ATTACHMENT Q: JOINT AQUATIC RESOURCES PERMIT APPLICATION

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

US Army Corps of Engineers
Seattle District

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Goldeneye Energy Storage

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Nelson, Tommy			
2b. Organization (If applicable)			
Goldfinch Energy Storage LLC			
2c. Mailing Address (Street or PO Box)			
412 W 15th Street, 15th Floor			
2d. City, State, Zip			
New York, NY 10011			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
949.910.1623	N/A	N/A	tnelson@tenaska.com

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Schuyler, Patricia			
3b. Organization (If applicable)			
Dudek			
3c. Mailing Address (Street or PO Box)			
605 NE 21st Avenue #200			
3d. City, State, Zip			
Portland, Oregon 97232			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
760.479.4264	760.525.7580	N/A	pschuyler@dudek.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☐ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☒ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
Grinder, John F.			
4b. Organization (If applicable)			
N/A			
4c. Mailing Address (Street or PO Box)			
25084 Minkler Road			
4d. City, State, Zip			
Sedro-Woolley, Washington 98284			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail
360.421.9967	N/A	N/A	N/A

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

25084 Minkler Road

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Sedro-Woolley, Washington 98284

5d. County [help]

Skagit

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
NW	20	35N	05E

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

48.508169 N lat./ −122.200866 W long.

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

P40030, P40047, P40022, P40046

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Chipman, Christopher M. Chipman, Amanda D.	25099 Hoehn Road Sedro-Woolley, Washington 98284	P40044
Robinson, Joshua M.	25077 Hoehn Road Sedro-Woolley, Washington 98284	P40043
Mullins, David J. Mullins, Joy K.	9599 Fruitdale Road Sedro-Woolley, Washington 98284	P39800
Additional adjoining landowners are provided in Attachment B.		

5i. List all wetlands on or adjacent to the project location. [help]

Wetlands A, B, C, D, E, F, G, H, I; see Attachment C, Critical Areas Report, for additional information.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Hansen Creek

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

The proposed energy storage site is an open field with low herbaceous vegetation including annual bluegrass (*Poa annua*), reed canarygrass (*Phalaris arundinacea*), creeping buttercup (*Ranunculus repens*), and tall fescue (*Schedonorus arundinaceus*). Willow saplings (*Salix* spp.) and trees and Himalayan blackberry (*Rubus armeniacus*) also occur within the depressional wetlands in the field. Shrubs surround the borders of the property, including osoberry (*Oemleria cerasiformis*), salmonberry (*Rubus spectabilis*), Himalayan blackberry, and trailing blackberry (*Rubus ursinus*). Mature trees occur in the southeast, southwest, east, and northwest edges of the property, including willow species, red alder (*Alnus rubra*), and Douglas-fir (*Pseudotsuga menziesii*).

Hansen Creek flows south to the Skagit River along the southwest edge of the energy storage site and through the generation transmission (gen-tie) line alignment. A wetland enhancement area is located along Hansen Creek and includes planted Nootka rose (*Rosa nutkana*) and willow species. Blackberries dominate the banks of Hansen Creek within the gen-tie line alignment. A ditch runs along the eastern and southern edges of the property but does not connect to Hansen Creek; the topography flattens out between the western terminus of the ditch and Hansen Creek.

5m. Describe how the property is currently used. [help]

The property is used for livestock grazing, and a residence with outbuildings is in the western corner of the property. The outbuildings are used for auto body repair. Power lines run over part of the western half of the property. The gen-tie line alignment includes portions of Hansen Creek, areas graded to support the construction of the Sedro-Woolley Substation, portions of the substation, and undeveloped areas.

5n. Describe how the adjacent properties are currently used. [help]

To the east, there is a poultry farm and open fields. To the north, there are rural residences with open fields that may be used for grazing. To the west, the Hansen Creek riparian corridor gives way to more residential properties. The Sedro-Woolley Substation lies to the southwest. To the south, Hansen Creek bisects open and forested space and a farmed field.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

A 1,936-square-foot one-story home and a 2,090-square-foot garage occur in the western corner of the property. Another large, approximately 2,880-square-foot machine shop occurs just east of these buildings. All buildings on site are in good condition and in daily use. Three transmission towers occur southeast of the machine shop, one of which connects to the Sedro-Woolley Substation whereas the other two connect to towers off site to the north and south.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

From Interstate 5, take exit 231 for WA-11 N/Chuckanut Drive (southbound). At the traffic circle, keep straight to stay on North Burlington Boulevard. Turn left onto State Route 20 E/Avon Avenue. Travel east through Burlington on State Route 20. Continue northeast on State Route 20/Cascade Highway. Turn right onto West State Street and turn left onto Minkler Road. The property is on the right (east).

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

Goldfinch Energy Storage, LLC (the applicant), is currently proposing a utility-scale energy storage facility consisting of a proposed 200 megawatt/800 megawatt-hour battery energy storage system located on private lands. The project will be composed of lithium-ion batteries installed in racks; inverters; medium-voltage transformers; switchgear; a collector substation; and other associated equipment to interconnect into the Sedro-Woolley Substation located just to the south of the project site (i.e., point of interconnection). The batteries will be installed either in containers or in purpose-built enclosures designed for aesthetic compatibility with the surrounding area. The containers or enclosures will have battery storage racks, with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system will be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current (DC) electricity that must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC, along with transformers to step up the voltage, will be included. The proposed project requires construction of a gen-tie line to connect to the substation as well as a road from the substation to provide access to the gen-tie line during construction.

The proposed facility will provide a service to the regional electric grid by receiving energy (charging) from the Puget Sound Energy (PSE) electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. Following construction, the proposed use will not create emissions to air, will not require sanitary facilities, and will not require water except to maintain water-efficient and low-impact landscaping design along the project frontage.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The proposed project will provide Skagit County (the County) and the State of Washington with a reliable, economically sound development to receive, store, and discharge electricity from the PSE electric grid, including renewable energy produced by existing solar and wind resources in the region. This project will assist the State of Washington in meeting its goal of an electricity supply free of greenhouse gas emissions by 2045.

6c. Indicate the project category. (Check all that apply) [help]

☒ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational
☐ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☐ Retaining Wall (upland)
☐ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☒ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☒ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☒ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☒ Other: energy storage facility

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

Construction activities are expected to include excavation and grading of the main project site. All construction activities, including site preparation and construction, will occur in accordance with all federal, state, and County zoning codes and requirements. Prior to initial construction mobilization, pre-construction surveys will be performed, and sediment and erosion controls will be installed in accordance with state and County guidelines. Initial work on the project site will involve preparing the site for installation of the battery energy storage system-related infrastructure, access driveways, and temporary construction staging areas. Stabilized construction entrances and exits will be installed at driveways to reduce tracking of sediment onto adjacent public roadways. The construction contractor will be required to incorporate all best management practices consistent with the County zoning ordinance and with the Washington Department of Ecology December 2019 Stormwater Management Manual for Western Washington, as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed project.

Site preparation will involve the removal and proper disposal of existing vegetation and debris that would unduly interfere with project construction or the health and safety of on-site personnel. Dust-minimizing techniques will be employed, such as maintaining natural vegetation where possible, using a mow-and roll vegetation clearance strategy, placement of wind control fencing, application of water, and application of dust suppressants. Conventional grading will be performed throughout the project site but minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Grading will be done on all wetlands across the proposed energy storage site. All off-site wetlands would be avoided. Earthworks scrapers, excavators, dozers, loaders, compaction rollers, water trucks, haul vehicles, and graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, will be used to even the surface of the ground and to compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Soil movement from grading will require exporting of non-suitable backfill material and importing of structural select fill to raise the site out of the floodplain.

Trenching will be required for placement of underground water, storm drain, electrical, and communication lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment, and water trucks. After preparation of the site, the pads for enclosures, equipment enclosures, and equipment vaults will be prepared per geotechnical engineer recommendations. The on-site substation areas will have a grounding grid installed and will be covered with aggregate surfacing for safe operation.

The proposed project requires construction of a gen-tie line to connect to the substation as well as a road from the substation and Hoehn Road to provide access to the gen-tie line during construction. An access road will be constructed with either dirt or gravel. The road will be used for construction purposes and if the underground gen-tie line needs to be serviced during its operation. The gen-tie line alignment will be constructed with a combination of open trench and trenchless construction. Upgrades to an existing water line within the Minkler Road right-of-way are also necessary. All off-site work areas would occur outside of any mapped wetlands. Any work taking place in Minkler Road will stay within the roadway and will not result in impacts to Hansen Creek.

The site lies entirely within the mapped 100-year flood hazard zone.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: 10/2025 End Date: 10/2026 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$225 million

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation for unavoidable wetland impacts was taken into consideration during project design. Complete avoidance of wetlands and their associated buffer is not feasible due to the constraints of the project site and surrounding area, particularly regarding property ownership. Due to the necessity of proximity to the Sedro-Woolley Substation, this site was the only feasible option for this project.

7b. Will the project impact wetlands? [help]

☒ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☒ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☒ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don't know

A Bank Use Plan is provided with this JARPA.

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

The goal of the mitigation plan is to fully compensate for all wetland impacts associated with this project through the purchase of mitigation credits at an agency-approved mitigation bank. There are two approved mitigation banks within Skagit County that currently have credits that could mitigate for project impacts: Skagit Environmental Bank and Nookachamps Mitigation Bank. The proposed project is located with the service area for both banks but plans on purchasing credits from the Skagit Environmental Bank.

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)
Provided in attachment D						

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: Table 3, Bank Use Plan, Attachment D

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

Refer to plan sheets C2-1 and C2-2, provided in Attachment E, for quantities and amounts of cut/fill throughout the site. It is estimated that approximately 68,000 cubic yards of material will be imported to the site. The fill and borrow source locations are to be determined by the contractor. The existing material on site is not suitable for fill and will need to be removed from the site and disposed of at local landfills or other approved sites, all in accordance with applicable laws. Compaction of the embankment will follow the geotechnical report's recommendations.

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

There will be excavation in the wetlands by stripping of the topsoil and other material to construct the site in accordance with the approved grading plan. Refer to plan sheets C2-1 and C2-2, provided in Attachment E, for quantities and amounts of cut/fill throughout the site. The approximately 36,000 cubic yards of soil removed from the site will be disposed of at local landfills or other approved sites, all in accordance with applicable laws.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

See Section 3 of the Bank Use Plan.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☐ Yes ☒ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

The proposed project will not result in direct impacts to Hansen Creek or the required creek buffer. To avoid indirect impacts to Hansen Creek, riparian buffer enhancement will occur as a part of the proposed landscape plan. Demolition of the existing residence and associated structures that occur in and around the 200-foot buffer for the creek is required for construction of the proposed project. The area adjacent to Hansen Creek, but outside the 200-foot buffer, will be revegetated with native plants per the landscape plan currently being prepared for the project. The conceptual planting plan is provided as Appendix F of the CAR.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

N/A

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
N/A					

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

N/A

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

N/A

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
See Attachment F.			

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d.

☒ Yes ☐ No

Bacteria and other microbes, low oxygen, temperature
Aquatic Life-Core, Summer Salmonid Habitat

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

The site lies within two 12-digit Hydrologic Unit Code (HUC-12) subwatersheds: Hansen Creek–Skagit River Subwatershed and Skagit River Subwatershed.

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-availability/Watershed-look-up to find the WRIA #.

WRIA 3.

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria for the standards.

☐ Yes ☐ No ☒ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases.

☐ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ Other: Rural

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: Washington DOE Stormwater Management Manual for Western Washington (2019)

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [help]

On aerial imagery dating back to 1998, the property appears generally unchanged.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No Provided in Attachment G.

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Four federally listed wildlife species have a potential to occur in the study area. These species include Chinook salmon (*Oncorhynchus tshawytscha;* federally threatened [FT]), steelhead (*Oncorhychus mykiss*); Puget Sound Distinct Population Segment [DPS]; FT), bull trout (*Salvelinus confluentus,* FT), and Dolly Varden (*Salvelinus malma*, proposed similarity of appearance, FT, migration only). However, because no impacts are proposed to Hansen Creek, no impacts to these species are expected to occur.

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

No species or habitats on the WDFW PHS list will be affected by the proposed work. More information regarding special-status species can be found in the Critical Areas Report (Attachment C).

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to https://ecology.wa.gov/regulations-permits/SEPA-environmental-review.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with EFSEC (lead agency). The expected decision date is TBD.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

_____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): _____

Other City/County permits:

☒ Floodplain Development Permit ☒ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☐ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☐ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

☐ Authorization to impact waters of the state, including wetlands (Check this box if the proposed impacts are to waters not subject to the federal Clean Water Act)

FEDERAL AND TRIBAL GOVERNMENT

United States Department of the Army (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)

United States Coast Guard:

For projects or bridges over waters of the United States, contact the U.S. Coast Guard at:

☐ Bridge Permit: D13-SMB-D13-BRIDGES@uscg.mil

☐ Private Aids to Navigation (or other non-bridge permits): D13-SMB-D13-PATON@uscg.mil

United States Environmental Protection Agency:

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)

Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC)

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. _____ (initial)

Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 09/2018

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

_____

_____

TO BE COMPLETED BY APPLICANT [help]

Project Name: _____

Location Name (if applicable): _____

_____

Attachment A:
For additional property owner(s) [help]

Use this attachment only if you have more than one property owner. Complete one attachment for each additional property owner impacted by the project.

Signatures of property owners are not needed for repair or maintenance activities on existing rights-of-way or easements.

Use black or blue ink to enter answers in white spaces below.

1. Name (Last, First, Middle) and Organization (if applicable)			
Fleurichamp Jon E., Fleurichamp Dena			
2. Mailing Address (Street or PO Box)			
25299 Hoehn Road			
3. City, State, Zip			
Sedro-Woolley, Washington 98284			
4. Phone (1)	**5.** Phone (2)	**6.** Fax	**7.** E-mail
360.856.6063			N/A
Address or tax parcel number of property you own:			
P40042			
Signature of Property Owner			
I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.			
_____ Printed Name		_____ Signature	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-012 rev. 10/2016

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

_____

_____

Attachment A:
For additional property owner(s) [help]

TO BE COMPLETED BY APPLICANT [help]

Project Name: _____

Location Name (if applicable): _____

_____

Use this attachment only if you have more than one property owner. Complete one attachment for each additional property owner impacted by the project.

Signatures of property owners are not needed for repair or maintenance activities on existing rights-of-way or easements.

Use black or blue ink to enter answers in white spaces below.

1. Name (Last, First, Middle) and Organization (if applicable)			
Puget Sound Energy			
2. Mailing Address (Street or PO Box)			
PO Box 97034			
3. City, State, Zip			
Bellevue, Washington 98009			
4. Phone (1)	**5.** Phone (2)	**6.** Fax	**7.** E-mail
N/A			N/A
Address or tax parcel number of property you own:			
P40047			
Signature of Property Owner			
I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.			
_____ Printed Name		_____ Signature	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-012 rev. 10/2016

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

TO BE COMPLETED BY APPLICANT [help]

Project Name: _____

Location Name (if applicable): _____

Attachment C:
Contact information for adjoining property owners. [help]

Use this attachment only if you have more than four adjoining property owners.

Use black or blue ink to enter answers in white spaces below.

1. Contact information for all adjoining property owners. [help]

Name	Mailing Address	Tax Parcel # (if known)
Ryan, Robert R. & Ryan, Naomi J.	9604 Jenny Lane Sedro-Woolley, Washington 98284	P101321
Mannys Place LLC	2311 North 45th Street No. 111 Seattle, Washington 98103	P39908
Otto, Steven L. Otto, Krystal L.	9574 Jenny Lane Sedro-Woolley, Washington 98284	P101323
Walker William Shay Jr.	24933 Minkler Road Sedro-Woolley, Washington 98284	P40002, P39907
Leal, Nichole C.	9571 Jenny Lane Sedro-Woolley, Washington 98284	P101320
Mitch Homes LLC	1900 South Puget Sound Drive, Suite 203 Renton, Washington 98055	P40019
Berger, Merle H.	25040 Minkler Road Sedro-Woolley, Washington 98284	P40031
Kreide, William A.	25016 Minkler Road Sedro-Woolley, Washington 98284	P40024
Huerta, Juan Guzman	839 East Gilkey Road Burlington, Washington 98233	P64380, P64378
Rent Hull East LLC	825 Talcott Street, Suite B Sedro-Woolley, Washington 98284	P111528
Underwood, Tyler Underwood, Jessica	825 Talcott Street, Suite B Sedro-Woolley, Washington 98284	P64389
Grinder, John F. Grinder, Stephanie M.	25080 Minkler Road Sedro-Woolley, Washington 98284	P40030
Harris, Gary B	10015 183rd Place SE Snohomish, Washington 98296	P64390
Perdue Foods LLC	31149 Old Ocean City Road Salisbury, Maryland 21804	P40033
Boettcher, Patricia	25263 Minkler Road Sedro-Woolley, Washington 98284	P40034, P64391
Taylor, Bonnie J. Taylor, Scott	25135 Minkler Road Sedro-Woolley, Washington 98284	P64387

1. Contact information for all adjoining property owners. [help]		
Name	**Mailing Address**	**Tax Parcel # (if known)**
Taylor, Michelle		

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-014 rev. 10/2016

Critical Areas Report

Goldeneye Energy Storage Project

JUNE 2024

Prepared for:

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Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations iii

1 Introduction 1
- 1.1 Project Description 1
- 1.2 Project Location 1

2 Methods 2
- 2.1 Literature Review and Database Search 2
- 2.2 Agency Coordination 3
- 2.3 Field Surveys 3

3 Literature Review and Survey Results 4
- 3.1 Fish and Wildlife Habitat Assessment 4
  - 3.1.1 Potential Habitat 5
  - 3.1.2 Occurrence Data 6
  - 3.1.3 Existing Conditions 7
  - 3.1.4 Special-Status Wildlife Summary 8
- 3.2 Special-Status Plants 8
- 3.3 Wetlands Site Assessment 8
- 3.4 Critical Areas Summary 10
  - 3.4.1 Wetlands 10
  - 3.4.2 Aquifer Recharge Areas 10
  - 3.4.3 Geologically Hazardous Areas 11
  - 3.4.4 Fish and Wildlife Habitat Conservation Areas 12
  - 3.4.5 Frequently Flooded Areas 12

4 Impacts 12
- 4.1 Wetlands and Associated Buffers 12
- 4.2 Frequently Flooded Areas 13
- 4.3 Fish and Wildlife Habitat Conservation Areas 13

5 Mitigation 14
- 5.1 Wetlands Mitigation 14
- 5.2 Wetland Buffer Mitigation 14
- 5.3 Floodplain Mitigation 15
- 5.4 Fish and Wildlife Habitat Conservation Areas 15

6 References Cited 15

FIGURES

1 Regional Location 19
2 Project Location 20
3 Land Cover 21
4 Soils 22
5 Special-Status Biological Resources 23
6 State Wildlife Action Plan – Observed Species Range 24
7 Aquatic Resources Delineation Results 25
8 Critical Areas 26
9 Project Impacts 27

TABLES

1 Wetlands within the Project Site 9
2 Non-Wetland Waters within the Gen-Tie Line Review Area 9

APPENDICES

A Applicable Regulations
B Hansen Creek Western Toad Surveys
C Special-Status Wildlife Species with a Potential to Occur within the Project Site
D Special-Status Plant Species with a Potential to Occur within the Project Site
E Aquatic Resources Delineation Reports
F Conceptual Planting Plan

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AC	alternating current
BFE	base flood elevation
CAO	Critical Areas Ordinance
DC	direct current
ELS	Ecological Land Services
FEMA	Federal Emergency Management Agency
FT	federally threatened
gen-tie	generation transmission
HCA	Habitat Conservation Area
IPaC	Information for Planning and Consultation
PHS	Priority Habitats and Species Program
PSE	Puget Sound Energy
SC	state candidate
SCC	Skagit County Code
SE	state endangered
SWPPP	stormwater pollution prevention plan
USFWS	U.S. Fish & Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WNHP	Washington Natural Heritage Program

1 Introduction

The purpose of this critical areas report is to identify all critical areas that occur within the boundary of the proposed Goldeneye Energy Storage Project (project) site. Critical areas are defined in the Skagit County Critical Areas Ordinance (CAO) as wetlands, aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas (Skagit County Code [SCC] 14.24.010). SCC 14.24.080 requires that any land use activity that could impair the functions and values of critical areas or their buffers provide a critical areas assessment outlining the potential impacts to those areas. This report provides all the required discussions as outlined in SCC 14.24.080(4)(c). All federal, state, and local regulations applicable to the proposed project are summarized in Appendix A, Applicable Regulations.

This report will support project related permitting by providing information related to those special-status plant or wildlife species with a potential to occur within the project site and to also inform potential avoidance, minimization, and mitigation measures related to those species and their habitat.

1.1 Project Description

Goldfinch Energy Storage, LLC (the applicant), is currently proposing a utility-scale energy storage facility in Skagit County, Washington (the County). The project consists of a proposed 200 megawatt/800 megawatt-hour battery energy storage system located on private lands. The project will be composed of lithium-ion batteries installed in racks; inverters; medium-voltage transformers; switchgear; a collector substation; and other associated equipment to interconnect into the Sedro-Woolley Substation located just to the southeast of the project site (i.e., point of interconnection). The batteries will be installed either in containers or in purpose-built enclosures. The containers or enclosures will have battery storage racks, with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system will be provided to control the charging/discharging of the batteries along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current (DC) electricity that must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC, along with transformers to step up the voltage, will be included. The proposed project requires construction of a generation transmission (gen-tie) line to connect to the substation as well as a road from the substation to provide access to the gen-tie line during construction.

The proposed facility will provide a service to the regional electric grid by receiving energy (charging) from the Puget Sound Energy (PSE) electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. Following construction, the proposed use will not create emissions to air, will not require sanitary facilities, and will not require water except to maintain water-efficient and low-impact landscaping design along the project frontage.

1.2 Project Location

The proposed project site is located in Skagit County, Washington, southeast of Minkler Road, north of Hoehn Road, and west of rural lands bordered on the east by Minkler Road (Figure 1, Regional Location). The proposed project is located within Section 20 of Township 35 North, Range 5 East, Willamette Meridian in Skagit County, Washington. The project is proposed to interconnect to the Sedro-Woolley Substation, which is located to the south of the project

site (see Figure 2, Project Location). The project site totals 18.1 acres and includes the sites for both the battery energy storage system and the gen-tie line and associated access road.

2 Methods

2.1 Literature Review and Database Search

Prior to the field reconnaissance survey, a desktop-level literature review and database search were conducted using publicly available data obtained from federal, state, and local electronic repositories to identify on-site biological and aquatic resources. This review was used to identify special-status wildlife and/or plant species, as well as associated habitat, that occur, or that have the potential to occur, within the boundary of the proposed Goldeneye Energy Storage Project and in the vicinity. Species defined as "special-status wildlife species" in this report include endangered and threatened wildlife species recognized in the context of the Endangered Species Act; Birds of Conservation Concern designated by the U.S. Fish & Wildlife Service (USFWS); state endangered, threatened, proposed, and candidate species; species of concern; and state sensitive and priority species. Special-status plant species include federally listed and candidate plant species, as well as plant species that are listed in Washington state as endangered, threatened, or designated as sensitive by the Washington Natural Heritage Program (WNHP). The desktop-level literature review and database search specifically included a review of special-status plant and wildlife species, as well as aquatic resources, with the potential to occur on the project site.

Resources and search parameters used during the desktop-level evaluation included the following:

Aquatic Resources (Wetlands/Non-Wetland Waters)

- USFWS National Wetlands Inventory (USFWS 2023a)
- U.S. Geological Survey National Hydrography Dataset (USGS 2023a)
- Google Earth (2023)
- U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (USDA 2023a)
- U.S. Department of Agriculture Natural Resources Conservation Service Hydric Soils (USDA 2023b)
- U.S. Geological Survey topographic maps (GIS database) (USGS 2023b)
- National Vegetation Classification System (NVCS 2021)

Special-Status Wildlife Species and Habitat

- List of Habitats and Species of Local Importance SCC 14.24.500 (4)
- National Oceanic and Atmospheric Administration Essential Fish Habitat (EFH) Mapper (NOAA 2023)
- USFWS Information for Planning and Consultation (IPaC) Trust Resource Report (USFWS 2023b)
- USFWS Birds of Conservation Concern (USFWS 2021)
- U.S. Geological Survey National Land Cover Database (USGS 2016)
- Washington State Department of Ecology vegetation and land cover data (DOE 2022)
- WDFW Priority Habitats and Species (PHS) List (WDFW 2008)
- WDFW PHS Web Portal (WDFW 2023a)

- WDFW Threatened and Endangered Species Profiles
- eBird (2021)

Special-Status Plant Species

- WNHP Rare Vascular and Nonvascular Species, County Lists (WNHP 2023)
- Washington Vascular Plant Species of Special Concern (WHNP 2019)
- WNHP Element Occurrence database (WDNR 2023a)
- Online Field Guide to the Rare Plants of Washington (WNHP 2021)

2.2 Agency Coordination

Dudek contacted the local Washington Department of Fish and Wildlife (WDFW) staff via email to discuss the potential for special-status species identified during the literature review and database search to occur within the project boundary (Waddell, pers. comm., 2024). The email confirmed Dudek's assessment of species with a potential to occur within project boundary and also provided survey recommendations and methods that will be utilized to determine presence/absence of these species.

2.3 Field Surveys

Dudek biologists conducted a general reconnaissance-level biological field survey of the battery storage site on March 9, 2022. A second reconnaissance-level survey was conducted on April 13, 2023, to review a slight change to the project site. The purpose of the field surveys was to review existing vegetation communities and land covers, including non-wetland waters and wetlands, identify plant or wildlife species occurring on site, and determine the likelihood of occurrence of any special-status plant or wildlife species. An aquatic resource delineation was conducted for the battery storage site in the spring of 2023 by Skagit Wetlands & Critical Area, LLC, with follow-up delineations conducted by Dudek in September and December of 2023 for the gen-tie line alignment and potential access road locations. In April 2024, Ecological Land Services (ELS) conducted a wetlands delineation along Minkler Road and at an alternative access road location.

Per the site review and discussions with WDFW staff, focused surveys for western toad (*Anaxyrus boreas*) have been conducted within the project site. To document presence/absence of western toads, ELS conducted two focused surveys in April 2024. Western toad surveys were conducted in the portion of Hansen Creek flowing through and adjacent to the project work area as well as any observed back channels or associated wetlands. Surveys involved visual detection of egg masses and/or tadpoles and adults by wading the length of the creek in the project site. Site visits were conducted approximately 1 week apart on April 11 and April 19, during varying weather conditions. In addition to the in-water surveys, an ELS biologist walked the east bank of Hansen Creek to survey for terrestrial adults. The full survey report is provided in Appendix B, Hansen Creek Western Toad Surveys.

3 Literature Review and Survey Results

3.1 Fish and Wildlife Habitat Assessment

Per their CAO, Skagit County maintains jurisdiction over designated fish and wildlife habitat conservation areas (HCAs) (SCC 14.24.500). The areas designated as HCAs in SCC 14.24.500 are recognized as vitally important for the preservation of special-status species.

Based on literature review, special-status wildlife species have a potential to occur on the project site. As such, a fish and wildlife habitat assessment is required according to SCC 14.24.520 and is provided in this section.

Each of the HCAs listed in SCC 14.24.500 and its occurrence within the project site is provided as follows:

a) Areas with which endangered, threatened, and sensitive species have a primary association.

   The proposed project is located adjacent to and includes a portion of Hansen Creek within its boundaries, which is designated as critical habitat for Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*) and is regulated as a shoreline of the state. Streams regulated as shorelines of the state (Washington Administrative Code [WAC] 173-18-310) or other fish-bearing streams that have known or potential use by anadromous or resident fish species are considered HCAs.

b) Habitats and species of local importance that have been designated by the County at the time of application.

   The project site does not have any mapped occurrences of County-designated habitat or species of local importance.

c) All public and private tidelands suitable for shellfish harvest.

   The proposed project site does not occur within or adjacent to tidelands.

d) Kelp and eelgrass beds, herring and smelt spawning areas.

   The proposed project site does not occur within or adjacent to kelp or eelgrass beds, herring and smelt spawning areas.

e) Naturally occurring ponds under 20 acres with submerged aquatic beds that provide fish or wildlife habitat.

   There are no naturally occurring ponds within the project site.

f) Waters of the State as defined by WAC 222-16-030.

   The project site does support waters of the state, as discussed in Section 3.3, Wetlands Site Assessment, and Section 3.4.1, Wetlands, of this report.

g) Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.

   The project site does not contain any features planted with game fish by a governmental or tribal entity.

h) Areas with which anadromous fish species have a primary association.

The proposed project is located adjacent to and includes a portion of Hansen Creek within its boundaries. Hansen Creek is designated as critical habitat for Chinook salmon and steelhead and is regulated as a shoreline of the state. Streams regulated as shorelines of the state (WAC 173-18-310) or other fish-bearing streams that have known or potential use by anadromous or resident fish species are considered HCAs.

i) State Natural Area Preserves and Natural Resource Conservation Areas.

The project site does not occur within or adjacent to any state natural area preserves or natural resource conservation areas.

j) Other aquatic resource areas.

The project site contains 1.47 acres of wetlands that would be classified as other aquatic resources areas.

k) State priority habitats and areas associated with State priority species as defined in WAC 365-190-080.

The project site contains both freshwater emergent wetland and freshwater forested/shrub wetland, which are identified as state priority habitats and areas associated with state priority species. Hansen Creek, a portion of which overlaps the project site, has known occurrences of several fish species listed as state PHS. In addition, the several bat species occurrences overlap with the project site. Section 3.1.2, Occurrence Data, provides additional details regarding these species.

l) Areas of rare plant species and high quality ecosystems as identified by the Washington State Department of Natural Resources through the Natural Heritage Program in Chapter 79.70 RCW.

As discussed further in Section 3.2, Special-Status Plants, areas of special-status plant species and high-quality ecosystems as identified by the WDNR through the WNHP were not identified within the project site.

3.1.1 Potential Habitat

Review of PHS data within 1 mile of the proposed project identified freshwater emergent wetland and freshwater forested/shrub wetland, both of which occur within the project site. Vegetation community and land cover mapping is based on review of existing GAP Ecosystem vegetation data for the region (NVCS 2021). The vegetation communities and land cover type present within the project site include cultivated cropland, pasture and hay, temperate Pacific freshwater emergent marsh, north Pacific shrub swamp, and north Pacific lowland riparian forest and shrubland (Figure 3, Land Cover). National Hydrography Dataset and National Wetlands Inventory data show wetlands and one stream channel (Hansen Creek) mapped within the project site. Portions of Hansen Creek intersect with proposed battery storage site project boundary along the western edge and through the proposed gen-tie line alignment.

Topography on site is generally flat at an elevation of approximately 55 feet above mean sea level. Three soil map units are present within the review area: Sumas silt loam, Field silt loam, and Minkler silt loam (Figure 4, Soils). According to the Natural Resources Conservation Service, the Sumas silt loam consists of poorly drained soils formed in floodplains and deltas from alluvium (USDA 2023a). The unit is considered hydric. Field silt loam map unit consists of moderately well drained soils formed in alluvium and volcanic ash on floodplains with slopes from 0% to 3% (USDA 2023a). The unit has 10% hydric soils and is considered prime farmland if protected from flooding or not frequently flooded during the growing season. Minkler silt loam, which is moderately well drained and is not

considered hydric soil, occurs within the substation and access road. The land surrounding the substation perimeter is gravelly and appears to be partially filled for the construction of the substation.

The stretch of Hansen Creek that overlaps with the project site is designated critical habitat for Chinook salmon (Puget Sound Evolutionarily Significant Unit) and steelhead (Puget Sound Distinct Population Segment) (Figure 5, Special-Status Biological Resources). The project site is located within an area designated as Essential Fish Habitat (EFH) for the following species: Chinook salmon, coho salmon, and pink salmon (NOAA 2023) (Figure 5).

3.1.2 Occurrence Data

This section provides an overview of the database search conducted per Section 2.1, Literature Review and Database Search. The results of this search provided a list of special-status wildlife species that have the potential to occur within the project site. Appendix C, Special-Status Wildlife Species with a Potential to Occur within the Project Site, provides a table of the wildlife species with a potential to occur within the project site.

USFWS IPaC Database

The USFWS IPaC database (USFWS 2023b) was reviewed to determine the potential for special-status wildlife species to occur in the project site. Based on a review of the USFWS IPaC database search, there is a potential for North American wolverine (*Gulo gulo luscus*; federally proposed threatened, state candidate [SC]), marbled murrelet (*Brachyramphus marmoratus*; federally threatened [FT], state endangered [SE]), yellow-billed cuckoo (*Coccyzus americanus*; FT), bull trout (*Salvelinus confluentus*; FT, SC), Dolly Varden (*Salvelinus malma*; proposed similarity of appearance, FT, no state status), and monarch butterfly (*Danaus plexippus;* FC, SC) to occur on the project site (USFWS 2023b).

WDFW Databases

Two listed anadromous fish species have mapped presence in Hansen Creek: fall Chinook salmon (Puget Sound Evolutionarily Significant Unit; FT, no state status) and summer and winter steelhead (*Oncorhychus mykiss*; Puget Sound Distinct Population Segment; FT, SC) (StreamNet 2021; WDFW 2023a). These species are also known to use Hansen Creek for migration, similar to bull trout and Dolly Varden.

The PHS web mapper was used to generate results within a 5-mile radius from the project site (WDFW 2023a). In addition to the special-status species (bull trout, Dolly Varden, Chinook salmon, and steelhead) discussed previously in this section, five other species have an observed range that overlaps with the project site. These include grizzly bear (*Ursus arctos horribilis*; FT, SE), gray wolf (*Canis lupus*; FE, SE), little brown bat (*Myotis lucifugus*; FE, SE), Townsend's big-eared bat (*Corynorhinus townsendii*; FE, FC), and Yuma myotis (bat species; *Myotis yumanensis*; FE, SE).

Several species are mapped within the State Wildlife Action Plan geographic information system (GIS) data to have observed species ranges within 5 miles of the project site (WDFW 2023b). These are shown on Figure 6, State Wildlife Action Plan – Observed Species Range. Listed and candidate species with observed ranges within 5 miles of the project site include Western toad (no federal status, SC), common loon (*Gavia immer*; no federal status, state sensitive), Townsend's big-eared bat, Oregon spotted frog (*Anaxyrus borealis*; FT, SE), golden eagle (*Aquila chrysaetos*; no federal status, state candidate), wolverine, spotted owl (*Strix occidentalis*), and Taylor's checkerspot butterfly (*Euphydryas editha taylori*; FE, SE) (USFWS 2023c).

3.1.3 Existing Conditions

Based on the site visits, the majority of the battery storage site is composed of pasture with herbaceous wetland vegetation in several depressions. There are deciduous trees and blackberries (*Rubus* sp.) along the edges of the property and at the southern end of the property, along with some riparian habitat associated with the on-site portion of Hansen Creek. The gen-tie line alignment and associated access road include areas graded to support the construction of the Sedro-Woolley Substation. There is an PSE transmission line easement that runs north/south over the proposed gen-tie line alignment. Portions of the proposed gen-tie line alignment located adjacent to the overall project site consist of agricultural lands. A wetland enhancement area owned and maintained by PSE is located along the southwest side of Hansen Creek within the gen-tie line alignment survey buffer. This area is planted with willow and rose species.

The proposed project site consists of active agricultural with some native vegetation along the perimeter of the project site, especially in the southeast corner. The trees present on site are primarily deciduous. Given the presence of forested habitat along the southern end of the project site and near Hansen Creek, which provides a corridor to the Skagit River, this portion of the site is considered moderate- to high-value habitat for nesting birds. Agricultural lands are known to be a source of foraging for wildlife, especially birds, and the trees present on site are a source of nesting habitat for birds. Ground-nesting birds are not expected to occur due to the active agricultural use of the majority of the project site and the disturbed areas associated with the substation.

A single stream was noted on site and/or in the project vicinity in the form of Hansen Creek. According to the delineation report prepared by Skagit Wetlands & Critical Areas, LLC, Hansen Creek flows along the western side of the property, with a defined OHWM as a distinct topographic break, typically of several feet along the traverse of this property, dropping down sharply to well defined stream channel, observed to an average of roughly 25 feet in width, composed in large part of a mix of silt bed and small gravel, with channery gravel banks in places. Hansen Creek is a shoreline of the state and falls under the jurisdiction of the Skagit County Shoreline Management Program and is about 1.6 miles upstream of the terminus with the Skagit River (Skagit Wetlands & Critical Areas, LLC, 2023). The riparian buffer associated with Hansen Creek is limited and at times consists of only blackberry brambles. Based on aerial review of the surrounding area, Hansen Creek is subject to development influence such as road overpasses and agriculture. Large woody debris was not observed within the portions of Hansen Creek reviewed for the proposed project. The proposed project occurs within the Federal Emergency Management Agency (FEMA) 100-year floodplain, Zone A, associated with the creek (FEMA 2021). Overall, the creek provides for fish movement to the Skagit River but it does not provide an adequate riparian buffer in its current state due to the lack of riparian vegetation and dominance of non-native vegetation, reducing the potential for this portion of Hansen Creek to provide shade and structure necessary to serve as high-value wildlife habitat.

Existing structures within the project site include a residence and an autobody workshop. The land within the main battery storage site is actively maintained, as are the areas under the PSE transmission line. Noise generated from the autobody shop as well as active farming is likely to preclude many special-status species from utilizing the project site and immediately surrounding area.

3.1.4 Special-Status Wildlife Summary

Based on a review of the existing literature, the results of the USFWS IPaC database search, and existing conditions within the project site, it has been determined that the proposed project site supports suitable habitat for four of the federally listed wildlife species that have a potential to occur in the project site. These species include Chinook salmon, steelhead, bull trout, and Dolly Varden (migration only).

The SCC 14.24.500(4) list of Habitats and Species of Local Importance was reviewed in concert with available habitat within the project site to determine the potential for species of local importance to occur within the project site. Of the nine species/habitats listed in SCC 14.24.500(4), one, Townsend's big-eared bat communal roosts, has a potential to occur within the project site. While the project site does contain suitable roosting habitat for special-status bats, as discussed in Section 3.1.2, review of the project site by biologists did not observe any signs of bats including urine/guano nor have bats been observed directly.

Western toad, a state candidate species, has a **moderate** potential to occur within the project site because it can occupy a wide range of habitats, including woodlands. Ponded wetlands also occur on site, which could support the species. Adults can move up to 4 kilometers (2.5 miles) in upland away from their natal stream after reproducing (Loeffler 1998). Therefore, there is a moderate likelihood that this species occupies the project site because Hansen Creek is adjacent to the project site and the Skagit River occurs within 2 miles of the site. However, focused surveys for this species were conducted in April 2024 and no western toads were observed. As summarized in Appendix C, no other state-listed species have a potential to occur within the project site.

3.2 Special-Status Plants

Based on the literature review and database search, no federally or state listed plant species, or other sensitive plants, were identified as having known occurrences (i.e., within 5 miles of the project site) or a potential to occur within the project site. Areas of special-status plant species and high-quality ecosystems as identified by the WDNR through the WNHP were not identified within the project site. A list of special-status species reviewed for their potential to occur is provided in Appendix D, Special-Status Plant Species with a Potential to Occur within the Project Site. No special-status plant species were observed during the reconnaissance-level biological field surveys that occurred in spring of 2022, 2023, and 2024. Although the site surveys occurred earlier than the blooming period for most of the special-status species listed in Appendix D, based on site conditions (maintained agricultural lands), necessary habitat for each species (i.e., vegetation communities, elevation ranges) and review of applicable databases, no special-status plant species are expected to occur withing the project site and focused surveys are not necessary.

3.3 Wetlands Site Assessment

Per SCC 14.24.220, a wetland site assessment was conducted for the proposed project and the results of that assessment are summarized in this section. The full delineation reports prepared for the project are provided in Appendix E, Aquatic Resources Delineation Reports. The proposed project site, including the gen-tie line alignment, includes 1.47 acres of wetlands as well as a portion of Hansen Creek (Figure 7, Aquatic Resources Delineation Results). The wetlands identified within the boundaries of the project are summarized in Table 1. Within the energy storage site, all wetlands are categorized as depressional, with Wetland A being the most notable area as a depression excavated into the subsoil by Skagit County (per landowner), largely within the right-of-way. All other wetlands of the site are relatively shallow depressions found in a low swath that crosses the property from the

northwest to the southeast. The wetlands appear to be in present configuration after decades of heavy compaction due to livestock after initial drainage attempts prior, assumed in the late nineteenth or early twentieth century, which included ditching and likely subsurface tile installation.

Table 1. Wetlands within the Project Site

Feature Name	Cowardin Code[a]	HGM	DOE[b]	Skagit County[c]	Wetland Size (acres)	Buffer Width (feet) [d]
WET-A	PEM	Depressional	III	III	0.152	150
WET-B	PEM	Depressional	III	III	0.006	150
WET-C	PEM	Depressional	III	III	0.027	150
WET-D	PEM	Depressional	IV	IV	0.004	50
WET-E	PEM	Depressional	IV	IV	0.002	50
WET-F	PEM	Depressional	IV	IV	0.979	50
WET-G	PEM	Depressional	IV	IV	0.008	50
WET-H	PSS	Riverine	III	III	0.09	150
WET-I	PSS	Depressional	III	III	0.20	150
				Wetlands Total	**1.47**	**N/A**

Notes: HGM = hydrogeomorphic classification; DOE = Washington State Department of Ecology; PEM = palustrine emergent; PSS = palustrine scrub–shrub; N/A = not applicable.

[a] Pursuant to Cowardin et al. 1979 and USACE 2023.

[b] Ecology rating (DOE 2023).

[c] Skagit County follows the DOE rating systems (DOE 2023).

[d] Skagit County wetland buffer width based on wetland category and high-intensity land use (Skagit County 2023).

Wetlands associated with the gen-tie line alignment include a riverine wetland associated with Hansen Creek and a wetland enhancement area adjacent to Hansen Creek. The riverine wetland (WET-H) is dominated by blackberry thickets. The wetland enhancement area (WET-I) has been planted with willow and rose species. ELS documented a wetland just outside of the proposed access road alignment (Figure 8, Critical Areas). This feature is a Washington State Department of Ecology Category III wetland and therefore a 150-foot buffer has been applied. Because the feature is not located within the project site, it is not included in Table 1.

The portion of Hansen Creek that overlaps with the proposed gen-tie line alignment is provided in Table 2. For the main battery storage site, only the extent of the ordinary highwater mark was documented to provide a point from which to establish the required buffer. Per the SCC, all streams that meet the criteria for Type S, F, and N waters as set forth in WAC 222-27 16-030 of the WDNR Water Typing System must implement the required buffer widths, which for Type S streams is 200 feet.

Table 2. Non-Wetland Waters within the Gen-Tie Line Review Area

Feature Name	WDNR Water Type	Portion within the Review Area	Skagit County Buffer Width
Hansen Creek	S	190 linear feet (0.08 acres)	200 feet

Source: WDNR 2023b.

Notes: gen-tie = generation transmission; WDNR = Washington State Department of Natural Resources; S = shorelines of the state.

3.4 Critical Areas Summary

Based on both desktop review and on-site surveys, the project site contains the following critical areas: wetlands, frequently flooded areas, and fish and wildlife habitat conservation areas as defined in SCC 14.24. Figure 8 shows all critical areas on site.

3.4.1 Wetlands

The 1.47 acres of wetlands delineated as described in Section 3.3, Wetlands Site Assessment, meet the definition of wetlands as outlined in Revised Code of Washington 36.70A.030(21) and SCC 14.24.200. Therefore, these wetlands are critical areas and impacts to these resources require mitigation per SCC 14.24.250. Section 3.3 of this report provides wetland classification and required buffer sizes.

3.4.2 Aquifer Recharge Areas

Aquifer recharge areas are areas determined to be critical in maintaining both groundwater quantity and quality. SCC 14.24 specifies regulatory requirements for development within these areas, including prohibited activities, site assessment requirements, and mitigation measures should they be required. Per SCC 14.24.310, there are two categories of aquifer recharge designations, Category I areas, which have been identified as areas that need protection, and Category II areas, which are all other areas outside of Category I. Category I aquifer recharge areas are shown on the aquifer recharge area map provided by Skagit County and according to this map, the project site is not located within any Category I aquifer recharge areas (Skagit County 2022). Under current conditions, the project site features impervious areas in the form of existing buildings and driveways. Groundwater was encountered at all explorations at a depth of 5 to 9 feet below ground level (Terra-Geo 2023). The project site does not contain any critical aquifer recharge areas and groundwater levels reflect the water surface elevation of Hansen Creek, with infiltration within project site contributing to some extent though not significantly. Therefore, the proposed project is not subject to the restrictions further outlined in the SCC nor is the project required to provide an aquifer recharge areas site assessment in accordance with SCC 14.24.330.

