p. No overland flow will be permitted to leave the site. Runoff controls will be achieved through a combination of design features and operational controls, including, but not limited to:
 - i. Construction of physical controls such as berms and collection channels, with provision for removing any collected water;
 - ii. Use of fairly flat buffer zones

10. Pursuant to California Water Code Section 13269 the California Regional Water Quality Control Board, North Coast Region, (Regional Water Board) may waive criteria for individual cases where it can be satisfactorily demonstrated that water quality will not be impaired and public health will not be threatened as a result of such waivers. The Regional Water Board has reviewed the ROWD and other information related to the proposed discharge and determined that issuance of a conditional waiver of waste discharge requirements is consistent with the Basin Plan and is in the public interest. The Regional Water Board has determined that the design, location, construction and maintenance of the proposed recycled water storage reservoir project will provide adequate protection of beneficial uses of water and prevent nuisance, pollution and contamination.
11. The discharge of any waste not specifically regulated by the Waiver described herein is not authorized by this Waiver. Any change to the operation of the Project that would have a significant or material effect on the findings, conclusions, or conditions of this Waiver must be submitted to the Executive Officer of the Regional Water Board for prior review and written approval.
12. As part of the Regional Water Board's efforts to control sediment waste discharges and restore sediment impaired water bodies, the Regional Water Board adopted the Total Maximum Daily Load Implementation Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region, which is also known as the Sediment TMDL Implementation Policy, on November 29, 2004. This Policy was adopted through Resolution R1-2004-0087. The construction of a reservoir and delivery of recycled water on agriculture lands may destabilize soil surfaces resulting in unpermitted discharges of sediment in the Russian River watershed. If sites are left in a disturbed state during the winter period, it is likely that runoff-generated erosion will occur. Conditions of this waiver require that disturbed areas be stabilized in a manner to prevent excess erosion. No discharges of sediment from reservoir construction or recycled water activities will be authorized.
13. A mitigated negative declaration (MND) was prepared and certified by the Discharger, acting as Lead Agency, on December 15, 2009, to satisfy the requirements of the California Environmental Quality Act (Pub. Resources Code section 21000 et. seq.) ("CEQA"). The MND identified mitigation measures to reduce potential environmental impacts of the proposed Project.

As a responsible agency under CEQA, the Regional Water Board is required to consider the final certified CEQA document and reach its own conclusions on whether and how to approve a permit for the Project. Prior to adopting this conditional waiver, the Regional Water Board considered the environmental effects of the Project as identified in the MND. In considering alternatives and mitigation measures, the Regional Water Board only has the responsibility for mitigating or avoiding those direct or indirect environmental effects of those parts of the reclamation plan that are within its jurisdiction to approve. (Public Resources Code, Section 21002.1(d); CCR, title 14, section 15096(g) and

(h)). The Regional Water Board has required, as a condition of this Order, mitigation measures for those potentially significant impacts over which the Regional Water Board has authority. The Regional Water Board finds that with the implementation of mitigation measures identified in the CEQA document and implementation of an approved Operations and Maintenance Manual all potentially significant impacts of the District's recycled water storage reservoir and frost protection system, will be reduced to levels of insignificance. Mitigation measures identified in the MND are identified as follows:

- a. Erosion control measures that follow Best Management Practices shall be incorporated in the drawings and specifications. The California Stormwater Quality Association publishes a Stormwater Best Management Practice Handbook which describes such practices. Specifically, the project shall preserve existing vegetation where possible; use a stabilized construction access way; utilize silt fences and straw bale barriers to prevent offsite erosion; cover soil piles during rainfall events; stage equipment on staging areas or offsite, if possible to prevent release of hazardous materials and petroleum products into groundwater or runoff; conduct routine inspections of construction sites before and after storm events and every 24 hours during storm events to identify maintenance requirements for the construction BMPs and to determine the effectiveness of the implemented BMPs; and hydroseed or plant exposed soils that result from grading and fill activities. Additionally, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the project and maintained by the contractor.
- b. Overexcavate the foundation soils under the reservoir embankments (main dam and perimeter) to a minimum depth of three feet below original grade and a minimum of six feet beyond the toe of the embankment. A geologist or civil engineer must review the overexcavation to confirm adequate depth and identify loose/soft or unsuitable materials to be overexcavated before placement of fill. Prepare the subgrade, and recompact in accordance with the following fill placement recommendations:
 - i. Before placing fill on the overexcavated area, scarify the ground surface to a minimum depth of six inches. Moisture condition the scarified soil to within two percent of optimum and compact to an average of 100 percent of ASTM D 698 test procedure;
 - ii. Borrow soils shall be visually inspected for concentrations of clean sand and tested periodically for passing No. 200 fraction and demonstrate that the fill contains a minimum of 20% fines;
 - iii. Place fill in maximum 8-inch thick loose lifts, moisture condition to approximately 2% above optimum, and compact to an average of 100% relative compaction based on ASTM D 698 test procedure. Compact fill using a sheepsfoot or padded drum type roller;
 - iv. Where fill is placed on sloping ground, blade back slopes horizontally during placement of embankment fill to create a stepped (or

benched) fill surface (such that a uniform, sloping fill surface is avoided).

