



# Application for a State Waste Discharge Permit to Discharge Industrial Wastewater to Ground Water by Land Treatment or Application

This application is for a state waste discharge permit as required by Chapter 90.48 RCW and Chapter 173-216 WAC. Permit applications provide Ecology with information on pollutants in the waste stream, materials that may enter the waste stream, the flow characteristics of the discharge, and the site characteristics at the point of discharge.

Ecology may request additional information to clarify the conditions of this discharge. The applicant should reference information previously submitted to Ecology that applies to this application in the appropriate section.

## SECTION A. GENERAL INFORMATION

1. Applicant name: Terramar Brewstillery
  
2. Facility name: Terramar Brewstillery  
(if different from applicant)
  
3. Applicant mail address: 5712 Gilkey Ave  
Street  
  
Bow, Washington 98232  
City/State Zip
  
4. Facility location address: 5712 Gilkey Ave  
(if different from above) Street  
  
Bow, WA 98232  
City/State Zip
  
5. UBI No. 6040882  
30  
Sometimes called a registration, tax, "C," or resale number, the Unified Business Identifier (UBI) number is a nine-digit number used to identify persons engaging in business activities. The number is assigned when a person completes a [Master Business Application](#) to register with or obtain a license from state agencies. The Departments of Revenue, Licensing, Employment Security, Labor and Industries, and the Corporations Division of the Secretary of State are among the state agencies participating in the UBI program.
  
6. Latitude/longitude of the processing facility as decimal degrees (NAD83/WGS84):  
48°33'49"N / 122°26'37"W

<b>FOR ECOLOGY USE ONLY</b>	<b>Check One</b>	New/Renewal <input type="checkbox"/> Modification <input type="checkbox"/>
Date application received		Application/Permit no.
Date application accepted		Date fee paid



## SECTION B. PRODUCT INFORMATION

1. Briefly describe all manufacturing processes and products, and/or commercial activities at this facility. Provide the applicable Standard Industrial Category (SIC) and the North American Industry Classification System (NAICS) Code(s) for each activity (see *North American Industrial Classification System*, 2007 ed.). You can find the 1997 NAICS codes and the corresponding 1987 Standard Industry Category (SIC) codes at (<http://www.census.gov/epcd/naics/frames3.htm>).

Description: Brewery and Distillery NAICS Codes 312120, 312140

2. List raw materials and products:

Type	RAW MATERIALS	Quantity
<i>Potatoes (Example)</i>		<i>20 million tons per year</i>
Malted Grains		52000 pounds/year
Fresh Pressed Apple Juice		4900 gallon/year
Dry Yeast		310 pounds/year
Hops		650 pounds/year
Gin Botanicals		38 pounds/year
Type	PRODUCTS	Quantity
<i>French fries (Example)</i>		<i>10 million pounds per year</i>
Beer		650 bbl/year
Hard Cider		158 bbl/year
Spirits (Whiskey, Gin, Vodka, Brandy)		390 proof gallons/year

**SECTION C. PLANT OPERATIONAL CHARACTERISTICS**

1. For each process listed in B.1 that generates wastewater, list the process, assign the waste stream a name and ID #, and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch (B) or Continuous (C) Process
<i>Receiving raw potatoes (Example)</i>	<i>Mud Water</i>	<i>1</i>	<i>C</i>
CIP Fermentation Vessel (Beer, Cider, or Spirits)	CIP Water	1	Batch
CIP Brewing System	CIP Water	2	Batch
CIP Stripping Still	CIP Water	3	Batch
CIP Spirit Still	CIP Water	4	Batch

2. On a separate sheet, produce a schematic drawing showing production processes and water flow through the facility and wastewater treatment devices (*label as attachment C2*). The drawing should indicate the source of intake water and the operations contributing wastewater to the effluent and should label the treatment units. Construct the water balance by showing average flows between intakes, operations, treatment units, and points of discharge to land. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a description of the nature and amount of any sources of water and any collection or treatment measures.

3. What is the highest daily discharge flow from the processing facility: 1184 gallons per Day  
 (Specify the time period for the value given)

What is the highest daily discharge flow to the sprayfields/infiltration basin: inches/acre/month OR  
 (Specify the time period for the value given) 846 gallons per day

What is the highest average monthly discharge flow (daily flows averaged over a month) from the processing facility: 395 gallons/day?  
 (Specify the time period for the value given)

What is the highest average monthly discharge flow to the sprayfields: inches/acre/month OR  
 (Specify the time period for the value given) 11843 gallons per day

4. Describe any planned wastewater treatment or sprayfield/infiltration improvements and the schedule for the improvements or changes. (*Use additional sheets, if necessary and label as attachment C4.*)

Already installed a 1000 gallon pre-treatment tank with a pump grant within the brewhouse where CIP water is treated for Ph and strained through a sock for particulate removal before moving on the the next pump station and storage tank. This made it easier to adjust Ph and also reduce solids going

into storage tank. Also added an air bubbler to the 30,000 gallon storage tank to prevent stratification before distribution out to spray field. The bubbler runs 24-7 and keeps water tank homogenized and well aerated.

5. If production processes are subject to seasonal variations, provide the following information. List discharge for each wastestream in gallons or million gallons per month. The combined value for each month should equal the estimated total monthly flow. Please indicate the proper unit by checking one of the following boxes:

gallons per day  gallons per month  million gallons per month

Waste Stream ID#	MONTHS											
	J	F	M	A	M	J	J	A	S	O	N	D
#1 (Example)	1000	1000	1000	1000	6000	2000	2000	2000	1000	1000	5000	4000
1	41	62	165	165	207	330	330	330	165	124	83	62
2	21	31	84	84	105	167	167	167	84	63	42	31
3	30	45	121	121	151	241	241	241	121	90	60	45
4	35	53	141	141	176	282	282	282	141	106	70	53
<b>Estimated total gallons</b>												

6. If this is a discharge from the processing facility to a storage or evaporative lagoon, what is the size of the lagoon (give square footage for the bottom of the lagoon and the total volume of the lagoon at full operating depth). 10,000 square feet; 10 million gallons (Example)

There is a sealed 30,000 gallon concrete storage tank that is used to to store water before it is distributed. Approximate dimensions are 25' diameter and 6' tall.

7. Check the applicable box. Is this is a discharge to a sprayfield  or an infiltration bed ? Provide the average gallons per acre per day proposed for each month in the following table.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept.	Oct	Nov	Dec
<b>Estimated gallons per acre per day</b>	190	190	166	166	213	237	235	188	164	166	214	237

8. How many hours a day does this facility typically operate? 10  
 How many days a week does this facility typically operate? 7  
 How many weeks per year does this facility typically operate? 52
9. List all incidental materials such as oil, paint, grease, solvents, and cleaners that are used or stored on site (list only those with quantities greater than 10 gallons for liquids and 50 pound quantities for solids). For solvents and solvent-based cleaners, include a copy of the material safety data sheet for each material and estimate the quantity used. *Use additional sheets, if necessary and label as attachment C.7.)*

Materials/Quantity Stored: None

- |     |   | Yes                      | No                                  |
|-----|---|--------------------------|-------------------------------------|
| 10. | Some types of facilities are required to have spill or waste control plans. Does this facility have:          |                          |                                     |
| a.  | A spill prevention, control, and countermeasure plan (40 CFR 112)?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b.  | An Oil Spill Contingency Plan (chapter 173-182 WAC)?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c.  | An emergency response plan (per WAC 173-303-350)?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d.  | A runoff, spillage, or leak control plan (per WAC 173-216-110(f))?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e.  | Any spill or pollution prevention plan required by local, state or federal authorities? If yes specify: _____ | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f.  | A solid waste control plan?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |



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## SECTION E. WASTEWATER INFORMATION

1. How are the water intake and effluent flows measured?

Intake: 1" Domestic Style Water Meter

Effluent 1" Domestic Style Water Meter

2. Describe the collection method for the samples analyzed below. (*i.e.*, grab, 24-hour composite). Applicants must collect grab samples (not composites) for analysis of pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform (including *E. coli*), and Enterococci (previously known as fecal streptococcus at § 122.26 (d)(2)(iii)(A)(3)), or volatile organics.

Grab samples are collected from sample port on pump outlet of wastewater storage tank.

3. Has the effluent been analyzed for any other parameters than those identified in question E.4.?  YES  NO  
If yes, attach results and label as attachment E.4. This data must clearly show the date, method and location of sampling. (*Note: Ecology may require additional testing.*)
4. Provide measurements or range of measurements for treated wastewater prior to discharge to the POTW for the parameters with an “X” in the left column. If you obtain the application from the internet, contact Ecology’s regional office to see if testing for a subset of these parameters is permissible. All analyses (except pH) must be conducted by a laboratory registered or accredited by Ecology (WAC 173-216-125). If this is an application for permit renewal, provide data for the last year for those parameters that are routinely measured. For parameters measured only for this application, place the values under “Maximum.” Report the values with units as specified in the parameter name or in the detection level.

The Permittee must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table unless Ecology approves an alternate method **or 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 Permittee uses an alternative method as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.**

X	Parameter	Measurement Values			Number of Analyses	Analytical Method Std. Methods 19 <sup>th</sup> ,20 <sup>th</sup> edition or EPA	Detection Limit/Quantitation Level
		Minimum	Maximum	Average			
X	BOD (5 day)	234	238	236	See Attached Edge Analytical Reports	SM 5210 B	/2 mg/l
	COD					SM 5220 D	/10 mg/l
X	Total suspended solids	114	138	126	See Attached Edge Analytical Reports	SM 2540 D	/5 mg/l
	Fixed Dissolved Solids					SM 2540 E	
	Total dissolved solids					SM 2540 C	
	Conductivity (micromhos/cm)					SM 2510 B	
	Ammonia-N as N					SM 4500-NH <sub>3</sub> C	/0.3 mg/L
	pH					SM 4500-H	0.1 standard units
	Fecal coliform (organisms/100 mL)					SM 9221 E or 9222 D	
	Total coliform (organisms/100 mL)					SM 9221 B or 9222 B	
	Dissolved oxygen					SM 4500-O C/G	
	Nitrate + nitrite-N as N					SM 4500-NO <sub>3</sub> E	100 µg/L
	Total kjeldahl N as N					SM 4500-N <sub>org</sub> C/E/FG	300 µg/l
	Ortho-phosphate-P as P					SM 4500-P E/F	10 µg/l
	Total-phosphorous-P as P					SM 4500-P E/P/F	10 µg/l
	Total Oil & grease					EPA 1664A	1.4/5 mg/l
	NWTPH - Dx					Ecology NWTPH Dx	250/250 µg/l
	NWTPH - Gx					Ecology NWTPH Gx	250/250 µg/l
	Calcium					EPA 200.7	10 µg/l
	Chloride					SM 4500-Cl C	0.15 µg/l

X	Parameter	Measurement Values			Number of Analyses	Analytical Method Std. Methods 19 <sup>th</sup> , 20 <sup>th</sup> edition or EPA	Detection Limit/Quantitation Level
		Minimum	Maximum	Average			
	Fluoride					SM 4500-F E	.025/0.1 mg/l
	Magnesium					EPA 200.7	10/50 µg/l
	Potassium					EPA 200.7	700/ µg/l
	Sodium					EPA 200.7	29/ µg/l
	Sulfate					SM 4500-SO <sub>4</sub> C/D	/200 µg/l
	Alkalinity as CaCO <sub>3</sub>					SM 2320 B	/5 mg/L as CaCO <sub>3</sub>
	Arsenic(total)					EPA 200.8	0.1/0.5 µg/l
	Barium (total)					EPA 200.8	0.5/2 µg/l
	Cadmium (total)					EPA 200.8	.05/.25 µg/l
	Chromium (total)					EPA 200.8	0.2/1 µg/l
	Copper (total)					EPA 200.8	0.4/2 µg/l
	Iron (total)					EPA 200.7	12.5/50 µg/l
	Lead (total)					EPA 200.8	0.1/.5 µg/l
	Manganese (total)					EPA 200.8	0.1/0.5 µg/l
	Mercury (total) pg/L					EPA 1631E	0.2/0.5 pg/l
	Molybdenum(total)					EPA 200.8	0.1/0.5 µg/l
	Nickel(total)					EPA 200.8	0.1/0.5 µg/l
	Selenium (total)					EPA 200.8	1/1 µg/l
	Silver (total)					EPA 200.8	.04/.2 µg/l
	Zinc (total)					EPA 200.8	0.5/2.5 µg/l

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.

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 10<sup>n</sup>, 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).

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5. Does this facility use any of the following chemicals as raw materials in production, produce them as part of the manufacturing process, or are they present in the wastewater? (*The number following the chemical name is the Chemical Abstract Service (CAS) reference number to aid in identifying the compound.*)  YES  NO

If yes, specify how the chemical is used and the quantity used or produced (*Use additional sheets, if necessary and label as attachment E5.*):

Acrylamide/79-06-1	Nitrofurazone/59-87-0	Heptachlor/76-44-8
Acrylonitrile/107-13-1	N-nitrosodiethanolamine/ 1116-54-7	Heptachlor epoxide/1024-57-3
Aldrin/309-00-2	N-nitrosodiethylamine/55-18-5	Hexachlorobenzene/118-74-1
Aniline/62-53-3	N-nitrosodimethylamine/62-75-9	Hexachlorocyclohexane (alpha)/
Aramite/140-57-8	N-nitrosodiphenylamine/86-30-6	319-84-6
Arsenic/7440-38-2	N-nitroso-di-n-propylamine/ 621-64-7	Hexachlorocyclohexane (tech.)/
Azobenzene/103-33-3	N-nitrosopyrrolidine/930-55-2	608-73-1
Benzene/71-43-2	N-nitroso-di-n-butylamine/ 924-16-3	Hexachlorodibenzo-p-dioxin,
Benzidine/92-87-5	N-nitroso-n-methylethylamine/	mix/19408-74-3
Benzo(a)pyrene/50-32-8	10595-95-6	Hydrazine/hydrazine sulfate/ 302-01-2
Benzotrithloride/98-07-7	PAH/NA	Lindane/58-89-9
Benzyl chloride/100-44-7	PBBs/NA	2 Methylaniline/100-61-8
Bis(chloroethyl)ether/111-44-4	PCBs/1336-36-3	2 Methylaniline hydrochloride/
Bis(chloromethyl)ether/542-88-1	1,2 Dichloropropane/78-87-5	636-21-5
Bis(2-ethylhexyl) phthalate/ 117-81-7	1,3 Dichloropropene/542-75-6	4,4' Methylene bis(N,N-
Bromodichloromethane/75-27-4	Dichlorvos/62-73-7	dimethyl)aniline/101-61-1
Bromoform/75-25-2	Dieldrin/60-57-1	Methylene chloride
Carbazole/86-74-8	3,3' Dimethoxybenzidine/119-90-4	(dichloromethane)/75-09-2
Carbon tetrachloride/56-23-5	3,3 Dimethylbenzidine/119-93-7	Mirex/2385-85-5
Chlordane/57-74-9	1,2 Dimethylhydrazine/540-73-8	O-phenylenediamine/106-50-3
Chlorodibromomethane/124-48-1	2,4 Dinitrotoluene/121-14-2	Propylene oxide/75-56-9
Chloroform/67-66-3	2,6 Dinitrotoluene/606-20-2	2,3,7,8-Tetrachlorodibenzo-p-dioxin/
Chlorthalonil/1897-45-6	1,4 Dioxane/123-91-1	1746-01-6
2,4-D/94-75-7	1,2 Diphenylhydrazine/122-66-7	Tetrachloroethylene/127-18-4
DDT/50-29-3	Endrin/72-20-8	2,4 Toluenediamine/95-80-7
Diallate/2303-16-4	Epichlorohydrin/106-89-8	o-Toluidine/95-53-4
1,2 Dibromoethane/106-93-4	Ethyl acrylate/140-88-5	Toxaphene/8001-35-2
1,4 Dichlorobenzene/106-46-7	Ethylene dibromide/106-93-4	Trichloroethylene/79-01-6
3,3' Dichlorobenzidine/91-94-1	Ethylene thioureae/96-45-7	2,4,6-Trichlorophenol/88-06-2
1,1 Dichloroethane/75-34-3	Folpet/133-07-3	Trimethyl phosphate/512-56-1
1,2 Dichloroethane/107-06-2	Furmecyclo/60568-05-0	Vinyl chloride/75-01-4

6. Are any other pesticides, herbicides, or fungicides used at this facility?  YES  NO  
If yes, specify the material and quantity used.

7. Are there other pollutants that you know of or believe to be present?  YES  NO

If yes, specify the pollutants and their concentration if known  
(attach laboratory analyses if available).  DON'T KNOW

## SECTION F. GROUND WATER INFORMATION

Provide available data measurements or range of measurements from monitoring wells or supply wells in the area of discharge. Provide the analytical method and detection limit, if known. Provide the location of each well on the map required in G.3 below. Attach well logs when available. Copy this page as necessary for each well. Provide the latitude and longitude in decimal format.