The identified flow-sensitive basins as documented in SCC 14.24.350(1)(a)(i) were reviewed and it was determined that the proposed project is within the Hansen Creek watershed drainage area, which is designated as a flow-sensitive basin. Flow-sensitive basins are defined in the SCC as “a watershed drainage area, designated under Chapter 14.24 SCC, where water withdrawals could adversely affect aquatic resources.” The proposed project will receive water from Skagit Public Utility District through an existing water line and will not require a well to provide water for project activities. Because the proposed project site is within a flow-sensitive basin, SCC 14.24.360 requires a limit of no more than 20% of the project area consist of impervious surfaces unless at least one of four identified conditions is met. The proposed project will meet two of these conditions because the project is serviced by a public water system, no wastewater will be disposed of on site, and a flood study has been prepared to demonstrate that the impervious surfaces will not adversely affect surface water infiltration and stream base flows. Because these conditions are met, the limit of 20% impervious surfaces does not apply.

3.4.3 Geologically Hazardous Areas

Geologically hazardous areas are addressed in SCC 14.24.400 and include areas that may not be suited to development due to their susceptibility to erosion, sliding, earthquake, or other geological events. These areas pose public health, safety, or environmental concerns. Skagit County has prepared a map identifying potential landslides and erosion areas (Skagit County 2022). Based on this initial review, the project site is not located within a known hazard area.

The project site conditions were evaluated for the presence of geologically critical areas as defined in Skagit County's critical areas code, specifically SCC 14.24.400-430 (Terra-Geo 2023). The following is a summary of the report:

- **Erosion Hazard Area:** The project site is not at risk for erosion hazards as none of the criteria listed within SCC 14.24.410(1) are applicable (including slopes greater than 30%, containing coastal beaches or bluffs, special areas identified by varying governing bodies, not susceptible to rapid stream incision and bank erosion, etc.). The project site slopes are less than 30% and the site's identified soils are not listed as erosion-prone according to the referenced SCC. The erosion potential of the on-site soils is "not rated" at the time of this assessment and no erosion of these materials was noted on site during several visits. However, the site's soils will be susceptible to erosion when exposed during construction. Proper implementation and maintenance of best management practices (BMPs) for erosion prevention and sedimentation control will adequately mitigate the erosion potential in the planned development area. Erosion protection measures as required by Skagit County will also be in place prior to and during grading activity on the site.
- **Landslide Hazard Area:** The project site does not contain any of the criteria listed in SCC 14.24.410 (2) for landslide hazard areas. These criteria include slopes greater than 15% that meet identified criteria, areas of previous failure, potentially unstable areas resulting from rapid stream incision, coastal bluffs, and other specific considerations identified in SCC 14.24.410(2). Accordingly, the site does not fall within a Landslide Hazard Area.
- **Seismic Hazard Area:** The project site is not within 0.25 miles of an active fault and is not at risk of tsunami or seiche hazards. However, the site is identified as moderately to highly susceptible to liquefaction due to seismic activity based on Skagit County's Liquefaction Susceptibility Map. To address this, seismic design will adhere to procedures outlined in the 2018 International Building Code (IBC). According to the IBC, structures on Site Class E sites, as per ASCE 7-16, must be designed to withstand earthquake motions. Anticipated liquefaction settlements within the project site are expected to be within acceptable limits (up to 4 inches). As a result, ground improvement techniques for liquefaction mitigation are not anticipated to be necessary for site development.
- **Volcanic Hazard Area:** The volcanic hazard risk at this site is considered negligible. As defined in SCC 14.24.410(4), a site assessment is not required for volcanic hazard areas unless other specific criteria apply.
- **Mine Hazard Area:** The WDNR Inactive and Abandoned Mines map identifies mines. A project is deemed in a mine hazard area if it falls within 200 feet of any current or historic mine operations flagged as geologically hazardous by the Administrative Official. However, the risk of mine hazards for the project site is minimal as there are no such features within 200 feet. Additionally, there are no listed inactive or abandoned mines in greater Skagit County, according to DNR (2024 as cited in Terra-Geo 2023).

3.4.4 Fish and Wildlife Habitat Conservation Areas

The proposed project contains five HCAs are identified in SCC 14.24.500: Areas with which endangered, threatened, and sensitive species have a primary association, (1)(a); waters of the state as defined by WAC 222-16-030 (1)(f); areas with which anadromous fish species have a primary association, (1)(h); other aquatic resources areas, (1)(j); and state priority habitats and areas associated with state priority species as defined in WAC 365-190-080 (1)(k).

3.4.5 Frequently Flooded Areas

Frequently flooded areas designations are defined in SCC 14.24.600 as "those areas identified as A, AO, AH, A1—10, A12, A14, A16, A18, A21—22, V1 and V4 zones on the official Flood Insurance Rate Map for Skagit County, as amended. Cumulatively these zones represent the floodway and 100-year floodplain." The project involves construction within the sections of the project site designated as a FEMA-designated 100-year Zone A floodplain associated with Hansen Creek and a County-designated Special Flood Hazard Area. The Flood Study conducted for the project site determined the 100-year base flood elevation (BFE) to be 61.3 feet (Power Engineers 2024). The project must therefore comply with all standards presented under SCC Section 14.34.

4 Impacts

4.1 Wetlands and Associated Buffers

The proposed project is required to provide a gen-tie line to connect the energy storge site with the Sedro-Woolley Substation located just to the southern of the project site. The gen-tie line must cross over Hansen Creek to connect to the substation. An overhead connection is not feasible given the existing utilities. Therefore, the connection will be placed underground via directional drilling. Directional drilling avoids impacts to Hansen Creek and surrounding wetlands and buffers (Wetlands H and I) (0.29 acres). However, due to the position of the wetlands within the energy storage site, avoidance of these features is not feasible. Therefore, the remaining 1.18 acres of wetlands within the energy storage site will be permanently impacted (Figure 9, Project Impacts). The access road will overlap with a portion of the buffer associated with an off-site wetland (0.12-acre overlap).

SCC 14.24.240(2) allows for buffer averaging if the applicant can demonstrate the following:

a) Averaging is necessary to accomplish the purpose of the proposal and no reasonable alternative is available; and

   Due to the constraints, existing development and easements, complete buffer avoidance is not feasible. The access road has been placed in an area that will result in the least amount of impact to wetland buffers while also being located within available land. Other road alternatives were considered but would have resulted in significant impacts to cultural resources and therefore were eliminated from consideration.

b) Averaging width will not adversely impact the wetland functions and values; and

   The road will be used only for construction purposes and if the underground gen-tie line needs to be serviced. The overlapping portion of the buffers includes land that is degraded from past fill activity, the powerline corridor, and overall maintenance activities. Therefore, the placement of the road within the

off-site wetland buffer will not adversely affect the functions and values of the wetland and creek beyond current development pressures.

c) The total area contained within the wetland buffer after averaging is no less than that contained within the standard buffer prior to averaging

   The current buffer for the off-site wetland would not be decreased through averaging of the buffer because there is ample room to expand the buffer. As shown on Figure 9, the buffer area would remain the same after averaging.

d) The buffer width shall not be reduced below 75% of the standard buffer width.

   The wetland buffer width has been reduced by a maximum of 25 feet, which is 84% of the standard buffer width (150 feet).

Therefore, with the allowable buffer averaging, the proposed project would not have any impacts to required wetland buffers.

4.2 Frequently Flooded Areas

Per the FEMA Flood Insurance Rate Map Community Panel Number 530151 0255 D, revised September 29, 1989, the project site is located entirely within Zone A (Areas of 100-year flood; base elevations and flood hazard factors not determined). All development within the floodplain of Hansen Creek shall aim to conform to the standards within SCC Chapter 14.34, especially SCC 14.34.150 and 14.34.160(3), and International Code Council requirements to mitigate any flood-related risks and minimize impacts to the floodplain.

4.3 Fish and Wildlife Habitat Conservation Areas

Special-status fish species have the potential to occur within Hansen Creek; however, because the proposed project will utilize directional drilling to place the gen-tie line alignment underground, impacts to the creek are not expected. Any work taking place in Minkler Road will stay within the roadway and will not result in impacts to the creek. Figure 9 provides the location of the gen-tie line alignment where it will be placed underground, along with the points at which the line will be moved aboveground. Figure 9 also provides the location of the jack and bore easement and vault installation work area, both of which are temporary work areas.

The access road will overlap with the 200-foot Hansen Creek buffer (0.17 acres) (Figure 9). The 200-foot buffer for Hansen Creek in this area was developed using topography to map the extent of the OHWM. The portion of the road that will overlap the buffer is located within the PSE transmission line easement. Per SCC 14.24.540(5)(a), roads are an allowable use within HCA or buffers as along as the following conditions are met:

(i) It is demonstrated to the Administrative Official that there are no alternative routes that can be reasonably used to achieve the proposed development; and

   As explained in Section 4.1, Wetlands and Associated Buffers, several constraints have dictated the location of the road. Other alternatives were reviewed but would result in impacts to cultural resources.

(ii) The activity will have minimum adverse impact to the fish and wildlife HCA; and

The road will be used only for construction purposes and if the underground gen-tie line needs to be serviced. The overlapping portion of the buffers includes land that is degraded from past fill activity, the powerline corridor, and overall maintenance activities. Therefore, the placement of the road within the buffer would not adversely impact Hansen Creek beyond current development pressures.

(iii) The activity will not significantly degrade surface or groundwater; and

Construction and use of the road will not degrade surface or groundwater. The road will be minimally used and is located within a disturbed area.

(iv) The intrusion into the fish and wildlife HCA and its buffers is fully mitigated.

The road will overlap with 0.17 acres of the Hansen Creek buffer. Mitigation for these impacts would be achieved through the creation of a 1.31-acre riparian enhancement buffer within the main battery storage site as further discussed in Section 5.5, Fish and Wildlife Habitat Conservation Areas.

5 Mitigation

5.1 Wetlands Mitigation

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation for unavoidable wetland impacts was taken into consideration during project design. Complete avoidance to wetlands and their associated buffer is not feasible due to the constraints of the project site and surrounding area, particularly regarding property ownership. Due to the necessity of proximity to the Sedro-Woolley Substation, this site was the only feasible option for this project. The applicant considered on-site compensatory mitigation for wetland impacts; however, due to the site design, there was not sufficient space available on site for mitigation that would be ecologically feasible and likely to succeed. Following guidance in the Federal Rule [33 CFR Part 332], the applicant explored the possibility of using a mitigation bank to compensate for impacts. There are two approved mitigation banks within Skagit County that currently have credits that could mitigate for project impacts: Skagit Valley Environmental Bank and Nookachamps Mitigation Bank. The goal of the mitigation plan is to fully compensate for all wetland impacts associated with this project through the purchase of mitigation credits at an agency-approved mitigation bank. Based on the mitigation ratios in the Skagit Environmental Bank mitigation banking instrument, the mitigation ratios are as follows: Category III wetlands require 1.0 credit per acre of impact and Category IV wetlands require 0.85 credits per acre of impact. Based on the impacts and mitigation ratios, the project applicant is required to purchase 1.03 bank credits, which will provide mitigation for the 1.18 acres of wetland impact.

5.2 Wetland Buffer Mitigation

The proposed project will permanently impact all wetlands within the storage site. Given the removal of the wetlands, there is no longer a requirement to assess impacts on any associated buffer. Therefore, buffer mitigation is not required for the on-site impacts. The access road would overlap with a small portion of a buffer for an off-site wetland. The placement of the road within this buffer would result in 0.12 acres of overlap. As discussed in Section 4.1, buffer averaging would eliminate impacts to the wetland buffers. Therefore, wetland buffer mitigation is not proposed.

5.3 Floodplain Mitigation

Per the Project Flood Study, the 100-year BFE was determined to be 61.3 feet. Per SCC 14.34.180 and to mitigate flooding-associated risks, the project site will be elevated through the placement of fill or elevated on piers so that the foundations of all electrical equipment are at a minimum of 1 foot above BFE. All project electrical equipment foundations have been designed to be a minimum of 1 foot above the BFE.

5.4 Fish and Wildlife Habitat Conservation Areas

The project site supports suitable habitat for nesting bird species. Nesting birds are protected under the federal Migratory Bird Treaty Act and compliance with these regulations is required. Project plans include the removal of vegetation considered suitable for nests. Additionally, indirect impacts to nesting birds from short-term construction-related noise could result in decreased reproductive success or abandonment of an area used for nesting if conducted during the nesting season (i.e., February through August). Implementation of the following Avoidance and Minimization Measure will help ensure that potential impacts to nesting birds are less than significant:

> Vegetation removal and initial ground-disturbing activities should occur outside the nesting season, which generally occurs from February through August, to avoid potential impacts to nesting birds. This will ensure that no active nests are disturbed and that vegetation removal can proceed rapidly. If vegetation removal and initial ground-disturbing activities occur during the nesting season, all suitable habitat shall be thoroughly surveyed by a qualified biologist for the presence of nesting birds before commencement of clearing. If any active nests are detected, a buffer of at least 50 feet (250 feet for raptors) should be delineated, flagged, and avoided until the nesting cycle is complete, as determined by a qualified biologist.

To improve the buffer between the project and Hansen Creek and mitigate for impacts to 0.17 acres of the Hansen Creek buffer, riparian buffer enhancement will occur as a part of the proposed Conceptual Planting Plan provided in Appendix F. Demolition of the existing residence and associated structures that occur in and around the 200-foot buffer for the creek is required to construct the proposed project. The area adjacent to Hansen Creek but outside the 200-foot buffer will be revegetated with native plants per the conceptual planting plan provided as Appendix F to this report. The riparian buffer enhancement totals 1.31 acres. A diversity of native plants has been incorporated into the overall planting plan for the project to promote the continued use of the site by local wildlife in addition to being water-wise. Specific information regarding the species utilized within the buffer, as well as for the project as a whole, is provided in Appendix F. Therefore, the proposed project will result in the extension of the riparian corridor adjacent to Hansen Creek by restoring this area.

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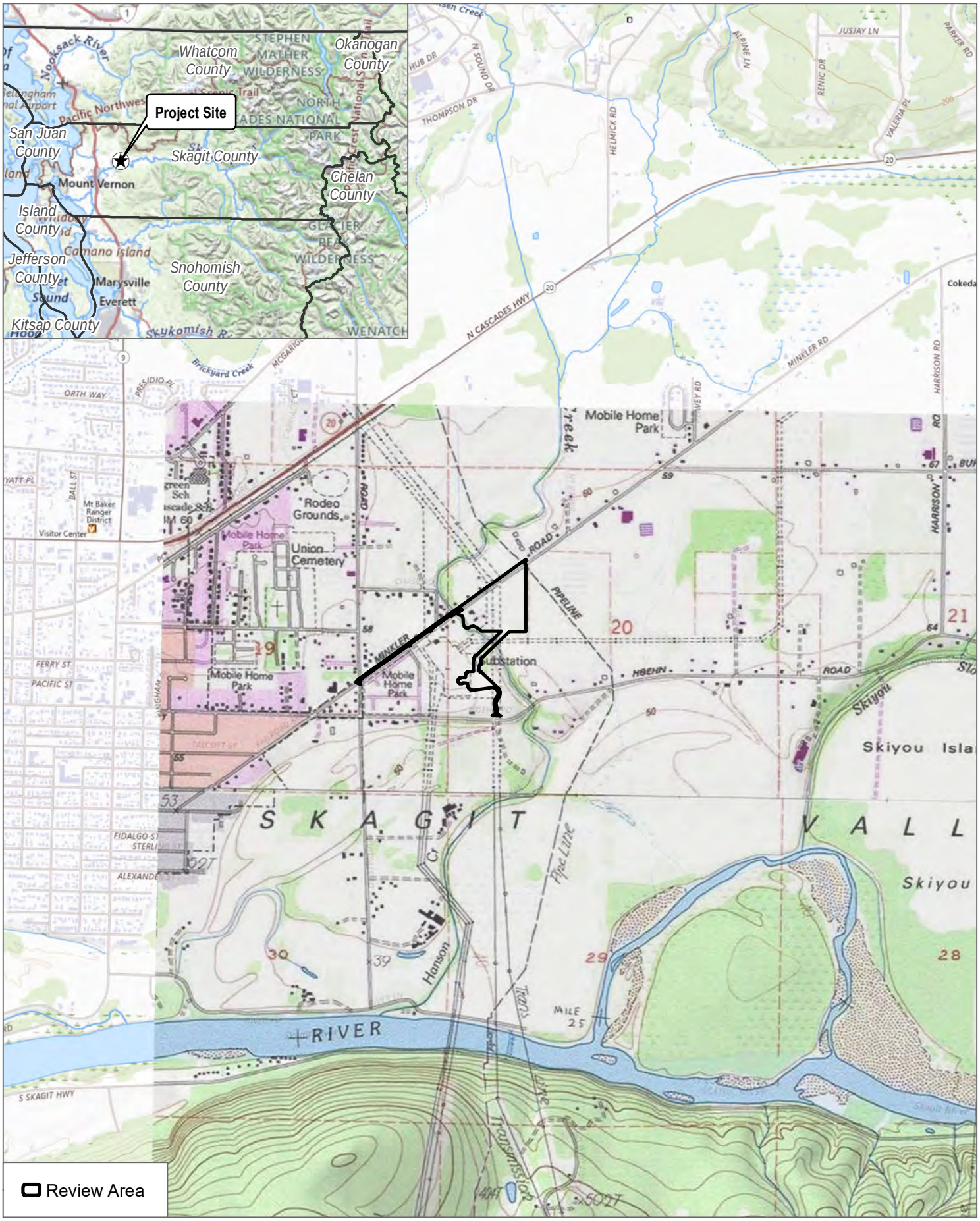


SOURCE: USGS 7.5 Minute Quadrangle Sedro-Woolley North Series
Township 35N; Range 5E; Section 20

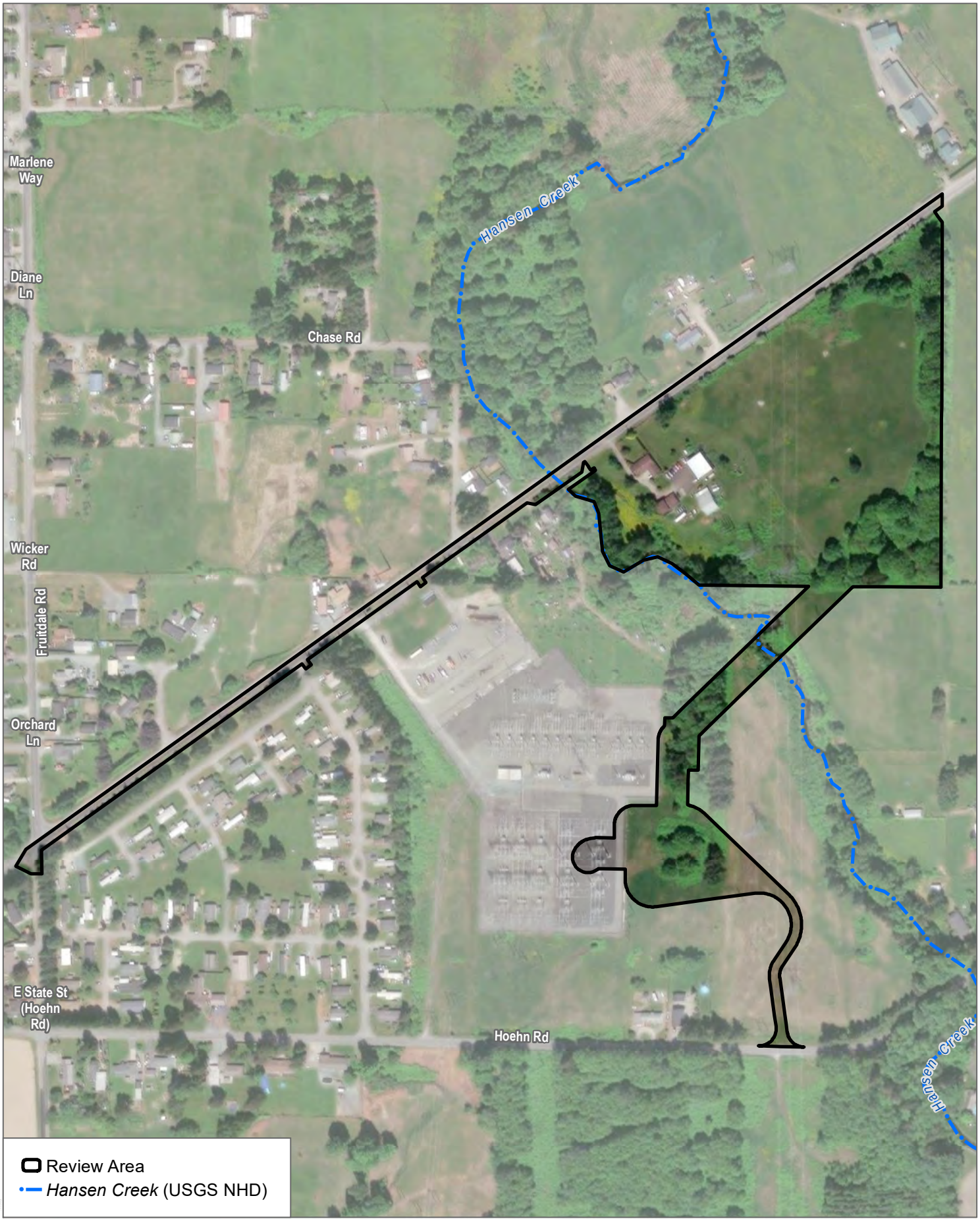
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Regional Location

Critical Areas Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap; WA DOT 2024; Skagit County 2024

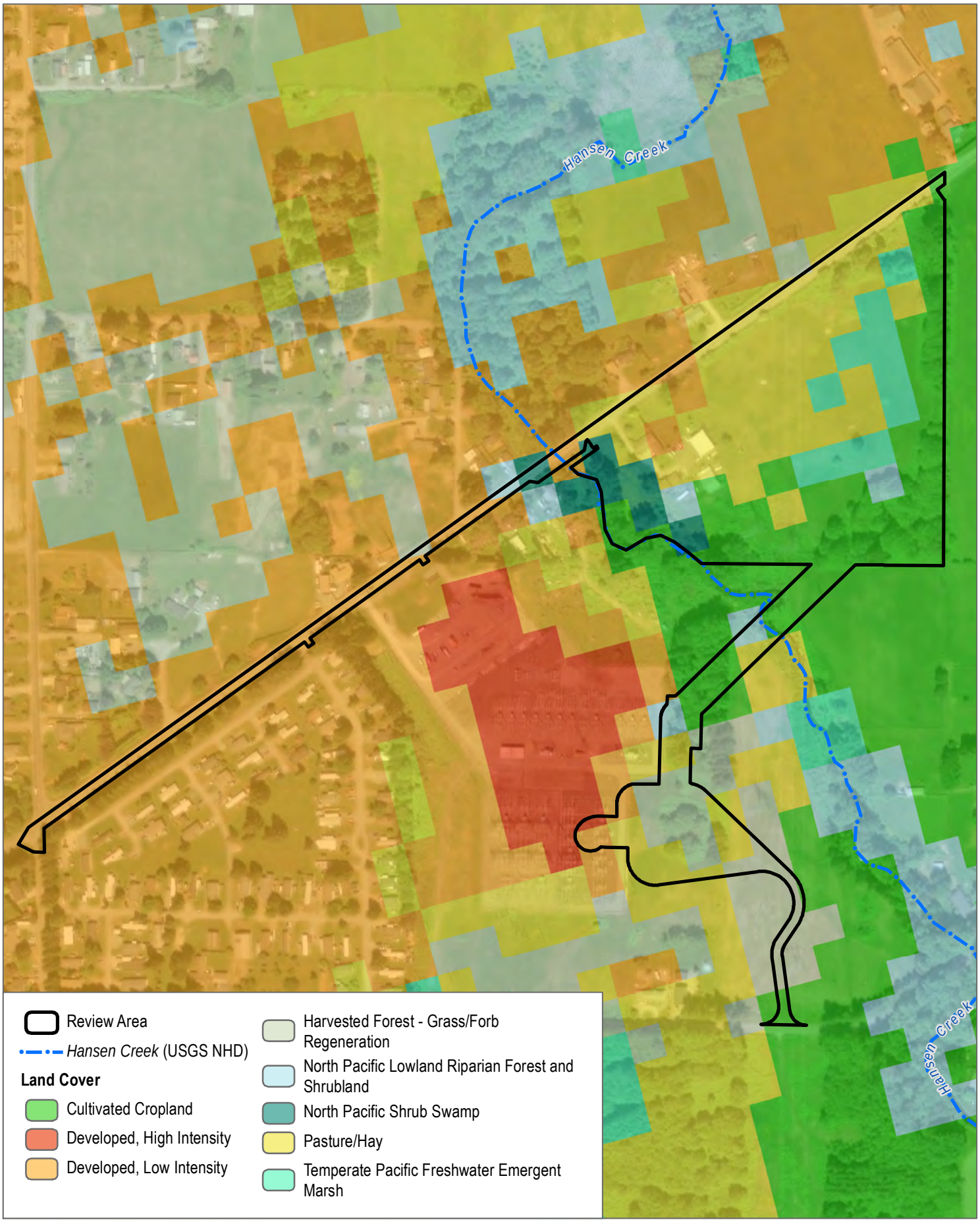
DUDEK

0 185 370 Feet

FIGURE 2

Project Location

Critical Areas Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap; USDA 2016

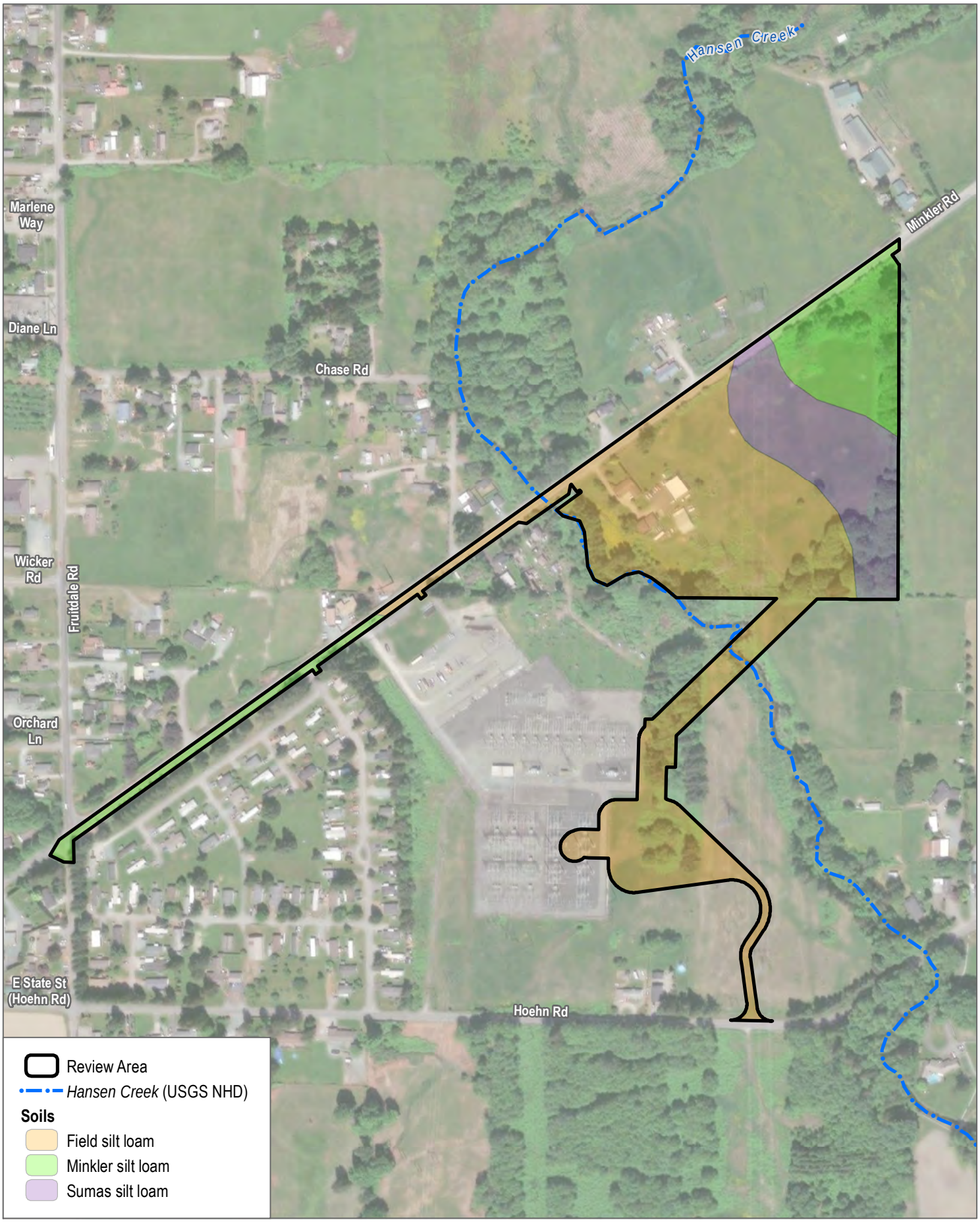
DUDEK

0 185 370 Feet

FIGURE 3

Land Cover

Critical Areas Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap; Skagit County 2024; USDA SSURGO 2023

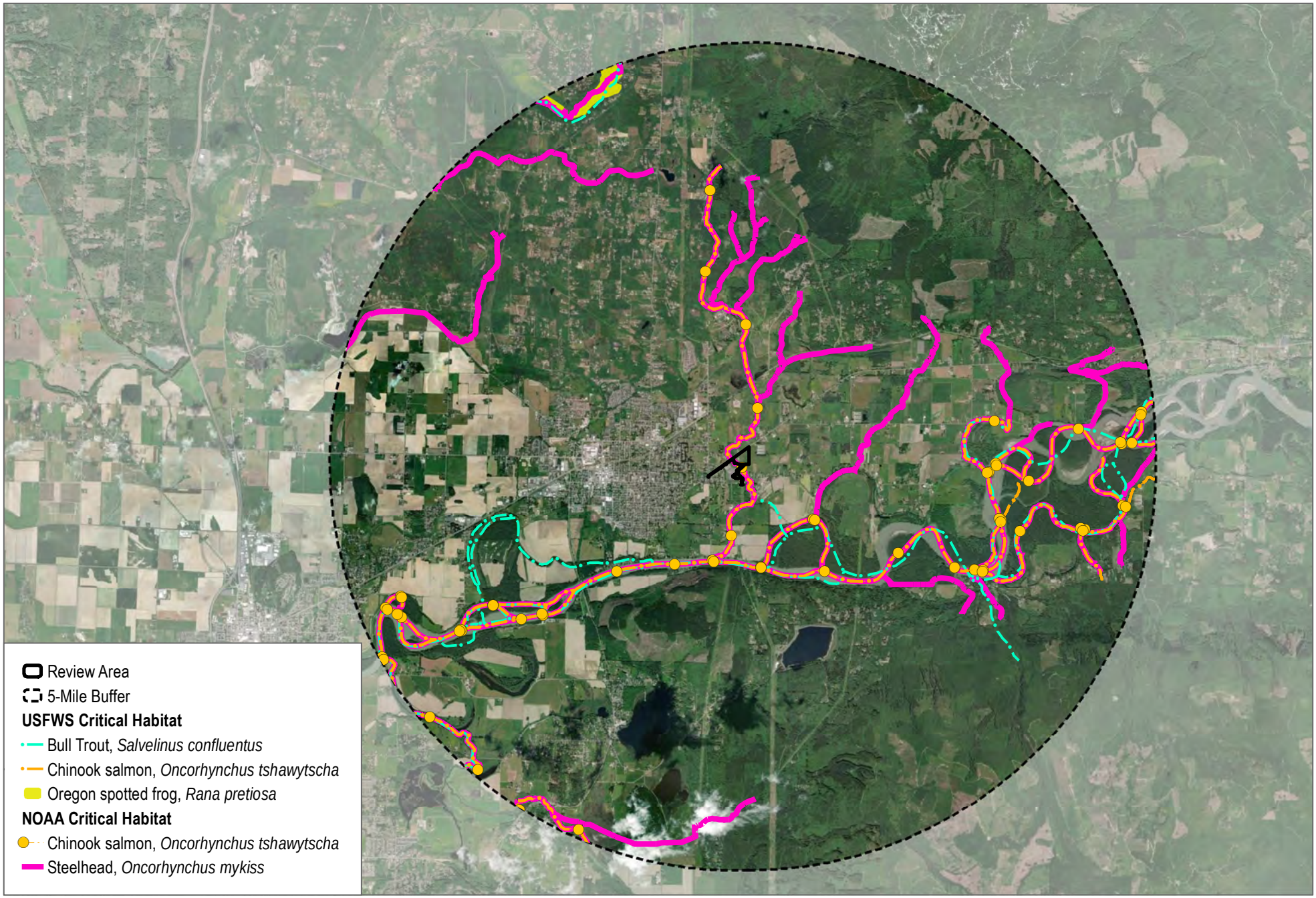
DUDEK

0 200 400 Feet

FIGURE 4

Soils

Critical Areas Report: Goldeneye Project



SOURCE: Maxar 2017; Skagit County 2021; USFWS 2022; NOAA 2022

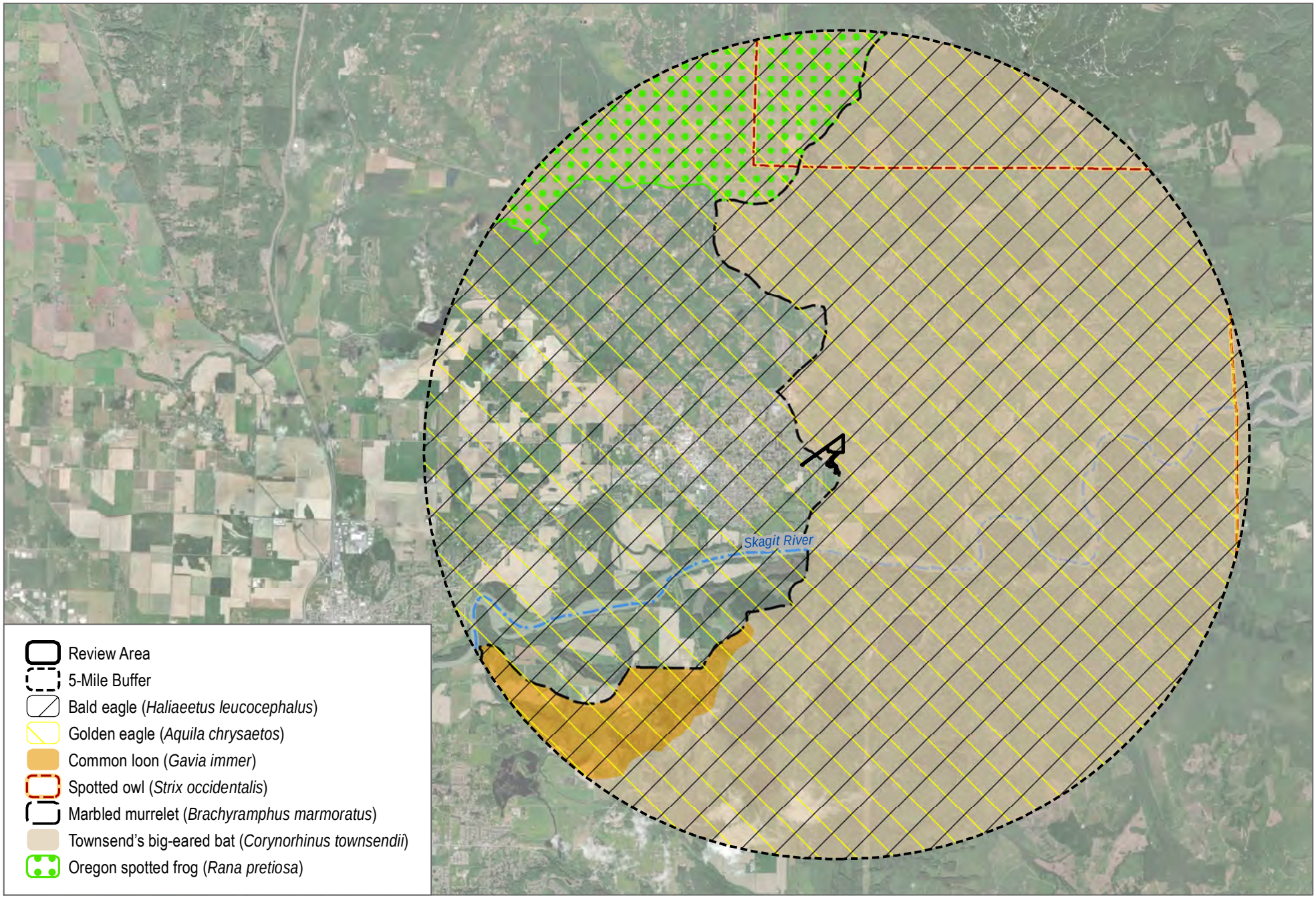
DUDEK

0 4,200 8,400 Feet

FIGURE 5

Special-Status Biological Resources

Critical Areas Report: Goldeneye Project



SOURCE: Maxar 2017; Skagit County 2021; WDFW 2023

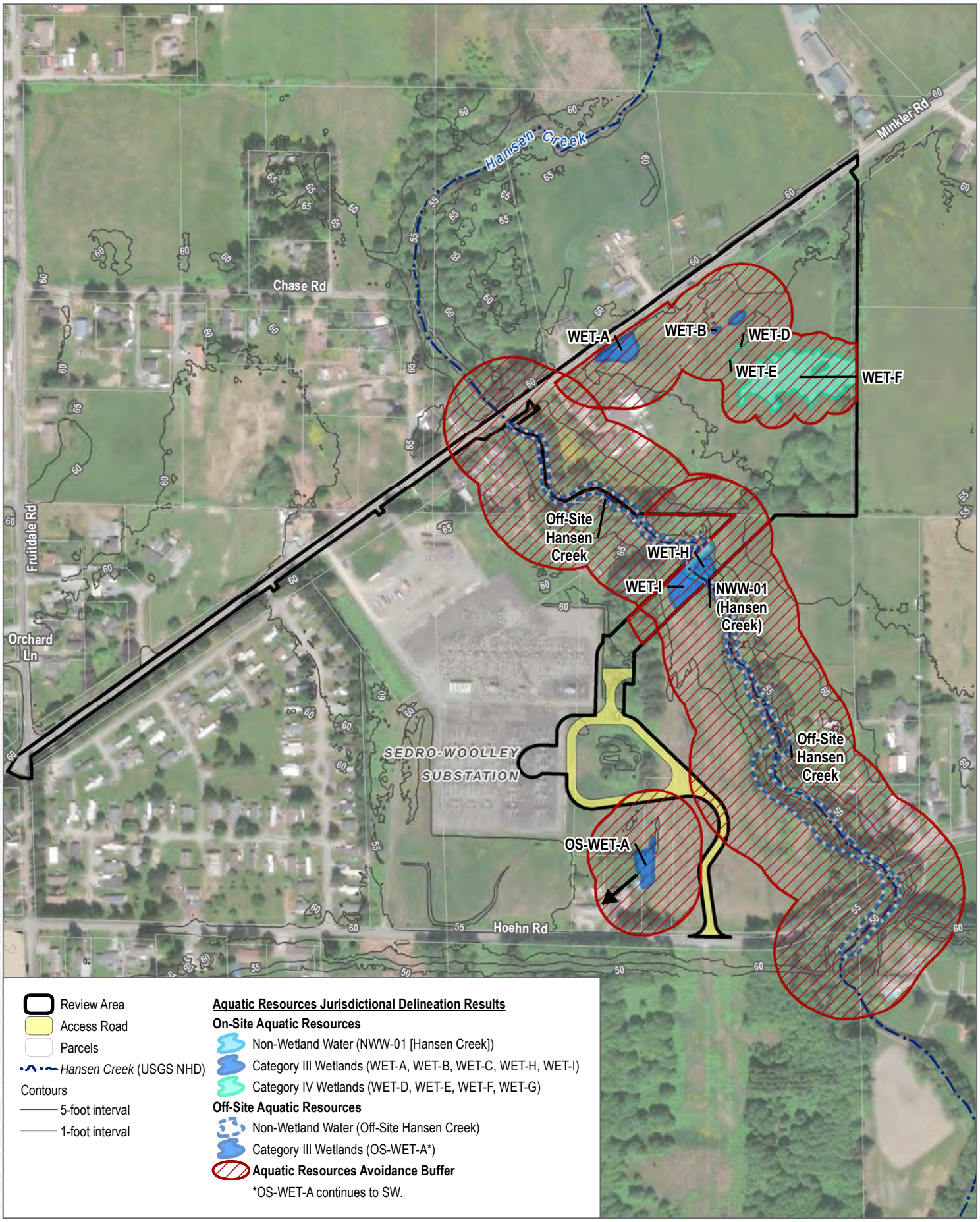
DUDEK

0 4,200 8,400 Feet

FIGURE 6

State Wildlife Action Plan - Observed Species Range

Critical Areas Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap 2024; USGS NHD 2023; Skagit County 2021

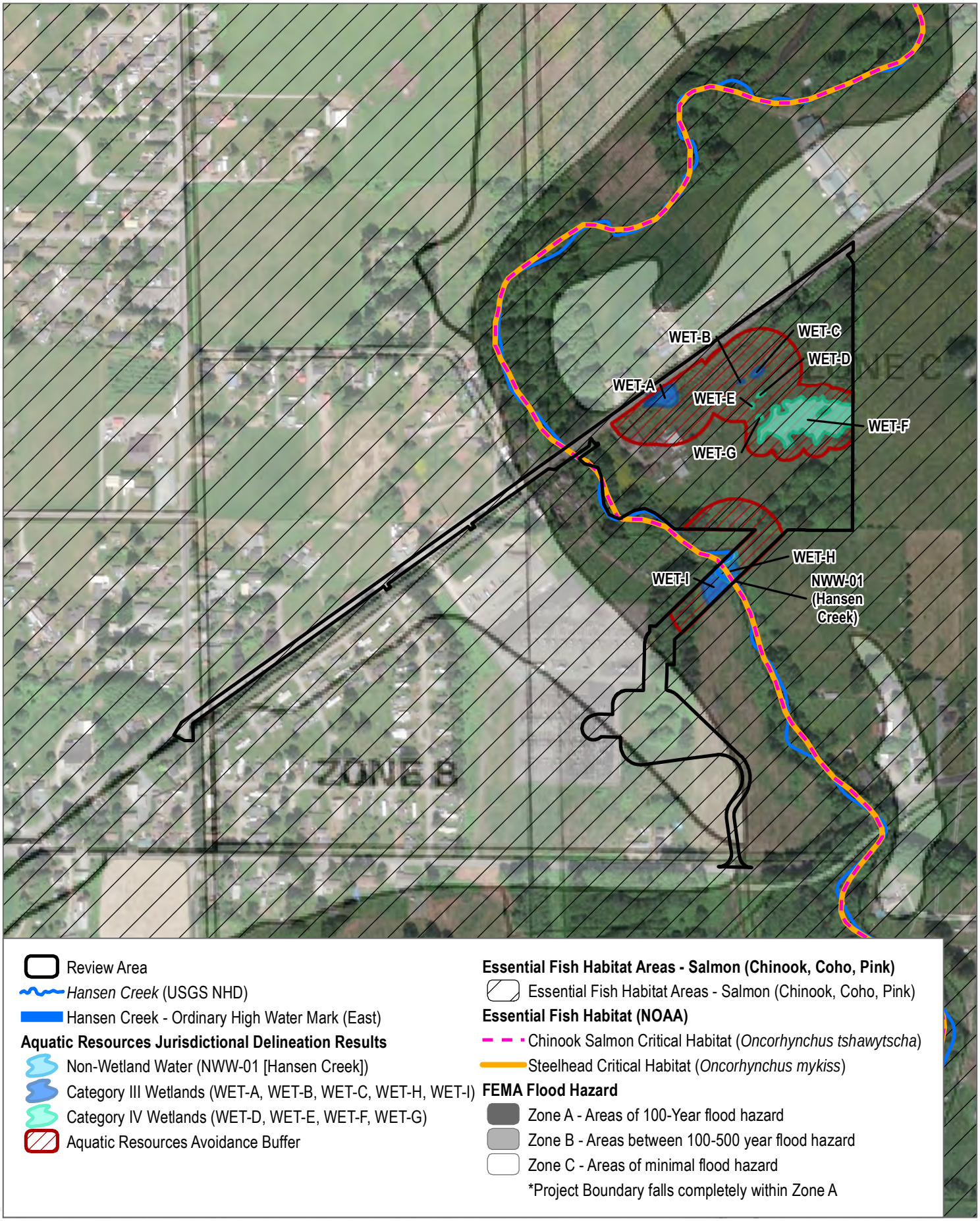
DUDEK

0 200 400 Feet

FIGURE 7

Aquatic Resources Delineation Results

Critical Areas Report: Goldeneye Project



SOURCE: Maxar 2017; Skagit County 2021; NHD 2023; NOAA 2023; Skagit Wetlands & Critical Areas, LLC 2023; FEMA 2023

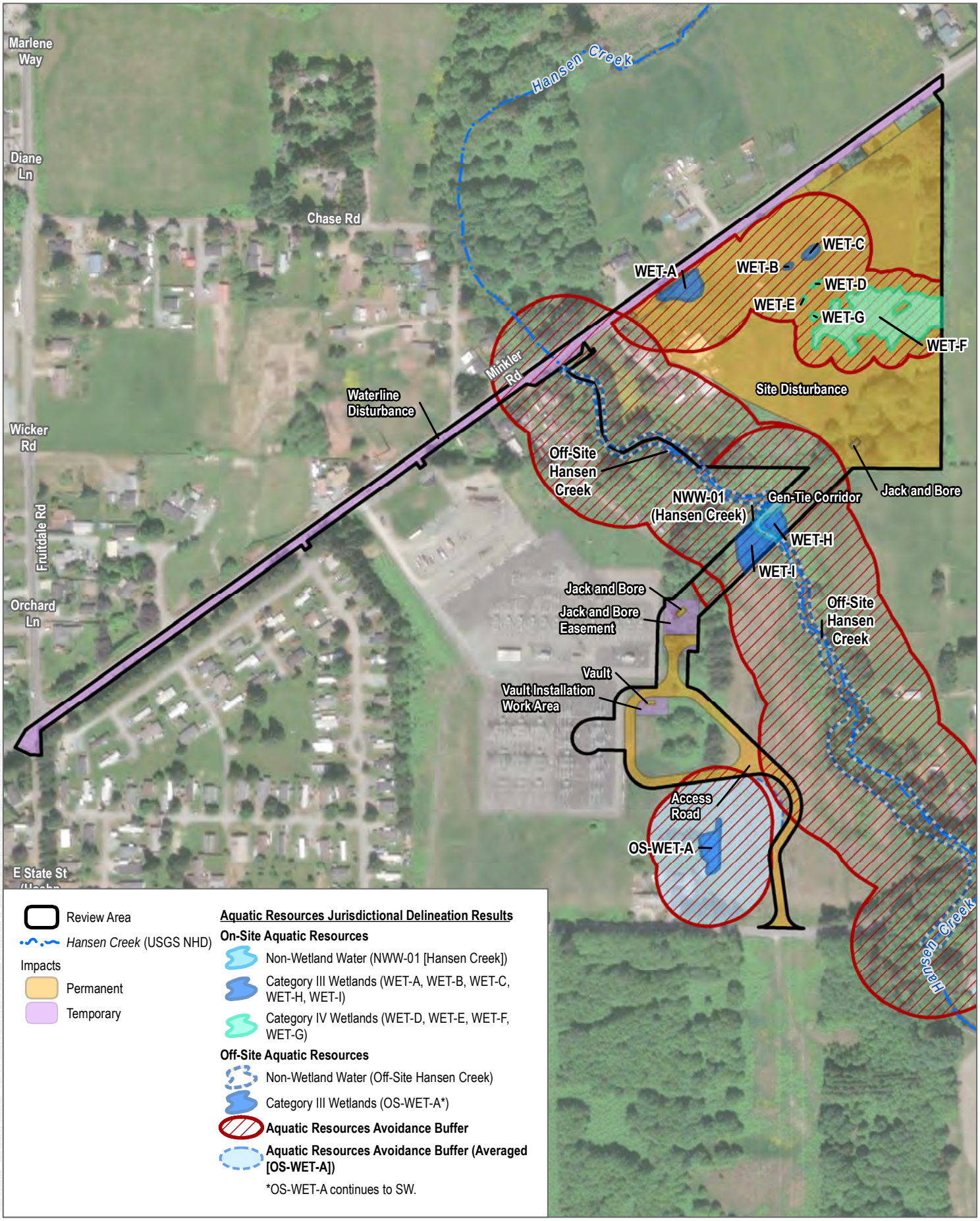
DUDEK

0 250 500 Feet

FIGURE 8

Critical Areas

Critical Areas Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap 2024; USGS NHD 2023; Skagit County 2021

DUDEK

0 185 370 Feet

FIGURE 9

Project Impacts

Critical Areas Report: Goldeneye Project

Appendix A
Applicable Regulations

Federal

Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (Title 16, U.S. Code, Section 1531 et seq. [16 USC 1531 et seq.]), as amended, is administered by the U.S. Fish & Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. Under provisions of Section 9(a)(1)(B) of the ESA, it is unlawful to take any listed species. "Take" is defined in Section 3(19) of the ESA as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

As part of this regulatory act, the ESA provides for designation of critical habitat, defined in ESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless essential for the conservation of the species. When a species is proposed for listing as endangered or threatened under the ESA, the USFWS must consider whether there are areas of habitat believed to be essential to the species' conservation.

