



King County

Department of Natural Resources and Parks

Wastewater Treatment Division

King Street Center, KSC-NR-5512

201 South Jackson Street

Seattle, WA 98104-3855

October 11, 2023

Sean Wilson
Senior Facility Management Engineer
Washington Department of Ecology
PO BOX 330316
Shoreline, WA 98133-9716
sean.wilson@ecy.wa.gov

Dear Mr. Wilson,

Please find enclosed a reclaimed water permit renewal application for the King County Brightwater Treatment Plant. This permit application is for continued treatment and distribution of reclaimed water from the Brightwater Treatment Plant to multiple off-site uses.

If there are any questions regarding the contents of this application, please contact Kristina Westbrook, Reclaimed Water Program Lead at 206-477-5522 or email at kristina.westbrook@kingcounty.gov.

Sincerely,

DocuSigned by:

Christie True

CB266A8824A442E...

Christie True

Director, Department of Natural Resources and Parks

Enclosure

cc: Kamuron Gurol, Division Director, Wastewater Treatment Division (WTD), Department of Natural Resources and Parks (DNRP)
Rebecca Singer, Operations Manager, WTD, DNRP
Chapin Bracket, Process & Environmental Compliance Manager, WTD, DNRP
Erika Kinno, Acting Resource Recovery (RR) Section Manager, WTD, DNRP
Kristina Westbrook, Reclaimed Water Lead, RR, WTD, DNRP

King County Brightwater Treatment Plant Reclaimed Water Permit Renewal Application Package

October 2023



King County

Department of
Natural Resources and Parks
Wastewater Treatment Division
King Street Center, KSC-NR-5512
201 South Jackson Street
Seattle, WA 98104
<http://www.kingcounty.gov/wtd/>



State Permit Application for the Generation, Distribution and Use of Reclaimed Water

This application is for a reclaimed water permit issued by the Washington State Department of Ecology as required by Chapter 90.46 RCW and Chapter 173-219 WAC. It is not intended for use in applying for a reclaimed water permit issued by the Washington State Department of Health. (*See note on page 2 regarding lead agency designation*)

Permit applications provide Ecology with information about the domestic wastewater used as the source water for the reclaimed water treatment facility and about the production, distribution, and use of reclaimed water. The application requires characterization of the source water and final reclaimed water, detailed information about the treatment processes used to produce reclaimed water, and descriptions of the distribution systems for and beneficial use of the reclaimed water. Ecology may request additional information if necessary to clarify the current or proposed reclaimed water production, distribution, and use. Where appropriate, the applicant should include references to information previously submitted to Ecology that may aid in understanding the systems covered under the requested permit.

Attachment Checklist

The following list of additional materials are identified in this application as material the applicant is required to attach (identified with bold text) or may optionally attach as part of a complete application. Ecology may reject an application that does not include required attachments.

	Attachment Description	Attachment ID (Application Section)
<input checked="" type="checkbox"/>	Description of changes in reclaimed water production volume or quality.	A-I-6
<input type="checkbox"/>	Documentation of compliance with water rights impairment compensation or mitigation. (For permit renewal where impairment was previously identified). N/A	A-II-3
<input checked="" type="checkbox"/>	Collection system service area(s) that provide domestic wastewater to the reclaimed water treatment facility.	B-I-1
<input checked="" type="checkbox"/>	Map or series of maps showing the treatment facility location and collection system service area.	B-I-4
<input checked="" type="checkbox"/>	List of industrial or commercial facilities discharging waste to the treatment facility.	B-I-4
<input checked="" type="checkbox"/>	Analytical results from expanded water quality testing.	B-II-6
<input checked="" type="checkbox"/>	Treatment process flow diagram	B-III-5
<input checked="" type="checkbox"/>	Reclaimed water distribution system map(s)	C-I-4
<input checked="" type="checkbox"/>	Information on each authorized reclaimed water user and use location (other than wetland enhancement, surface water augmentation, or groundwater uses). Included within the application	D
<input type="checkbox"/>	General description of wetland enhancement project N/A	E-2
<input type="checkbox"/>	Description of soils groundwater recharge area (required only for groundwater recharge uses) N/A	G-3
<input type="checkbox"/>	Description of local geology and hydrogeology within one mile of the groundwater recharge site (required only for groundwater recharge uses) N/A	G-4

FOR ECOLOGY USE ONLY

Date Application Received _____

Date Application Accepted _____

Check One

New/Renewal ☐ Modification ☐

Application/Permit No. _____

Date Fee Paid _____

x = included
- = N/A

This application is for a: (check one)

<input type="checkbox"/>	New Reclaimed Water Facility	Anticipated facility start-up date:	
<input checked="" type="checkbox"/>	Permit Renewal	Describe in A.I.6 any changes in volume or characteristics of the reclaimed water produced at the facility, compared to production authorized in the last permit.	
<input type="checkbox"/>	Permit Modification	Describe in A.I.6 the reasons for a permit modification.	

In accordance with Chapter 173-219-140 WAC, Ecology will generally streamline permitting for domestic wastewater facilities by adding limits and conditions for reclaimed water generation, distribution, and use into a single NPDES or State Waste Discharge permit that also regulates wastewater discharges from the permitted facility. However, combining permits may not be practical in all cases. Select a statement below that best describes the intended use of this application. (check one)

<input type="checkbox"/>	<p>This application is for a combined Reclaimed Water and Wastewater Discharge permit. This is Ecology's default permit for a facility that produces reclaimed water and also discharges treated wastewater to the environment. This application supplements a <i>NPDES Application Form 2A</i> or an <i>Application for State Waste Discharge Permit to Discharge Domestic Wastewater to Ground Water by Land Treatment or Application</i>. It collects information necessary to develop reclaimed water conditions that Ecology will add to the waste discharge permit.</p> <p>Facility Name and Permit Number for parent application:</p> <p>The parent application:</p> <p><input type="checkbox"/> Accompanies this application <input type="checkbox"/> Was submitted separately on (enter date)</p>
<input type="checkbox"/>	<p>This application is for an individual Reclaimed Water Permit for a reclaimed water facility that does not have wastewater discharges regulated by an Ecology or Health permit. An applicant for an individual permit must demonstrate that all water is either adequately and reliably treated to the appropriate reclaimed water standard, or held on site for further treatment to the appropriate reclaimed standard.</p>
<input checked="" type="checkbox"/>	<p>This application is for a separate Reclaimed Water Permit for a domestic wastewater treatment facility that also has wastewater discharges regulated by a NPDES or State Waste Discharge permit. A separate permit is an alternative to a combined permit that results in Ecology issuing 2 permits to a facility: one containing conditions for reclaimed water production and the other containing waste discharge conditions. Ecology may issue separate permits if the applicant justifies that doing so will improve their ability to implement the goals of the Reclaimed Water Law.</p> <p>Please provide reason for requesting a separate permit rather than a combined permit:</p> <p><i>The two permits have different groups of potential interested stakeholders, some operational separation, and are awarded performance awards separately. Separate permits will provide clarity and transparency for stakeholders at all levels, should any issues arise with one permit or the other. Additionally, the renewal timeline of the of the two permits are out of sync.</i></p> <p>Facility Name and Permit Number for parent wastewater treatment plant:</p> <p><i>King County Brightwater Wastewater Treatment Plant, WA0032247</i></p>

Lead Agency Designation:

Chapter 90.46 RCW requires Ecology and Health to designate in rule which agency will be the lead agency for particular aspects of reclaimed water use. Chapter 173-219-050 identifies the various situations when each agency will be designated as the lead agency. In most situations, Ecology and Health will determine lead agency designation for a particular reclaimed water facility during the initial project planning stages. **If a lead agency designation has not been determined for your project, or you are uncertain about a lead agency designation, do not proceed with this application and instead contact the appropriate Ecology regional office for assistance.**

SECTION A. GENERAL INFORMATION

A-I. BACKGROUND

1. **Applicant Name:** King County Dept. of Natural Resources and Parks, Wastewater Treatment Division

Address:

Street 201 S. Jackson St, KSC-NR-5700

City/State Seattle, WA

Zip 98104-3855

2. **Facility Name:** King County Brightwater Wastewater Treatment Plant

Address:

(if different from above)

Street 22505 SR 9 SE

City/State Woodinville, WA

Zip 98072

Facility coordinates as
decimal degrees:
(NAD83/WGS84)

Latitude:

47.793040

Longitude:

-122.140270

3. **Contact information for person familiar with the information contained in this application:**

Rebecca Singer
Name

Operations Manager
Title

(206) 477-5600

rebecca.singer@kingcounty.gov

Telephone Number

Fax Number

Email

4. **Are all reclaimed water treatment and domestic wastewater treatment unit processes located at the same facility site?**



Yes



No

If no, identify the treatment processes located at a different locations.

Additional treatment site location

Facility Name:

Address:

Street

City/State

Zip

Facility
coordinates as
decimal degrees:
(NAD83/WGS84)

Latitude:

Longitude:

5. Who is responsible for operation and maintenance of the facility?

☒ Facility owner is responsible for all facility operations and maintenance.

☐ Facility owner employs a contractor for facility operations and maintenance.

Please provide the following information for the contract operator

Contractor Name:

Address:

Street

City/State

Zip

Contractor contact:

Name

Title

Telephone Number

Fax Number

Email

6. Describe any changes in the volume or characteristics of the reclaimed water produced at the facility compared to production authorized in the last permit. Also, use this space to describe any request for a permit modification. The applicant should discuss in this section any facility improvements or changes that resulted in the change in reclaimed water production. Narrative may be submitted as an attachment. *(Label as Attachment A-I-6)*

See Attachment A-I-6.

7. List the submission and approval dates for the most recent versions of the following planning documents:

Document	Document or report title	Submittal date	Approval date
Feasibility Analysis	Document submitted and approved prior to 2012.		
Water Rights Impairment Analysis	N/A - If the wastewater was not reclaimed, it would be discharged to Puget Sound after secondary treatment. No water rights impairment analysis required under state law for discharges other than freshwater. No analysis done.		
Engineering Report	Brightwater Reclaimed Water System Engineering Report		10/31/06 Health 11/8/06 Ecology
Plans and Specifications	See Attachment A-I-7		

If any document listed above has not been approved as of the date of this application, please discuss the status of the document.

8. The reclaimed water facility is approved to produce and distribute the following class of reclaimed water: *(Note – consult with Ecology's regional office if facility is approved to produce more than one class of reclaimed water.)*

☒ Class A

☐ Class B

Approved beneficial use categories include: (check *all* that apply)

	Beneficial Use Category	Application Sections to Complete
<input checked="" type="checkbox"/>	Indoor uses: toilet/urinal flushing or laundry in commercial, industrial, institutional, and certain residential buildings	Sections A, B, C, and D
<input checked="" type="checkbox"/>	Commercial, Industrial, and Institutional uses: includes public water features; water used for construction purposes; cooling water; building, vehicle or pipeline cleaning.	
<input checked="" type="checkbox"/>	Irrigation or land application: includes irrigation for landscapes; food and non-food crops; orchard frost protection; trees, fodder, fiber, or seed crops; and pasture lands.	
<input type="checkbox"/>	Wetland enhancement: includes releases to eligible natural and constructed wetland areas.	Sections A, B, C, and E – may also require NPDES application
<input type="checkbox"/>	Surface Water Augmentation: includes direct releases to rivers, reservoirs, or lakes and indirect releases via groundwater or bank infiltration.	Sections A, B, C, and F – also submit NPDES application
<input type="checkbox"/>	Groundwater Recharge: includes direct and indirect recharge along with Aquifer Storage and Recovery projects.	Sections A, B, C, G, and H

9. Does the facility produce reclaimed water seasonally or during the full year?

- ☒ Full Year **The Onsite Distribution System produces reclaimed water year round. However, it has not been in operation since March 2020.**
- ☒ Seasonal, during the following months: **The Offsite Distribution System produces reclaimed water April - October.**
- ☐ Other: (provide further detail below about the typical reclaimed water production schedule)

A-II. WATER RIGHTS PROTECTION

Chapter 173-219-090 WAC requires anyone applying for a reclaimed water permit to demonstrate that the proposed diversion of treated wastewater for the purposes of providing reclaimed water for beneficial uses will not impair any existing water right downstream from any freshwater discharge point(s) of the domestic wastewater facility unless compensation or mitigation for such impairment is agreed to by the holder of the affected water right.

1. Did the Water Rights Impairment Analysis listed in question A-I.7 above identify any impairment of existing water rights?

☐

Yes

☒

No (Skip to Section A-III)

2. Describe the compensation or mitigation agreed upon with the affected water rights holder.

3. For a permit renewal, attach documentation that demonstrates compliance with the agreed upon compensation or mitigation. (Label as Attachment A-II-3)

A-III. CERTIFICATION

The applicant is eligible to apply for a reclaimed water permit as a: *(select **all** that apply)*

- ☒ Municipal, quasi-municipal, or other governmental entity.
- ☒ The holder of an active State Waste Discharge or NPDES permit issued by Ecology under Chapter 90.48 RCW.