Ecology Well Tag ID # \_\_\_\_\_  
 (example AAB123)  
 Latitude: 48.564914

Well ID # MW-501, MW-502, MW-503, MW-504  
 (example MW-1)  
 Longitude: 122.442839

Well Elevation (to the nearest 0.01 feet) 11.82 Check the appropriate box; the elevation measurement is relative to: the NAVD88 standard  mean sea level

Parameter	Units	Range of Measurements	Number of Analyses	Analytical Method	Detection Limit
BOD (5 day)	mg/L	2.1 to 16	3		
COD	mg/L		3		
Total organic carbon	mg/L	41.3 to 122	3		
Total dissolved solids	mg/L	513 to 750	3		
Dissolved Fixed Solids	mg/L				
pH	Standard units				
Conductivity	(micromhos/cm)	800 to 1280	3		
Alkalinity	mg/L as CaCO <sub>3</sub>				
Total hardness	mg/L				
Fecal coliform	organisms/100mL				
Total coliform	organisms/100mL				
Dissolved oxygen	mg/L	.25 to 1.88	3		
Ammonia-N	mg/L				
Nitrate + nitrite-N, nitrate as N	mg/L	ND to 8.91	3		
Total kjeldahl N as N	mg/L	13.36 to 22.9	3		
Ortho-phosphate-P as P	mg/L				
Total-phosphate-P as P	mg/L				
Total Oil and Grease	mg/L				
Total petroleum hydrocarbon	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Calcium	<input checked="" type="checkbox"/> mg/L <input type="checkbox"/> µg/l	49.2 to 94.3	3		
Chloride	<input checked="" type="checkbox"/> mg/L <input type="checkbox"/> µg/l	32.1 to 90.3	3		
Fluoride	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Magnesium	<input checked="" type="checkbox"/> mg/L <input type="checkbox"/> µg/l	0.286 to 2.11	3		
Potassium	<input checked="" type="checkbox"/> mg/L <input type="checkbox"/> µg/l	14.2 to 33.9	3		
Sodium	<input checked="" type="checkbox"/> mg/L <input type="checkbox"/> µg/l	48.4 to 114	3		
Sulfate	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l	29 to 84.3	3		
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 checked="" type="checkbox"/> mg/L <input type="checkbox"/> µg/l	50.5 to 173	3		
Lead	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				
Manganese	<input type="checkbox"/> mg/L <input type="checkbox"/> µg/l				

Parameter	Units	Range of Measurements	Number of Analyses	Analytical Method	Detection Limit
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				
Depth to water level (to the nearest .01 feet)					

## SECTION G. SITE ASSESSMENT

**The local library and local city or county planning offices may be helpful in providing the information required in this section. You may consult the Department of Ecology Water Resources Program to help identify wells within one mile of your site.**

1. Land Application Sites: Provide the information below for each land application site. Provide the latitude/longitude (approximate center of the site; NAD83/WGS84 reference datum.) Attach a copy of the contract(s) authorizing use of any private land(s) used for each treatment site. Add table rows as necessary.

Legal Description (section/township/range) Section 33, Township 36, Range 3, Block 1, Lot 13			
Latitude	Longitude	Acreage	Owner
Legal Description (section/township/range) Section 33, Township 36, Range 3, Block 1, Lot 14			
Latitude	Longitude	Acreage	Owner
Legal Description (section/township/range) Section 33, Township 36, Range 3, Block 1, Lot 15			
Latitude	Longitude	Acreage	Owner
Legal Description (section/township/range) Section 33, Township 36, Range 3, Block 1, Lot 16 & 17			
Latitude	Longitude	Acreage	Owner

2. If this is a new discharge, list all environmental control permits or approvals needed for this project; for example, SEPA review, engineering reports, hydrogeologic reports, , , or air emissions permits.

NA

3. Attach an original United States Geological Survey (USGS) 7.5 minute topographic map and aerial photograph(s) from an internet mapping site that shows the processing facility and sprayfield site(s). **USGS topographical maps are available from the Department of Natural Resources (360 902-1234), Metsker Maps (206 588-5222), some local bookstores, and internet sites.** Show the following on this map:
  - a. Location and name of internal and adjacent streets.
  - b. Surface water drainage systems within ¼ mile of the site.
  - c. All wells within 1 mile of the site.
  - d. Wastewater discharge points.
  - e. Land uses and zoning adjacent to the wastewater application site.
  - f. Groundwater gradient.
4. Describe the soils on the site using information from local soil survey reports. **Soils information is available from your local County Conservation District or from information contained in the sites hydrogeologic report.** *(Submit on separate sheet and label as attachment G.4.)*
5. Describe the local geology and hydrogeology within one mile of the site. Include any groundwater quality data. **The local library or local Soil Conservation Service may have this information.** *(Submit on separate sheet and label as attachment G.5.)*
6. List the names and addresses of contractors or consultants who provided information and cite sources of information by title and author.
  - Skagit County Assessor Office, 700 South 2nd Street, Room 204 Mount Vernon, WA 98273
  - Edison Engineering, Bob Bailey, PO Box 164 Bow, Washington 98232
  - Septic Design Services, Gary Smith, PO Box 351, Anacortes, WA 98221
  - Brewery Wastewater Design, John Mercer, 1875 Locust Rd., Montrose, CO 81401
  - Materials Testing and Consulting, John Gillaspay, 777 Chrysler Dr., Burlington, WA 98233

## SECTION H. STORMWATER

1. Do you have coverage under the Washington State Industrial Stormwater NPDES General permit?  YES  NO  
If yes, please list the permit number here. \_\_\_\_\_

If no, have you applied for coverage under the Washington State Industrial Stormwater NPDES general permit?  YES  NO

**Note:** If you answered "no" to both questions above, complete the following questions 2 through 8.

2. Describe the size of the stormwater collection area.
- a. Unpaved area See Attachment H-8 sq.ft.
  - b. Paved area See Attachment H-8 sq.ft.
  - c. Other collection areas (roofs) See Attachemtn H-8 sq.ft.
3. Does your facility's stormwater discharge to: *(Check all that apply)*
- Storm sewer system; name of storm sewer system *(operator)*:
    - Sanitary sewer
    - Directly to surface waters of Washington State *(e.g., river, lake, creek, estuary, ocean)*.  
Specify waterbody name \_\_\_\_\_
    - Indirectly to surface waters of Washington State *(i.e., flows over adjacent properties first)*.
    - Directly to ground waters of Washington State via:
      - Dry well
      - Drainfield
      - Other
4. Areas with industrial activities at facility: *(check all that apply)*
- Manufacturing building
  - Material handling
  - Material storage
  - Hazardous waste treatment, storage, or disposal *(refers to RCRA, Subtitle C facilities only)*
  - Waste treatment, storage, or disposal
  - Application or disposal of wastewaters
  - Storage and maintenance of material handling equipment
  - Vehicle maintenance
  - Areas where significant materials remain
  - Access roads and rail lines for shipping and receiving

Other \_\_\_\_\_

5. Material handling/management practices

a. Types of materials handled and/or stored outdoors: *(check all that apply)*

- |   |  |
|---|--|
| <input type="checkbox"/> <input type="checkbox"/> Solvents                            | <input type="checkbox"/> <input type="checkbox"/> Hazardous wastes                   |
| <input type="checkbox"/> <input type="checkbox"/> Scrap metal                         | <input type="checkbox"/> <input type="checkbox"/> Acids or alkalis                   |
| <input type="checkbox"/> <input type="checkbox"/> Petroleum or petrochemical products | <input type="checkbox"/> <input type="checkbox"/> Paints/coatings                    |
| <input type="checkbox"/> <input type="checkbox"/> Plating products                    | <input type="checkbox"/> <input type="checkbox"/> Woodtreating products              |
| <input type="checkbox"/> <input type="checkbox"/> Pesticides                          | <input type="checkbox"/> <input type="checkbox"/> Other <i>(please list)</i> : _____ |

b. Identify existing management practices employed to reduce pollutants in industrial storm water discharges: *(check all that apply)*

- |   |  |
|---|--|
| <input type="checkbox"/> <input type="checkbox"/> Oil/water separator         | <input type="checkbox"/> <input type="checkbox"/> Detention facilities               |
| <input type="checkbox"/> <input type="checkbox"/> Containment                 | <input type="checkbox"/> <input type="checkbox"/> Infiltration basins                |
| <input type="checkbox"/> <input type="checkbox"/> Spill prevention            | <input type="checkbox"/> <input type="checkbox"/> Operational BMPs                   |
| <input type="checkbox"/> <input type="checkbox"/> Surface leachate collection | <input checked="" type="checkbox"/> <input type="checkbox"/> Vegetation management   |
| <input type="checkbox"/> <input type="checkbox"/> Overhead coverage           | <input type="checkbox"/> <input type="checkbox"/> Other <i>(please list)</i> : _____ |

6. Attach a map showing stormwater drainage/collection areas, disposal areas and discharge points. This may be a hand drawn map if no other site map is available. Label this as attachment H.8.

## SECTION I. OTHER INFORMATION

1. Describe liquid or solid wastes generated that are not disposed of in the waste stream(s) and describe the method of disposal. For each type of waste, provide type of waste, name, address, and phone number of hauler.

The brewing process generates 'spent grain', which is leftover barley from the brewing process. The distillery also generates 'stillage', leftover grains, and fruits from the distillation process. These will be given to a local farmer as a feed material. Chelan Farm 360-661-5316

2. Describe any storage areas used for raw materials, products, and wastes.

All raw materials and finished products will be stored indoors. Wastewater will be stored in an existing 30,000 gal former blood storage tank.

---

---

### Summary of attachments that may be required for this application:

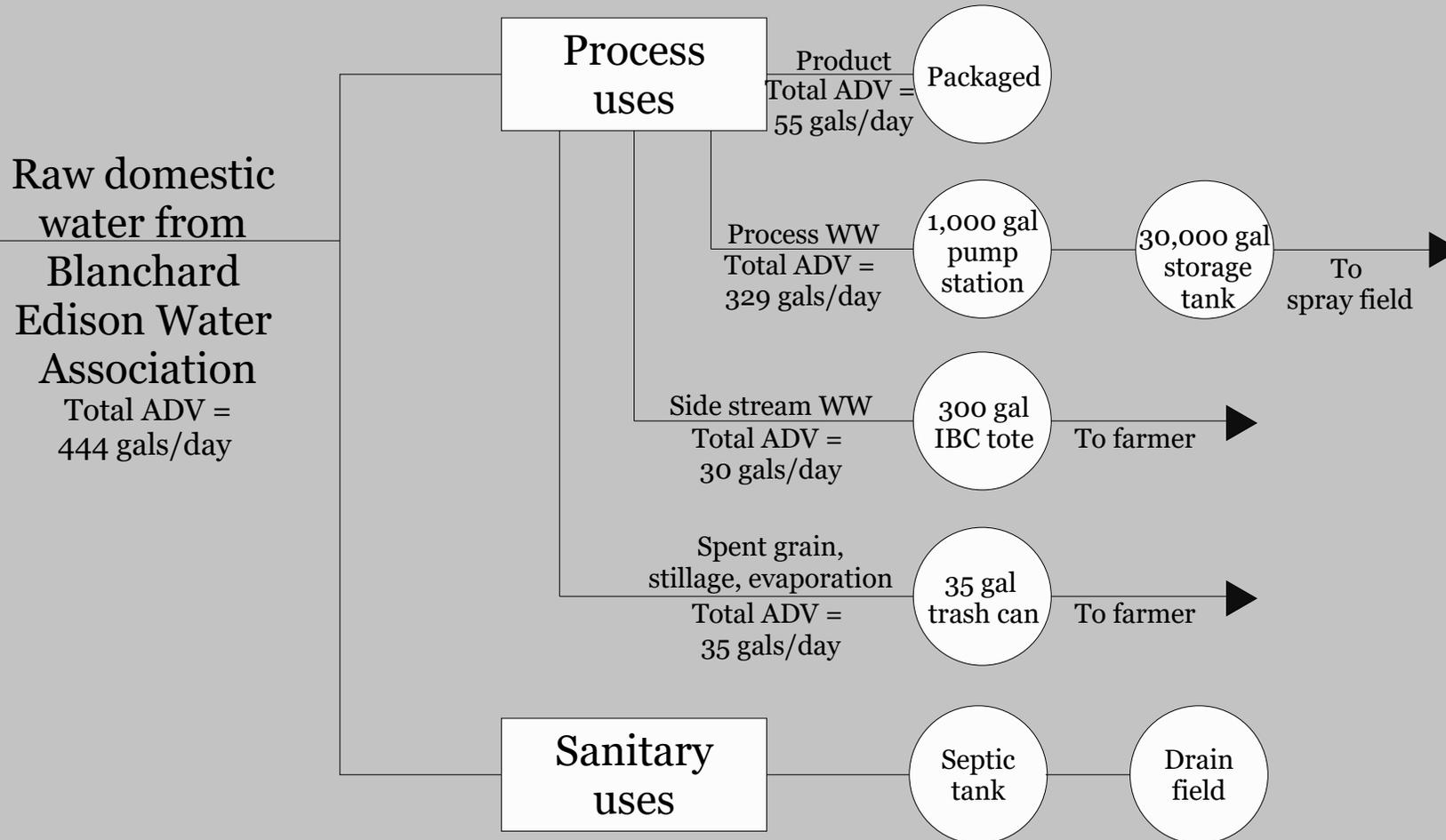
(Please check those attachments that are included)

- C.2. Production schematic flow diagram and water balance
- C.4. Wastewater treatment improvements
- C.7. Additional incidental materials
- E.4. Additional results of effluent testing
- G.1. Copies of land use contracts
- G.3. USGS topographical map
- G.4. Soils description
- G.5. Local geology and hydrology
- H.8. Stormwater drainage map

*If you need this document in a format for the visually impaired, call the Water Quality Program at 360-407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

# Process flow diagram, Attachment C2

## Wastewater overview



You will notice water balance if off by 5 gallons. This is explained later.



**Brewery Wastewater Design, LLC**  
 1875 Locust Rd.  
 Montrose, CO 81401  
 www.brewerywastewater.com  
 john@brewerywastewater.com  
 541-350-4261

# Terramar Brewing

**CLIENT**  
 Terramar Brewing & Distilling  
 Edison, WA

**PROJECT**  
 Wastewater pretreatment

**DRAWN BY**  
 JM | BWD

**ISSUE**  
 7.19.18

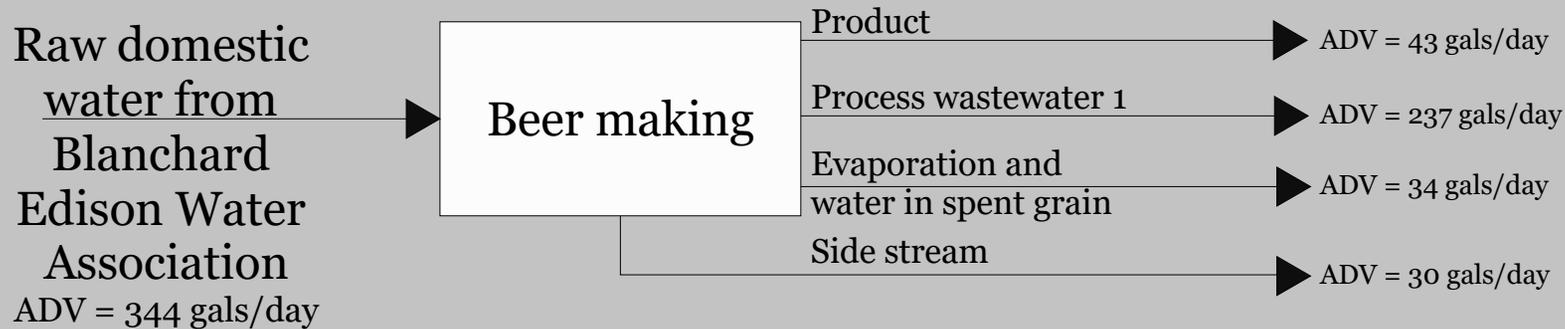
**RE-ISSUE**  
 ---

**DESCRIPTION**  
 Sheet Description

# WW<sub>1</sub>

# Process flow diagram, Attachment C2

## Beer making details



ADV =  
Average daily  
volume



**Brewery Wastewater Design, LLC**  
1875 Locust Rd.  
Montrose, CO 81401  
www.brewerywastewater.com  
john@brewerywastewater.com  
541-350-4261

