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This form is equivalent to EPA NPDES Form 3510-2A

FACILITY NAME AND PERMIT NUMBER:

**Lighthouse Point Water Reclamation Facility, City of
Blaine, Permit # WA0022641**

**FORM
2A
NPDES**



**DEPARTMENT OF
ECOLOGY
State of Washington
NPDES FORM 2A APPLICATION OVERVIEW**

APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

- A. Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.
- B. Additional Application Information for Applicants with a Design Flow \geq 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.
- C. Certification.** All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

- D. Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):
 - 1. Has a design flow rate greater than or equal to 1mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):
 - 1. Has a design flow rate greater than or equal to 1 mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - 3. Is otherwise required by the permitting authority to submit results of toxicity testing.
- F. Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:
 - 1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see Instructions); and
 - 2. Any other industrial user that:
 - a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
 - b. Contributes a process wastewater that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
 - c. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

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Water Reclamation Facility, City of Blaine, WA0022641

BASIC APPLICATION INFORMATION

PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

All treatment works must complete questions A.1 through A.8 of this Basic Application Information Packet.

A.1. Facility Information.

Facility Name Lighthouse Point Water Reclamation Facility, City of Blaine
Mailing Address 1200 Yew Ave, Blaine WA 98230
Facility Address 272 Marine Drive, Blaine WA 98230
(not P.O. Box)
Location 48.99594N, 122.75673W
(Latitude/Longitude as decimal degrees (NAD83/WGS84)
Telephone Number (360) 332-3718
E-mail address cness@cityofblaine.com
Contact Person Christina Ness
Title Lead Operator
UBI Number N/A

A.2. Applicant Information. If the applicant is different from the above, provide the following:

Applicant Name City of Blaine
Mailing Address Same as above
Telephone Number (360) 332-8820
E-mail address rwhitewolf@cityofblaine.com
Contact Person Ravyn Whitewolf
Title Public Works Director

Is the applicant the owner or operator (or both) of the treatment works? owner operator
Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.
 facility applicant

Can the facility obtain broadband Internet access for WQWebDMR
(<http://www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html>)?
 yes no

A.3. Existing Environmental Permits. Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NIPDES WA-0022641 PSD _____
UIC _____ Other _____
RCRA _____ Other _____

A.4. Collection System Information. 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.).

Name City of Blaine Population Served 5000 Type of Collection System Separate Sanitary Ownership City of Blaine
Total population served 5000

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A.5. Indian Country.

- a. Is the treatment works located in Indian Country?
 Yes No
- b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?
 Yes No

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

- a. Design flow rate 1.54 mgd
Two Years Ago Last Year This Year
- b. Annual average daily flow rate 0.611 MGD 0.635 MGD 0.841 MGD (thru 4/30/17)
- c. Maximum daily flow rate 2.209 MGD 1.972 MGD 2.17 MGD (3/29/17)

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

- Separate sanitary sewer 100 %
- Combined storm and sanitary sewer 0 %

A.8. Discharges and Other Disposal Methods.

- a. Does the treatment works discharge effluent to waters of the U.S.? Yes No

If yes, list how many of each of the following types of discharge points the treatment works uses:

- i. Discharges of treated effluent 1
- ii. Discharges of untreated or partially treated effluent 0
- iii. Combined sewer overflow points 0
- iv. Constructed emergency overflows (prior to the headworks) 0
- v. Other 0

- b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? Yes No

If yes, provide the following for each surface impoundment:

Location : _____
(Latitude/Longitude as decimal degrees (NAD83/WGS84))

Annual average daily volume discharge to surface impoundment(s) 0 _____ mgd

Is discharge continuous or intermittent?

- c. Does the treatment works land-apply treated wastewater? Yes No

If yes, provide the following for each land application site:

Location : _____
(Latitude/Longitude as decimal degrees (NAD83/WGS84))

Number of acres: _____

Annual average daily volume applied to site: _____ mgd

Is land application continuous or intermittent?

- d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? Yes No

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If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

Tanker Truck

If transport is by a party other than the applicant, provide:

Transporter Name Vac-Tank Trucking/ Western Services
Mailing Address 230Birch Bay Lynden Road, Lynden WA
Contact Person Michael Van Dalen
Title Owner
Telephone Number (360) 354-4339

For each treatment works that receives this discharge, provide the following:

Name Tioelker Enterprises
Mailing Address 9516 Markworth Road , Blaine WA 98230
Contact Person Ladd Tioelker
Title President
Telephone Number (360) 354-7415
If known, provide the NPDES permit number of the treatment works that receives this discharge WA-026468
Provide the average daily flow rate from the treatment works into the receiving facility. 0.00275 (2016) mgd

- e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8. through A.8.d above (e.g., underground percolation, well injection): Yes No
If yes, provide the following for each disposal method:
Description of method (including location and size of site(s) if applicable):
N/A

Annual daily volume disposed by this method: _____
Is disposal through this method continuous or intermittent?

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WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 once for each outfall (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. If you answered "no" to question A.8.a, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

- a. Outfall number 01
- b. Location Blaine 98230
(City or town, if applicable) (Zip Code)
Whatcom WA
(County) (State)
- 48 degrees, 58 minutes, 46 seconds N 122 degrees 48 minutes, 5 seconds W
(Latitude) Provide these as decimal degrees (NAD83/WGS84) (Longitude)
- c. Distance from shore (if applicable) 2450 ft.
- d. Depth below surface (if applicable) 37 ft.
- e. Average daily flow rate 0.635 (2016) mgd
- f. Does this outfall have either an intermittent or a periodic discharge? Yes No (go to A.9.g.)
If yes, provide the following information:
Number of times per year discharge occurs: _____
Average duration of each discharge: _____
Average flow per discharge: _____ mgd
Months in which discharge occurs: _____
g. Is outfall equipped with a diffuser? Yes No

A.10. Description of Receiving Waters.

- a. Name of receiving water Semiahmoo Bay, Strait of Georgia
- b. Name of watershed (if known) _____
United States Soil Conservation Service 14-digit watershed code (if known): _____
- c. Name of State Management/River Basin (if known): _____
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): _____
- d. Critical low flow of receiving stream (if applicable)
acute _____ cfs chronic _____ cfs
- e. Total hardness of receiving stream at critical low flow (if applicable): _____ mg/l of CaCO₃

**END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE**

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BASIC APPLICATION INFORMATION

**PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER
THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).**

All applicants with a design flow rate \geq 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

<200,000 _____ gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

Remote camera inspections of our collection system, Smoke testing, disconnecting roof drains, and basement sump pumps.

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

- The area surrounding the treatment plant, including all unit processes.
- The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- Each well where wastewater from the treatment plant is injected underground.
- Wells, springs, other surface water bodies, and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
- If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where the hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g., chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

B.4. Operation/Maintenance Performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? Yes No

If yes, list the name, address, telephone numb No

If yes, list the name, address, telephone numer, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name:

Mailing Address:

Telephone Number:

Responsibilities of Contractor:

B.5. Scheduled improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

N/A

b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

Yes No

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c. If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule		Actual Completion	
	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY
- Begin Construction	1	1	1	1
- End Construction	1	1	1	1
- Begin Discharge	1	1	1	1
- Attain Operational Level	1	1	1	1

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? Yes No

Describe briefly: _____

B.6. EFFLUENT TESTING DATA (GREATER THAN OR EQUAL TO 0.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods (See attachment A). In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 1

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NON CONVENTIONAL COMPOUNDS							
AMMONIA (as N)	0.98	Mg/L	0.288	Mg/L	8	350.1	.05 mg/L
CHLORINE (TOTAL RESIDUAL, TRC)	0.21	Mg/L	0.045	Mg/L	366	SM-4500-Cl-D2000	0.01 mg/L
DISSOLVED OXYGEN	11.0	Mg/L	9.19	Mg/L	366	SM 4500 Og	0.1 mg/L
TOTAL KJELDAHL NITROGEN (TKN)	5.1	Mg/L	2.787	Mg/L	8	351.2	0.1 mg/L
NITRATE PLUS NITRITE NITROGEN	20.05	Mg/L	14.375	Mg/L	8	Calculation	
OIL and GREASE	4	Mg/L	2.242	Mg/L	6	1664A	1.4 mg/L
PHOSPHORUS (Total)	5.02	Mg/L	3.52	Mg/L	7	365.1	0.2 mg/L
TOTAL DISSOLVED SOLIDS (TDS)	440	Mg/L	412	Mg/L	5	SM2540C	10
OTHER							

**END OF PART B.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE**

FACILITY NAME AND PERMIT NUMBER: **Lighthouse Point
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BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

- Basic Application Information packet
- Supplemental Application Information packet:
 - Part D (Expanded Effluent Testing Data)
 - Part E (Toxicity Testing: Biomonitoring Data)
 - Part F (Industrial User Discharges and RCRA/CERCLA Wastes)
 - Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE 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 system 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 system or those persons directly responsible for gathering the information, the information 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 fine and imprisonment for knowing violations.

Permittee

Name and Title of Responsible Official: Rayvn Whiteyolf, PE Public Works Director
Signature: 
Telephone number: (360) 332-8820
E-mail address: rwhiteyolf@cityofblaine.com
Date signed: 5/25/17
Co-Permittee (if applicable): _____
Name and official title: _____
Signature: _____
Telephone number: () _____
E-mail address: _____
Date signed: _____

Upon request of the permitting authority, you must submit any other information necessary to assure wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

SEND COMPLETED FORMS TO¹:

¹If unknown, contact an Ecology regional wastewater permit coordinator at: http://www.ecy.wa.gov/programs/wq/permits/permit_coord.html

FACILITY NAME AND PERMIT NUMBER:

**Lighthouse Point Water Reclamation Facility, City of
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SUPPLEMENTAL APPLICATION INFORMATION

PART D. EXPANDED EFFLUENT TESTING DATA

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old. The applicant should also review Attachment A.

Outfall number: 01 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE				ANALYTICAL METHOD	ML/MDL	
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units			Number of Samples
ANTIMONY	0.003	Mg/L	0.016	Lbs/D	0.003	Mg/L	0.016	Lbs/D	4	3113B	0.003
ARSENIC	0.005	Mg/L	0.026	Lbs/D	0.0026	Mg/L	0.014	Lbs/D	4	3113B	0.001
BERYLLIUM	0.0003	Mg/L	0.016	Lbs/D	0.0003	Mg/L	0.016	Lbs/D	4	3113B	0.0003
CADMIUM	0.0005	Mg/L	0.003	Lbs/D	0.0032	Mg/L	0.017	Lbs/D	4	3113B	0.0005
CHROMIUM	0.007	Mg/L	0.037	Lbs/D	0.007	Mg/L	0.037	Lbs/D	4	3113B	0.007
COPPER	0.047	Mg/L	0.024	Lbs/D	0.0142	Mg/L	0.075	Lbs/D	4	3113B	0.002
LEAD	0.0005	Mg/L	0.003	Lbs/D	0.0005	Mg/L	0.003	Lbs/D	4	3113B	0.0005
MERCURY	.000682	ug/L	0.004	Lbs/D	.00053	ug/L	0.003	Lbs/D	4	EPA 1631e	0.0002
NICKEL	0.005	Mg/L	0.026	Lbs/D	0.005	Mg/L	0.026	Lbs/D	4	3113B	0.005
SELENIUM	0.002	Mg/L	0.011	Lbs/D	0.002	Mg/L	0.011	Lbs/D	4	3113B	0.002
SILVER	0.002	Mg/L	0.011	Lbs/D	0.002	Mg/L	0.011	Lbs/D	4	3113B	0.002
THALLIUM	0.001	Mg/L	0.005	Lbs/D	0.001	Mg/L	0.005	Lbs/D	4	3113B	0.001
ZINC	0.21	Mg/L	1.11	Lbs/D	0.1758	Mg/L	0.93	Lbs/D	4	3113B	0.015
CYANIDE	N/D	Mg/L		Lbs/D	N/D	Mg/L		Lbs/D	4	EPA 335.4	0.01
TOTAL PHENOLIC COMPOUNDS	N/D	Mg/L		Lbs/D	N/D	Mg/L		Lbs/D	4	EPA 420-1	50.0

