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## TECHNICAL MEMORANDUM

Date: September 9, 2013  
To: Eric Mendenhall  
Ted Hill  
From: Jennifer Lundberg  
Jim Dougherty, Gray & Osborne, Inc.  
Doug Welch, Gray & Osborne, Inc.  
Subject: Shoreline Variance  
cc:  
Project Number: 216-2564-013  
Project Name: City of Sumner Wastewater Treatment Plant

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The City of Sumner requests a Shoreline Variance for the expansion of the Sumner Wastewater Treatment Plant (WWTP) because the proposed development is located within the 200 foot Shoreline Conservancy buffer for the Puyallup and White Rivers. The WWTP serves the cities of Sumner and Bonney Lake as well as a portion of unincorporated Pierce County. The WWTP is located at the confluence of the White and Puyallup rivers and has undergone several upgrades since its construction in 1955. The National Pollutant Discharge Elimination Permit (NPDES) for the Sumner Wastewater Treatment Plant (WWTP) requires the City to initiate planning for facility expansion when 85% of plant capacity is exceeded for three consecutive months, which occurred during the period from November 2009 through January 2010. During the period since the last upgrade, Total Suspended Solids and BOD loadings have increased more rapidly than anticipated in the 1999 Facilities Plan. Consequently, the City of Sumner is proposing to expand the WWTP to accommodate the increased flows and loadings associated with the revised flow and load trends and population growth and expansion of its service area.

The City is currently reviewing two design layouts with budgetary considerations determining the ultimate design selection. Alternative B is the preferred design. The planned expansion will increase the capacity of the existing WWTP to a maximum month design flow of either 5.41 MGD (Phase 2A) or 6.10 MGD (Phase 2B). The components for both design layouts are similar and most elements are accommodated within the existing facility. However, both layouts require construction of the following significant structures within the 200 foot floodway buffer:

- Secondary Clarifier No. 3 (located off site and adjacent to the existing secondary clarifiers)
- Aeration Basin No. 3 (onsite and adjacent to Aeration Basin No. 2)
- Solids Handling Building canopy expansion (onsite, existing structure and adding a canopy)
- Centrate Storage Tank (onsite; Alternative B only)
- Scum Pump Building (onsite; Alternative B only)

- Gravity Thickener No. 2 (onsite; Alternative A only)
- Grit Handling Building (onsite; Alternative A only)
- Odor Control System (onsite; Alternative A only)

Additional project elements include:

- RV Dump Station (onsite and within the shoreline buffer)
- Relocation of the recycling center (onsite and partially with the 200 foot buffer) to accommodate the RV Dump Station
- Solids Transfer Station (onsite; within the Shoreline Conservation Setback)

The Sumner Shoreline Master Program in conjunction with the Sumner Municipal Code determines what development is allowed within the shoreline and mitigation requirements for that development. The shorelines of the White (Stuck) and Puyallup Rivers are designated as Shorelines of Statewide Significance under the Shoreline Management Act (SMA) and are designated as such in WAC 173-18.

SMC 16.28.030 lists the criteria to grant variances from the Shoreline Master Program. Variance permits for development located landward of the ordinary high-water mark, except those areas designated by the Washington State Department of Ecology as marshes, bogs, or swamps pursuant to Chapter 173-22 WAC, may be authorized, provided the applicant can demonstrate all of the following:

1. *That the strict requirements of the bulk, dimensional, or performance standards set forth in the Shoreline Master Program preclude or significantly interfere with a reasonable use of the property not otherwise prohibited by the Shoreline Master Program.*

The Sumner WWTP has been in service at its current location at the confluence of the White and Puyallup Rivers since the mid-1950s and it provides secondary wastewater treatment to its service area, including the Cities of Sumner and Bonney Lake as well as portions of unincorporated Pierce County. It is a water-related use in that the purpose of the facility is to treat wastewater and this is discharged to a nearby water body, the White River in this case. The entire plant is designed to work as a system and relocation of a portion of the plant necessary for the expansion is unreasonable technically and functionally as the expansion would be required in another portion of the county and likely within the shoreline. Relocation of a portion or all of the WWTP to a different location would also require extensive changes to the underground transmission piping and reduce the efficiency of the plant operations to an unacceptable level. The City of Sumner is required to meet the requirements of the NPDES permit, which means either the plant must be expanded to meet development needs or development must be halted or slowed. The latter would prove difficult and does not meet the City of Sumner Economic Development (Goal 3).

The shoreline designation is Urban Conservancy, which has a 200 foot buffer from the floodway or ordinary high water (OHW) using the more conservative measure. The purpose of this designation is to provide public access to the water and where possible restore ecological function for all species, especially endangered species. However, the existing facility is a necessary public service facility and

cannot be cost-effectively relocated and placing the expansion components in a different location is impracticable. Additionally, as part of the Phase 1 Expansion completed in 2005, the Puyallup River Trail was constructed as mitigation for public access. This mitigation is facility wide and was intended to include the Phase 2 construction now being undertaken.

