# City of Orting

## Water Resource Recovery Facility (WRRF) Lagoon Solids Removal and Hauling
### Addendum 1

**Posted: October 6, 2025**
**By: Ryan McBee, Public Works Director**

- Q1. I'm reaching out to see if there is a list of bid holders for the WRRF Lagoon Solids Removal & Hauling Project that I could receive?
- A1. The city does not have a list of bid holders for the WRRF Lagoon Solids Removal & Hauling Project. The documents are posted on the city's website under "News" and advertised with Tacoma News Tribune.

- Q2. Start date before the first of December? How many days to complete the Project?
- A2. May be allowed, depending on when City Council approves the contract. As stated in the Invitation to Bid, Scope of Work Part 2, the Contractor shall complete all work required under the Contract, including pumping, hauling, and delivery of approximately 500 dry tons of solids, **within forty (40) working days**. This may be adjusted during the contract negotiations if additional time is required.

- Q3. Does this job need to be Bonded?
- A3. Yes, Performance Bond and Payment Bond - The Contractor shall furnish to the City prior to start of construction a performance bond and payment bond in an amount of one hundred percent (100%) of the contract in a form acceptable to the City. In lieu of bond for contracts less than $25,000, the City may, at the Contractor's option, hold five percent (5%) of the contract amount as retainage for a period of thirty (30) days after final acceptance or until receipt of all necessary releases from the Department of Revenue and the Department of

Labor and Industries and settlement of any liens, whichever is later.

- Q4. How many gallons a day can Shelton take?
- A4. DOE SW Regional Biosolids Coordinator, Eddie Simons, provided several sites that could accept lagoon solids for treatment, but no quantities were provided at this time.

- Q5. How many gallons a day can Bio Recycling take?
- A5. DOE SW Regional Biosolids Coordinator, Eddie Simons, provided several sites that could accept lagoon solids for treatment, but no quantities were provided at this time.

- Q6. Could King County south plant be a option?
- A6. We reached out to King County South Plant and were told they would not accept at this time.

- Q7. Are we to include tipping fees? or does the city have that figured?
- A7. Recommend including any fees in the overall bid.

- Q8. I did not see any nutrient data. Could it go straight to the land app?
- A8. Cell 3 solids could be processed into Class B by the contractor or others for possible land application off site. Cell 1 and 2 would not likely be suitable due to its short holding time in the lagoon requiring additional treatment techniques to achieve Class B. See attached Pages from Orting GSP deliverables – September 2025 Nutrient.

- Q9. Who do we contact to survey the lagoon?
- A9. Contact Wastewater Supervisor, Steve Daskam (253-263-3205, sdaskam@cityoforting.org), or Public Works Director Ryan McBee (253-262-8519, rmcbee@cityoforting.org). Steve Daskam is currently attending the WEFTEC Conference in Chicago and returns Oct 6.

- Q10. under required submittals "SDS" for our shelter and Biorecycling will want it liquid so there won't be any dewatering chemicals, what is thought?
- A10. No dewatering chemicals are anticipated to be used on site at the Orting treatment plant but may be used at the receiving facility to further treat and dispose of the lagoon liquids.

- Q11. In section 2, Line 8 Haul and disposal it doesn’t specify whether or not it needs to be dewatered or can be hauled off in liquid form. Is it up to the contractor or does the City have a specific request for dewatering? Thanks for your time and look forward to getting you a proposal soon.
- A11. The intent is to Pump and Haul the liquid solids (approximately 0.4-1.7% solids) to a nearby facility for further processing at the approved disposal/reuse site. The receiving site would treat as they see fit within their processes.

# List of Tables

## Existing Nutrient Loading

Table 3-6 below shows the annual average results of sampling, analyzing influent and effluent nutrient levels from 2021 to 2024.