HARDNESS (AS CaCO3)	440	Mg/L	2330	Lbs/D	192.5	Mg/L	1019	Lbs/D	4	2340C	1.0
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											

FACILITY NAME AND PERMIT NUMBER: **Lighthouse Point Water**

Reclamation Facility, City of Blaine, Permit # WA0022641

Outfall number: **01**

(Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE			AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Conc.	Units	Mass		
ACROLEIN	N/D	ug/L		N/D	ug/L		EPA 624	5.00
ACRYLONITRILE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
BENZENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
BROMOFORM	N/D	ug/L		N/D	ug/L		EPA 624	1.00
CARBON TETRACHLORIDE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
CHLOROBENZENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
CHLOROBIBROMO-METHANE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
CHLOROETHANE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
2-CHLORO-ETHYL VINYL ETHER	N/D	ug/L		N/D	ug/L		EPA 624	1.00
CHLOROFORM	N/D	ug/L		N/D	ug/L		EPA 624	1.00
DICHLOROBROMO-METHANE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
1,1-DICHLOROETHANE	N/D	ug/L		N/D	ug/L		EPA 624	10.00
1,2-DICHLOROETHANE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
1,2-DICHLOROETHYLENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
TRANS-1,2-DICHLOROETHYLENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
1,1-DICHLOROETHYLENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
1,2-DICHLOROPROPANE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
1,3-DICHLOROPROPYLENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
ETHYLBENZENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
METHYL BROMIDE	N/D	ug/L		N/D	ug/L		EPA 624	5.00
METHYL CHLORIDE	0.97	ug/L	0.005	0.194	ug/L	0.001	EPA 624	1.00
METHYLENE CHLORIDE	N/D	ug/L		N/D	ug/L		EPA 624	5.00
1,1,2,2-TETRACHLOROETHANE	N/D	ug/L		N/D	ug/L		EPA 624	1.90
TETRACHLOROETHYLENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
TOLUENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00

FACILITY NAME AND PERMIT NUMBER Lighthouse Point Water
Reclamation Facility, City of Blaine, Permit # WA0022641

Outfall number: 01 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE			AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Conc.	Units	Mass		
1,1,1-TRICHLOROETHANE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
1,1,2-TRICHLOROETHANE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
TRICH LORETHYLENE	N/D	ug/L		N/D	ug/L		EPA 624	1.00
VINYL CHLORIDE	N/D	ug/L		N/D	ug/L		EPA 624	1.00

Use this space (or a separate sheet) to provide information on other metals requested by the permit writer

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ACID-EXTRACTABLE COMPOUNDS

P-CHLORO-M-CRESOL	N/D	ug/L		N/D	ug/L		EPA 625	0.05
2-CHLOROPHENOL	N/D	ug/L		N/D	ug/L		EPA 625	10.00
2,4-DICHLOROPHENOL	N/D	ug/L		N/D	ug/L		EPA 625	0.50
2,4-DIMETHYLPHENOL	N/D	ug/L		N/D	ug/L		EPA 625	0.50
4,6-DINITRO-O-CRESOL	N/D	ug/L		N/D	ug/L		EPA 625	1.0
2,4-DINITROPHENOL	N/D	ug/L		N/D	ug/L		EPA 625	1.0
2-NITROPHENOL	N/D	ug/L		N/D	ug/L		EPA 625	0.5
4-NITROPHENOL	N/D	ug/L		N/D	ug/L		EPA 625	0.5
PENTA CHLOROPHENOL	N/D	ug/L		N/D	ug/L		EPA 625	0.5
PHENOL	N/D	ug/L		N/D	ug/L		EPA 625	2.00
2,4,6-TRICHLORO PHENOL	N/D	ug/L		N/D	ug/L		EPA 625	20.0

Use this space (or a separate sheet) to provide information on other metals requested by the permit writer

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BASE-NEUTRAL COMPOUNDS

ACENAPHTHENE	N/D	ug/L		N/D	ug/L		EPA 625	0.20
ACENAPHTYLENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
ANTHRACENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
BENZIDINE	N/D	ug/L		N/D	ug/L		EPA 625	12.0
BENZO(A) ANTHRACENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30

FACILITY NAME AND PERMIT NUMBER Lighthouse Point Water
Reclamation Facility, City of Blaine, Permit # WA0022641

Outfall number: **01**

(Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE			AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL		
	Conc.	Units	Mass	Conc.	Units	Mass			Number of Samples	
BENZO(J)FLUORANT HENE	N/D	ug/L		N/D	ug/L		EPA 8270D	0.50		
BENZO(r,s,t)PENTAP HENE	N/D	ug/L		N/D	ug/L		EPA 8270D	0.50		
BENZO(A)PYRENE	N/D	ug/L		N/D	ug/L		EPA 625	0.50		
3,4 BENZO-FLUORANTHENE	N/D	ug/L		N/D	ug/L		EPA 625	0.80		
BENZO(GH)PERYLENE	N/D	ug/L		N/D	ug/L		EPA 625	0.50		
BENZO(K)FLOURANT HENE	N/D	ug/L		N/D	ug/L		EPA 625	0.80		
BIS (2-CHLORO ETHOXY) METHANE	N/D	ug/L		N/D	ug/L		EPA 625	5.30		
BIS (2-CHLOROETHYL)-ETHER	N/D	ug/L		N/D	ug/L		EPA 625	0.30		
BIS (2-CHLOROISO-PROPYL) ETHER	N/D	ug/L		N/D	ug/L		EPA 625	0.30		
BIS (2-ETHYLHEXYL) PHTHALATE	8.1	ug/L	0.043	Lbs/D	ug/L	0.016	Lbs/D	5	EPA 625	0.10
4-BROMOPHENYL PHENYL ETHER	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.20
BUTYL BENZYL PHTHALATE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.05
2-CHLORO NAPHTHALENE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.30
4-CHLORPHENYL PHENYL ETHER	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.30
CHRYSENE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.30
DIBENZO(a,j)ACRIDINE	N/D	ug/L		N/D	ug/L		EPA 8270D	3	EPA 8270D	2.50
DIBENZO(a,h)ACRIDINE	N/D	ug/L		N/D	ug/L		EPA 8270D	3	EPA 8270D	2.50
DIBENZO(a,e)PYRENE	N/D	ug/L		N/D	ug/L		EPA 8270D	3	EPA 8270D	2.50
DIBENZO(a,h)PYRENE	N/D	ug/L		N/D	ug/L		EPA 8270D	3	EPA 8270D	2.50
DI-N-BUTYL PHTHALATE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.50
DI-N-OCTYL PHTHALATE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.30
DIBENZO(A,H) ANTHRACENE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	0.80
1,2-DICHLORO BENZENE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	1.90
1,3-DICHLORO BENZENE	N/D	ug/L		N/D	ug/L		EPA 625	5	EPA 625	1.90

FACILITY NAME AND PERMIT NUMBER: Lighthouse Point Water

Reclamation Facility, City of Blaine, Permit # WA0022641

Outfall number: 01

(Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE			AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Conc.	Units	Mass		
1,4-DICHLORO BENZENE	N/D	ug/L		N/D	ug/L		EPA 625	4.40
3,3-DICHLORO BENZIDINE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
DIETHYL PHTHALATE	N/D	ug/L		N/D	ug/L		EPA 625	1.90
DIMETHYL PHTHALATE	N/D	ug/L		N/D	ug/L		EPA 625	1.60
2,4-DINITROTOLUENE	N/D	ug/L		N/D	ug/L		EPA 625	0.20
2,6-DINITROTOLUENE	N/D	ug/L		N/D	ug/L		EPA 625	0.20
1,2-DIPHENYLHYDRAZINE	N/D	ug/L		N/D	ug/L		EPA 625	5.00
FLUORANTHENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
FLUORENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
HEXACHLORO BENZENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
HEXACHLOROBUTADIENE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
HEXACHLOROCYCLOPENTADIENE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
HEXA CHLOROETHANE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
INDENO(1,2,3-CD) PYRENE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
ISOPHORONE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
3-METHYL CHOLANTHRENE	N/D	ug/L		N/D	ug/L		EPA 8270D	2.00
NAPHTHALENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
NITROBENZENE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
N-NITROSODI-N-PROPYLAMINE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
N-NITROSODI-METHYLAMINE	N/D	ug/L		N/D	ug/L		EPA 625	2.00
N-NITROSODI-PHENYLAMINE	N/D	ug/L		N/D	ug/L		EPA 625	0.50
PERYLENE	N/D	ug/L		N/D	ug/L		EPA 8270D	1.90
PHENANTHRENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
PYRENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30
1,2,4-TRICHLOROBENZENE	N/D	ug/L		N/D	ug/L		EPA 625	0.30

Use this space (or a separate sheet) to provide information on other metals requested by the permit writer

FACILITY NAME AND PERMIT NUMBER Lighthouse Point Water

Reclamation Facility, City of Blaine, Permit # WA0022641

Outfall number:

01

(Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE			AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Conc.	Units	Mass		

Number of Samples

**END OF PART D.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

FACILITY NAME AND PERMIT NUMBER:

Lighthouse Point Water Reclamation Facility, City of
Blaine, Permit # WA0022641

SUPPLEMENTAL APPLICATION INFORMATION

PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.

- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

- chronic acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	Test number: <u>1</u>	Test number: <u>2</u>	Test number:
a. Test information.			
Test Species & test method number			
Age at initiation of test			
Outfall number			
Dates sample collected			
Date test started			
Duration			
b. Give toxicity test methods followed.			
Manual title			
Edition number and year of publication			
Page number(s)			
c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite			
Grab			
d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each.			
Before disinfection			
After disinfection			
After dechlorination			

**FACILITY NAME AND PERMIT NUMBER: Lighthouse Point
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Test number: 1

Test number: 2

Test number:

e. Describe the point in the treatment process at which the sample was collected.

Sample was collected:			
-----------------------	--	--	--

f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both

Chronic toxicity			
------------------	--	--	--

Acute toxicity			
----------------	--	--	--

g. Provide the type of test performed.

Static			
--------	--	--	--

Static-renewal			
----------------	--	--	--

Flow-through			
--------------	--	--	--

h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.

Laboratory water			
------------------	--	--	--

Receiving water			
-----------------	--	--	--

i. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.

Fresh water			
-------------	--	--	--

Salt water			
------------	--	--	--

j. Give the percentage effluent used for all concentrations in the test series.

k. Parameters measured during the test. (State whether parameter meets test method specifications)

pH			
Salinity			
Temperature			
Ammonia			
Dissolved oxygen			

l. Test Results.

Acute:			
Percent survival in 100% effluent	%	%	%
LC ₅₀			
95% C.I.	%	%	%
Control percent survival	%	%	%
Other (describe)			

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Chronic:

NOEC	%	%	%
IC ₂₅	%	%	%
Control percent survival	%	%	%
Other (describe)			

m. Quality Control/Quality Assurance.			
Is reference toxicant data available?			
Was reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?	/ /	/ /	/ /
Other (describe)			

E.3. Toxicity Reduction Evaluation. Is the treatment works involved in a Toxicity Reduction Evaluation?