Permit Number:	Brightwater NPDES Permit -- WA0032247	Issuance Date:	2/26/18	Expiration Date:	2/23/23 (administratively extended)
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- ☐ A private utility. **Additionally King County WTD has a Puget Sound Nutrient General Permit. Permit number: WAG994572; Issue Date: 12/1/21; Expiration Date: 12/31/26**
- Date of Ecology approval of the Feasibility Analysis that includes a Demonstration of Private Utility Capacity:

- ☐ The holder of an active on-site sewage treatment permit issued by Washington Department of Health under Chapter 70.118B RCW. *(Applicable only for uses where Ecology is the lead agency)*

Permit Number:		Issuance Date:		Expiration Date:	
----------------	--	----------------	--	------------------	--

All reclaimed water permit applications must be signed by the appropriate official for the owner's organization. Authorized officials are as follows:

Organization type

- Municipal, state, or other public agency or facility
- Corporations
- Partnership
- Sole proprietorship
- Private utility

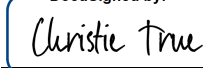
Authorized signature

- Either the principal executive officer or ranking elected official
- A responsible corporate officer
- A general partner
- The proprietor
- A responsible officer

The person signing this application attests to the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a facility designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the facility, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and/or imprisonment for knowing violations.

DocuSigned by:



Signature

Christie True

Printed Name

10/11/2023

Date

Director, Department of Natural Resources and Parks

Title

To request materials in a format for the visually impaired, visit <https://ecology.wa.gov/accessibility>, or call Ecology at 360-407-6831, Relay Service 711, or TTY 877-833-6341.

SECTION B. RECLAIMED WATER TREATMENT SYSTEMS

This section gathers detailed information about the domestic wastewater treatment facility or facilities used to produce reclaimed water from domestic wastewater. It contains questions related to the characteristics of the untreated wastewater entering the treatment system, all treatment processes needed to meet applicable reclaimed water performance and quality standards, and questions about treatment system reliability and facility operations and maintenance.

B-I. DOMESTIC WASTEWATER SOURCES

The following section gathers information about the untreated domestic wastewater that becomes the source water for the water reclamation facility. The applicant must complete all information in this section for all individual Reclaimed Water Permits. Applicants for combined or separate Reclaimed Water Permits for facilities that also have waste discharge permits may check the following appropriate boxes and skip this section.

- Collection System:** Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.). Applicant may submit as an attachment.

(Label as Attachment B-I-1)

Name	Population	Type of Collection System	Ownership
See Attachment B-I-1			
Total Population Served			

- Does the municipality that owns the domestic wastewater treatment facility have, or is subject to, an approved pretreatment program?

☒

Yes

☐

No

☐

N/A (not publicly owned)

Number of Significant (SIUs) and Categorical Industrial Users (CIUs):

Number of non-categorical SIUs 1

Number of CIUs 13

- Identify all industrial or commercial facilities discharging to the domestic wastewater treatment facility that provides the source water for the reclaimed water facility. Include business names, types of industry, address, telephone number and contact name. Attach extra sheet(s) if needed. Applicant may submit as an attachment (Label as Attachment B-I-4). **See Attachment B-I-3. Attachment labeling instruction given by Sean Wilson via email on 5/18/23.**

	INDUSTRY #1	INDUSTRY #2	INDUSTRY #3
NAME:			
INDUSTRY:			
ADDRESS:			
TELEPHONE:			
CONTACT NAME:			
INDUSTRIAL PRODUCT(S):			

4. Attach a map or series of maps that show the following: (Label as Attachment B-I-4) **See Attachment B-I-4.**
- Location of the treatment facility.
 - The service area for the wastewater collection system connected to the treatment facility.

B-II. DOMESTIC WASTEWATER TREATMENT

The following section gathers design information about the secondary treatment processes at the domestic wastewater treatment facility used to produce biologically oxidized reclaimed water. (Enter all available data from the approved engineering report or design plan sheets.)

1. Treatment facility design criteria.

- | | |
|--|-----------------------|
| a. Maximum Month Design Flow: (MGD) ¹ | <u>40.9</u> MGD |
| b. Influent BOD ₅ Load for Maximum Month: (lbs/day) | <u>66,063</u> lbs/day |
| Design BOD ₅ removal efficiency: (percent) | <u>85%</u> |
| Design BOD ₅ concentration of oxidized wastewater: (mg/L) | <u><1.3</u> mg/L |
| c. Influent TSS Load for Maximum Month: (lbs/day) | <u>61,400</u> lbs/day |
| d. Design TSS removal efficiency: (percent) | <u>85%</u> |
| Design TSS concentration of oxidized wastewater: (mg/L) | <u><2.0</u> mg/L |

2. Do any approved uses of reclaimed water produced at the facility require enhanced nitrogen and/or phosphorous removal?

☐

Yes

☒

No

If yes, indicate the targeted nutrient parameters and process design goals.

☐

Total Nitrogen: _____ mg/L – N

☐

Total Phosphorous: _____ mg/L – P

☐

Ammonia: _____ mg/L – N

☐

Ortho-Phosphorous: _____ mg/L – N

☐

TKN: _____ mg/L – N

3. Current influent wastewater characteristics.

All data provided below is for the 2021 and 2022 reclaimed water distribution seasons.

- a. Report values below that are representative of influent characteristics for periods only when the facility provides biologically oxidized water for reclaimed water production.

Reclaimed production season
(enter months):

June to October

OR

☐ Full Year

Reclaimed water distribution seasons were shortened during 2021-2022 due to the coronavirus pandemic, system maintenance, disinfection chemical availability, and conveyance system repairs.

- b. Highest Monthly Average flow for the last 2 years

20.0 MGD

- c. Highest Monthly Average BOD₅ concentration and load.

346 mg/L

46,932 lbs/day

- d. Highest Monthly Average TSS concentration and load.

348 mg/L

47,210 lbs/day

¹ Report the maximum month design flow for the secondary treatment process or facility that produces the biologically oxidized water used for reclaimed water production. This value may be higher than the reclaimed water production design value reported in Section B-III.

4. Provide measurement values or range of measurements for the biologically oxidized domestic wastewater. The Applicant must report values obtained from samples collected only during the reclaimed water production season indicated in question B-II.3.a, above.

In addition to reporting measured values, the Applicant must identify the test methods used to analyze samples and report the analytical method used and quantification level achieved for each parameter. The Applicant must use the analytical methods specified in 40 CFR Part 136 or 40 CFR Part 141. Recommended analytical methods and required detection limits (DLs) and quantitation levels (QLs) are included at the end of this application package.

See Attachment B-II-4.

- ☐ Check here if values listed below are estimates based on design assumptions.
(applicable only for new facilities)

Parameter		Measurement Values (in mg/L, unless noted otherwise)			Number of Analyses	Analytical Method	Quantification Level
		Minimum	Maximum	Average			
Biochemical Oxygen Demand (report one)	BOD (5 day)						
	CBOD (5 day)						
Total suspended solids							
Dissolved oxygen							
pH (minimum) (std. Units)							
pH (maximum) (std. Units)							
Temperature (Deg. C)							
Ammonia-N as N							
Total Kjeldahl Nitrogen as N							
Total Nitrogen							
Total-phosphorous-P as P							
Ortho-phosphate-P as P							
Total dissolved solids							
Conductivity (µS/cm)							
Alkalinity as CaCO ₃							
Total Hardness as CaCO ₃							

5. The Reclaimed Water Rule generally requires monitoring for compliance with the biological oxidation performance standard at the end of the treatment process. However, Ecology may specify alternate monitoring locations in the reclaimed water permit and the Applicant may report water quality data in this application from samples taken of the final reclaimed water prior to distribution. Please use the space below to describe the sampling location(s) used to collect the data reported in question B-II-4 above. Also, indicate if expanded testing data reported in question B-II-6, below (if applicable) are from the same sampling location(s).

Sampling locations are located in the Brightwater disinfection building and Influent Pump Station influent structure. See Attachment B-II-5 for a map of the sampling locations.

No additional sample locations are included for expanded testing.

6. Report values for expanded testing of the source water or final reclaimed water, if required by the facility's most recent reclaimed water permit. Applicants requesting a combined Reclaimed Water and Wastewater Discharge Permit or separate Reclaimed Water Permit for a facility that also has a permitted wastewater discharge may use priority pollutant testing reported in Part D of NPDES form 2A or in Section C of the State Waste Discharge Permit for the parent wastewater treatment facility to fulfill this reporting requirement.

Select from the following options for reporting expanded testing: *(select one)*

- ☐ Previous reclaimed water permit did not require expanded testing and expanded testing was not required by a waste discharge permit for the facility.
- ☐ Use expanded testing data from application for permit number _____, submitted on _____
- ☒ Use expanded testing data reported in the following table. **Expanded testing in Attachment B-II-6 is reflective of requirements in the below table, our reclaimed water permit, and NPDES permit.**

Applicant must enter "N/A" in the "Minimum" column below for any parameter listed below for which testing was not required in the most recent reclaimed water permit. If the applicant monitored for additional pollutants other than those listed below, it must include the results of that testing in the space provided on the next page, or attach the results to this application. *(Label as Attachment B-II-6)* **See Attachment B-II-6.**

Parameter	Measurement Values (in ug/L, unless noted otherwise)			Number of Analyses	Analytical Method	Quantification Level
	Minimum	Maximum	Average			
Total Oil & grease (mg/L)						
NWTPH - Dx						
NWTPH - Gx						
Calcium						
Chloride						
Cyanide (weak acid dissociable)						
Fluoride						
Magnesium						
Potassium						
Sodium						
Sulfate						
Total Phenolic Compounds						
Antimony (total)						
Arsenic(total)						
Barium (total)						
Cadmium (total)						
Chromium (total)						
Copper (total)						
Iron (total)						
Lead (total)						
Manganese (total)						
Mercury (total) ng/L						
Nickel(total)						
Selenium (total)						
Silver (total)						
Zinc (total)						

B-III. POST SECONDARY TREATMENT

This section gathers information about the filtration and disinfection processes used to produce reclaimed water from a biologically oxidized wastewater. These processes may be integrated into a single facility that completely converts raw domestic wastewater to reclaimed water, or may be stand-alone unit processes dedicated to treating secondary effluent to the appropriate reclaimed water standard.

1. Provide the following information about overall reclaimed water production at the facility.

Maximum design reclaimed water production capacity ²	<u>12*</u>	MGD
Average design flow for the maximum month	<u>7</u>	MGD
Total annual volume of reclaimed water available for all uses ³	<u>812</u>	MG
Actual average annual volume of reclaimed water produced for all uses over the last 2 years.	<u>258**</u>	MG
Maximum flow design capacity of filtration system	<u>32.2</u>	MGD
Maximum flow design capacity of disinfection system	<u>32.2</u>	MGD

*The maximum reclaimed water design production capacity was originally 21 MGD. However, our reclaimed water permit limits us to 12 MGD.

**For years 2021-2022.

2. Select the statement below that provides the best general description of the overall reclaimed water treatment system configuration.

- ☐ Facility uses a conventional secondary biological treatment system for wastewater treatment then diverts some or all of the secondary effluent to a separate treatment system for coagulation, media filtration and disinfection for reclaimed water production.
- ☐ Facility uses a conventional secondary biological treatment system for wastewater treatment then diverts some or all of the secondary effluent to a separate treatment system to advanced disinfection for reclaimed water production. *(Applicable to Class B only)*
- ☐ Facility uses a conventional secondary biological treatment system for wastewater treatment then diverts some or all of the secondary effluent to a separate treatment system for membrane filtration and disinfection for reclaimed water production.
- ☒ Facility uses an integrated membrane bioreactor treatment system to provide advanced wastewater treatment then routes some or all of the water through a disinfection system dedicated to reclaimed water production.

What method of disinfection does the facility use for reclaimed water production?

- ☒ Chlorination
- ☐ Ultraviolet Light
- ☐ Both *(provide further description below on how disinfection process is configured)*

- ☐ Other (identify disinfectant and date of Ecology approval for alternative method)

² "Maximum production capacity" refers to the amount of reclaimed water that a treatment facility is designed to produce at peak output and 24-hour production. This should reflect the design value of the most limiting unit process and may be lower than the maximum month design flow reported in Section B-II for the overall domestic wastewater treatment facility.

³ Total annual volume based on the average design flow for the maximum month.

3. Does the facility use storage reservoirs at the treatment plant site to help manage reclaimed water prior to distribution? (This does not include storage within the distribution system.)

☒

Yes

☐

No

If yes, indicate below how storage is used (select all that apply).

☒

Temporary storage during production season to equalize supply to user demand

☐

Seasonal storage during months when there is low user demand

☐

Temporary storage for off-spec water for re-treatment

Does the facility re-disinfect reclaimed water withdrawn from storage reservoirs at the treatment plant prior to distributing the water to users?

☐

Yes

☒

No

4. Provide a process flow diagram or schematic that illustrates all unit process and flow paths involved in the production of reclaimed water. Indicate flow quantities in million gallons per day (MGD) or gallons per day (GPD) for the main wastewater and reclaimed water flow paths. Show all processes involved in the biological oxidation process along with the reclaimed water filtration and disinfection processes. Also show any storage basins used for final reclaimed water or rejected off-spec water. Indicate locations for key process and compliance monitoring points. Also show flow paths for waste streams (solid waste, waste activated sludge, scum, and filter backwash) along with flow paths for any internal recycle streams and for off-spec water management. Drawing should be 11" x 17" or smaller. (Label as Attachment B-III-5) **See Attachment B-III-5**

B-IV. TREATMENT SYSTEM RELIABILITY

Chapter 173-219-350 WAC requires reclaimed water facilities to maintain operational reliability at all times to prevent the distribution of inadequately treated reclaimed water. Facilities must use process sensors and alarm systems to continuously monitor key process areas and alert operators to problems. Provide information below about the reliability features used at the facility.

1. Primary Power Supply:

Identify critical power conditions that will trigger an alarm. (check all that apply)

☒

Loss of power (required)

☒

Back-up power failure

☒

Low power quality

☐

Other: (specify)

Indicate the automated response to the critical conditions that will trigger an alarm.