Clean Water Act

Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) regulates activities that involve a discharge of dredged or fill material, into waters of the United States, including wetlands. Any person or public agency proposing to discharge dredged or fill material into waters of the United States, including jurisdictional wetlands, must obtain a permit from the USACE. The term "wetlands" (a subset of waters of the United States) is defined in Title 33 of the Code of Federal Regulations, Section 328.3(b) (33 CFR 328 [b]) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as intermittent streams, extend to the "ordinary high water mark," which is defined in 33 CFR 328.3(e). Section 401 of the CWA regulatory authority is designated to the state department of environmental quality (the Washington State Department of Ecology [DOE]); see the Clean Water Act Section 401 subsection of this document.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the Migratory Bird Treaty Act, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 USC 703 et seq.). Additionally, Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 Federal Register [FR] 3853–3856). The executive order requires federal agencies to work with the USFWS to develop a memorandum of understanding. The USFWS reviews actions that might affect these species.

Bald and Golden Eagle Protection Act

Bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are federally protected under the Bald and Golden Eagle Protection Act (BGEPA), passed in 1940 to protect bald eagle and amended in 1962 to include golden eagle (16 USC 668 et seq.). BGEPA prohibits the take, possession, sale, purchase, barter, offering to sell or purchase, export or import, or transport of bald eagles and golden eagles and their parts, eggs, or nests without a permit issued by the USFWS. The definition of "take" includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The definition of "disturb" has been further clarified by regulation as follows: "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR 22.3).

BGEPA prohibits any form of possession or taking of both eagle species, imposes criminal and civil sanctions, and provides an enhanced penalty provision for subsequent offenses. Further, BGEPA provides for the forfeiture of anything used to acquire eagles in violation of the statute. The statute exempts from its prohibitions on possession the use of eagles or eagle parts for exhibition, scientific, or Native American religious uses.

In November 2009, the USFWS published the Final Eagle Permit Rule (74 FR 46836–46879), providing a mechanism to permit and allow for incidental (i.e., non-purposeful) take of bald and golden eagles pursuant to BGEPA (16 USC 668 et seq.). The previous year, 2008, the USFWS had adopted 50 CFR Part 22.11(a), which provides that a permit authorizing take under ESA Section 10 applies with equal force to take of golden eagles authorized under BGEPA. These regulations were followed by issuance of guidance documents for inventory and monitoring protocols and for avian protection plans (USFWS 2010). In January 2011, the USFWS released its Draft Eagle Conservation Plan Guidance aimed at clarifying expectations for acquiring take permits acquisition by wind power projects, consistent with the 2009 rule (USFWS 2011).

On December 16, 2016, the USFWS adopted additional regulations regarding incidental take of golden eagles and their nests (81 FR 91494 et seq.). Most of the new regulations address "programmatic eagle nonpurposeful take permits" such as those typically requested by members of the alternative energy industry, most notably wind farms. For example, the new regulations extend the duration of such permits from 5 years to 30 years. In addition, the new regulations modify the definition of the BGEPA "preservation standard" to mean "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the service range of each species" (81 FR 91496–91497).

Magnuson-Stevens Act (Fishery Conservation and Management Act)

The Fishery Conservation and Management Act of 1976 was amended in 1996 and became known as the Magnuson-Stevens Act. The Magnuson-Stevens Act emphasizes the sustainability of the nation's fisheries and creates a new habitat conservation approach. This approach focuses on conservation of habitat essential to the survival of specific fish species, called essential fish habitat (EFH). The project site lies entirely within EFH for Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), and pink salmon (*Oncorhynchus gorbuscha*); potential aquatic habitat is limited to Hansen Creek.

State

Washington Department of Ecology

The following laws and regulations that may be applicable to the proposed project are overseen by the DOE.

Clean Water Act Section 401

Under Section 401 of the CWA, the DOE has the authority to manage aquatic resources and water quality, including stormwater and groundwater. As the clean water certifying agency, DOE has the authority in Washington state under Section 401 of the CWA to review and approve, approve with conditions, or deny proposed projects, actions, and activities directly affecting waters of the United States. Washington State defines waters of the state separately from the federal waters of the United States. If a project activity has the potential to impact waters of the state, including water quality, stormwater, and/or groundwater, then the project application must meet compliance requirements with the DOE under Section 401 of the CWA via a Water Quality Certification. Water Quality Certifications can be obtained through the Joint Aquatic Resources Permit Application (JARPA) process. Projects affecting waters of the state that do not fall under the federal jurisdiction are not subject to CWA Section 401 Water Quality Certification. However, they are still subject to applicable state water quality and environmental protection laws.

Note that the U.S. Environmental Protection Agency and tribal governments should use the National Pollutant Discharge Elimination System permit process to ensure water quality and to limit the quantity of wastewater and stormwater discharge into surface waters like rivers, lakes, and streams. The DOE prepares National Pollutant Discharge Elimination System permits for all non-federal discharges in the state, except those on federal and tribal lands.

Aquatic Resource Mitigation Act and Wetland Mitigation Banking Law

Applicants proposing to alter aquatic resources must go through mitigation sequencing to avoid and minimize impacts before determining whether compensatory mitigation is appropriate and what the permit requirements are. Aquatic resources mitigation and mitigation banking policies and statutes (Title 90 of Chapter 90.74 and 90.84 Revised Code of Washington [RCW]) is directed to the authority of the DOE (WSL 2021). If a project has the potential to permanently, temporarily, and/or indirectly impact aquatic resources, then mitigation planning and banking may be required to offset impacts. Mitigation requirements are achieved through the Washington State Environmental Policy Act (SEPA) process and in consultation with permitting agencies (e.g., the USACE, the DOE, and the Washington Department of Fish and Wildlife [WDFW]).

Shoreline Management Act

Pursuant to the Shoreline Management Act (SMA), DOE jurisdiction includes all land within 200 feet of the ordinary high water mark of a state shoreline and may be extended to include the entirety of an associated wetland and/or floodplain (Title 90 of Chapter 90.58 RCW; Washington Administrative Code [WAC] 173-27). Compliance with the SMA is generally achieved through local (i.e., county or city) agencies. Permitting for SMA compliance can also be achieved through the JARPA process.

State Water Pollution Control Act

Pursuant to the State Water Pollution Control Act (Title 90 of Chapter 90.48 RCW; WAC 173-200), the DOE has the jurisdiction to control and prevent the pollution of waters of the state, defined as including lakes, rivers, ponds, streams, inlands waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington. Compliance with the State Water Pollution Control Act is met through the CWA Section 401 permitting process; see Section 2.2.1.1, Clean Water Act Section 401.

State Environmental Policy Act

The SEPA process identifies and analyzes environmental impacts associated with governmental decisions. These decisions may be related to issuing permits for private projects, constructing public facilities, or adopting regulations, policies, and plans. The SEPA review process helps agency decision-makers, applicants, and the public understand how the entire proposal will affect the environment. SEPA can be used to modify or deny a proposal to avoid, reduce, or compensate for probable impacts. The DOE oversees the rules and guidance for the state and provides technical assistance to agencies, applicants, and citizens as they participate in the SEPA review process. The DOE can also act as the SEPA lead agency or co-lead agency for some proposals (DOE 2022).

Unless specifically exempted by statute or the state SEPA rules (WAC 197-11-800 through 197-11-890), a SEPA environmental review is required for all agency actions related to proposed projects, regardless of whether the applicant is from the private sector or public sector (DOE 2022).

Growth Management Act

The Growth Management Act (GMA) (Title 36 of Chapter 36.70A RCW) is a series of state statutes that requires fast-growing counties and cities to develop a comprehensive plan to manage their population growth (MRSC 2021). The GMA requires local governments to designate and protect critical areas (Chapter 36.70A RCW; WAC 365-196). These critical areas include the following:

- Wetlands
- Areas with a critical recharging effect on aquifers used for potable water
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas

Compliance with the GMA is generally achieved through the SEPA process and through local agency (i.e., county or city) permitting requisites (e.g., conditional use permit).

Washington Department of Fish and Wildlife

The applicable laws and regulations in the following sections are overseen by the WDFW.

Hydraulic Project Approval

The WDFW serves as the administering agency for the Hydraulic Project Approval permit for projects that use, divert, obstruct, or change the natural bed or flow of waters of the state pursuant to the State Hydraulic Code (Title 77 of

Chapter 77.55 RCW; WAC 220-110). Hydraulic Project Approval compliance can be achieved through the WDFW online Aquatic Protection Permitting System process. Permitting for Hydraulic Project Approval compliance can also be achieved in the JARPA process.

Priority Habitat and Species Program

The Priority Habitats and Species (PHS) Program is the WDFW's primary means of providing fish and wildlife information to the public. PHS is used by counties and cities to implement and update land use plans and development regulations under the GMA and SMA. The PHS is taken into consideration as developers and landowners consider ways to develop and conserve their property.

The Washington Administrative Code refers to the PHS Program in sections dealing with Critical Area Ordinances, Shoreline Master Programs, and the Essential Facilities Siting Evaluation Council. The state supreme court has held that PHS is a valid source of best available science for the GMA. However, there are no state-specific "PHS regulations." The mapping of a PHS species or a PHS Program management recommendation does not by itself create an obligation for a landowner or project. Depending on how a local government's development regulations are worded, the PHS Program and management recommendations may trigger the local government's regulatory authority. Using PHS to trigger local regulations is recommended by the WDFW, the DOE, and the Washington Department of Commerce. Other than GMA and SMA requirements, projects affecting priority habitats and species may be affected by regulatory requirements under the ESA, the Forest Practices Act, the hydraulics code (i.e., Hydraulic Project Approval permit), and/or game harvest regulations.

Washington Department of Natural Resources

The applicable laws and regulations in the following sections are overseen by the Washington Department of Natural Resources (WDNR).

Habitat Conservation Planning

Two habitat conservation plans' jurisdictions overlap the project site: the Washington State Trust Lands Habitat Conservation Plan and the Forest Practices Habitat Conservation Plan (WDNR 2021). This site falls within the North Puget Planning Unit and two priority habitats fall within the proposed project site: Hansen Creek and a freshwater emergent wetland. No other WDNR-managed lands, natural resource conservation areas, or natural area preserves covered by the habitat conservation plans overlap the project site.

Aquatic Lands Act

The Aquatic Lands Act (Chapter 79.105-79.140 RCW) gives the WDNR the responsibility to manage state-owned aquatic lands, including authorizing the use of these lands for activities, including for wetland mitigation projects. The WDNR works with other state agencies (e.g., the DOE, counties, and cities) to implement recommendations and land use regulations to protect aquatic lands. Any project on state aquatic lands may require authorization from the WDNR.

Local

Skagit County Comprehensive Plan

The project area is designated as "Agriculture-NRL" land use under the Skagit County Comprehensive Plan and is considered outside of the urban growth areas (Skagit County 2021). "Agricultural Resource Lands are those lands with soils, climate, topography, parcel size, and location characteristics that have long-term commercial significance for farming" (Skagit County 2021).

The GMA requires local governments to designate and protect the critical areas as discussed in Section 2.2.1.6, Growth Management Act (wetlands, aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas). The GMA also requires counties and cities to develop policies and regulations that are based on "best available science." Policy 5A-1.1 of the Skagit County Comprehensive Plan outlines those resources that are considered "best available science" and should be used to identify, classify, and map critical areas. Goal 5A-5, and associated policies, of the Skagit County Comprehensive Plan outlines the various protection requirements for each critical area designation. Policies within Goal 5A-5 also identify mitigation measures and requirements for siting development within and adjacent to critical areas.

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USFWS. 2011. *Draft Eagle Conservation Plan Guidance*. January 2011. Accessed August 8, 2011. http://www.fws.gov/windenergy/eagle_guidance.html.

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WSL (Washington State Legislature). 2021. Revised Code of Washington (RCW). August 23, 2021. Accessed September 2021. https://app.leg.wa.gov/rcw/default.aspx.

Appendix B

Hansen Creek Western Toad Surveys

Ecological Land Services

April 25, 2024

Dudek
Attention: Tony Vingiello
605 NE 21st Avenue
Portland, OR 97220
(503) 705-8553

Re: Hansen Creek Western Toad Surveys | Skagit County, Washington

Dear Tony,

Ecological Land Services, Inc. (ELS) has prepared this memo to describe the findings of two site visits to survey for Western toads (*Anaxyrus boreas*) at the request of the Washington Department of Fish and Wildlife (WDFW). Surveys occurred in Hansen Creek adjacent to a proposed project area on Skagit County Parcels P40030, P40046, and P40042, accessed from 25080 Minkler Road near Sedro Woolley, Washington.

Methodology
Western toad surveys were conducted in the portion of Hansen Creek flowing through and adjacent to the project work area as well as any observed back channels or associated wetlands (see attached map). Surveys involved visual detection of egg masses and/or tadpoles and adults by wading the length of the creek in the study area. Site visits were conducted approximately one week apart on April 11th and April 19th, during varying weather conditions (see datasheets). In addition to the in-water surveys, an ELS biologist walked the east bank of Hansen Creek to survey for terrestrial adults.

Site Conditions
The portion of Hansen Creek within the study area is generally swiftly moving, with a water depth ranging from six inches to four feet during the site visits. The stream bank varies from gently sloping, with exposed sandbars and overhanging vegetation, to areas of bare riprap and moderate incision. The northern portion of the surveyed stream area has overstory canopy cover provided by a thin strip of mature tress immediately adjacent to the stream. As the stream flows south, canopy cover decreases, and bank vegetation primarily consists of Himalayan blackberry (*Rubus armeniacus*) and reed canary grass (*Phalaris arundinacea*). The stream in the survey area primarily consisted of a single channel, with few areas where water velocities slowed to create eddies or pools. However, areas of overhanging or in-water vegetation were observed that could provide potential habitat for egg masses. Site conditions are shown in the attached photoplate.

Findings
There were no egg masses, tadpole/larvae, or adult Western toads observed during the surveys. It appears that the onsite habitat conditions, primarily swift moving water and a minimal amount of persistent, in-water vegetation, may not lend to preferred breeding habitat for Western toads. The attached datasheets further describe conditions during the surveys.

Please do not hesitate to reach out to me with any questions or comments at Coli@eco-land.com or (360) 431-4571.

Thank you,

Coli Huffman
Biologist

Enclosures:
Study Area Map
Photoplate 1
Survey Data Sheets

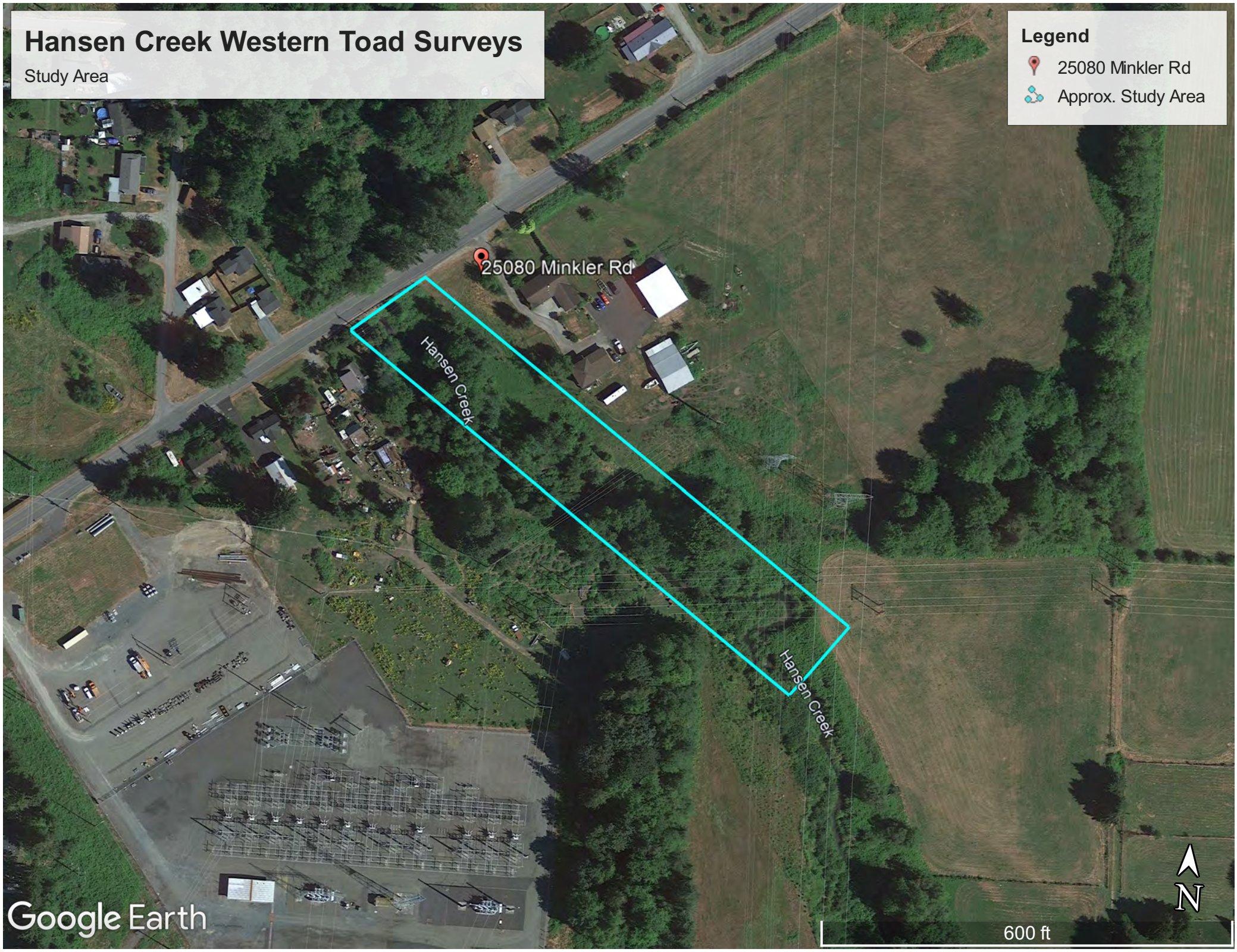
Hansen Creek Western Toad Surveys
Study Area
Legend
25080 Minkler Rd
Approx. Study Area
25080 Minkler Rd
Hansen Creek
Hansen Creek
Google Earth
N
600 ft

Photo 1 (above). View of channel conditions in the northern portion of the study area, just south of Minkler Road, facing downstream.

Photo 3 (below). View of channel conditions in approximately the mid-point of the study area, facing downstream.

Photo 2 (above). View of typical channel conditions in the northern portion of the study area, facing downstream.

Photo 4 (below). View of slower moving water and in-water vegetation in the southern extent of the study area, facing upstream.

Ecological Land Services

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 4.25.24
DWN: CH
PRJ. MGR: CH

Photoplate 1
Site Photos
Hansen Creek Western Toad Surveys
Dudek
Skagit County, Washington

Date: 4/11/24
Start Time: 2:00pm
Rain: Showers

Location: Hansen Creek
End Time: 3:25pm
Air Temp: 47°F

Surveyor: C. Huffman
Weather: Overcast
Wind: Light

Time	Species	Life Stage	Location	Habitat	Notes
					No amphibians or egg masses observed

Date: 4/19/24
Start Time: 9:30am
Rain: No

Location: Hansen Creek
End Time: 10:35
Air Temp: 55°F

Surveyor: C. Huffman
Weather: Sunny/Clear
Wind: Little to none

Time	Species	Life Stage	Location	Habitat	Notes
					No amphibians or egg masses observed

Appendix C

Special-Status Wildlife Species
with a Potential to Occur within the Project Site

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Amphibians					
Anaxyrus boreas[1] western toad	None	C/SGCN/PS	Occurs in all nine Washington ecoregions: Northwest Coast, West Cascades, Puget Trough, North Cascades, Columbia Plateau, Okanogan, East Cascades, Canadian Rocky Mountains, and Blue Mountains.	Occurs in many terrestrial habitats including prairies, forests, canyon grasslands, and ponderosa pine-Oregon oak habitat. Aquatic breeding habitats are typically permanent and include features such as wetlands, ponds, lakes, reservoir coves, off-channel habitats of rivers, and river edges.	Potential to occur. Focused surveys for this species were conducted and no western toads were observed within the project site.
Rana pretiosa[2] Oregon spotted frog	T	E/SGCN/PS	Occurs in the western area of the state. The historical range includes the Puget Trough Ecoregion in Whatcom, Skagit, and Thurston Counties, and southern extent of the Eastern Cascades Ecoregion in Skamania and Klickitat Counties. Current records are isolated to the following watersheds: Sumas River, South Fork Nooksack River, Samish River, upper Black River, lower Trout Lake Creek, and Outlet Creek drainage.	Highly aquatic species rarely found away from water. Populations occur in large, shallow wetland systems associated with a stream. Breeding habitat is seasonally flooded, shallow margins of wetlands. Aquatic features must remain aerobic and do not freeze for winter survival.	Low potential to occur. While Hansen Creek and the unnamed ditch are aquatic habitats, there are not appropriate wetland communities to support this species. This species is known to occur within the Puget Trough Ecoregion, and seven sightings have been recorded within 10 miles since 2007.[3]

[1] WDFW 2024. "Western Toad (*Anaxyrus boreas*)." Accessed March 2024; WDFW 2009.
[2] WDFW 2024. "Oregon Spotted Frog (*Rana pretiosa*)." Accessed March 2024; WDFW 2009.
[3] iNaturalist 2023a.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Rana luteiventris[4] Columbia spotted frog	None	C/SGCN/PS	Occurs east of the Cascade Mountains in the following ecoregions: East Cascades, Okanogan, Canadian Rocky Mountains, Columbia Basin, and Blue Mountain.	Relatively aquatic and rarely found far from water. Can be found in still-water habitats, streams, and creeks. Breeding habitat includes seasonally flooded, shallow margins of wetlands, ponds, and lakes.	Not expected to occur as the project site is located outside of the range for this species.
Birds					
Accipiter[5] *gentilis* (nesting) northern goshawk	None	C/PS	Occur in all forested regions of Washington. About 50% of the documented breeding territories occur in the eastern Cascades, 27% in the western Cascades, 12% in other forested areas of northeast and southeast Washington, and 10% in the Olympic Peninsula. Less than 2% of recent breeding records have been recorded from southwest Washington (south of the Puget Sound and west to the coast).	Nests primarily in middle- and higher-elevation dense conifer forests; winters at lower elevations along coast, foothills, and northern deserts in riparian and pinyon–juniper woodland.	Not expected to occur due to lack of suitable habitat.
Aechmophorus occidentalis[6] western grebe	None	C/SGCN/PS	Western grebes breed at suitable water bodies across the western United States, southwestern Canada, and Mexico. Birds winter primarily along the Pacific Coast from Vancouver Island to central Mexico.	Rushy lakes, sloughs; in winter, bays, ocean. Summers mainly on freshwater lakes with large areas of both open water and marsh vegetation; rarely on tidal marshes. Winters mainly on sheltered bays or estuaries on coast, also on large freshwater lakes, rarely on rivers.	Not expected to occur as the project site is located outside of the known range for this species.

[4] WDFW 2024. "Columbia Spotted Frog (*Rana luteiventris*)." Accessed March 2024; WDFW 2009.
[5] WDFW 2024. "Northern Goshawk (*Accipiter gentilis*)." Accessed March 2024.
[6] WDFW 2024. "Western Grebe (*Aechmophorus occidentalis*)." Accessed March 2024; Audubon Society 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
			Most nesting in Washington occurs in Grant County, with single nesting sites also known from Adams, Spokane, Okanogan, Lincoln, and possibly Ferry Counties. Wintering birds are distributed throughout the Salish Sea, in embayments and nearshore waters along the outer coast, and in nearby freshwater lakes.		
Aechmophorus clarkii[7] Clark's grebe	None	C/SGCN/PS	Breed at suitable water bodies across the western United States, southern Alberta to southern Manitoba, and Mexico. The species winters primarily along the Pacific Coast from California to central Mexico. All known breeding localities in Washington occur in Grant County except for one location in Adams County. Distribution in the state is more widespread during migration, including western Washington where the species is casual from September to May. The wintering range of Washington breeders is unknown.	Occupy large freshwater lakes, reservoirs, and marshes during the summer breeding season and primarily coastal marine areas with relatively calm waters during the winter. Both types of habitats are used during spring and fall migration. Nesting areas typically contain at least several square kilometers of open water and areas of emergent vegetation.	Not expected to occur due to lack of suitable habitat. Project site is located outside of known range for the species.

[7] WDFW 2024. "Clark's Grebe (*Aechmophorus clarkii*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Anser caerulescens[8] snow goose	None	None/PS	Those that nest on Wrangel Island (Russia) winter in and around Fraser and Skagit River deltas in British Columbia and Washington, respectively.	Tundra (summer), marshes, grain fields, ponds, bays. In summer on Arctic tundra usually within 5 miles of coast, near lakes or rivers. During migration and winter in coastal marshes, estuaries, freshwater marshes, agricultural country.	Not expected to occur due to lack of suitable habitat. Project site is located outside of known range for the species.
Aquila chrysaetos [9] (nesting and wintering) golden eagle	None/FP	C/SGCN/PS	Golden eagles have a broad distribution throughout the mountainous areas of the state, especially in eastern Washington. Washington breeding is limited primarily to the Okanogan highlands, rainshadows of the Olympics and Cascades, the Blue Mountains along the Snake and Grande Ronde Rivers, and the San Juan Islands. The resident population occurs at low densities in areas where suitable nest sites (cliffs and trees) are found in proximity to abundant prey.	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, and open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats. Associated with steep terrain.	Not expected to occur due to lack of suitable breeding/wintering habitat. Project site is located outside of known range for the species.
Ardea herodias (nesting colony) great blue heron[10]	None	None/PS	Widespread and common throughout western United States throughout all seasons.	Nests in large trees or snags; forages in wetlands, water bodies, watercourses, and opportunistically in uplands, including pasture and croplands.	Not expected to occur due to lack of suitable habitat.

[8] WDFW 2024. "Snow Goose (*Anser caerulescens*)." Accessed March 2024; Audubon Society 2024. NatureServe 2024.
[9] WDFW 2024. "Golden Eagle (*Aquila chrysaetos*)." Accessed March 2024.
[10] WDFW 2024. "Great Blue Heron (*Ardea herodias*)." Accessed March 2024; Audubon Society 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Brachyramphus marmoratus marbled murrelet[11]	T	E/SGCN/PS	Marbled murrelets nest on large limbs high in old-growth coniferous canopies up to 55 miles from saltwater in Washington, tending to occur in higher concentrations nearer the water. During the breeding season, marbled murrelets have also been observed feeding on juvenile salmon in freshwater lakes.	Suitable nesting platforms are defined as at least 7 inches in diameter and a minimum of 50 feet above the ground in forests of 175 to 600 years of age, but nests have also been found in trees as young as 80 years with suitable platforms. Nesting season is considered to occur from April 1 to September 31 in Washington.	Not expected to occur due to lack of suitable habitat.
Branta bernicla[12] western High Arctic brant	None	SGCN/PS	The western High Arctic brant is one of two stocks of brant that occur in Washington during winter, and it is not currently recognized as a distinct subspecies separate from black brant. They breed in Canada on the Parry Islands, located in Northwest Territories and Nunavut. Marking information indicates the north Puget Sound area is the major wintering area for this stock.	Nesting habitat includes the edges of saltmarshes in the low Arctic region; migratory habitats include shallow marine lakes; winter range includes intertidal mudflats in shallow marine waters with abundant eelgrass and/or green algae.	Not expected to occur due to lack of suitable habitat. Project site is located outside of known range for the species.
Chaetura vauxi [13] (nesting) Vaux's swift	None	PS	Breed from Southern Alaska to central California, inland to western Montana. Present in Washington as spring and autumn migrants and as summer residents. During	Late-stage conifer forest and mixed-conifer/deciduous forest; and occasionally buildings and chimneys.	Not expected to occur due to lack of suitable habitat.

[11] WDNR 2019; WFWO 2012.
[12] WDFW 2024. "Western Arctic Brant (*Branta bernicla*)." Accessed March 2024; Audubon Society 2024.
[13] WDFW 2024. "Vaux's Swift (*Chaetura vauxi*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
			breeding season, associated with old-growth and mature forests in western Washington, eastern Cascade, northeast Washington, and Blue Mountains.		
Coccyzus americanus yellow-billed cuckoo (Western Distinct Population Segment)[14]	T	None	Yellow-billed cuckoo is considered extirpated from this area and Washington in general.	Nests in dense, wide riparian woodlands and forest with well-developed understories.	Not expected to occur because the species is considered extirpated from this area.
Cygnus buccinator[15] trumpeter swan	None/FP	None/PS	Originate from forested regions of Alaska and Canada's western Yukon, and northern British Columbia.	Winters in western part of state, mainly in Whatcom and Skagit Counties.	Not expected to occur due to lack of suitable habitat.
Cygnus columbianus[16] tundra swan	None/FP	None/PS	More than 1,000 trumpeter and tundra swans overwinter in Whatcom County alone. The birds arrive generally in late October and stay in northwestern Washington over the winter before beginning their northward migration in April to their breeding sites.	Tundra swans use a variety of large lakes and smaller wetlands, especially where submersed aquatic vegetation is plentiful. During fall and winter, flocks will also feed and loaf in agricultural fields.	Not expected to occur due to lack of suitable habitat.
Gavia immer [17] (nesting) common loon	None	S/SGCN/PS	Breeding habitat mainly in remote areas in northern tier of the state. In winter, nearshore marine habitat and	In winter, marine and estuarine coastal areas, sometimes larger inland lakes reservoirs and rivers. Breeding habitat is freshwater lakes and reservoirs.	Not expected to occur. This species may occur within the study area at

[14] Wiles and Kalasz 2017; Halterman et al. 2016.
[15] WDFW 2024. "Trumpeter Swan (*Cygnus buccinator*)." Accessed March 2024.
[16] WDFW 2024. "Tundra Swan (*Cygnus columbianus*)." Accessed March 2024; USFWS 2024.
[17] WDFW 2024. "Common Loon (*Gavia immer*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
			larger freshwater bodies of western Washington.		the Skagit River during the winter, but as there is no useful breeding or overwintering habitat within the project site, this species is unlikely to be present.
Histrionicus histrionicus [18] (nesting) harlequin duck	None	SGCN/PS	Range is on both coasts, north from New Jersey and San Francisco. Surveys in 1996 documented approximately 400 breeding pairs of harlequin duck on Washington streams, primarily in the Cascade and Olympic mountain ranges. An average of approximately 3,000 harlequins wintered on Puget Sound during 2012 to 2014, a reduction of 15% since 1994 to 1996.	The harlequin duck is found on fast-flowing streams in riparian, subalpine, and coastal habitats during the breeding season.	Not expected to occur due to lack of suitable habitat.
Pelecanus erythrorhynchos[19] American white pelican	None	S/SGCN/PS	Very local breeders in Western Washington and a rare visitor on the eastern side. Known breeding colony of 2,500 to 3,000 pairs on Columbia River's Badger Island in Walla Walla County, just southeast of Kennewick/Tri-Cities. Overwinter from central	Nest on isolated ephemeral or permanent islands in freshwater systems relatively free from human disturbance and mammalian predators. Foraging areas may be 30 miles or more from breeding sites and include the shallows of lakes, rivers, and marshes.	Not expected to occur due to lack of suitable habitat.

[18] WDFW 2024. "Harlequin Duck (*Histrionicus histrionicus*)." Accessed March 2024.
[19] WDFW 2024. "American White Pelican (*Pelecanus erythrorhynchos*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
			California to southern Arizona, Mexico, and northern Central America, and from Texas to Florida.		
Phoebastria albatrus[20] short-tailed albatross	E	C/SGCN/PS	Rare Washington visitor; edge of continental shelves from Alaskan gulf to southern California.	They are ocean surface feeders, relying primarily on squid, flying fish, fish eggs, and crustaceans.	Not expected to occur due to lack of suitable habitat.
Picoides arcticus[21] black-backed woodpecker	None	C/PS	Boreal forests of North America. In Washington, found on eastern slope of the Cascade Mountains and in coniferous forests of Okanogan Highland, Selkirk, and the Blue Mountains.	Mature and old-growth lodgepole pine, ponderosa pine, and mixed-conifer forests with standing dead trees. Burned and insect-infested stands.	Not expected to occur due to lack of suitable habitat.
Podiceps grisegena[22] red-necked grebe	None	SGCN/PS	Overwinters along the Pacific Coast from Alaska to southern California. In western Washington, it is a fairly common migrant and winter visitor; it rarely occurs in summer in marine waters and on freshwater lakes west of the Cascades. East of the Cascades, the red-necked grebe is a local, fairly common breeder in northeastern Washington, but is a rare to uncommon winter visitor.	Nest on freshwater lakes, reservoirs, and sloughs where marsh vegetation is present and overwinter in marine bays, estuaries, and protected shorelines. By May, they have usually arrived at their breeding sites where they remain until fall. Nesting occurs on shallow, freshwater lakes, as well as shallow protected marsh areas and secluded bays of larger lakes.	Not expected to occur due to lack of suitable habitat.

[20] WDFW 2024. "Short-tailed Albatross (*Phoebastria albatrus*)." Accessed March 2024.
[21] WDFW 2024. "Black-backed Woodpecker (*Picoides arcticus*)." Accessed March 2024.
[22] WDFW 2024. "Red-necked grebe (*Podiceps grisegena*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Pooecetes gramineus affinis [23] (wintering) Oregon vesper sparrow	None	E/SGCN/PS	Breeding range is Western Washington, western Oregon, and northwestern California. Overwinters from central California to northwestern Baja California. It is now mainly limited in Washington to remnant prairies and grasslands in Pierce and Thurston Counties, with smaller numbers on islands in the lower Columbia River and grasslands on San Juan Island; a few may still breed in eastern Clallam County and near Shelton (Mason County). Approximately 90% of the population occurs in the south Puget lowlands, predominantly on Joint Base Lewis-McChord.	Dry, open landscapes with moderately short and structurally diverse grass/forb cover and sparsely vegetated areas. Grassland, shrub-steppe, agriculture.	Not expected to occur due to lack of suitable habitat. Species range is severely restricted.
Strix occidentalis caurina[24] northern spotted owl	T	E/SGCN/PS	Coniferous forests in western Washington and east slope of the Cascade Range.	Mid- and late-seral coniferous forests from sea level up to 5,000 feet above mean sea level. Habitat characteristics include high canopy closure, complex canopy structure, and large decaying trees/snags. Preys on northern flying squirrels, bushy-tailed woodrats, snowshoes hares, and other small mammals.	Not expected to occur due to lack of suitable habitat.

[23] WDFW 2024. "Oregon Vesper Sparrow (*Pooecetes gramineus affinis*)." Accessed March 2024.
[24] WDFW 2024. "Northern Spotted Owl (*Strix occidentalis caurina*)." Accessed March 2024; Audubon Society 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Mammals					
Canis lupus[25] grey wolf	E	E/SGCN/PS	A wolf pack with pups was confirmed in July 2008 in western Okanogan and northern Chelan Counties and represented the first fully documented breeding by wolves in the state since the 1930s. Since then, the state's wolf population has increased at an average rate of 28% every year, and many other wolf packs have been confirmed.	In the northwestern states and western Canada, wolves are most common in relatively flat forested areas, rolling hills, or open spaces such as river valleys and basins, where prey animals are easier to chase and catch. Wolf populations fare best in areas away from humans and their activities. These tend to be remote, relatively unpopulated areas with extensive public lands, few roads, and few or no livestock.	Not expected to occur due to lack of suitable habitat.
Corynorhinus townsendii[26] Townsend's big-eared bat	None	SGCN/PS	This species occurs from southern British Columbia southward through most of the western United States to central Mexico. Documented records exist for most counties in Washington but are lacking for the southern Columbia Basin and Blue Mountains.	In Washington, Townsend's big-eared bats are found in westside lowland conifer-hardwood forest, ponderosa pine forest and woodlands, mixed highland conifer forest, eastside mixed conifer forest, shrub-steppe, and both eastside and westside riparian forest/wetlands and open fields. Roosts in open areas of caves, abandoned mines, or other subterranean features.	As this species is mapped with a masked polygon, and roosting habitat features are present in the study area and adjacent to the site, there is a **moderate** likelihood of this species occurring within the study area. However, no signs of bats have been observed within the project

[25] WDFW 2024. "Grey Wolf (*Canis lupus*)." Accessed March 2024.
[26] WDFW 2024. "Townsend's Big-eared Bat (*Corynorhinus townsendii*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
					site; therefore, this species is not expected to be present.
Eschrichtius robustus Eastern North Pacific (ENP) Stock[27] gray whale	E	S	Year-round distribution of the ENP stock extends from the Bering and Chukchi Seas southward to Baja California, Sonora, and Sinaloa in Mexico. A few individuals visit Puget Sound annually and are locally referred to as "Sounders." A small subpopulation of the ENP stock, known as the Pacific Coast Feeding Group, numbers about 243 whales and summers between southeastern Alaska and northern California, including Washington.	Gray whales feed in shallow continental shelf waters and at offshore banks, where "benthic" (bottom-dwelling) invertebrate communities are concentrated.	Not expected to occur due to lack of suitable habitat.
Lynx canadensis[28] lynx	T	E/SGCN/PS	Canada lynx once occurred throughout the northern counties of Washington, but they are now largely restricted to a single area that encompasses western Okanogan, northern Chelan, and eastern Whatcom and Skagit Counties.	Lynx occupy subalpine and boreal coniferous forests that have substantial accumulations of snow during the late fall, winter, and early spring. In Washington, lynx habitat includes Engelmann spruce, lodgepole pine, and subalpine fir forests higher than 4,600 feet in elevation.	Not expected to occur due to lack of suitable habitat.

[27] WDFW 2024. "Gray Whale (*Eschrichtius robustus*)." Accessed March 2024.
[28] WDFW 2024. "Lynx (*Lynx canadensis*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Gulo gulo luscus[29] wolverine	T	C/SGCN/PS	Wolverines occur in the remote mountainous areas of the Cascades and in northeastern Washington. In the Cascade Range, wolverines occupy high-elevation landscapes from North Cascades National Park and Okanogan-Wenatchee National Forest south to Mount Adams on the Gifford Pinchot National Forest.	Wolverines commonly occur in boreal forest, taiga, and tundra ecosystems. In Washington, they occupy alpine and subalpine forest habitats.	Not expected to occur due to lack of suitable habitat.
Martes caurina pop. 3[30] Pacific marten (coastal population)	None	SGCN/PS	The geographic range of the coastal population of Pacific martens in Washington historically included the Olympic Peninsula and the southwestern portion of the state (west of Interstate 5). Martens are not currently known to occupy the forested areas south of Olympic National Forest or those in southwestern Washington.	Historical accounts indicated that Pacific martens occupied lower elevation forested landscapes in the western coastal plain and foothills of the Olympic Peninsula. These landscapes were dominated by older coniferous forests and riparian forest habitats, but these areas were heavily logged in the early and mid-1900s.	Not expected to occur due to lack of suitable habitat.
Myotis keenii[31] Keen's myotis	None	C/SGCN/PS	This species has one of the smallest ranges of any North American bat, occurring in coastal areas from southeast Alaska to northwestern Washington, including the Olympic Peninsula and Puget	Keen's myotis is closely associated with low elevation, moist, mature coastal conifer forests during the active season and may move to hibernacula in mid-elevation caves for winter.	Not expected to occur due to lack of suitable habitat.