- Yes No

If yes, describe: _____

E.4. Summary of Submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: 07 / 30 / 2016 (MM/DD/YYYY)

Summary of results: (see instructions)

Survival Percentage by test species: C. dubia=100%, P. Promelas=100%, A. bahia=100%, A. affinis=100%

Summary of Submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: 01 / 30 / 2017 (MM/DD/YYYY)

Summary of results: (see instructions)

Survival Percentage by test species: C. dubia=100%, P. Promelas=100%, A. bahia=100%, A. affinis=100%

**END OF PART E.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.**

SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete part F.

GENERAL INFORMATION:

F.1. Pretreatment Program. Does the treatment works have, or is subject of, an approved pretreatment program?
 Yes No

F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.

- a. Number of non-categorical SIUs. 0
- b. Number of CIUs. 0

SIGNIFICANT INDUSTRIAL USER INFORMATION::

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: _____
Mailing Address: _____

F.4. Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.
Principal product(s): _____
Raw material(s): _____

F.6. Flow Rate.
a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.
_____ gpd (_____ continuous or _____ intermittent)
b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.
_____ gpd (_____ continuous or _____ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:
a. Local limits Yes No
b. Categorical pretreatment standards Yes No
If subject to categorical pretreatment standards, which category and subcategory?

F.8. **Problems at the Treatment Works Attributed to Waste Discharge by the SIU.** Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?
 Yes No If yes, describe each episode.

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. **RCRA Waste.** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe?
 Yes No (go to F.12)

F.10. **Waste Transport.** Method by which RCRA waste is received (check all that apply):
 Truck Rail Dedicated Pipe

F.11. **Waste Description.** Give EPA hazardous waste number and amount (volume or mass, specify units).
EPA Hazardous Waste Number Amount Units

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. **Remediation Waste.** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?
 Yes (complete F.13 through F.15) No

F.13. **Waste Origin.** Describe the site and type of facility at which the CERCLA/RCRA/ or other remedial waste originates (or is expected to originate in the next five years).

F.14. **Pollutants.** List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary.)

F.15. **Waste Treatment.**
a. Is this waste treated (or will be treated) prior to entering the treatment works?
 Yes No
If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?
 Continuous Intermittent If intermittent, describe discharge schedule.

END OF PART F.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER: **Lighthouse Point**
Water Reclamation Facility, City of Blaine. Permit #
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SUPPLEMENTAL APPLICATION INFORMATION

PART G. COMBINED SEWER SYSTEMS

If the treatment works has a combined sewer system, complete Part G.

G.1. System Map. Provide a map indicating the following: (may be included with Basic Application Information)

- a. All CSO discharge points.
- b. Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).
- c. Waters that support threatened and endangered species potentially affected by CSOs.

G.2. System Diagram. Provide a diagram, either in the map provided in G.1 or on a separate drawing, of the combined sewer collection system that includes the following information.

- a. Location of major sewer trunk lines, both combined and separate sanitary.
- b. Locations of points where separate sanitary sewers feed into the combined sewer system.
- c. Locations of in-line and off-line storage structures.
- d. Locations of flow-regulating devices.
- e. Locations of pump stations.

CSO OUTFALLS:

Complete questions G.3 through G.6 once for each CSO discharge point.

G.3. Description of Outfall.

- a. Outfall number _____
- b. Location _____ (city or town, if applicable) _____ (Zip Code)
- _____ (County) _____ (State)
- _____ (Latitude) _____ (Longitude)
- c. Distance from shore (if applicable) _____ ft.
- d. Depth below surface (if applicable) _____ ft.
- e. Which of the following were monitored during the last year for this CSO?
 Rainfall CSO pollutant concentrations CSO frequency
 CSO flow volume Receiving water quality
- f. How many storm events were monitored during the last year? _____

G.4. CSO Events.

- a. Give the number of CSO events in the last year.
_____ events (actual or approx.)
- b. Give the average duration per CSO event.
_____ hours (actual or approx.)

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- c. Give the average volume per CSO event.
_____ million gallons (actual or approx.)
- d. Give the minimum rainfall that caused a CSO event in the last year
_____ Inches of rainfall

G.5. Description of Receiving Waters.

- a. Name of receiving water: _____
- b. Name of watershed/river/stream system: _____
United State Soil Conservation Service 14-digit watershed code (if known): _____
- c. Name of State Management/River Basin: _____
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): _____

G.6. CSO Operations.

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

**END OF PART G.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.**

Additional information, if provided, will appear on the following pages.

ATTACHMENT A EFFLUENT CHARACTERIZATION FOR PERMIT APPLICATION

This attachment is used in conjunction with Section V, Parts A, B, and C of EPA Application Form 2C, and Parts A.12, B.6, and D of EPA application Form 2A. It specifies effluent characterization requirements of the Department of Ecology and analytical procedure and detection and quantitation levels for some parameters. For new permit applications, analyze your wastewater for all parameters required by the application and any additional pollutants or groups of pollutants with an X in the left column. Existing Permittees should compile the data from the last year's data for parameters routinely measured. If you are a primary industry category with effluent guidelines you may have some mandatory testing requirements (see Table 2C-2 Form 2C). If you are a municipal POTW, EPA has identified mandatory testing requirements, which depend upon the design flow (see EPA Form 2A).

Ecology added this attachment to the application in order to reduce the number of analytical "non-detects" in required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost. The applicant must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for application required monitoring unless:

- Another permit condition specifies other methods, detection levels, or quantitation levels.
- The method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136.

If the applicant uses an alternative method, as allowed above, it must report the test method, DL, and QL in the application. If the applicant is unable to obtain the required DL and QL in its effluent due to matrix effects, the applicant must submit a matrix-specific detection limit (MDL) and a quantitation limit (QL) to Ecology with appropriate laboratory documentation.

For m 2C Ref. #	Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified	10	
					Conventional (Part A)	Nonconventional (Part B)
a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L		
	Soluble Biochemical Oxygen Demand	SM5210-B ³		2 mg/L		
b.	Chemical Oxygen Demand	SM5220-D		10 mg/L		
c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L		
d.	Total Suspended Solids	SM2540-D		5 mg/L		
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20		
f.	Flow	Calibrated device				
	Dissolved oxygen	SM4500-OC/OG		0.2 mg/L		
	Temperature (max. 7-day avg.)	Analog recorder or Use micro-recording devices known as thermistors		0.2° C		
i.	pH	SM4500-H ⁺ B	N/A	N/A		
	Total Alkalinity	SM2320-B		5 mg/L as CaCO3		
b.	Chlorine, Total Residual	SM4500 Cl G		50.0		
c.	Color	SM2120 B/C/E		10 color units		
d.	Fecal Coliform	SM 9221E, 9222	N/A	Specified in method - sample aliquot dependent		
e.	Fluoride (16984-48-8)	SM4500-F E	25	100		
f.	Nitrate + Nitrite Nitrogen (as N)	SM4500-NO3-		100		

For m 2C Ref. #	Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
10	Conventional (Part A)			
a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L
	Soluble Biochemical Oxygen Demand	SM5210-B ³		2 mg/L
b.	Chemical Oxygen Demand	SM5220-D		10 mg/L
c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L
d.	Total Suspended Solids	SM2540-D		5 mg/L
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20
		E/F/H		
g.	Nitrogen, Total Kjeldahl (as N)	SM4500-N _{org} /B/C and SM4500NH ₃ -B/C/D/E/F/G/H		300
i.	Soluble Reactive Phosphorus (as P)	SM4500-P E/F/G	3	10
	Phosphorus, Total (as P)	SM 4500 PB followed by SM4500-PE/PF	3	10
h.	Oil and Grease (HEM) (Hexane Extractable Material)	1664 A or B	1,400	5,000
	Salinity	SM2520-B		3 practical salinity units or scale (PSU or PSS)
k.	Settleable Solids	SM2540 -F		500 (or 1.0 mL/L)
	Sulfate (as mg/L SO ₄)	SM4110-B		0.2 mg/L
l.	Sulfide (as mg/L S)	SM4500-S ² F/D/E/G		0.2 mg/L
m.	Sulfite (as mg/L SO ₃)	SM4500-SO3B		2 mg/L
	Total Coliform	SM 9221B, 9222B, 9223B	N/A	Specified in method - sample aliquot dependent
	Total dissolved solids	SM2540 C		20 mg/L
	Total Hardness	SM2340B		200 as CaCO3
o.	Aluminum, Total (7429-90-5)	200.8	2.0	10
p.	Barium Total (7440-39-3)	200.8	0.5	2.0
	BTEX (benzene +toluene + ethylbenzene + m,o,p xylenes)	EPA SW 846 8021/8260	1	2
q.	Boron Total (7440-42-8)	200.8	2.0	10.0
r.	Cobalt, Total (7440-48-4)	200.8	0.05	0.25
s.	Iron, Total (7439-89-6)	200.7	12.5	50
t.	Magnesium, Total (7439-95-4)	200.7	10	50
u.	Molybdenum, Total (7439-98-7)	200.8	0.1	0.5
v.	Manganese, Total (7439-96-5)	200.8	0.1	0.5
	NWTPH Dx ⁴	Ecology NWTPH DX	250	250
	NWTPH Gx ⁵	Ecology NWTPH Gx	250	250
w.	Tin, Total (7440-31-5)	200.8	0.3	1.5
x.	Titanium, Total (7440-32-6)	200.8	0.5	2.5
10	Metals, Cyanide and Total Phenols (Part C)			
1M.	Antimony, Total (7440-36-0)	200.8	0.3	1.0
2M.	Arsenic, Total (7440-38-2)	200.8	0.1	0.5

For m 2C Ref. #	Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
10	Conventional (Part A)			
a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L
	Soluble Biochemical Oxygen Demand	SM5210-B ³		2 mg/L
b.	Chemical Oxygen Demand	SM5220-D		10 mg/L
c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L
d.	Total Suspended Solids	SM2540-D		5 mg/L
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20
3M.	Beryllium, Total (7440-41-7)	200.8	0.1	0.5
4M.	Cadmium, Total (7440-43-9)	200.8	0.05	0.25
	Chromium (hex) dissolved (18540-29-9)	SM3500-Cr EC	0.3	1.2
5M.	Chromium, Total (7440-47-3)	200.8	0.2	1.0
6M.	Copper, Total (7440-50-8)	200.8	0.4	2.0
7M.	Lead, Total (7439-92-1)	200.8	0.1	0.5
8M.	Mercury, Total (7439-97-6)	1631E	0.0002	0.0005
9M.	Nickel, Total (7440-02-0)	200.8	0.1	0.5
10	Selenium, Total (7782-49-2)	200.8	1.0	1.0
M.				
11	Silver, Total (7440-22-4)	200.8	0.04	0.2
M.				
12	Thallium, Total (7440-28-0)	200.8	0.09	0.36
M.				
13	Zinc, Total (7440-66-6)	200.8	0.5	2.5
M.				
14	Cyanide, Total (57-12-5)	335.4	5	10
M.				
	Cyanide, Weak Acid Dissociable Cyanide, Free Amenable to Chlorination (Available Cyanide)	SM4500-CN I SM4500-CN G	5 5	10 10
15	Phenols, Total	EPA 420.1		50
M.				
10	Acid Compounds			
1A.	2-Chlorophenol (95-57-8)	625	1.0	2.0
2A.	2,4-Dichlorophenol (120-83-2)	625	0.5	1.0
3A.	2,4-Dimethylphenol (105-67-9)	625	0.5	1.0
4A.	4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6-dinitrophenol)	625/1625B	1.0	2.0
5A.	2,4 dinitrophenol (51-28-5)	625	1.0	2.0
6A.	2-Nitrophenol (88-75-5)	625	0.5	1.0
7A.	4-nitrophenol (100-02-7)	625	0.5	1.0
8A.	Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	625	1.0	2.0
9A.	Pentachlorophenol (87-86-5)	625	0.5	1.0
10A	Phenol (108-95-2)	625	2.0	4.0
11A	2,4,6-Trichlorophenol (88-06-2)	625	2.0	4.0
10	Volatile Compounds			