## Terramar Brewing

**CLIENT**  
Terramar Brewing  
& Distilling  
Edison, WA

**PROJECT**  
Wastewater  
pretreatment

**DRAWN BY**  
JM | BWD

**ISSUE**  
7.19.18

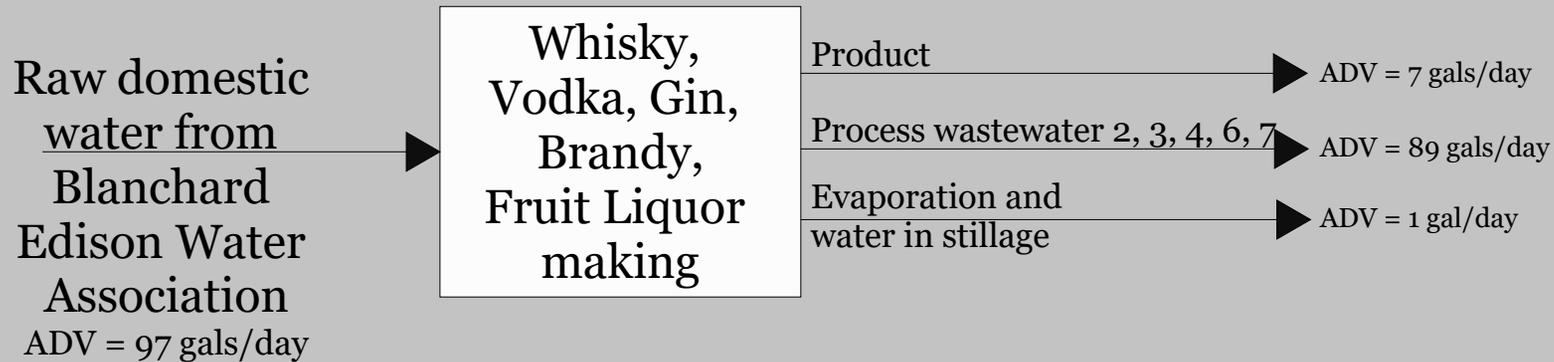
**RE-ISSUE**  
---

**DESCRIPTION**  
Sheet Description

# WW<sub>2</sub>

# Process flow diagram, Attachment C2

## Distillery details



**Brewery Wastewater Design, LLC**  
1875 Locust Rd.  
Montrose, CO 81401  
www.brewerywastewater.com  
john@brewerywastewater.com  
541-350-4261

# Terramar Brewing

**CLIENT**  
Terramar Brewing & Distilling  
Edison, WA

**PROJECT**  
Wastewater pretreatment

**DRAWN BY**  
JM | BWD

**ISSUE**  
7.19.18

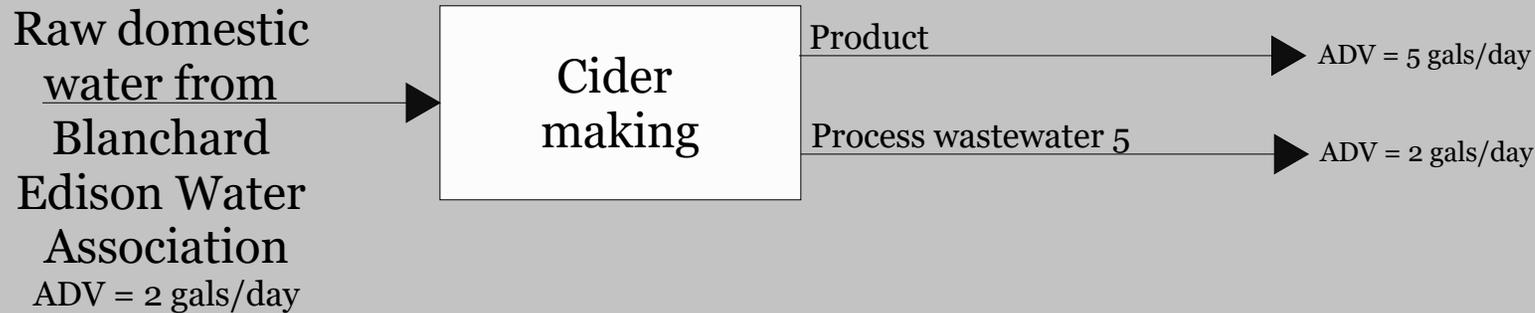
**RE-ISSUE**  
---

**DESCRIPTION**  
Sheet Description

# WW<sub>3</sub>

# Process flow diagram, Attachment C2

## Hard Apple Cider making details



Cider will be purchased as a liquid, there will be no evaporation or pomace. This is the extra 5 gals/day.



**Brewery Wastewater Design, LLC**  
1875 Locust Rd.  
Montrose, CO 81401  
www.brewerywastewater.com  
john@brewerywastewater.com  
541-350-4261

# Terramar Brewing

**CLIENT**  
Terramar Brewing & Distilling  
Edison, WA

**PROJECT**  
Wastewater pretreatment

**DRAWN BY**  
JM | BWD

**ISSUE**  
7.19.18

**RE-ISSUE**  
---

**DESCRIPTION**  
Sheet Description

# WW<sub>4</sub>

**Terramar**  
**Appendix G3**  
**Maps**

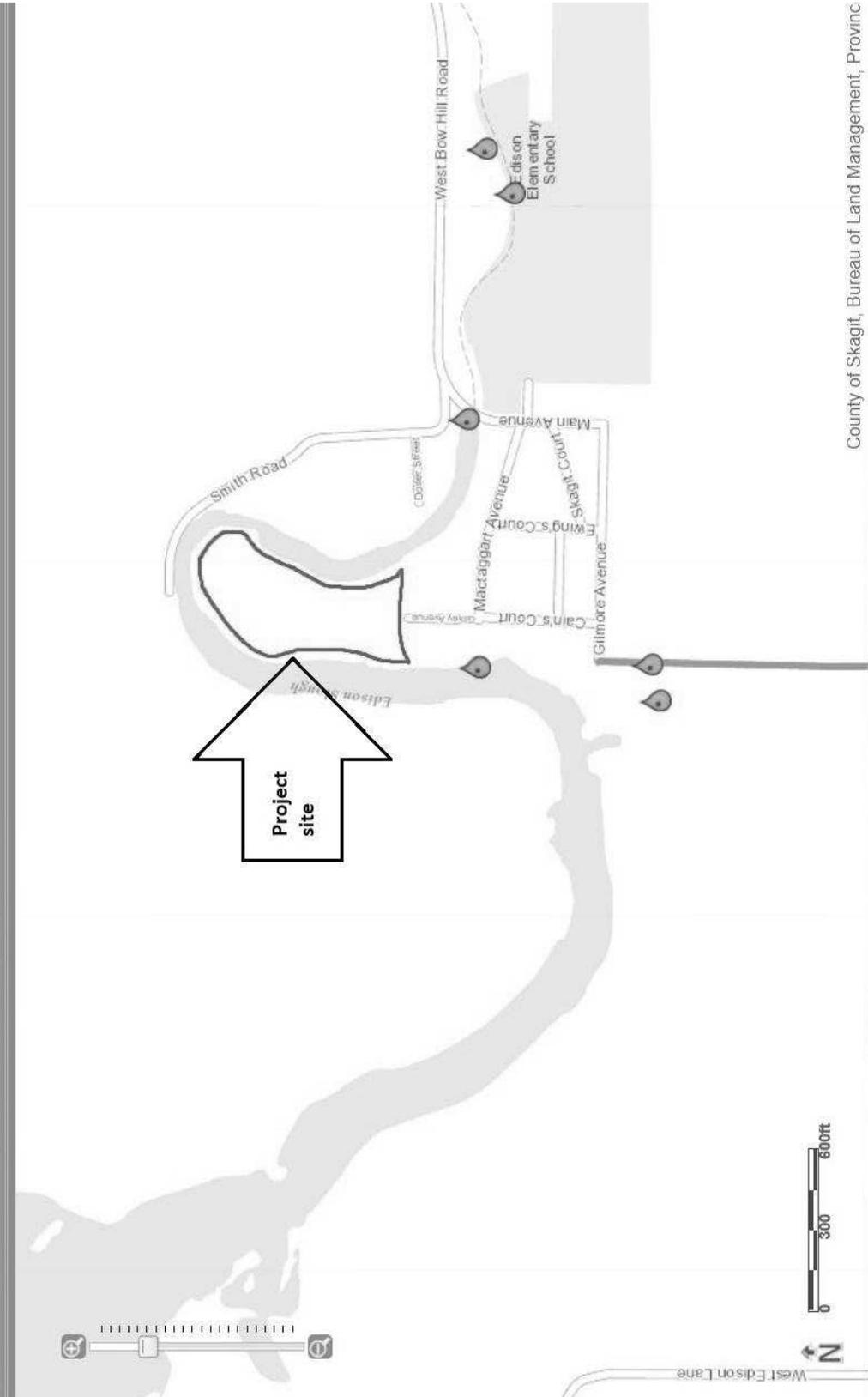






NEW LIDAR image layer has been added to the aerial image view options. Elevations can also be found using the measurement tool while viewing aerial images.

### Completed Drainage Utility Projects



Additional Maps

### Utility Projects

- Common Maps**
- Comprehensive Plan/Zoning
  - Incidents and Registered Sex Offenders
  - Property Map
  - Aerial Images

- Map Categories**
- Districts
  - Elections
  - Lost Communities
  - Planning and Development
  - Property Assessment and Sales
  - Public Health
  - Public Safety
  - Public Works
  - Utilities

- Build-A-Map**
- Topographic Basemap

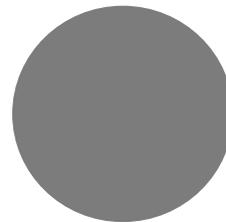
- Legend
- Layer List
- Search
- Map Description

# EDISON SLOUGH DRAINAGE IMPROVEMENT PROJECT—PHASE I

WA402009  
COMPLETED IN 1998

**Project Manager:** Dan Tolliver  
**Designer:** Montgomery Water Group  
**Constructor:** Paragon Construction Company

**Final Project Cost:** \$ 272,132



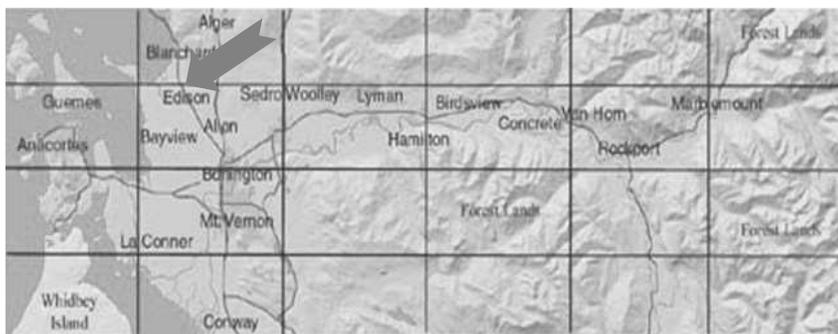
## Project Funding

- Drainage Utility
- Other

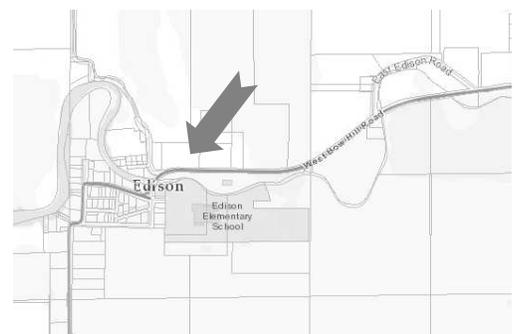
## Project Narrative:

Edison was the site of frequent flooding. Recommendations to alleviate this problem were outlined in the *Skagit County Drainage Study Draft Capital Improvement Plan*, completed in October 1993. This project replaced a private driveway culvert at 14472 West Bow Hill Road, and installed a self-regulating tidegate at the West Bow Hill Road crossing of Edison Slough.

## SKAGIT COUNTY



## SITE SPECIFIC MAP



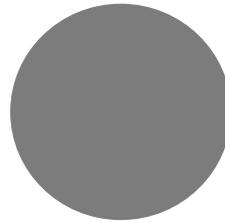
# EDISON TOWN DRAINAGE

WA402028

COMPLETED IN 2003

**Project Manager:** Burton Reanier  
**Designer:** Public Works  
**Constructor:** Island Construction Site & Utilities, Inc.

**Final Project Cost:** \$ 219,954



## Project Funding

- Drainage Utility
- Other

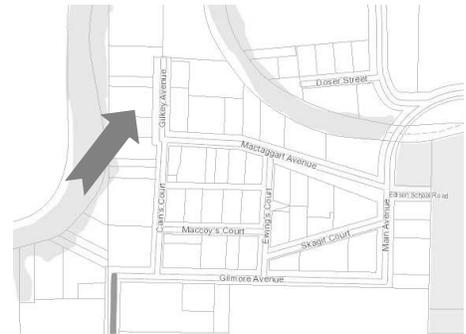
## Project Narrative:

The project consisted of the installation of 35 lf of 18 foot wide by 5 foot high box culvert, and excavation and haul for 800 lf of channel widening and other work.

## SKAGIT COUNTY



## SITE SPECIFIC MAP



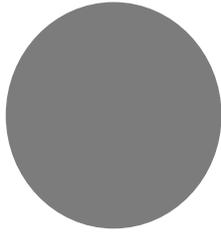
# EDISON TOWN POND

WA402050

COMPLETED IN 2006

**Project Manager:** Jan Flagan  
**Designer:** Public Works  
**Constructor:** Public Works Operations

**Final Project Cost:** \$ 240,833



## Project Funding

- Drainage Utility
- Other

## AFTER



## BEFORE

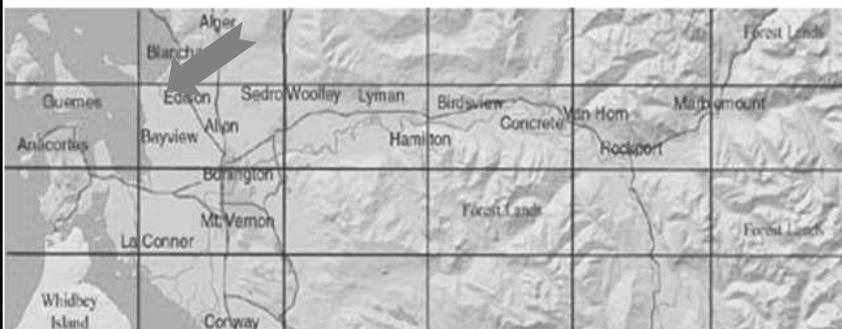


## Project Narrative:

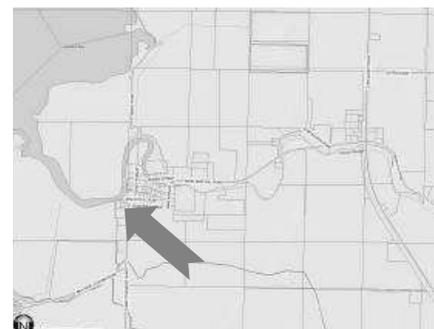
To address years of frequently inundated roads in the Town of Edison, Skagit County Public Works embarked on a multi-year effort to improve the stormdrain system on and off the public right-of-way. Prior to this effort, the drainage system in Edison, parts of which dated back many decades, was composed of undersized pipes and catchbasins constructed sporadically over time and pieced together as the town expanded and contracted.

The last piece of this project was this pond. County crews constructed a stormwater detention pond at the southwest edge of town. This pond replaces the severely undersized pond located behind the bakery at the intersection of Farm-to-Market Road and Gilmore Avenue. Most of the stormwater system in town drains to a single outlet to Edison Slough. This outfall only opens and drains during lower tides. The new pond will provide a holding area for stormwater collected while it is raining and the tide is high enough to keep the outlet from opening. This "detained" stormwater will then flow out to the slough as the tide recedes.