[29] WDFW 2024. "Wolverine (*Gulo gulo luscus*)." Accessed March 2024.
[30] WDFW 2024. "Pacific marten (*Martes caurina*)." Accessed March 2024.
[31] WDFW 2024. "Keen's Myotis (*Myotis keenii*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
			Sound. Abundance in Washington is unknown, but it is assumed to be rare. Trend is unknown.	Summer roosts are in tree cavities, snags, rock crevices, small caves, and buildings. The few documented maternity sites have been found in caves and trees.	
Orcinus orca[32] orca (killer whale)	E/MMPA	E	Killer whales are distributed nearly worldwide. In Washington, they occur in most of the state's marine waters. Only small portions of both transient and offshore populations normally occur in Washington at any one time.	Occupy pelagic and coastal (including inland marine) waters. Southern resident and transient killer whales spend more time in coastal areas, where their preferred prey is typically found. The Southern resident population feeds primarily on Chinook salmon, chum salmon to a lesser extent, and occasionally other fish. Transient animals feed on seals and other marine mammals. Offshore animals primarily feed on sharks and other fish.	Not expected to occur due to lack of suitable habitat.
Oreamnos[33] *americanus* mountain goat	None	PS	Between 2,400 and 3,200 mountain goats are estimated to live in Washington. Mountain goats are native to the Cascade Range and can be found from the Canadian border on the north to the Oregon border on the south. A few mountain goats inhabit the Blue Mountains of southeastern Washington where they have probably colonized from reintroductions in Oregon. Mountain goats are	Mountain goats live in alpine and subalpine environments. In the high-altitude environments, sometimes above 13,000 feet, they are the largest mammal. The high elevation protects mountain goats from predators. In the summer, they stay above the tree line and migrate to lower elevations in the winter.	Not expected to occur due to lack of suitable habitat.

[32] WDFW 2024. "Orca (*Orcinus orca*)." Accessed March 2024.
[33] WDFW 2024. "Mountain Goat (*Oreamnos americanus*)." Accessed March 2024; National Forest Foundation 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
			not native to the Olympic Peninsula; these goats descended from introductions in the 1920s (WDFW 2024).		
Pekania pennanti fisher	None	E/SGCN/PS	Fishers occur only in the boreal and temperate forests of North America. They once occurred throughout the forested areas of western and northeastern Washington, and may have also occupied southeastern Washington; however, they were eliminated from the state by the mid-1900s, mainly as a result of over-trapping. In total, 279 fishers from British Columbia and Alberta were reintroduced to forests across the Washington Cascades and Olympic Peninsula from 2008 through 2021.	Coniferous and mixed coniferous-deciduous forests. Tend to avoid areas without substantial tree cover (e.g., clear-cuts, grasslands, agricultural fields), areas with significant human activity, and developed areas. Low to mid-elevation forest landscapes, which tend to be dominated by forests with mid-sized to large-diameter trees. Associated moderate to high canopy closure and the presence of large woody structures such as cavity trees, snags, and logs commonly used as rest sites and den sites.	Not expected to occur due to lack of suitable habitat.
Phoca vitulina[34] harbor seal	MMPA	PS	Temperate coastal habitats along the northern coasts of North America, Europe, and Asia. They occur on the East and West Coasts of the United States. Found all along the West Coast of North America, from Baja California, Mexico, to the Bering Sea. They have	Temperate coastal habitats. Harbor seals haul out (rest) on rocks, reefs, beaches, and drifting glacial ice when they are not traveling and/or foraging at sea.	Not expected to occur due to lack of suitable habitat.

[34] NOAA 2024. "Harbor Seal." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
			long been considered non-migratory and typically stay within 15 to 31 miles of their natal area, but tracking data have shown they sometimes travel 62 to 486 miles from their tagging location, often to exploit seasonally available food or give birth to pups.		
Phocoenoides dalli[35] Dall's porpoise	MMPA	PS	Occur throughout the coastal and pelagic waters of the North Pacific Ocean. Commonly found in the Gulf of Alaska, Bering Sea, Okhotsk Sea, and Sea of Japan. In the eastern North Pacific Ocean, they can be found from around the United States/Mexico border (Baja California, 32° North) to the Bering Sea, in the central North Pacific Ocean (above 41° North), and in the western North Pacific from central Japan (35° North) to the Okhotsk Sea. In the Bering Sea, Dall's porpoises occur in higher abundance near the shelf break. They are commonly seen in inshore waters of Washington, British Columbia, and Alaska.	Temperate to boreal waters more than 600 feet deep and with temperatures between 36°F and 63°F. They can be found in offshore, inshore, and nearshore oceanic waters, between 30° North and 62° North.	Not expected to occur due to lack of suitable habitat.

[35] NOAA 2024. "Dall's Porpoise." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Phocoena phocoena[36] harbor porpoise	MMPA	C/PS	In Washington, harbor seal populations have made a comeback in Puget Sound. The results of Washington Department of Fish and Wildlife aerial surveys, over a period of two decades, documented both increasing trends followed by stabilization of the harbor porpoise in the waters of the Strait of Juan de Fuca and Puget Sound, as well as their expansion into the previously abandoned waters of the Puget Sound and the waters of the Eastern Strait of Georgia.	Harbor porpoises are mostly found in coastal waters, including bays and estuaries. Harbor porpoises are relatively solitary, often seen alone or in groups of a few individuals.	Not expected to occur due to lack of suitable habitat.
Ursus arctos[37] grizzly bear	T	E	Grizzly bears once occurred in most of Washington but are now restricted to northeast Washington's Selkirk Mountains ecosystem and are occasionally documented in remote areas near the northern border of eastern Washington.	Found mostly in arctic tundra, alpine tundra, and subalpine mountain forests, but once occurred in a wider variety of habitats, including open prairie, brushlands, riparian woodlands, and semi-desert scrub. Most populations require huge areas of habitat remote from most human activity. Common only where food is abundant and concentrated (salmon runs, caribou calving grounds, etc.). Hibernation dens are usually on steep,	Not expected to occur due to lack of suitable habitat and the project site is outside of the range for this species.

[36] WDFW 2024. "Harbor Porpoise (*Phocoena phocoena*)." Accessed March 2024.
[37] WDFW 2024. "Grizzly Bear (*Ursus arctos*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
				north-facing slopes where snow accumulates.	
Vulpes vulpes cascadensis[38] Cascade red fox	None	E	The Cascade red fox is known to occupy the high elevation habitats of southern Cascades. Based on surveys and observations since 2005, there are concentrations of recent verifiable detections in the vicinity of Mt. Adams, Indian Heaven Wilderness Area, Goat Rocks Wilderness Area, and Mt. Rainer National Park. Survey efforts in the North Cascades have not detected any populations of Cascade red foxes; however, a single Cascade red fox was detected near Stevens Pass in 2018. Overall population size and trend are unknown.	Occurs only in alpine and subalpine habitats in montane environments of the Cascade Range in Washington. Subalpine meadows, parklands, and open forests are primary habitats. The species avoids wet, dense forests of the westside Cascades and tends to prefer the open, drier subalpine forests on the east side of the Cascade crest.	Not expected to occur due to lack of suitable habitat.
Fish					
Lampetra ayresii[39] river lamprey	None	C	Widespread across range along the West Coast of United States and Canada.	Anadromous but typically found in larger rivers in lower elevations. Not well researched or understood.	Not expected to occur due to lack of suitable habitat.
Oncorhynchus kisutch pop. 1[40] coho salmon (Lower Columbia River	T	None	Found in the Puget Sound in Washington.	Requires cold, clean, year-round water. Spawning habitat includes small coastal streams and tributaries of larger rivers.	Not expected to occur due to lack of suitable habitat.

[38] WDFW 2024. "Cascade Red Fox (*Vulpes vulpes cascadensis*)." Accessed March 2024.
[39] WDFW 2024. "River Lamprey (*Lampetra ayresii*)." Accessed March 2024; University of California 2024.
[40] WDFW 2024. "Coho Salmon (*Oncorhynchus kisutch*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Evolutionarily Significant Unit)					
Oncorhynchus mykiss[41] steelhead (All Distinct Population Segment)	T	C/SGCN/PS	Found in rivers in western Washington.	Anadromous. Breeds in cold clear rivers, streams, and lakes.	Potential to occur in Hansen Creek.
Oncorhynchus tshawytscha[42] Chinook salmon (All Evolutionarily Significant Unit)	T	SGCN/PS	Spawns on both sides of the Cascade Range.	Anadromous. Typically breeds in large rivers with high water flow but sometimes smaller streams with sufficient water flow.	Potential to occur in Hansen Creek.
Salvelinus confluentus[43] bull trout/Dolly Varden	T	C/SGCN/PS	Can be found in several rivers, lakes, and reservoirs throughout Washington State, including in Lake Shannon in Skagit County.	Bull trout prefer cold, well-oxygenated water.	Potential to occur in Hansen Creek.
Sebastes pinniger[44] canary rockfish	T	None	Found from the Gulf of Alaska to northern Baja California.	Adults are found at water depths 80 to 200 meters (262 to 656 feet) but have been found up to 838 meters (2,749 feet). Juveniles can be found in shallower water depths.	Not expected to occur due to lack of suitable habitat.
Invertebrates					
Agonum belleri[45] Beller's ground beetle	None	C/SGCN/PS	Restricted range and distribution in Washington in the Puget Sound lowlands (King, Kitsap, Mason, Skagit, Snohomish, and Thurston Counties).	Habitat specialist at low to mid-elevation (less than 3,280 feet) in Puget Trough *Sphagnum* bogs. This niche habitat is peat-forming wetlands dominated by *Sphagnum* genus mosses.	Not expected to occur due to lack of suitable habitat.

[41] WDFW 2024. "Steelhead (*Oncorhynchus mykiss*)." Accessed March 2024.
[42] WDFW 2024. "Chinook Salmon (*Oncorhynchus tshawytscha*)." Accessed March 2024.
[43] WDFW 2024. "Bull Trout (*Salvelinus confluentus*)." Accessed March 2024.
[44] WDFW 2024. "Canary Rockfish (*Sebastes pinniger*)." Accessed March 2024.
[45] WDFW 2024. "Beller's Ground Beetle (*Agonum belleri*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Argynnis zerene bremnerii[46] valley silverspot	None	C/SGCN/PS	Found in the south Puget Sound region. Limited research to determine the extent of the range throughout Washington.	Habitat is restricted to native grasslands, montane meadows, low-elevation, short stature grasslands. Relies on plant species belonging to the genus *Viola* as hostplants.	Not expected to occur due to lack of suitable habitat.
Bombus occidentalis[47] western bumble bee	C	C/SGCN/PS	Historically widespread in large geographic areas in the western United States and Canada. The current range in Washington is reduced to small populations in remote subalpine and montane sites.	Habitat with rich floral resources in the nesting season. Flowers are selected based on structure and bee's tongue length. Overwintering and nesting habitat is above- and belowground habitats such as logs, stumps, abandoned rodent burrows, and ground-nesting bird nests. However, bumble bees do not require native vegetation.	Potential to occur within the project site. However, the site is periodically mowed, thus reducing the potential to sustain habitat for the species.
Callophrys johnsoni[48] Johnson's hairstreak	None	C/SGCN/PS	Isolated populations in western Washington. Documented occurrences in Jefferson, Lewis, Mason, Pierce, Skamania, and Snohomish Counties.	This species depends on western dwarf mistletoe (*Arceuthobium campylopodum*), a plant that parasitizes old-growth western hemlock trees. Western hemlock occurs in low to middle elevations and Johnson's hairstreak has been found at 100 to 2,500 feet in elevation.	Not expected to occur due to lack of suitable habitat.
Danaus plexippus[49] monarch butterfly	C	C/SGCN	Found throughout the United States. In Washington, found east of the Cascades where milkweed occurs. Monarchs migrating south often congregate along large rivers (Columbia and Snake Rivers).	Wind-protected tree groves with nectar sources and nearby water sources.	Not expected to occur as the site is outside of known populations and migration corridors.

[46] WDFW 2024. "Valley Silverspot (*Argynnis zerene bremnerii*)." Accessed March 2024.
[47] WDFW 2024. "Western Bumble Bee (*Bombus occidentalis*)." Accessed March 2024.
[48] WDFW 2024. "Johnson's Hairstreak (*Callophrys johnsoni*)." Accessed March 2024.
[49] WDFW 2024. "Monarch Butterfly (*Danaus plexippus*)." Accessed March 2024.

Scientific Name Common Name	Status		Range	Habitat Requirements	Potential to Occur
	Federal	State			
Euphydryas editha taylori[50] Taylor's checkerspot butterfly	E	E	Taylor's checkerspot is a Pacific Northwest endemic butterfly that is restricted to several small populations in Washington. This species is limited to 11 populations in Washington, the nearest of which is in the Puget Sound islands. In addition, iNaturalist shows no observations north of Tacoma and none on the Puget Sound islands.	Taylor's checkerspot relies on members of Scrophulariaceae, or the figwort family of plants, and is found in open prairie and grassland habitat.	Not expected to occur as this site is outside of the range of this species.
Haliotis kamtschatkana[51] pinto (northern) abalone	None	E/SGCN/PS	Found from Baja California, Mexico, to Alaska.	The only abalone species found in Washington in water depths 9 to 60 feet in complex rocky reef habitat. Their distribution in relatively shallow water makes them vulnerable to harvest.	Not expected to occur due to lack of suitable habitat.

Status Legend
State and Federal
C = Candidate
E = Endangered
FP =
MMPA = Marine Mammal Protection Act
S = Sensitive
T = Threatened
State Specific
SGCN = Species of Greatest Conservation Need under the State Wildlife Action Plan (SWAP)
PS = Priority Species under the State Priority Habitat and Species Program (PHS)

[50] WDFW 2024; USFWS 2023; iNaturalist 2023b.
[51] WDFW 2024. "Pinto Abalone (*Haliotis kamtschatkana*)." Accessed March 2024.

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Appendix D

Special-Status Plant Species
with a Potential to Occur within the Project Site

Scientific Name	Common Name	Status (Federal/State)	Ecological Systems and Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet)	Potential to Occur
Agrostis mertensii	northern bentgrass	None/Sensitive	RM Alpine Bedrock & Scree; RM Alpine Dwarf-Shrubland, Fell-Field, & Turf/perennial herb/July–Aug/ 7,200–7,650	This species is not expected to occur within the project site due to lack of suitable habitat. The project site occurs outside of the elevation range for this species.
Brodiaea rosea ssp. *rosea*	Harvest brodiaea	None/Sensitive	NP Serpentine Barren; WV Upland Prairie & Savanna/perennial herb/ May–July(Sep)/440–5,710	This species is not expected to occur within the project site due to lack of suitable habitat. The project site occurs outside of the elevation range for this species.
Carex pauciflora	Few-flowered sedge	None/Sensitive	NP Bog & Fen/perennial herb/ May–Sep/250–4,550	This species is not expected to occur within the project site due to lack of suitable habitat. The project site occurs outside of the elevation range for this species.
Castilleja levisecta	golden paintbrush	Threatened (proposed delist)/ Threatened	WV Upland Prairie & Savanna/perennial herb/April–July/10–300	This species is not expected to occur within the project site due to lack of suitable habitat.
Erythronium revolutum	Coast fawn-lily	None/Sensitive	NP Hypermaritime Western Red-Cedar-Western Hemlock Forest; NP Lowland Riparian Forest & Shrubland; NP Seasonal Sitka Spruce Forest/perennial herb/April–May/100–600	This species is not expected to occur within the project site due to lack of suitable habitat. The project site occurs outside of the elevation range for this species.
Fritillaria camschatcensis	Kamchatka fritillary	None/Sensitive	NP Bog & Fen; NP Intertidal Freshwater Wetland; TP Subalpine-Montane Wet Meadow/perennial bulbiferous herb/May–July/0–3,000	This species is not expected to occur within the project site due to lack of suitable habitat.
Hypericum majus	large St. Johns'-wort	None/Sensitive	NA Arid West Emergent Marsh; RM Subalpine-Montane Fen; TP Freshwater	This species is not expected to occur within the project site due to lack of suitable habitat.

Scientific Name	Common Name	Status (Federal/State)	Ecological Systems and Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet)	Potential to Occur
			Emergent Marsh/perennial herb/ July–September/50–2,340	
Impatiens noli-tangere	Boreal jewelweed	None/Sensitive	NP Lowland Riparian Forest & Shrubland/annual herb/July–Sep/ (No elevation data)	This species is not expected to occur within the project site due to lack of suitable habitat.
Leptosiphon minimus	true babystars	None/Threatened	NP Herbaceous Bald & Bluff; WV Upland Prairie & Savanna/annual herb/ May–June/0–1,640	This species is not expected to occur within the project site due to lack of suitable habitat.
Lobelia dortmanna	water lobelia	None/Sensitive	TP Freshwater Aquatic Bed/submerged aquatic perennial/June–Aug/5–1,000	This species is not expected to occur within the project site due to lack of suitable habitat.
Montia diffusa	Branched montia	None/Sensitive	NP Dry Douglas-fir Forest & Woodland; NRM Ponderosa Pine Woodland & Savanna/annual herb/April–July/ 850–2,900	This species is not expected to occur within the project site due to lack of suitable habitat. The project site occurs outside of the elevation range for this species.
Nuttallanthus canadensis	old field blue toadflax	None/Sensitive	WV Upland Prairie & Savanna/annual herb/May–June/(No elevation data)	This species is not expected to occur within the project site due to lack of suitable habitat.
Nuttallanthus texanus	Texas blue toadflax	None/Sensitive	WV Upland Prairie & Savanna/annual herb/Apr–June/16–200	This species is not expected to occur within the project site due to lack of suitable habitat.
Packera macounii	Puget groundsel	None/Sensitive	NP Herbaceous Bald & Bluff; WV Upland Prairie & Savanna/perennial herb/ May–Jul/1,310–4,600	This species is not expected to occur within the project site due to lack of suitable habitat. The project site occurs outside of the elevation range for this species.
Plectritis brachystemon	short-spurred plectritis	None/Sensitive	NP Herbaceous Bald & Bluff; WV Upland Prairie & Savanna/annual herb/ April–June/0–6,300	This species is not expected to occur within the project site due to lack of suitable habitat.

Scientific Name	Common Name	Status (Federal/State)	Ecological Systems and Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet)	Potential to Occur
Potamogeton obtusifolius	Blunt-leaved pondweed	None/Sensitive	TP Freshwater Aquatic Bed/aquatic perennial herb/June–August/100–513	This species is not expected to occur within the project site due to lack of suitable habitat. The project site occurs outside of the elevation range for this species.
Ranunculus californicus	California buttercup	None/Sensitive	NP Hypermaritime Shrub & Herbaceous Headland; WV Upland Prairie & Savanna/perennial herb/May–June/ 10–50	This species is not expected to occur within the project site due to lack of suitable habitat.
Salix sessilifolia	soft-leaved willow	None/Sensitive	NP Intertidal Freshwater Wetland; NP Lowland Riparian Forest & Shrubland; TP Freshwater Mudflat/perennial deciduous shrub or tree/May–June/0–660	This species is not expected to occur within the project site due to lack of suitable habitat.

Ecological Systems as provided in the WDNR Natural Heritage Program
NA = North American
NP = North Pacific
NRM = Northern Rocky Mountain
RM = Rocky Mountain
TP = Temperate Pacific
WV = Willamette Valley

Appendix E

Aquatic Resources Delineation Reports

DUDEK
605 NE 21ST AVE
PORTLAND, OREGON 97232
T 971.930.1700

May 3, 2024

Tommy Nelson
Goldfinch Energy Storage, LLC
412 West 15th Street, 15th Floor
New York, New York 10011

Subject: Wetlands Assessment for the Goldeneye Energy Storage Project, Skagit County, Washington

Dear Tommy Nelson:

This letter report provides a summary of the wetlands identified within the boundaries of the proposed Goldeneye Energy Storage Project (project) as required by Skagit County Code Section 14.24, Critical Areas Ordinance. This summary provides the information required for items b through e of the Critical Area Checklist. An overview of the wetlands identified within the entire project area is provided in Attachment A, Critical Areas Overview Map – Wetlands. The two reports utilized for the creation of this summary map are provided in Attachments B and C.

A Wetland and Stream Delineation Report for the project was completed by Skagit Wetlands & Critical Areas, LLC, in April 2023. At the time of the delineation, the interconnection to the substation from the energy storage site was not yet known and the delineation focused on the 14.14-acre primary energy storage site located at 25080 Minkler Road. Once the generation transmission (gen-tie) line location was solidified, the gen-tie line and associated construction access road were reviewed for the potential to support jurisdictional aquatic resources. The formal aquatic resources delineation for these project components was conducted by Dudek in September and December 2023 and supplemented by Ecological Land Services in Paril 2024. As such, the complete aquatic resources delineation for the proposed project is presented in two separate wetland and stream delineations reports: one prepared by Skagit Wetlands & Critical Areas, LLC, for the storage site and one prepared by Dudek for Minkler Road, the gen-tie line alignment and associated access road. Both reports are provided in this submittal and will be utilized for the Joint Aquatic Resources Permit Application package and Critical Areas Assessment.

In summary, the proposed project area, including the gen-tie line alignment, includes 1.47 acres of wetlands as well as a portion of Hansen Creek. The wetlands identified within the boundaries of the project are summarized in Table 1. The portion of Hansen Creek that overlaps with the proposed gen-tie line alignment is provided in Table 2. For the main energy storage site, only the extent of the ordinary highwater mark was documented to provide a point from which to establish the required buffer.

Table 1. Wetlands within the Proposed Goldeneye Energy Storage Project Site

Feature Name	Ecology Rating	Skagit County Rating	Wetland Size (Acres)	Buffer Width (Feet)
WET-A	III	III	0.152	150
WET-B	III	III	0.006	150
WET-C	III	III	0.027	150

Table 1. Wetlands within the Proposed Goldeneye Energy Storage Project Site

Feature Name	Ecology Rating	Skagit County Rating	Wetland Size (Acres)	Buffer Width (Feet)
WET-D	IV	IV	0.004	50
WET-E	IV	IV	0.002	50
WET-F	IV	IV	0.979	50
WET-G	IV	IV	0.008	50
WET-H	III	III	0.09	150
WET-I	III	III	0.20	150
		Wetlands Total	**1.47**	**N/A**

Note: N/A = not applicable.

Table 2. Non-Wetland Waters within the Review Area

Feature Name	DNR Water Type	Portion within the Review Area	Skagit County Buffer Width
Hansen Creek	S	190 linear feet (0.08 acres)	200 feet

Note: WDNR = Washington State Department of Natural Resources; S = shorelines of the state.

Sincerely,

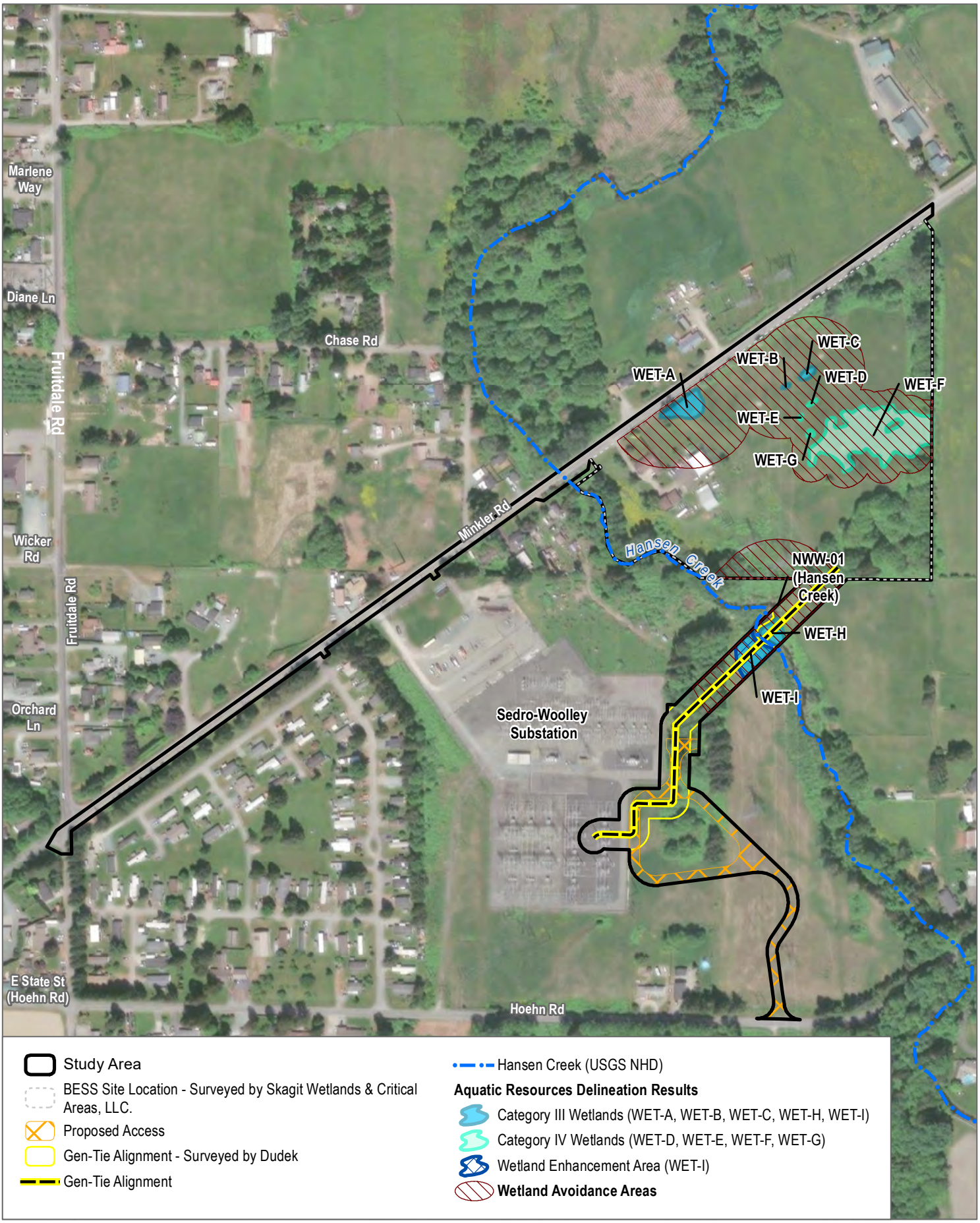
Patricia Schuyler
Environmental Project Manager

Att.: *A. Critical Areas Overview Map*
B. Wetland and Stream Delineation Report, Skagit Wetlands & Critical Areas, LLC
C. Aquatic Resources Delineation Report, Dudek

cc: *Tony Vingiello, Dudek*
Brad Cole, Dudek

Attachment A

Critical Areas Overview Map



SOURCE: Maxar 2017; Skagit County 2021; Skagit Wetlands & Critical Areas, LLC. 2023; USGS NHD 2024

DUDEK

0 195 390 Feet

Critical Areas Overview

Goldeneye Energy Storage Project

Attachment B

Wetland and Stream Delineation Report,
Skagit Wetlands & Critical Areas, LLC

WETLAND AND STREAM DELINEATION REPORT

Skagit County, Washington
P40030

Skagit Wetlands & Critical Areas, LLC
22031 Grip Road
Sedro Woolley, WA 98284

May 2023

WETLAND AND STREAM DELINEATION REPORT

25080 Minkler Road Development

May 2023

Prepared By:

Matt Mahaffie, Ecologist
360-391-9571
skagitwetlands@hotmail.com

Project Proponent/Engineer:

Dudek – Portland
605 NE 21st Ave
Ste. 200
Portland, OR 97232
971-930-1700

Executive Summary

During the early growing season of 2023, Skagit Wetlands & Critical Areas staff conducted a wetland delineation exercise on a 14.14 acre property just east of the City of Sedro Woolley. Numerous wetlands were identified along the eastern side of the property while Hansen Creek flowed along the west. In anticipation of an industrial scale battery energy storage project that is anticipated to encumber most of the subject property, a delineation of the site wetlands and ordinary high water mark of Hansen Creek was conducted. This delineation is for permitting purposes to identify such critical area boundaries as well as applicable wetland ratings and local jurisdiction buffer assignment. A complete assessment (wetland as well as fish and wildlife habitat conservation area) will be forthcoming with this document as the baseline for impact and mitigation identification.

Table of Contents

1. Introduction 1
2. Proposed Project 1
   2.1. Project Location 1
   2.2. Project Purpose and Description 3
   2.3. Study Area 3
3. Methods 4
   3.1. Wetland Delineation, Classification, and Buffers 5
   3.2. Stream Delineation, Classification, and Buffers 5
   3.3. Wetland and Stream Boundary Documentation 6
   3.4. Species and Habitats of Interest 6
4. Existing Conditions 6
   4.1. Precipitation, and Growing Season 6
      4.1.1 Precipitation 6
      4.1.2. Growing Season 6
   4.4. Wetlands 7
      4.4.1. Overview 7
      4.4.2. Vegetation 9
      4.4.3. Soils 11
      4.4.4. Hydrology 12
      4.4.6. Wetland Buffers 14
   4.5. Streams 16
5. Recommendations 17
6. Limitations 17
7. References 18

Figures

Figure 1. Vicinity Map..... 2
Figure 2. Study area showing approximate wetland and stream locations..... 4
Figure 3. Wetland boundaries. 8
Figure 4. Photo of typical wetland vegetation……10
Figure 5. Photo of typical wetland soil……...…12
Figure 6. Photo of typical buffer in the study area. 14
Figure 7. Wetland & stream buffer display……..15

Tables

Table 1. Wetlands within the project area..... 7
Table 2. Streams within the project corridor. 16

Appendices

Appendix A. Background Information
Appendix A-1. NRCS Soil Survey Map
Appendix A-2. National Wetland Inventory Map
Appendix A-3. Aerial Photograph of Study Area, Skagit County
Appendix B. Wetland Delineation Data Sheets
Appendix C. Wetland Rating Summaries and Figures
Appendix D. Wetland Functional Assessment Summaries
Appendix E. Plan Sheets

Acronyms and Abbreviations

BA	Biological Assessment
DNR	Washington Department of Natural Resources
Ecology	Washington State Department of Ecology
EEM	estuarine emergent
ESA	endangered species act
GIS	geographic information system
GNSS	global navigation satellite system
HGM	hydrogeomorphic wetland classification
HTL	high tide line
LRR	land resource area
LWD	large woody debris
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PEM	palustrine emergent
PFO	palustrine forested
PHS	priority habits and species
PSS	palustrine scrub-shrub
ROW	right of way
SCC	Skagit County Code
TES	threatened, endangered, and sensitive species
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
W	wetland
WMVC	Western Mountains, Valleys, and Coast (regional supplement to the USACE wetland delineation manual)
WDFW	Washington State Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation
WRIA	water resource inventory area

1. Introduction

This report was prepared in preparation of a proposed battery storage project that is anticipated to impact the whole of the property to an extent allowable by Skagit County. Complete project impacts and mitigation schema are not known at the time of this writing with an anticipation of County conditions and coordination.

The purpose of this report is to identify and describe wetlands, streams, and jurisdictional waters occurring within the project. This report helps the applicant:

- Avoid and minimize impacts to wetlands and other waters during the project design process and construction.
- Document wetland and stream boundary determinations for review by regulatory authorities.
- Provide background information for wetland mitigation reports should impacts be unavoidable.

This report provides supporting documentation for potential federal, state, and local permit applications.

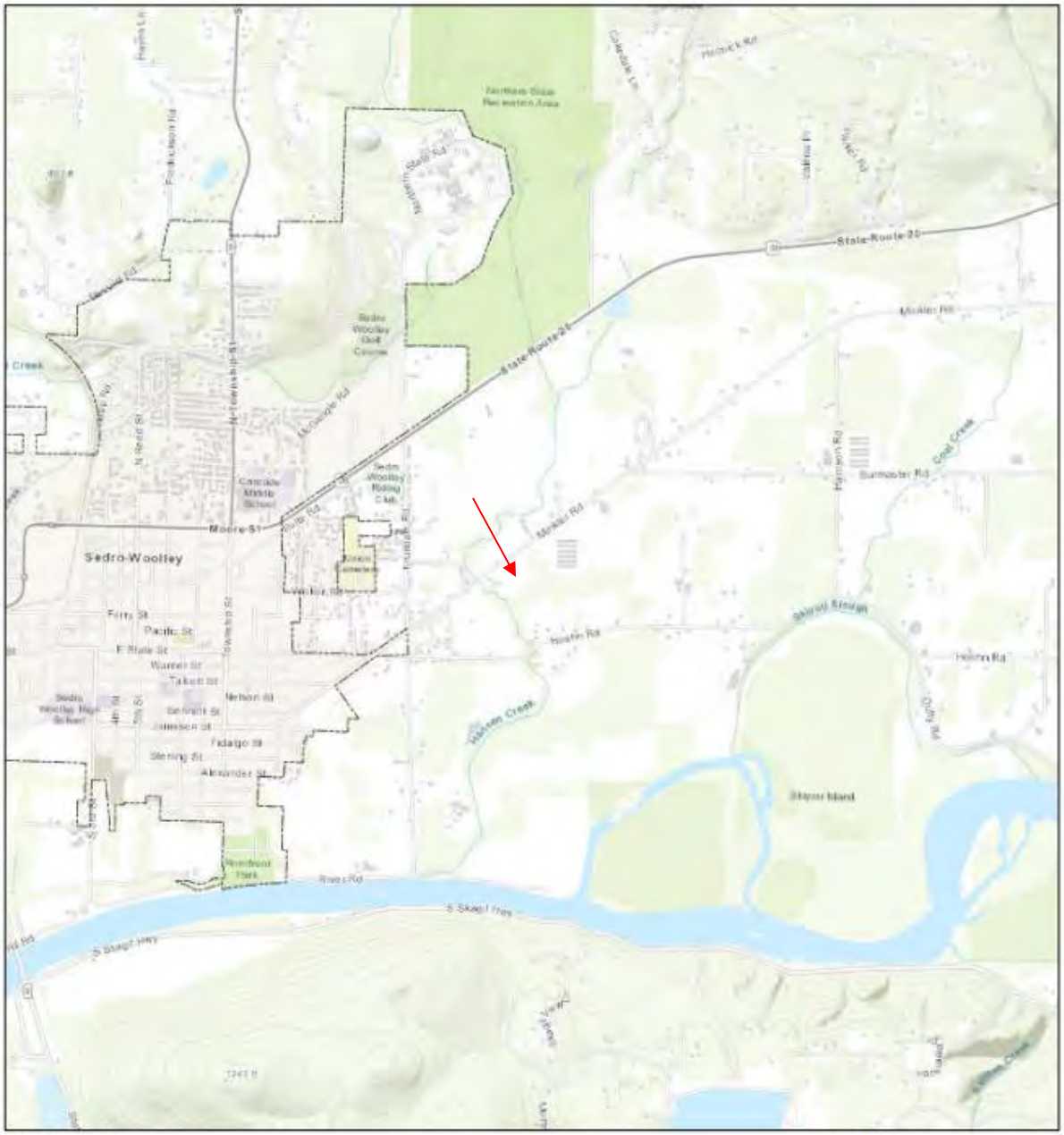
All waters identified in this report are assumed to be under US Army Corps of Engineers (USACE) jurisdiction unless otherwise noted.

2. Proposed Project

2.1. Project Location

The subject property is a level 14.14 acre property found just east of the jurisdictional boundary of the City of Sedro Woolley in unincorporated Skagit County. This area is in the mid-section of what is known locally as the Skagit Valley, and is found on the valley floor on relic floodplain of the Skagit River in what is an area of historic farmland. All surrounding properties to the north, east, and south are agricultural properties, with such use extending for quite some distance. To the west the landscape transitions rapidly to a more urban regime entering the City of Sedro Woolley.

Vicinity Map



2.2. Project Purpose and Description

The proposal for this property is to be a redevelopment of the site to a battery storage facility. The property is one of few that is within the requisite distance of the nearby power substation and transmission lines to work for such a purpose. Such a proposal will necessitate significant spatial improvements to the site, likely leading to impacting of property wetlands; all or in part. The delineation of the site wetlands is the preliminary step in identifying those impacts.

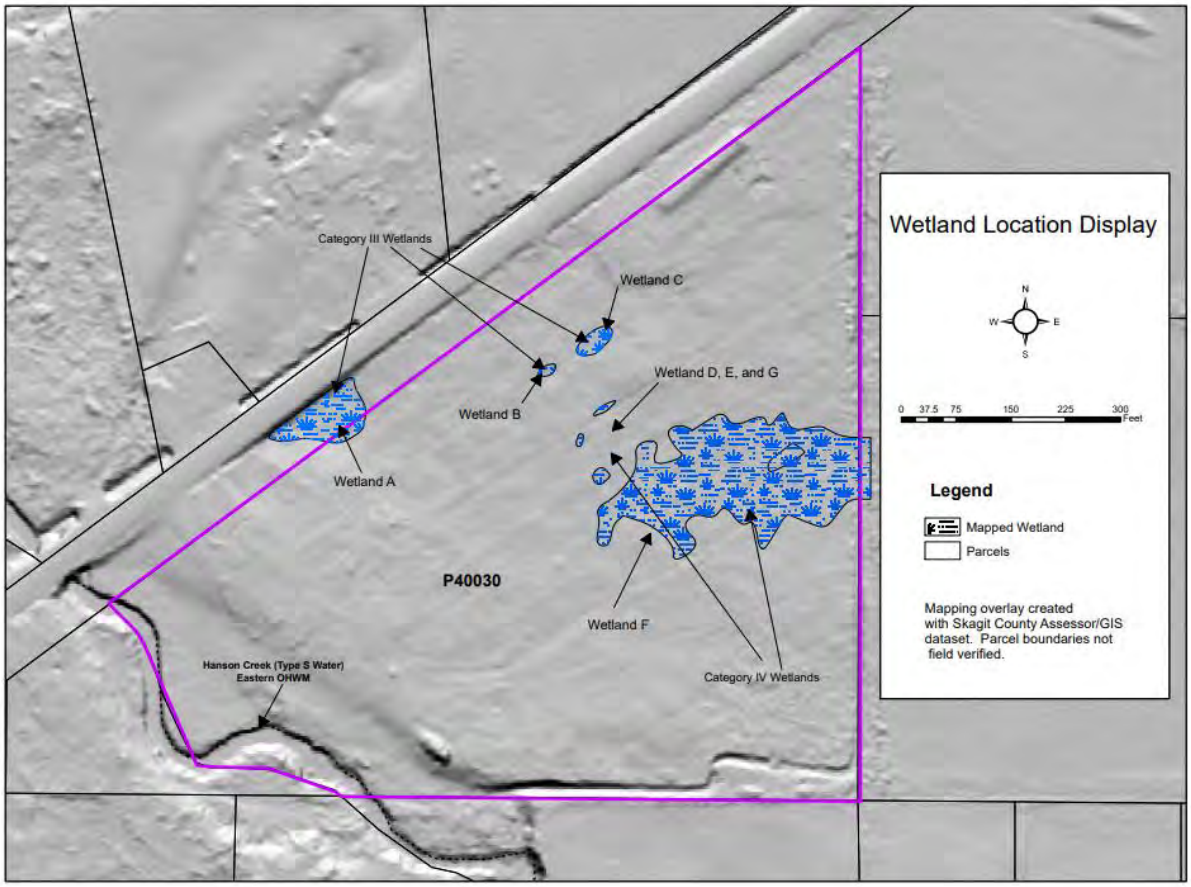
2.3. Study Area

A home site is currently present on the property in the northwest corner with two homes and several outbuildings surrounded by fields. The home site is the highest location on the property, sloping down slightly to the east and south, and a bit more noticeably to the west to a narrow floodplain that houses the regionally significant Hansen Creek.

Outside of the fringes of the property where overgrown fence lines have become shrub banks, the property is almost fully mown pasture grass, and has been for a time estimated to be in excess of 100 years. The only exception besides the fence lines is a narrow riparian buffer along Hansen Creek and a small, treed area in the southeast corner of the property.

The property is bound on the east and south sides by a relic drainage ditch that flows south along the eastern boundary and then east along the southern before emptying into Hansen Creek. Several smaller wetlands are found in the eastern portion of the property, with one larger one emptying into this ditch. Relic drain tile infrastructure is also assumed to be present as indicated in historical aerial photographs as well as LIDAR imagery draining west to east into the ditch. Outside of the aforementioned areas, a final wetland was noted just north of the home site in a large, excavated depression mostly within the right-of-way of Minkler Road

Study area showing wetland and stream locations.



3. Methods

The following data sources were reviewed for information on precipitation, topography, drainage patterns, soils, vegetation, and potential or known wetlands and streams in the project vicinity:

- Natural Resources Conservation Service (NRCS) Climate Data for Skagit County, Station Sedro Woolley, Washington (NRCS 2023).
- U.S. Geological Survey (USGS) topographic maps (USGS 2023)
- National Wetlands Inventory (NWI) maps.
- Skagit County permitting and recorded documents.
- NRCS, Soil Survey of Skagit County Washington and Washington State Hydric Soils (NRCS 2023) (Appendix A-2).
- Aerial photographs, Skagit County (Appendix A-3).
- LIDAR imagery, WA DNR.

Scientific plant names in this report are from the USACE National Wetland Plant List, version

3.4 (USACE 2018).

Wetlands, stream, and aquatic resources assessment fieldwork was completed:

- Between March 1, 2023, and May 4, 2023.
- By Skagit Wetlands & Critical Areas wetland biologist Matt Mahaffie.
- While walking the extent of the study area thoroughly throughout the early growing season consistently in all precipitation patterns.

Wetland and stream delineation and report preparation follows industry standard guidelines.

3.1. Wetland Delineation, Classification, and Buffers

Wetlands were delineated using routine methods described in:

- Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987).
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (WMVC Regional Supplement) USACE 2010).

Wetland boundaries were delineated based on on-site observations of vegetation, soils, and hydrology in conjunction with background information listed above. Wetland boundaries were flagged by Skagit Wetlands and subsequently surveyed by Dudek. Two of the wetlands in the study area extend beyond the project property boundary.

Wetlands were classified using the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin) and the hydrogeomorphic classification system (HGM) (Brinson 1993). Wetlands were rated using the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby 2014) per Skagit County requirements.

Skagit County wetland buffers were applied to the wetlands in the project. Buffer widths range from 50 to 150 feet depending on wetland rating and intensity of land use impacts. Buffers were applied based on high intensity land use in anticipation of the proposal.

3.2. Stream Delineation, Classification, and Buffers

The ordinary high water mark (OHWM) of the site stream (Hansen Creek) was delineated using guidance for OHWM identification as put forth by the Washington State Department of Ecology. OHWM was set for western side only for this exercise.

Fish presence was determined based on available Skagit County and WDFW data (WDFW 2023).

Skagit County stream buffers (Skagit County 2023) were applied to streams in the project, in conjunction with Washington State Department of Natural Resources (DNR) Forest Practices Rules, water type classifications (DNR 2023). The buffer width of the singular stream onsite is 200ft (Skagit County 2023).

3.3. Wetland and Stream Boundary Documentation

Boundaries of wetlands were documented using industry standard naming conventions with flagging on woody vegetation if applicable or pin flagging within field areas. Stream boundaries were field collected only (not flagged). Wetland sample point locations and boundaries of wetlands and streams were marked with alphanumeric characters on flags as well. The portions of boundaries occurring within the study area were subsequently collected using a Trimble R2 Global Navigation Satellite System (GNSS) Receiver mapping grade unit by Dudek (wetlands) and via Thales MobileMapper by Skagit Wetlands (stream).

3.4. Species and Habitats of Interest

A separate Fish & Wildlife Habitat Conservation Area Assessment and/or Biological Assessment will address impacts to Endangered Species Act (ESA) federally listed threatened or endangered wildlife species and proposed and designated critical habitat if applicable. This report does not include such information regarding potential ESA species and habitat, Washington State threatened, endangered, or sensitive species, and habitats of interest that may occur in the project, with the exception of the presence of Hansen Creek.

4. Existing Conditions

4.1. Precipitation and Growing Season

4.1.1. Precipitation

The Regional Delineation Supplement Version 2.0 recommends using methods described in Chapter 19 in Engineering Field Handbook (NRCS 2015) to determine if precipitation occurring in the three full months prior to the site visit was normal, drier than normal, or wetter than normal. Actual rainfall is compared to the normal range of the 30-year average. When considering the three prior months as a whole, somewhat drier than normal precipitation conditions were present prior to *beginning* field work. 1 of the three months prior to field work were within the normal range with 1 of the three months of field work/hydrology monitoring.