For m 2C Ref. #	Pollutant & CAS No. (if available)	Conventional (Part A)			
		Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified	
10					
a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L	
	Soluble Biochemical Oxygen Demand	SM5210-B ³		2 mg/L	
b.	Chemical Oxygen Demand	SM5220-D		10 mg/L	
c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L	
d.	Total Suspended Solids	SM2540-D		5 mg/L	
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20	
1V.	Acrolein (107-02-8)	624	5	10	
2V.	Acrylonitrile (107-13-1)	624	1.0	2.0	
3V.	Benzene (71-43-2)	624	1.0	2.0	
5V.	Bromoform (75-25-2)	624	1.0	2.0	
6V.	Carbon tetrachloride (56-23-5)	624/601 or SM6230B	1.0	2.0	
7V.	Chlorobenzene (108-90-7)	624	1.0	2.0	
9V.	Chloroethane (75-00-3)	624/601	1.0	2.0	
10V	2-Chloroethyvinyl Ether (110-75-8)	624	1.0	2.0	
11V	Chloroform (67-66-3)	624 or SM6210B	1.0	2.0	
8V.	Dibromochloromethane (124-48-1)	624	1.0	2.0	
20B	1,2-Dichlorobenzene (95-50-1)	624	1.9	7.6	
21B	1,3-Dichlorobenzene (541-73-1)	624	1.9	7.6	
22B	1,4-Dichlorobenzene (106-46-7)	624	4.4	17.6	
12V	Dichlorobromomethane (75-27-4)	624	1.0	2.0	
14V	1,1-Dichloroethane (75-34-3)	624	1.0	2.0	
15V	1,2-Dichloroethane (107-06-2)	624	1.0	2.0	
16V	1,1-Dichloroethylene (75-35-4)	624	1.0	2.0	
17V	1,2-Dichloropropane (78-87-5)	624	1.0	2.0	
18V	1,3-dichloropropene (mixed isomers) (1,2- dichloropropylene) (542-75-6) ⁶	624	1.0	2.0	
19V	Ethylbenzene (100-41-4)	624	1.0	2.0	
20V	Methyl bromide (74-83-9) (Bromomethane)	624/601	5.0	10.0	
21V	Methyl chloride (74-87-3) (Chloromethane)	624	1.0	2.0	
22V	Methylene chloride (75-09-2)	624	5.0	10.0	

For m 2C Ref. #	Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
10	Conventional (Part A)			
a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L
	Soluble Biochemical Oxygen Demand	SM5210-B ³		2 mg/L
b.	Chemical Oxygen Demand	SM5220-D		10 mg/L
c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L
d.	Total Suspended Solids	SM2540-D		5 mg/L
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20
23V	1,1,2,2-Tetrachloroethane (79-34-5)	624	1.9	2.0
24V	Tetrachloroethylene (127-18-4)	624	1.0	2.0
25V	Toluene (108-88-3)	624	1.0	2.0
26V	1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	624	1.0	2.0
27V	1,1,1-Trichloroethane (71-55-6)	624	1.0	2.0
28V	1,1,2-Trichloroethane (79-00-5)	624	1.0	2.0
29V	Trichloroethylene (79-01-6)	624	1.0	2.0
31V	Vinyl chloride (75-01-4)	624/SM6200B	1.0	2.0
10	Base/Neutral Compounds (compounds in bold are Ecology PBTs)			
1B.	Acenaphthene (83-32-9)	625	0.2	0.4
2B.	Acenaphthylene (208-96-8)	625	0.3	0.6
3B.	Anthracene (120-12-7)	625	0.3	0.6
4B.	Benzidine (92-87-5)	625	12	24
15B	Benzyl butyl phthalate (85-68-7)	625	0.3	0.6
5B.	Benzo(a)anthracene (56-55-3)	625	0.3	0.6
7B.	Benzo(b)fluoranthene (3,4-benzofluoranthene) (205-99-2) ⁷	610/625	0.8	1.6
9B.	Benzo(j)fluoranthene (205-82-3)⁷	625	0.5	1.0
	Benzo(k)fluoranthene (1,1,12-benzofluoranthene) (207-08-9) ⁷	610/625	0.8	1.6
	Benzo(r,s,t)pentaphene (189-55-9)	625	0.5	1.0
6B.	Benzo(a)pyrene (50-32-8)	610/625	0.5	1.0
8B.	Benzo(ghi)Perylene (191-24-2)	610/625	0.5	1.0
10B	Bis(2-chloroethoxy)methane (111-91-1)	625	5.3	21.2
11B	Bis(2-chloroethy)ether (111-44-4)	611/625	0.3	1.0
12B	Bis(2-chloroisopropyl)ether (39638-32-9)	625	0.3	0.6

For m 2C Ref. #	Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified	10
					Conventional (Part A)
a.	Biochemical Oxygen Demand	SM5210-B			
	Soluble Biochemical Oxygen Demand	SM5210-B ³			
b.	Chemical Oxygen Demand	SM5220-D			
c.	Total Organic Carbon	SM5310-B/C/D			
d.	Total Suspended Solids	SM2540-D			
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H			
13B	Bis(2-ethylhexyl)phthalate (117-81-7)	625	0.1	0.5	
14B	4-Bromophenyl phenyl ether (101-55-3)	625	0.2	0.4	
16B	2-Chloronaphthalene (91-58-7)	625	0.3	0.6	
17B	4-Chlorophenyl phenyl ether (7005-72-3)	625	0.3	0.5	
18B	Chrysene (218-01-9)	610/625	0.3	0.6	
	Dibenzo (a,h)acridine (226-36-8)	610M/625M	2.5	10.0	
	Dibenzo (a,j)acridine (224-42-0)	610M/625M	2.5	10.0	
19B	Dibenzo(a-h)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	625	0.8	1.6	
	Dibenzo(a,e)pyrene (192-65-4)	610M/625M	2.5	10.0	
	Dibenzo(a,h)pyrene (189-64-0)	625M	2.5	10.0	
23B	3,3-Dichlorobenzidine (91-94-1)	605/625	0.5	1.0	
24B	Diethyl phthalate (84-66-2)	625	1.9	7.6	
25B	Dimethyl phthalate (131-11-3)	625	1.6	6.4	
26B	Di-n-butyl phthalate (84-74-2)	625	0.5	1.0	
27B	2,4-dinitrotoluene (121-14-2)	609/625	0.2	0.4	
28B	2,6-dinitrotoluene (606-20-2)	609/625	0.2	0.4	
29B	Di-n-octyl phthalate (117-84-0)	625	0.3	0.6	
30B	1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	1625B	5.0	20	
31B	Fluoranthene (206-44-0)	625	0.3	0.6	
32B	Fluorene (86-73-7)	625	0.3	0.6	
33B	Hexachlorobenzene (118-74-1)	612/625	0.3	0.6	
34B	Hexachlorobutadiene (87-68-3)	625	0.5	1.0	

For m 2C Ref. #	Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
10	Conventional (Part A)			
a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L
	Soluble Biochemical Oxygen Demand	SM5210-B ³		2 mg/L
b.	Chemical Oxygen Demand	SM5220-D		10 mg/L
c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L
d.	Total Suspended Solids	SM2540-D		5 mg/L
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20
35B	Hexachlorocyclopentadiene (77-47-4)	1625B/625	0.5	1.0
36B	Hexachloroethane (67-72-1)	625	0.5	1.0
37B	Indeno(1,2,3-cd)Pyrene (193-39-5)	610/625	0.5	1.0
38B	Isophorone (78-59-1)	625	0.5	1.0
39B	3-Methyl cholanthrene (56-49-5) Naphthalene (91-20-3)	625	2.0 0.3	8.0 0.6
40B	Nitrobenzene (98-95-3)	625	0.5	1.0
41B	N-Nitrosodimethylamine (62-75-9)	607/625	2.0	4.0
42B	N-Nitrosodi-n-propylamine (621-64-7)	607/625	0.5	1.0
43B	N-Nitrosodiphenylamine (86-30-6)	625	0.5	1.0
44B	Perylene (198-55-0) Phenanthrene (85-01-8)	625	1.9 0.3	7.6 0.6
45B	Pyrene (129-00-0)	625	0.3	0.6
46B	1,2,4-Trichlorobenzene (120-82-1)	625	0.3	0.6
10	Dioxin			
	2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16) (2,3,7,8 TCDD)	1613B	1.3 pg/L	5 pg/L
10	Pesticides/PCBs			
1P.	Aldrin (309-00-2)	608	0.025	0.05
2P.	alpha-BHC (319-84-6)	608	0.025	0.05
3P.	beta-BHC (319-85-7)	608	0.025	0.05
4P.	gamma-BHC (58-89-9)	608	0.025	0.05
5P.	delta-BHC (319-86-8)	608	0.025	0.05
6P.	Chlordane (57-74-9) ⁸	608	0.025	0.05
7P.	4,4-DDT (50-29-3)	608	0.025	0.05
8P.	4,4'-DDE (72-55-9)	608	0.025	0.0510
9P.	4,4' DDD (72-54-8)	608	0.025	0.05

For m 2C Ref. #	Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
10	Conventional (Part A)			
a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L
	Soluble Biochemical Oxygen Demand	SM5210-B ³		2 mg/L
b.	Chemical Oxygen Demand	SM5220-D		10 mg/L
c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L
d.	Total Suspended Solids	SM2540-D		5 mg/L
e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20
10P	Dieldrin (60-57-1)	608	0.025	0.05
11P	alpha-Endosulfan (959-98-8)	608	0.025	0.05
12P	beta-Endosulfan (33213-65-9)	608	0.025	0.05
13P	Endosulfan Sulfate (1031-07-8)	608	0.025	0.05
14P	Endrin (72-20-8)	608	0.025	0.05
15P	Endrin Aldehyde (7421-93-4)	608	0.025	0.05
16P	Heptachlor (76-44-8)	608	0.025	0.05
17P	Heptachlor Epoxide (1024-57-3)	608	0.025	0.05
18P	PCB-1242 (53469-21-9) ⁹	608	0.25	0.5
19P	PCB-1254 (11097-69-1)	608	0.25	0.5
20P	PCB-1221 (11104-28-2)	608	0.25	0.5
21P	PCB-1232 (11141-16-5)	608	0.25	0.5
22P	PCB-1248 (12672-29-6)	608	0.25	0.5
23P	PCB-1260 (11096-82-5)	608	0.13	0.5
24P	PCB-1016 (12674-11-2) ⁹	608	0.13	0.5
25P	Toxaphene (8001-35-2)	608	0.24	0.5

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.

2. Quantitation Level (QL) also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-

specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10ⁿ, where n is an integer. (64 FR 30417). ALSO GIVEN AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

3. Soluble Biochemical Oxygen Demand method note: First, filter the sample through a Millipore Nylon filter (or equivalent) - pore size of 0.45-0.50 um (prep all filters by filtering 250 ml of laboratory grade deionized water through the filter and discard). Then, analyze sample as per method 5210-B.
4. NWTPH D_x Northwest Total Petroleum Hydrocarbons Diesel Extended Range – see <http://www.ecy.wa.gov/biblio/97602.html>
5. NWTPH G_x - Northwest Total Petroleum Hydrocarbons Gasoline Extended Range – see <http://www.ecy.wa.gov/biblio/97602.html>
6. 1, 3-dichloropropylene (mixed isomers) You may report this parameter as two separate parameters: cis-1, 3-dichloropropene (10061-01-5) and trans-1, 3-dichloropropene (10061-02-6).
7. Total Benzofluoranthenes - Because Benzo(b)fluoranthene, Benzo(j)fluoranthene and Benzo(k)fluoranthene co-elute you may report these three isomers as total benzofluoranthenes.
8. Chlordane – You may report alpha-chlordane (5103-71-9) and gamma-chlordane (5103-74-2) in place of chlordane (57-74-9). If you report alpha and gamma-chlordane, the DL/PQLs that apply are 0.025/0.050.
9. PCB 1016 & PCB 1242 – You may report these two PCB compounds as one parameter called PCB 1016/1242.
10. An X placed in this box means you must analyze for all pollutants in the group. This may be in addition to NPDES application requirements.