## SKAGIT COUNTY



## SITE SPECIFIC MAP



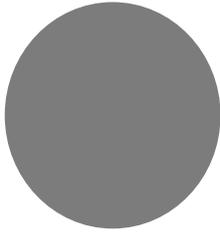
# EDISON SLOUGH SRT REPLACEMENT

WA402077

COMPLETED IN 2006

**Project Manager:** Jan Flagan  
**Designer:** Montgomery Water Group  
**Constructor:** Strider Construction

**Final Project Cost:** \$ 202,610



## Project Funding

- Drainage Utility
- Other

## AFTER



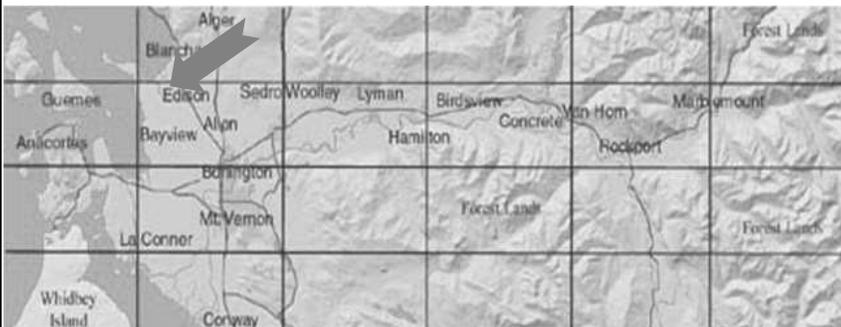
## BEFORE



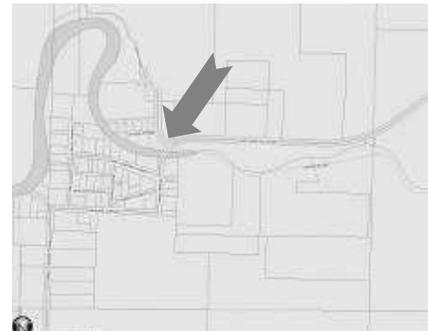
## Project Narrative:

The Edison Self-Regulating Tidegate (SRT) under MacTaggart Avenue on Edison Slough was a top-hinge gate, which experienced operational difficulties. It was replaced with an "Aberdeen" type SRT, which is side-hinged and should exhibit improved performance. The SRT was moved to one of the culverts in the center of the slough, as shown in the "After" picture above. The SRT was fabricated by Golden Harvest; construction was completed by Strider Construction.

## SKAGIT COUNTY



## SITE SPECIFIC MAP

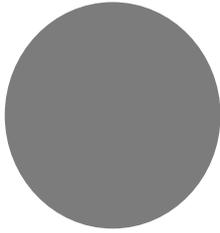


# EDISON SLOUGH RESTRICTION REMOVAL

WA402090  
COMPLETED IN 2006

**Project Manager:** Chris Kowitz  
**Designer:** Public Works  
**Constructor:** Public Works

**Final Project Cost:** \$ 1,453



## Project Funding

- Drainage Utility
- Other

## AFTER



## BEFORE

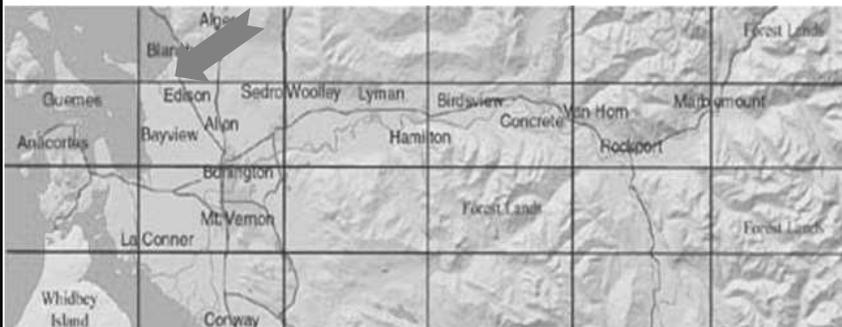


## Project Narrative:

The project consisted of removal of a slough restriction behind the Edison Firehall. The banks were shaped to meet existing slope on either side of the restriction.

As seen in the "Before" picture, an abandoned crossing severely restricted the flow of the slough. The piles shown are the remnants of this old channel crossing. The "After" picture shows the slough after removal of the restriction. The channel now allows unimpeded flow through this portion of Edison Slough.

## SKAGIT COUNTY



## SITE SPECIFIC MAP

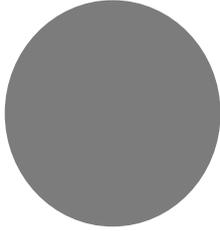


# EDISON DRAINAGE (NEAR TOWN POND)

WA402113  
COMPLETED IN 2009

**Project Manager:** Mike Farthing  
**Designer:** Public Works  
**Constructor:** Taylor Excavators, Inc.

**Final Project Cost:** \$ 91,023



### Project Funding

- Drainage Utility
- Other

### AFTER



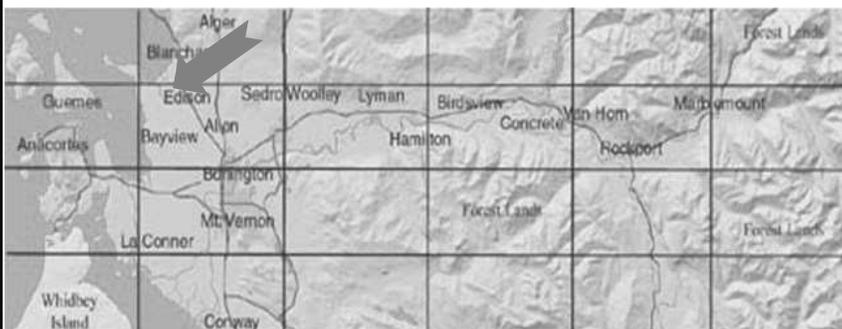
### BEFORE



### Project Narrative:

An existing clay tile drainage system served four properties along Farm to Market Road had failed, subjecting the properties to significant flooding. This project consisted of replacing the failed drainage system by installing five (5) Type 1 catch-basins along the east side of Farm To Market Road. The basins were linked using 600 lf of 12-inch diameter plastic pipe (CPEP). The new drainage system was installed near the newly built Edison Town Pond and discharges into an existing drainage ditch that is pumped into Samish Bay.

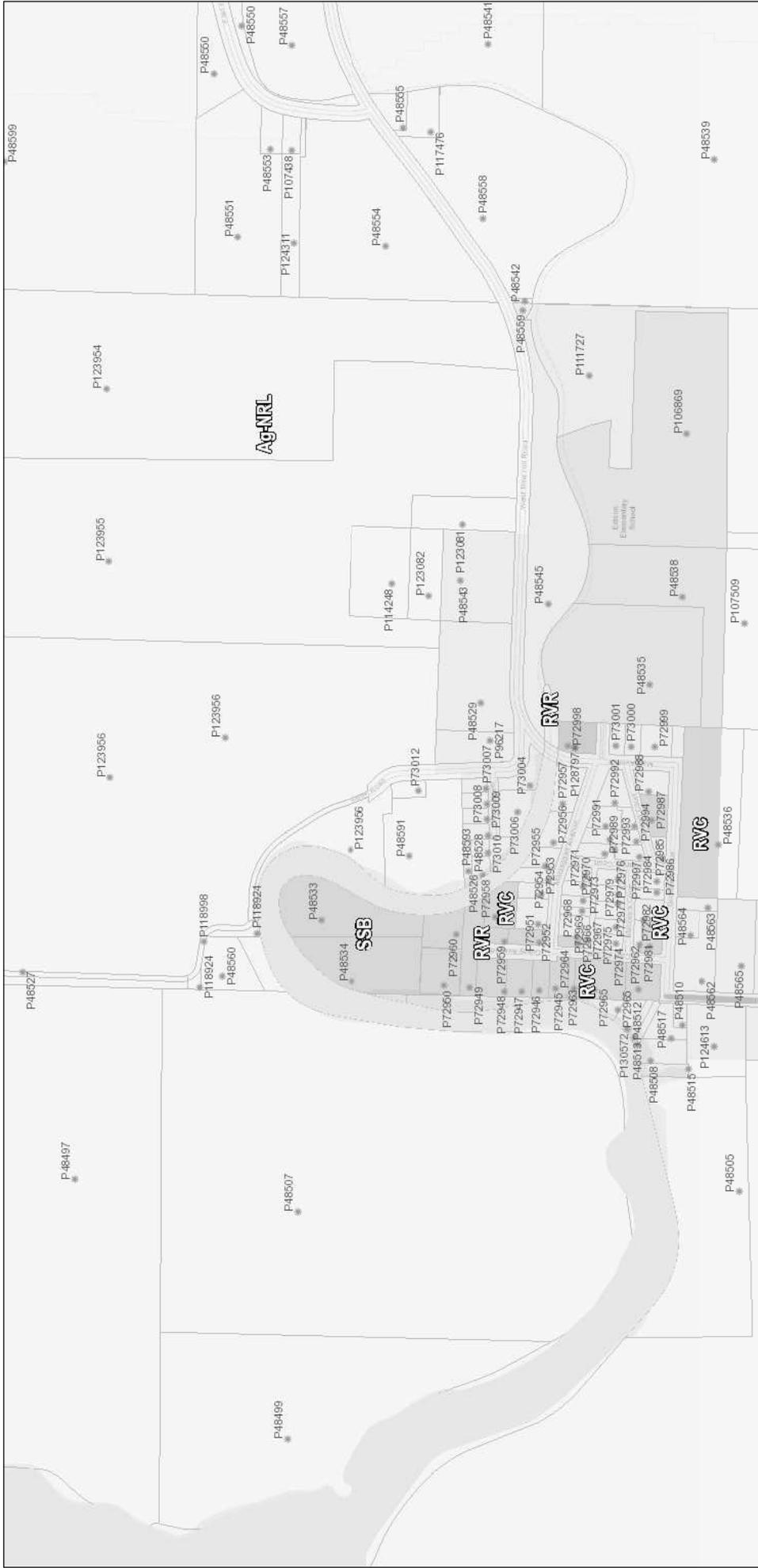
### SKAGIT COUNTY



### SITE SPECIFIC MAP



# Zoning Map



August 17, 2018

## Legend

- Tax Parcels
  - County Boundary
  - Incorporated Areas
  - Airport Environs Overlay (AEO)
  - UGAA Areas
  - Water
  - Tax Parcel Numbers
  - Dirt Accounts
  - Senior Citizen Accounts
  - Mobile Home Only Accounts
  - Building Only Accounts
  - Guemes Island Overlay
  - Mineral Resource Overlay (MRO)
  - Tax Parcels
  - Pre Tax Account Property
- 
- ### Comprehensive Plan
- A-UD; LC-UD; MV-UD
  - AVR
  - AVR-L
  - Ag-NRL
  - BR-CC
  - BR-HI
  - BR-LI
  - BR-R
  - BR-URV
  - C
  - CITY
  - CSB; MPR; NRI; RB; RC; RFS; RVC; RMI; SRT; SSB
  - HI
  - HR
  - H-URV
  - IF-NRL
  - OSRSI
  - R
  - RI
  - RRV
  - RVR
  - SF-NRL
  - UGA
  - URC-1
  - URP-OS
  - URR

1:4,514

0 0.05 0.1 0.15 0.2 mi

0 0.075 0.15 0.3 km

**Data Accuracy Warning:** All GIS data was created from available public records and existing map sources. Map features have been adjusted to achieve a best-fit registration. While great care was taken in this process, maps from different sources rarely agree as to the precise location of geographic features. Map discrepancies can be as great as 300 feet.

# EIM Groundwater Map Search

Basemap



View Data View in EIM Map Download All Zoom to Selection 0 locations selected

Filter records: collapse results

Search Criteria:

Find	Location ID	Location Name	Well	Well Log	Chart Hydrograph and Well Data	Associated Facility	Studies	Downloads
No data available in table								

**Terramar**  
**Attachment G4**  
**Soils Report**





# Contact Information & Signature Form

Planning & Development Services · 1800 Continental Place · Mount Vernon WA 98273  
voice 360-416-1320 · inspections 360-416-1330 · www.skagitcounty.net/planning

Permit #: <b>SW18-0013</b>
Received by:

Attach this form to an application that requires it. An application will not be accepted without this form.

By signing this form, the undersigned certifies that the statements, answers, and information both on this form and the remainder of this permit application are true and correct to the best of his or her knowledge and belief.

### Applicant/Contact

Name Chris Barker Mailing Address 9321 Samish Island Rd.  
 City, State Bow, WA Zip 98232 Phone 360-510-6747  
 Email chris@terramarcraft.com

### Property Owner

Same as applicant  Multiple owners (attach additional page)

Name JJM Bow LLC Mailing Address P.O. Box 3000  
 City, State Bow, WA Zip 98232 Phone 360-766-6253  
 Email unknown

### Contractor/Designer/Installer

None  Same as applicant  Same as property owner

Name Gary R. Smith Mailing Address P.O. Box 351  
 City, State Anacortes, WA Zip 98221 Phone 360-708-6767  
 Email septicdesignservices@gmail.com License # 5100230 Expires 2/7/19

### Financing<sup>1</sup>

None  Lender below is providing construction financing  Firm below has issued payment bond

Name \_\_\_\_\_ Mailing Address \_\_\_\_\_  
 City, State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

### Signature

- I am the owner of the subject property and I grant permission to field staff to enter the site to verify the presence or absence of critical areas and perform inspections of work proposed by this application; OR
- I have the consent of the owners of the subject property and have attached Agent Authorization Form(s) (SCC 14.06.090); OR
- This is a fire suppression permit, mechanical/plumbing permit, septic permit, water review, or pre-development/pre-app meeting request; the property owner's authorization is not required.

Signature(s): \_\_\_\_\_ Date: \_\_\_\_\_  
 Printed Name: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Company: \_\_\_\_\_

<sup>1</sup> Required by RCW 19.27.095(2)(d) for building permit applications.



# Septic Permit Application

Planning & Development Services · 1800 Continental Place · Mount Vernon WA 98273  
voice 360-416-1320 · inspections 360-416-1330 · www.skagitcounty.net/planning

Permit #:  
**SW18-0013**

Septic permits are issued by Skagit County Public Health. Submit your application for processing at the Planning & Development Services permit counter, or by mail with the appropriate fee and attachments.

## Project & Property Information

Tell us about your project and its proposed location.

*copied mailed and emailed to client 1-23-18*

**DESK**

**RECEIVED**

**JAN 19 2018**

Received by:  
SKAGIT COUNTY

Site Address	5715A Gilkey Ave. (Edison)	City	BOW	Zip	98232 <sup>PDS</sup>
Parcel No(s)	P48533 & P48534				

### Prerequisites

 The following prerequisites are required *unless* you are applying for one of the following:

- Site evaluation with no design     Repair with no expansion of footprint     Permit inside city/town limits

Planning & Development Services staff are available to help you complete and explain these requirements.

PDS-use only ↓

- Lot of Record Certification** is required for all development.<sup>1</sup> Check one of the boxes that applies below. If you do not have lot certification, apply for lot certification with Planning & Development Services.
  - Lot certification is recorded under Auditor's File Number PL15-0147. Nothing further required.
  - The lot has an existing dwelling unit that was constructed prior to July 1, 1990, according to Assessor records, but lot certification was not recorded. **Recording fee is required.**
  - The lot was properly platted and approved by Skagit County on or after March 1, 1965, and has no restriction barring future development, but lot certification was not recorded. **Recording fee is required.**
  - The lot has an approved but unrecorded lot certification. Lot certification number \_\_\_\_\_  
**Recording fee is required.**
- Critical Areas** review, including floodplain development review, is required for septic permits. If you have not previously completed critical areas review for your parcel, apply at Planning & Development Services and attach your approval letter. Your application will be rejected if critical areas review is not complete for your location.
- Ag-NRL Siting Criteria.** Is this project in the Agricultural-Natural Resource Land zone?
  - No. Nothing further required.
  - Yes. Please note:
    - Location of the septic system must comply with the siting criteria in SCC 14.16.400(6) and the Administrative Official Interpretation March 16, 2010.
    - On a parcel larger than 1 acre, you must demonstrate three years of income from your own commercial agricultural production on the parcel averaging at least \$100 per acre per year for the last three years in order to construct a residence.