Related to providing public access with the previously constructed Puyallup River Trail is the proposed land exchange with WDFW in that the City is proposing to exchange a similarly sized property just to the east of the WWTP that can be rehabilitated for park and habitat features and as an extension of the Puyallup River Trail. Part of the proposed land exchange is to relocate the WDFW access easement outside of the plant confines. This will make the public access corridor around the WWTP more complete and safer for the public.

The proposed layout(s) meet the planned development per the Comprehensive Facility Plan<sup>1</sup>. The proposed development is part of the long-term management of the facility to meet the needs of the community and maintain environmental compliance with the NPDES permit. Part of the long-term planning for the facility includes infilling onsite to the extent possible. The Phase 2 Expansion follows this philosophy with most of the new structures located within the existing facility footprint. The Phase 1 expansion anticipated and sized structures to accommodate the Phase 2 expansion with the lowest impact possible for new structures and grading. Hard surfaces are minimized and all stormwater is managed.

Following is an explanation of the specific facility components and their placement in relation to the 200 ft Shoreline Conservancy Buffer.

- Secondary Clarifier No. 3 (located off site and adjacent to the existing secondary clarifiers)

Secondary Clarifier No. 3 is the only structure proposed for offsite construction. The location of Secondary Clarifier No. 3 was selected to take advantage of grade, hydraulics, and proximity for efficient WWTP operations. Other locations within the WWTP facility were evaluated for siting this structure and were rejected because they would require extra piping, ground disturbance and likely would require additional pumping and energy expenditures to function properly. There will be a dome over this structure, similar to the existing secondary clarifiers. The existing fencing and floodwall will be extended around this structure. This is a required structure for treatment of wastewater to be in compliance with the NPDES permit through the planning period (Phase 2A of 2034 or Phase 2B of 2043).

- Aeration Basin No. 3 (onsite and adjacent to Aeration Basin No. 2)

Aeration Basin No. 3 will be constructed to the east of the existing aeration basins. The aeration basin is larger than the other existing aeration basins to process the additional influent expected

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<sup>1</sup> City of Sumner, Wastewater Treatment Facility Final Comprehensive Facility Plan Addendum No. 2, August, 2013.

through the planning period. This is an essentially below ground structure and does not have a roof or cover. Stormwater will be processed through the WWTP. This is a required structure for treatment of wastewater to be in compliance with the NPDES permit through the planning period (Phase 2A of 2034 or Phase 2B of 2043).

- Solids Handling Building Truck Canopy expansion (onsite, existing structure and adding a canopy)

This canopy provides rain protection for the sludge truck. The existing Solids Handling Building is located within the floodway but is located within the recently constructed floodwall that protects the WWTP for a 500-year event. This project element protects stormwater and minimizes the amount of water re-introduced to sludge that has been processed.

- Centrate Storage Tank (onsite; Alternative B only)

The Centrate Storage Tank includes a pump station for conveying the centrate (liquid that is separated from the sludge) from the storage tank to the primary clarifier. This is a required structure for treatment of wastewater to be in compliance with the NPDES permit through the planning period (Phase 2B of 2043).

- Scum Pump Building (onsite; Alternative B only)

Scum is removed during the solids settling process and removed with the sludge for offsite disposal. This is a required structure for treatment of wastewater to be in compliance with the NPDES permit through the planning period (Phase 2B of 2043).

- Gravity Thickener No. 2 (onsite; Alternative A only)

This structure is part of the solids thickening process. This is a required structure for treatment of wastewater to be in compliance with the NPDES permit through the planning period (Phase 2A of 2034).

- Grit Handling Building

Grit handling is the solids that were mechanically removed from the treatment process. This is a required structure for treatment of wastewater to be in compliance with the NPDES permit through the planning period (Phase 2A of 2034 or Phase 2B of 2043).

- Odor Control System (onsite; Alternative B only)

Odor control is required for several steps in the treatment process. The existing system can handle most of the proposed expansion but under Alternative B additional odor control capacity is required for the new gravity thickener and Grit Handling Building. This is a required structure for treatment of wastewater to be in compliance with the NPDES permit through the planning period (Phase 2A of 2034 or Phase 2B of 2043) and specifically for air quality emissions.

- RV Dump Station (onsite and within the shoreline buffer)

The proposed RV Dump Station will be located where the recycling center is currently located. The location for the RV Dump Station is dictated by access by the general public and vicinity to the WWTP. All of the public parking and access area is located in the northern portion of the property. The RV Dump Station cannot interfere with vehicle movement for facility operations but also must be accessible to recreational vehicles, some of which are very large and need sufficient turning radius and a reasonable approach to line up with the dump station. There is a need in the community for a RV dump station and locating it at the WWTP is the most reasonable location. The apron will be designed to contain any spills and direct them into the WWTP, thus protecting water quality.