To request ADA accommodation including materials in a format for the visually impaired, call the Water Quality Program at Ecology, 360-407-6600. Persons with impaired hearing may the Washington Relay Service at 711. Persons with a speech disability may call TTY at 877-833-6341.

Lighthouse Point Water Reclamation Facility (LPWRF) City of Blaine Permit Application Renewal --2017 Sensitive Areas, Force Mains and Lift Stations



LEGEND

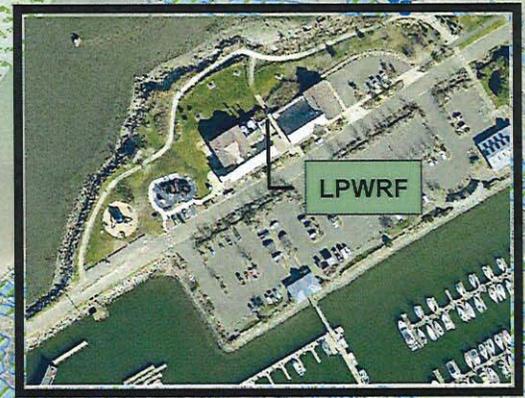
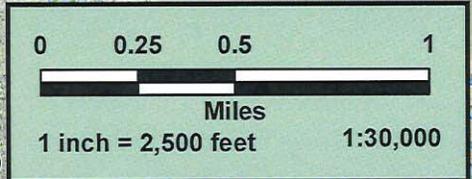
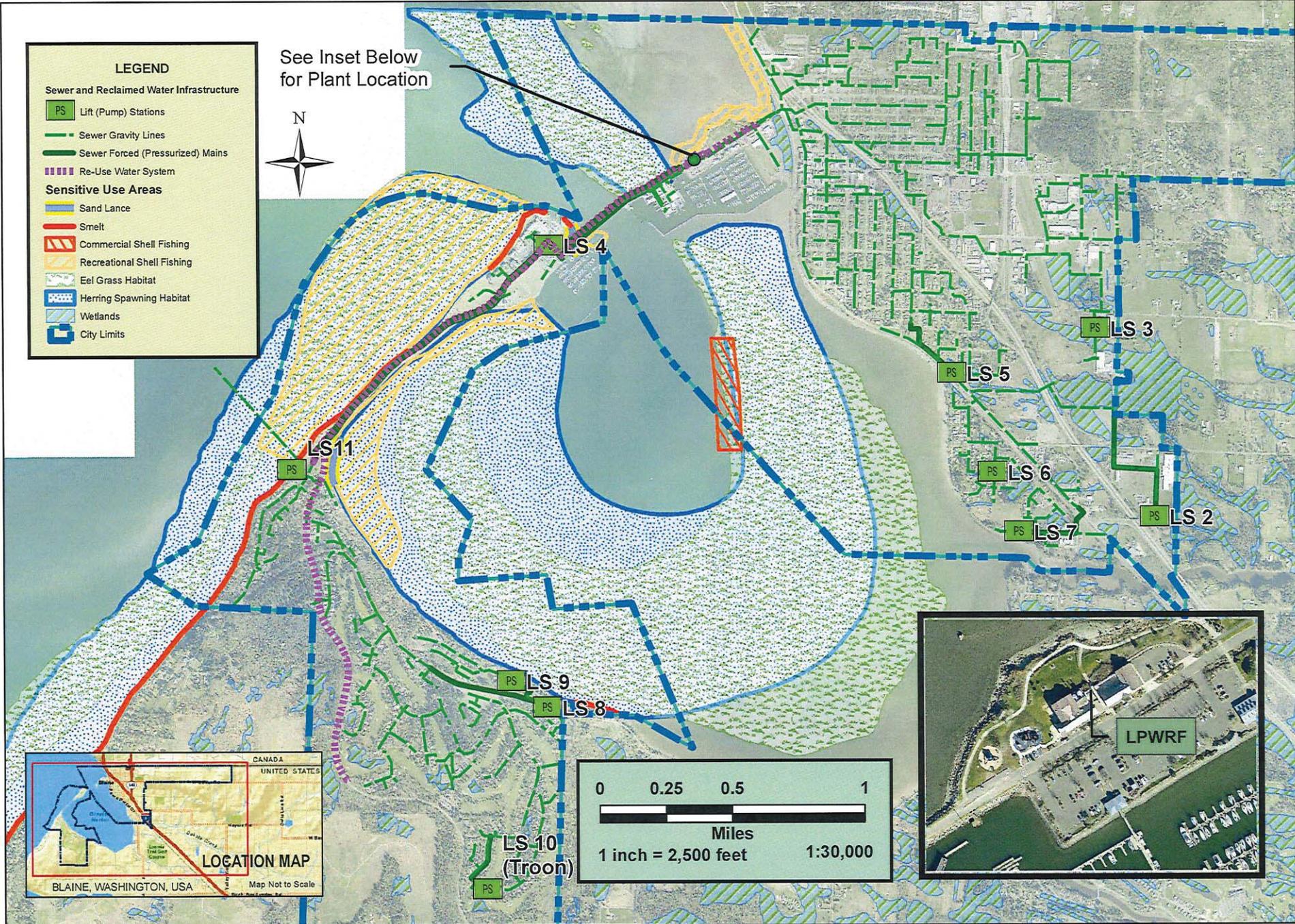
Sewer and Reclaimed Water Infrastructure

- PS Lift (Pump) Stations
- Sewer Gravity Lines
- Sewer Forced (Pressurized) Mains
- Re-Use Water System

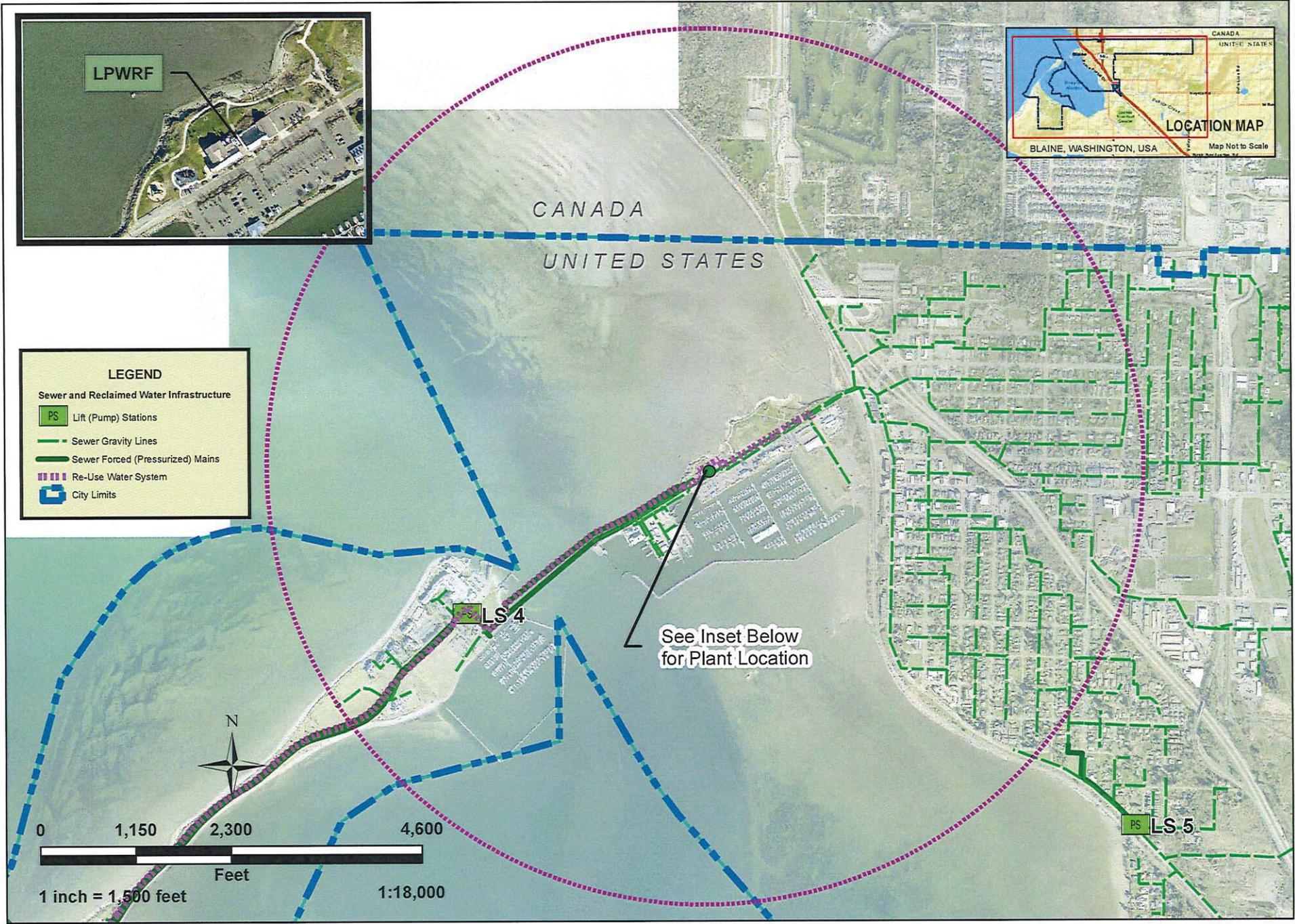
Sensitive Use Areas

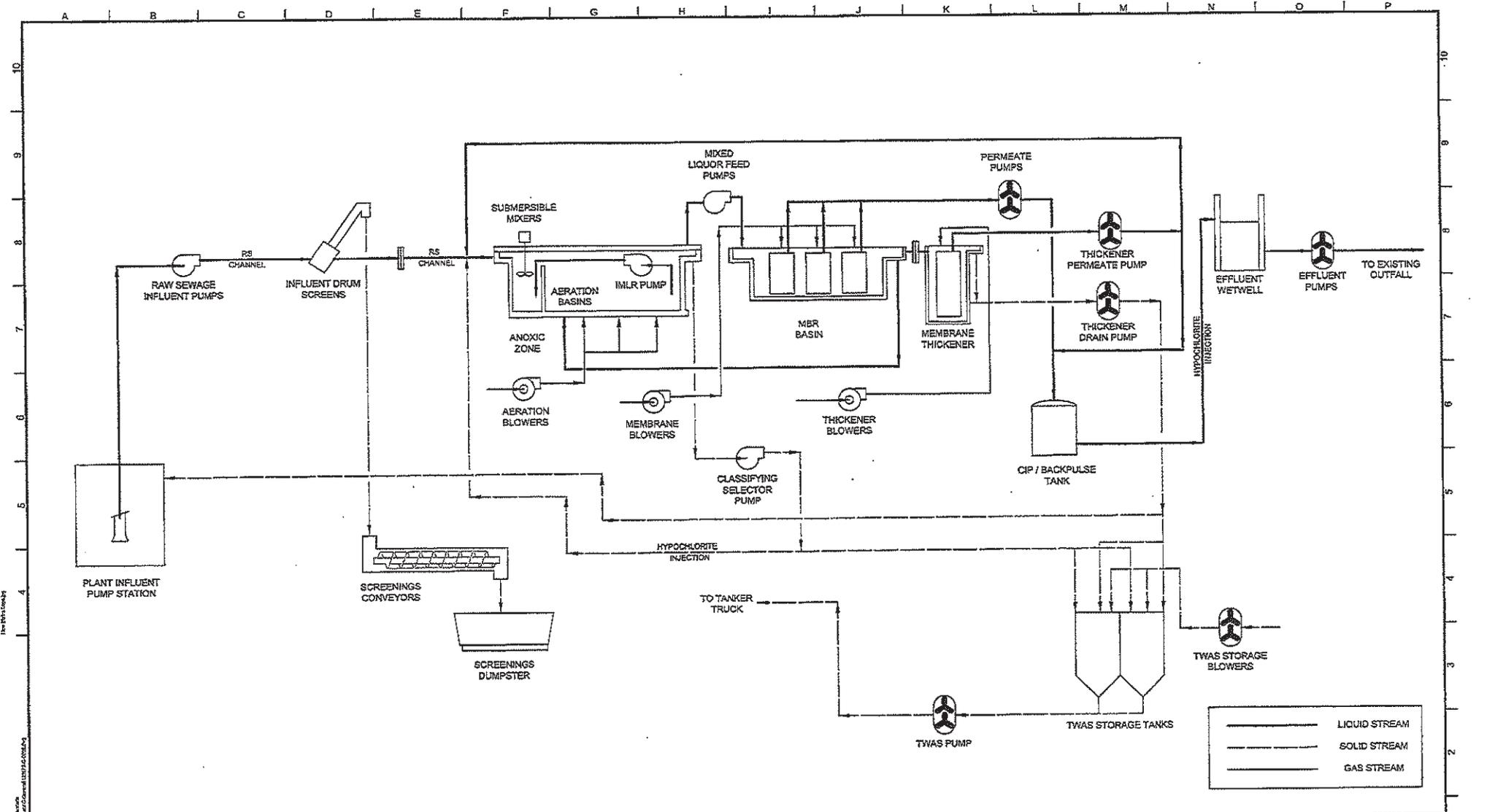
- Sand Lance
- Smelt
- Commercial Shell Fishing
- Recreational Shell Fishing
- Eel Grass Habitat
- Herring Spawning Habitat
- Wetlands
- City Limits