## Required Attachments

- Contact Information & Signature Form

## Fees

Site evaluation	<input checked="" type="checkbox"/> Site evaluation (\$250 up to two evaluations at the same site)	
	<input type="checkbox"/> Additional evaluations at same site (\$100 x ___ additional evaluations)	
Design review	<input type="checkbox"/> New design (\$400)	<input type="checkbox"/> New tank (\$145) <input type="checkbox"/> Repair (\$200)
	<input type="checkbox"/> Redesign (\$150)	<input type="checkbox"/> No design submitted <input type="checkbox"/> Table 9 Repair (\$200)
Recording fees	<input type="checkbox"/> Lot certification (\$75) <input type="checkbox"/> Assisted Treatment Design (\$74)	
Total fees submitted	\$250.00	Make check payable to Skagit County Planning & Development Services

## Permit Details

<b>History</b>	Any previous site evaluations or designs for this site? <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes, describe: soil/site evaluation and design for repair of existing system - associated with P72960; ATU & drainfield on P48533 & P48534 What year was work done? 2010 Name or project file number: SW10-0091			
<b>Site evaluation</b>	<input checked="" type="checkbox"/> Existing lot	<input type="checkbox"/> Proposed lot	<input type="checkbox"/> Attach soils	
<b>Design type</b>	<input type="checkbox"/> Conventional	<input type="checkbox"/> Pressurized	<input type="checkbox"/> Mound	<input type="checkbox"/> Sand Filter
	<input type="checkbox"/> Aerobic	<input type="checkbox"/> Aerobic/Drip	<input type="checkbox"/> Aerobic/Mound	<input type="checkbox"/> Sand-Lined Trench
	<input type="checkbox"/> Other, describe:			<input type="checkbox"/> Attach design
<b>System use</b>	<input type="checkbox"/> Residential →	# of bedrooms:	# gal/day/bedroom:	total daily flow:
	<input checked="" type="checkbox"/> Non-residential →	# of occupants:	# gal/day/occupant:	total daily flow:
<b>Proposed subdivision</b>	<input checked="" type="checkbox"/> No subdivision proposed <input type="checkbox"/> Short subdivision (2-4 lots) <input type="checkbox"/> Long subdivision (5 or more lots); lot # ___ of ___ lots Proposed subdivision name: Lot size (acres):			

## Staff Use Only Below This Line

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## Inspections

Site evaluation	_____ / _____	Design review	_____ / _____
Soil/site preparation	_____ / _____	Above/below ground devices	_____ / _____
Open trenches	_____ / _____	Pressure test	_____ / _____
Self-inspection	_____ / _____	Installed as designed	_____ / _____
Final inspection	_____ / _____		

<sup>1</sup> SCC 14.06.090(1)(b)

PG. 4  
OF 9

Site Search

January 17, 2018

Select Language



# Property Search

Assessor Information, Taxes, Land Improvements, Value History, Permits

[Directory](#) [Find It Here](#) [Records](#) [Contact](#)

### Select a search option below:

Address  Parcel #  Owner Name (Last First)  Road  XrefID

Enter Parcel #:

[Clear](#) [Help](#) [Print](#)

[Assessor Home](#)

[Treasurer Home](#)

### Prior Searches

[Clear Prior Searches](#)

P48533  
JJM BOW LLC

P31294  
LEIMKUHLER RONALD JO...  
4536 SOUTH SHORE DRIVE  
Anacortes, WA 98221

[Details](#) [Improvements](#) [Land](#) [Transfers](#) [History](#) [Taxes](#) [Permits](#) [Sales Comps](#)

### Details for Parcel: P48533



**Jurisdiction:** SKAGIT COUNTY  
**Zoning Designation:** Skagit County - Small Scale Business

**Recorded Documents:** Documents scanned and recorded by the Auditor's office  
**Excise Affidavits:** Document scans of excise affidavits  
**Septic System:** Septic system information

**Parcel Number:** P48533  
**XrefID:** 360333-0-007-0009  
**Quarter:** 33 **Section:** 36 **Township:** 03 **Range:** 03

**Owner Information:**  
JJM BOW LLC  
PO BOX 3000  
BOW, WA 98232

**Site Address(es):** \_

**Map Links:**  
[Open in iMap](#)  
[Assessor's Parcel Map:](#)  
[PDF](#) [DWF](#)

**Current Legal Description:** Abbreviation Definitions  
(2.1600 ac) E1/2 OF N 4AC OF LT 3

**2017 Values for 2018 Taxes\***  
Building Market Value \$72,600.00  
Land Market Value +\$113,400.00  
Total Market Value \$186,000.00  
Assessed Value \$186,000.00  
Taxable Value \$186,000.00

**Sale Information:**  
Deed Type TRANSFER W/I CORPORATION  
Sale Date  
Sale Price \$.00  
Sale requires NRL disclosure (more info)

**2018 Property Tax Summary:**  
2018 Taxes will be available after 2/15/2018  
Use the Taxes link above for 2017 taxes

\* Effective date of value is January 1 of the assessment year (2017)

### Legal Description at time of Assessment

*Land Use	(510) WHOLESALE TRADE	WAC 458-53-030
Neighborhood	(716BURL) BURLINGTON WAREHOUSE/DISTRIBUTION BUILDING	

Levy Code	1140	Fire District	F05
School District	SD100	Exemptions	
Utilities	*SEP, WTR-P	Acres	2.16

### Improvement 1 Attributes Summary

Building Style	COMMERCIAL REAL PROPERTY		
Year Built	1900	Foundation	
Above Grade Living Area	595 Square Feet	Exterior Walls	
Finished Basement		Roof Covering	
*Total Living Area	595 Square Feet	Heat/Air Conditioning	
Unfinished Basement		Fireplace	
*Total Garage Area		Bedrooms	
Bathrooms			

**For additional information on individual segments see Improvements tab**

\* Land Use codes are for assessment administration purposes and do not represent jurisdictional zoning. Please contact the appropriate planning department in your jurisdiction for land use questions.

\* Total living area includes above grade living area and finished basement area.

\* Garage square footage includes all garage areas; basement garages, attached garages, detached garages, etc.

**Assessment data for improvements is based on exterior inspections. Please contact the Assessor's office if the information does not accurately reflect the interior characteristics.**

PG. 5  
OF 9

Site Search

January 17, 2018

Select Language



# Property Search

Assessor Information, Taxes, Land Improvements, Value History, Permits

Directory Find It Here Records Contact

Select a search option below:

Address  Parcel #  Owner Name (Last First)  Road  XrefID

Enter Parcel #: P48534

Clear Help Print

Prior Searches

Clear Prior Searches

P48534  
JIM BOW LLC

P48533  
JIM BOW LLC

P31294  
LEIMKUHNER RONALD JO...  
4536 SOUTH SHORE DRIVE  
Anacortes, WA 98221



Details for Parcel: P48534

**Jurisdiction:** SKAGIT COUNTY  
**Zoning Designation:** Skagit County - Small Scale Business

**Recorded Documents:** Documents scanned and recorded by the Auditor's office  
**Excise Affidavits:** Document scans of excise affidavits

**Parcel Number:** P48534 **XrefID:** 360333-0-008-0008 **Quarter:** 33 **Section:** 36 **Township Range:** 03

**Owner Information:**  
JIM BOW LLC  
PO BOX 3000  
BOW, WA 98232

**Site Address(es):** \_

**Map Links:**  
Open in iMap  
Assessor's Parcel Map:  
PDF | DWF

**Current Legal Description:** Abbreviation Definitions  
(2.1700 ac) W1/2 OF N 4AC OF LT 3

2017 Values for 2018 Taxes\*

Building Market Value \$ .00  
Land Market Value +\$9,200.00  
Total Market Value \$9,200.00  
Assessed Value \$9,200.00  
Taxable Value \$9,200.00

Sale Information

Deed Type TRANSFER W/I CORPORATION  
Sale Date  
Sale Price \$ .00  
Sale requires NRL disclosure (more info)

2018 Property Tax Summary

2018 Taxes will be available after 2/15/2018  
Use the Taxes link above for 2017 taxes

\* Effective date of value is January 1 of the assessment year (2017)

Legal Description at time of Assessment

*Land Use	(510) WHOLESALE TRADE	WAC 458-53-030	
Neighborhood	(6L1BURL) BURLINGTON COMMERCIAL LAND		
Levy Code	1140	Fire District	F05
School District	SD100	Exemptions	
Utilities		Acres	2.17

Improvement 1 Attributes Summary

Building Style	COMMERCIAL REAL PROPERTY		
Year Built		Foundation	
Above Grade Living Area		Exterior Walls	
Finished Basement		Roof Covering	
*Total Living Area		Heat/Air Conditioning	
Unfinished Basement		Fireplace	
*Total Garage Area		Bedrooms	
Bathrooms			

For additional information on individual segments see Improvements tab

\* Land Use codes are for assessment administration purposes and do not represent jurisdictional zoning. Please contact the appropriate planning department in your jurisdiction for land use questions.

\* Total living area includes above grade living area and finished basement area.

\* Garage square footage includes all garage areas; basement garages, attached garages, detached garages, etc.

Assessment data for improvements is based on exterior inspections. Please contact the Assessor's office if the information does not accurately reflect the interior characteristics.



Site Address: 5715A Gilkey Ave. (Edison) 98232

Owner: JJM Bow LLC

Date On Site: 1/9/18 1:00 p.m.

Applicant: BARKER, Chris

SCS: #96 Mt. Vernon Very Fine Sandy Loam

Parcel No. P48533 & P48534

Soil Type: 4

Xref ID: 360333-0-007-0009

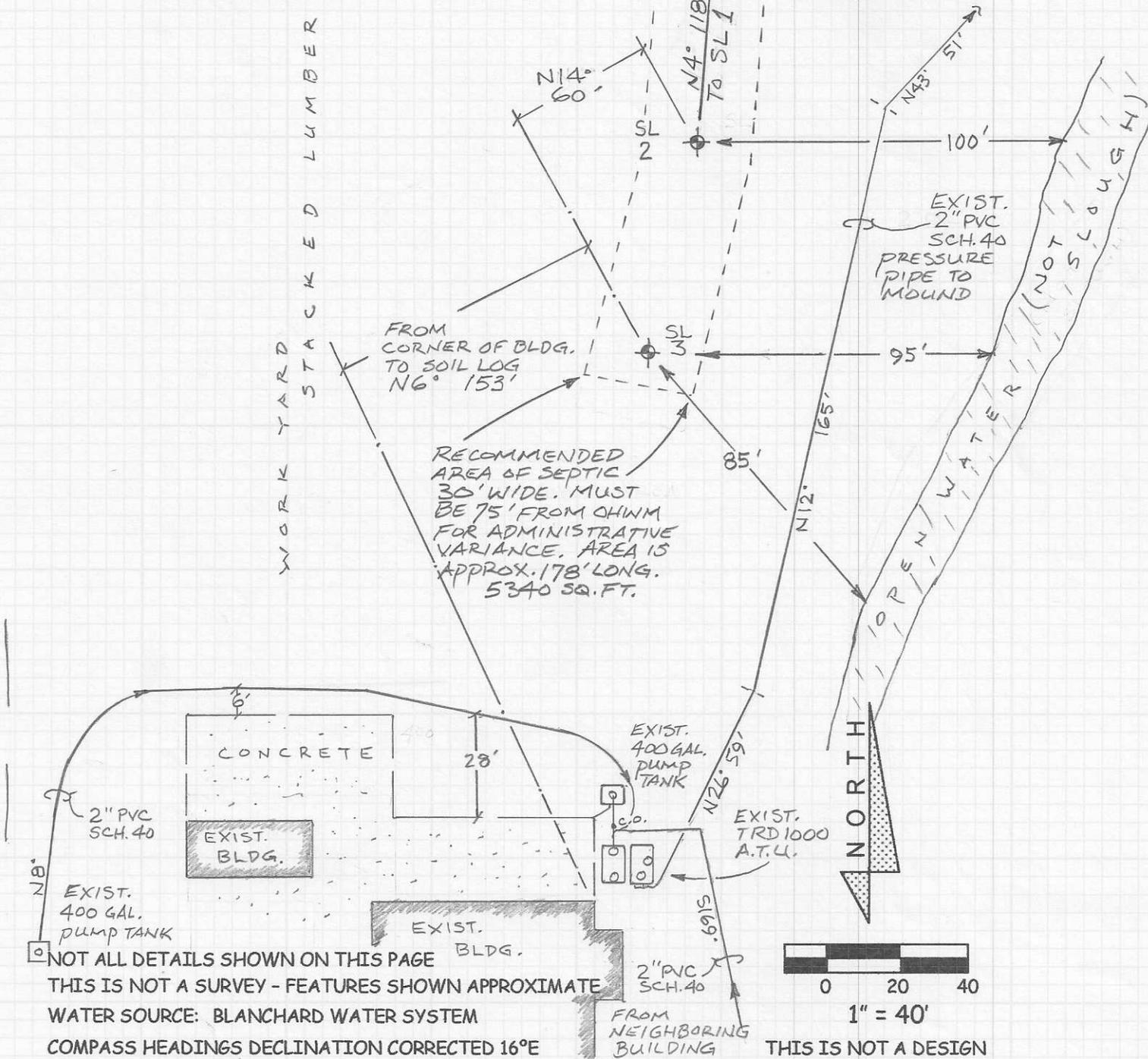
Recommended Application Rate: 0.6

360333-0-008-0008

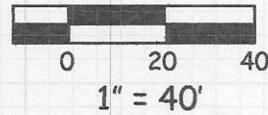
Recommended OSS Type: ATU/Sand Lined Trench w/24" astm sand

SEPTIC SOIL/SITE EVALUATION

Permit #SW18-0013



NOT ALL DETAILS SHOWN ON THIS PAGE  
 THIS IS NOT A SURVEY - FEATURES SHOWN APPROXIMATE  
 WATER SOURCE: BLANCHARD WATER SYSTEM  
 COMPASS HEADINGS DECLINATION CORRECTED 16°



THIS IS NOT A DESIGN

Site, design and construction requirements not specifically mentioned herein shall conform to applicable State and County standards.

SEPTIC DESIGN SERVICES, INC.

Gary R. Smith, State Certified Septic Designer P.O. Box 351 Anacortes, WA 98221



Date on site: 1/9/18  
Time on site: 1:00 p.m.  
Address: 5715A Gilkey Ave. Edison

SCS: #96 Mt. Vernon Very Fine Sandy Loam

SOIL TYPE: 4

Owner: JJMBow LLC  
Applicant: BARKER, Chris  
Parcel No. P48533 & P48534  
Xref ID: 360333-0-007-0009  
360333-0-008-0008

Permit #SW18-0013

Page 9 of 9

**SOIL LOG 1**

0 to 45 inches fill material, perched water table @12"-20"  
45 to 75 inches Fi Sa, FiRts  
75 to + inches water  
\_ to \_ inches \_  
Useable septic area 30" depth beyond 45"

**SOIL LOG 3**

0 to 6 inches fill, Co Sa Gr Lo, FiRts  
6 to 19 inches fill, Co Sa Gr, perched water table  
19 to 31 inches Fi Sa dk br Lo, FiRts, disturbed  
31 to 49 inches Fi Sa, FiRts  
49 to + inches water  
Useable septic area 18" depth beyond 31"

**SOIL LOG 2**

0 to 22 inches fill material, perched water table  
22 to 30 inches Fi Sa dk br Lo, FiRts, disturbed  
30 to 56 inches Fi Sa, FiRts  
56 to + inches water  
Useable septic area 26" depth beyond 30"

**SOIL LOG**

0 to \_ inches \_  
\_ to \_ inches \_  
\_ to \_ inches \_  
\_ to \_ inches \_  
Anticipated Impermeable Layer "

RATE OF WASTEWATER APPLICATION: 0.6 GAL./SQ.FT./DAY @ 31" @ SL2 & SL3; 45" @ SL1

**NOTE:** MUST BE INSTALLED WHEN SOIL IS DRY.

RECOMMENDED OSS TYPE: AERATION TREATMENT UNIT / SAND LINED TRENCH

VEGETATION: GRASS

SEWER MAIN CLOSER THAN 200'? NO

WATER SOURCE: BLANCHARD WATER SYSTEM

TANKS TO BE SEALED? YES

SURFACE WATER CLOSER THAN 200'? YES\*

MINIMUM VERTICAL SEPARATION: 24"

\*85' FROM SL3; 160' FROM SL1

**KEY TO ABBREVIATIONS:**

Lo = Loam	Gr = Gravelly	dk = dark
Sa = Sand	Vy = Very	lt = light
Cl = Clay	Fi = Fine	br = brown
Si = Silt	Me = Medium	tn = tan
Rts = Roots	Co = Course	rd = red
FiRts = Fine Roots	ex = Extremely	or = orange
motts = mottling	cobbs = cobbles	gr = gray
orgs = organics	bl = blue	blk = black

DO NOT COMPACT OR DISTURB SOIL IN DESIGNATED AREAS OF DRAINFIELD OR RESERVE BEFORE, DURING, OR AFTER INSTALLATION OF SYSTEM. NO STACKING OF CONSTRUCTION MATERIALS, NO BURN PILES, NO VEHICULAR TRAFFIC, NO CONCRETE WASHOUT.

Site, design and construction requirements not specifically mentioned herein shall conform to applicable State and County standards.

**SEPTIC DESIGN SERVICES, INC.**  
Gary R. Smith, State Certified Septic Designer P.O. Box 351 Anacortes, WA 98221

Groundwater Monitoring Network  
State Waste Discharge Permit Number ST0501319  
Terramar Brewery, Edison, WA

For:

For: Terramar Brewery  
P.O. Box 3000 Bow  
WA 98232

By:



PO Box 2546  
Bellingham, WA 98227  
(360) 714-9409

March 14, 2023



P.O. Box 2546, Bellingham, WA 98227

March 14, 2023

Chris Barker  
Terramar Brewery  
P.O. Box 3000  
Bow, WA 98232

Re: Groundwater Monitoring Network Completion Report  
State Waste Discharge Permit Number ST0501319, Terramar Brewery, Edison, WA

The groundwater monitoring wells for the State Waste Discharge Permit Number ST0501319 have been installed consistent with the scope of work for the groundwater monitoring network dated October 16, 2020. The groundwater monitoring scope of work is required to evaluate the site groundwater monitoring network for evaluation of the wastewater application site in accordance with WAC 173-200-080.

