

## INFORMATION SHEET

ORDER R5-2015-XXXX  
ROOT CREEK WATER DISTRICT  
RIVERSTONE WASTEWATER TREATMENT FACILITY  
MADERA COUNTY

### **Background**

The Root Creek Water District, in conjunction with Riverstone Development, LLC, and San Joaquin River Ranch, LLC submitted a Report of Waste Discharge (RWD), dated 20 June 2014, and applied for Waste Discharge Requirements (WDRs) to discharge secondary and tertiary treated wastewater from the new wastewater treatment facilities to be constructed for the proposed Riverstone Development Project (formerly Gateway Village).

The Riverstone Development Project (hereafter Riverstone or Development) is a proposed mixed use master-planned community, in southeastern Madera County, consisting of approximately 6,578 residential dwelling units and 191 acres of land designated for commercial and mixed use development. No industrial or heavy commercial businesses are to be included in the proposed Development.

As described in the RWD, Riverstone Development, LLC, the project developer, will undertake development obligations for Riverstone including construction of the wet utilities related to the sewer collection system and proposed wastewater treatment facilities. Riverstone Development, LLC, shall transfer ownership and operation of these facilities to the Root Creek Water District at the time of startup.

Root Creek Water District (District), created in 1996, will be the public agency responsible for providing potable water along with wastewater collection, treatment, and disposal services for Riverstone, and will have a long-term contractual relationship with Riverstone Development, LLC, to provide water and sewer service to the new development as it is built. A portion of the proposed Development is currently within the Madera Irrigation District. This area will be annexed by the Root Creek Water District when the area is developed.

### **Wastewater Treatment and Disposal**

Wastewater treatment facilities for the proposed Development will be constructed in phases on a 20 acre parcel, west of Road 40 just south of Avenue 11. For the first phase, wastewater treatment and disposal will be handled by an Initial Plant, which will be designed to treat and dispose of up to 0.3 million gallons per day (mgd) of secondary undisinfected wastewater to evaporation/percolation ponds. At build out, wastewater treatment and disposal for the Development will consist of a Tertiary Plant designed to treat and dispose of up to 1.8 mgd of disinfected tertiary treated wastewater for irrigation of crops and landscaping.

The Initial Plant, built to handle the first phase of development, will incorporate a Biolac® extended aeration activated sludge biological treatment system, with nitrification/denitrification to reduce nitrogen concentrations in the effluent to less than 10 mg/L. The Initial Plant will produce an undisinfected secondary treated effluent, which will be discharged to a series of evaporation/percolation ponds constructed adjacent to the Initial Plant and at the Effluent Storage Pond Complex on Avenue 10 and Road 39.

When flows to the Initial Plant approach 80% capacity, construction will begin on a new tertiary wastewater treatment facility (hereafter Tertiary Plant). The Tertiary Plant will be constructed adjacent to the Initial Plant and include a sequencing batch reactor system with secondary equalization storage, tertiary filtration, and Ultraviolet (UV) disinfection. The Tertiary Plant will also include nitrification/denitrification steps to reduce effluent nitrogen concentrations to less than 10 mg/L. The Tertiary Plant will produce a disinfected tertiary treated effluent for Title 22 unrestricted reuse and will provide recycled water for crop and landscape irrigation. According to the RWD, the Tertiary Plant will be constructed in two equal phases. Phase 1 will be designed to treat up to 0.9 mgd. Phase 2, with an additional capacity of 0.9 mgd will be constructed as demand warrants, to bring the total treatment capacity for the Tertiary Plant up to 1.8 mgd.

After treatment and disinfection, effluent from the Tertiary Plant will be discharged to the Effluent Storage Pond Complex at Avenue 10 and Road 39 for use as recycled water. The disinfected tertiary treated effluent will be used for irrigation of citrus and pistachio trees on land owned by San Joaquin River Ranch, LLC. The Root Creek Water District has an easement with San Joaquin River Ranch, LLC for wastewater reclamation on approximately 320 acres of land proposed for reclamation, and will contract with San Joaquin River Ranch, LLC for a similar easement on the remaining 320 acres once the Tertiary Plant is in operation. In addition, recycled water may also be applied to approximately 100 acres of landscaping within Root Creek Park, part of the development. Together these properties make up the "Use Areas" to be used for reclamation of recycled water. According to the water balance, submitted with the RWD, the 640 acres of pistachio and citrus orchards will have more than sufficient disposal capacity for flows at 1.8 mgd, not counting the 100 acres of landscaped areas within Root Creek Park.