All levels of precipitation were recorded in the ten days preceding field work in the numerous site visits designed to capture such variation.

4.1.2. Growing Season

Field work was conducted by design to encompass the full of the early growing season; from the very beginning of March through the start of May, with a secondary reference outside of the growing season in early January of 2023. Growing season was noted to begin in beginning of March via direct observation of vegetative growth.

4.2. Wetlands

4.2.1. Overview

All wetlands of the site are depressional; Wetland "A" being the most notable area as a depression excavated into the subsoil by Skagit County (per landowner), largely within the ROW. All other wetlands of the site are relatively shallow depressions found in a low swath that crosses the property from the northwest to the southeast. The wetlands appear to be in present configuration after decades of heavy compaction due to livestock after initial drainage attempts prior, assumed in the late 19th or early 20th century which included ditching and likely subsurface tile installation. The wetlands are summarized individually below in Table 1. Delineation data sheets (Appendix B), wetland rating forms (Appendix C) are provided in Appendices.

Table 1. Wetlands within the project area (including County ROW).

Wetland[a]	Wetland Classification				Wetland Size (acre)	Buffer Width (feet)[e]
	Cowardin[b]	HGM	Ecology[c]	Local Jurisdiction[d]		
A	PEM	Depressional	III	III	.152	150
B	PEM	Depressional	III	III	.006 / 285sf	150
C	PEM	Depressional	III	III	.027 / 1193sf	150
D	PEM	Depressional	IV	IV	.004 / 211sf	50
E	PEM	Depressional	IV	IV	.002 / 123sf	50
F	PEM	Depressional	IV	IV	.979	50
G	PEM	Depressional	IV	IV	.008 / 369sf	50
Total					1.178 acres	

[a] Wetland identifier
[b] NWI Class based on vegetation: PFO = palustrine forested, PSS = palustrine scrub-shrub, PEM = palustrine emergent (Cowardin et al. 1979).
[c] Ecology rating (Hruby 2014)
[e] Skagit County wetland buffer width based on wetland category and high intensity land use (Skagit County 2023).

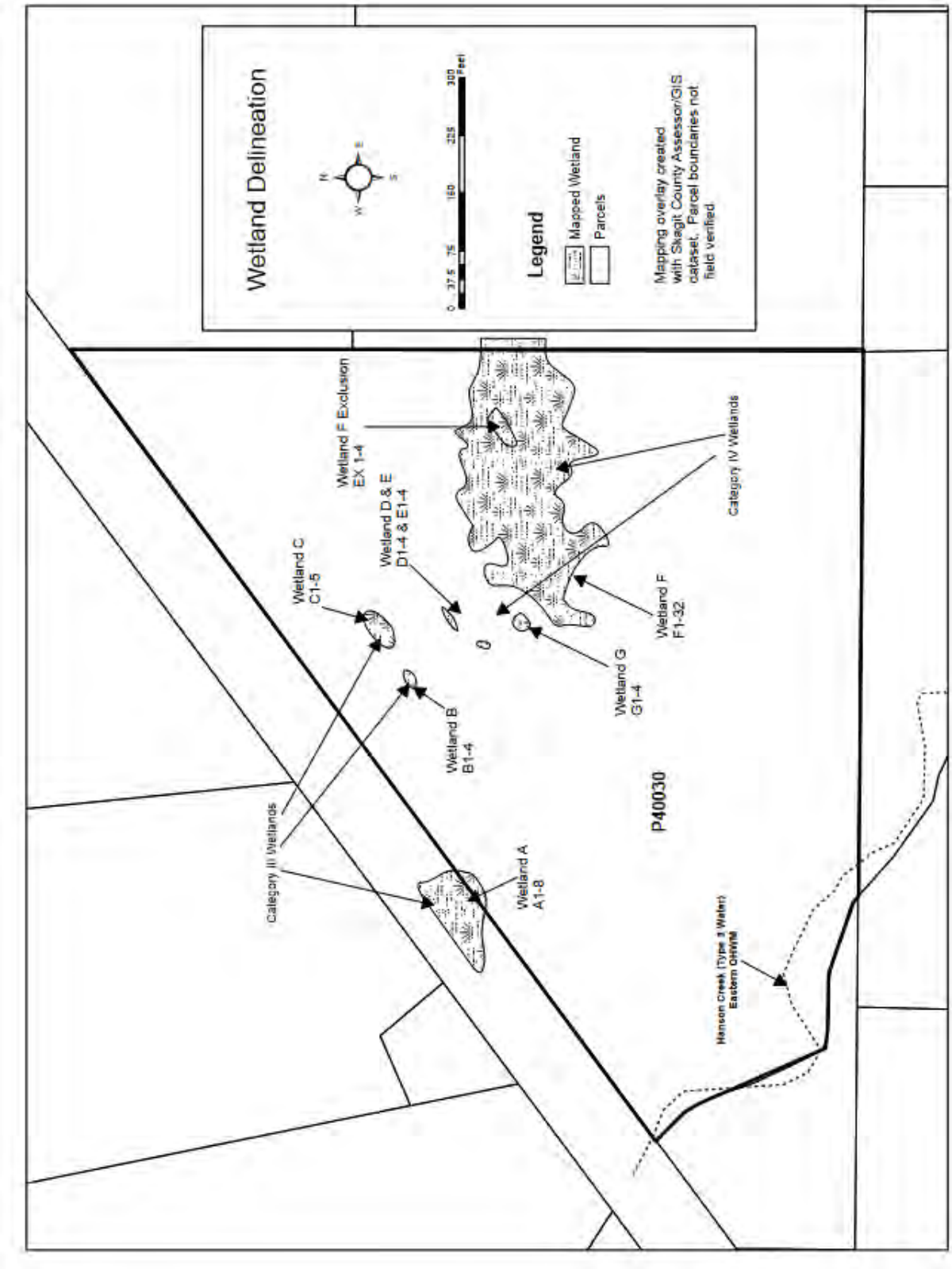


Figure 3. Wetland boundaries.

4.2.2. Vegetation

Wetland vegetation was that typical of a mown field in the main, with the exception of around the property perimeter where a shrubby separation from neighboring properties was noted. For the most part, grass was mown and non-identified, but as typical determined to be a relic pasture seed mix; such are typically FAC-FACU. For purposes of delineation, FAC was assumed for all non-id grass species. Notable populations of other identified species within the wetlands were made, however. This includes dominant populations of the following:

Phalaris arundinacea, Reed canary grass, FACW
Juncus effuses, Soft rush FACW
Carex obnupta, Slough sedge, OBL
Agrostis stolonifera, Creeping bentgrass, FAC
Ranunculas repens, Creeping buttercup, FAC
Ranuculas acris, Meadow buttercup,FACW
Alopecurus pratensis, Meadow foxtail, FACW
Agrostis stolonifera, Creeping bentgrass, FAC
Equisetum arvense, Common Horsetail, FAC
Spirea douglasii, Hardhack, FACW
Juncus effuses, Soft rush FACW
Poplus trichocarpa, Black cottonwood, FAC

The upland portions of the property were also largely non-identified lawn or field grasses, but notable populations of the following were observed within the mown grassy areas or in more natural fringes around the cleared areas.

Taraxacum officinale, Common dandelion, FACU
Trifolium pratense, Red clover, FACU
Hypochaeris radicata, Spotted cat's ear, FACU
Alnus rubra, Red Alder, FAC
Equisetum arvense, Common Horsetail, FAC
Spirea douglasii, Hardhack, FACW
Rubus discolor, Himalayan blackberry FAC
Symphoricarpos albus, Snowbery, FACU
Sambucus racemosa, Red elderberry, FACU
Plantago major, Common plantain, FACU
Rubus spectabalis, Salmonberry, FAC

Figure 4. Photo of field vegetation typical to wetland in the study area with *Phalaris arundinacea* dominating the wettest of depressions within the wetland areas.

4.2.3. Soils

56 – Field silt loam
92 – Minkler silt loam
136 – Sumas silt loam

The northernmost soils of the property are mapped as by the USDA Soil Survey of Skagit County as #92 Minkler silt loam, confirmed quite well during the onsite visits by multiple soil test pits and soil probes as Minkler throughout the higher flat area in the northeast corner of the property. Minkler silt loam is a moderately well drained soil formed in alluvial and lacustrine material. The A horizon to 12 inches is a dark grayish brown (2.5Y 4/2) silt loam. The B horizon to 15 inches is an olive gray (5Y 5/2) silt loam with many brown mottles. The C horizon is a mixture of gray very fine sand or sandy loam, or in the case of several soil probes onsite, alluvial gravel. It is a mesic Aquic Xerochrept in hydrologic group D and is not considered hydric. This is the soil and area that houses the existing large onsite septic system drainfield.

The slightly but noticeably lower middle portion of the property has been mapped as #136 Sumas silt loam. Sumas silt loam is a poorly drained soil formed in alluvium and found in flood plains. The A horizon to 6 inches is a dark grayish brown silt loam at a 10YR 3/2 turning to a silty clay loam to 13inches with gray 5Y 5/1 mottles. The B horizon from 13 to 16 inches is a gray silt loam at 10YR 6/1. The C horizon is a loamy sand from 16 inches down to a coarse sand at 30 inches. Sumas is an Aeric Fluvaquents in Hydrologic group D, and is considered hydric. As mapped, the Sumas soil series encompassed the site wetlands closely.

The final soil series of the site is #136 of the Soil Survey of Skagit County, Field silt loam. Field silt loam is a deep, moderately well drain soil on flood plains, formed in recent alluvium with an admixture of

volcanic ash. A typical profile has an Ap horizon to 13 inches of dark brown silt loam at 10YR 4/3 followed by a C horizon to 21 inches of olive 5Y 5/3 silt loam. Field is a mesic Aquic Xerofluvent in hydrologic group C and is not considered hydric. Field is the soil on the western side of the property around the home site and was observed to carry no hydric inclusions with the exception of Wetland "A" where the soil profile was noted as not natural and having significant signs of past clearing and excavation (charcoal, mixed profiles at various depths).

With the exception of Wetland "A", all wetlands of the site appear to be formed in the mapped Sumas soils. The mapped area, while not precise, closely corresponds to a low swath across the property, and whether inside or out of the wetlands, the soils in the area were noted to largely meet (or near to meet) hydric criteria, and are reflective of the historical drainage of the area (hydric indicators but lacking hydrology). The areas around and within the wetlands were also noted to be largely well compacted in the upper horizon, apparent reflection upon years of intense density pasturage for livestock noted for many years prior to present ownership.

Figure 5: Photo of wetland soil.

4.2.4. Hydrology

Hydrology was the dominant criteria utilized on this site to delineate the wetlands where the property as largely encumbered by potential facultative vegetation as well as a mix of hydric and relic hydric soils with little well defined topography. Hydrology was observed throughout the early growing season from beginning of March to May. December to February precipitation was noted to be slightly below normal, but notably recharged to the surface or nearly so by the end

of February throughout the suspected/potential wetland areas. Observations continued as needed throughout the spring and observations of the site during and after significant precipitation events was made to assist in making the wetland boundary. Much of the area as previously noted was heavily compacted; water would stay at the surface and be slow to infiltrate, but by and large no water table was observed adjacent to the delineated wetland boundary edge, but a progression of slow infiltration that met the minimum time/depth requirements as directly observed.

Hydrology sources and indicators used for determination vary from wetland to wetland on this property. Individually, this is summarized as follows:

Wetland A: This historic excavation of this depression appears to have been dug into the water table common to this area within the Skagit Valley (8-10ft seasonally), and is expressed as such during the wet season. As such, the contributing basin is the Skagit Basin as a whole. Additions to the hydrology include some runoff from Minkler Road assumed, direct precipitation, and shallow groundwater infiltration from the area around that slopes in this direction. Hydrology indicators for positive wetland determination were noted as shallow inundation, high water table, saturation, visible water driven demarcation on vegetation pattern/growth. Hydrology was the prime determining factor in delineated boundary.

Wetlands B/C/D/E/G: These are small wetlands in shallow, well defined closed depressions. Hydrology sources include direct precipitation along with infiltration from surrounding higher areas. These wetlands were largely episaturated, with no water table below ~12 inches on average. The wetlands were noted within an area of heavy ungulate use for years, and like much of the area the surface of the soils is heavily compacted, holding precipitation at the surface for longer periods than would be normal. Hydrology indicators for positive wetland determination were noted as shallow inundation, saturation, visible water driven demarcation on vegetation pattern/growth.

Wetland F: This is the largest wetland of the site but is similar to the smaller surrounding wetlands with largely episaturation over compacted soils. All contributing hydrology applies, but also does drainage into the wetland area from the ditch along the eastern side of the property. This drainage ditch, dug to drain the area has become much more sluggish in moving water out, causing water coming down the ditch from the north to spill into what is now the wetland area during times of high precipitation before drain better on the south/outlet side. Hydrology indicators for positive wetland determination were noted as shallow inundation, saturation, and visible water driven demarcation on vegetation pattern/growth. Hydrology was the prime determining factor in delineated boundary with extensive weekly observation of the area to determine the boundary. Indicator F3, Depleted Matrix, was the most common indicator used for determination, but not inclusive.

4.2.5. Wetland Buffers

By and large, the wetland buffer areas of all site wetlands is as the wetlands, mown field grass. Only along the property boundaries would any of the wetland buffer vegetation vary with areas of shrub banks along the fence lines with a few scattered smaller trees.

Figure 6: Photo of typical buffer in the study area (overlooking Wetland F and associated buffer).

Wetland (and stream) buffers have been preliminarily applied for planning purposes; 150ft for the Category III wetlands and 50ft for the Category IV utilizing an anticipated high land use classification pursuant to SCC 14.24.230(a) and SCC 14.24.530(c) for waterways as shown in Figure 7 (below).

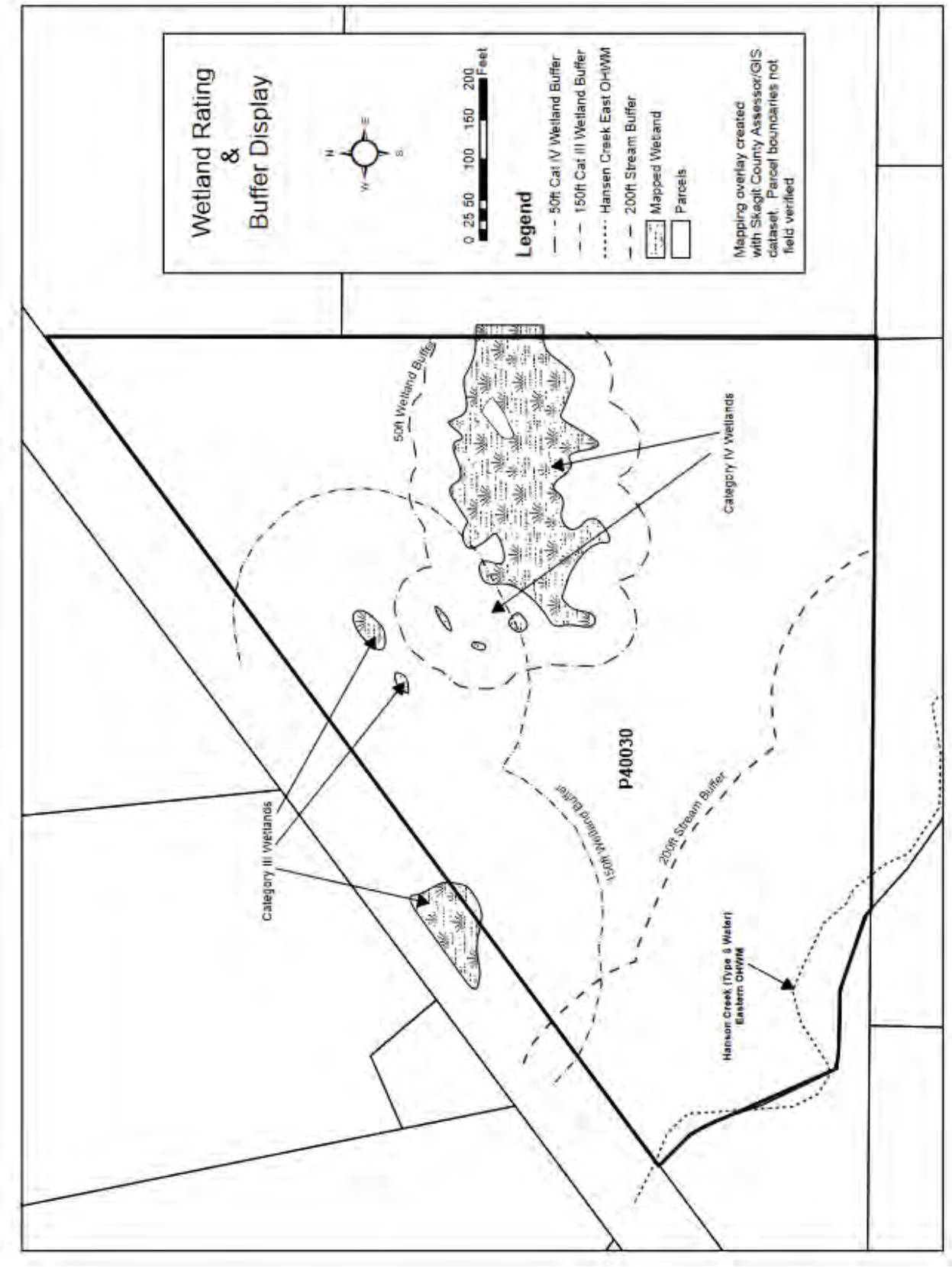


Figure 7. Wetland & stream buffer display.

4.3. Streams

A single stream was noted onsite and/or in the project vicinity in the form of Hansen Creek. Hansen Creek flows along the western side of the property, with a defined OHWM as a distinct topographic break, typically of several feet along the traverse of this property, dropping down sharply to well defined stream channel, observed to average roughly 25ft in width, comprised in large part of a mix of silt bed and small gravel, with channery gravel banks in places. Hansen Creek is a shoreline of the State and falls under the jurisdiction of the Skagit County Shoreline Management Program and is about 1.6 miles upstream of the terminus with the Skagit River.

This segment of Hansen Creek has areas of designated floodplain/frequently flooded area associated with the creek. Such area was not mapped separately for purposes of this delineation but was noted to appear to fall fully within the regulated buffer of the creek.

Table 2. Streams within the project area.

Stream Name	DNR Water Type[a]	Skagit County[b] Buffer Width (feet)
Hansen Creek	S	200ft

[a] DNR Water Types: Type S = shorelines of the state, Type F = fish bearing or with physical criteria to support potential fish use, Type Np = non-fish bearing perennial, Type Ns = non-fish bearing seasonal (WDNR 2023)

[b] Skagit County buffers applied (Skagit County 2023)

Hansen Creek has noted salmonid presence. Any proposed work within 225ft of the creek or its associated flood hazard area will require a dedicated Fish & Wildlife Habitat Conservation Area Assessment prepared to Skagit County Code and meet ESA reporting requirements.

5. Recommendations

This report represents the field demarcation findings for wetland and stream locations on the subject property only, along with their present designations, whether it be via wetland rating or stream type. The reporting herein does not represent a complete wetland assessment nor fish and wildlife habitat conservation area assessment as necessary for development of this property per Skagit County Code, but a planning tool to assist in project design and preliminary planning for potential critical area impacts.

A complete Wetland Assessment and Fish & Wildlife Habitat Conservation Area Assessment will be required prior to any permit approval with the local jurisdiction, to include assessment of the designated floodplain on the property per ESA/FEMA BiOP requirements. It is recommended that such a document be developed in conjunction with development proposal and preliminary feedback from Skagit County as well as the Washington State Department of Ecology and the United States Army Corps of Engineers, if applicable.

6. Limitations

This wetland delineation is based upon physical circumstances that are described in manuals and publications utilized by Federal, State, and Local agencies. The wetland delineation methodology used in this report is consistent with the routine on-site determination method prescribed by the 1987 Corps of Engineers Wetland Delineation Manual and by the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coasts Regional Supplement and represents the best professional judgement of preparer. No guarantees are given that the delineation will concur precisely with those performed by agencies with jurisdiction or by other qualified professionals. This report is provided for the use of the specified recipient only and is not intended for use by other parties or purposes.

7. References

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Appendix A. Background Information

Appendix A includes the following sub-appendices:

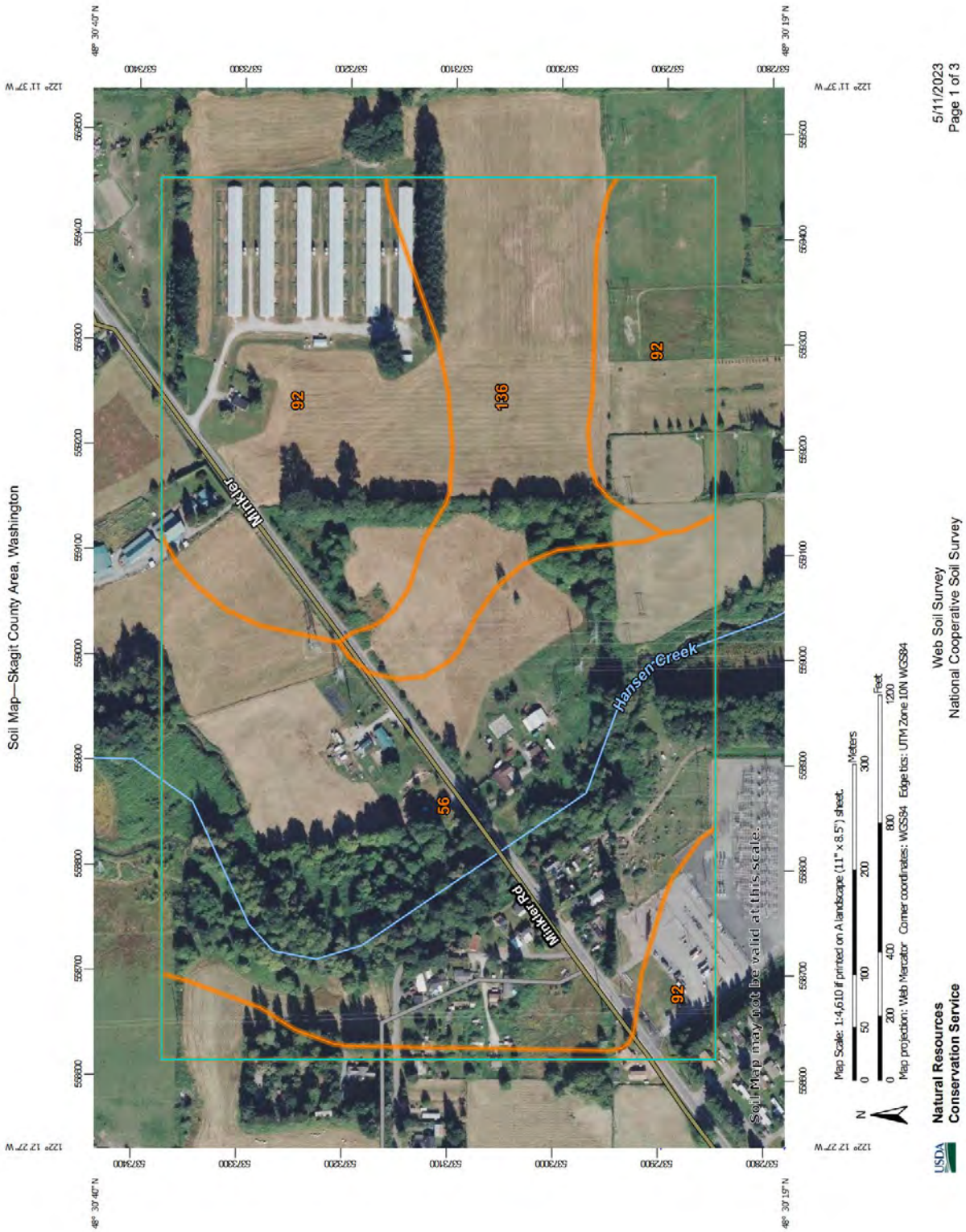
A-1 Soil Survey Map

A-2 National Wetland Inventory Map

A-3 Aerial photograph, Skagit County GIS 2020 Image

A-4 WA DNR Stream Type Designation

Appendix A-1. NRCS Soil Survey Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Skagit County Area, Washington
Survey Area Data: Version 22, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

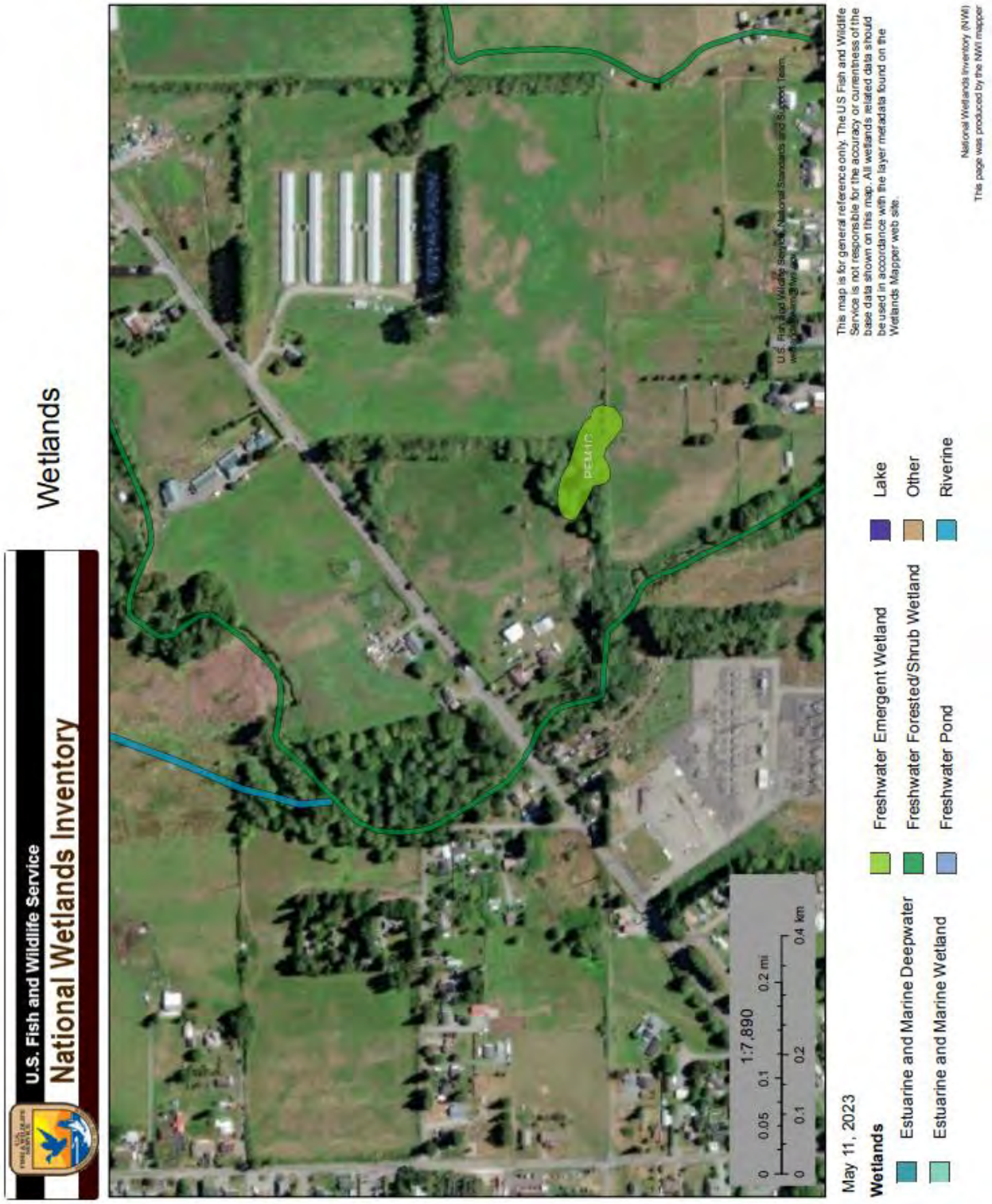
Date(s) aerial images were photographed: Jul 25, 2020—Jul 28, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

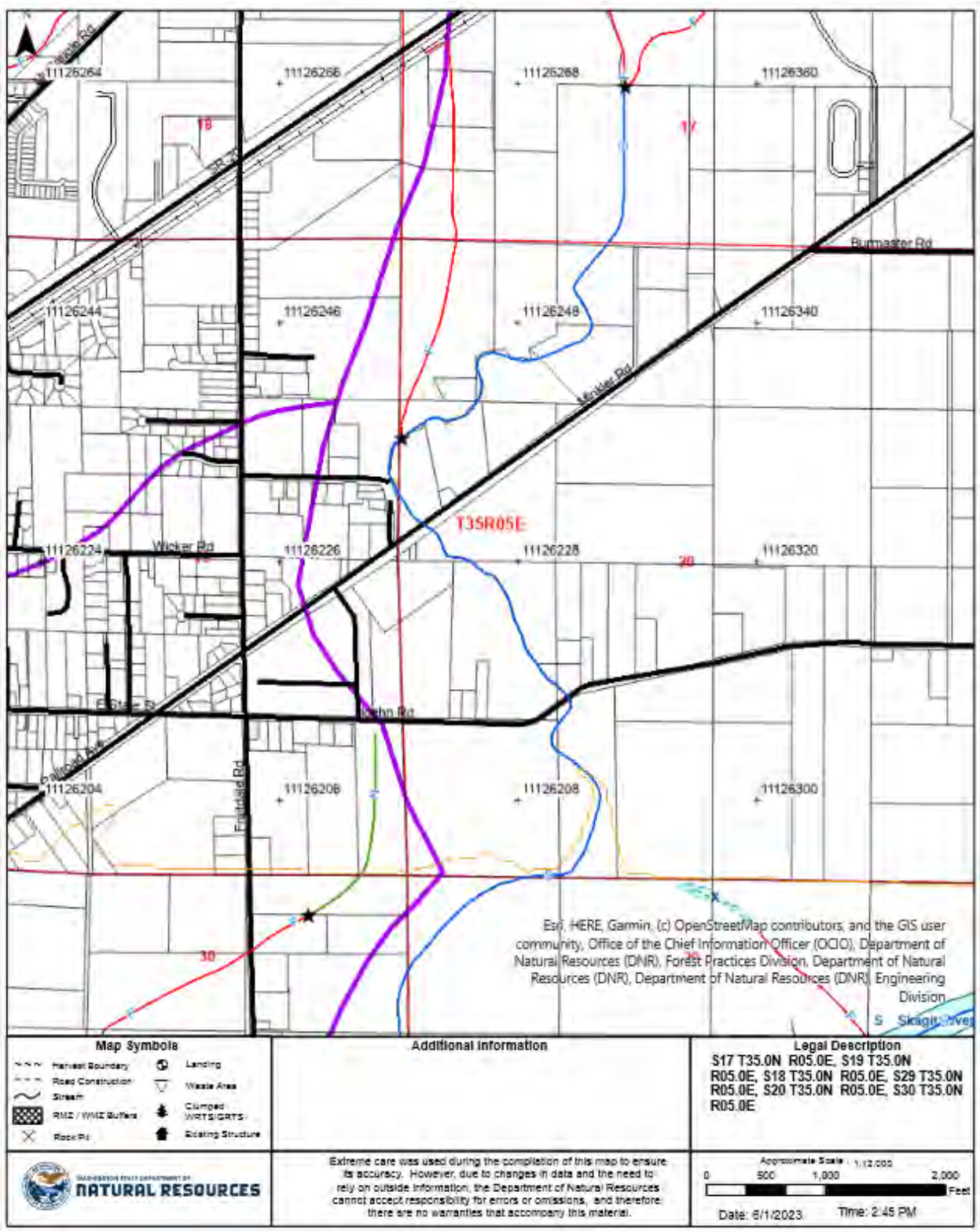
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
56	Field silt loam	51.3	46.9%
92	Minkler silt loam	40.9	37.4%
136	Sumas silt loam	17.1	15.7%
Totals for Area of Interest		**109.3**	**100.0%**

Appendix A-2. National Wetland Inventory Map



Appendix A-3. Aerial Photograph of Study Area, Skagit County GIS

A-4 WA DNR Stream Type Designation



Legend
Water Type Breaks (FP)
Map Registration Tics
40 ft. Contours
Type S
Type F
Type N, Np, Ns
U, unknown
X, non-typed per WAC 222-16
Trail
Railroad
Railroad Grade
Abandoned
Orphaned
Paved Road
Unpaved Road/Surface Unknown
County Tax Parcels
County Boundaries
Tribal Cultural Resource Contacts
Fire Shutdown Zones
Other Impoundments
Open Freshwater
Subject to Inundation
Glacier / Snowfield
Wet Area
Open Saltwater
Artificial Feature
SOSEA Boundaries
WRIA Boundaries
WAUs
Public Land Survey Sections
Public Land Survey Townships

Appendix B. Wetland Delineation Data Sheets

Appendix B includes the following sample point data sheets:

DP1-DP8

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road City/County: Sedro Woolley/Skagit Sampling Date: April 1, 2023
Applicant/Owner: John Grinder State: WA Sampling Point: DP1
Investigator(s): M. Mahaffie Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): a Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: **Paired point with DP2 @ WL flag A4. Upland side ~5'. Sampling point held as control for site visits March - May 2023 hydrology observations.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. *RARE*	10	yes	FAC
2. *PHAR*	20	yes	FACW
3. *PLLA*	10	yes	FAC
4. *RAAC*	5	no	FACW
5. *Mixed mown lawn/field grass, non-id*	80	n/a*	FAC
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y3/2	100					loam	
10-14	2.5Y3/2	100	10YR4/6	5	c	pl	sl	
14+	2.5Y3/2	60	10YR4/6	10	c	pl/m		
	5Y5/2	40	10YR4/6	10	c	pl/m		

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches): ____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 13-14
Saturation Present? (includes capillary fringe)	Yes	☒	No	☒	Depth (inches): ____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table13-14'.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road City/County: Sedro Woolley/Skagit Sampling Date: April 1, 2023
Applicant/Owner: John Grinder State: WA Sampling Point: DP2
Investigator(s): M. Mahaffie Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): a Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Paired point with DP1 @ WL flag A4. Wetland side ~5'. Sampling point held as control for site visits March - May 2023 hydrology observations.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. *RARE*	10	yes	FAC
2. *PHAR*	90	yes	FACW
3. *JUEF*	10	yes	FAC
4. *RAAC*	5	____	____
5. *Mixed mown lawn/field grass, non-id*	30	____	____
6. *ALPR*	10	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species		x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y4/1	100					loam	
2-6	2.5Y4/1	100	10YR4/6	5	c	pl	sl	
6-12	2.5Y4/1	60	10YR4/6	3	c	pl/m	sl	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? Yes ☒ No ☐

Remarks: Mixed below 12", including charcoal

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): 4-6
Saturation Present? (includes capillary fringe)	Yes	☒	No	☒	Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table 4-6". Roughly 14-16" eleveation loss from DP1. Just above distinct vegetation line.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road City/County: Sedro Woolley/Skagit Sampling Date: April 1, 2023
Applicant/Owner: John Grinder State: WA Sampling Point: DP3
Investigator(s): M. Mahaffie Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): a Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Paired point with DP4 @ WL C. Wetland side ~4'. Sampling point held as control for site visits March - May 2023 hydrology observations. Representative of WL B and C, two small wetlands separated by shallow rise. Point in defined depression.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. *BARE*	80	yes	FAC
2. *AGST*	20	yes	FACW
3. *JUEF*	10	yes	FAC
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	90	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 10			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species		x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/2	100					loam	
4-12	2.5Y5/2	100	10YR4/6	10	c	pl	sl	
12+	2.5Y5/1	60	10YR4/6	30	c	pl/m	sl	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	
Water Table Present?	Yes	☐	No	☐	Depth (inches):	4-6
Saturation Present? (includes capillary fringe)	Yes	☐	No	☐	Depth (inches):	

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table 4-6" average, with times of surface innudation in small depression. Roughly 8" elevation loss DP$

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road City/County: Sedro Woolley/Skagit Sampling Date: April 1, 2023
Applicant/Owner: John Grinder State: WA Sampling Point: DP4
Investigator(s): M. Mahaffie Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): a Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Paired point with DP3 @ WL C. uptland side ~10'. Sampling point held as control for site visits March - May 2023 hydrology observations. Representative of WL B and C, two small wetlands separated by shallow rise. Point above defined depression.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____			
2. ____			
3. ____			
4. ____			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____			
2. ____			
3. ____			
4. ____			
5. ____			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. *RARE*	10	yes	FAC
2. *Mown grass, non id*	95	yes	FAC
3. ____			
4. ____			
5. ____			
6. ____			
7. ____			
8. ____			
9. ____			
10. ____			
11. ____			
50% = ____, 20% = ____	90	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____			
2. ____			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 10			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species		x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR3/2	100					loam	
8-11	10YR3/2	100	10YR4/6	2	c	pl	sl	
11+	2.5Y5/2	60	10YR4/6	40	c	pl/m	sl	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): ____

Water Table Present? Yes ☐ No ☐ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): ____

Wetland Hydrology Present? Yes ☒ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table 13-14" average, with times of surface innudation in small depression. Roughly 8" elevation gain dp3

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road City/County: Sedro Woolley/Skagit Sampling Date: April 1, 2023
Applicant/Owner: John Grinder State: WA Sampling Point: DP5
Investigator(s): M. Mahaffie Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): a Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: **Paired point with DP6 @ WL D. uptland side ~10'. Sampling point held as control for site visits March - May 2023 hydrology observations. Representative of WL D and E, two small wetlands. Point above defined depression.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____			
2. ____			
3. ____			
4. ____			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____			
2. ____			
3. ____			
4. ____			
5. ____			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. ____			
2. *Mown grass, non id*	95	yes	FAC
3. ____			
4. ____			
5. ____			
6. ____			
7. ____			
8. ____			
9. ____			
10. ____			
11. ____			
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____			
2. ____			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species		x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: grasses mown, non-id. FAC avegerage (see report)

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/1	100					loam	
12-14+	10YR31	60	10YR4/6	3	c	pl	sl	
12-14+	2.5Y5/2	40	10YR4/6	10	c	pl/m	sl	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): ____

Water Table Present? Yes ☐ No ☐ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table 13-14" average, with times of surface innudation in small depression adjacent. Roughly 8" elevation gain dp6

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road | City/County: Sedro Woolley/Skagit | Sampling Date: April 1, 2023
Applicant/Owner: John Grinder | State: WA | Sampling Point: DP6
Investigator(s): M. Mahaffie | Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley | Local relief (concave, convex, none): concave | Slope (%): 5
Subregion (LRR): a | Lat: ____ | Long: ____ | Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Paired point with DP6 @ WL D. wetland side ~4'. Sampling point held as control for site visits March - May 2023 hydrology observations. Representative of WL D and E, two small wetlands. Point within defined depression.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. *JUEF*	JUEF	____	____
2. *RARE*	60	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	65	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	35	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species		x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR4/1	100					loam	
8-12	2.5Y51	100	10YR4/6	53	c	pl	sl	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches): ____
Water Table Present?	Yes	☒	No	☐	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☐	Depth (inches): ____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table but periods greater than two weeks above 12"" average, with times of surface innudation in small depression adjacent. Roughly 8" elevation loss dp8

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road | City/County: Sedro Woolley/Skagit | Sampling Date: April 1, 2023
Applicant/Owner: John Grinder | State: WA | Sampling Point: DP8
Investigator(s): M. Mahaffie | Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley | Local relief (concave, convex, none): concave | Slope (%): 5
Subregion (LRR): a | Lat: ____ | Long: ____ | Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Paired point with DP7 @ WL F. wetland side ~4 from flag f13. Sampling point held as control for site visits March - May 2023 hydrology observations. Representative of WL F/G.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. *RARE*	20	yes	FAC
2. *Mown grass, non id*	90	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x1 = ____
FACW species ____	x2 = ____
FAC species ____	x3 = ____
FACU species ____	x4 = ____
UPL species ____	x5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR4/2	100					sl	
9-12	2.5Y5/2	10	10YR4/6	3	c	m	sl	
12-14+	2.5Y5/1	100	10YR4/6	20	c	m	sl	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches):	1
Water Table Present?	Yes	☐	No	☐	Depth (inches):	3
Saturation Present? (includes capillary fringe)	Yes	☐	No	☐	Depth (inches):	____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table 3-4" average, with times of surface innudation. Roughly 8" elevation losss dp8

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: 25080 Minkler Road City/County: Sedro Woolley/Skagit Sampling Date: April 1, 2023
Applicant/Owner: John Grinder State: WA Sampling Point: DP8
Investigator(s): M. Mahaffie Section, Township, Range: 20/35/05
Landform (hillslope, terrace, etc.): floodplain valley Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): a Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Sumas silt loam/Minkler/Field silt loam border NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Paired point with DP7 @ WL D. upland side ~5' from flag f13. Sampling point held as control for site visits March - May 2023 hydrology observations. Representative of WL F/G. Point above defined depression.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. ____	____	____	____
2. Mown grass, non id	95	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:
OBL species	____	x1 = ____
FACW species	____	x2 = ____
FAC species	____	x3 = ____
FACU species		x4 = ____
UPL species	____	x5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Mown grass, non-id. FAC avg, see report.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

Project Site: Grinder

SOIL Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR3/2	100					loam	
8-12.+	10YR4/2	100	10YR4/6	3	c	m	sl	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): ____

Water Table Present? Yes ☐ No ☐ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Observation through early growing season indicated fluctuating water table 13-14" average, with times of surface innudation in small depression adjacent. Roughly 8" elevation gain dp7

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

Appendix C. Wetland Rating Summaries and Figures

Appendix C includes wetland rating forms and all required figures for each wetland.

Wetland name or number

RATING SUMMARY – Western Washington

Name of wetland (or ID #): 25080 Minkler, Wetland A Date of site visit: Apr-23

Rated by M. Mahaffie Trained by Ecology? ☑ Yes ☐ No Date of training Sep-15

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/ma Skagit County, Google Earth, WA DNR LIDAR Port

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	L	
Landscape Potentia	M	M	L	
Value	H	H	L	**Total**
Score Based on Ratings	7	7	3	**17**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	Visual Est.
Hydroperiods	D 1.4, H 1.2	Visual Est.
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	Attached
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	Visual Est.
Map of the contributing basin	D 4.3, D 5.3	Attached
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	Attached
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	Attached
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	Attached

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

Wetland name or number

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☑ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ⅓ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	1
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ⅓ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	4
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 ☐ The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	3
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 ☐ Entire wetland is in the Flats class points = 5	3
Total for D 4 Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?	
D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 ☐ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 ☐ Flooding from groundwater is an issue in the sub-basin. points = 1 ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why points = 0 ☐ There are no problems with flooding downstream of the wetland. points = 0	2
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0

Wetland name or number

Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

Wetland name or number

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.* **None** = 0 points **Low** = 1 point **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

Wetland name or number

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 — Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + 26 % moderate & low intensity land uses / 2) = 13% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 2 % undisturbed habitat + 26 % moderate & low intensity land uses / 2) = 15% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	**0**

Rating of Landscape Potential If Score is ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	0

Wetland name or number

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

Wetland name or number

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they

Wetland name or number

RATING SUMMARY – Western Washington

Name of wetland (or ID #): 25080 Minkler, Wetland B & C Date of site visit: Apr-23

Rated by M. Mahaffie Trained by Ecology? ☑ Yes ☐ No Date of training Sep-15

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/ma Skagit County, Google Earth, WA DNR LIDAR Port

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	L	
Landscape Potentia	M	M	L	
Value	H	H	L	**Total**
Score Based on Ratings	7	7	3	**17**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	Visual Est.
Hydroperiods	D 1.4, H 1.2	Visual Est.
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	Attached
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	Visual Est.
Map of the contributing basin	D 4.3, D 5.3	Attached
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	Attached
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	Attached
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	Attached

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:
Wetland B & C are two close together wetlands that are separated by a shallow rise.