The groundwater monitoring network provided a determination/confirmation of site-specific geology and groundwater conditions relative to the wastewater discharge area. The results are summarized in this report. The groundwater network of four wells as opposed to the three in the permit and will allow for the monitoring of potential impacts to the groundwater quality associated with wastewater discharge area.

Initial groundwater elevations have been collected and water quality samples have been collected. We are waiting laboratory results and will report the initial results when the laboratory has completed the analyses.

It is our understanding that this report will be submitted to Washington State Department of Ecology. Should you have any questions concerning the Groundwater Monitoring Network, please do not hesitate to contact us at (360) 714-9409.

Sincerely,  
Stratum Group

Dan McShane, M.Sc., L.E.G.  
Licensed Engineering Geologist

## **WASTEWATER OVERVIEW**

The project background is provided in Fact Sheet for State Waste Discharge Permit ST0501319. The Terramar Brewery facility generates wastewater from cleaning and sanitizing brewery vessel interiors and exteriors, floor cleaning, packaging, and other processes directly related to brewing and distilling. Terramar Brewery submitted a five-year build-out plan with their waste permit. This plan has a projected average wastewater flow of approximately 467 gallons per day (gpd) in year one growing to an average of 1,325 gpd by year five. This wastewater is directed to a tank where it is pH adjusted to between 6 and 9. From there it is pumped to a 30,000-gallon storage tank. Water is pumped from the tank to a sprinkler system with 23 zones covering 2.5 acres. The wastewater will irrigate grass for grass growth and land treatment.

## **LOCATION AND SITE SETTING**

The Brewery facility is located in the unincorporated town of Edison in Skagit County. The brewery, tasting room and pizza kitchen and a gravel covered parking area are located on the south part of the site. The wastewater land application area is on the north portion of the site.

The property is within a meander bend of Edison Slough such that the slough is located east, north and west of the land application area (Figures 1). A flood control dike is located between the slough and the property along the length of the slough along on the property. A drainage ditch is located landward of the dike on the property. The ditch drains from the southwest area of the property and wraps around the perimeter of the property to a discharge point into the slough on the southeast of the property.

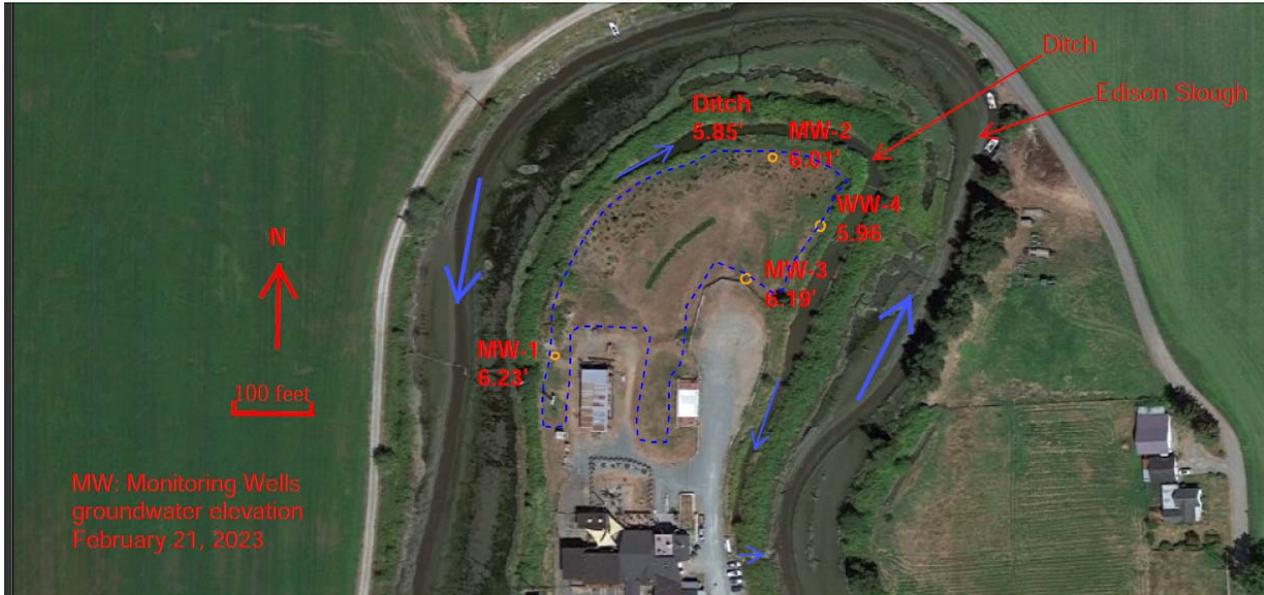


Figure 1. Site with well locations and pertinent features. Larger blue lines indicate the general flow of Edison Slough. Note the flow direction reverses during incoming tides. Smaller blue lines indicate the flow direction of the ditch. Dashed blue line encompasses the waste water application area.

## GEOLOGY

The subject property is underlain by alluvial deposits associated with the overlapping deltas of the Skagit River (the dominant sediment source) and small sediment sources from streams flowing across this delta area such as the Samish River and Edison Slough. The site is on the distal portion of the delta and sediments are predominantly fine grained and organic rich due to buried organic matter.

The upper soils on the site have been disturbed by past human occupation. Soil spoils from past excavations in the slough, the excavation of the drainage ditch, past operations on the site when the buildings were in use for meat processing and used lumber storage as well as earlier use as a pasture/grass land. Septic drainfields were and are located in the land application area or adjacent to the application area.

Gravel and rocks were spread on the surface during the site's use as a slaughter house facility and used wood facility. Recent grading took place after brewery began use of the site with clearing and smoothing of the northern portion of the property and the planting of trees and brush around the perimeter of the northern portion of the site as part of a wetland/shoreline mitigation requirement.

## **GROUNDWATER WELL NETWORK AND GROUNDWATER**

Four groundwater monitoring wells were installed on the site consistent with the scope of work for the monitoring well network. The four wells were installed in September 2022 by Holocene Drilling using a 4-inch hollow stem drilling rig. All wells were installed consistent with Chapter 173-160 WAC, the Minimum Standards for Construction and Maintenance of Wells. The four wells are located as indicated in Figure 1.

The process of installation of the monitoring wells provided additional information regarding site geology and soils in which groundwater is present. The geology and soils information was acquired by collecting soil samples with a split spoon sampler driven ahead of the boring auger during well installation work as well as observations of the auger drilling cuttings brought to the surface.

All four wells encountered the same conditions. Gravel and rocks mixed with top soil and organic material was encountered from the surface to a depth of 1 to 1.5 feet. Below that upper soil level silty fine sand (SP) with lenses of medium sand with trace gravel (SP) were encountered to the depth of the borings at 12 feet below the surface. The soils encountered are consistent with distal river delta deposits that have undergone some reworking by tidal currents. Saturated soils were encountered at approximately 5 feet at all four borings.

Each of the 2-inch wells was installed with a screened interval from 3 feet below the surface to the bottom of the well at approximately 10 feet below the surface. The shallow upper screen level installation was in anticipation of shallow elevated groundwater during periods of extended wet weather.

Because areas of perched surface water may develop on site (water puddles have been periodically observed on site and wells will be located in and in close proximity to the land application area) the tops of the wells were approximately 2 feet above the ground surface and enclosed with steel monuments with a caps. This approach eliminated the risk of surface water flow into the well and degradation of the well seal cap. The use of steel riser monuments also minimizes the risk of damage from mowing and other equipment on the site as the wells are easily observed.

Top of well casings were surveyed post well installation. A ground elevation of 10 feet derived from lidar elevations available through Skagit County GIS was used for the Well 4 location and all elevations surveyed are based on that elevation. Elevations including initial water elevations from February 21, 2023 are presented in Table 1.

**Table 1.**  
**Water elevations from February 21, 2023**

Monitoring Well	Ecology Well Number	Top of casing elevation (feet)	Latitude	Longitude	Depth to water (feet)	Water elevation (feet)
MW-1	BPP 501	10.82	48.564247	122.443981	4.59	6.23
MW-2	BPP 502	11.82	48.564914	122.442839	5.81	6.01
MW-3	BPP 503	12.10	48.564534	122.443053	5.91	6.19
WW-4	BPP 504	11.78	48.564979	122.442678	5.80	5.96
Bottom of ditch west of MW-4		7.54 (bottom of ditch)				
Water level in ditch north of MW-2						5.85

The Permit Fact Sheet notes that the groundwater at the facility is shallow. This was confirmed during the installation of the groundwater monitoring network as shallow water was encountered at all four well sites. This is also evident from the presence of water in the ditch around the land application site. The northern and eastern portions of the ditch contain water year round. The Fact Sheet notes that during the winter months the water table is less than five feet below the ground surface. This was confirmed during water level measurements on February 21, 2023 with water levels below the ground surface ranging from 2.29 feet to 4.04 feet. Groundwater levels in late summer when the wells were installed were on the order of 5 feet as well.

The Fact Sheet as well as our own observations at the site notes that the ditch level does not fluctuate with the tide levels in the slough. We observed that ditch water levels on the northern and eastern sides of the site do not appear to change very much during the year as well. The ditch on the west side is shallower and the upper southwest end of the ditch was dry in the summer. Water was flowing through this section of ditch on February 21, 2023 following a few days of heavy rain. This indicates that groundwater levels within the land application area are only minimally impacted by tide levels and seasonal variation is not likely very pronounced. However, ongoing measurements during future sampling events of the ditch level will provide further data on seasonal water levels in the ditch as well as well as groundwater levels.



**Terramar**  
**Attachment H8**  
**Floodplain Map**  
**and Application**





**Skagit County Planning & Development Services**  
 1800 Continental Place Mount Vernon WA 98273  
 Inspections (360)336-9306 Office (360)336-9410 Fax (360)336-9416

## Floodplain Development Permit Application

**Owner:** \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Email: \_\_\_\_\_

**Complete Project Description:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Applicant/Contact:** \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Email: \_\_\_\_\_

**Is residential construction intended? \_\_\_\_\_ If so,**  
 New \_\_\_\_\_ sq.ft. Garage \_\_\_\_\_ sq. ft.  
 Unfinished \_\_\_\_\_ sq.ft. Carport \_\_\_\_\_ sq. ft.  
 Addition \_\_\_\_\_ sq.ft. Deck \_\_\_\_\_ sq. ft.  
 Remodel \_\_\_\_\_ sq.ft. Repair \_\_\_\_\_ sq. ft.  
 Other – Describe \_\_\_\_\_ sq. ft.  
 Foundation lineal feet \_\_\_\_\_ sq. ft.

**Site Address:** \_\_\_\_\_  
 City: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Parcel: \_\_\_\_\_ Sec: \_\_\_\_\_ Twp: \_\_\_\_\_ Rng: \_\_\_\_\_

**Is commercial construction intended? \_\_\_\_\_ If so,**  
 New \_\_\_\_\_ sq. ft. Addition \_\_\_\_\_ sq. ft.  
 Remodel \_\_\_\_\_ sq. ft. Repair \_\_\_\_\_ sq. ft.

**Will there be imported fill? \_\_\_\_\_ If so,**  
 Roads/driveways \_\_\_\_\_ cu. yards  
 Pads for building support \_\_\_\_\_ cu. yards  
 Backfill/landscaping \_\_\_\_\_ cu. yards

**Will there be new impervious surfaces? \_\_\_\_\_ If so,**  
 Roads/driveways \_\_\_\_\_ sq. ft.  
 Buildings \_\_\_\_\_ sq. ft.  
 Patios/other \_\_\_\_\_ sq. ft.

**Will there be excavation and removal from parcel?**  
 All sources and areas \_\_\_\_\_ cu. yards

I certify that all of the property subject to this application is either in exclusive ownership of the applicant or that the applicant has submitted the application with the consent of all owners of the property. I certify that the information provided in this application is true and correct and I understand this information will be relied upon during review and decision making. I grant permission to field staff to enter the property.

Owner/Agent: \_\_\_\_\_ Date: \_\_\_\_\_

# OWNERSHIP CERTIFICATION

I, \_\_\_\_\_, hereby certify that I am the major property owner or officer of the corporation owning property described in the attached application, and I have familiarized myself with the rules and regulations of Skagit County with respect to filing this application for a \_\_\_\_\_ and that the statements, answers and information submitted presents the argument on behalf of this application and are in all respects true and correct to the best of my knowledge and belief.

Parcel # \_\_\_\_\_ Application # \_\_\_\_\_

Site Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: (\_\_\_\_\_) \_\_\_\_\_

Signature(s):

\_\_\_\_\_  
\_\_\_\_\_

for: \_\_\_\_\_  
(corporation or company name, if applicable)

STATE OF WASHINGTON        )  
  ) ss.  
COUNTY OF SKAGIT        )

On this day personally appeared before me \_\_\_\_\_, known to be the individual(s) described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purpose therein mentioned.

Given under my hand and official seal this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

Notary's Signature \_\_\_\_\_

Notary Public in and for the State of Washington residing at \_\_\_\_\_.

My Commission Expires \_\_\_\_\_



## Site Plan Requirement Checklist

Site plan must be prepared on 8 ½” x 11” *or* 11” x 17” paper.

**\*The first 7 requirements of the Drainage Plan may be met by utilizing a third copy of this site plan.**

- 1. Title Block**  
Indicate applicant's name, site address, Assessor's Tax Account # and Property ID # (P#) for the subject property.
- 2. Scale**  
Indicate map scale. Use any appropriate scale and note it on your site plan. Example - Scale: 1" = 40'
- 3. North Arrow**  
Show an arrow indicating the ↑ NORTH direction.
- 4. Property Boundaries/Easements**  
Show property lines and all easements (*utility, drainage, dike, access, railroad, etc.*). Indicate site dimensions and names of adjacent roads.
- 5. Driveway**  
Show entire length and width of driveway in feet. Indicate grade of driveway in percent (%) of slope. Turnouts are required every 300 feet. To create a turnout the road shall be widened to 20 feet in width for a distance of 30 feet in length to allow for vehicles to pull over and allow emergency vehicles to proceed.
- 6. Building Footprint**  
Show location, dimensions and setbacks of all existing and proposed buildings or structures. If this project includes an addition, please clearly show the addition different from the existing building. Identify each building by its use (*residence, garage, etc.*). Indicate roof overhang lines and any decks, porches or retaining walls.
- 7. Impervious Surface**  
Indicate the amount of **new** impervious area. Impervious areas include the square footage of new building roof area, parking area, patios and any new driveway.
- 8. Setbacks**  
Indicate the building setbacks from all property lines with a dashed line. Include shoreline setbacks when applicable.
- 9. Approved Water Source, Well Location or Water Lines**  
Indicate the drinking water supply (*existing and/or proposed, public or individual*). Show all rainwater collection systems, private well(s), public water mains and water supply pipes to all buildings.
- 10. On-Site Septic System Location or Sewer Lines**  
Indicate method of sewage disposal: Private septic - show existing and proposed on-site sewage system(s). Include drainfield replacement area(s). (Tanks are required to be 50' and drainfields 100' from a well.) Public sewer - indicate location of sewer main and private pipes to building.
- 11. Propane**  
Show the location of the propane tank (if any).
- 12. Slope**  
Indicate slope (elevation change) of building site. Use contour lines or arrows to show direction and percent (%) of slope(s). Identify any erosion or landslide areas as well as any potential unstable slopes greater than 15%.  
**Percentage % of slope = Rise (drop in height) divided by Run (distance) multiplied by 100.**

### **OTHER FEATURES TO INCLUDE ON YOUR SITE PLAN IF APPLICABLE:**

- Shorelines**  
For shoreline properties, show the ordinary high water mark (OHWM) and setbacks from OHWM to all structures, including neighbor's, within 300 feet from both side property lines.
- Dike District**  
Show both measurements from the water ward side and the landward side of the dike and distance to project.

**See Example**



## Low Impact Development in Special Flood Hazard Areas

Permit # \_\_\_\_\_ Applicant: \_\_\_\_\_

All projects in Skagit County flood areas must incorporate Low Impact Development (LID) techniques. Listed below are fundamental LID measures and minimum guidelines. Some LID techniques may not be suited for your site, for help in determining what techniques are feasible for your site, refer to the websites at the end of the next page or to our common LID feasibility information sheets **Please indicate the proposed methods for each section. Be sure to include the method option by the applicable corresponding numbered item.** (i. ii. lii...)