☒

Automatic switchover to back-up power

☒

Automated diversion to permitted wastewater discharge

☒

Automatic diversion to off-spec storage

☐

Other: (specify)

Provide any additional information necessary to fully describe the primary power reliability.

N/A

2. Biological Oxidation Treatment Processes: (includes all equipment and systems related to preliminary screening, primary settling, biological oxidation, and secondary clarification or membrane filtration when used as part of a membrane bioreactor system)

Does the facility have redundant, parallel treatment units that are capable of fully biologically oxidizing all wastewater up to the design flow capacity?

☒

Yes

☐

No

Identify critical process conditions that will trigger an alarm. *(check all that apply)*

☒

Failure of blowers, aerators, or other critical mechanical equipment.

☐

Other (specify):

☒

Out-of-range readings on critical process control sensors, such as DO or pH.

Indicate the automated response to the critical conditions that will trigger an alarm. **None**

☐

Automatic switchover to redundant treatment units or components

☐

Automated diversion to permitted wastewater discharge

☐

Automatic diversion to off-spec storage

☐

Other: *(specify)*

Provide any additional information necessary to fully describe the level of biological oxidation treatment process redundancy and reliability at the facility.

N/A

3. Reclaimed Water Treatment Coagulation and Filtration Systems: (includes all equipment and systems used for dosing and mixing of coagulants and coagulant aids along with media filtration units or membrane filtration units when not used in an integrated membrane bioreactor system)

Does the facility have redundant, parallel filtration units that are capable of fully filtering all reclaimed water up to the design flow capacity with one unit out of service?

☒

Yes

☐

No

Identify critical process conditions that will trigger an alarm. *(check all that apply)*

☒

Failure of chemical pumps, mixers, backwash pumps, or other critical mechanical equipment.

☐

Other: *(specify)*

☒

High turbidity readings in water leaving filtration system. *(required)*

Indicate the automated response to the critical conditions that will trigger an alarm.

☐

Automatic switchover to redundant treatment units or components

☒

Automated diversion to permitted wastewater discharge

☐

Automatic diversion to off-spec storage

☐

Other: *(specify)*

Provide any additional information necessary to fully describe the level of process redundancy and reliability in the filtration system at the facility.

N/A

4. Reclaimed Water Treatment Disinfection Systems:

Does the facility have redundant, parallel disinfection units that are capable of fully disinfecting all reclaimed water up to the design flow capacity with one unit out of service?

☒

Yes

☐

No

Identify critical process conditions that will trigger an alarm (check all that apply).

☒

Failure of chemical pumps or injection systems and mixers. *(Chlorination only)*

☐

UV reactor or bank failure *(UV Only)*

☐

High flow through disinfection system

☐

Low UV intensity or dose *(UV Only)*

☒

Low flow through disinfection system

☐

Low UV Transmissivity *(UV Only)*

☐

Other: *(specify)*

Indicate the automated response to the critical conditions that will trigger an alarm.

☒

Automatic switchover to redundant treatment units or components

☐

Automated diversion to permitted wastewater discharge

☐

Automatic diversion to off-spec storage

☐

Other: *(specify)*

Provide any additional information necessary to fully describe the level of process redundancy and reliability in the disinfection system at the facility.

N/A

5. In the event that an alarm is activated, who is notified?

Brightwater Treatment Plant Main Control - staffed 24 hrs/day, 7 days/week

6. Describe the emergency diversion storage or disposal facilities. Include details about storage facilities, including storage capacity and maximum detention time at peak flow rates.

N/A - Water that does not meet Reclaimed Water regulations goes to permitted wastewater discharge.

B-V. OPERATIONS AND MAINTENANCE

This section gathers general information about the operation and maintenance of the reclaimed water that is necessary to evaluate the facility’s compliance with WAC 173-219-240 (Operations and Maintenance Manual) and WAC 173-219-250 (Certified Operator).

1. Does the reclaimed water facility have an up-to-date operations and maintenance manual approved by Ecology?

☐ Yes

☒ No

Date of Ecology approval: _____

If the reclaimed water facility does not have an operations and maintenance manual approved by Ecology, please describe the status of the document and provide an anticipated date for submission.

Operations and maintenance manual was submitted to Ecology on 4/27/23 and is awaiting approval.

2. Are the duties and responsibilities of the operators at the reclaimed water treatment facility limited to operating and maintaining the wastewater treatment and/or reclaimed water production facilities, or do their duties include other operational responsibilities outside of the treatment facility? (e.g., wastewater collection, drinking water treatment, or water/reclaimed water distribution system operations)

☐ Dedicated to reclaimed water

☒ Responsible for other operations

If operator’s duties extend beyond operation of the reclaimed water treatment facility, please indicate all additional general duties:

- ☒ Operator for all or part of the domestic wastewater treatment facility that provides source water to the reclaimed water treatment system.
- ☒ Operate and maintain all or part of the domestic wastewater collection system.
- ☒ Operate and maintain all or part of the reclaimed water distribution system.
- ☐ Operator for the community’s drinking water treatment facility.
- ☐ Operator for the community’s drinking water distribution system.
- ☐ Other duties: (describe)

3. What is the Ecology-issued certification level of the operator in responsible charge of the reclaimed water treatment facility?
Group III

4. Please list the number of reclaimed water facility operators holding Ecology Wastewater Operator Certifications at the following levels:

Group IV: 6	Group III: 4	Group II: 4	Group I: 0	OIT: 2
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Operator certification level information current as of 8/9/23.

SECTION C. RECLAIMED WATER DISTRIBUTION OFFSITE

If the reclaimed water facility provides water to multiple, separate distribution systems, complete a separate Section C for each system.

C-I. GENERAL INFORMATION

This section gathers general information about the network of pipes, open channels, and/or vehicles used to convey reclaimed water to the use location(s) identified in Sections D through G. For purposes of this section, "open channel" conveyance is limited to those open channel networks that only convey reclaimed water from the permitted reclaimed water facility. It does not include any conveyance within the production facility or any open channels that may convey water from other sources, such as irrigation canals or stormwater storage and conveyance systems.

If the applicant uses or intends to use any waters of the State (surface waterways or groundwater) as a means of conveyance, or will convey reclaimed water through a system that also conveys water from other sources (an irrigation canal or a constructed pond that also receives stormwater inflow), they must contact the appropriate Ecology regional office for instructions on appropriately documenting the means of conveyance.

1. Distribution System Name: *(name applicant uses to identify the system)*

Offsite Distribution System

2. Select the general statement below that most closely describes the complexity of the overall distribution system that conveys reclaimed water from the treatment facility to the use area(s). The applicant may select multiple statements if more than one statement describes the distribution system. However, the applicant should consult with the appropriate Ecology regional office before selecting more than one statement.

- ☐ Reclaimed water flows directly from the treatment system to an infiltration basin or injection well located at the treatment facility site.
- ☐ System consists of a single, dedicated pipe or open channel that conveys reclaimed water from the treatment facility to a single point for general uses (irrigation/land application, indoor, or commercial/industrial/institutional,) or for release into groundwater (direct or indirect); natural surface water (direct or indirect); or into a natural or constructed wetland.
- ☒ System consists of one or more pipes or open channels conveying water to multiple use locations. System may include booster pumps and storage reservoirs prior to the use areas.
- ☒ System provides access either at the treatment facility or at a remote location for the filling of vehicles that transport reclaimed water to a use area.

3. Does the permittee own and operate the distribution system?



Yes



No

If no, complete the following for the distributor:

Distributor Name: _____

Primary Mailing Address: _____

Street _____

City, State _____

Zip _____

Primary Contact Name: _____

Title: _____

Telephone: _____

E-mail Address: _____

Date of Distribution Agreement: _____

4. Provide a brief description of the distribution system. Include details such as start and end points, total length of the system, number of users connected to the system (at the time of application), and areas or communities that would have a potential to receive water from the system. The applicant should include any other details that will help Ecology understand the scope of the distribution system. In addition, please attach a map of the distribution system (*Label as Attachment C-I-4*), that shows the direction of water flow, current use locations, and important reclaimed water and potable water features (storage tanks or reservoirs, potable water wellhead protection areas, and any reclaimed water monitoring locations).

See Attachments C-I-4A and C-I-4B.

5. Approximately how much of the typical daily reclaimed water production does this distribution system convey?

100 %

6. Has Ecology and Health granted a waiver from maintaining a chlorine residual in the distribution system?

☐

Yes (*Complete this question then skip to Section C-II*)

☒

No (*Answer questions 7-9 below*)

If yes, describe reason for waiver, including details on alternative methods the distributor will use to prevent biological growth in the distribution pipe. (*If applicable*)

Date of Ecology and Health's waiver: _____

7. What is the average value for the daily minimum chlorine residual monitored in the distribution system during the last 2 years?

1.19 mg/L as (*check one*)

☐

Free chlorine

☒

Total chlorine

Notes

(1) Chlorine residual monitoring data reflects average minimum total chlorine residual at furthest distribution monitoring point, York Pump Station, only

(2) Data is reflective of chlorine residual monitored during customer distribution season. 2021: June 8 to June 11, 2021 and July 9 to October 6, 2021. 2022: June 20 to Oct 18, 2022

8. Is chlorine residual in the distribution system monitored continuously or daily with grab samples?

☒

Continuous

☐

Grab

9. Identify all points within the distribution system where chlorine residual monitoring occurs.

Brightwater Membrane Effluent Box (total chlorine), Influent Pump Station (free and total chlorine), and York Pump Station (free and total chlorine). See Attachment C-I-9 for additional information.

C-II. DISTRIBUTION STORAGE

1. Does the distribution system include storage reservoirs? (Not including storage at the treatment facility or at a use site.)

☐

Yes (*Answer questions 2-4 below*)

☒

No (*Skip to section C-III*)

2. Is chlorine added to the distribution system after storage?

☐

Yes

☐

No

3. Can stormwater runoff flow into the storage reservoir from adjacent land area?

☐

Yes

☐

No

If yes, describe steps taken to prevent contamination of the reclaimed water by pollutants that may be found in the stormwater runoff.

4. Is the storage reservoir equipped with an outlet or overflow line?

☐

Yes

☐

No

If yes, describe where water goes if the reservoir overflows.

C-III. DISTRIBUTION OPERATIONS

1. Has the reclaimed water distributor developed and implemented a Cross-Connection Control Program? *(Applies to applicant if they are the distributor, or to any third-party distributor.)*

☒

Yes

☐

No

Effective date of the program or, if not yet implemented, expected date of program implementation.

Date: _____ **Cross-Connection Control Plan submitted to Ecology on 4/28/2023 and awaiting approval.**

2. For distribution systems that require an operator certified by Department of Health for water systems operations please list the number of distribution system operators certified at the following levels. Any or all of the operators listed below may be employed directly by the distributor, or may be employed as a contract operator.

Water Distribution Manager: *(any level)*

0

Water Distribution Specialist:

0

Cross Connection Control Specialist:

1 (consultant)

Backflow Assembly Tester:

2

☐ Water system operator requirement not applicable *(check this box)*

If the Distribution system does not require an operator certified by Department of Health, please describe the reason(s) why one is not needed.

See Attachment C-III-2.

SECTION C. RECLAIMED WATER DISTRIBUTION ONSITE

If the reclaimed water facility provides water to multiple, separate distribution systems, complete a separate Section C for each system.

C-I. GENERAL INFORMATION

This section gathers general information about the network of pipes, open channels, and/or vehicles used to convey reclaimed water to the use location(s) identified in Sections D through G. For purposes of this section, "open channel" conveyance is limited to those open channel networks that only convey reclaimed water from the permitted reclaimed water facility. It does not include any conveyance within the production facility or any open channels that may convey water from other sources, such as irrigation canals or stormwater storage and conveyance systems.

If the applicant uses or intends to use any waters of the State (surface waterways or groundwater) as a means of conveyance, or will convey reclaimed water through a system that also conveys water from other sources (an irrigation canal or a constructed pond that also receives stormwater inflow), they must contact the appropriate Ecology regional office for instructions on appropriately documenting the means of conveyance.

1. Distribution System Name: *(name applicant uses to identify the system)*

Onsite Distribution System

2. Select the general statement below that most closely describes the complexity of the overall distribution system that conveys reclaimed water from the treatment facility to the use area(s). The applicant may select multiple statements if more than one statement describes to the distribution system. However, the applicant should consult with the appropriate Ecology regional office before selecting more than one statement.

- ☐ Reclaimed water flows directly from the treatment system to an infiltration basin or injection well located at the treatment facility site.
- ☐ System consists of a single, dedicated pipe or open channel that conveys reclaimed water from the treatment facility to a single point for general uses (irrigation/land application, indoor, or commercial/industrial/institutional,) or for release into groundwater (direct or indirect); natural surface water (direct or indirect); or into a natural or constructed wetland.
- ☒ System consists of one or more pipes or open channels conveying water to multiple use locations. System may include booster pumps and storage reservoirs prior to the use areas.
- ☐ System provides access either at the treatment facility or at a remote location for the filling of vehicles that transport reclaimed water to a use area.

3. Does the permittee own and operate the distribution system?

☒

Yes

☐

No

If no, complete the following for the distributor:

Distributor Name: _____

Primary Mailing Address: _____

Street _____

City, State _____

Zip _____

Primary Contact Name: _____

Title: _____

Telephone: _____

E-mail Address: _____

Date of Distribution Agreement: _____

4. Provide a brief description of the distribution system. Include details such as start and end points, total length of the system, number of users connected to the system (at the time of application), and areas or communities that would have a potential to receive water from the system. The applicant should include any other details that will help Ecology understand the scope of the distribution system. In addition, please attach a map of the distribution system (*Label as Attachment C-I-4*), that shows the direction of water flow, current use locations, and important reclaimed water and potable water features (storage tanks or reservoirs, potable water wellhead protection areas, and any reclaimed water monitoring locations).