See Inset Below for Plant Location



Lighthouse Point Water Reclamation Facility (LPWRF) City of Blaine One Mile Radius Permit Application Renewal --2017





	LIQUID STREAM
	SOLID STREAM
	GAS STREAM

BROWN AND CALDWELL
 ENGINEERS, ARCHITECTS
 1001 1/2 AVENUE, SUITE 100
 SEASIDE, WASHINGTON 98148
 PHONE: (206) 535-1234
 FAX: (206) 535-1235
 WWW: WWW.BROWNANDCALDWELL.COM

LINE SIZE
 AT FULL SIZE
 (IF NOT 7/8" OR 1" INDICATED)

DESIGNED: ATK
 DRAWN: MSJ
 CHECKED: JAV
 CHECKED: JSE
 APPROVED:

EXTERNAL REFERENCE FILES

RECORD DRAWING
 DATE: SEPTEMBER 2010

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THIS INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO DESIGNED PROGRAM TO UPDATE THIS DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

REVISIONS				
ZONE	NO.	DESCRIPTION	BY	DATE



**CITY OF BLAINE,
 WASHINGTON**

BLAINE LIGHTHOUSE POINT WATER RECLAMATION FACILITY
 FLOW DIAGRAM
 LIQUID PROCESS

FLOWNO: 12470-G-006
 I.E. PROJECT NUMBER: 12470
 CLIENT PROJECT NUMBER:
 DRAWING NUMBER: 000-G-006
 SHEET NUMBER: 1 OF 123

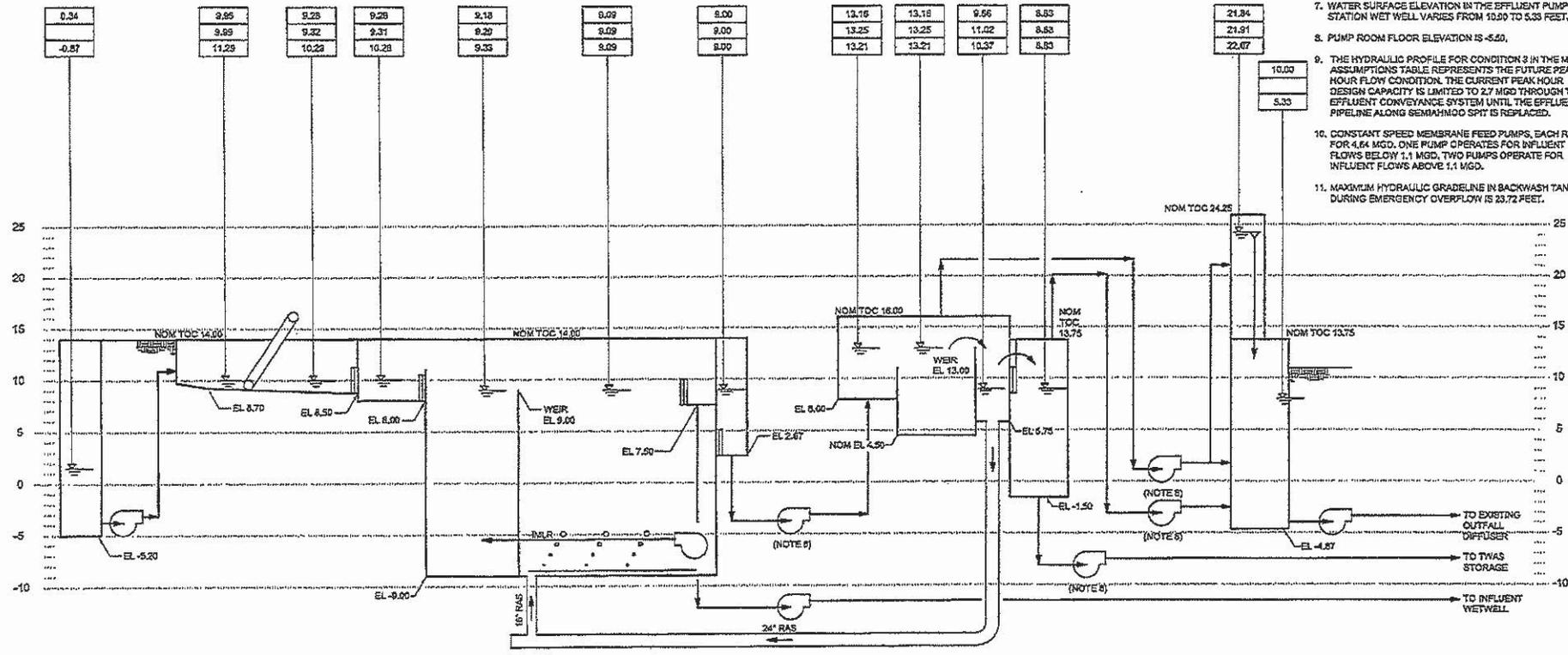
MODEL ASSUMPTIONS AT VARIOUS FLOW RATES

PARAMETER	FLOW CONDITIONS		
	1	2	3
PLANT FLOW RATE (MGD)	0.48	1.10	3.10
INTERNAL MIXED LIQUOR RECYCLE (MGD)	1.0	2.20	4.60
RAS RETURN RATE (MGD)	4.15	5.15	5.78
MIXED LIQUOR FEED PUMPS (NUMBER)	1	2	2
FINE SCREENS ON-LINE	1	1	1
AERATION BASINS ON-LINE	1	2	2
MEMBRANE BASINS ON-LINE	3	3	3

LEGEND	
XXX	WS EL AT FLOW CONDITION 1
XXX	WS EL AT FLOW CONDITION 2
XXX	WS EL AT FLOW CONDITION 3

GENERAL NOTES:

1. FLOW CONDITION 1, AVERAGE DRY WEATHER FLOW.
2. FLOW CONDITION 2, ANNUAL AVERAGE FLOW.
3. FLOW CONDITION 3, MAXIMUM HOUR FLOW.
4. HYDRAULIC PROFILE SHOWS SELECTED GATES AND VALVES.
5. VALVE AND GATE OPERATORS ARE NOT SHOWN FOR CLARITY.
6. TRUE PIPE AND PUMP ELEVATIONS ARE NOT SHOWN FOR CLARITY.
7. WATER SURFACE ELEVATION IN THE EFFLUENT PUMP STATION WET WELL VARIES FROM 10.00 TO 5.33 FEET.
8. PUMP ROOM FLOOR ELEVATION IS -5.50.
9. THE HYDRAULIC PROFILE FOR CONDITION 3 IN THE MODEL ASSUMPTIONS TABLE REPRESENTS THE FUTURE PEAK HOUR DESIGN CAPACITY IS LIMITED TO 2.7 MGD THROUGH THE EFFLUENT CONVEYANCE SYSTEM UNTIL THE EFFLUENT PIPELINE ALONG BEMAHMOOD SPIT IS REPLACED.
10. CONSTANT SPEED MEMBRANE FEED PUMPS, EACH RATED FOR 4.64 MGD, ONE PUMP OPERATES FOR INFLUENT FLOWS BELOW 1.1 MGD, TWO PUMPS OPERATE FOR INFLUENT FLOWS ABOVE 1.1 MGD.
11. MAXIMUM HYDRAULIC GRADELINE IN BACKWASH TANK DURING EMERGENCY OVERFLOW IS 23.72 FEET.



INFLUENT PUMP STATION FINE SCREENS ANOXIC ZONE AERATION BASINS MEMBRANE FEED PUMPS MEMBRANE TANKS MEMBRANE THICKENER TANKS MEMBRANE THICKENER PUMPS MEMBRANE PERMEATE PUMPS BACKWASH TANK EFFLUENT PUMP STATION

BROWN AND CALDWELL
SEATTLE, WASHINGTON

LINE NO.	REVISIONS
1	ISSUED FOR PERMIT
2	ISSUED FOR CONSTRUCTION
3	ISSUED FOR CONSTRUCTION
4	ISSUED FOR CONSTRUCTION
5	ISSUED FOR CONSTRUCTION

RECORD DRAWING
DATE: SEPTEMBER 2005
THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE CHANGES AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO GUARANTEE OR WARRANTY BY BROWN AND CALDWELL TO REFLECT OR REPRESENT THE ACTUAL CONDITIONS. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

NO.	DATE	DESCRIPTION	BY	DATE	APP.