**Table 3-6: Annual Average Nutrient Concentrations**

| Year | Influent | | | | Effluent | | | |
|---|---|---|---|---|---|---|---|---|
| | TKN (mg/L) | Ammonia (mg/L) | $BOD_5$ (mg/L) | $BOD_5$:TKN RATIO | TKN (mg/L) | Ammonia (mg/L) | NOx (mg/L) | TIN (mg/L) |
| 2021 | 51.7 | 42.2 | 267 | 5.2 | 3.85 | 1.26 | 4.80 | 8.28 |
| 2022 | 42.0 | 40.3 | 224 | 5.3 | 3.09 | 0.74 | 5.60 | 8.69 |
| 2023 | 60.8 | 52.2 | 272 | 4.5 | 3.47 | 1.09 | 2.59 | 6.06 |
| 2024 | 45.0 | 41.2 | 253 | 5.6 | 3.04 | 0.43 | 8.70 | 12.5 |
| Average = | 49.9 | 44.0 | 254.3 | 5.2 | 3.36 | 0.88 | 5.42 | 8.89 |

## Future Projected Wastewater Flow and Loadings

In December 2024, the City finalized a Comprehensive Plan Update which outlines long-term plans for community and economic development. The Comprehensive Plan Update outlines the methodology for projecting service area population equivalents within the City's urban growth area (UGA) and the associated results. Based on historical population growth, future anticipated developments in available zoning areas within the city boundary, and to maintain consistency with the City's 2015 Water System Plan, the City conservatively estimates population will grow 1% per year over the next 20 years for the purpose of sizing wastewater conveyance and treatment facilities for this General Sewer Plan.

Utilizing data reported in the Discharge Monitoring Reports (DMR), influent flows and loading data were trended from 2021 to 2024 and annual averages were determined for average daily, max month, peak week, and peak day flows. It was assumed that the projected influent flows to the WRRF are to mirror the anticipated annual 1% population growth rate across the 22-year design build out period, in turn affecting the influent BOD, TSS and nutrient loading rates as well.

Table 3-7 displays the existing and projected average and peak flows to the WRRF from the collection system.

**Table 3-7: City of Orting 22-Year Projected Flows**

| Parameter | 2021 – 2024 Average | Projected 22 Years Yr-2047 | Current Permit Limits (MGD) | Projected Percent of Limit (%) |
|---|---|---|---|---|
| Estimated Population | 9,269 | 11,828* | - | - |
| Average Daily Flow (MGD) | 0.71 | 0.90 | - | - |
| Max Month Flow (MGD) | 1.25 | 1.57 | 1.8 | 87% |
| Peak Week Flow (MGD) | 1.77 | 2.22 | - | - |
| Peak Day Flow (MGD) | 3.03 | 3.80 | 4.5 | 85% |
| Peak Hourly Flow (MGD) | 4.60 | 5.79 | 6.5 | 89% |

*Population equivalent for build out conditions (Year 2047) conservatively estimates 11,828 people; however, the Comprehensive Plan Update estimates the build out population of approximately 9,590. As previously mentioned, a conservative estimate of 1% population growth per year was utilized to maintain consistency with the City's 2015 Water System Plan which also utilizes the same growth per year assumption.

feet flow through windows in the floating partition wall between cells where biosolids are further mixed and aerobically digested by another 25 HP floating mixer. Cell 3 is the largest of the three lagoon cells, does not include any mixing and is facultative. Biosolids eventually removed from Cell 3 of the lagoon system is tested and has been historically classified as Class B Biosolids for land application. The facultative lagoon was last dredged to remove all biosolids in 2017. The Cell 1 mixer was installed in 1999 and the impeller was replaced in 2018 and operates as intended with no major maintenance. The mixer in Cell 2 was installed in 1999 and is operating as intended with no major maintenance.

As biosolids continue to accumulate in Cell 3 of the facultative lagoon, supernatant is able to evaporate or as necessary flow over the lagoon outlet weir and/or lagoon overflow pipe to the decommissioned chlorine contact basin (CCB) for temporary storage. Flow from the CCB ultimately transfers to the onsite drainage pump station via open drain valves and scum skimmers which recycles the flow back to the headworks for treatment and discharge to the outfall. However, the frequent presence of solids and nutrients in the supernatant force operators to continue to store biosolids in the facultative lagoon rather than recycling the biosolids and supernatant flow due to biological upsets in the downstream SBR treatment process. Therefore, to maintain storage capacity the facultative lagoon is dredged as required and the biosolids are dewatered and land applied as Class B biosolids.