See Attachments C-I-4A and C-I-4B.

5. Approximately how much of the typical daily reclaimed water production does this distribution system convey?
 100 % The Onsite Distribution System distributes 100% of the flow it produces. Due to the coronavirus pandemic and Brightwater staffing challenges, the Onsite Distribution System has not been in operation beginning March 2020 and continuing through to present day.

6. Has Ecology and Health granted a waiver from maintaining a chlorine residual in the distribution system?

☐ Yes (*Complete this question then skip to Section C-II*) ☒ No (*Answer questions 7-9 below*)

If yes, describe reason for waiver, including details on alternative methods the distributor will use to prevent biological growth in the distribution pipe. (*If applicable*)

Date of Ecology and Health's waiver: _____

7. What is the average value for the daily minimum chlorine residual monitored in the distribution system during the last 2 years?

N/A mg/L as (*check one*)

See above. The Onsite Distribution System has not been in operation since March 2020.

☐ Free chlorine ☒ Total chlorine

8. Is chlorine residual in the distribution system monitored continuously or daily with grab samples?

☒ Continuous ☐ Grab

9. Identify all points within the distribution system where chlorine residual monitoring occurs.

Brightwater Membrane Effluent Box (total chlorine) and Brightwater Disinfection Building (total chlorine). See Attachment C-I-9 for additional information.

C-II. DISTRIBUTION STORAGE

1. Does the distribution system include storage reservoirs? (Not including storage at the treatment facility or at a use site.)

☐ Yes (*Answer questions 2-4 below*) ☒ No (*Skip to section C-III*)

2. Is chlorine added to the distribution system after storage?

☐ Yes ☐ No

3. Can stormwater runoff flow into the storage reservoir from adjacent land area?

☐

Yes

☐

No

If yes, describe steps taken to prevent contamination of the reclaimed water by pollutants that may be found in the stormwater runoff.

4. Is the storage reservoir equipped with an outlet or overflow line?

☐

Yes

☐

No

If yes, describe where water goes if the reservoir overflows.

C-III. DISTRIBUTION OPERATIONS

1. Has the reclaimed water distributor developed and implemented a Cross-Connection Control Program? *(Applies to applicant if they are the distributor, or to any third-party distributor.)*

☒

Yes

☐

No

Effective date of the program or, if not yet implemented, expected date of program implementation.

Date: _____ **Cross-Connection Control Plan submitted to Ecology on 4/28/2023 and awaiting approval.**

2. For distribution systems that require an operator certified by Department of Health for water systems operations please list the number of distribution system operators certified at the following levels. Any or all of the operators listed below may be employed directly by the distributor, or may be employed as a contract operator.

Water Distribution Manager: *(any level)*

0

Water Distribution Specialist:

0

Cross Connection Control Specialist:

1 (consultant)

Backflow Assembly Tester:

2

☐ Water system operator requirement not applicable *(check this box)*

If the Distribution system does not require an operator certified by Department of Health, please describe the reason(s) why one is not needed.

See Attachment C-III-2.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	Brightwater Environmental Education Community Center			
Use Site Location: <i>(List site address or legal site description)</i>	22509 State Route 9 #101, Woodinville, WA, 98072-6010			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.793250	Longitude:	-122.141132
<input checked="" type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:		Form of approved agreement:	<input type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Onsite Distribution System				
Type(s) of use at this location:	<input checked="" type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Toilet flushing, urinals, and irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		16,100*	<input type="checkbox"/> MGY <input checked="" type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*The Onsite Distribution System has not been operated since March 2020. The flow rate provided above reflects the water usage January-March 2020.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	Brightwater WWTP Entrance			
Use Site Location: <i>(List site address or legal site description)</i>	22509 State Route 9 #101, Woodinville, WA, 98072-6010			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.793250	Longitude:	-122.141132
<input checked="" type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:		Form of approved agreement:	<input type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Onsite Distribution System				
Type(s) of use at this location:	<input checked="" type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Sculpture at the Brightwater Facility entrance				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		24,198*	<input type="checkbox"/> MGY <input checked="" type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*The Onsite Distribution System has not been operated since March 2020. The flow rate provided above reflects the water usage January-March 2020.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	Brightwater Influent Pump Station			
Use Site Location: <i>(List site address or legal site description)</i>	11711 NE 195th Street, Bothell, WA, 98011			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.76854	Longitude:	-122.18411
<input checked="" type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:		Form of approved agreement:	<input type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Turf and landscape irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		164,541*	<input checked="" type="checkbox"/> MGY <input type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*Average flow rate during the 2020-2022 reclaimed water seasons.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	King County North Creek Pump Station			
Use Site Location: <i>(List site address or legal site description)</i>	18707 North Creek Parkway, Bothell, WA 98011			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.762981	Longitude:	-122.184486
<input checked="" type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:		Form of approved agreement:	<input type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Landscape irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		0*	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*Irrigation was not used at the North Creek Pump Station during the 2020-2022 reclaimed water seasons.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	King County York Pump Station			
Use Site Location: <i>(List site address or legal site description)</i>	14120 NE 124th Street, Redmond, WA 98052			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.711803	Longitude:	-122.152211
<input checked="" type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:		Form of approved agreement:	<input type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Landscape irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		0*	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*Irrigation was not used at York Pump Station during the 2020-2022 reclaimed water seasons.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	King County York Pump Station Fill Station			
Use Site Location: <i>(List site address or legal site description)</i>	14120 NE 124th Street, Redmond, WA 98052			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.711803	Longitude:	-122.152211
<input checked="" type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:		Form of approved agreement:	<input type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input checked="" type="checkbox"/> Commercial, Industrial, and Institutional uses	<input type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Water provided at the truck fill station is used for dust suppression, irrigation, construction purposes, and street sweeping.				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)	N/A		<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?	160*		<input type="checkbox"/> MGY <input checked="" type="checkbox"/> GPY	
• The volume listed above is:	<input type="checkbox"/> Estimated		<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?	<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*Over the past three years (2020-2022), the truck fill station was only used in 2020.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	King County Hollywood Pump Station			
Use Site Location: <i>(List site address or legal site description)</i>	14815 NE 124th Street, Redmond, WA 98052			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.710947	Longitude:	-122.142039
<input checked="" type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:		Form of approved agreement:	<input type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Landscape irrigation and food crop irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		1,770*	<input type="checkbox"/> MGY <input checked="" type="checkbox"/> GPY	
• The volume listed above is:		<input checked="" type="checkbox"/> Estimated	<input type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*The flow rate provided reflects the average used to grow Class A food crops in 2020-2021. No water was used to grow food crops in 2022. Landscape irrigation was not used at Hollywood Pump Station during the 2020-2022 reclaimed water seasons.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	Willows Run Golf Complex			
Use Site Location: <i>(List site address or legal site description)</i>	10402 Willows Road NE, Redmond, WA 98052			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.690367756	Longitude:	-122.143788041
<input type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:	Willows Run Golf Course			
Primary Contact:	Yuki Sasada	Title:	Owner	
Date Ecology Approved Use Agreement:	2006. Prior permit allowed for submitting after signature.	Form of approved agreement:	<input checked="" type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Turf irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		37.31*	<input checked="" type="checkbox"/> MGY <input type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available: King County shall provide Willows Run Golf Course with an alternative source of water during temporary interruptions in service that are less than one year and caused by events within King County's control. If a temporary interruption occurs, Willows Run Golf Course shall use potable water supplied by the City of Redmond. If an alternative water supply is used, Willows Run shall be responsible for the cost of the alternative water supply up to, and no greater than, the price required for the reclaimed water. Willows Run shall notify King County before using the alternative source of water.				

*Average flow rate during the 2020-2022 reclaimed water seasons.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	King County Sixty Acres Park			
Use Site Location: <i>(List site address or legal site description)</i>	15200 NE 116th Street, Redmond, WA 98052			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.705402	Longitude:	-122.13964947
<input type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:	Lake Washington Youth Soccer Association			
Primary Contact:	Nick James	Title:	Facilities Manager	
Date Ecology Approved Use Agreement:	2016. Prior permit allowed for submitting after signature.	Form of approved agreement:	<input checked="" type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Turf irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		4.58*	<input checked="" type="checkbox"/> MGY <input type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*Average flow rate during the 2020-2022 reclaimed water seasons.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION D. RECLAIMED WATER USE – GENERAL

Complete a separate Section D for each use location. Applicant may submit the following information as an attachment. *(Label as Attachment D)* **Do not use this section for the following uses: Wetland Enhancement, Surface Water Augmentation, or Groundwater uses.** Those uses have separate dedicated sections elsewhere in this application.

1. General Information				
Use Site Name:	Buttonwood Tree Farm			
Use Site Location: <i>(List site address or legal site description)</i>	14500 NE 116th Street, Redmond, WA 98052			
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:	47.706106	Longitude:	-122.146249
<input type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to D.2 below)</i> ⁴				
Name of Customer:	Buttonwood Farm			
Primary Contact:	Thomas Button	Title:	Owner	
Date Ecology Approved Use Agreement:	Current agreement expired. Developing new agreement that complies with RW rule.	Form of approved agreement:	<input checked="" type="checkbox"/> Individual Agreement <input type="checkbox"/> General Master Agreement <input type="checkbox"/> Approved Local Ordinance	
2. Use Details				
Name of Distribution System, as identified in Section C, that conveys water to the use site: Offsite Distribution System				
Type(s) of use at this location:	<input type="checkbox"/> Indoor uses	<input type="checkbox"/> Commercial, Industrial, and Institutional uses	<input checked="" type="checkbox"/> Irrigation or land application	
List the specific use(s) at the site: <i>(i.e., landscape irrigation, toilet flushing, water feature, etc.)</i> Tree irrigation				
• What is the total annual amount of reclaimed water commitment for this use site? (As documented in the use agreement.)		N/A	<input type="checkbox"/> MGY <input type="checkbox"/> GPY	
• What is the average annual reclaimed water use at this site over the last three years?		0.081*	<input checked="" type="checkbox"/> MGY <input type="checkbox"/> GPY	
• The volume listed above is:		<input type="checkbox"/> Estimated	<input checked="" type="checkbox"/> Metered	
• Is supply commitment to this use area interruptible?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

*Average flow rate during the 2020-2022 reclaimed water seasons.

⁴ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION E. RECLAIMED WATER USE – WETLANDS N/A

Please consult with Ecology's regional office prior to completing this section. The use of reclaimed water for enhancement of a natural wetland may require submission of a NPDES application to authorize the release of water to the wetland.

1. General Information				
Use Site Name				
Use Site Location: <i>(List site address or legal site description)</i>				
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:		Longitude:	
<input type="checkbox"/> The applicant/generator is the reclaimed water user <i>(Skip to E.2 below)</i> ⁵				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:				
2. Use Details				
Type of wetland enhanced				
<input type="checkbox"/> Natural Wetland	Wetland category (II-IV):		<input type="checkbox"/> With Special Characteristics	
<input type="checkbox"/> Constructed Wetland	<input type="checkbox"/> Constructed for Treatment	<input type="checkbox"/> Constructed for Other Benefits		
What is the design capacity for the enhancement project?				<input type="checkbox"/> MGD <input type="checkbox"/> GPD
What is the average daily reclaimed water use at this site over the last three years?				<input type="checkbox"/> MGD <input type="checkbox"/> GPD
What is the average annual hydraulic loading rate to the wetland over the last three years?				cm/day
The flow and volume listed above are:		<input type="checkbox"/> Estimated	<input type="checkbox"/> Metered	
Is supply commitment to this use area interruptible?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

Continue on next page

⁵ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

3. Provide a brief description of the physical characteristics of the wetland and the benefit(s) to wetland functions gained through the reclaimed water use (habitat restoration, water quantity or quality improvements, etc.). Description should summarize information from wetland enhancement plan developed during the original project planning. Applicant may include description as an attachment. (*Label as Attachment E-2*)

4. Does the reclaimed water comply with the following water quality requirements?

- $BOD_5 \leq 20 \text{ mg/L}$
- $TKN \leq 3 \text{ mg/L} - N$
- $TSS \leq 20 \text{ mg/L}$
- $\text{Total Phosphorous} \leq 1 \text{ mg/L} - P$

☐

Yes

☐

No

If no, does the approved engineering report demonstrate that the release of reclaimed water not meeting these requirements will not significantly decrease existing wetland functions or that it provides an overall net environmental benefit?

☐

Yes

☐

No

5. Describe any net environmental benefit claimed in the original wetland enhancement proposal.

6. Describe all monitoring undertaken to demonstrate a net environmental benefit.

7. Does monitoring include groundwater monitoring?

☐

Yes

☐

No

If yes, complete Section H, Groundwater Information.

SECTION F. RECLAIMED WATER USE – SURFACE WATER N/A

Please consult with Ecology's regional office prior to completing this section. Ecology may require additional information about the surface water augmentation project in addition to the information collected below. In most cases, the use of reclaimed water for surface water augmentation will require submission of a NPDES application to authorize the release of water to the surface water body. The information gathered below will supplement information collected in the NPDES application.