CITY OF BLAINE, WASHINGTON

BLAINE LIGHTHOUSE POINT WATER RECLAMATION FACILITY
GENERAL HYDRAULIC PROFILE

PROJECT NUMBER	000-G-007
SHEET NUMBER	7 OF 25

DATE PLOTTED: 11/10/05 10:00 AM

Approximate Year	2009	2025
Equivalent Design Population	4,824	5,331
Wastewater Flow (mgd)		
Annual Average	0.62	1.10
Average Dry Weather	0.50	0.92
Average Wet Weather	1.72	1.20
Maximum Month	1.17	1.54
Maximum Day	2.66	2.60
Maximum Hour	2.95	3.10
BOD Loading (lb/d)		
Annual Average	1,580	2,400
Peak Month	1,780	3,000
Peak Day	3,150	5,200
TSS Loading (lb/d)		
Annual Average	1,200	2,120
Peak Month	1,550	3,000
Peak Day	3,436	5,120

Equivalent Design Population	5,581
Influent Pump Station	
Large Influent Pumps	
Number (Note 4)	1 + 1
Type	Non-Clog Centrifugal
Horsepower, each	25
Capacity, each (mgd)	3.1
Small Influent Pumps	
Number (Note 4)	1 + 1
Type	Non-Clog Centrifugal
Horsepower, each	7.5
Capacity, each (mgd)	1.1

Influent Screenings	
Rotating Drum Screens	
Number (Note 4)	1 + 1
Horsepower, each	3
Capacity, each (gpm)	2,150
Shaftless Screw Conveyor	
Number	2
Horsepower, each	3

Aeration Basins	
Number	2
Total Volume (gal)	374,000
Design MLSS (mg/L)	4,000-7,000
SRT	12
Internal Mixed Liquor Recirc. Rate (mgd) (Note 1)	1 - 4.5
Recirc. Pumps	
Number Per Basin	1
Type	Axial Flow
Horsepower, each	4.3
Capacity, each (gpm)	1,800
Anoxic Cell	
Number Per Basin	1
Volume Per Cell (gal)	52,000

Mixers	
Number Per Basin	1
Horsepower, each	2.7
Blowers	
Number (Note 4)	3 + 1
Type	High Efficiency Turbo
Horsepower, each	75
Capacity, each (scfm)	1,100

Classifying Selector Pump	
Number	1
Type	Non-Clog Centrifugal
Horsepower, each	5
Capacity, each (gpm)	650
Aeration Basin Drain Pump	
Number	1
Type	Non-Clog Centrifugal
Horsepower, each	7.5
Capacity, each (gpm)	950

Membrane Filtration Basins	
Number (Note 5)	4 + 1
Volume Per Basin (gal) (Note 2)	18,500
Cassettes per basin (filter/available space)	3/6
Modules per cassette (filter/available space)	46/48
Design MLSS (mg/L)	8,000-10,000
RAS Flow Ratio (%) (Note 3)	300

Mixed Liquor Feed Pumps	
Number (Note 4)	2 + 1
Type	Non-Clog Centrifugal
Horsepower, each	30
Capacity, each (mgd)	4.64
Blowers	
Number (Note 4)	1 + 1
Type	Multi-Stage Centrifugal
Horsepower, each	100
Capacity, each (scfm)	3227

Permeate Pumps	
Number (Note 6)	4 + 1
Type	Rotary Lobe
Horsepower, each	25
Capacity, each (gpm)	753
HOCI Pumps	
Number (Note 4)	1 + 1
Type	Herb
Capacity, each (gpm)	0.5 - 16.4

Citric Acid Pumps	
Number (Note 4)	1 + 1
Type	Peristaltic
Capacity, each (gpm)	0.2 - 5.0
CIP/Backwash Tank	
Number	1
Volume (gal)	3,000
Air Compressors	
Number (Note 4)	1 + 1
Horsepower, each	5
Capacity, each (scfm)	17

Membrane Filtration Drain Pump	
Number	1
Type	End Suction Centrifugal
Horsepower	3
Capacity	500 gpm

Membrane Thickener Basins	
Number	1
Volume Per Basin (gal)	8,410
Cassettes per basin (filter/available space)	1/1
Modules per cassette (filter/available space)	24/8
Target MLSS (mg/L)	30,000

Blowers	
Number (Note 4)	1 + 1
Type	Multi-Stage Centrifugal
Horsepower, each	30
Capacity, each (scfm)	355
Thickener Drain Pumps	
Number	1
Type	Rotary Lobe
Horsepower, each	20
Capacity, each (gpm)	300
Thickener Permeate Pumps	
Number	2
Type	Rotary Lobe
Horsepower, each	5
Capacity, each (gpm)	28.5
HOCI Pumps	
Number	1
Type	Peristaltic
Capacity, each (gpm)	0.1 - 1.8

TWAS Storage	
Number of Tanks	3
Volume Per Tank (gal)	23,000
Blowers	
Number	2
Type	Positive Displacement
Horsepower, each	28
Capacity, each (scfm)	290
TWAS Pumps	
Number (Note 4)	1 + 1
Type	Rotary Lobe
Horsepower, each	15
Capacity, each (gpm)	200

TWAS Tank Recirculation Pumps	
Number	2
Type	Non-Clog Centrifugal
Horsepower	15
Capacity	1464 gpm

Effluent Pump Station	
Effluent Pumps	
Number	2 + 1
Type	Rotary Lobe
Horsepower, each	75
Initial Capacity, each (gpm, psi) (Note 6)	540, 80
Future Capacity, each (gpm, psi) (Note 6)	1150, 35

Disinfection System	
HOCI Storage Tank	
Number	2
Volume, each (gal)	1,500
Effluent Disinfection Pumps	
Number	1 + 1
Type	Peristaltic
Capacity, each (gph)	0.4 - 8.0

NOTES:

1. THE INTERNAL MIXED LIQUOR RECIRCULATION RATE IS FLOW PAGED AT 200% OF THE INFLUENT FLOW, UP TO 4.6 MGSD.
2. MEMBRANE TANK VOLUME SHOWN IS FOR THE LIQUID VOLUME NOT ACCOUNTING FOR THE DISPLACEMENT VOLUME OF THE MEMBRANE MODULES.
3. RAS FLOW RATIO FROM MEMBRANE BASINS TO AERATION BASIN IS 300% OF THE PEAK WEEK INFLUENT FLOW RATE OF 2.82 MGD. THE RATIO CHANGES BASED ON THE INCOMING FLOW RATE AND THE NUMBER OF CONSTANT SPEED MIXED LIQUOR FEED PUMPS.
4. XXX INDICATES DUTY PLUS STANDBY EQUIPMENT/BASINS.
5. 4-1 MEANS NORMALLY ALL UNITS ARE REQUIRED TO RUN BUT THE SYSTEM CAN HANDLE ONE UNIT TO BE DOWN FOR 1 TO 2 DAYS.
6. THE INITIAL CAPACITY OF THE EFFLUENT PUMP STATION IS PRESSURE LIMITED AND SHALL NOT EXCEED A MAXIMUM OF 80 PSI AT THE PUMPS. THE FUTURE CAPACITY OF THE EFFLUENT PUMP STATION WILL BE ACHIEVED BY REPLACING THE EFFLUENT PIPELINE ALONG SEAHAMMOO SPIT.

Reclaimed Water System	
Reclaimed Water Pump	
Number	1
Type	Centrifugal
Horsepower	15
Capacity (gpm)	350
Reclaimed Water Disinfection Pump	
Number	1
Type	Peristaltic
Capacity (gph)	0.25-18

Odor Control System	
Small Exhaust Fan	
Number	2
Type	Centrifugal
Horsepower, each	20
Capacity, each (scfm)	2,475
Large Exhaust Fan	
Number	2
Type	Centrifugal
Horsepower, each	50
Capacity, each (scfm)	6,500

Large Odor Removal Unit	
Number	1
Type	Activated Carbon Bed
Capacity, each (scfm)	13,000
Small Odor Removal Unit	
Number	1
Type	Activated Carbon Bed
Capacity, each (scfm)	8,200

Process Water System	
Pumps	
Number (Note 4)	2 + 1
Type	Vertical Multi-stage
Horsepower, each	25
Capacity, each (gpm)	300

Utility Water System	
Air-Gap Tank	
Number	1
Volume (gal)	350
Pumps	
Number	1
Type	Vertical Multi-stage
Horsepower, each	15
Capacity, each (gpm)	40

BROWN AND CALDWELL
SEATTLE, WASHINGTON

LINE IS 2 INCH
AT FULL SIZE
BY NEW P. SCALE ACCORDINGLY

DESIGNED: JAY JAY
DRAWN: JAY
CHECKED: JAY
SUPERVISED: JAY
APPROVED:

EXTERNAL REFERENCE FILED
DATE: SEPTEMBER 2010

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING SHOULD BE RELEASD UPON AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

RECORD DRAWING
DATE: SEPTEMBER 2010

NO.	REV.	DESCRIPTION	BY	DATE	APP.