The floating partition between the completely mixed Cells 1 and 2 and the non-mixed facultative Cell 3 has shifted from its original position to the north causing the partition to partially buckle, indicating one of the partition anchors has likely failed. In 2025, the City issued a request for proposal (RFP) for dredging and hauling of accumulated biosolids from lagoon Cell 3 and the repair of the partition wall between Cells 1, 2 and 3 with work anticipated to be completed by 2026.

In 2026, Orting is expected to commence construction for a new biosolids handling facility and aerobic digester system to achieve Class A and Class B biosolids as discussed in the 2009 GSP and 2025 Pre-Design Report Amendment. After construction is completed, the WAS from the SBR basins will no longer be sent to the facultative lagoon for storage and it is recommended the facultative lagoon remain active to be utilized as wet weather storage until the project is completed and the lagoon is eventually decommissioned. Refer to the 2025 Pre-Design Report Amendment submitted to Ecology for more information on this project.

Onsite Plant Drainage Pump Station

The onsite drainage pump station consists of two 3 HP submersible centrifugal pumps. The lift station wet well, valve vault, pumps, valves, and discharge piping were originally installed in 1990. The pump motors were replaced in 2017. The pump station pumps, valves, and discharge piping are nearing their anticipated useful life (typically 30 years) and are scheduled to be significantly rebuilt as part of the 2026 Biosolids Improvements Project.

The pump station is feed by a 6” chlorine contact basin drain piping, combined 6” post-SBR EQ basin and SBR basin 3 drain pipe, 4” SBR influent piping drain (sump pump), and a combined 8” lagoon outlet and SBR basin 1, 2, and 3 drain pipe. The existing chlorine contact basin (CCB) was abandoned in 1999 when the UV disinfection system was installed, however, the lagoon overflow remained connected to the CCB. During peak flow events, the lagoon overflows to the CCB and is intended to be transferred to the onsite drainage pump station via the CCB drain

valves and scum skimmer to be recycled to the front of the plant for treatment. However, the scum skimmer frequently clogs due to algae growth and settled solids clog the drain valves. Therefore, the overflow from the lagoon is essentially stored in the CCB, allowing the sewage to become septic due to the anoxic state in the CCB, increasing the concentration of soluble nutrients in the supernatant of the solids. Once the skimmer and valves are cleaned, the overflow is transferred to the onsite drainage pump station where it has the potential to be recycled back to the headworks for treatment. However, this increased nutrient and solids loading to the front of the plant interferes with the biological treatment in the SBRs and overloads the system which can lead to permit violations. To prevent uncontrolled solids return back to the headworks, the onsite drainage pump station is not operated. Therefore, the previously discussed grit effluent/SBR influent drain pipe, SBR basins drain pipe, and post-SBR EQ basin drain pipe are not currently utilized as the means to drain the associated piping and basins. The SBR 6-inch drain lines are utilized to drain the basins directly to the on-site drainage pump station and portable bypass pumps are utilized to drain the on-site drain pump station wet well to an active SBR basin.

In 2026, Orting is expected to commence construction for a new biosolids handling facility and aerobic digester system to achieve Class A and Class B biosolids as discussed in the 2009 GSP and 2025 Pre-Design Report Amendment. After construction is complete, the lagoon and CCB will no longer be connected to the onsite drainage pump station. The station will primarily be utilized to return digester decant flow, biosolids processing drainage, and SBR basin drainage to the plant headworks via a new 6-inch diameter force main. Refer to the 2025 Pre-Design Report Amendment submitted to Ecology for more information on this project.