- c. Destroy and backfill existing groundwater observation wells within the new reservoir in accordance with Sonoma County regulations.
 - d. The contractor shall be required to follow the provisions of sections 5163 through 5167 of the General Industry Safety Orders (California Code of Regulations, Title 8) to protect the project area from being contaminated by accidental release of any hazardous materials. If hazardous materials are encountered during construction or occur as a result of an accidental spill, the contractor shall halt construction immediately, notify the District, and implement remediation in accordance with the project specifications and applicable requirements of the North Coast Regional Water Quality Control Board. Disposal of all hazardous materials shall be in compliance with current California hazardous waste disposal laws.
14. The Discharger and interested agencies and persons have been notified of the Regional Water Board's intent to adopt a conditional waiver for the proposed discharge and have been provided opportunities for public meetings and to submit their written views and recommendations. Notification was provided through posting on the Regional Water Board's Internet site at: http://www.waterboards.ca.gov/northcoast/public_notices/public_hearings/npdes_permits_and_wdrs.shtml and through publication in the Press Democrat on November 19, 2010.
15. The Regional Water Board conducted a public hearing on January 27, 2011, in Santa Rosa, California, and considered all evidence concerning this matter.

THEREFORE BE IT ORDERED, that pursuant to California Water Code section 13269 the Regional Water Board, based on the aforementioned hearing, finds that a Waiver of Waste Discharge Requirements for the Recycled Water Storage Reservoir and Frost Protection Project at the Shone Farm at 7450 Steve Olson Way, Forestville, California would be in the public interest and consistent with the Basin Plan provided that the Discharger is in compliance with the following:

- a. The Discharger shall obtain all appropriate construction permits prior to initiating construction;
- b. The Discharger shall implement mitigation measures identified in the Mitigated Negative Declaration and in Finding 13 of this Order;
- c. The Discharger shall construct post-construction water quality controls in accordance with the terms described in the ROWD;
- d. The Discharger shall submit to the Regional Water Board Executive Officer, plans for vineyard frost protection infrastructure and run-off control measures for each vineyard block before using frost protection in the block;

- e. The reservoir shall be used strictly for storage of tertiary treated, disinfected effluent from the Windsor wastewater treatment facility;
- f. The recycled water reservoir and frost protection reclamation system shall be operated utilizing all design, maintenance and operation measures identified in this Order (Finding 9) and an approved Facilities Operations and Maintenance Manual (Finding 8.b.). The Facilities Operations and Maintenance Manual shall be submitted to the Regional Water Board Executive Officer for approval prior to the recycled reservoir being put into use;
- g. The Discharger shall respond to all spills and leaks of recycled water in accordance with the June 2010 *Shone Farm Reservoir Facilities Accidental and Emergency Response Plan* for the Sonoma County Junior College District, and any future revisions thereto;
- h. The Discharger and any subsequent property owners shall allow Regional Water Board staff reasonable access onto the affected property for the purpose of performing inspections to determine compliance with waiver conditions;
- i. The Discharger shall submit specifications for construction of the groundwater monitoring wells to the Regional Water Board Executive Officer prior to construction of the wells, and well logs shall be submitted upon completion of well construction;
- j. The Discharger shall implement a Groundwater Monitoring Plan as described in the ROWD, Report of Additional Information, section 9 and the monitoring program shall continue for a minimum period of 10 years (estimated travel time for groundwater to travel from the reservoir to groundwater at the location of the first downstream monitoring well);
- k. The Discharger shall submit recycled water storage reservoir, frost protection use, and groundwater monitoring reports in accordance with the Monitoring and Reporting Program.
- l. The discharge shall comply with all applicable provisions of the Water Quality Control Plan for the North Coast Region;
- m. The discharge shall comply with the conditions for this Waiver of Waste Discharge Requirements as set forth herein, and discharge only in accordance with the terms described in the ROWD;
- n. The discharge shall not create a pollution, contamination, or nuisance, as defined by California Water Code Section 13050;
- o. If the Discharger wishes to continue the activity regulated by this Order after the expiration date of the Order, the Discharger must apply for and obtain a new conditional waiver.

BE IT FURTHER ORDERED that the Regional Water Board has reviewed the Mitigated Negative Declaration and ROWD for the Shone Farm Reservoir and Frost Protection Project, and finds that based on the mitigation proposed and described above, the Shone Farm Reservoir and Frost Protection Project will not have a significant impact on water quality. All of the necessary mitigation measures to protect water quality have become conditions of this Order. The Regional Water Board will file a Notice of Determination within five days from the issuance of this order.

BE IT FURTHER ORDERED, that the discharge of any waste not specifically regulated by the Waiver described herein is not authorized by this Waiver.

BE IT FURTHER ORDERED, that this Waiver of Waste Discharge Requirements shall expire on January 27, 2016, in accordance with Section 13269 of the Water Code.

BE IT FURTHER ORDERED, that this action waiving the issuance of Waste Discharge Requirements for the Shone Farm Reservoir and Frost Protection Project at 7450 Steve Olson Way, Forestville, California (a) is conditional, (b) may not exceed five years in duration, (c) may be terminated at any time, (d) does not permit an illegal activity, (e) does not preclude the need for permits which may be required by other local or governmental agencies, and (f) does not preclude the Regional Water Board from administering enforcement remedies (including civil penalties) pursuant to the Water Code.

CERTIFICATION:

I, Catherine Kuhlman, 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, North Coast Region, on January 27, 2011

Catherine Kuhlman
Executive Officer