**After completing this checklist, please indicate all proposed LID techniques for this site along with all applicable Temporary Erosion and Sedimentation Control (TESC) methods on the site drainage plan.**

### Section 1) ROOF RUNOFF: \*Infiltration, Dispersion, or Rainwater Catchment systems \*base must be 12" above seasonal high water table

Check here if there are no new, or replaced roof areas

**A**  **Downspout Dispersion (Splash blocks or pads)** – With a minimum 50 foot vegetated flowpath measured from the splashblock to the downstream property line, structure, slope over 15%, stream, wetland, or other impervious surfaces.

- i.  On undisturbed native landscape (*areas that are still forest or prairie*)
- ii.  On amended landscape areas (*consists of tilled or scarified soils to a minimum of 8" and provided with the organic content needed to restore the topsoil to native conditions and re-vegetated*)

**B**  **Downspout Infiltration Drywell** – At least 4' in diameter well of drain rock, with 1' of suitable cover material and deep enough to contain capacity as determined by site soil type (*one drywell for up to 1,000 square feet of roof area*).

- i.  In coarse sands and cobbles – 60 cubic feet of rock ( $\approx 2 \frac{1}{4}$  cubic yards)
- ii.  In medium sand – 90 cubic feet of rock ( $\approx 3 \frac{1}{2}$  cubic yards)- **Ecology does not validate finer soils**

**C**  **Downspout Infiltration Trench** – A below grade trench, 2' wide, 2' deep filled 18" with drain rock and 6 inches of suitable cover material, minimum length per 1,000 square feet of roof determined by soil type, indicate as follows:

- i.  In coarse sands and cobbles – 20 lineal feet per 1,000 square feet of roof area
- ii.  In medium sand – 30 lineal feet per 1,000 square feet of roof area
- iii.  In fine sand, loamy sand – 75 lineal feet per 1,000 square feet of roof area
- iv.  In sandy loam – 125 lineal feet per 1,000 square feet of roof area
- v.  In loam – 190 lineal feet per 1,000 square feet of roof area

**D**  **Downspout Dispersion Trench** – A perforated drain in a rock filled trench. Minimum 18" deep, 24" wide and 10 feet long per 700 square feet of roof. A level overflow outlet disperses to adjacent vegetated surface, with a minimum flow path of 25 feet between outlet overflow and any property line, structure, stream, wetland, or impervious surface.

- i.  On undisturbed native landscape (*areas that are still forest or prairie*)
- ii.  On amended landscape areas (*consists of tilled or scarified soils to a minimum of 8" and provided with the organic content needed to restore the topsoil to native conditions and re-vegetated*)

**E**  **Rain garden/Bioretention** – Roof runoff is conveyed through pipes or open ditches to an on-site facility for infiltration. Sized and/or designed as indicated below.

- i.  Rain garden sized per Rain Garden Handbook for Western Washington
- ii.  Rain garden sized per GSI-Calc
- iii.  Engineered bioretention facility

**F**  **Downspout rainwater catchment system** – Storage tanks or cisterns sized to handle annual rainfall amounts for annual re-use. Overflow runoff must also be considered.

Continue to next page...

**Section 2) HARD SURFACES: Gravel, Concrete, Asphalt, etc.**  **Check if no new or replaced hard (impervious) surfaces**

- A**  **Sheet flow Dispersion** – Surface runoff flows un-concentrated to adjacent vegetated surface with a minimum flowpath of 10 feet for up to 20 feet of hard surface, provide an additional 10 feet for each additional surface up to 20 feet
- i.  On undisturbed native landscape (*areas that are still forest or prairie*)
  - ii.  On amended landscape areas (*consists of tilled or scarified soils to a minimum of 8” and provided with the organic content needed to restore the topsoil to native conditions and re-vegetated*)
- B**  **Concentrated flow dispersion** – Surface runoff diverted by berms, ditches, or other conveyance methods to a vegetated area with a flowpath of at least 50 feet between the discharge point and any property line, structure, steep slope, stream, lake, wetland, or other impervious surface.
- i.  On undisturbed native landscape (*areas that are still forest or prairie*)
  - ii.  On amended landscape areas (*consists of tilled or scarified soils to a minimum of 8” and provided with the organic content needed to restore the topsoil to native conditions and re-vegetated*)
- C**  **Rain garden/Bioretenion** – Surface runoff conveyed through pipes or ditches to an on-site facility for infiltration.
- i.  Rain garden sized per Rain Garden Handbook for Western Washington
  - ii.  Rain garden sized per GSI-Calc
  - iii.  Engineered bioretention facility
- D**  **Permeable Pavement** – Allows infiltration below grade through pavers, porous concrete or asphalt, or grid systems
- i.  Below grade infiltration rate per Low Impact Development Technical Guidance Manual
  - ii.  Under-drains conveyed to drainage facility

**Section 3) DISTURBED AREAS: From Clearing, Grading, Construction, Stockpiling, Utilities, Equipment, Vehicles, etc.**

- A**  Areas disturbed from construction or grading activities are tilled or scarified to a depth of 8” and provided the organic content needed to restore the topsoil to native conditions.
- B**  Interior work, work within existing impervious areas etc., no ground disturbance
- C**  Converted to “cleared areas” and LID incorporated as indicated in section 4 below
- D**  No areas disturbed from clearing, grading, construction, stockpiling, utilities, equipment or vehicles, etc.

**Section 4) CLEARED AREAS: Native areas converted to yard or pasture**  **Check here if no new cleared areas**

- A**  **Cleared area dispersion** – Stormwater runoff from cleared areas of up to 25 feet sheet flows through at least 25 feet of vegetated surface that is less than 15% slope and meets one of the following:
- i.  On undisturbed native landscape (*areas that have never been developed such as forest or prairie*)
  - ii.  On amended landscape areas (*consists of tilled or scarified soils to a minimum of 8” and provided with the organic content needed to restore the topsoil to native conditions and re-vegetated*)
  - iii. *And*  1 additional foot of dispersion area is provided for each 3 feet of additional area cleared (250’ max)
- B**  **Rain garden** – Surface runoff is directed to an on-site facility for infiltration.
- i.  Rain garden sized per Rain Garden Handbook for Western Washington
  - ii.  Rain garden sized per GSI-Calc

**Section 5) CHECKLIST COMPLETENESS:**

- All sections including locations, slopes, and lengths are shown on the drainage/TESC site plan submitted.
- Each lettered option chosen (A, B, C...) also indicates subsequent Roman numeral choice. (I, II, III)

If any other form of low impact development is proposed in addition to, or in lieu of the above common techniques, please indicate on your site plan. Design guidelines and feasibility criteria can also be found in the **Stormwater Management Manual for Western Washington**: <http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>

**Low Impact Development Technical Guidance Manual**: [http://www.psp.wa.gov/LID\\_manual.php](http://www.psp.wa.gov/LID_manual.php)

**Rain Garden Handbook**: <https://fortress.wa.gov/ecy/publications/publications/1310027.pdf>

**Information about your soil type available at the Web Soil Survey site**: <http://websoilsurvey.nrcs.usda.gov/app/>

- Check here if this is part of a larger development that has an existing engineered infiltration facility designed to include this phase of construction.



Planning & Development Services

**Habitat Impact Assessment Checklist**

Pursuant to Skagit County Code 14.24 and 14.34

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This checklist is for all development proposals within the Special Flood Hazard Area (SFHA) or 100-year floodplain. It is used to help project proponents and the County determine when a project needs further analysis regarding potential adverse effects on Endangered Species as required by the Endangered Species Act (ESA).

Planning & Development Services staff can provide technical assistance in answering the following questions.

Section: \_\_\_\_\_ Township: \_\_\_\_\_ Range: \_\_\_\_\_ Parcel Number: \_\_\_\_\_ Related Permit: \_\_\_\_\_

Site Address: \_\_\_\_\_

Project Description: \_\_\_\_\_

Name of nearest waterbody: \_\_\_\_\_

Distance of project to nearest waterbody: \_\_\_\_\_

1) What is the current land use adjacent to the nearest waterbody? (*residential, agricultural, forestry, etc*)

\_\_\_\_\_

2) What type of vegetation is between your project and the nearest waterbody? (*forest, shrub, grass, etc*)

\_\_\_\_\_

3) What type of vegetation will be removed from your project site?

\_\_\_\_\_

4) How much new impervious surface will your project create onsite? (*driveway, parking, roof area, etc*)

\_\_\_\_\_

5) Does your project include any excavation? If so, how much? (*in cubic yards*)

\_\_\_\_\_

6) Does your project include placement of fill material? If so, how much (*in cubic yards*)

\_\_\_\_\_

7) Please describe how your project has been designed to have no effect on runoff filtration.

\_\_\_\_\_

\_\_\_\_\_

8) Please describe how your project has been designed to have no effect on flood storage.

\_\_\_\_\_

\_\_\_\_\_

**PLEASE BE SURE TO COMPLETE BOTH SIDES OF THE THIS CHECKLIST**

9) Please describe how your project has been designed to have no effect on flood conveyance.

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10) Will your project introduce any nutrients or contaminants to the nearby waterbody? (*fertilizers, storm water runoff, etc*)

---

11) Please describe how your project has been designed to have no effect on shade along or over any nearby streams.

---

---

12) Please describe how your project has been designed to have no effect on wildlife habitat.

---

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I understand that if the information on this form is later determined to be incorrect, the project or activity may be subject to conditions or denial as necessary to meet the requirements of SCC 14.24 or SCC 14.34.

\_\_\_\_\_  
Applicant's Signature

\_\_\_\_\_  
Date

# Membership Certificate

## Blanchard Edison Water Association

Not transferable, except in accordance with the provisions of Article VI of the By-Laws

This is to certify that Edison Investments LLC is a member of  
Blanchard Edison Water Association, and the holder of one fully paid membership certificate therein.

This membership certificate No. 74 is issued and accepted in accordance with and subject to  
the conditions and restrictions stipulated in the Articles of Incorporation and By-Laws and amendments  
to the same of the Blanchard Edison Water Association.

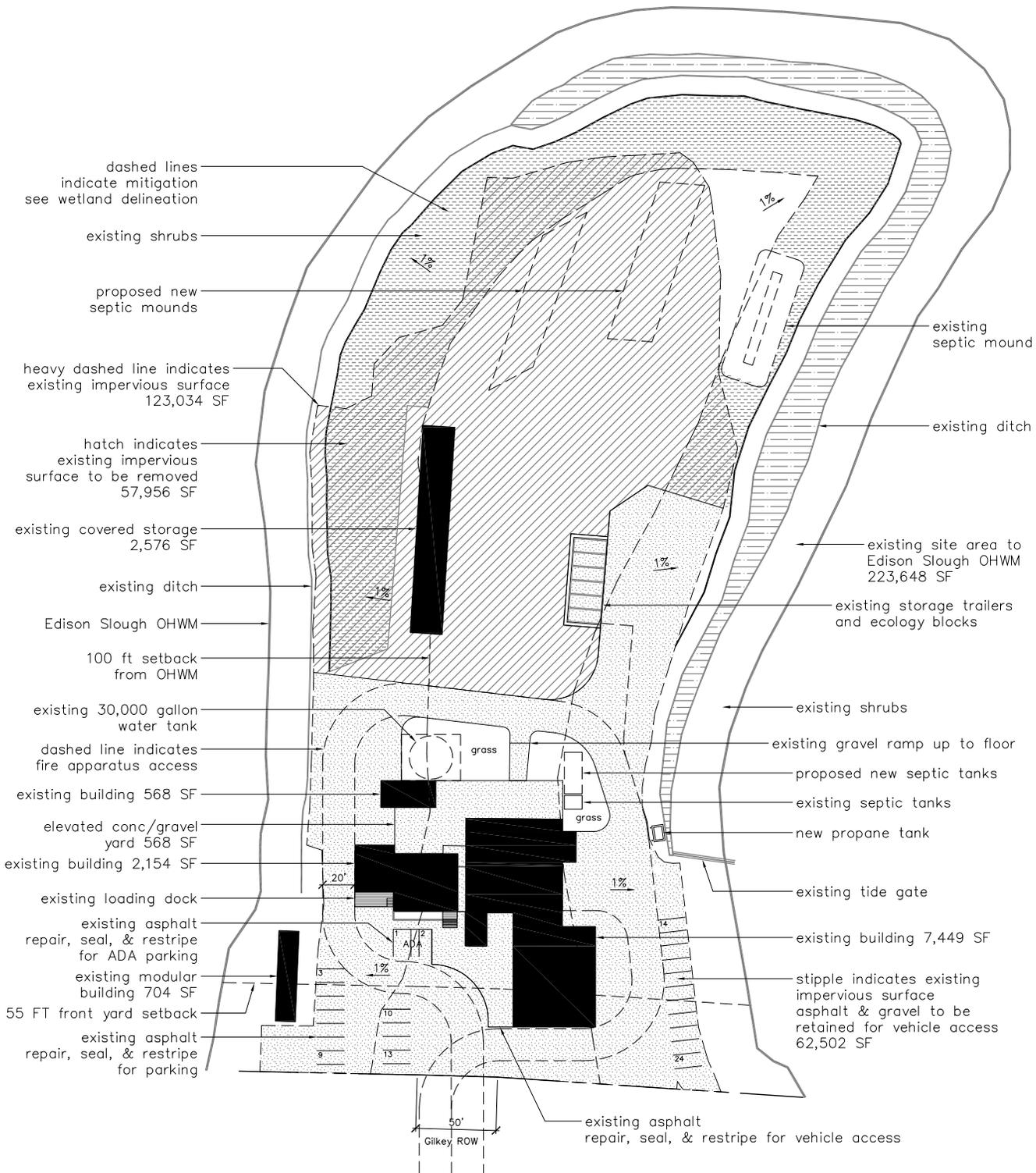
IN WITNESS WHEREOF, said Blanchard Edison Water Association has caused this certificate to be  
signed by its duly authorized officers and sealed with the corporate seal of the association  
this 6 day of March 2018

  
President

H. H. Hansen

(CORPORATE SEAL)  
Attest:  
  
Secretary  
Barbara Leander

Service Address  
5712 Gilkey Avenue



- dashed lines indicate mitigation see wetland delineation
- existing shrubs
- proposed new septic mounds
- heavy dashed line indicates existing impervious surface 123,034 SF
- hatch indicates existing impervious surface to be removed 57,956 SF
- existing covered storage 2,576 SF
- existing ditch
- Edison Slough OHWM
- 100 ft setback from OHWM
- existing 30,000 gallon water tank
- dashed line indicates fire apparatus access
- existing building 568 SF
- elevated conc/gravel yard 568 SF
- existing building 2,154 SF
- existing loading dock
- existing asphalt repair, seal, & restripe for ADA parking
- existing modular building 704 SF
- 55 FT front yard setback
- existing asphalt repair, seal, & restripe for parking

- existing septic mound
- existing ditch
- existing site area to Edison Slough OHWM 223,648 SF
- existing storage trailers and ecology blocks
- existing shrubs
- existing gravel ramp up to floor
- proposed new septic tanks
- existing septic tanks
- new propane tank
- existing tide gate
- existing building 7,449 SF
- stipple indicates existing impervious surface asphalt & gravel to be retained for vehicle access 62,502 SF



B

# Site Plan

1"=60'-0"



A1

Sheet:  
Date:  
FLOODPLAIN DEVELOPMENT  
06/20/18

Edison Distillery  
Chris & Jennifer Barker



Mark E. Christ, Architect  
810 Bennett Street  
Sedro-Woolley, WA 98284  
phone (360) 855-1546



*Land treatment requirements*

Terramar Brewery must meet the following permit limits to satisfy the requirement for AKART:

- Apply of wastewater via spray irrigation must not exceed agronomic rates (as defined in Ecology’s groundwater implementation guidance) for total nitrogen and water. Wastewater application rates for other wastewater constituents must protect the background groundwater quality.
- Apply total nitrogen and water to the spray fields as determined by an Ecology approved and current irrigation and crop plan.\
- Operate the system to protect the existing and future beneficial uses of the groundwater and not cause a violation of the groundwater standards.

**Table 1. Technology-Based Effluent Limits**

<b>Effluent Limits</b>		
<b>Parameter</b>	<b>Average Monthly</b>	<b>Maximum Daily</b>
Flow	395 gpd	1,421 gpd
<b>Parameter</b>	<b>Average Monthly</b>	<b>Maximum Application Frequency</b>
BOD <sub>5</sub>	75 lbs/day	4 days per week
Application Rate	5,650 gal/ac/day	4 days per week



P.O. Box 2546, Bellingham, WA 98227

March 20, 2024

Chris Barker  
Terramar Brewery  
P.O. Box 3000  
Bow, WA 98232

Re: Groundwater Monitoring Results Fall 2023  
State Waste Discharge Permit Number ST0501319, Terramar Brewery, Edison, WA

Groundwater samples collected from groundwater monitoring wells for the State Waste Discharge Permit Number ST0501319 were collected on December 20, 2023 and delivered to Edge Analytical. The results of that sampling are presented in this report.