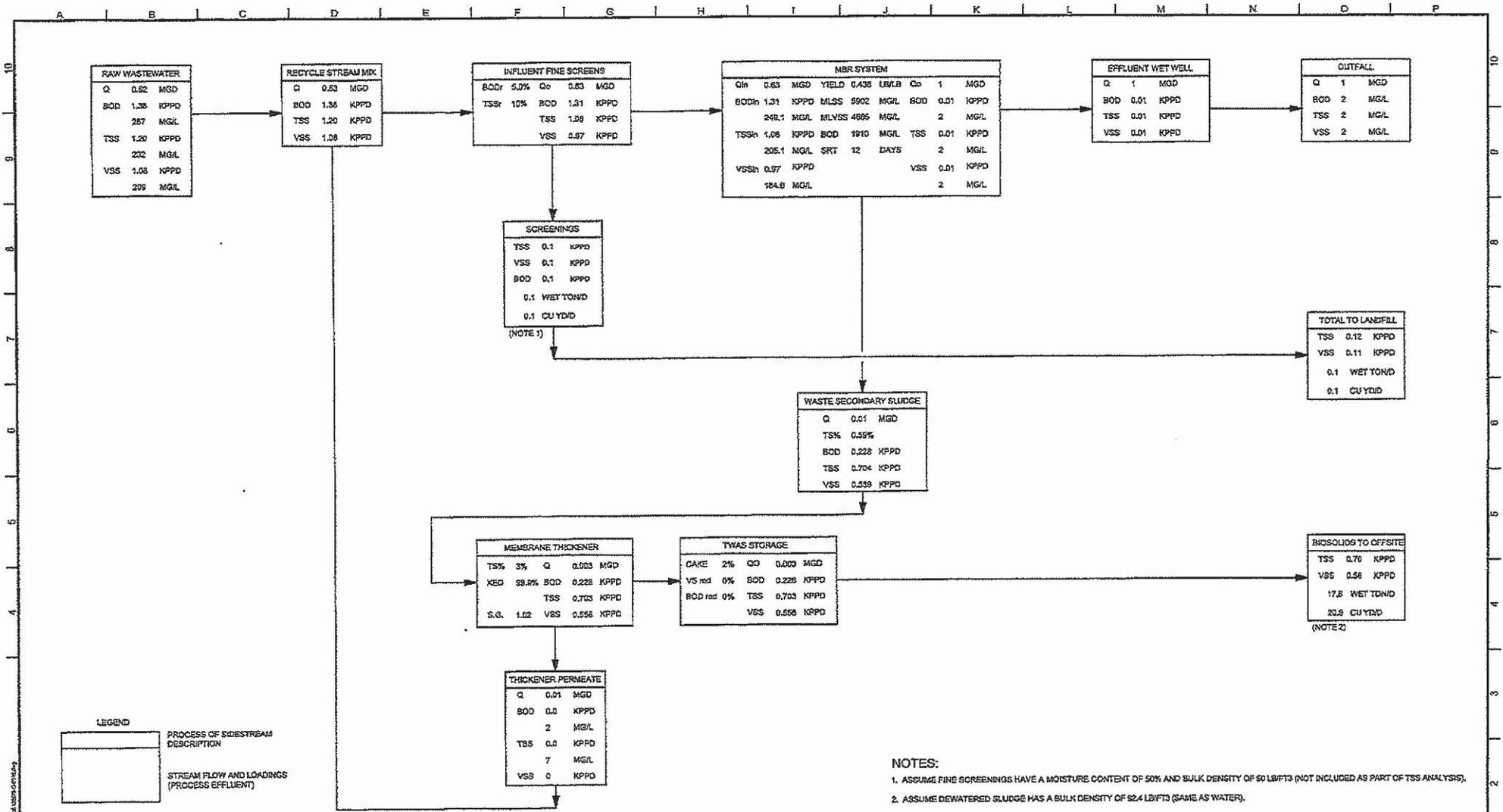


**CITY OF BLAINE,
WASHINGTON**

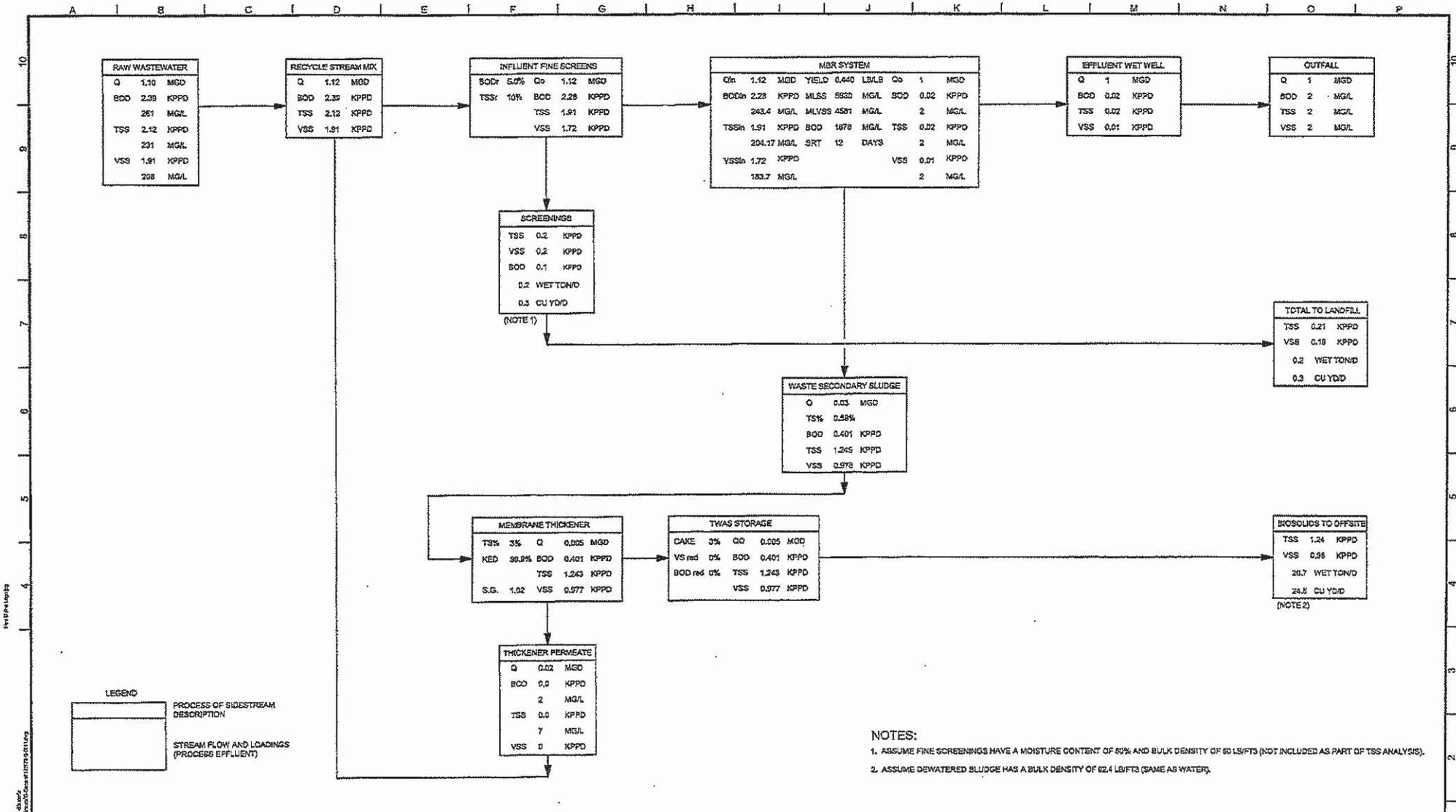
BLAINE LIGHTHOUSE POINT WATER RECLAMATION FACILITY

GENERAL
PROCESS DESIGN DATA

PLANNING NUMBER: 000-G-008
SHEET NUMBER: 25

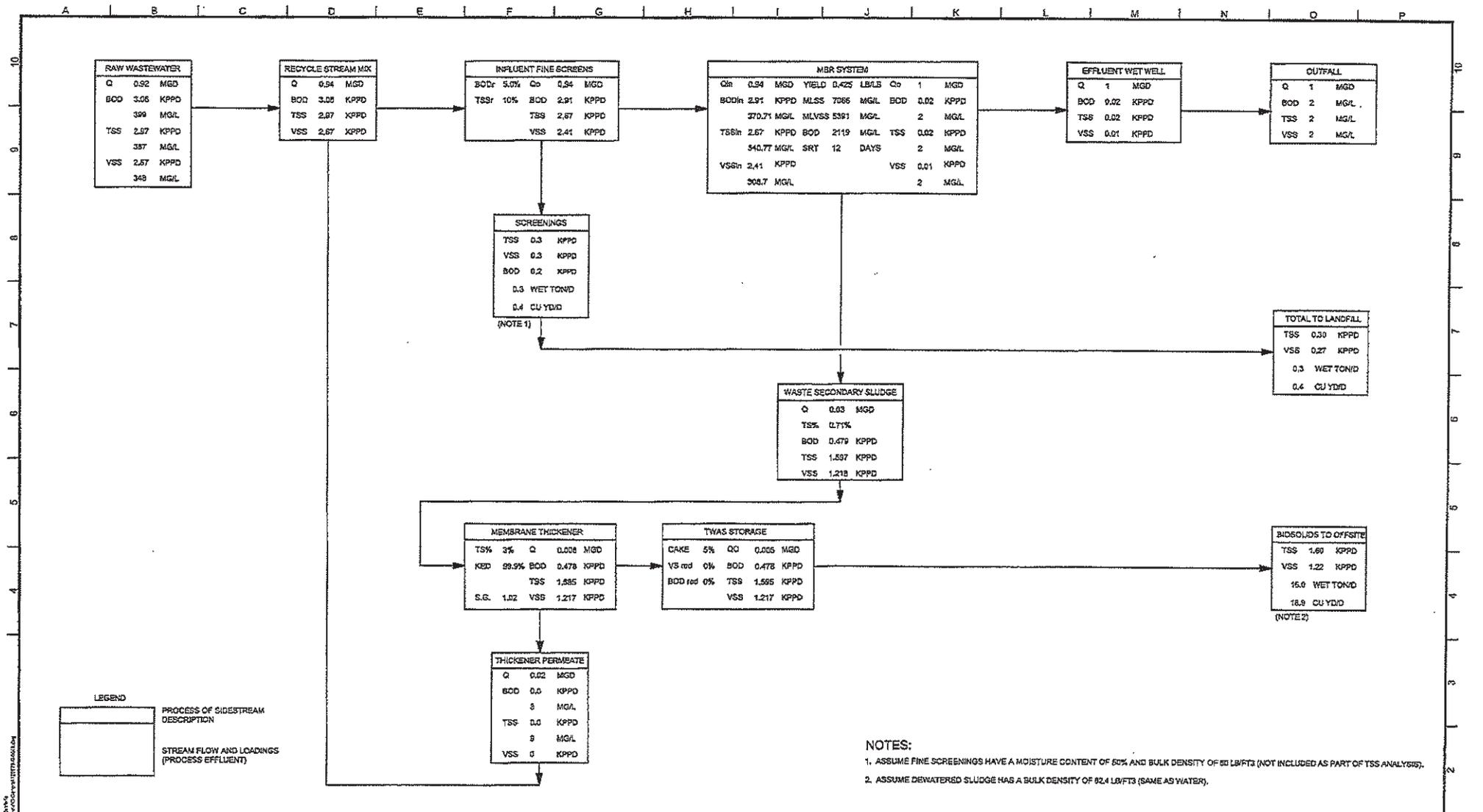


BROWN AND CALDWELL SEATTLE, WASHINGTON	LINE IS 1/8" INCHES AT FULL SIZE (IF NOT OTHERWISE NOTED)	EXTERNAL PERFORMANCE FILE: NONE	RECORD DRAWING DATE: SEPTEMBER 2010	ZONE REV. DESCRIPTION BY DATE APP.		BLAINE LIGHTHOUSE POINT WATER RECLAMATION FACILITY GENERAL MASS BALANCE FOR STARTUP ANNUAL AVERAGE FLOW AND LOADING CONDITIONS	FILE NAME: 0000-G-010
	SUBMITTED: [] DATE: [] APPROVED: [] DATE: []	DISIGNED: [] DRAWN: [] CHECKED: [] DESIGNED: [] CHECKED: []	THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARDS AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY CHECKED VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGED CONDITIONS TO THE DATE ISSUED. THEREFORE, THE DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.	CITY OF BLAINE, WASHINGTON			PROJECT NUMBER: 000-G-010



- NOTES:**
1. ASSUME FINE SCREENINGS HAVE A MOISTURE CONTENT OF 80% AND BULK DENSITY OF 50 LB/FT³ (NOT INCLUDED AS PART OF TSS ANALYSIS).
 2. ASSUME DEWATERED SLUDGE HAS A BULK DENSITY OF 62.4 LB/FT³ (SAME AS WATER).

BROWN AND CALDWELL <small>SEATTLE, WASHINGTON</small>	LINE IS 2 INCHES AT FULL LOAD (BY UNIT - MANUFACTURING)	EXTERNAL REFERENCE FILES <small>(NONE)</small>	RECORD DRAWING DATE: SEPTEMBER 2010	THIS RECORD DRAWING HAS BEEN PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CORRECTS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THIS INFORMATION HAS NOT INDEPENDENTLY BEEN VERIFIED. THERE IS AN ONGOING PROGRAM TO UPDATE THIS DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.	REVISIONS <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APP.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	DESCRIPTION	BY	APP.																					 CITY OF BLAINE, WASHINGTON	BLAINE LIGHTHOUSE POINT WATER RECLAMATION FACILITY GENERAL MASS BALANCE FOR DESIGN ANNUAL AVERAGE FLOW AND LOADING CONDITIONS	FILE NAME: 000-G-011 PROJECT NUMBER: 12879 DRAWING NUMBER: 000-G-011 SHEET NUMBER: 11 OF 228
	NO.	DATE	DESCRIPTION	BY	APP.																												
SUBMITTED: _____ DATE: _____ APPROVED: _____ DATE: _____	DESIGNED: K.W. SP DRAWING: MSH CHECKED: AW CHECKED: JSB APPROVED: _____																																



NOTES:

1. ASSUME FINE SCREENINGS HAVE A MOISTURE CONTENT OF 80% AND BULK DENSITY OF 80 LB/FT³ (NOT INCLUDED AS PART OF TSS ANALYSIS).
2. ASSUME DEWATERED SLUDGE HAS A BULK DENSITY OF 82.4 LB/FT³ (SAME AS WATER).

BROWN AND CALDWELL SEATTLE, WASHINGTON SUBMITTED: _____ DATE: _____ APPROVED: _____ DATE: _____	LINE OF ENGINEER AT FULL SIZE (IF NOT, INDICATE CORRECTLY) DESIGNED: _____ REVISION: _____ CHECKED: _____ CHECKED: _____ APPROVED: _____	EXTERNAL REFERENCE FILE # _____ _____ _____	RECORD DRAWING DATE: SEPTEMBER 2010 THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE DIMENSIONS AND EXISTENCE LEVEL OF DETAIL. THE INFORMATION HAS NOT INDEPENDENTLY BEEN VERIFIED. THERE IS NO ASSURED PROVISION TO UPDATE THIS DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING SHOULD BE REFERRED TO AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.	REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>REV.</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> <th>APP.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	REV.	DESCRIPTION	BY	DATE	APP.																									 CITY OF BLAINE, WASHINGTON	BLAINE LIGHTHOUSE POINT WATER RECLAMATION FACILITY GENERAL MASS BALANCE FOR DESIGN SUMMER ADWF AND PEAK MONTH LOADING CONDITIONS	FILENAME: 000-G-012 DC PROJECT NUMBER: 000-G-012 DRAWING NUMBER: 000-G-012 SHEET NUMBER: 12 OF 338
	NO.	REV.	DESCRIPTION	BY	DATE	APP.																															