Wetland name or number

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ⅓ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0		0
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ⅓ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
Total for D 1	Add the points in the boxes above	7

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	2

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	4
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	0
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		
☐ The area of the basin is less than 10 times the area of the unit	points = 5	3
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon		2
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0

Wetland name or number

Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	0
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.* **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	0

Wetland name or number

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 — Add the points in the boxes above	**4**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + 26 % moderate & low intensity land uses / 2) = 13% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 2 % undisturbed habitat + 26 % moderate & low intensity land uses / 2) = 15% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	**0**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	0

Wetland name or number

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

Wetland name or number

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

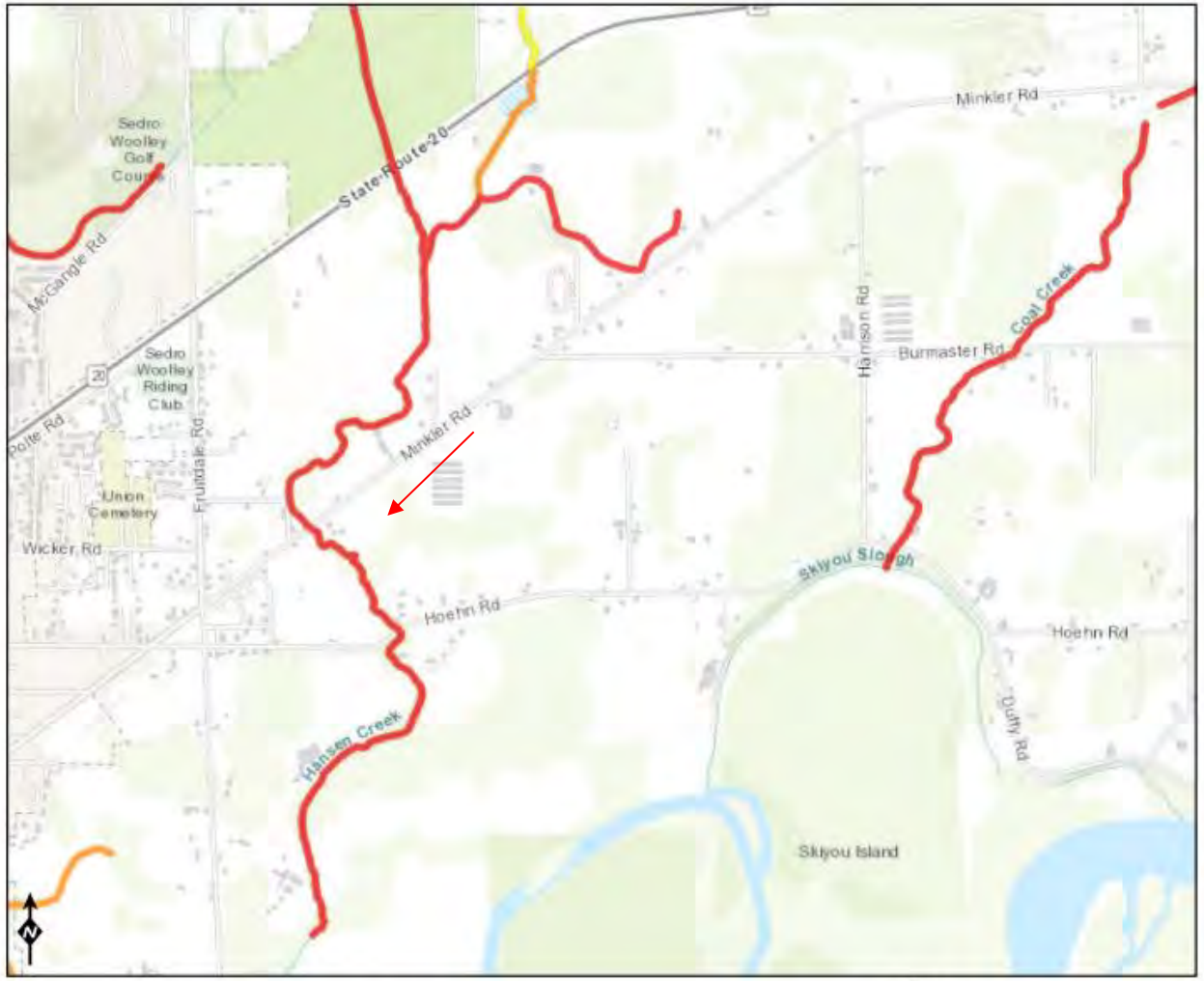
Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they

Wetland name or number

are addressed elsewhere.

April 25, 2023

303d



Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Esri, NASA, NGA, USGS, FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Miles
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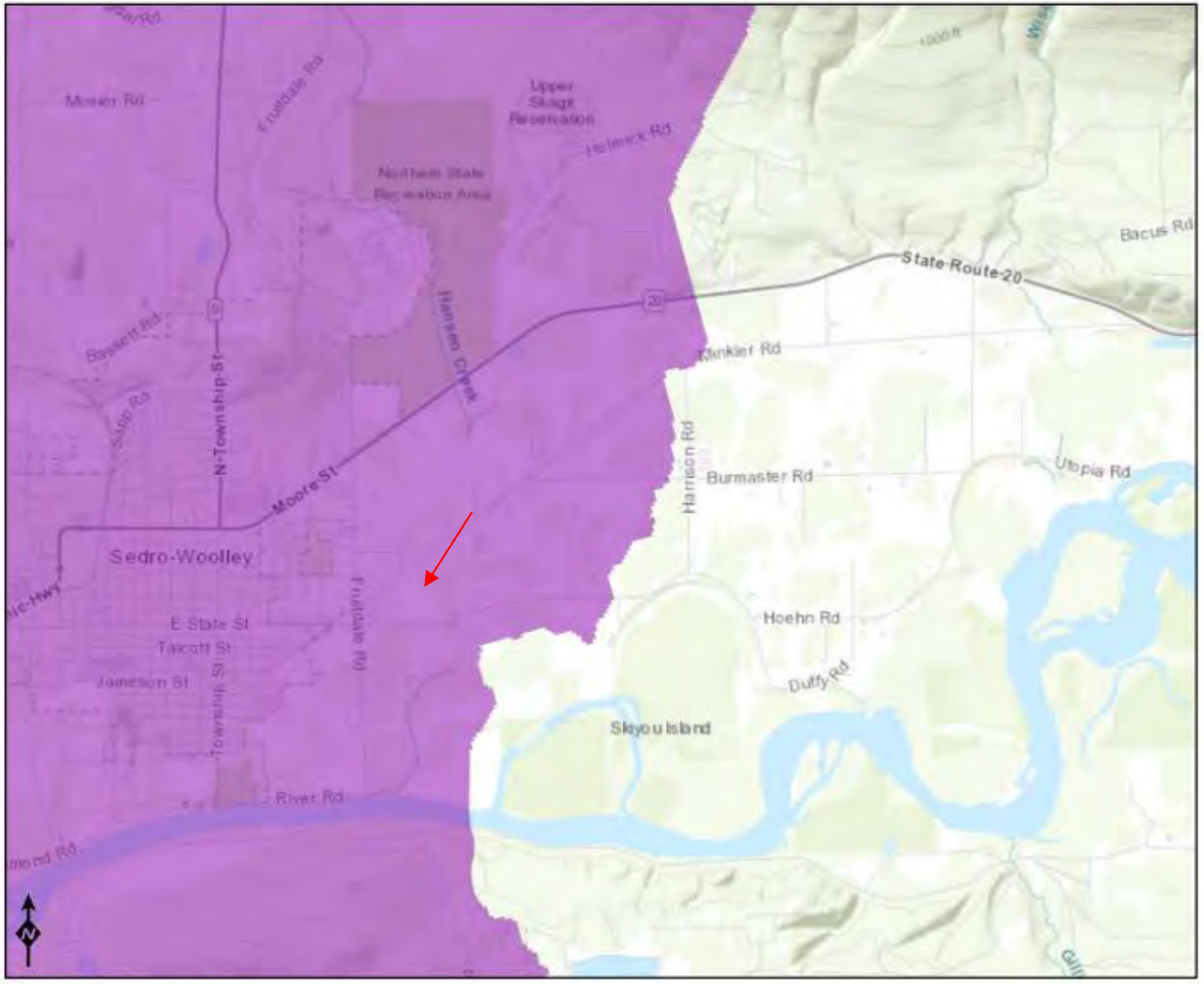
DEPARTMENT OF ECOLOGY
State of Washington

April 25, 2023

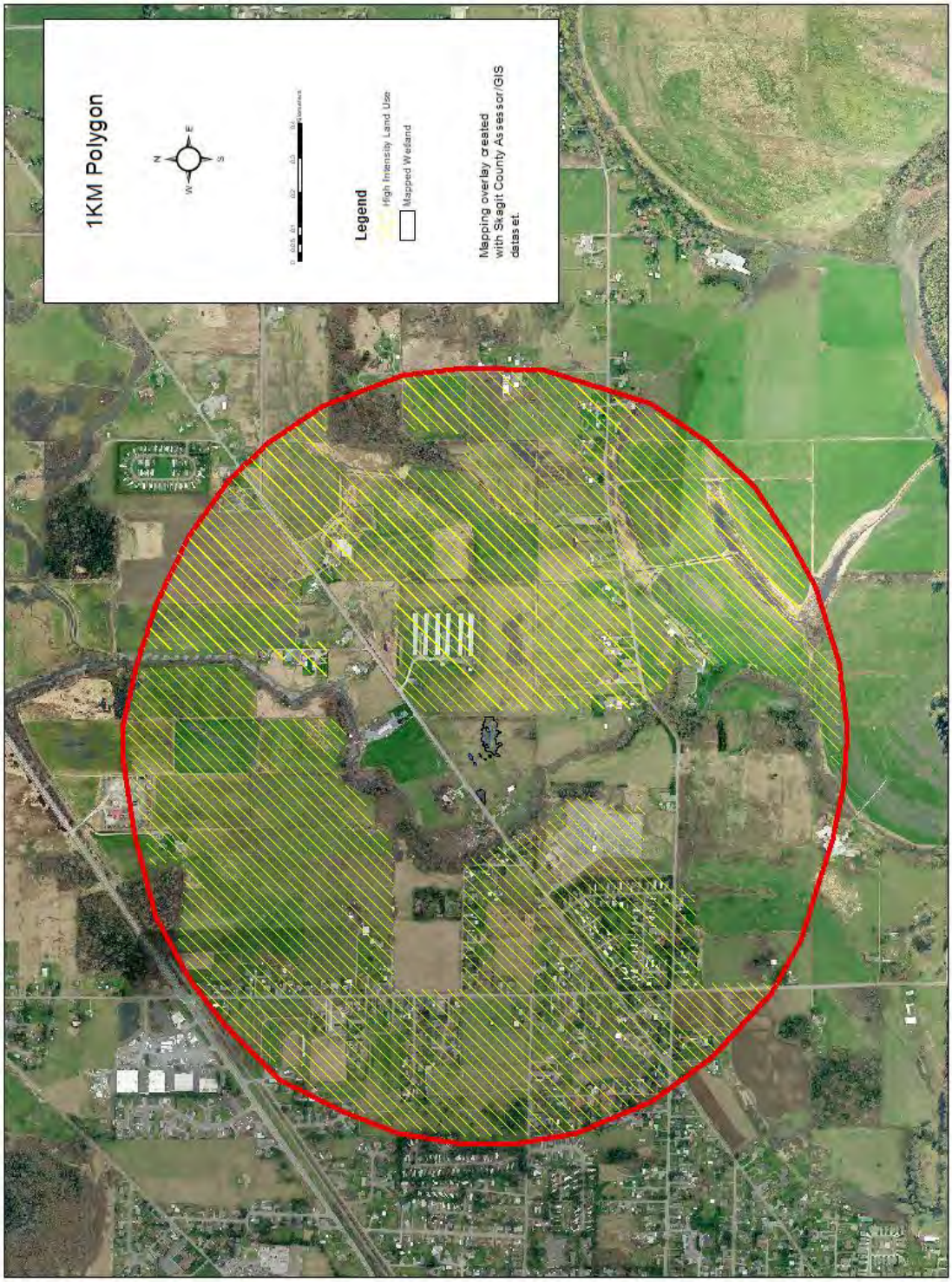
TMDL

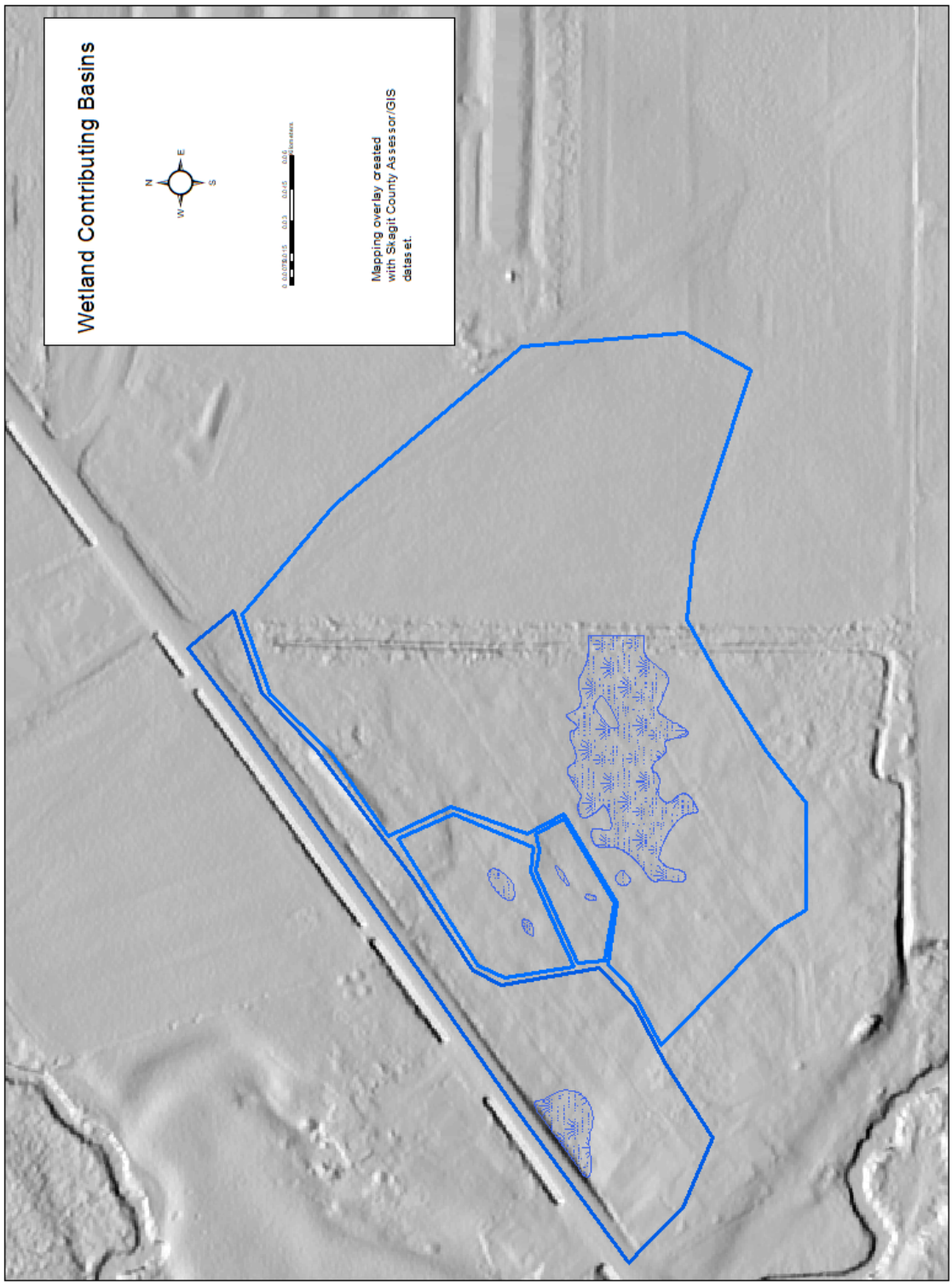


WQ Improvement Projects
- Approved
- In Development

Esri, NASA, NGA, USGS, FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

DEPARTMENT OF ECOLOGY
State of Washington


1KM Polygon
N
E
S
W
Legend
High Intensity Land Use
Mapped Wetland
Mapping overlay created with Skagit County Assessor/GIS datas et.


Wetland Contributing Basins
N
E
S
W
Mapping overlay created
with Skagit County Assessor/GIS
datas et.

Attachment C

Aquatic Resources Delineation Report, Dudek

Aquatic Resources Delineation Report

Goldeneye Energy Storage Project

MAY 2024

Prepared for:

GOLDFINCH ENERGY STORAGE, LLC
412 West 15th Street, 15th Floor
New York, New York 10011
Contact: Tommy Nelson

Prepared by:

DUDEK

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Patricia Schuyler
Environmental Project Manager

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations ii

1 Introduction 1
- 1.1 Disclaimer Statement 1
- 1.2 Contact Information 1
- 1.3 Delineation Purpose 1

2 Project Description 2

3 Project Location 2

4 Methods 3
- 4.1 Pre-Field Methods 3
- 4.2 Aquatic Resources Delineation Methods 3

5 Existing Conditions 4
- 5.1 Soils and Terrain 4
- 5.2 Hydrology 4
- 5.3 Vegetation 4
- 5.4 Review Area Alterations, Current and Past Land Use 5
- 5.5 Precipitation Data and Analysis 5
- 5.6 Priority Habitats and Species 6

6 Aquatic Resources Narrative 6
- 6.1 WET-H 7
- 6.2 WET-I 7
- 6.3 Hansen Creek 7

7 Results and Conclusions 8

8 References 8

TABLES

1 Contact Information 1
2 Antecedent Precipitation Tool Data for the Review Area 5
3 Wetlands within the Review Area 6
4 Non-Wetland Waters within the Review Area 7

FIGURES

1 Project Location 11
2 Soils 12

3 Hydrology 13
4 Wetland Inventories 14
5 Aquatic Resource Delineation Results 15

APPENDICES

A Wetland Determination Data Forms
B Antecedent Precipitation Tool Output
C Wetland Rating Summary Forms

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
ARDR	Aquatic Resources Delineation Report
DOE	Department of Ecology
gen-tie	generation transmission
PDSI	Palmer Drought Severity Index
USACE	U.S. Army Corps of Engineers

1 Introduction

This report presents the results of the jurisdictional aquatic resources delineation conducted by Dudek staff for the Goldeneye Energy Storage Project (project) in the City of Sedro-Woolley in unincorporated Skagit County, Washington. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the Washington State Department of Ecology (DOE) pursuant to Section 401 of the Clean Water Act, and Skagit County per the Skagit County Shoreline Management Program (Title 90 of Chapter 90.58 RCW; WAC 173-27) (collectively defined as jurisdictional aquatic resources). This Aquatic Resources Delineation Report (ARDR) was prepared in accordance with the USACE Components of a Complete Wetland Delineation Report (USACE 2011) as well as the Checklist & Sample Outline for a Delineation Report (Appendix H of DOE et al. 2006).

1.1 Disclaimer Statement

This ARDR presents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by the USACE, DOE, and Skagit County (i.e., regulatory agencies) within the identified review area using current regulations, written policies, and guidance from these regulatory agencies. The potential jurisdictional boundaries described in this ARDR are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to regulation by each respective agency.

1.2 Contact Information

Contact information for the project applicant and agent are provided in Table 1.

Table 1. Contact Information

Project Applicant	Tommy Nelson	**Agent**	Dudek
Contact Name	Goldfinch Energy Storage LLC	**Contact Name**	Patricia Schuyler
Address	412 West 15th Street, 15th Floor, New York, New York 10011	**Address**	605 NE 21st Avenue, Portland, Oregon 97232
Phone	646.864.4951	**Phone**	760.479.4264
Email	tnelson@tenaska.com	**Email**	pschuyler@dudek.com

1.3 Delineation Purpose

The aquatic resource delineation was conducted in support of the proposed project, which is described in Section 2 of this ARDR. Specifically, this ARDR discusses the identified resources within the generation transmission (gen-tie) line corridor as well as the access road necessary for construction of the gen-tie line. Skagit Wetlands & Critical Areas, LLC, conducted a delineation for the approximately 14.14-acre main storage site located on private lands (Parcel Identification Number P40030). The results of this delineation are presented in the report prepared by Skagit Wetlands & Critical Areas, LLC (2023) and are incorporated in this ARDR as necessary. However, this ARDR

focuses only on the gen-tie line alignment and access road necessary for project construction (see Project Description provided in Section 2).

2 Project Description

Goldfinch Energy Storage, LLC (the applicant), is currently proposing a utility-scale energy storage facility in Skagit County, Washington (the County). The project consists of a proposed 200 megawatt/800 megawatt-hour battery energy storage system located on private lands. The project will be composed of lithium-ion batteries installed in racks, inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect into the Sedro-Woolley Substation located just to the south of the project site (i.e., point of interconnection). The batteries will be installed either in containers or in purpose-built enclosures designed for aesthetic compatibility with the surrounding area. The containers or enclosures will have battery storage racks, with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system will be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current (DC) electricity that must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC, along with transformers to step up the voltage, will be included. The proposed project requires construction of a gen-tie line to connect to the substation as well as a road from the substation to provide access to the gen-tie line during construction.

The proposed facility will provide a service to the regional electric grid by receiving energy (charging) from the Puget Sound Energy electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. Following construction, the proposed use will not create emissions to air, will not require sanitary facilities, and will not require water except to maintain water-efficient and low-impact landscaping design along the project frontage.

3 Project Location

The proposed project site is located in Skagit County, Washington, southeast of Minkler Road, north of Hoehn Road, and west of rural lands bordered on the east by Minkler Road (Figure 1, Project Location). The project site is located in Section 20 of Township 35 North, Range 5 East, Willamette Meridian in Skagit County, Washington. The project is proposed to interconnect to the Sedro-Woolley Substation, which is located to the south of the project site. The total area reviewed for aquatic resources totals 21.04 acres and includes the sites for both the energy storage system, portions of Minkler Road along with the gen-tie line and associated access road. The portion of the review area assessed in this ARDR includes the gen-tie alignment and associated access road (see Figure 2, Review Area). The review area includes a 15-foot buffer around the proposed access road as well as a 100-foot buffer around the proposed gen-tie line alignment.

As described in the ARDR for the main storage site, this area is in the mid-section of what is known locally as the Skagit Valley. The location is on the valley floor on relic floodplain of the Skagit River in an area of historic farmland (Skagit Wetlands & Critical Areas, LLC, 2023). The entire project area is surrounded by agricultural and residential properties in all directions, with the exception of the substation.

4 Methods

4.1 Pre-Field Methods

Prior to conducting the aquatic resources delineation, a literature review was conducted to evaluate the environmental setting of the proposed gen-tie line alignment and associated access road and identify potential aquatic resources that may be present within the review area. Topographical data was reviewed in conjunction with aerials, both current and historical, to determine the potential presence of aquatic resource. The review included the following:

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (USFWS 2023)
- U.S. Geological Survey National Hydrography Dataset (USGS 2023)
- Google Earth (2023)
- U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (USDA 2023a)
- U.S. Department of Agriculture Natural Resources Conservation Service Hydric Soils (USDA 2023b)
- U.S. Geological Survey topographic maps (USGS 2023)

4.2 Aquatic Resources Delineation Methods

The aquatic resources delineation for the gen-tie line alignment and original access road location was conducted by Dudek biologist Tony Vingiello on September 26 and 27 and December 19, 2023. Ecological Land Services (ELS) conducted an additional delineation for an alternative access road location as well as along Mikler Road. The review area is shown on Figure 2. The aquatic resources delineations were conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (Western Mountains, Valleys, and Coast Regional Supplement; USACE 2010). Wetland Determination Forms were completed for certain points within drainages or vegetation communities where a predominance of hydrophytic vegetation was present, and hydrology, vegetation, and soils were assessed to determine whether USACE three-parameter wetlands were present. All data forms are provided in Appendix A (Wetland Determination Forms). Wetlands were classified using the USFWS Cowardin classification system (Cowardin et al. 1979) and the hydrogeomorphic classification system (USACE 1993). Wetlands were rated using the Washington State Wetland Rating System for Western Washington: 2014 Update Version 2.0 (DOE 2023).

The ordinary high-water mark of the portion of Hansen Creek within the review area was delineated according to DOE guidance. Aquatic resources boundaries were mapped in the field using Esri Collector on a mobile device.

Skagit County wetland buffers were applied to wetlands identified during the delineation. Buffer widths can vary from 50 to 150 feet, depending on wetland rating and intensity of land use impacts. Buffers were applied based on high-intensity land use in anticipation of the proposed project.

5 Existing Conditions

5.1 Soils and Terrain

Topography on site is generally flat, at an elevation of approximately 55 feet above mean sea level. Three soil map units are present in the review area: Sumas silt loam, Field silt loam and Minkler silt loam (Figure 3, Soils). According to the U.S. Department of Agriculture, Natural Resources Conservation Service, the Sumas silt loam consists of poorly drained soils formed in flood plains and deltas from alluvium (USDA 2024a). The unit is considered hydric. Field silt loam map unit consists of moderately well-drained soils formed in alluvium and volcanic ash on floodplains with slopes from 0% to 3% (USDA 2023a). The unit has 10% hydric soils and is considered prime farmland if protected from flooding or not frequently flooded during the growing season. Minkler silt loam occurs within the substation and access road. The land surrounding the substation perimeter is gravelly and appears to be partially filled for the construction of the substation.

5.2 Hydrology

The review area lies within the Finney Creek–Skagit River Watershed, Water Resource Inventory Area 3 (DOE 2024). The site lies within two 12-digit Hydrologic Unit Code subwatersheds: the Hansen Creek–Skagit River Subwatershed and the Skagit River Subwatershed (Figure 4, Wetland Inventories). Both subwatersheds flow into the Skagit River, which drains to Skagit Bay, which is part of Puget Sound.

On the National Wetland Inventory online mapper, one feature occurs within the review area: Hansen Creek (USFWS 2023) (Figure 4). Hansen Creek is mapped as a seasonally flooded freshwater forested/shrub wetland (PFOC). This description is consistent with the riparian corridor along Hansen Creek, which is a mix of forest and shrub in the immediate vicinity of the project site. However, Hansen Creek itself is an intermittent lower-order stream. In the National Hydrography Dataset, Hansen Creek is labeled as a perennial stream (USGS 2023). This is inconsistent with observations made in the field that Hansen Creek is an intermittent stream with seasonal flows. The DOE modeled wetlands inventory identifies an area of potentially disturbed wetland along the eastern bank of Hansen Creek (Figure 4). This is consistent with field investigations of the review area.

5.3 Vegetation

The following indicator categories (which denote the likelihood of a species occurring in wetlands) are applied to individual plant species (USACE 2022):

- **OBL** (obligate wetland) – Almost always occur in wetlands
- **FACW** (facultative wetland) – Usually occur in wetlands, but may occur in non-wetlands
- **FAC** (facultative) – Occur in wetlands and non-wetlands
- **FACU** (facultative upland) – Usually occur in non-wetlands, but may occur in wetlands
- **UPL** (obligate upland) – Almost never occur in wetlands
- **NI** (no indicator) – Status not yet determined; treated as UPL

The review area consists of the following dominant communities: disturbed or maintained grasses and forbs; bigleaf maple–Douglas-fir (*Acer macrophyllum*, FACU; *Pseudotsuga menziesii*, FACU) forest; planted Nootka rose (*Rosa nutkana*; FAC) scrub–shrub wetland enhancement area; and Himalayan blackberry (*Rubus armeniacus*). Shrubs including osoberry (*Oemleria cerasiformis*), salmonberry (*Rubus spectabilis*), Himalayan blackberry, and trailing blackberry (*Rubus ursinus*) surround the borders of the property. Mature trees occur in the southeast, southwest, east, and northwest edges of the property, including willow species (*Salix* spp.), red alder (*Alnus rubra*), and Douglas-fir.

5.4 Review Area Alterations, Current and Past Land Use

The review area includes areas graded to support the construction of the Sedro-Woolley Substation. There is a Bonneville Power Administration transmission line easement that runs north–south across the proposed gen-tie line alignment. Portions of the proposed gen-tie line alignment located adjacent to the overall project site is composed of agricultural lands. The floodplain of Hansen Creek has been subject to development pressure. Multiple restoration projects occur along the creek. Portions of wetland enhancement area are located within the review area and are discussed further in Section 6, Aquatic Resources Narrative.

5.5 Precipitation Data and Analysis

The USACE-developed Antecedent Precipitation Tool (APT) was used to assess whether the delineation dates occurred in a drier, average, or wetter than normal period (USACE 2024). To determine what constitutes a "typical year," the USACE developed the APT. The information generated by the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visit, and to assist with completing the Wetland Determination Data Form.

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis, with PDSI value outputs ranging from −4 (extreme drought) to +4 (very wet) (NOAA 2024) to assess drought conditions (i.e., PDSI class). The APT determines wet vs. dry season based on related procedures provided in the applicable USACE Regional Supplement for the review area (in this case, the Western Mountains, Valleys, and Coast Regional Supplement [USACE 2010]). If the antecedent runoff condition (ARC) score is less than 10, then the antecedent precipitation condition is classified as drier than normal; if the ARC score is 10 to 14, then conditions are normal; if the ARC score is greater than 14, then conditions are wetter than normal (USACE 2024).

Table 2 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI class), wet or dry season determination, ARC score, and antecedent precipitation condition. Based on the APT output provided in Appendix B and summarized in Table 2, the precipitation and climatic conditions for the review area were normal during the time of the delineations.

Table 2. Antecedent Precipitation Tool Data for the Review Area

Main Field Survey Date	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
9/26/2023	Severe drought	Dry season	10	Normal
12/19/2023	Moderate drought	Wet season	11	Normal

4/19/2024	Moderate drought	Wet season	12	Normal

Notes: PDSI = Palmer Drought Severity Index; ARC = antecedent runoff condition.

Additionally, according to the U.S. Department of Agriculture's Agricultural Applied Climate Information System (USDA 2024), the area around the review area received 36.33 inches of rain in 2023.

5.6 Priority Habitats and Species

The Priority Habitats and Species web mapper was used to generate results within a 5-mile radius from the project site (WDFW 2023). Four fish species have an observed range overlapping the entire project area: bull trout (*Salvelinus confluentus*), Dolly Varden (*Salvelinus malma*; proposed similarity of appearance), fall Chinook salmon(Puget Sound Evolutionarily Significant Unit [ESU]), and summer and winter steelhead (*Oncorhychus mykiss*; Puget Sound Distinct Population Segment [DPS]). Five terrestrial species have an observed range that overlaps with the study area: grizzly bear (*Ursus arctos horribilis*), gray wolf (*Canis lupus*), little brown bat (*Myotis lucifugus*),Townsend's big-eared bat (*Corynorhinus townsendii*), and Yuma myotis (*Myotis yumanensis*).

Based on initial review of the site, the four fish species have a potential to occur within Hansen Creek and the two bat species have a potential to utilize structures and riparian habitat associated with Hansen Creek. A full analysis of potential for these species to occur within the project site and associated impacts will be documented in the Critical Areas Assessment.

6 Aquatic Resources Narrative

Table 3 provides a detailed summary of wetlands delineated within the review area, including the Cowardin type (Cowardin et al. 1979; USACE 2023); Cowardin and hydrogeomorphic classification, DOE rating, local jurisdiction rating, the size of the wetland, and the associated buffer width. The Wetland Rating Summary forms for wetlands within the review area are provided in Appendix C. Table 4 provides a summary of the non-wetland waters within the review area. The locations of all delineated aquatic resources are provided on Figure 5A-C, Aquatic Resources Delineation Results. Wetlands were not observed within the proposed access route. Wetland sampling points utilized to collect data, as documented on the Wetland Determination Data Forms (Appendix A) for the review area,are also shown on Figure 5C. Photos of the potential aquatic features delineated within the review area are included as an attachment to the Wetland Determination Data Forms (Appendix A). Pursuant to Skagit County Code 14.24.230(1) and 14.24.530(2) for waterways (Skagit County 2023), both wetland and stream buffers have been designated for each feature to facilitate planning purposes (Tables 3 and 4).

Table 3. Wetlands within the Review Area

Feature Name	Cowardin Code[a]	HGM	DOE Rating[b]	Skagit County[c]	Wetland Size (acres)	Buffer Width (feet)[d]
WET-H	PSS	Riverine	III	III	0.09	150
WET-I	PSS	Depressional	III	III	0.20	150
				Wetlands Total	**0.29**	**N/A**

Notes: HGM = hydrogeomorphic classification; WET = Wetland; PSS = palustrine scrub–shrub; N/A = not applicable.

[a] Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2023).

[b] DOE rating (DOE 2023).

[c] Skagit County follows the DOE rating systems (DOE 2023).
[d] Skagit County wetland buffer width based on wetland category and high-intensity land use (Skagit County 2023).

Table 4. Non-Wetland Waters within the Review Area

Feature Name	WDNR Water Type	Portion within the Review Area	Skagit County Buffer Width	303(d) Listed (parameters)
Hansen Creek	S	190 linear feet (0.08 acres)	200 feet	Dissolved oxygen

Source: WDNR 2023.
Notes: WDNR = Washington State Department of Natural Resources; S = shorelines of the state.

6.1 WET-H

Wetlands associated with Hansen Creek were observed within the gen-tie line alignment. The wetland, identified as WET-H on Figure 5C, comprises 0.09 acres within the gen-tie line alignment. Wetland sampling points were taken within the floodplain bench and just upslope of the bench to determine the boundary of the wetland within the review area. The wetland is dominated by Himalayan blackberry, with no other plant species present. Hydric soils were determined to be present; however, only one secondary indicator for hydrology was observed. Given the proximity of the feature to Hansen Creek — i.e., its geomorphic position — and the fact that this area is 2 feet lower in elevation than the wetland restoration site across the creek, wetland hydrology is assumed to be present in the wet/growing season.

6.2 WET-I

A wetland enhancement area is marked with a sign and a partial fence on the southwest side of Hansen Creek (Figure 5C; WET-I). Because this is a wetland enhancement area, no sampling points were taken with the boundary of the restoration site. However, given the proximity to Hansen Creek, and the apparent creation of wetlands, the portion of the wetland enhancement area that occurs within the gen-tie line alignment will be treated as a wetland for the purposes of this ARDR. WET-1 comprises 0.20 acres within the gen-tie line alignment and consists of planted willow and rose species.

6.3 Hansen Creek

Hansen Creek is an intermittent lower-order stream that drains south through the northeastern end of the project site. Approximately 190 linear feet (0.08 acres) of the stream occur within the review area. The creek banks are steeply incised, with overhanging banks and roots in places. The substrate consists of silty sand with gravel on the surface. Several islands of reed canary grass (*Phalaris arundinacea*) occur within the stream channel. Dense Himalayan blackberry and willow species line the top of the banks and create a riparian corridor. Fewer than five pieces of large woody debris with a diameter greater than 4 inches and more than 6 feet long were observed.

Two beaver dams were observed within the Hansen Creek, each ponding water. Recent evidence of North American beaver (*Castor canadensis*) or common muskrat (*Ondatra zibethicus*) was not observed, but potential denning habitat was present. Water was not otherwise flowing through the creek, although there were ponded areas in the

thalwegs and pools up to 6 inches deep.[1] As such, this creek can be called intermittent because it appears to stop flowing seasonally.

The following description of Hansen Creek is from the project ARDR (Skagit Wetlands & Critical Areas, LLC, 2023):

> Hansen Creek is a shoreline of the State and falls under the jurisdiction of the Skagit County Shoreline Management Program and is about 1.6 miles upstream of the terminus with the Skagit River.
>
> This segment of Hansen Creek has areas of designated floodplain/frequently flooded area associated with the creek. Such area was not mapped separately for purposes of this delineation but was noted to appear to fall fully within the regulated buffer of the creek. Hansen Creek has noted salmonid presence. Any proposed work within 225 ft of the creek or its associated flood hazard area will require a dedicated Fish & Wildlife [USFWS] Habitat Conservation Area Assessment prepared to Skagit County Code and meet ESA [Endangered Species Act] reporting requirements.

6.4 Other Features

An unnamed creek along the south and east edges of the project site does not have a significant hydrologic, biological, or chemical nexus to Hansen Creek and is therefore non-jurisdictional to USACE and DOE. ELS documented wetlands located outside and to the west of the proposed access route. Since this feature is located offsite, a discussion is not included in this report. Appropriate buffers will be applied and adhered in the appropriate impact analysis reporting.

7 Results and Conclusions

Based on the jurisdictional delineation and review of relevant information provided in this ARDR, 0.08 acres of non-wetland waters and 0.29 acres of wetlands potentially regulated by USACE and DOE were delineated within the review area. This ARDR can be used by the regulatory agencies to determine if they would regulate the features described herein.

8 References

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[1] The *thalweg* is the continuous line or curve of lowest elevation within a valley or watercourse.

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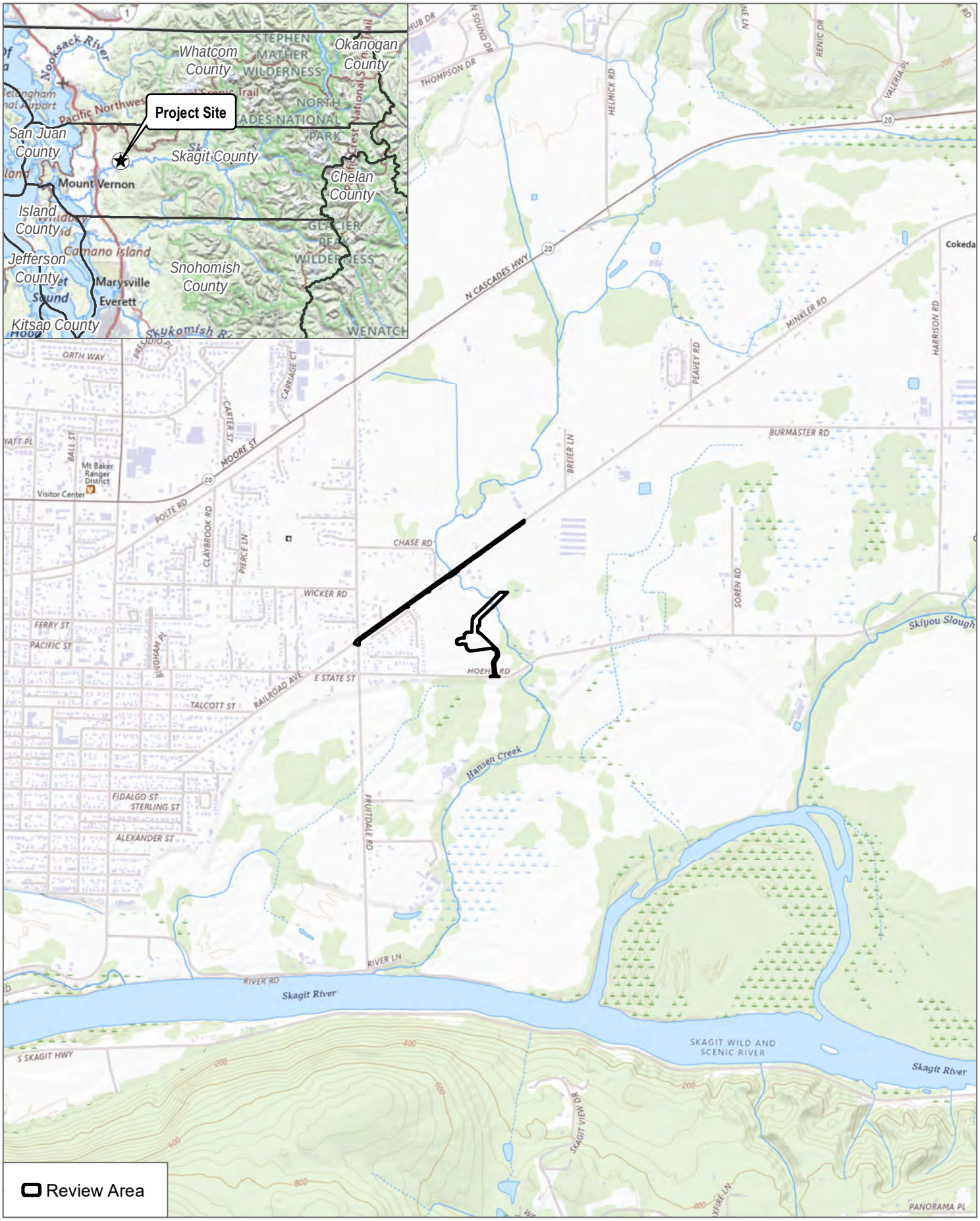


SOURCE: USGS 7.5 Minute Quadrangle Sedro-Woolley North Series
Township 35N; Range 5E; Section 20

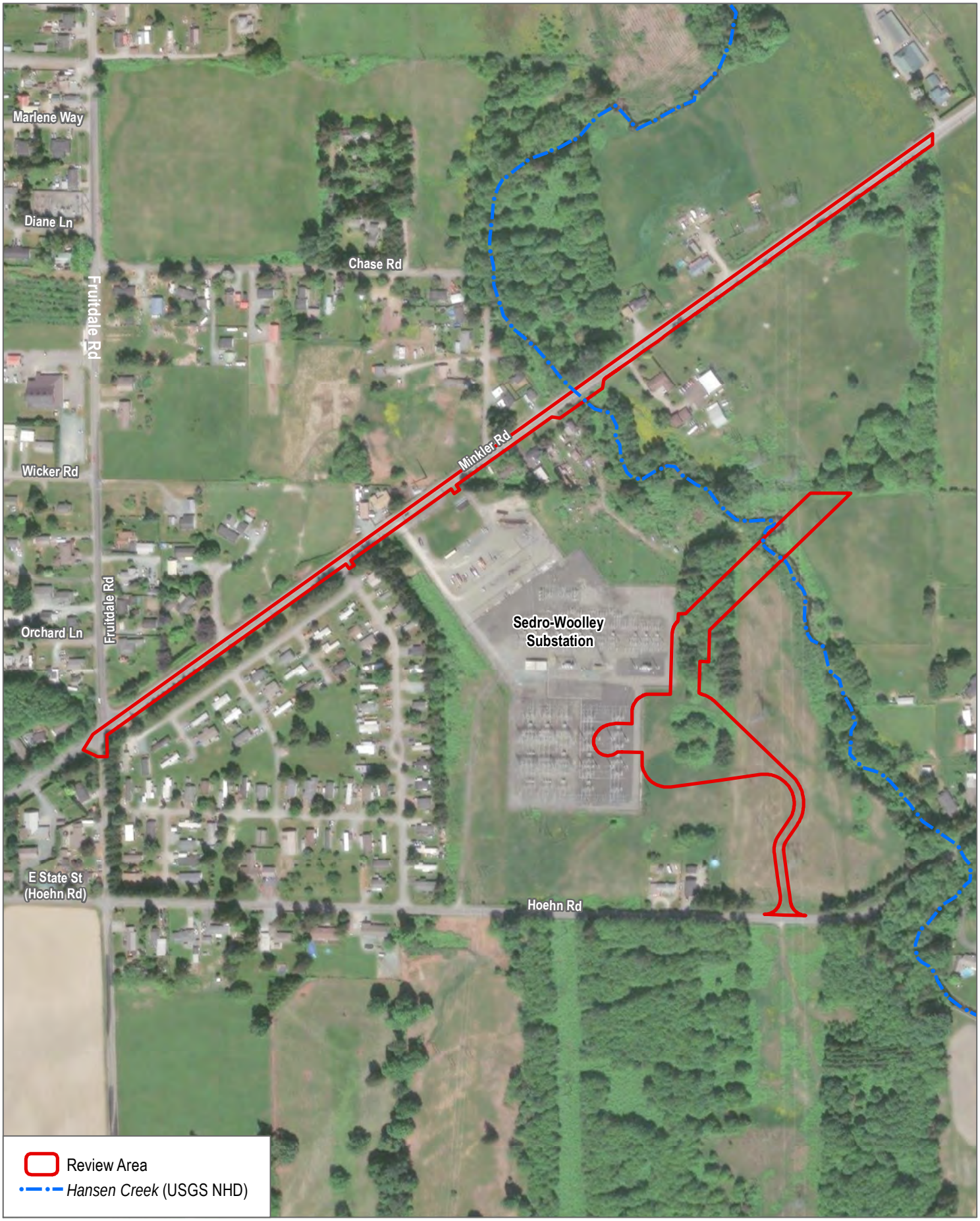
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Aquatic Resources Delineation Report: Goldeneye Project