It is our understanding that this report will be submitted to Washington State Department of Ecology. Should you have any questions concerning the Groundwater Monitoring, please do not hesitate to contact us at (360) 714-9409.

Sincerely,  
Stratum Group

A handwritten signature in black ink, appearing to read "Dan McShane", is written over a light gray circular stamp.

Dan McShane, M.Sc., L.E.G.  
Licensed Engineering Geologist

## Well Locations

The four groundwater monitoring wells are located as indicated in Figure 1. The property is within a meander bend of Edison Slough such that the slough is located east, north and west of the land application area. A flood control dike is located between the slough and the property along the length of the slough along on the property. A drainage ditch is located landward of the dike on the property. The ditch drains from the southwest area of the property and wraps around the perimeter of the property to a discharge point into the slough on the southeast of the property.

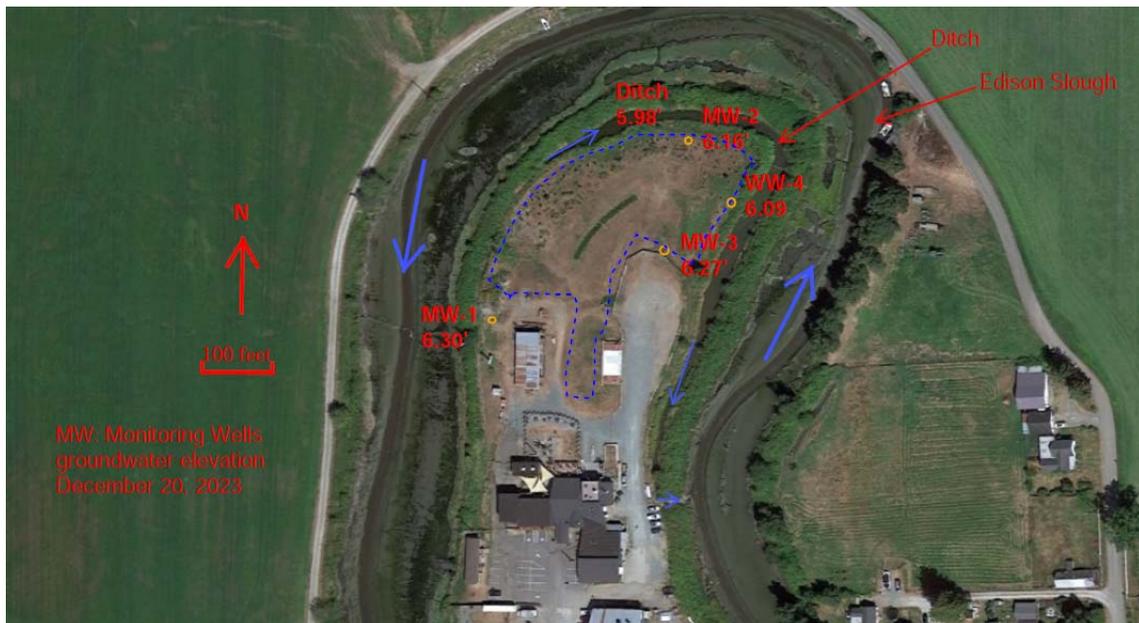


Figure 1. Site with well locations and pertinent features. Larger blue lines indicate the general flow of Edison Slough. Note the flow direction reverses during incoming tides. Smaller blue lines indicate the flow direction of the ditch. Dashed blue line encompasses the waste water application area.

## Groundwater Elevations

A ground elevation of 10 feet derived from lidar elevations available through Skagit County GIS was used for the Well 4 location and all elevations surveyed are based on that elevation. Elevations including water elevations from December 20, 2023 are presented in Table 1.

Water was flowing in the ditch on December 20, 2023 following a few days of heavy rain. The water level in the ditch compared to the water levels observed in the wells suggests that groundwater flow was generally towards the north and towards the ditch.

**Table 1.**  
**Water elevations from December 20, 2023**

Monitoring Well	Ecology Well Number	Top of casing elevation (feet)	Latitude	Longitude	Depth to water (feet)	Water elevation (feet)
MW-1	BPP 501	10.82	48.564247	122.443981	4.52	6.30
MW-2	BPP 502	11.82	48.564914	122.442839	5.66	6.16
MW-3	BPP 503	12.10	48.564534	122.443053	5.83	6.27
WW-4	BPP 504	11.78	48.564979	122.442678	5.69	6.09
Bottom of ditch west of MW-4		7.54 (bottom of ditch)				
Water level in ditch north of MW-2						5.98

## Groundwater Parameters

The groundwater parameters from the three groundwater monitoring wells that are located within the waste water application area are presented in Table 2.

**Table 2. Monitoring results**

Well	MW-2	MW-3	MW-4
Temperature	10	9	10
pH	6.43	6.49	6.59
Conductivity	1280 uS/cm	1200 uS/cm	800 uS/cm
Dissolved Oxygen	0.25 mg/L	0.25 mg/L	1.88 mg/L
Turbidity	1200 NTU	1900 NTU	600 NTU
Oxidation/Reduction Potential	129.8 Eh	129.5 Eh	299.6 Eh
Hardness	369 mg/L	326 mg/L	298 mg/L
Iron	50.5 mg/L	173 mg/L	64.5 mg/L
Calcium	68.0 mg/L	49.2 mg/L	94.3 mg/L
Sodium	114 mg/L	108 mg/L	48.4 mg/L
Magnesium	0.550 mg/L	2.11 mg/L	0.286 mg/L
Potassium	33.0 mg/L	33.9 mg/L	14.2 mg/L
Chloride	90.3 mg/L	54.4 mg/L	32.1 mg/L
Sulfate	29 mg/L	40.0 mg/L	84.3 mg/L
Total Dissolved Solids	738 mg/L	750 mg/L	513 mg/L
Ammonia-N	13.5 mg/L	16.6 mg/L	0.16 mg/L
Total Kjeldahl Nitrogen	18.0 mg/L	22.8 mg/L	4.45 mg/L
Total Nitrogen	18.0 mg/L	22.9 mg/L	13.36 mg/L
Total Suspended Solids	335 mg/L	1880 mg/L	46 mg/L
Alkalinity	472	453	185
Total Nitrate + Nitrite as N	0.03 mg/L	ND	8.91 mg/L
5-day BOD test	2.1 mg/L	16 mg/L	4.1 mg/L
Total Organic Carbon	46.1 mg/L	122 mg/L	41.3 mg/L

Groundwater Monitoring Network  
State Waste Discharge Permit Number ST0501319  
Terramar Brewery, Edison, WA

For:

For: Terramar Brewery  
P.O. Box 3000 Bow  
WA 98232

By:



PO Box 2546  
Bellingham, WA 98227  
(360) 714-9409

March 14, 2023



P.O. Box 2546, Bellingham, WA 98227

March 14, 2023

Chris Barker  
Terramar Brewery  
P.O. Box 3000  
Bow, WA 98232

Re: Groundwater Monitoring Network Completion Report  
State Waste Discharge Permit Number ST0501319, Terramar Brewery, Edison, WA

The groundwater monitoring wells for the State Waste Discharge Permit Number ST0501319 have been installed consistent with the scope of work for the groundwater monitoring network dated October 16, 2020. The groundwater monitoring scope of work is required to evaluate the site groundwater monitoring network for evaluation of the wastewater application site in accordance with WAC 173-200-080.

The groundwater monitoring network provided a determination/confirmation of site-specific geology and groundwater conditions relative to the wastewater discharge area. The results are summarized in this report. The groundwater network of four wells as opposed to the three in the permit and will allow for the monitoring of potential impacts to the groundwater quality associated with wastewater discharge area.

Initial groundwater elevations have been collected and water quality samples have been collected. We are waiting laboratory results and will report the initial results when the laboratory has completed the analyses.

It is our understanding that this report will be submitted to Washington State Department of Ecology. Should you have any questions concerning the Groundwater Monitoring Network, please do not hesitate to contact us at (360) 714-9409.

Sincerely,  
Stratum Group

Dan McShane, M.Sc., L.E.G.  
Licensed Engineering Geologist

## **WASTEWATER OVERVIEW**

The project background is provided in Fact Sheet for State Waste Discharge Permit ST0501319. The Terramar Brewery facility generates wastewater from cleaning and sanitizing brewery vessel interiors and exteriors, floor cleaning, packaging, and other processes directly related to brewing and distilling. Terramar Brewery submitted a five-year build-out plan with their waste permit. This plan has a projected average wastewater flow of approximately 467 gallons per day (gpd) in year one growing to an average of 1,325 gpd by year five. This wastewater is directed to a tank where it is pH adjusted to between 6 and 9. From there it is pumped to a 30,000-gallon storage tank. Water is pumped from the tank to a sprinkler system with 23 zones covering 2.5 acres. The wastewater will irrigate grass for grass growth and land treatment.

## **LOCATION AND SITE SETTING**

The Brewery facility is located in the unincorporated town of Edison in Skagit County. The brewery, tasting room and pizza kitchen and a gravel covered parking area are located on the south part of the site. The wastewater land application area is on the north portion of the site.

The property is within a meander bend of Edison Slough such that the slough is located east, north and west of the land application area (Figures 1). A flood control dike is located between the slough and the property along the length of the slough along on the property. A drainage ditch is located landward of the dike on the property. The ditch drains from the southwest area of the property and wraps around the perimeter of the property to a discharge point into the slough on the southeast of the property.

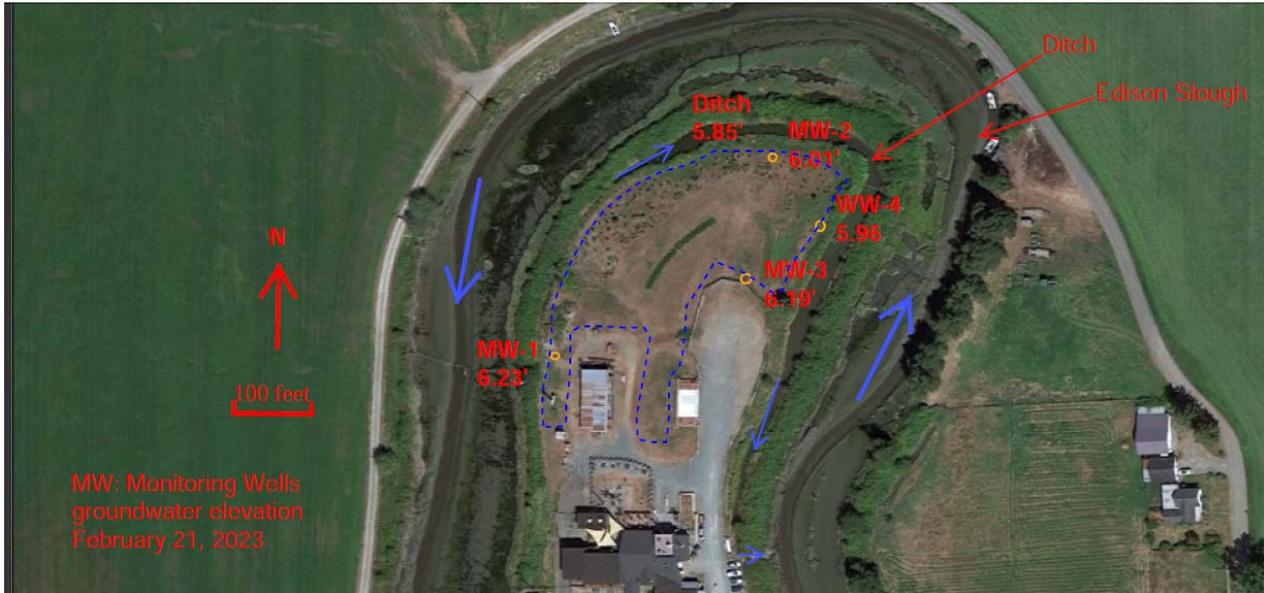


Figure 1. Site with well locations and pertinent features. Larger blue lines indicate the general flow of Edison Slough. Note the flow direction reverses during incoming tides. Smaller blue lines indicate the flow direction of the ditch. Dashed blue line encompasses the waste water application area.

## GEOLOGY

The subject property is underlain by alluvial deposits associated with the overlapping deltas of the Skagit River (the dominant sediment source) and small sediment sources from streams flowing across this delta area such as the Samish River and Edison Slough. The site is on the distal portion of the delta and sediments are predominantly fine grained and organic rich due to buried organic matter.

The upper soils on the site have been disturbed by past human occupation. Soil spoils from past excavations in the slough, the excavation of the drainage ditch, past operations on the site when the buildings were in use for meat processing and used lumber storage as well as earlier use as a pasture/grass land. Septic drainfields were and are located in the land application area or adjacent to the application area.

Gravel and rocks were spread on the surface during the site's use as a slaughter house facility and used wood facility. Recent grading took place after brewery began use of the site with clearing and smoothing of the northern portion of the property and the planting of trees and brush around the perimeter of the northern portion of the site as part of a wetland/shoreline mitigation requirement.

## **GROUNDWATER WELL NETWORK AND GROUNDWATER**

Four groundwater monitoring wells were installed on the site consistent with the scope of work for the monitoring well network. The four wells were installed in September 2022 by Holocene Drilling using a 4-inch hollow stem drilling rig. All wells were installed consistent with Chapter 173-160 WAC, the Minimum Standards for Construction and Maintenance of Wells. The four wells are located as indicated in Figure 1.

The process of installation of the monitoring wells provided additional information regarding site geology and soils in which groundwater is present. The geology and soils information was acquired by collecting soil samples with a split spoon sampler driven ahead of the boring auger during well installation work as well as observations of the auger drilling cuttings brought to the surface.

All four wells encountered the same conditions. Gravel and rocks mixed with top soil and organic material was encountered from the surface to a depth of 1 to 1.5 feet. Below that upper soil level silty fine sand (SP) with lenses of medium sand with trace gravel (SP) were encountered to the depth of the borings at 12 feet below the surface. The soils encountered are consistent with distal river delta deposits that have undergone some reworking by tidal currents. Saturated soils were encountered at approximately 5 feet at all four borings.

Each of the 2-inch wells was installed with a screened interval from 3 feet below the surface to the bottom of the well at approximately 10 feet below the surface. The shallow upper screen level installation was in anticipation of shallow elevated groundwater during periods of extended wet weather.

Because areas of perched surface water may develop on site (water puddles have been periodically observed on site and wells will be located in and in close proximity to the land application area) the tops of the wells were approximately 2 feet above the ground surface and enclosed with steel monuments with a caps. This approach eliminated the risk of surface water flow into the well and degradation of the well seal cap. The use of steel riser monuments also minimizes the risk of damage from mowing and other equipment on the site as the wells are easily observed.

Top of well casings were surveyed post well installation. A ground elevation of 10 feet derived from lidar elevations available through Skagit County GIS was used for the Well 4 location and all elevations surveyed are based on that elevation. Elevations including initial water elevations from February 21, 2023 are presented in Table 1.

**Table 1.**  
**Water elevations from February 21, 2023**

Monitoring Well	Ecology Well Number	Top of casing elevation (feet)	Latitude	Longitude	Depth to water (feet)	Water elevation (feet)
MW-1	BPP 501	10.82	48.564247	122.443981	4.59	6.23
MW-2	BPP 502	11.82	48.564914	122.442839	5.81	6.01
MW-3	BPP 503	12.10	48.564534	122.443053	5.91	6.19
WW-4	BPP 504	11.78	48.564979	122.442678	5.80	5.96
Bottom of ditch west of MW-4		7.54 (bottom of ditch)				
Water level in ditch north of MW-2						5.85

The Permit Fact Sheet notes that the groundwater at the facility is shallow. This was confirmed during the installation of the groundwater monitoring network as shallow water was encountered at all four well sites. This is also evident from the presence of water in the ditch around the land application site. The northern and eastern portions of the ditch contain water year round. The Fact Sheet notes that during the winter months the water table is less than five feet below the ground surface. This was confirmed during water level measurements on February 21, 2023 with water levels below the ground surface ranging from 2.29 feet to 4.04 feet. Groundwater levels in late summer when the wells were installed were on the order of 5 feet as well.

The Fact Sheet as well as our own observations at the site notes that the ditch level does not fluctuate with the tide levels in the slough. We observed that ditch water levels on the northern and eastern sides of the site do not appear to change very much during the year as well. The ditch on the west side is shallower and the upper southwest end of the ditch was dry in the summer. Water was flowing through this section of ditch on February 21, 2023 following a few days of heavy rain. This indicates that groundwater levels within the land application area are only minimally impacted by tide levels and seasonal variation is not likely very pronounced. However, ongoing measurements during future sampling events of the ditch level will provide further data on seasonal water levels in the ditch as well as well as groundwater levels.