1. General Information				
Name of water body receiving reclaimed water:				
<input type="checkbox"/> The applicant/generator is the reclaimed water user. <i>(Skip to F.2 below)</i> ⁶				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:				
2. Use Details				
How is water released to the receiving water body?				
<input type="checkbox"/> Direct release		<i>(Applicant will describe the outfall in the NPDES application)</i>		
Coordinates of water release location as decimal degrees (NAD83/WGS84):	Latitude:		Longitude:	
<input type="checkbox"/> Indirect release – bank infiltration or groundwater (Complete Section I to report groundwater data)				
Provide a brief description of the indirect release system. If release includes a UIC well, include the well registration number.				
Coordinates of infiltration location as decimal degrees (NAD83/WGS84):	Latitude:		Longitude:	
What is the design capacity of the surface water augmentation project?				<input type="checkbox"/> MGD <input type="checkbox"/> GPD
What is the average daily reclaimed water use at this site over the last three years?				<input type="checkbox"/> MGD <input type="checkbox"/> GPD
The volume listed above is:		<input type="checkbox"/> Estimated	<input type="checkbox"/> Metered	
Is supply commitment to this use interruptible?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

⁶ Check the box of "applicant/generator is the reclaimed water user" **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

SECTION G. RECLAIMED WATER USE – GROUNDWATER N/A

Please consult with Ecology's regional office prior to completing this section. Ecology may require additional information about the groundwater project to determine if additional groundwater studies are needed prior to submitting an application.

1. General Information				
Use Site Name				
Use Site Location: <i>(List site address or legal site description)</i>				
Coordinates as decimal degrees (NAD83/WGS84):	Latitude:		Longitude:	
<input type="checkbox"/> The applicant/generator is the reclaimed water user <i>(Skip to part G-2 below)</i> ⁷				
Name of Customer:				
Primary Contact:		Title:		
Date Ecology Approved Use Agreement:				
2. Use Details				
Indicate the groundwater recharge method				
<input type="checkbox"/> Indirect recharge				
Provide a brief description of the indirect recharge system.				
<input type="checkbox"/> Direct recharge				
		UIC Well Registration Number:		
What is the design capacity of the indirect recharge system or injection well?			<input type="checkbox"/> MGD <input type="checkbox"/> GPD	
What is the average daily reclaimed water use at this site over the last three years?			<input type="checkbox"/> MGD <input type="checkbox"/> GPD	
The volume listed above is:	<input type="checkbox"/> Estimated		<input type="checkbox"/> Metered	
Is supply commitment to this use area interruptible?	<input type="checkbox"/> Yes		<input type="checkbox"/> No	
If commitment is uninterruptible, describe measures in place to provide water to use area if reclaimed water is not available:				

Continue on next page

⁷ Check the box of "applicant/generator is the reclaimed water user," **only** if the use area is controlled by the same organizational division or department as the one that operates the treatment facility. If the use area is operated by a different division of the same organization, the applicant must identify this separate division as the "user" and have an up-to-date use agreement on file.

3. Include an attachment that describes the soils at the site using information from local soil survey reports. **Soil information is available from your county conservation district, USDA/NRCS Web Soil Survey, or from information contained in the facility's hydrogeologic report.** *(Label as Attachment G-3)*
- ☐ Check here if this information has already been provided in an approved engineering report or other document.
4. Include an attachment that describes the local geology and hydrogeology within one mile of the site. Include any groundwater quality data. **The local library, the site-specific hydrogeologic report, or soil conservation service may have this information.** *(Label as Attachment G-4)*
- ☐ Check here if this information has already been provided in an approved engineering design report or other document.
5. Aquifer Storage and Recovery: Will the applicant recover reclaimed water that has been recharged to an aquifer?
- ☐ Yes ☐ No

If yes, provide the following information:

- Date Ecology approved engineering report that included specific information on applicant's recovery plan. _____
- What is quantity of reclaimed water available for recovery based on the approved engineering report? _____ ☐ MGD ☐ GPD
- What is the average quantity of reclaimed water recovered during the last three years? _____ ☐ MGD ☐ GPD
- What is the annual recovery period? (list beginning and end months) _____ through _____

SECTION H. GROUNDWATER INFORMATION

N/A

1. Use the table on the following page to provide available data or range of data for groundwater monitoring of monitoring or supply wells in the use area. List the analytical method and detection limit, if known for each measurement. Complete a separate Section H for each well.
2. Provide a map showing the location of each monitoring well. *(Label as Attachment H-1)*
3. Attach well logs, if available. *(Label as Attachment H-2)*

Continue on next page

Groundwater Monitoring Data					
Ecology Well Tag ID # (ExampleAAB123)		Well ID # (Example MW-1)			
Coordinates as decimal degrees (NAD83/WGS84):		Latitude:		Longitude:	
Well Elevation: (To the nearest 0.01 feet)		Depth to water level (to the nearest .01 feet)			
Elevation measurements are relative to: <input type="checkbox"/> NAVD88 standard <input type="checkbox"/> Mean sea level					
Parameter	Units	Range of Measurements	Number of Analyses	Analytical Method	Detection Limit
BOD (5 day)	mg/L				
COD	mg/L				
Total organic carbon	mg/L				
Dissolved Fixed Solids	mg/L				
Total dissolved solids	mg/L				
pH	Standard units				
Conductivity	(micromhos/cm)				
Alkalinity	mg/L as CaCO ₃				
Total hardness	mg/L				
Fecal coliform	organisms/100mL				
Total coliform	organisms/100mL				
Dissolved oxygen	mg/L				
Ammonia-N as N	mg/L				
Nitrate + nitrite-N, as N	mg/L				
Total kjeldahl N as N	mg/L				
Ortho-phosphate-P as P	mg/L				
Total-phosphorus-P as P	mg/L				
Total Oil & Grease	mg/L				
Total petroleum hydrocarbon	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Calcium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Chloride	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Fluoride	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Magnesium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Potassium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Sodium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Sulfate	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Barium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Cadmium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Chromium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Copper	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Iron	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Lead	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Manganese	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Mercury	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Selenium	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Silver	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Zinc	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				

Enclosed Attachments

Attachment ID	Attachment Description
A-I-6	Description of changes in reclaimed water production volume or quality
A-1-7	Plans and specifications
B-I-1	Collection system service area(s) that provide domestic wastewater to the reclaimed water treatment facility
B-I-3	List of industrial or commercial facilities discharging waste to the treatment facility
B-I-4	Map showing the treatment facility location and collection system service area
B-II-4	Membrane effluent characteristics
B-II-5	Sampling locations
B-II-6	Analytical results from expanded water quality testing
B-III-5	Treatment process flow diagram
C-I-4A	Brightwater reclaimed water system description
C-I-4B	Reclaimed water distribution system map
C-I-9	Chlorine monitoring locations
C-III-2	Distribution operations

Attachment A-I-6

Description of changes in reclaimed water production volume or quality

Changes in the volume or characteristics of the reclaimed water produced at the facility compared to production authorized in the last permit

The Brightwater Reclaimed Water flow rate was always within the limit of the permit. However, production and distribution of reclaimed water were impacted by the following factors:

1. Distribution of reclaimed water from 2020 to 2023 was impacted by coronavirus pandemic, system maintenance, disinfection chemical availability, and conveyance system repairs.
2. Coronavirus pandemic and Brightwater staffing challenges resulted in no reclaimed water being distributed to Brightwater's Environmental Education and Community Center (EECC) or the Bioboulevard entry sculpture since March 2020 and continues through to present day. Plans to return the system to service are in progress.
3. Quantity of reclaimed water produced during the 2022 reclaimed water season was significantly greater than the quantity of reclaimed water distributed to customer sites because reclaimed water was used for conveyance flushing. Flushing in 2022 included transfer of a portion of the Brightwater solids stream to the County's South Treatment Plant via the wastewater conveyance system.
4. Brightwater Treatment Plant historically has used Sodium hydroxide for pH control. They switched to using Magnesium hydroxide in July 2020 for the same purpose.

Request for permit modification

We request the following permit changes:

1. **R4.A: Authorized uses and locations.** We would like to remove the King County Department of Natural Resources and Parks- Sammamish River Landscaping Strip as a permitted use site as the reclaimed water is no longer provided to the site.
2. **R4.A: Authorized uses and locations – Distribution system names.** We would like to change the names of the two distribution systems to reflect what we have in the Reclaimed Water O&M manual and be consistent across all our documents and reports. The proposed name changes are as follows:
 - a. Offsite Distribution System – formally Reclaimed Water High Pressure Pipeline Distribution System
 - b. Onsite Distribution System – formally BW Facility Distribution System or Demonstration (Demo) System

Facility improvements or changes that resulted in the change in reclaimed water production

There have been no changes in reclaimed water production since the last permit.

Attachment A-1-7

Plans and Specifications

All plans and specifications were submitted and approved prior to the start of reclaimed water distribution in 2013.

Brightwater Treatment Plant and Influent Pump Station		
Drawing number	Title	Location Description
BW1600-P-501	RW DISTRIBUTION PROCESS AND INSTRUMENTATION DIAGRAM	EECC (ENVIRONMENTAL EDUCATION COMMUNITY CENTER)
BW6100-P-502	RW DEMONSTRATION PUMP PROCESS AND INSTRUMENTATION DIAGRAM	DISINFECTION
BW-EL610231A	RW DEMONSTRATION PUMP DEVICENET MOTOR CONTROL INTERCONNECT SCHEMATIC WIRING DIAGRAM SH 2 OF 2	DISINFECTION
BW-EL610231	RW DEMONSTRATION PUMP DEVICENET MOTOR CONTROL SCHEMATIC WIRING DIAGRAM SH 1 OF 2	DISINFECTION
BW-EL610416	OFFSITE RW DISINFECTION PUMP 2 P610416 INTERCONNECTION DIAGRAM	DISINFECTION
BW-EL610415	OFFSITE RW DISINFECTION PUMP 1 P610415 INTERCONNECTION DIAGRAM	DISINFECTION
BW6100-I-545	RW DEMO TO RW DISTRIBUTION FLOW VALVE HV610237 INTERCONNECTION DIAGRAM	DISINFECTION
BW6100-I-544	RW DEMO TO ME DISINFECTION BASIN FLOW VALVE HV610236 INTERCONNECTION DIAGRAM	DISINFECTION
BW6100-I-501	RW STORAGE TANK LEVEL PANEL ICP 160121 INTERCONNECTION DIAGRAM	EECC (ENVIRONMENTAL EDUCATION COMMUNITY CENTER)
BW6100-I-307	RW STORAGE TANK LEVEL PANEL ICP 160121 PANEL LAYOUT	EECC (ENVIRONMENTAL EDUCATION COMMUNITY CENTER)
BW6100-I-528	ME/RW DISINFECTION FIELDBUS PANEL ICP610961A INTERCONNECTION DIAGRAM	DISINFECTION
BW6100-I-527	ME/RW DISINFECTION FIELDBUS PANEL ICP610961A INTERCONNECTION DIAGRAM	DISINFECTION
BW2009-C-705	Reclaimed Water Sections and Details	INFLUENT PUMPING STATION
BW2009-C-704	Reclaimed Water Sections and Details	INFLUENT PUMPING STATION
BW-IL290292	Disinfection RW Booster Pump Supply Pressure Fieldbus Instrument Loop	ODOR CONTROL
BW-IL290291	Post Disinfection Ejector2 Supply Solenoid Valve Discrete Instrument Loop	ODOR CONTROL
BW-IL290281	Post Disinfection Ejector 1 Supply Solenoid Valve Discrete Instrument Loop	ODOR CONTROL
BW-IL240525	Reclaimed Water to North Creek Chlorine Residual Analog Instrument Loop	INFLUENT BUILDING
BW-IL240521	Reclaimed Water Supply Chlorine Residual Analog Instrument Loop	INFLUENT BUILDING
BW-IL240516	Reclaimed Water Drain Pump Inlet Pressure Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240513	Bothell Reclaimed Water Drain Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240320	Reclaimed Water to North Creek Supply Valve 3 Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240314	Reclaimed Water Drain Pump Inlet Flow Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240512	Reclaimed Water Drain Pump Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240311	RW Treatment Plant Supply Pressure Discrete Instrument Loop	INFLUENT BUILDING
BW-IL240511	North Creek Reclaimed Water Drain Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240310	RW Treatment Plant Supply Pressure Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240510	Plant Reclaimed Water Drain Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240308	RW North Creek Supply Header Pressure Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240504	Reclaimed Water Drain Pump Discharge Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240307	Reclaimed Water to North Creek Supply Valve2 Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240503	Reclaimed Water Drain Pump Discharge Pressure Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240306	Reclaimed Water to North Creek Flow Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240395	RW Disinfection Booster Pump2 Discharge Pressure Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240305	Reclaimed Water to North Creek Supply Valve 1 Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL210332	VFD Heat Rejection Hex 1 Reclaimed Water Outlet Temperature Fieldbus Instrument Loop	INFLUENT PUMPING STATION
BW-IL240394	RW Disinfection Booster Pump 1 Discharge Pressure Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240390	RW Disinfection Booster Pump 1 and2 Header Pressure Fieldbus Instrument Loop	INFLUENT BUILDING