SOURCE: Maxar 2017; Skagit County 2021; USGS NHD 2024

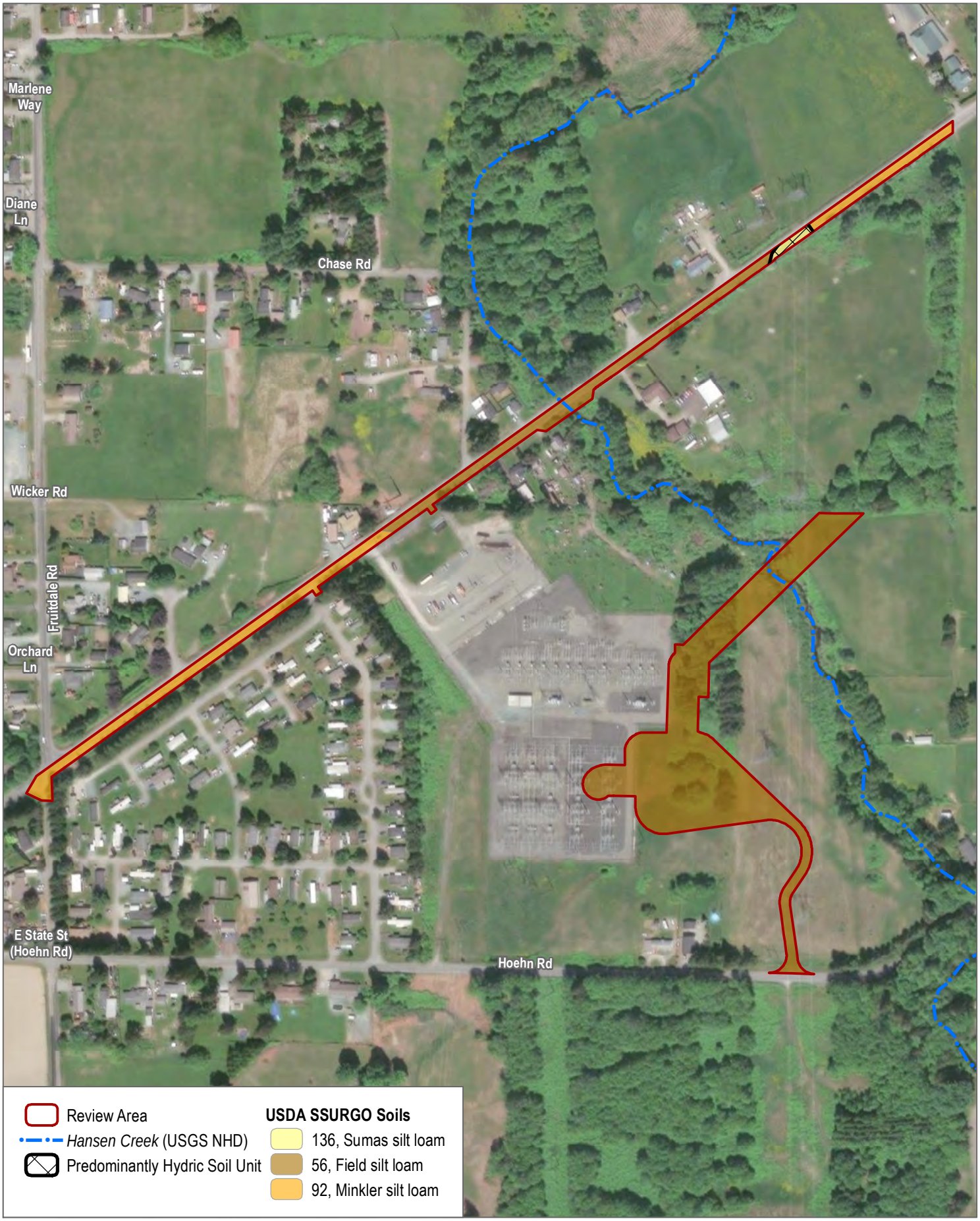
DUDEK

0 200 400 Feet

FIGURE 2

Review Area

Aquatic Resources Delineation Report: Goldeneye Project



SOURCE: Maxar 2017; Skagit County 2021; USDA SSURGO 2023

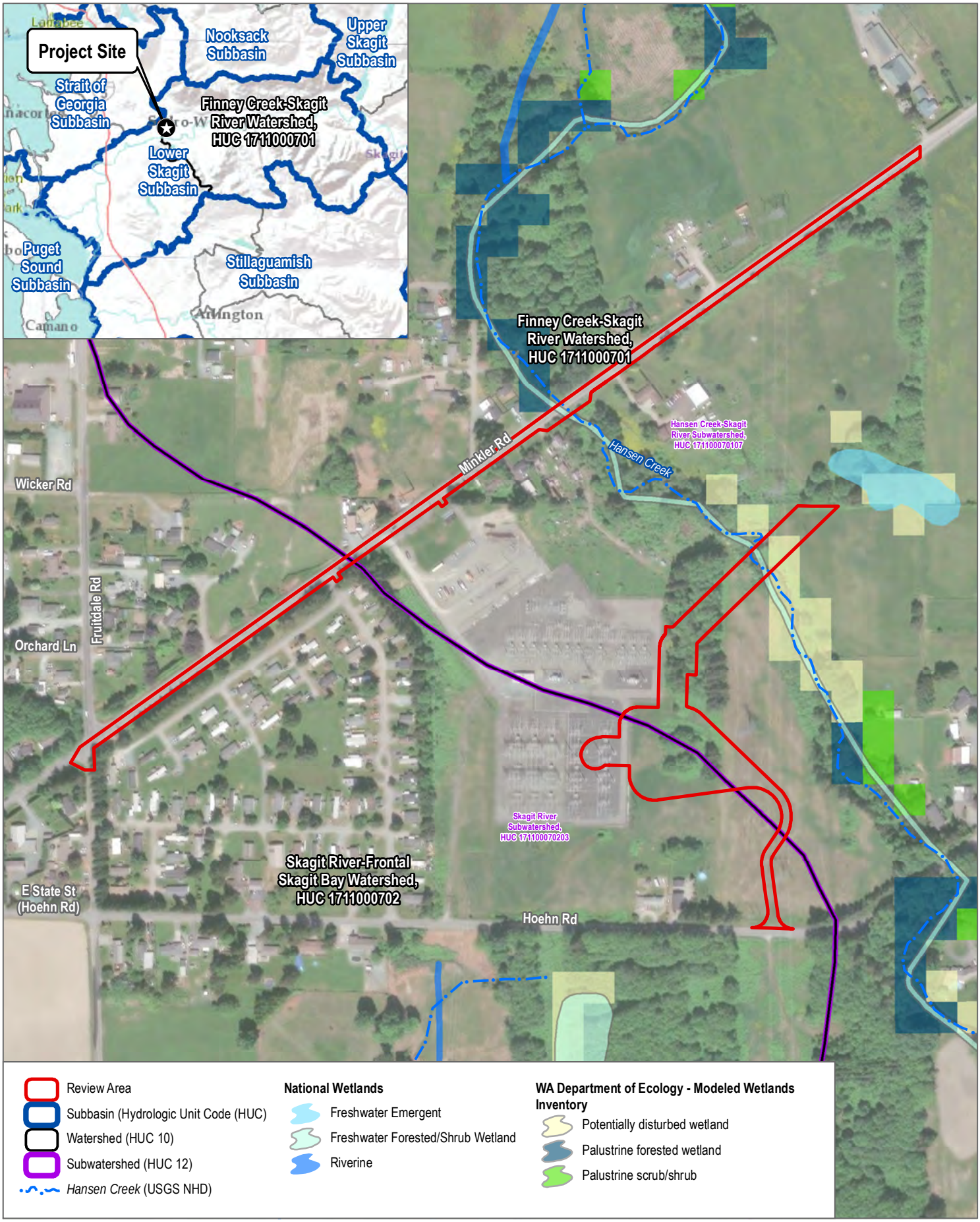
DUDEK

0 185 370 Feet

FIGURE 3

Soils

Aquatic Resources Delineation Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap 2024; USFWS NWI 2023; WA Dept. of Ecology 2016; USGS NHD 2023

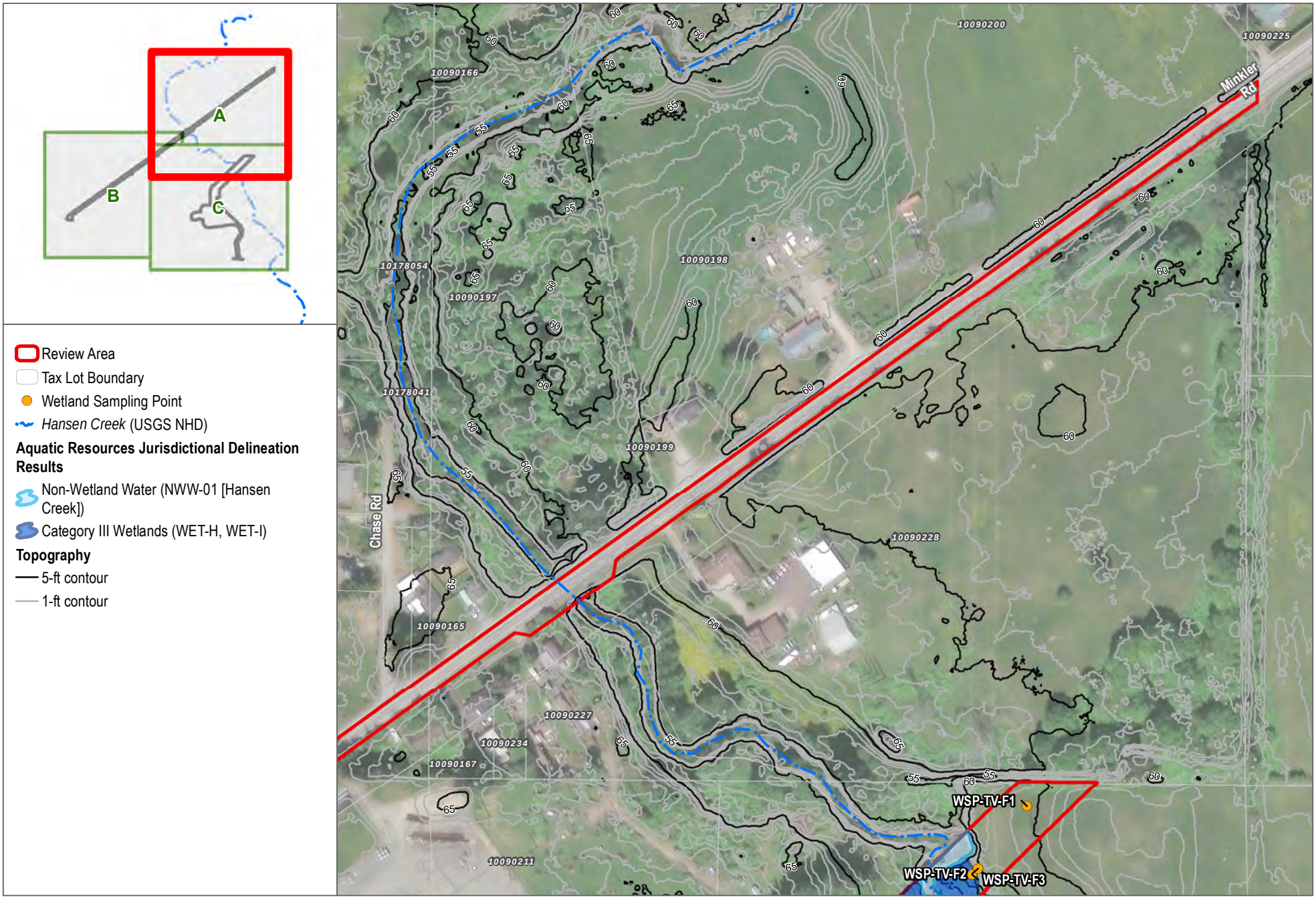
DUDEK

0 200 400 Feet

FIGURE 4

Wetland Inventories

Aquatic Resources Delineation Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap 2024; USGS NHD 2023; Skagit County 2021

DUDEK

0 90 180 Feet

FIGURE 5A

Aquatic Resources Delineation Results

Aquatic Resources Delineation Report: Goldeneye Project

SOURCE: Esri World Imagery Basemap 2024; USGS NHD 2023; Skagit County 2021

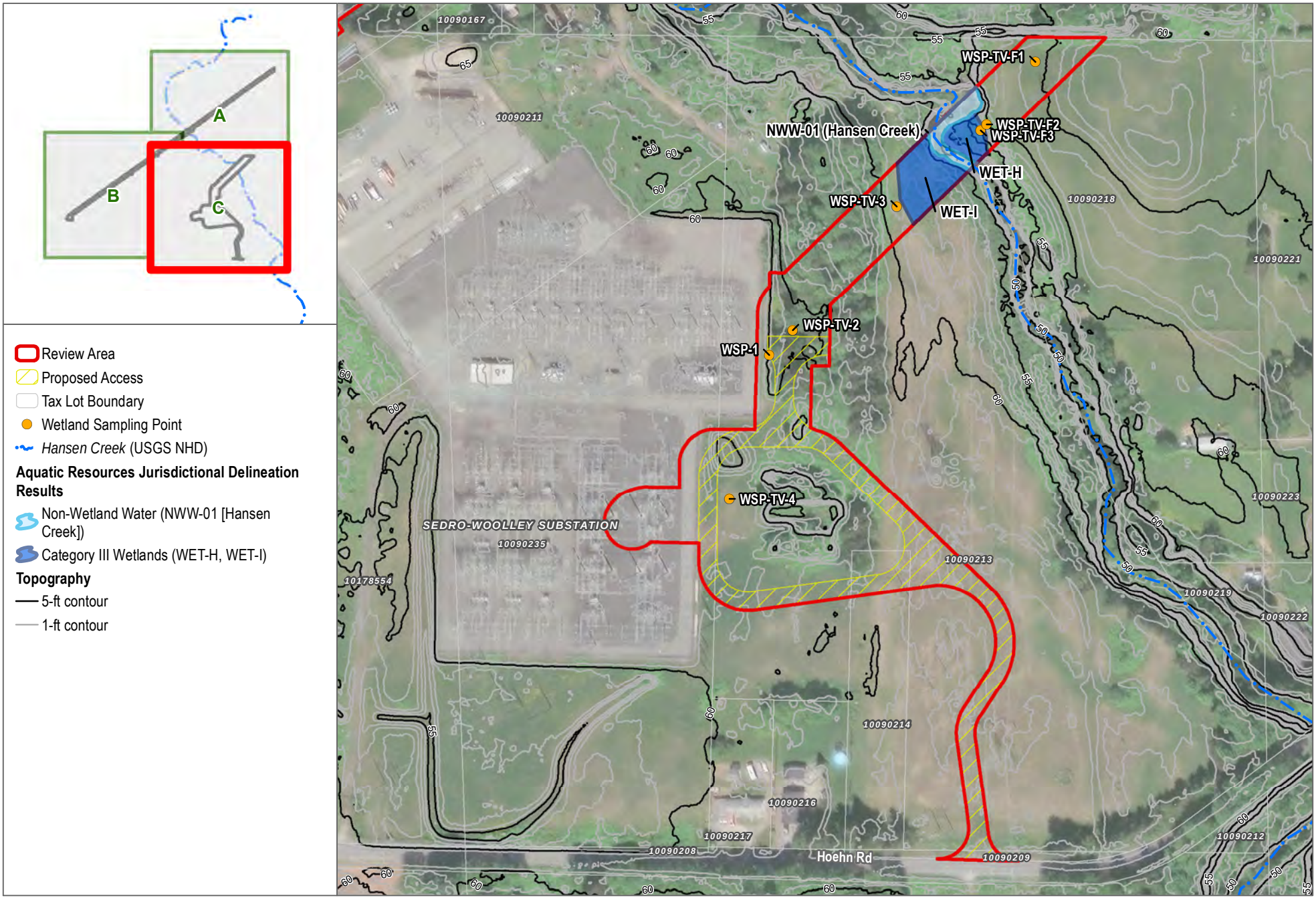
DUDEK

0 90 180 Feet

FIGURE 5B

Aquatic Resources Delineation Results

Aquatic Resources Delineation Report: Goldeneye Project



SOURCE: Esri World Imagery Basemap 2024; USGS NHD 2023; Skagit County 2021

DUDEK

0 90 180 Feet

FIGURE 5C

Aquatic Resources Delineation Results

Aquatic Resources Delineation Report: Goldeneye Project

Appendix A

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye gen-tie | City/County: Sedro-Woolley/Skagit | Sampling Date: 09/27/2023
Applicant/Owner: Goldfinch LLC | State: WA | Sampling Point: WSP-TV-1
Investigator(s): T. Vingiello | Section, Township, Range: S20 T35N R5E
Landform (hillslope, terrace, etc): Ditch | Local relief (concave, convex, none): concave | Slope (%): 1%
Subregion (LRR): LRR A | Lat: 48.50544033 | Long: -122.2024075 | Datum:
Soil Map Unit Name: | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** Yes No X
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Normal circumstances, ditch is mowed and blackberry has been cleared for construction of substation and associated culvert.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rubus armeniacus* / Himalayan blackberry	2	Yes	FAC
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Ranunculus repens* / Crowfoot, Creeping buttercup	40	Yes	FAC
2. *Glechoma hederacea* / Ground ivy	40	Yes	FACU
3. *Taraxacum officinale* / Red seeded dandelion, Common dan	2	No	FACU
4. *Rumex obtusifolius* / Broadleaf dock, Bitter dock	2	No	FAC
5. *Poa palustris* / Fowl bluegrass, Fowl blue grass	2	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	86	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum 11

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	46	x 3 =	138
FACU species	42	x 4 =	168
UPL species	0	x 5 =	0
Column Totals:	88 (A)		306 (B)

Prevalence Index = B/A = 3.48

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Upslope species include Poa bulbosa, Rumex crispus, Rubus armeniacus.

SOIL

Sampling Point: WSP-TV-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9.5	10YR 3/2	100		0			Slty Clay Loam	
9.5-17	10YR 3/2	92	10YR 4/2	3	D	M	Slty Clay Loam	
9.5-17	10YR 3/2	94	10YR 4/4	3		M	Slty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye gen-tie | City/County: Skagit County | Sampling Date: 09/27/2023
Applicant/Owner: Goldfinch Energy LLC | State: WA | Sampling Point: WSP-TV-2
Investigator(s): T. Vingiello | Section, Township, Range: S20 T35N R5E
Landform (hillslope, terrace, etc): Terrace | Local relief (concave, convex, none): none | Slope (%): 0
Subregion (LRR): LRR A | Lat: 48.5056085 | Long: -122.20231333 | Datum:
Soil Map Unit Name: | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X	
Hydric Soil Present?	Yes	____	No	X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes	____	No	X	**within a Wetland?** Yes ____ No X

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum* / Bigleaf maple, Big-leaf maple	60	Yes	FACU
2. *Alnus rubra* / Red alder	15	No	FAC
3. *Thuja plicata* / Western red cedar, Western red cedar, Canoe	10	No	FAC
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Urtica dioica* / Stinging nettle	30	Yes	FAC
2. *Arctium minus* / Common burdock	20	Yes	UPL
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Ranunculus repens* / Crowfoot, Creeping buttercup	60	Yes	FAC
2. *Festuca californica* / California fescue	30	Yes	FACU
3. *Agrostis capillaris* / Colonial bentgrass	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	125	x 3 =	375
FACU species	90	x 4 =	360
UPL species	20	x 5 =	100
Column Totals:	235 (A)		835 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: WSP-TV-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100		0				Gravels
6-16	10YR 3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye gen-tie City/County: Sampling Date: 09/27/2023
Applicant/Owner: Goldfinch Energy LLC State: WA Sampling Point: WSP-TV-3
Investigator(s): T Vingiello Section, Township, Range: S20 T35N R5E
Landform (hillslope, terrace, etc): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): LRR A Lat: 48.50612133 Long: -122.20161883 Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No

Remarks:
Adjacent to wetland enhancement area to NE, between WSP-TV-3 and Hansen Creek.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rubus armeniacus* / Himalayan blackberry	15	Yes	FAC
2. *Rosa nutkana* / Nootka rose	10	Yes	FAC
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Agrostis capillaris* / Colonial bentgrass	95	Yes	FAC
2. *Plantago lanceolata* / Ribwort, English plantain	7	No	FACU
3. *Hypochaeris radicata* / Hairy cats ear, Rough cat's-ear	3	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	120	x 3 =	360
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	130 (A)		400 (B)

Prevalence Index = B/A = 3.08

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: WSP-TV-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Silt Loam	Many fine roots
3-7	10YR 3/3	98	10YR 3/6	2	C	PL	Loam	
7-10	10YR 4/2	100		0			Silt	Not depleted matrix
10-16		100	10YR 4/3	0			Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye gen-tie | City/County: Skagit County | Sampling Date: 09/27/2023
Applicant/Owner: Goldfinch Energy LLC | State: WA | Sampling Point: WSP-TV-4
Investigator(s): T Vingiello | Section, Township, Range: S20 T35N R5E
Landform (hillslope, terrace, etc): terrace | Local relief (concave, convex, none): none | Slope (%): <1
Subregion (LRR): LRR A | Lat: | Long: | Datum:
Soil Map Unit Name: | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes No X

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Agrostis capillaris* / Colonial bentgrass	85	Yes	FAC
2. *Plantago lanceolata* / Ribwort, English plantain	15	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	85	x 3 =	255
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	100 (A)		315 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point: WSP-TV-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					Loam	80% gravel and cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Gravel/cobble

Depth (inches): 8

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye Energy Project - Greenwell Site | City/County: Sedro-Woolley/Skagit | Sampling Date: 12/19/2023
Applicant/Owner: Goldfinch Energy LLC | State: WA | Sampling Point: WSP-TV-5
Investigator(s): Tony Vingiello | Section, Township, Range: T35N, R05E, Sec 20
Landform (hillslope, terrace, etc): terrace | Local relief (concave, convex, none): convex | Slope (%): 2
Subregion (LRR): A | Lat: | Long: | Datum:
Soil Map Unit Name: Field silt loam - 56 | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** Yes No X
Wetland Hydrology Present?	Yes		No	X	

Remarks:
In mowed area; low part of field.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.	100		
2.			
3.			
4.			
5.			
	100	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Schedonorus arundinaceus* / Tall false rye grass	70	Yes	FAC
2. *Agrostis capillaris* / Colonial bentgrass	20	Yes	FAC
3. *Poa* / Bluegrass	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.	0		
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	200 (A)		800 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point: WSP-TV-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16		100		0				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye Energy Project - Greenwell Site | City/County: Sedro-Woolley/Skagit | Sampling Date: 12/19/2023
Applicant/Owner: Goldfinch Energy LLC | State: WA | Sampling Point: WSP-TV-F1
Investigator(s): Tony Vingiello | Section, Township, Range: T35N, R05E, Sec 20
Landform (hillslope, terrace, etc): terrace | Local relief (concave, convex, none): none | Slope (%): < 3
Subregion (LRR): A | Lat: 48.506714 | Long: -122.200844 | Datum:
Soil Map Unit Name: Field silt loam - 56 | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** Yes No X
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Individual plot in flat mowed field south of ditch and east of Hansen Creek. Antecedent precipitation is normal.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Poa* / Bluegrass	70	Yes	FAC
2. *Schedonorus arundinaceus* / Tall false rye grass	25	Yes	FAC
3. *Hypochaeris radicata* / Hairy cats ear, Rough cat's-ear	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		305 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: WSP-TV-F1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/3	100		0			Silt Loam	Many fine roots
1-13	10YR 3/3	100		0			Silt Loam	
13-16	10YR 4/6	60	7.5YR 4/6	5	C	M	Silt Loam	mixed matrix
13-16	10YR 4/1	35		0				mixed matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Redox features too deep to meet F6 or F8.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Antecedent precipitation is normal and the drought index indicates moderate drought.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye Energy Project - Greenwell Site | City/County: Sedro-Woolley/Skagit | Sampling Date: 12/19/2023
Applicant/Owner: Goldfinch Energy LLC | State: WA | Sampling Point: WSP-TV-F2
Investigator(s): Tony Vingiello | Section, Township, Range: T35N, R05E, Sec 20
Landform (hillslope, terrace, etc): floodplain bench | Local relief (concave, convex, none): concave | Slope (%): 3
Subregion (LRR): A | Lat: 48.506648 | Long: -122.198853 | Datum:
Soil Map Unit Name: Field silt loam - 56 | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No

Remarks:
Plot is on floodplain bench above Hansen Creek approximately 4 feet lower in elevation than Plot WSP-TV-F3. Antecedent precipitation is normal.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rubus armeniacus* / Himalayan blackberry	100	Yes	FAC
2.			
3.			
4.			
5.			
	100	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1.	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.	0		
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: WSP-TV-F2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	5G 4/1	100					Slty Clay Loam	no H2S smell

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- X Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Proximity to Hansen Creek suggests high water table influence. Plot is 2 feet lower in elevation than opposite shore planted willows (Salix sp.) and rose (Rosa sp.) in restoration area.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Goldeneye Energy Project - Greenwell Site | City/County: Sedro-Woolley/Skagit | Sampling Date: 12/19/2023
Applicant/Owner: Goldfinch Energy LLC | State: WA | Sampling Point: WSP-TV--F3
Investigator(s): Tony Vingiello | Section, Township, Range: T35N, R05E, Sec 20
Landform (hillslope, terrace, etc): terrace | Local relief (concave, convex, none): none | Slope (%): < 3
Subregion (LRR): A | Lat: 48.506458 | Long: -122.201061 | Datum:
Soil Map Unit Name: Field silt loam - 56 | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** Yes No X
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Plot is paired with WSP-TV-F2. Antecedent precipitation is normal.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rubus armeniacus* / Himalayan blackberry	100	Yes	FAC
2.			
3.			
4.			
5.			
	100	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1.	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.	0		
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point: WSP-TV--F3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100		0			Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: WA BESS Goldeneye City/County: Skagit County Sampling Date: 04/11/24

Applicant/Owner: Dudek State: WA Sampling Point: TP-8

Investigator(s): Huffman C. Section, Township, Range: S20 T35N R5E

Landform (hillside, terrace, etc.): Floodplains Local relief (concave, convex, none): None Slope (%): 0-3

Subregion (LRR): LRR A Lat: 48.5041709 Long: -122.2021193 Datum: NAD83

Soil Map Unit Name: Field silt loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
TP-8 was located south of the proposed access road, and was sampled in upland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.			
2.			
3.			
4.			
5.			
	____	=Total Cover	
Herb Stratum (Plot size: 5 ft. radius)			
1. *Phalaris arundinacea*	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft. radius)			
1.			
2.			
	____	=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vacular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: TP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3						Loamy/Clayey	
6-12	2.5YR 3/3	94	7.5YR 4/6	6	C	M	Loamy/Clayey	Prominent redox concentrations
12-18	10YR 3/2	98	10YR 4/6	2	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: WA BESS Goldeneye | City/County: Skagit County | Sampling Date: 04/11/24

Applicant/Owner: Dudek | State: WA | Sampling Point: TP-9

Investigator(s): Huffman. C. | Section, Township, Range: S20 T35N R5E

Landform (hillside, terrace, etc.): Floodplains | Local relief (concave, convex, none): Concave | Slope (%): 0-3

Subregion (LRR): LRR A | Lat: 48.5039367 | Long: -122.201907 | Datum: NAD83

Soil Map Unit Name: Field silt loam, 0 to 3 percent slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
TP-9 was located southeast of TP-8, and was sampled in wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Rubus armeniacus*	50	Yes	FAC
2. *Rosa nutkana*	8	No	FAC
3.			
4.			
5.			
	58	=Total Cover	
Herb Stratum (Plot size: 5 ft. radius)			
1. *Phalaris arundinacea*	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft. radius)			
1.			
2.			
	____	=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vacular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: TP-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3						Loamy/Clayey	
4-16	10YR 4/2	92	10YR 4/6	8	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 12

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: WA BESS Goldeneye | City/County: Skagit County | Sampling Date: 04/11/24

Applicant/Owner: Dudek | State: WA | Sampling Point: TP-10

Investigator(s): Huffman C. | Section, Township, Range: S20 T35N R5E

Landform (hillside, terrace, etc.): Floodplains | Local relief (concave, convex, none): None | Slope (%): 0-3

Subregion (LRR): LRR A | Lat: 48.5039571 | Long: -122.2017097 | Datum: NAD83

Soil Map Unit Name: Field silt loam, 0 to 3 percent slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
TP-10 was located east of TP-9, and was sampled in upland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5 ft. radius)			
1. *Agrostis sp**	70	Yes	FAC
2. *Phalaris arundinacea*	10	No	FACW
3. *Ranunculus repens*	10	No	FAC
4. *Plantago lanceolata*	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 15 ft. radius)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vacular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Agrostis species assumed to be FAC.

SOIL

Sampling Point: TP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3						Loamy/Clayey	
6-14	10YR 4/3	96	10YR 4/6	94	C	M	Loamy/Clayey	Distinct redox concentrations
14-18	10YR 4/2	92	10YR 4/6	8	C	M	Sandy	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: WA BESS Goldeneye | City/County: Skagit County | Sampling Date: 04/11/24

Applicant/Owner: Dudek | State: WA | Sampling Point: TP-11

Investigator(s): Huffman C. | Section, Township, Range: S20 T35N R5E

Landform (hillside, terrace, etc.): Floodplains | Local relief (concave, convex, none): None | Slope (%): 0-3

Subregion (LRR): LRR A | Lat: 48.5034601 | Long: -122.2017652 | Datum: NAD83

Soil Map Unit Name: Field silt loam, 0 to 3 percent slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
TP-11 was located south of TP-12, and was sampled in upland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.			
2.			
3.			
4.			
5.			
	____	=Total Cover	
Herb Stratum (Plot size: 5 ft. radius)			
1. *Agrostis sp**	50	Yes	FAC
2. *Phalaris arundinacea*	45	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft. radius)			
1.			
2.			
	____	=Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vacular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Agrostis species assumed to be FAC. Moss present for 5% of ground cover.

SOIL

Sampling Point: TP-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3						Loamy/Clayey	
8-16	10YR 4/3	95	10YR 4/6	5	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: WA BESS Goldeneye | City/County: Skagit County | Sampling Date: 04/11/24

Applicant/Owner: Dudek | State: WA | Sampling Point: TP-12

Investigator(s): Huffman C. | Section, Township, Range: S20 T35N R5E

Landform (hillside, terrace, etc.): Floodplains | Local relief (concave, convex, none): Concave | Slope (%): 0-3

Subregion (LRR): LRR A | Lat: 48.5037369 | Long: -122.2018173 | Datum: NAD83

Soil Map Unit Name: Field silt loam, 0 to 3 percent slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
TP-12 was located north of TP-11, and was sampled in wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Rubus armeniacus*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	=Total Cover	
Herb Stratum (Plot size: 5 ft. radius)			
1. *Phalaris arundinacea*	90	Yes	FACW
2. *Juncus effusus*	10	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft. radius)			
1.			
2.			
	____	=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vacular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: TP-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3						Loamy/Clayey	
3-14	10YR 4/2	92	10YR 4/6	8	C	M	Loamy/Clayey	Prominent redox concentrations
14-16	10YR 4/1	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 11

Wetland Hydrology Present? **Yes** X **No** ___

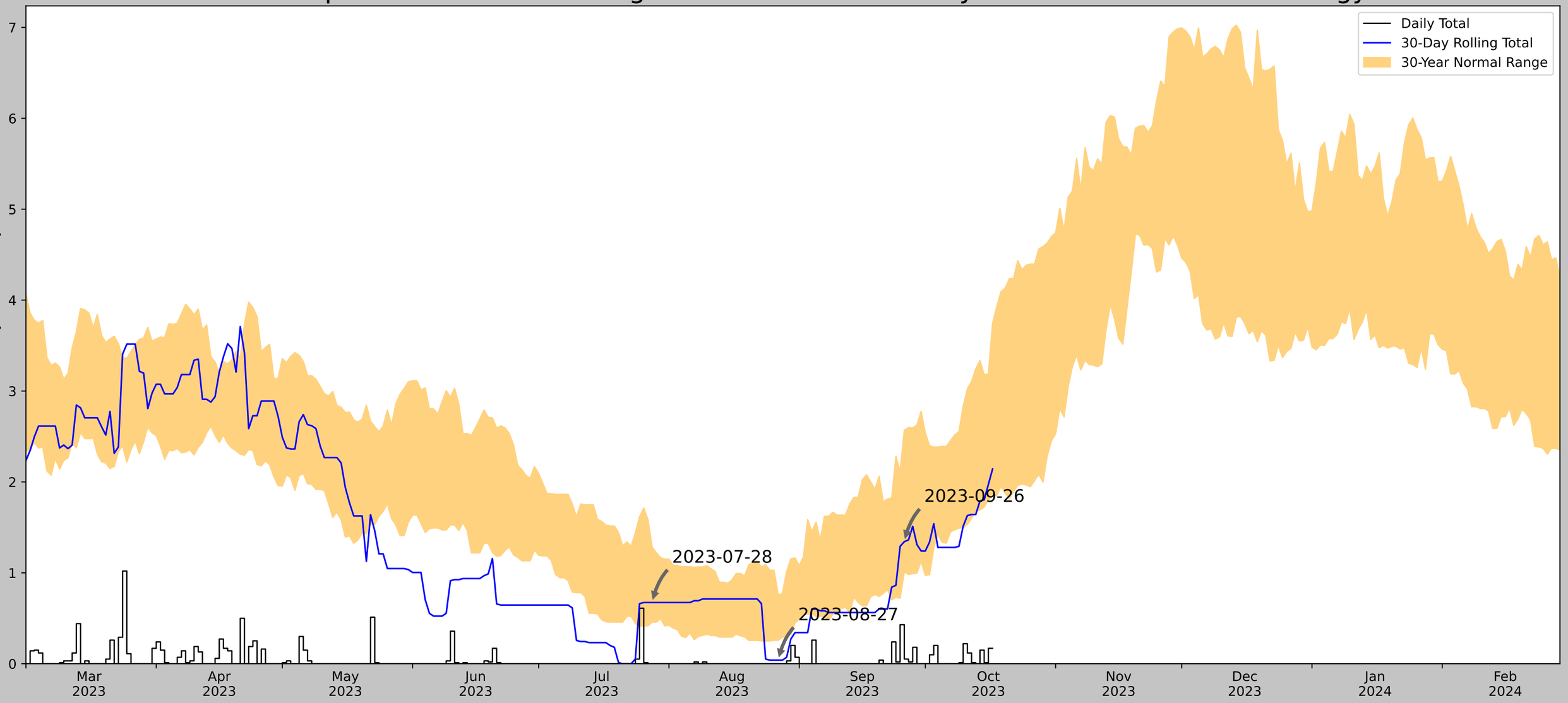
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix B

Antecedent Precipitation Tool Output

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	48.50545, -122.202405
Observation Date	2023-09-26
Elevation (ft)	58.676
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-09-26	1.012598	2.568504	1.34252	Normal	2	3	6
2023-08-27	0.25748	0.757874	0.03937	Dry	1	2	2
2023-07-28	0.457874	1.283465	0.673228	Normal	2	1	2
Result							Normal Conditions - 10

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BELLINGHAM 3 SSW	48.7178, -122.5114	15.092	20.36	43.584	10.049	11322	90
BELLINGHAM 2.4 SW	48.7158, -122.499	104.987	0.582	89.895	0.314	25	0
BELLINGHAM KVOS	48.7422, -122.4725	299.869	2.446	284.777	1.797	1	0
BELLINGHAM INTL AP	48.7992, -122.5406	149.934	5.779	134.842	3.38	4	0
ANACORTES	48.5119, -122.6136	20.013	14.973	4.921	6.812	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

Coordinates	48.506508, -122.200344
Observation Date	2023-12-19
Elevation (ft)	57.658
Drought Index (PDSI)	Moderate drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-12-19	4.288189	7.259055	5.940945	Normal	2	3	6
2023-11-19	5.568898	7.501575	5.964567	Normal	2	2	4
2023-10-20	3.040158	5.038977	2.740158	Dry	1	1	1
Result							Normal Conditions - 11

US Army Corps of Engineers

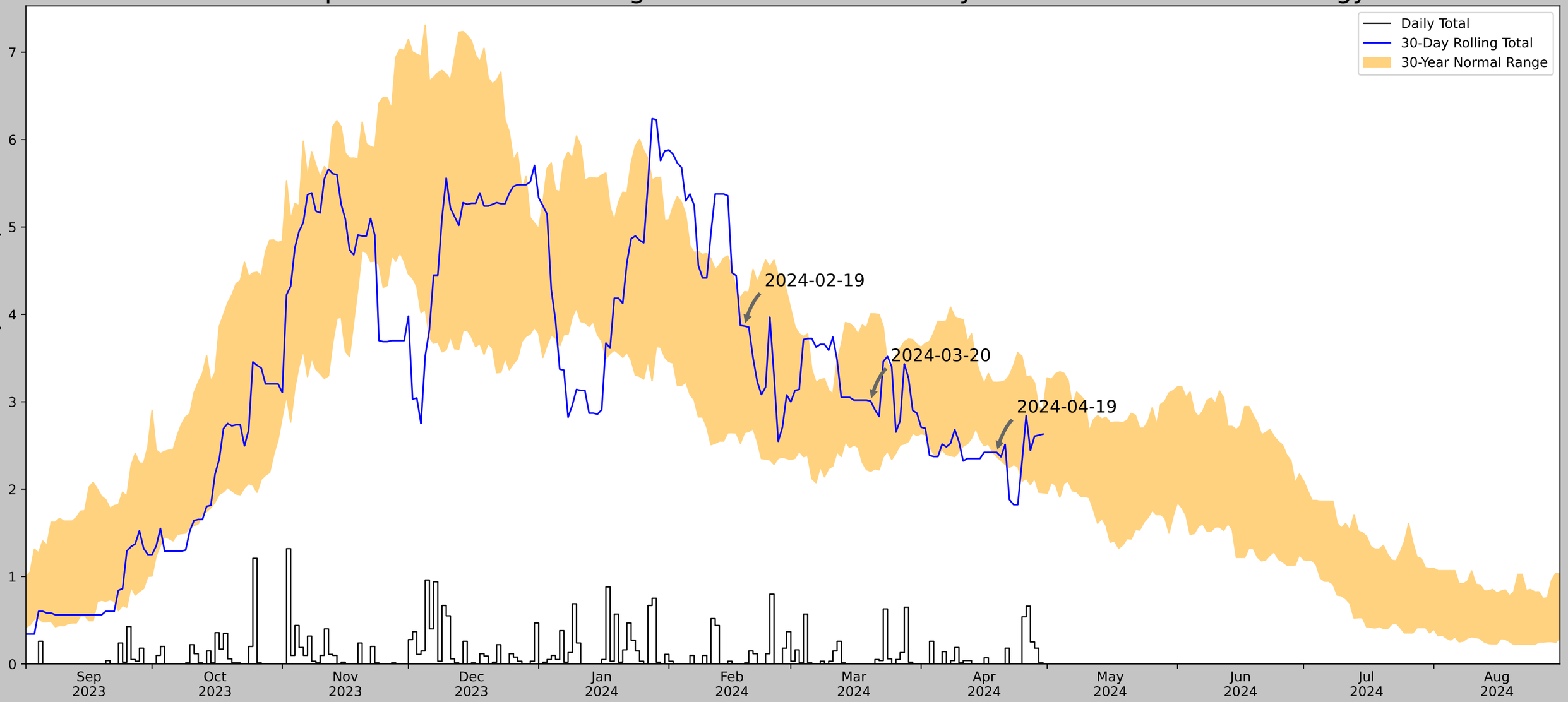
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
SEDRO-WOOLLEY	48.4958, -122.2355	51.837	1.771	5.821	0.807	11109	71
SEDRO-WOOLLEY 1.0 SSE	48.4941, -122.2286	61.024	0.337	9.187	0.155	0	19
SEDRO-WOOLLEY 5.1 E	48.5158, -122.125	73.163	5.244	21.326	2.472	5	0
MOUNT VERNON 0.6 N	48.4297, -122.3148	88.911	5.836	37.074	2.843	1	0
SEDRO-WOOLLEY 5.1 N	48.5816, -122.2358	201.115	5.928	149.278	3.553	26	0
BOW 1.6 SE	48.5438, -122.3757	98.097	7.223	46.26	3.584	21	0
MOUNT VERNON 2.3 E	48.4202, -122.2634	299.869	5.378	248.032	3.754	7	0
MT VERNON 3 WNW	48.4403, -122.3867	14.108	7.917	37.729	3.861	142	0
MOUNT VERNON 0.8 SW	48.413, -122.3249	179.134	7.036	127.297	4.062	10	0
MOUNT VERNON 3.4 W	48.4277, -122.3886	18.045	8.447	33.792	4.087	4	0
MOUNT VERNON 1.1 E	48.4202, -122.2909	392.06	5.808	340.223	4.59	5	0
ANACORTES	48.5119, -122.6136	20.013	17.345	31.824	8.357	21	0
BELLINGHAM 3 SSW	48.7178, -122.5114	15.092	19.853	36.745	9.663	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	48.505516, -122.202468
Observation Date	2024-04-19
Elevation (ft)	59.247
Drought Index (PDSI)	Moderate drought (2024-03)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-04-19	2.372047	3.222441	2.42126	Normal	2	3	6
2024-03-20	2.205118	4.006299	3.007874	Normal	2	2	4
2024-02-19	2.648425	4.261417	3.866142	Normal	2	1	2
Result							Normal Conditions - 12

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BELLINGHAM 3 SSW	48.7178, -122.5114	15.092	20.354	44.155	10.058	11320	87
BELLINGHAM 2.4 SW	48.7158, -122.499	104.987	0.582	89.895	0.314	27	3
BELLINGHAM KVOS	48.7422, -122.4725	299.869	2.446	284.777	1.797	1	0
BELLINGHAM INTL AP	48.7992, -122.5406	149.934	5.779	134.842	3.38	3	0
ANACORTES	48.5119, -122.6136	20.013	14.973	4.921	6.812	1	0

Appendix C

Wetland Rating Summary Forms

Wetland name or number: WET-H

RATING SUMMARY - Western Washington

Name of wetland (or ID#): WET-H **Date of site visit:** 12/19/2023

Rated By: Patricia Schuyler **Trained by Ecology? Yes** [X] **No** [ ] **Date of Training:** 03/12/2021

HGM Class used for rating: Riverine

Wetland has multiple HGM classes? Yes [ ] **No** [X]

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map: WATOR

OVERALL WETLAND CATEGORY: [**Category III**] (based on functions [X] or special characteristics [ ])

1. Category of wetland based on FUNCTIONS

[ ] **Category I** - Total score = 23 - 27

[ ] **Category II** - Total score = 20 - 22

[X] **Category III** - Total score = 16 - 19

[ ] **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	**M**	**M**	**L**	
Landscape Potential	**L**	**M**	**M**	
Value	**H**	**L**	**H**	**Total**
Score Based on Ratings	**6**	**5**	**6**	**17**

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	**Not Applicable**

Wetland name or number: WET-H

Maps and figures required to answer questions correctly for Western Washington

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Ponded depressions	R 1.1	N/A
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	3
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	4
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	5
Map of the contributing basin	R 2.2, R 2.3, R 5.2	6
1km Polygon: Area that extends 1km form entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	7
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	1
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	1

Wetland name or number: WET-H

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0 Does the site have the potential to improve water quality?

R 1.1 What is the total area of surface depressions within the Riverine wetland that can trap sediments during a flooding event?

Depressions cover >75% area of wetland	points = 8	
Depressions cover >50% area of wetland	points = 4	
Depressions present but cover <50% area of wetland	points = 2	
No depressions present	points = 0	**Score: 0**

R 1.2 What is the structure of plants in the wetland?

Trees or shrubs cover >66% area of the wetland	points = 8	
Trees or shrubs cover 33% - 66% of the area of the wetland	points = 6	
Ungrazed, herbaceous plants cover (>6in high) >66% area of the wetland	points = 6	
Ungrazed, herbaceous plants cover (>6in high) 33%-66% of the area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous plants cover <33% area of the wetland	points = 0	**Score: 8**

Total for R 1: 8

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

R 2.0 Does the landscape have the potential to support the water quality function of the site?

R 2.1 Is the wetland within an incorporated city or within its UGA?

Yes	points = 2	
No	points = 0	**Score: 0**

R 2.2 Does the contributing basin to the wetland include a UGA or incorporated area?

Yes	points = 1	
No	points = 0	**Score: 0**

R 2.3 Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?

Yes	points = 1	
No	points = 0	**Score: 0**

R 2.4 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants?

Yes	points = 1	
No	points = 0	**Score: 0**

R 2.5 Are there other sources of pollutants coming into the wetland that are not listed in question R 2.1-R 2.4?

Yes	points = 1	
No	points = 0	**Score: 0**

R 2.6 What are the other sources of pollutants coming into the wetland?