Once the Tertiary Plant is in operation the Initial Plant will be decommissioned and the area redeveloped.

Because these are new wastewater treatment facilities (WWTFs), there is no existing effluent data available. Anticipated effluent quality for the Initial and Tertiary Plants based on the proposed treatment process and similar existing WWTFs is presented below:

| Constituent                     | Units     | Effluent Quality |                |
|---------------------------------|-----------|------------------|----------------|
|                                 |           | Initial Plant    | Tertiary Plant |
| pH                              | pH units  | 7.4              | 7.0            |
| Electrical Conductivity (EC)    | umhos/cm  | 600              | 600            |
| Biochemical Oxygen Demand (BOD) | mg/L      | 40               | <10            |
| Total Suspended Solids (TSS)    | mg/L      | 40               | <10            |
| Total Dissolved Solids (TDS)    | mg/L      | 400              | 400            |
| Ammonia as nitrogen             | mg/L      | <1               | <1             |
| Total Nitrogen (TN)             | mg/L      | <10              | <10            |
| Sodium                          | mg/L      | 45               | 45             |
| Chloride                        | mg/L      | 80               | 80             |
| Total Coliform Organisms        | MPN/100mL | - - -            | <2.2           |

## **Solids**

Wasted sludge from the Initial Plant will be discharged to on-site sludge drying beds. The dried sludge will then be taken to a nearby composting facility for use as a biofuel or delivered to the Madera County Landfill in Fairmead for disposal. Alternatively, the RWD states that the District may decide to load the sludge directly into bins to be hauled off rather than use on-site sludge drying beds.

For the Tertiary Plant, sludge handling facilities will include an aerobic digester, waste activated sludge storage, a centrifuge dewatering system, and covered storage bins. All sludge produced at the Tertiary Plant will be hauled off-site for disposal at an authorized facility.

**Source Water:** Source water for the Development will be provided by groundwater. Well locations for two supply wells to provide potable water for the first phase of development ("Village A") have been identified and tested. Samples of the source water reported an EC of 312 to 440 umhos/cm, TDS of 268 to 290 mg/L, and NO<sub>3</sub>-N of 1.2 to 4.6 mg/L.

## **Groundwater Conditions**

According to the Department of Water Resources Groundwater Elevation Maps (Spring 2010) first encountered groundwater in the vicinity of the proposed development occurs at about 200 feet below ground surface (bgs). Regional flow in the area is to the northwest away from the San Joaquin River.

A groundwater investigation was conducted in April 2014 to evaluate groundwater quality beneath the proposed WWTFs, disposal areas, and Use Areas. As part of this investigation five monitoring wells were installed around the proposed WWTFs (monitoring wells MW-4 and MW-5), Effluent Storage Pond Complex (monitoring well MW-3), and Use Areas (monitoring wells MW-1 and MW-2). Based on the groundwater investigation, groundwater quality beneath the area is relatively good with EC ranging from 218 umhos/cm in MW-2 to 427 umhos/cm in MW-3, TDS ranging from 147 mg/L in MW-4 to 294 mg/L in MW-3, and nitrate as nitrogen (NO<sub>3</sub>-N) ranging from 4.2 mg/L in MW-1 to 17.4 mg/L in MW-3.

MW-3 in the vicinity of the proposed Effluent Storage Pond Complex contains the highest concentrations for EC, and TDS, with nitrate as nitrogen in excess of the primary MCL of 10 mg/L, as well as manganese at 0.06 mg/L just slightly above its secondary MCL of 0.05 mg/L. This is likely the result of existing agricultural activities or natural conditions in the area. With the proposed treatment and nitrification/denitrification to reduce nitrogen concentrations in the effluent to <10 mg/L, the discharge from the proposed WWTFs is not expected to exacerbate existing groundwater conditions.

## **Basin Plan, Beneficial Uses, and Regulatory Considerations**

The WWTFs and Use Areas lie within the Berenda Hydrologic Area (545.3) of the San Joaquin Valley Floor Hydraulic Unit. Local drainage is to the San Joaquin River between Friant Dam and the Mendota Pool.