Drawing number	Title	Location Description
BW-IL240304	Reclaimed Water to IPS Pressure Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL210331	VFD Heat Rejection Hex 1 Reclaimed Water Inlet Temperature Fieldbus Instrument Loop	INFLUENT PUMPING STATION
BW-IL240303	Reclaimed Water to IPS Isolation Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240388	Reclaimed Water to Disinfection Booster Pump2 Discrete Instrument Loop	INFLUENT BUILDING
BW-IL240386	Reclaimed Water to Disinfection Booster Pump 1 Discrete Instrument Loop	INFLUENT BUILDING
BW-IL240302	Regional Reclaimed Water Drain Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL240301	Regional Reclaimed Water Isolation Valve Fieldbus Instrument Loop	INFLUENT BUILDING
BW-IL210226	Reclaimed Water to VFD and Motor Supply Pressure Fieldbus Instrument Loop	INFLUENT PUMPING STATION
BW-IL210224	Reclaimed Water to VFD and Motor Pressure Fieldbus Instrument Loop	INFLUENT PUMPING STATION
BWSP-C-512	YARD PIPING / STORM DRAINAGE PROFILES	BRIGHTWATER TREATMENT PLANT OVERALL
BW2409-M-204	RECLAIMED WATER SYSTEM SECTION	INFLUENT BUILDING
BW2409-M-203	RECLAIMED WATER SYSTEM SECTION	INFLUENT BUILDING
BW2403-M-106	RECLAIMED WATER SYSTEM PLAN AT ELEVATION 106.64	INFLUENT BUILDING
BW2400-P-505	RECLAIMED WATER BOOSTER SYSTEM PROCESS AND INSTRUMENTATION DIAGRAM	INFLUENT BUILDING
BW2400-P-504	RECLAIMED WATER DRAIN SYSTEM PROCESS AND INSTRUMENTATION DIAGRAM	INFLUENT BUILDING
BW2402-M-104	RECLAIMED WATER SYSTEM PLAN AT ELEVATION 72.50 AND ABOVE	INFLUENT BUILDING
BW2400-P-503	RECLAIMED WATER SYSTEM PROCESS AND INSTRUMENTATION DIAGRAM	INFLUENT BUILDING
BW2401-M-102	RECLAIMED WATER SYSTEM PLAN AT ELEVATION 72.50 AND BELOW	INFLUENT BUILDING
BW2100-P-533	UTILITY WATER SYSTEM DIAGRAM 2 PROCESS AND INSTRUMENTATION DIAGRAM	INFLUENT PUMPING STATION
BW2100-P-532	UTILITY WATER SYSTEM DIAGRAM 1 PROCESS AND INSTRUMENTATION DIAGRAM	INFLUENT PUMPING STATION
BW2100-P-531	SUPPORT SERVICES WATER SYSTEM DIAGRAM PROCESS AND INSTRUMENTATION DIAGRAM	INFLUENT PUMPING STATION
BW610-P-60003	OFFSITE RW SAMPLE PUMP	DISINFECTION
Offsite		
Contract Number	Title	Location Description
C00063C06	Brightwater Conveyance System North Creek Facilities Contract	OFFSITE
C00242C08	Brightwater Reclaimed Water System Section 2	OFFSITE
C00760C12	Brightwater Reclaimed Water System Reclaimed Water Recirculation	OFFSITE
-	Brightwater Reclaimed Water System South Segment Flushing Facility	OFFSITE

Attachment B-I-1

Collection system service area(s) that provide domestic wastewater to the reclaimed water treatment facility.

Name	Population*	Type of Collection System	Ownership
Alderwood Water and Wastewater District	129,328	Separated	Municipal
City of Bellevue	13,435	Separated	Municipal
City of Bothell	6,010	Separated	Municipal
City of Brier	2,883	Separated	Municipal
Cross Valley Water District	120	Separated	Municipal
NE Sammamish Sewer and Water District	15,244	Separated	Municipal
Northshore Utility District	731	Separated	Municipal
City of Redmond	71,117	Separated	Municipal
Silver Lake Water and Sewer District	5,108	Separated	Municipal
Woodinville Water District	18,395	Separated	Municipal
Total Population Served:	262,371		

*2023 estimated population. Population estimated using the 2020 and 2030 residential population for each model basin in the Brightwater service area and 0.8% estimated population growth per year. The total population for each agency is the sum of the model basin (or fraction of model basin) population in that agency.

Attachment B-I-3

List of industrial or commercial facilities discharging waste to the treatment facility.

	INDUSTRY #1	INDUSTRY #2	INDUSTRY #3	INDUSTRY #4
NAME:	AGC Biologics, Inc.	AGC Biologics, Inc. - North Campus	Aerojet Rocketdyne Inc.	Gyrus ACMI Inc. dba Olympus Surgical Technologies America
INDUSTRY:	PHARMACEUTICAL MFG - CFR 439	PHARMACEUTICAL MFG - CFR 439	METAL FINISHING - CFR 433	METAL FINISHING - CFR 433
ADDRESS:	2210 220TH STREET SE, BOTHELL, WA, 98021	21501 23RD DRIVE SE, BOTHELL, WA, 98021	11411 139TH PLACE NE, REDMOND, WA, 98052	6675 185TH AVENUE NE, REDMOND, WA, 98052
TELEPHONE:	425-489-5029	425-489-5029	425-885-5000	425-497-1700
CONTACT NAME:	John Fauver	John Fauver	Allan Sutton	David Nguyen
INDUSTRIAL PRODUCT(S):	Pharmaceuticals	Pharmaceuticals	Aerospace Parts & Assemblies	Medical Devices

Attachment B-I-3

List of industrial or commercial facilities discharging waste to the treatment facility.

	INDUSTRY #5	INDUSTRY #6	INDUSTRY #7	INDUSTRY #8
NAME:	Just - Evotec Biologics Inc.	MicroSurgical Technology Inc.	National Industrial Concepts	Partner Therapeutics
INDUSTRY:	PHARMACEUTICAL MFG - CFR 439	METAL FINISHING - CFR 433	METAL FINISHING - CFR 433	PHARMACEUTICAL MFG - CFR 439
ADDRESS:	22857 NE MARKETPLACE DR, REDMOND, WA, 98053	8415 154TH AVENUE NE, REDMOND, WA, 98052	23518 63RD AVENUE SE, WOODINVILLE, WA, 98072	14210 NE 203RD STREET, LYNNWOOD, WA, 98087
TELEPHONE:	206-300-7519	425-284-6176	425-489-4300	206-254-1222
CONTACT NAME:	Luis Morales-Trevino	Vicki Whitney	Marty Carothers	John Daigneault
INDUSTRIAL PRODUCT(S):	Pharmaceuticals	Medical Devices	Metal Fabrication & Assembly	Pharmaceuticals

Attachment B-I-3

List of industrial or commercial facilities discharging waste to the treatment facility.

	INDUSTRY #9	INDUSTRY #10	INDUSTRY #11	INDUSTRY #12
NAME:	Precor Inc. - Plant 2	Primus International - University Swaging Division	Romac Industries Inc.	Seattle Genetics North Creek
INDUSTRY:	METAL FINISHING - CFR 433	METAL FINISHING - CFR 433	METAL FINISHING - CFR 433	PHARMACEUTICAL MFG - CFR 439
ADDRESS:	14210 NE 203RD STREET, WOODINVILLE, WA, 98072	6526 240TH STREET SE, BLDG. A, WOODINVILLE, WA, 98021	21919 20TH AVENUE SE, SUITE 100, BOTHELL, WA, 98021	3450 MONTE VILLA PARKWAY, BOTHELL, WA, 98021
TELEPHONE:	425-482 5743	425-318-4500	425-951-6273	206-434-3053
CONTACT NAME:	Lou Carlone	Ken Felt	Bob Gilmore	Pedro Blanco
INDUSTRIAL PRODUCT(S):	Fitness Equipment	Aerospace Parts & Assemblies	Waterworks Products	Pharmaceuticals

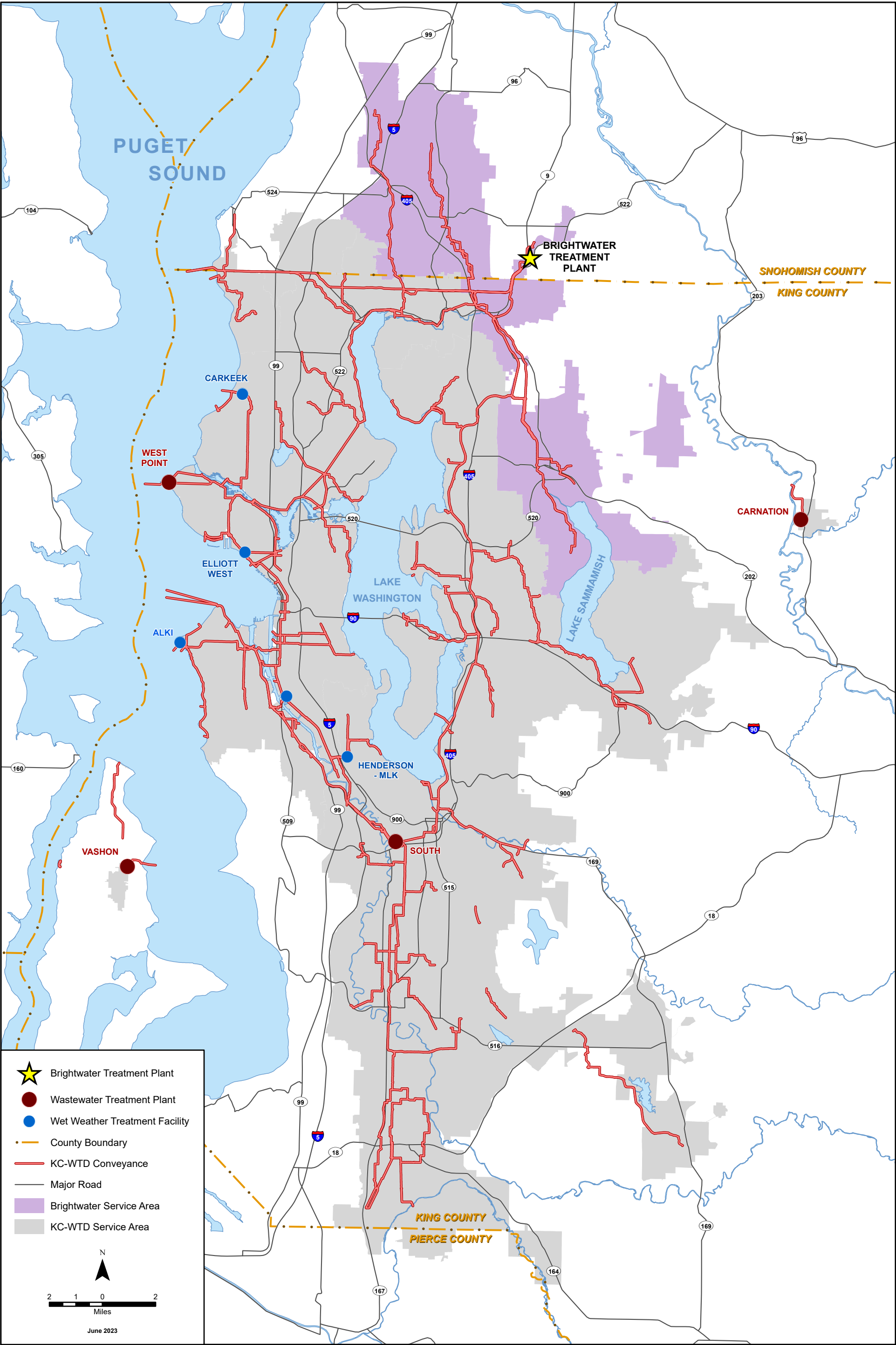
Attachment B-I-3

List of industrial or commercial facilities discharging waste to the treatment facility.

	INDUSTRY #13	INDUSTRY #14
NAME:	Terex Washington Inc. - South Campus	UniSea Inc.
INDUSTRY:	METAL FINISHING - CFR 433	FOOD PROCESSING- SEAFOOD
ADDRESS:	18600/18700/18750 NE 65TH STREET, REDMOND, WA, 98052	15110 NE 90TH STREET, REDMOND, WA, 98052
TELEPHONE:	425-556-8671	425-881-8181
CONTACT NAME:	Jon Lyddon	Victor Mesa
INDUSTRIAL PRODUCT(S):	Aerial Lift Equipment	Seafood

Attachment B-I-4

Map showing the treatment facility location and collection system service area



King County
Department of
Natural Resources and Parks
**Wastewater Treatment
Division**

The information included on this map has been compiled from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