- Relocation of the recycling center (onsite and partially with the 200 foot buffer) to accommodate the RV Dump Station

The recycling center is a community resource that is conveniently located at the WWTP. It is currently located entirely within the Shoreline Conservation Setback. Under the proposed project, most of the containers will be relocated outside of the Shoreline Conservation Setback. However, due to space constraints a few of the containers will be located within the setback. The City has not identified a suitable offsite location for the recycling center.

- Solids Transfer Station

A previously constructed project element is the Solids Transfer Station. This is a 30 ft by 56 ft concrete pad for the decanting/dewatering of street sweepings. The facility is designed to generate approximately 300 tons of solids for disposal annually. The dewatered street sweepings are disposed at a local landfill. The decant water and stormwater from the pad is collected and pumped to the WWTP for treatment. The City currently has an application before the Department of Health for this structure. The pad is located within the 200 ft Conservancy Buffer and subject to this variance request. This structure is necessarily located on the WWTP facility due to the requirement to treat the decanted water through the WWTP. The location of the pad was selected due to site constraints for space and there is not another location within the facility boundary that is more suitable for this function.

Within the same development area, the Sumner Parks Department proposes to construct a 30 ft by 20 ft concrete pad with 6 ft high ecology-block walls for the temporary storage of grass and leaves for disposal off site.

2. *That the hardship described above is specifically related to the property, and is the result of unique conditions such as irregular lot shape, size, or natural features and the application of the Shoreline Master Program, and not, for example, from deed restrictions and the applicant's own actions.*

The existing location of the Sumner WWTP at the confluence of the White and Puyallup Rivers and the need for wastewater treatment for the communities of Sumner and Bonney Lake necessitate the

construction of many components of the proposed Sumner WWTP expansion project within 200 feet of the Puyallup and White Rivers. The nature of WWTP makes them difficult to cite so relocation of the facility or portions of the facility are impracticable.

3. *That the design of the project will be compatible with other permitted activities in the area and will not cause adverse effects to the adjacent properties or the shoreline environment.*

While the WWTP is a water-related use, the facility does not need to be directly adjacent or encroaching into or over the shoreline. All of the new facilities are located within the existing facility footprint (fence and flood walls) except for the new Secondary Clarifier No. 3. This third clarifier will be located east of, and adjacent to, the two existing secondary clarifiers. It will be located and constructed to take advantage of WWTP hydraulics and this proximity to improve efficacy of wastewater treatment at this facility. Alternative locations within the facility for a structure of this size and meeting the required hydraulic needs are all within the Shoreline Conservancy Setback. The alternative locations considered are to the east of the proposed Aeration Basin No. 3. However, this is also within the Shoreline Conservancy Setback and is less optimal for operations.

4. *That the variance authorized does not constitute a grant of special privilege not enjoyed by other properties in the area, and will be the minimum necessary to afford relief*

The Sumner WWTP provides wastewater treatment and disposal services to the Cities of Sumner and Bonney Lake as well as portions of unincorporated Pierce County. This is the only facility in the vicinity providing wastewater treatment within the service area. Project elements requested are necessary to fulfill the mission of the WWTP and goals of the City to provide wastewater management to the community.

5. *That the public interest will suffer no substantial detrimental effect.*

The proposed infrastructure improvements at the Sumner WWTP will occur landward of the ordinary high-water mark and will not be located within marshes, bogs, or swamps. Rights of navigation and use of adjacent shoreline areas will not be adversely affected by installation and operation of the proposed wastewater treatment infrastructure that would result from granting of the proposed variance. Prohibiting installation and operation of the proposed infrastructure improvements would prevent expansion of treatment capacity at the Sumner WWTP, which would prevent the WWTP from adequately treating and disposing of wastewater as the service area expands and the population served grows. The proposed WWTP expansion improvements are consistent with Criteria 1 through 4 of SMC 16.28.030 for the following reasons:

1. Prohibiting construction of wastewater treatment infrastructure within 200 feet of the White or Puyallup Rivers at the WWTP site would prevent the facility from expanding to serve the growing population and geographic extent of the service area, which could result in restrictions on growth in the service area and the potential for release of inadequately treated wastewater effluent into the White and Puyallup Rivers, with likely adverse impacts to sensitive fish and wildlife populations, some of which are listed as "Threatened" under the authority of the Endangered Species Act of 1973.

2. Design of the expansion will be consistent with the existing WWTP infrastructure and will provide adequate wastewater treatment capacity for the service area population through either 2034 or 2043, depending upon the design alternative implemented.
3. Authorization for the proposed upgrade to the Sumner WWTP will not represent a special privilege not offered to adjacent public infrastructure, as there are no other critical public facilities near the confluence of the White and Puyallup Rivers that provide similar services.
4. Granting of the proposed shoreline variance for the WWTP expansion project will directly benefit residential properties adjacent to the facility to the east; it will also benefit homes and businesses throughout the WWTP service area.