Reclaimed Water Recirculation System

Two end suction centrifugal reclaimed water recirculation (3W) pumps are installed within the mechanical room adjacent to SBR basin 1 and 2. Each 3W pump has a rated capacity of 40 gpm at 250-feet TDH. The pumps connect to the 36-inch effluent water line via two 4-inch schedule 80 PVC pipes located downstream of the UV disinfection system in the effluent sample line vault buried outside of the mechanical room. The suction piping has 4-inch isolation ball valves at the effluent piping connection point and at the pump. The discharge piping has 4-inch check and isolation ball valves upstream of a strainer capable of filtering final effluent water to less than ¼-inch diameter of solids passing. Prior to feeding the reclaimed water system, strained effluent water is stored in a 119-gal hydro-pneumatic tank to protect against surging. Pump P-12 is currently out of operation and requires replacement. Reclaimed water is utilized for wash water for the screening, headworks, and grit areas, as well as miscellaneous hose bibs throughout at plant.

All equipment associated with the reclaimed water recirculation system was installed in 1999 and is nearing its useful life expectancy (typically 10 to 15 years) and should be scheduled for replacement. If plantwide improvements are to be implemented, it is assumed reclaimed water demand should increase, however, the specific demand must be assessed based on the improvements to be implemented to determine the system capacity requirements.

Plant Piping Capacity

Existing plant piping ranges from 8 inches to 36 inches in diameter based on the 1990, 1999 and 2007 construction drawings. The piping ages range between 18 to 35 years old with a majority of the piping installed during the 1999 and 2007 upgrades. The existing grit effluent piping,

channel, hydraulic capacity of the existing in-channel fine screen, and the upstream weir structure which bypasses flows higher than 6.5 MGD to the lagoon for temporary wet weather storage. Flow bypassing to the lagoon is not metered, therefore, occasional peak instantaneous flows exceeding 6.5 MGD which are overflowed to the lagoon are unknown. City staff have indicated this occurred once in 2023 during a peak storm event in the winter. For the purpose of this GSP, the available influent metered data (Parshall flume measured downstream of the screen) was utilized to determine the existing and projected peak hourly and instantaneous flows. However, it is recommended that the City meter the bypass flow during a peak storm event prior to commencing design of the capital improvement projects (CIP) outlined in this report to ensure equipment is adequately sized to treat all flows.

As discussed in Section 3 – Flows and Loadings, utilizing data reported in the Discharge Monitoring Reports (DMR), influent flows and loadings data were trended from 2021 to 2024 and annual averages were determined for average daily, max month, peak week, peak day, and peak hourly flows. It was assumed that the projected influent flows to the WRRF are to mirror the anticipated annual 1% population growth rate across the 22-year design build out period, in turn affecting the influent BOD, TSS and nutrient loading rates as well.

Peak Instantaneous Design Flow was calculated by multiplying Peak Hourly Flow by a peaking factor of 1.15 as instantaneous flows are not recorded by the flow meter at the WRRF.

**Table 5-5: Additional Effluent Design Criteria**

| Parameter | Limit | Condition |
|---|---|---|
| pH range | 6.0 – 9.0 | Min-Max (Std. Units) |
| Fecal Coliform | 200/100 mL | Monthly Geometric Mean |
| | 400/100 mL | Weekly Geometric Mean |
| BOD | 30 mg/L | Ave Monthly (85% Removal) |
| | 45 mg/L | Ave Weekly |
| TSS | 30 mg/L | Ave Monthly (85% Removal) |
| | 45 mg/L | Ave Weekly |
| Ammonia | 9 mg/L | Average Monthly |
| | 20 mg/L | Maximum Daily (May 1 – Oct 31) |
| Total Recoverable Copper | 18 µg/L | Average Monthly |
| | 26 µg/L | Maximum Daily |

### Treatment Alternatives

Two treatment alternatives were evaluated in this GSP based Cost Effectiveness (Engineering, Construction and Operations), Treatment Effectiveness, Operations and Maintenance Demands, and Site Layout.

The treatment alternatives evaluated consist of implementing WRRF improvements as alternative treatment facility locations were not considered due to high anticipated costs of relocating, existing collection system configuration, availability of land at the existing plant site, and lack of available land in other locations.