File Name: Q:\WTD\Projects\Brightwater\Projects\BW_Renewal\BW_Renewal.aprx cross

**Treatment Facility Location and
Collection System Service Area**

Attachment B-II-4

Membrane Effluent Characteristics

Parameter		Measurement Values (in mg/L, unless noted otherwise)			Number of Analyses ⁽¹¹⁾	Analytical Method	Quantification Level
		Minimum	Maximum	Average			
Biochemical Oxygen Demand (report one)	BOD (5 day)	1.00	8.90	2.23	1492	SM 5210 B-2011	±0.1 mg/L ⁽⁶⁾
	CBOD (5 day)						
Total Suspended Solids		2.00	9.70	2.23	1492	SM 2540 D-2011	0.59 mg/L ⁽⁷⁾
Dissolved Oxygen		0.77	7.29	4.14	1381	Inline sensor ⁽⁴⁾	Below 5 ppm ± 0.05 ppm
pH (minimum) (std. Units)		3.56	7.36	6.73	1492	Inline sensor ⁽⁵⁾	≤ 0.1 pH ± 0.02 mA
pH (maximum) (std. Units)		6.58	9.14	7.04	1492	Inline sensor ⁽⁵⁾	≤ 0.1 pH ± 0.02 mA
Temperature (Deg. C) ⁽¹⁰⁾		12.61	23.68	18.20	1361	Inline sensor ⁽⁵⁾	≤ 0.3°C ± 0.02 mA
Ammonia-N as N		0.01	9.75	0.20	1492	SM 4500-NH3 E-2011	0.01 mg/L
Total Kjeldahl Nitrogen as N		0.60	11.30	1.73	539	SM 4500-Norg B-2011	0.01 mg/L ⁽⁷⁾
Total Nitrogen		1.10	55.70	36.65	1492	calculated	N/A ⁽⁷⁾
Total-phosphorous-P as P		1.50	15.80	4.52	600	SM 4500-P F-2011	0.23 mg/L ⁽⁹⁾
Ortho-phosphate-P as P		2.00	10.80	4.51	220	SM 4500-P F-2011	0.23 mg/L ⁽⁹⁾
Total dissolved solids		Total dissolved solids are measured on final effluent (FE) not membrane effluent (ME)					
Conductivity (µS/cm)		Conductivity is measured on plant influent not membrane effluent (ME)					
Alkalinity as CaCO ₃		35.00	222.00	102.08	600	SM 2320 B-2011	20 mg/L ⁽⁷⁾
Total Harness as CaCO ₃		Hardness is not measured on membrane effluent (ME)					
Notes:							
(1) Data is reflective of permit cycle May 1, 2019 through to May 31, 2023							
(2) Samples reflect 24-hour composites unless otherwise noted							
(3) Total Nitrogen (TN) = TKN + NO2 + NO3; where Total Kjeldahl Nitrogen (TKN) = Organic N + NH3. Influent nitrate and influent nitrite concentrations are typically very low (<0.2 mg/L as N). Nitrite (NO2)+Nitrate (NO3) analysis follows Standard Method SM4500-NO3 ⁻ F-2011 and has quantification level of 0.04 mg/L as N							
(4) Inline membrane effluent dissolved oxygen (DO) probe, Hach LDO2							
(5) Inline membrane effluent probe, Yokogawa FU20 model VP-T1-FSM, measures pH and Temperature							
(6) Quantification level is dependant on accuracy of the laboratory equipment running the analysis							
(7) Minimum detection limit (MDL) data not available. Quantification level estimate is based on internal historical Brightwater process experience, permit stipulations, or minimum detectable standard.							
(8) Quantification level is not applicable. Total Nitrogen is calculated valve according to Note (3)							
(9) Quantification level is based on lowest point on calculation curve							
(10) Feb 25 2021 effluent temperature probe lost commuincation. temperature meausured using influent probe from 2021 to present							
(11) Inline sensors monitor parameters continuously unless out of service for maintenance							

Attachment B-II-5

Sampling Locations

BRIGHTWATER TREATMENT PLANT



INFLUENT PUMP STATION



TABLE BASED ON RW PERMIT APPLICATION SECTION B-II-6

Parameter	Measurement Values (in ug/L, unless noted otherwise)			Number of Analyses	Analytical Method	Quantification Level
	Minimum	Maximum	Average			
Total Oil and Grease ⁽³⁾	<1.5	<1.5	<1.5	4	EPA 1664B	1.5 ug/L
NWTPH - Dx	<i>not measured on priority effluent testing</i>					
NWTPH - Gx	<i>not measured on priority effluent testing</i>					
Calcium	15500	19500	17600	4	EPA 200.8 (MOD)	50 ug/L
Chloride	<i>not measured by KCEL or SP lab on effluent</i>					
Cyanide (weak acid dissociable)	0.00	0.00	0.00	4	SM4500-CN-I,E	0.002 ug/L
Fluoride	<i>not measured on priority effluent testing</i>					
Magnesium	4810	48400	32478	4	EPA 200.8 (MOD)	50 ug/L
Potassium	17800	18900	18250	4	EPA 200.8 (MOD)	100 ug/L
Sodium	52600	110000	68325	4	EPA 200.8 (MOD)	100 ug/L
Sulfate	<i>not measured on priority effluent testing</i>					
Total Phenolic Compounds	<0.04	0.06	0.05	4	EPA 420.1	0.04 ug/L
Antimony (total)	0.31	0.41	0.35	4	EPA 200.8 (MOD)	0.3 ug/L
Arsenic (total)	0.82	1.01	0.92	4	EPA 200.8 (MOD)	0.05 ug/L
Barium (total)	4.45	6.34	5.59	4	EPA 200.8 (MOD)	0.5 ug/L
Cadmium (total)	<0.05	<0.05	<0.05	4	EPA 200.8 (MOD)	0.05 ug/L
Chromium (total)	0.49	0.65	0.57	4	EPA 200.8 (MOD)	0.2 ug/L
Copper (total)	6.24	9.52	7.68	4	EPA 200.8 (MOD)	0.2 ug/L
Iron (total)	74.60	114.00	96.43	4	EPA 200.8 (MOD)	10 ug/L
Lead (total)	0.10	0.23	0.16	4	EPA 200.8 (MOD)	0.1 ug/L
Manganese (total)	<i>not measured on priority effluent testing</i>					
Mercury (total) ng/L	0.51	0.87	0.71	4	EPA 1631E	0.2 ng/L
Nickel (total)	1.56	2.25	1.89	4	EPA 200.8 (MOD)	0.1 ug/L
Selenium (total)	0.77	0.77	0.77	4	EPA 200.8 (MOD)	0.5 ug/L
Silver (total)	<0.04	<0.04	<0.04	4	EPA 200.8 (MOD)	0.04 ug/L
Zinc (total)	54.20	76.30	63.03	4	EPA 200.8 (MOD)	0.5 ug/L
Notes:						
(1) Data is reflective of permit cycle May 1, 2019 through to May 31, 2023 and uses the results of the final effluent sample collected at the Influent Pump Station (IPS) used for NPDES permit (WA0032247) required quarterly priority pollutant testing. Data above is reflective of testing during periods when reclaimed water was distributed offsite to customer sites (the RW high pressure pipeline).						
(2) Samples reflect 24-hour composites unless otherwise noted						
(3) Total oil is measured using HEM method						
(4) Data provided						

TABLE BASED ON ANNUAL NPDES TESTING REQUIREMENTS

Parameter	Measurement Values (in ug/L, unless noted otherwise)			Number of Analyses	Analytical Method	Quantification Level
	Minimum	Maximum	Average			
Total Nitrogen (calculation) mg/L ⁽³⁾	37	42	39	4	N/A	
Total Phosphorus mg/L	4.8	5.9	5.5	4	SM 4500-P F-2011	30 mg/L
Total Dissolved Solids mg/L	442	572	511	4	SM 2540 C-2011	
Total Cyanide	<2.0	<2.0	<2.0	4	SM4500-CN-C,E	5 ug/L
Phenolics (Total Phenols)	<40	60	40	4	EPA 420.1	
Nickel	2	2	2	4	EPA 200.8 (MOD)	0.1 ug/L
Lead	<0.1	0.23	0.14	4	EPA 200.8 (MOD)	0.1 ug/L
Mercury (total) ng/L	0.51	0.87	0.71	4	EPA 1631E	0.2 ng/L
Thallium	<0.075	<0.1	0	4	EPA 200.8 (MOD)	0.09 ug/L
Zinc	43	57	51	4	EPA 200.8 (MOD)	0.5 ug/L
Selenium	<0.5	1	1	4	EPA 200.8 (MOD)	1.0 ug/L
Silver	<0.04	<0.04	0	4	EPA 200.8 (MOD)	0.04 ug/L
Beryllium	<0.1	<0.1	0	4	EPA 200.8 (MOD)	0.1 ug/L
Cadmium	<0.05	<0.05	0	4	EPA 200.8 (MOD)	0.05 ug/L
Antimony	<0.3	0	0	4	EPA 200.8 (MOD)	0.3 ug/L
Arsenic	0.82	1.02	0.90	4	EPA 200.8 (MOD)	0.1 ug/L
Copper	7.02	8.86	7.94	4	EPA 200.8 (MOD)	0.4 ug/L
Chromium	0.44	0.60	0.52	4	EPA 200.8 (MOD)	0.2 ug/L
Chromium, Hexavalent (dissolved soluble)	<0.005	0	0	4	SM3500-CR B	0.3 ug/L

Notes:

(1) Data is reflective of permit cycle May 1, 2019 through to May 31, 2023 and uses the results of the final effluent sample collected at the Influent Pump Station (IPS) used for NPDES permit (WA0032247) required quarterly priority pollutant testing. Data above is reflective of testing during periods when reclaimed water was distributed offsite to customer sites (the RW high pressure pipeline).

(2) Samples reflect 24-hour composites unless otherwise noted

(3) Total Nitrogen (TN) = TKN + NO₂ + NO₃; where Total Kjeldahl Nitrogen (TKN) = Organic N + NH₃.

(4) 2019 and 2021 total nitrogen and total phosphorous were calculated and reported as the average for the month of August for their respective years. 2020 and 2022 total nitrogen and total phosphorous reported values coincided with 24-hour composite priority pollutant single sample dates for the 3rd Quarter of their respective years

(5) Total dissolved solids evaluated once a month. Reported TDS samples were collected on the following dates of their respective years: Aug 5, 2019; Oct 5, 2020; Aug 2, 2021; July 11, 2022

Attachment B-III-5

Treatment process flow diagram

NO	REVISION DESCRIPTION	BY	APVD	DATE

DESIGNED/DRAWN: CMG	SCALE: AS NOTED
DESIGN ENGINEER: KG	WORK ORDER:
PROJECT ENGINEER: SW	PROJECT NO: XXXXXXXX
LOCATION CODE: BW100	CONTRACT NO:

CONTRACT NO



RECLAIMED WATER PROCESS FLOW

HT NO	/	TOTAL	REV
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#	#	NO. 0.
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Attachment C-I-4A

Brightwater Reclaimed Water System Description

I. TREATMENT FACILITIES AND RECLAIMED WATER SYSTEM OVERVIEW

Incoming wastewater flows to the Brightwater Plant that are at or below the threshold of the Membrane Bioreactor (MBR) system receive preliminary, primary, and MBR secondary treatment followed by disinfection. Membrane effluent is discharged to a three chambered membrane effluent box (MEB), where the sequence of priority for use is plant process water followed by reclaimed water (RW). Any remaining flows are conveyed to the effluent blending box for disinfection and discharged as plant effluent.

In the portion of the MEB dedicated to RW, membrane effluent is dosed with sodium hypochlorite and then flows into to the Reclaimed Water High Pressure (RWHP) pipeline. Disinfection contact time is achieved in the RWHP between the MEB and the Influent Structure (IS) at the Brightwater Influent Pump Station (IPS) in Bothell. At the IS, pH, turbidity, and chlorine residual are analyzed. Flow meeting Class A reclaimed water requirements is conveyed to reclaimed water uses downstream in the Sammamish Valley where the demand is typically between 1-2 million gallons per day. Flow not meeting the Class A requirements is automatically rerouted to discharge to sewer.

Additionally, a smaller, separate Reclaimed Water Demonstration System serves the Brightwater Center. When RW is sent to the Reclaimed Water Demonstration System, dedicated pumps convey membrane effluent dosed with hypochlorite through a contact pipe that provides the required Concentration x Time (CT) for 10 GPM. Chlorine residual, turbidity and pH are measured; if standards are met and there is demand at the Brightwater Center, RW flows to a storage tank at the Brightwater Center. If there is no demand or if the treated water does not meet RW requirements, automated valves divert flow back to the effluent portion of the MEB.

For solids handling, Brightwater includes thickening, anaerobic digestion, dewatering, and a biosolids storage and loading facility. Biosolids are hauled offsite and beneficially used.

II. LIQUID STREAM TREATMENT

The Influent Pump Station (IPS), located in Bothell, pumps incoming untreated wastewater to the Brightwater headworks, typically through one of two force mains. Each force main has a dedicated mag-flow meter, which measures the influent flow rate. All incoming wastewater receives preliminary treatment via screening, followed by aerated grit removal. The grit removal system has two aerated tanks per primary sedimentation basin. The aerated grit tanks are configured to accommodate addition of chemicals for chemically enhanced primary clarification (CEPC).

Wastewater flows at or below the threshold of the MBR system are treated in conventional primary clarifiers. Primary scum is collected by helical skimmers located immediately upstream of the primary effluent launders. Conventional primary treatment is followed by fine screening to protect the membranes, aeration basins, which act as bioreactors, and the membrane basins, where liquid/solid separation occurs. The MBR process is designed to operate at elevated mixed liquor suspended solids concentrations and at a sludge age sufficient to provide complete nitrification throughout the year. The membranes are immersed in the mixed liquor and effluent is drawn through the membranes with suction provided by membrane effluent pumps. The throughput of the membranes is maintained through automated air scour and back-pulse processes and periodic in situ cleaning operations.

Membrane effluent flows into a three chambered membrane effluent box as described in the Overview Section, above.

Additionally, wastewater flows above the MBR threshold flow rate are treated via CEPC. The CEPC process combines conventional primary sedimentation with chemical addition to enhance settling of wastewater solids. CEPC effluent is mixed with membrane effluent in the effluent blending box, followed by disinfection and discharge as Final Effluent. No CEPC flows enter the RW system.

III. SOLIDS PROCESSING

Gravity belt thickeners are used to co-thicken primary and waste activated sludge, plus Primary Effluent Screenings. Sludge from the primary and secondary processes is pumped to the Raw Sludge Blend Tank along with Primary Effluent Screenings. Solids are pumped from the Raw Sludge Blend Tank, dosed with polymer and fed to the gravity belt thickeners, and from there discharged to the Thickened Sludge Blend Tank. Filtrate removed from thickening is combined with centrate from dewatering and returned to the liquids stream treatment.

The thickened sludge receives Class B stabilization through mesophilic anaerobic digestion. Thickened sludge is pumped from the Thickened Sludge Blend Tank to the digesters. Once stabilized, the sludge flows to the Digested Sludge Storage Tank where it is stored before dewatering.