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, 4<sup>th</sup> Edition*, revised October 2011 (Basin Plan) designates beneficial uses, establishes numerical and narrative water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Board. Beneficial uses often determine the water quality objectives that apply to a water body. The receiving water for this discharge is groundwater. The beneficial uses of groundwater in the area are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

### **Antidegradation**

State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (Anti-Degradation Policy), requires the regional water boards to maintain high quality waters of the State until it is demonstrated that any change in quality will not result in water quality less than that described in State and Regional Water Board policies or exceed water quality objectives, will not unreasonably affect beneficial uses and is consistent with the maximum benefit to the people of the State.

Degradation of groundwater by some of the typical waste constituents of concern (e.g., EC and nitrate) released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of the State. The technology, energy, and waste management advantages of a municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impacts on water quality will be substantially less. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore provides sufficient reason to accommodate planned growth and allow for limited groundwater degradation.

As discussed in the Findings in the WDRs the discharge as authorized by this Order is not expected to unreasonably affect present and anticipated future beneficial uses or result in groundwater quality that exceeds water quality objectives. The Discharger provides or will provide as a condition of this Order treatment and control measures intended to minimize degradation to the extent feasible. This Order establishes groundwater limitations that allow some degradation, but that will not unreasonably threaten present and future anticipated beneficial uses of groundwater or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan, and requires groundwater monitoring to evaluate potential groundwater impacts from the discharge and confirm that the BPTC measures are sufficiently protective of groundwater.

### **Title 27**

Title 27 of the California Code of Regulations, section 20005 et seq (Title 27) contains regulations to address certain discharges to land. Unless exempt, the release of designated waste is subject to full containment pursuant to Title 27 requirements. Title 27 Section 20090(b) exempts discharges of designated waste to land from Title 27 containment standards and other Title 27 requirements provided the following conditions are met:

- a. The applicable regional water board has issued waste discharge requirements, or waived such issuance;
- b. The discharge is in compliance with the applicable basin plan; and
- c. The waste is not hazardous waste and need not be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

The discharge meets the above requirements and is therefore exempt from Title 27.

### **CEQA**

The proposed WWTFs and Riverstone Development (formerly Gateway Village) was reviewed as part of the Gateway Village Specific Plan Environmental Impact Report (EIR), which was certified by the Madera County Board of Supervisors in accordance with the California Environmental Quality Act (CEQA) on 11 September 2007 (SCH #2005091071). Minor differences between the Project as proposed in the EIR and the Project as proposed in the RWD prompted the Central Valley Water Board to prepare an Addendum to the EIR for the Board's files.

The Addendum concludes that the minor changes in wastewater treatment, handling, and disposal will be insignificant and will not result in any potential environmental impacts that have not already been fully analyzed in the EIR. None of the circumstances set forth in Public Resources Code section 21166 or California Code of Regulations, title 14, section 15162(a) that would require the preparation of a subsequent EIR are present for this Project.

### **Proposed Order Terms and Conditions**

#### **Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions**

The proposed Order would prohibit discharge to surface waters and surface water drainage courses.

The proposed Order sets effluent limits for flow, BOD, TSS, and total nitrogen for both the Initial and Tertiary Plants. In addition, the proposed Order includes additional effluent limits for the Tertiary Plant for turbidity, and total coliform organisms and sets specific specifications for operation of the UV disinfection system.

The proposed Order sets groundwater limitations at the primary and recommended secondary MCLs for nitrate as nitrogen, electrical conductivity, total coliform organisms, and the constituents identified in Title 22 of the California Code of Regulations, for which MCLs exist.

The proposed Order requires submittal of a copy of the approved Title 22 Engineering Report with approval letter from the State Water Board, Division of Drinking Water (DDW) and a Notice of Intent (NOI) for coverage under the Water Quality Order 2014-0090, *General Waste*

*Discharge Requirements for Recycled Water Use (Recycling General Order)*, prior to initiating wastewater recycling operations.

### **Monitoring Requirements**

Water Code section 13267 authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of waste discharges on waters of the State. Water Code section 13268 authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes influent, effluent, source water, groundwater, and sludge monitoring. This monitoring is necessary to evaluate the potential for degradation resulting from the discharge.

### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.