The digested sludge (biosolids) is dosed with polymer and dewatered with centrifuges. Once dewatered, the biosolids are conveyed to truck loading. The truck loading facilities provide biosolids storage and the ability to load several trucks in a short period of time, reducing the required number of truck bays. The centrate is combined with filtrate from thickening and returned to the liquids stream treatment.

Digester gas is combusted in boilers to provide heat for the digestion process and other parts of the plant. The boilers are also capable of operating on natural gas. Excess digester gas is combusted in a waste gas burner.

Residual solids removed from headworks screening and grit removal processes are washed and dewatered and managed through landfill disposal in accordance with applicable regulations.

IV. RECLAIMED WATER DISTRIBUTION SYSTEM

The Brightwater Reclaimed Water System consists of two distribution systems designed to produce and convey Class A Reclaimed Water (RW) for use at the Brightwater Treatment Plant site, remote King County pump stations, and commercial offsite users such as Willows Run Golf Course, 60 Acres Park, the Button Farm, and the York Reclaimed Water Fill Station in the Sammamish Valley. Some uses are regulated by Departments of Ecology and Health permits such as irrigation on land with public access and toilet/urinal flushing, while other uses do not require coverage in the permit (e.g., “internal” use at wastewater pumping and treatment facilities). The information below describes these uses and associated facilities.

A. Onsite Distribution System

Up to 14,000 gallons per day of Class A RW can be conveyed to the Brightwater Center located next to the Brightwater Treatment Plant site. Permitted uses of RW at the Brightwater Center are for irrigation, an art sculpture along the entrance road, and toilet and urinal flushing. The Brightwater Center is served by the Onsite Distribution System.

Membrane effluent from Brightwater’s “C3” process water system is pumped by a dedicated pump at 10 GPM. The membrane effluent is dosed with 12.5% sodium hypochlorite (NaOCl) upstream of a serpentine run of pipe that provides the necessary contact time to meet the minimum “Concentration x Time” (CT) disinfection requirements for Class A RW disinfection. RW is continuously monitored for chlorine residual, turbidity, and pH to assure compliance with permit limits. RW that meets the Class A requirements is distributed to the Brightwater Center storage tank when there is demand. RW is automatically diverted to Brightwater’s Final Effluent discharge when permit limits are not met.

Flow into the Brightwater Center's storage tank is controlled by floats. The storage tank is equipped with dual pumps that convey water to a hydropneumatic pressure tank which supplies water under pressure for toilet/urinal flushing and irrigation systems. A medium-high level tank outlet can also provide RW via gravity flow to an outdoor sculpture. The tank also has an overflow drain at high level that will return excess water to the sanitary sewer. Potable water can be added to the storage tank through an air gap when reclaimed water is not available.

B. Offsite Distribution System

The Offsite Distribution System provides RW to offsite customers to the south of Brightwater in the Sammamish Valley. The primary uses of this system in 2017 were for irrigation at the following Permitted Application Sites: Willows Run Golf Course, 60 Acres Park, and the Button Tree Farm, minor irrigation at Brightwater Influent-, North Creek-, York-, and Hollywood- Pump Stations, and a permanent fill station at York Pump Station predominately used for irrigation operations. RW is also used at the King County pump stations listed above, for process water, for which no permit is required.

Membrane effluent flows over the RW weir in the MEB at the Brightwater WWTP where it is disinfected, then flows by gravity through a dedicated 27-inch diameter pipeline that runs from Brightwater to the Influent Structure (IS) located in the City of Bothell. The necessary "CT" to meet Class A RW permit requirements is met between Brightwater and the IS. RW is analyzed for total chlorine residual, turbidity, and pH at the IS. RW meeting permit requirements is conveyed to uses downstream. Water not meeting standards is automatically diverted to Brightwater's influent wastewater system. Additionally, RW can be used at the IPS for non-permit required internal process uses.

RW exiting the IS to the south is conveyed to the North Creek Pump Station (NCPS) in a 2,200 foot-long, 27-inch pipeline. RW is used at the NCPS and diversion structure for non-permit required internal uses, as well as for permitted irrigation at NCPS.

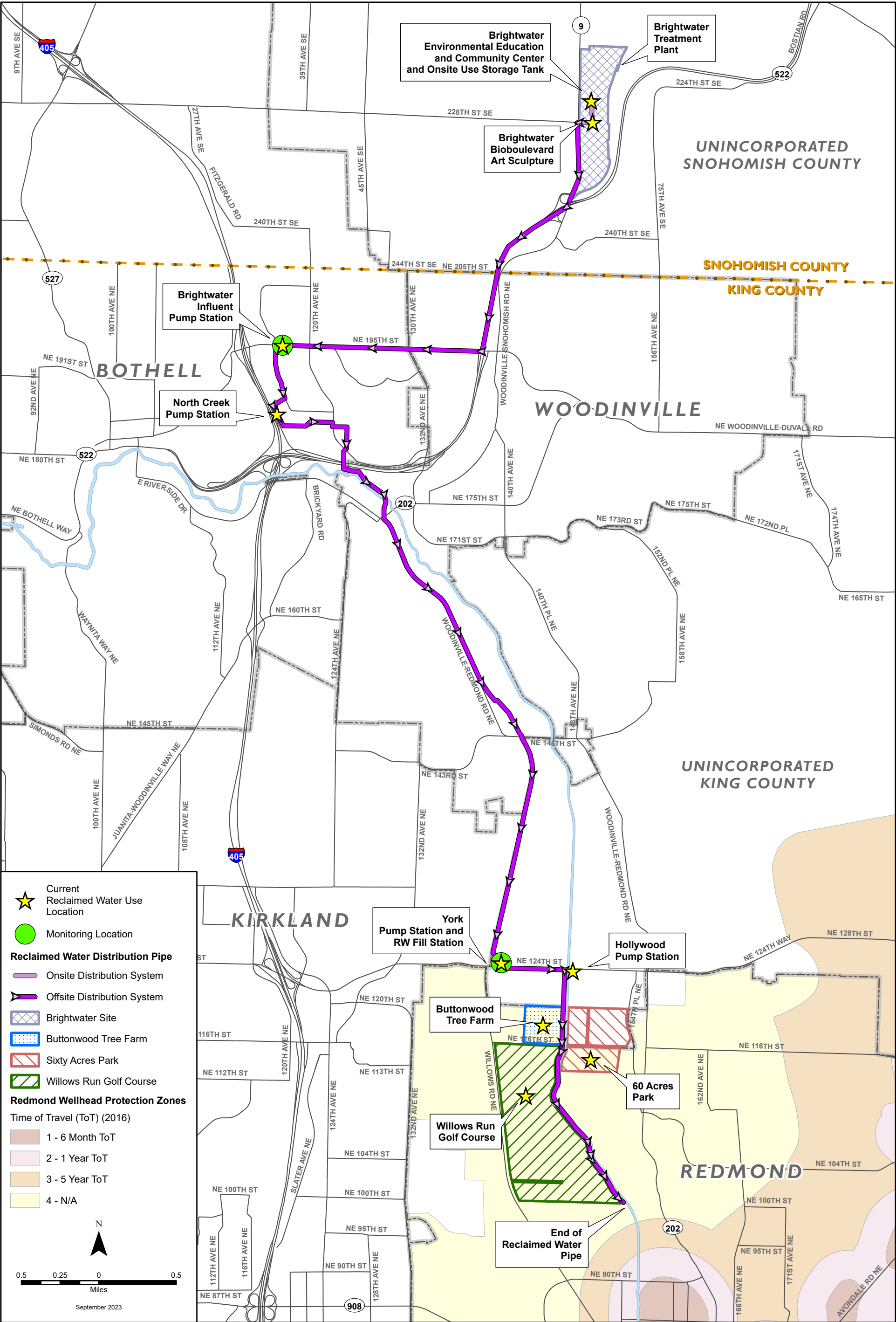
RW is conveyed through a 30-inch pipeline over five miles from the NCPS site to the York Pump Station (YPS) site. At the YPS, a residual analyzer monitors for permit compliance and the flow is diverted to sewer if it does not meet the chlorine residual requirement. RW is used at the YPS for irrigation and for the York Fill Station as well as for non-permit required internal uses.

RW exiting the YPS site enters a 20-inch/18-inch diameter pipeline that runs approximately two miles. The alignment runs eastward along NE 124th St. and then southward along the west bank of the Sammamish River. This pipeline currently terminates at the southeast corner of the Willows Run Golf Course; future projects could extend it farther along the river. This pipeline also contains branches which extend eastward over the NE 124th St. Bridge to the Hollywood Pump Station for internal use and permitted irrigation use. The pipeline could be extended north in the future on the east side of the river. The pipeline also branches over NE 116th St. Bridge for a connection to 60 Acres Park for permitted irrigation use.

The Offsite Distribution System also includes a westward alignment for future RW uses. A dedicated 24-inch diameter RW line runs in the Central Tunnel between the IPS and the North Kenmore Portal. This western alignment currently is not used. In the future, a western distribution system may be constructed from the North Kenmore Portal. Future capacity of the west and south distribution systems is listed in the engineering report at 21 MGD, based on adding booster pumping facilities.

Attachment C-I-4B

Reclaimed Water Distribution System Map



Attachment C-I-9

Chlorine Monitoring locations

Asset Number	Descriptor	Analyzer/Monitoring Location	Analyzer Type
AE/AIT610,120	RW Distribution Chlorine Residual Analyzer and Transmitter	Brightwater – ME Box	Total
AE/AIT610,234 ⁺	RW Demonstration Chlorine Residual Analyzer and Transmitter	Brightwater – Disinfection Bld	Total
AE/AIT240,521 ⁺	RW Distribution Supply Header Chlorine Residual Analyzer and Transmitter	Influent Pump Station	Total – Low Range
AE/AIT240,526A	RW Distribution Supply Header Chlorine Residual Analyzer and Transmitter	Influent Pump Station	Total – High Range
AE/AIT240,525	RW North Creek Supply Header Chlorine Residual Analyzer and Transmitter	Influent Pump Station	Free
AE/AIT311,017	North Creek RW Chlorine Analyzer and Transmitter	North Creek Pump Station	Total
AE/AIT309,501A	York Influent RW Chlorine Analyzer and Transmitter	York Pump Station	Total
AE/AIT309,501B*	York RW Free Chlorine Analyzer and Transmitter	York Pump Station	Free
<p><i>*Denotes chlorine residual compliance point +Denotes permit required chlorine monitoring point only</i></p> <p>Notes:</p> <p>(1) AE – Analyzing Element; Cl₂ probe</p> <p>(2) AIT – Analyzing Indicating Transmitter; Cl₂ transmitter</p> <p>(3) All chlorine analyzers monitor residual continuously when the reclaimed water system is operational</p>			

Attachment C-III-2**Distribution Operations****I. Offsite Distribution System**

King County does not believe a Water Distribution Manager Certification is needed for Brightwater's reclaimed water system. The Onsite Distribution System is one main pipe with customer service connections. This is significantly less complex than typical water distribution systems that consist of a multitude of interconnecting transmission, distribution, and services lines which does require a Water Distribution Manager Certification. Brightwater's reclaimed water Onsite Distribution System does not use pumps and only relies on head pressure in the gravity system unlike most water distribution systems.

Brightwater's treatment processes and recycled water Onsite Distribution System is highly automated. All Operators manage the treatment processes as well as the Onsite Distribution System. The majority of Brightwater Operators have a Group 3 or above wastewater Operator Certification (see Section B-V-4). As part of having that certification they attend continuing education in a variety of topics offered through conferences such as WEFTEC, PNWCA, AWWA/PNWCA short school, and biosolids and reclaimed water conferences. Due to the nutrients remaining in Brightwater's reclaimed water Onsite Distribution System a total chlorine residual is maintained which is more common in wastewater treatment than water distribution systems that monitor free chlorine. Wastewater Operators are trained to manage the disinfection system and chlorine analyzers. They perform chlorine residual checks and monitor the distribution system pressure and chlorine residual from the Main Control System. Due to how Brightwater's reclaimed water treatment and Onsite Distribution System is designed and operated, Wastewater Operator Certification is the most appropriate certification for all Operators at this facility.

II. Onsite Distribution System

King County does not believe a Water Distribution Manager Certification is needed for Brightwater's reclaimed water system. The Onsite Distribution System is a short pipe that send water to the Brightwater Center use and entrance sculpture. This is significantly less complex than typical water distribution systems that consist of a multitude of interconnecting transmission, distribution, and services lines which does require a Water Distribution Manager Certification. Brightwater's reclaimed water Onsite Distribution System is only for King County property uses.

Brightwater's treatment processes and recycled water Onsite Distribution System is highly automated. All Operators manage the treatment processes as well as the Onsite Distribution System. The majority of Brightwater Operators have a Group 3 or above wastewater Operator Certification (see Section B-V-4). As part of having that certification they attend continuing education in a variety of topics offered through conferences such as WEFTEC, PNWCA, AWWA/PNWCA short school, and biosolids and reclaimed water conferences. Due to the nutrients remaining in Brightwater's reclaimed water Onsite Distribution System a total chlorine residual is maintained which is more common in wastewater

treatment than water distribution systems that monitor free chlorine. Wastewater Operators are trained to manage the disinfection system and chlorine analyzers. They perform chlorine residual checks and monitor the distribution system pressure and chlorine residual from the Main Control System. Due to how Brightwater's reclaimed water treatment and Onsite Distribution System is designed and operated, Wastewater Operator Certification is the most appropriate certification for all Operators at this facility.

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