Total for R 2: 0

Rating of Landscape Potential [ ] **3-4 = H** [ ] **1-2 = M** [X] **0 = L** *Record the rating on the first page*

Wetland name or number: WET-H

R 3.0 Is the water quality improvement provided by the site valuable to society?		
R 3.1 Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?		
Yes	points = 1	
No	points = 0	**Score: 1**
R 3.2 Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?		
Yes	points = 1	
No	points = 0	**Score: 1**
R 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	**Score: 0**
	Total for R 3:	**2**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradtion

R 4.0 Does the site have the potential to reduce flooding and erosion?		
R 4.1 What are the characteristics of the overbank storage the wetland provides?		
If the ratio is more than 20	points = 9	
If the ratio is 10-20	points = 6	
If the ratio is 5-<10	points = 4	
If the ratio is 1-<5	points = 2	
If the ratio is < 1	points = 1	**Score: 2**
R 4.2 What are the characteristics of plants that slow down water velocities during floods?		
Forest or shrubs cover >33% of the wetland area OR emergent plants cover >66% of the wetland area	points = 7	
Forest or shrubs cover >10% of the wetland area OR emergent plants cover >33% of the wetland area	points = 4	
Plants do not meet the above criteria	points = 0	**Score: 7**
	Total for R 4:	**9**

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

Wetland name or number: WET-H

R 5.0 Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1 Is the stream or river adjacent to the wetland downcut?		
Yes	points = 0	
No	points = 1	**Score: 1**
R 5.2 Does the up-gradient watershed include a UGA or incorporated area?		
Yes	points = 1	
No	points = 0	**Score: 0**
R 5.3 Is the up-gradient stream or river controlled by dams?		
Yes	points = 0	
No	points = 1	**Score: 1**
	Total for R 5:	**2**

Rating of Landscape Potential [ ] **3 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

R 6.0 Are the hydrologic functions provided by the site valuable to society?		
R 6.1 What is the distance to the nearest areas downstream that have flooding problems?		
The sub-basin immediately down-gradient of the wetland has flooding problems	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	**Score: 0**
R 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
Yes	points = 2	
No	points = 0	**Score: 0**
	Total for R 6:	**0**

Rating of Value [ ] **2-4 = H** [ ] **1 = M** [X] **0 = L** *Record the rating on the first page*

Wetland name or number: WET-H

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

- [ ] Aquatic Bed
- [ ] Emergent
- [x] Scrub-shrub
- [ ] Forested
- [ ] Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

4 structures or more	points = 4	
3 structures	points = 2	
2 structures	points = 1	
1 structure	points = 0	
No structures present	points = 0	**Score: 0**

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

- [ ] Permanently flooded or inundated
- [x] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [ ] Saturated only
- [ ] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland
- [ ] Freshwater Tidal wetland

4 or more types present	points = 3	
3 types present or Lake Fringe / Freshwater Tidal Fringe	points = 2	
2 types present	points = 1	
1 type present	points = 0	
None present	points = 0	**Score: 0**

H 1.3 What is the richness of the plant species in the wetland?

>19 species	points = 2	
5-19 species	points = 1	
<5 species	points = 0	**Score: 0**

Wetland name or number: WET-H

H 1.4 What is the interspersion of habitats?

High	points = 3	
Moderate	points = 2	
Low	points = 1	
None	points = 0	**Score: 0**

H 1.5 What are the special habitat features in the wetland?

- [ ] Large, downed, woody debris within the wetland (>4in diameter and 6ft long).
- [ ] Standing snags (dbh >4in) within the wetland
- [ ] Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)
- [✓] Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [ ] At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [✓] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

6 habitats selected	points = 6	
5 habitats selected	points = 5	
4 habitats selected	points = 4	
3 habitats selected	points = 3	
2 habitats selected	points = 2	
1 habitat selected	points = 1	
No habitats selected	points = 0	**Score: 2**

Total for H 1: 2

Rating of Site Potential [ ] **15-18 = H** [ ] **7-14 = M** [X] **0-6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 What is the percentage of accessible habitat within 1km of the wetland?

>33% of 1km Polygon	points = 3	
20-33% of 1km Polygon	points = 2	
10-19% of 1km Polygon	points = 1	
<10% of 1km Polygon	points = 0	**Score: 2**

H 2.2 What is the percentage of total habitat in a 1km polygon around the wetland?

Total habitat is >50% of the Polygon	points = 3	
Total habitat is 10-50% of the Polygon and in 1-3 patches	points = 2	
Total habitat is 10-50% of the Polygon and in >3 patches	points = 1	
Total habitat is <10% of the Polygon	points = 0	**Score: 0**

Wetland name or number: WET-H

H 2.3 What is the land use intensity in the 1km polygon?		
50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	**Score: 0**
	Total for H 2:	**2**

Rating of Landscape Potential [ ] **4-6 = H** [X] **1-3 = M** [ ] **0 = L** *Record the rating on the first page*

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?

- [ ] Aspen Stands
- [ ] Biodiversity Areas and Corridors
- [ ] Herbaceous Balds
- [ ] Old-growth/Mature Forests
- [ ] Oregon White Oak
- [ ] Riparian
- [ ] Westside Prarie
- [ ] Fresh Deepwater
- [x] Instream
- [ ] Nearshore (Coastal, Open Coast, Puget Sound)
- [ ] Caves
- [ ] Cliffs
- [ ] Snags and Logs
- [ ] Talus

The following criteria automatically score 2 points:

- [x] The wetland provides habitat for Threatened or Endangered species
- [x] The wetland is mapped as a location for an individual WDFW priority species
- [ ] The wetland is a Wetland of High Conservation Value
- [ ] The wetland has been categorized as an important habitat site in a local plan

The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	**Score: 2**
	Total for H 3:	**2**

Rating of Value [X] **2 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: WET-H

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

☐ The dominant water regime is tidal
☐ The wetland is vegetated
☐ The water salinity is greater than 0.5 ppt

Yes - Go to SC 1.2

No - Not an Estuarine Wetland **Result: Not an Estuarine Wetland**

SC 1.2 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes - Category I Estuarine Wetland

No - Go to SC 1.3 **Result:**

SC 1.3 Is the wetland unit at least 1ac in size and meets at least two of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species.
☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland
☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland **Result:**

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2 **Result: Go to SC 2.2**

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value **Result:**

Wetland name or number: WET-H

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

Yes - Go to SC 3.3
No - Go to SC 3.2 **Result: Go to SC 3.2**

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - Go to SC 3.3
No - Not a Bog Wetland **Result:**

SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least 30% cover of plant species listed in the table provided in the instructions?

Yes - Category I Bog Wetland
No - Go to SC 3.4 **Result:**

SC 3.4 Is an area with peats or mucks forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann Spruce, or western white pine AND any of the species (or combinations of species) listed in the table found in the instructions provide more than 30% of the cover under the canopy?

Yes - Category I Bog Wetland
No - Not a Bog Wetland **Result:**

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

- [ ] Old-growth forests
- [ ] Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland **Result: Not a Forested Wetland**

Wetland name or number: WET-H

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks

☐ The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)

☐ The lagoon retains some of its surface water at low tide during spring tides

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland **Result: Not a Coastal Lagoon Wetland**

SC 5.2 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species).

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ the wetland is larger than 0.10ac (4350 sqft)

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon **Result:**

SC 6.0 Interdunal Wetlands

SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?

Yes - Go to SC 6.2

No - Not an Interdunal Wetland **Result: Not an Interdunal Wetland**

SC 6.2 Is the wetland 1ac or larger in size, or a mosaic that is 1ac or larger in size?

Wetland is larger than 1ac in size - Go to SC 6.3

Wetland is a mosaic larger than 1ac is size - Category II Interdunal Wetland

No - Go to SC 6.4 **Result:**

SC 6.3 Does the wetland score 8 or 9 points for the habitat functions?

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland **Result:**

SC 6.4 Is the wetland unit between 0.1ac and 1ac, or in a mosaic of wetlands that is between 0.1ac and 1ac in size?

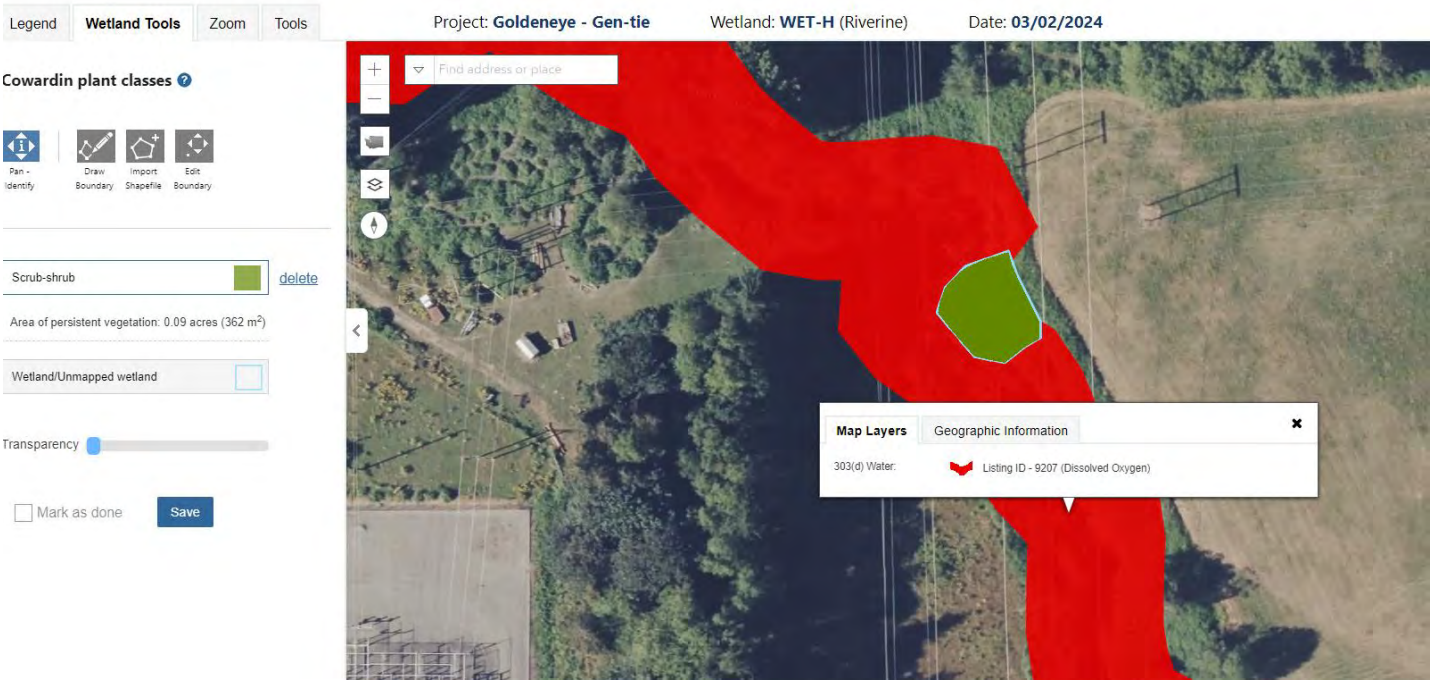
Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland **Result:**

Wetland name or number: WET-H

Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	**Final Category: Not Applicable**

Figure 1: Cowardian Plant Class and 303(d) Listed Waters



Search Results - 14 Matched Listings

	Listing ID	AU ID	Medium	Parameter	Category	Waterbody Name	WRIA	WQ Improvement Project
View	6250	17110007000205_002_002	Habitat	Fish And Shellfish Habitat	4C	HANSEN CREEK	3-Lower Skagit-Samish	
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View	46315	17110007000933_001_001	Water	Bacteria - Fecal coliform	4A	HANSEN CREEK	3-Lower Skagit-Samish	Lower Skagit Basin Bacteria TMDL
View	47521	17110007000933_001_001	Water	Dissolved Oxygen	5	HANSEN CREEK	3-Lower Skagit-Samish	
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View	94387	17110007000204_001_001	Water	Temperature	2	HANSEN CREEK	3-Lower Skagit-Samish	

Figure 2: Hydroperiods

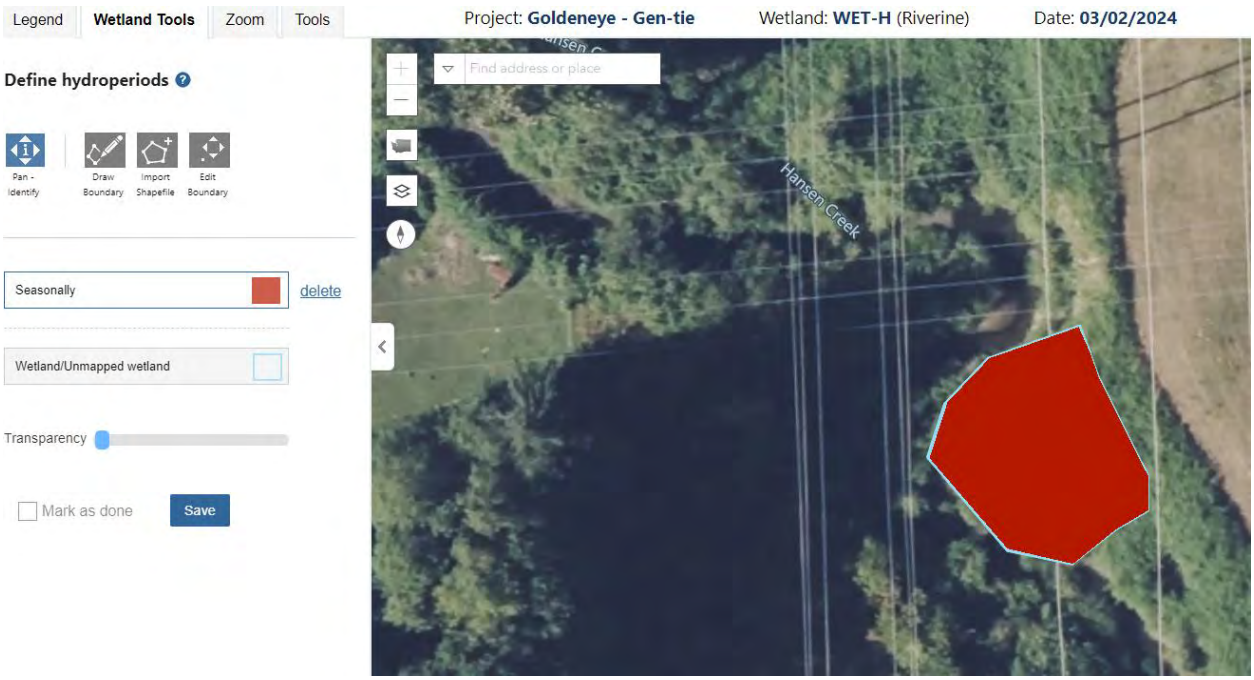


Figure 3: 150 foot Buffer

Figure 4: Plant Cover

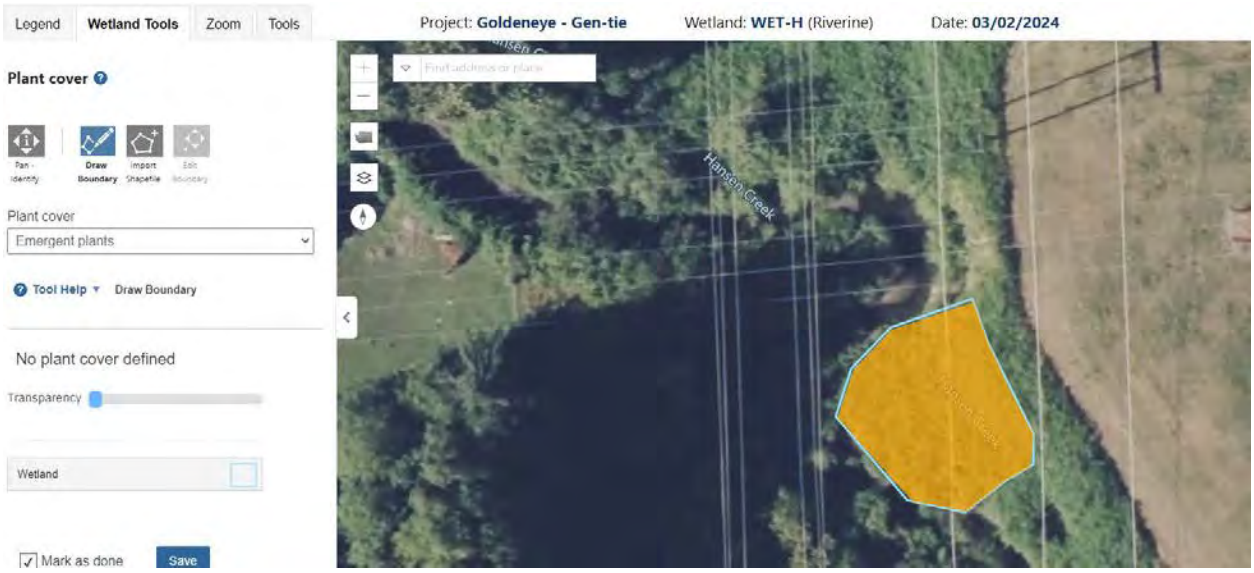
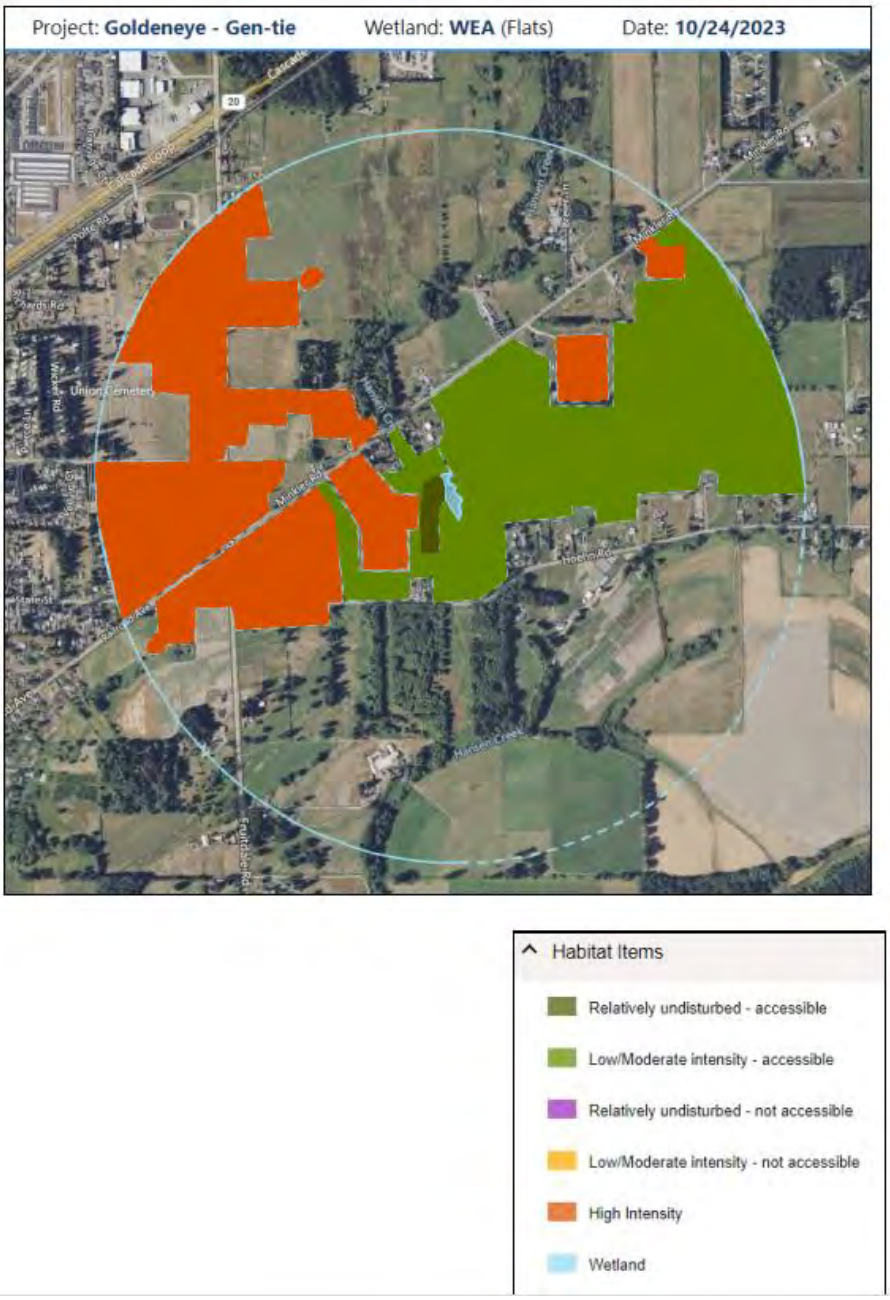


Figure 5: Widths

Figure 6: Map of Contributing Basin

Figure 7: 1KM Polygon



Wetland name or number: WET-I

RATING SUMMARY - Western Washington

Name of wetland (or ID#): WET-I **Date of site visit:** 09/26/2023
Rated By: Patricia Schuyler **Trained by Ecology? Yes** [X] **No** [ ] **Date of Training:** 03/12/2021
HGM Class used for rating: Flats
Wetland has multiple HGM classes? Yes [ ] **No** [X]

NOTE: Form is not complete without the figures requested *(figures can be combined).*
Source of base aerial photo/map:WATOR

OVERALL WETLAND CATEGORY: [**Category III**] (based on functions [X] or special characteristics [ ])

1. Category of wetland based on FUNCTIONS

[ ] **Category I** - Total score = 23 - 27
[ ] **Category II** - Total score = 20 - 22
[X] **Category III** - Total score = 16 - 19
[ ] **Category IV** - Total score = 9 - 15

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H	6 = M,M,M
8 = H,H,M	5 = H,L,L
7 = H,H,L	5 = M,M,L
7 = H,M,M	4 = M,L,L
6 = H,M,L	3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	**M**	**M**	**L**	
Landscape Potential	**L**	**L**	**M**	
Value	**H**	**L**	**H**	**Total**
Score Based on Ratings	**6**	**4**	**6**	**16**

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	**Not Applicable**

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	5
Map of the contributing basin	D 4.3, D 5.3	3
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	1
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	1

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0 Does the site have the potential to improve water quality?		
D 1.1 What are the characteristics of surface water outflows from the wetland? Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	**Score: 2**
D 1.2 Is the soil 2 in. below the surface a true clay or organic soil? None of the above	points = 0	**Score: 0**
D 1.3 What are the characteristics and distribution of persistent plants? Wetland has persistent, ungrazed, plants > 95% of area	points = 5	**Score: 5**
D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area? Area seasonally ponded is < 25% total area of wetland	points = 0	**Score: 0**
	Total for D 1:	**7**

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 2.0 Does the landscape have the potential to support the water quality function of the site?		
D 2.1 Does the wetland unit receive stormwater discharges? No	points = 0	**Score: 0**
D 2.2 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff? No	points = 0	**Score: 0**
D 2.3 Are there septic systems within 250ft of the wetland? No	points = 0	**Score: 0**

Wetland name or number: WET-I

D 2.4 Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?		
No	points = 0	**Score: 0**
D 2.5 What are the other sources of pollutants coming into the wetland?		
	Total for D 2:	**0**

Rating of Landscape Potential [ ] **3-4 = H** [ ] **1-2 = M** [X] **0 = L** *Record the rating on the first page*

D 3.0 Is the water quality improvement provided by the site valuable to society?		
D 3.1 Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?		
D 3.2 Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?		
Yes	points = 1	**Score: 1**
D 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	**Score: 2**
	Total for D 3:	**3**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradtion

D 4.0 Does the site have the potential to reduce flooding and erosion?		
D 4.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	**Score: 2**
D 4.2 What is the depth of storage during the wet periods?		
Marks of ponding are less than 0.5ft (6in).	points = 0	**Score: 0**
D 4.3 What is the contribution of the wetland to storage in the watershed?		
The area of the basin is less than 10 times the area of the unit	points = 5	**Score: 5**
	Total for D 4:	**7**

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

Wetland name or number: WET-I

D 5.0 Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1 Does the wetland unit receive stormwater discharges?		
No	points = 0	**Score: 0**
D 5.2 Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?		
No	points = 0	**Score: 0**

Wetland name or number: WET-I

D 5.3 Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?
No — points = 0 — **Score: 0**

Total for D 5: 0

Rating of Landscape Potential [ ] **3 = H** [ ] **1-2 = M** [X] **0 = L** *Record the rating on the first page*

D 6.0 Are the hydrologic functions provided by the site valuable to society?

D 6.1 Is the wetland in a landscape that has flooding problems?
There are no problems with flooding downstream of the wetland. — points = 0 — **Score: 0**

D 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?
No — points = 0 — **Score: 0**

Total for D 6: 0

Rating of Value [ ] **2-4 = H** [ ] **1 = M** [X] **0 = L** *Record the rating on the first page*

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

- [ ] Aquatic Bed
- [ ] Emergent
- [✓] Scrub-shrub
- [ ] Forested
- [ ] Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

1 structure — points = 0 — **Score: 0**

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

- [ ] Permanently flooded or inundated
- [ ] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [✓] Saturated only
- [✓] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland
- [ ] Freshwater Tidal wetland

2 types present — points = 1 — **Score: 1**

H 1.3 What is the richness of the plant species in the wetland?

5-19 species — points = 1 — **Score: 1**

Wetland name or number: WET-I

H 1.4 What is the interspersion of habitats?

Low — points = 1 — **Score: 1**

H 1.5 What are the special habitat features in the wetland?

- [ ] Large, downed, woody debris within the wetland (>4in diameter and 6ft long).
- [ ] Standing snags (dbh >4in) within the wetland
- [x] Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)
- [x] Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [ ] At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [x] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

3 habitats selected — points = 3 — **Score: 3**

Total for H 1: 6

Rating of Site Potential [ ] **15-18 = H** [ ] **7-14 = M** [X] **0-6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 What is the percentage of accessible habitat within 1km of the wetland?

20-33% of 1km Polygon — points = 2 — **Score: 2**

H 2.2 What is the percentage of total habitat in a 1km polygon around the wetland?

Total habitat is 10-50% of the Polygon and in >3 patches — points = 1 — **Score: 1**

H 2.3 What is the land use intensity in the 1km polygon?

<50% of the Polygon is high intensity land use — points = 0 — **Score: 0**

Total for H 2: 3

Rating of Landscape Potential [ ] **4-6 = H** [X] **1-3 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: WET-I

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?

- [ ] Aspen Stands
- [ ] Biodiversity Areas and Corridors
- [ ] Herbaceous Balds
- [ ] Old-growth/Mature Forests
- [ ] Oregon White Oak
- [x] Riparian
- [ ] Westside Prarie
- [ ] Fresh Deepwater
- [x] Instream
- [ ] Nearshore (Coastal, Open Coast, Puget Sound)
- [ ] Caves
- [ ] Cliffs
- [ ] Snags and Logs
- [ ] Talus

The following criteria automatically score 2 points:

- [x] The wetland provides habitat for Threatened or Endangered species
- [x] The wetland is mapped as a location for an individual WDFW priority species
- [ ] The wetland is a Wetland of High Conservation Value
- [ ] The wetland has been categorized as an important habitat site in a local plan

The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value — points = 2 — **Score: 2**

Total for H 3: 2

Rating of Value [X] **2 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

- [ ] The dominant water regime is tidal
- [ ] The wetland is vegetated
- [ ] The water salinity is greater than 0.5 ppt

No - Not an Estuarine Wetland

Result: Not an Estuarine Wetland

Wetland name or number: WET-I

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

No - Go to SC 2.2 — **Result: Go to SC 2.2**

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

No - Not a Wetland of High Conservation Value — **Result: Not a Wetland of High Conservation Value**

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

No - Go to SC 3.2 — **Result: Go to SC 3.2**

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

No - Not a Bog Wetland — **Result: Not a Bog Wetland**

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

- ☐ Old-growth forests
- ☐ Mature forests

No - Not a Forested Wetland — **Result: Not a Forested Wetland**

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks
- ☐ The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)
- ☐ The lagoon retains some of its surface water at low tide during spring tides

No - Not a Coastal Lagoon Wetland — **Result: Not a Coastal Lagoon Wetland**

Wetland name or number: WET-I

SC 6.0 Interdunal Wetlands	
SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?	
No - Not an Interdunal Wetland	**Result: Not an Interdunal Wetland**
Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	**Final Category: Not Applicable**

Figure 1.
Cowardin plant classes and 303(d) Listed Waters

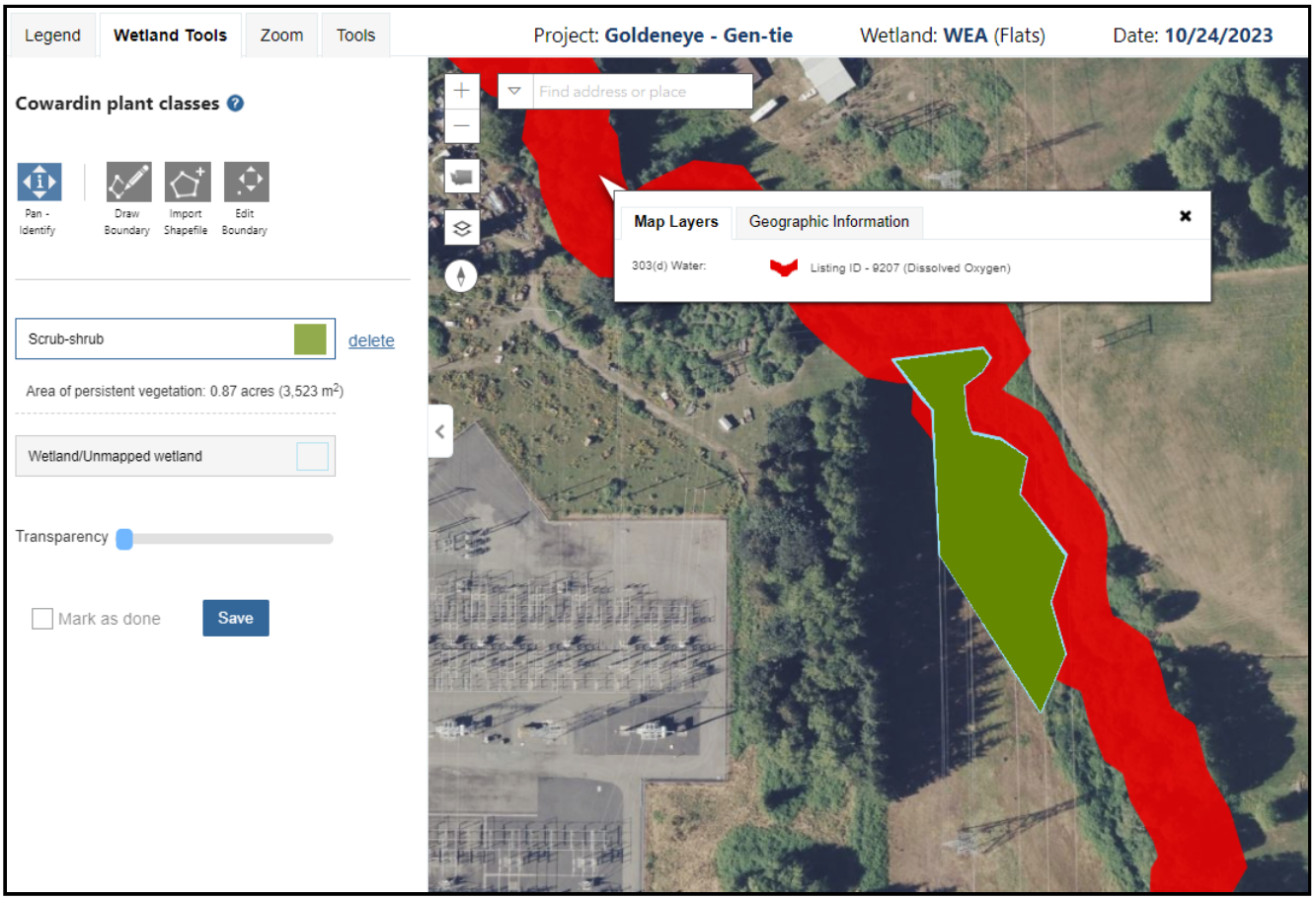


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Figure 2.
Hydroperiods and Location of Outlet

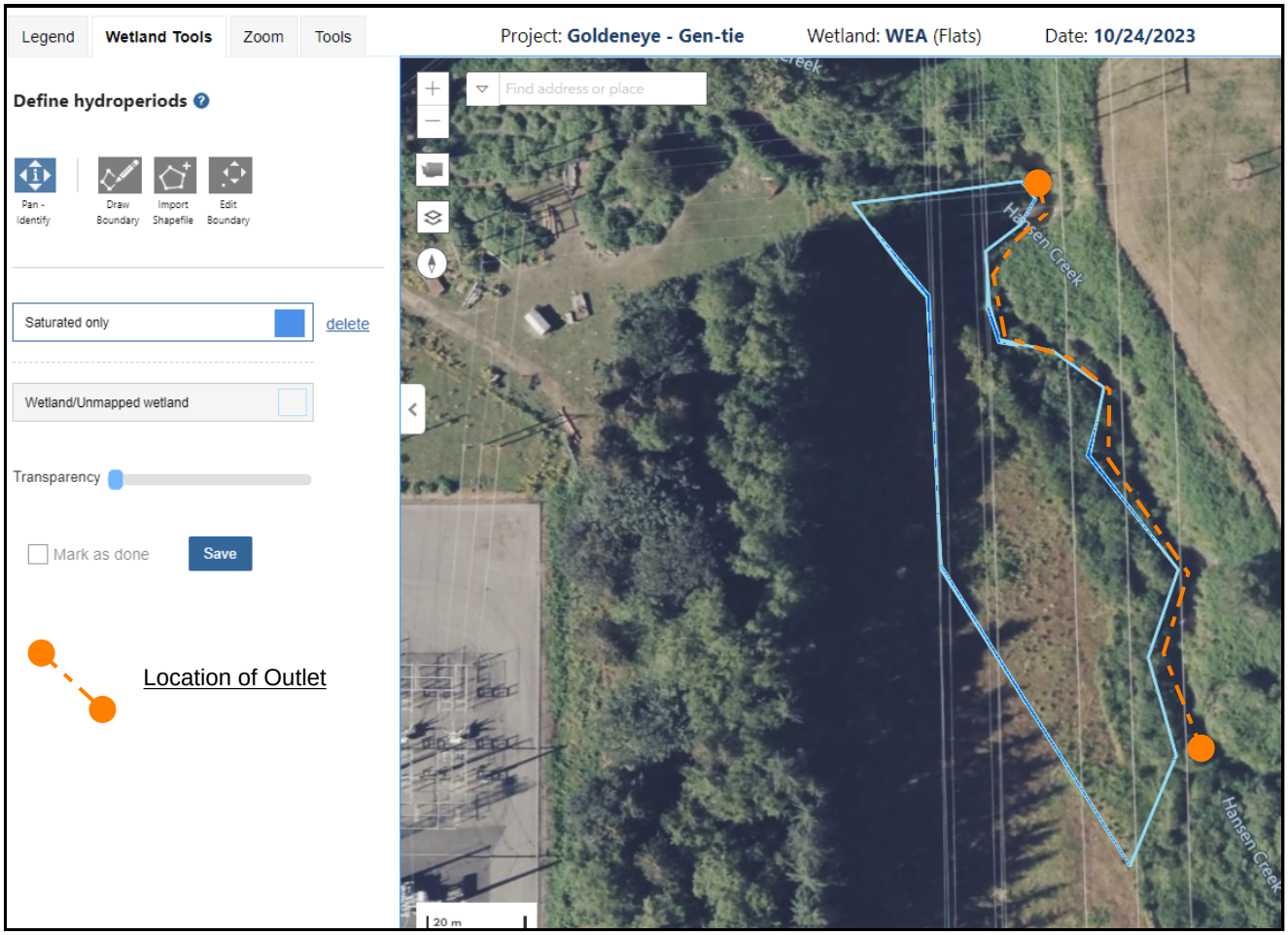


Figure 3.
Contributing Basin

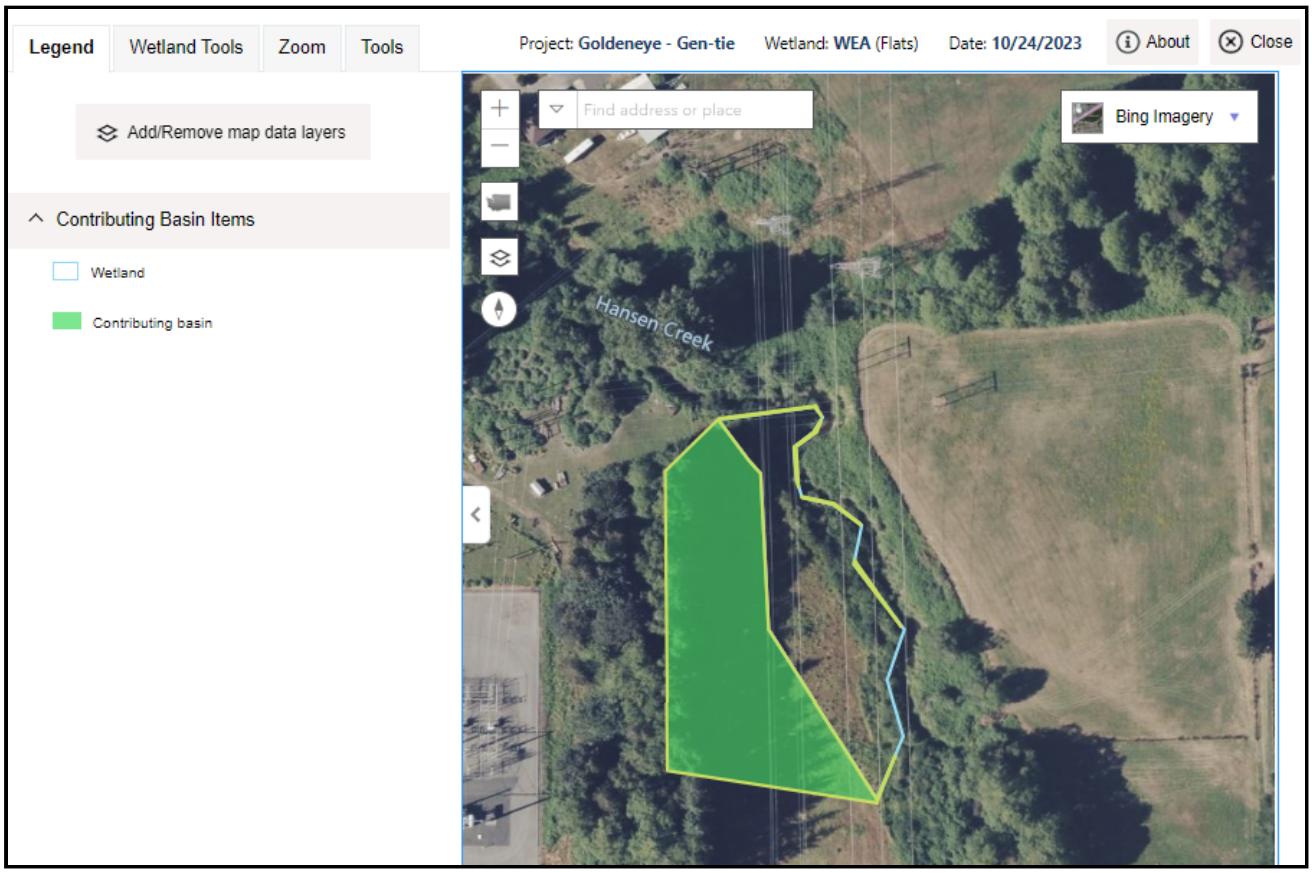
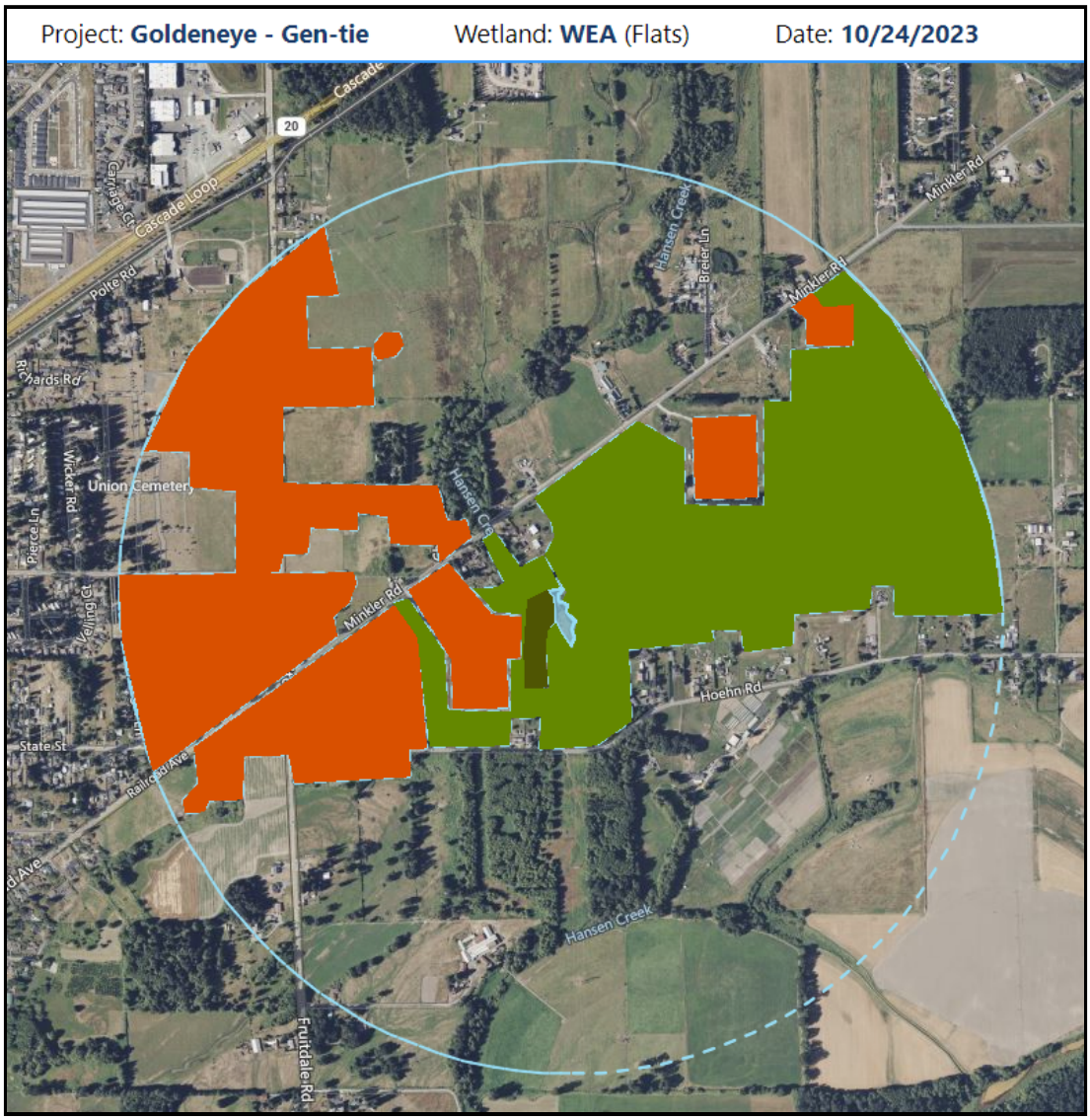


Figure 4.
Habitats



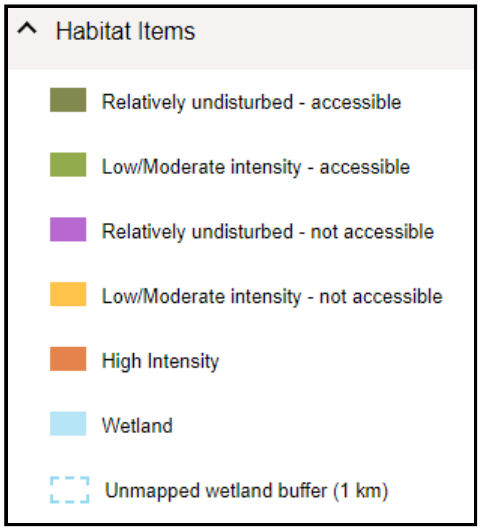


Figure 5.
Land Uses and 150' Buffer

Appendix F
Conceptual Planting Plan

PLANT SCHEDULE

SYMBOL	BOTANICAL / COMMON NAME	QTY	SIZE	MATURE HEIGHT	MATURE WIDTH
TREES					
	ACER CIRCINATUM / VINE MAPLE	*64*	*15 GAL.*	*10 - ' ht.*	*10 - 15ft. w.*
	ACER MACROPHYLLUM / BIG LEAF MAPLE	*10*	*15 GAL.*	*40 - 65ft. ht.*	*40 - 65ft. w.*
	ALNUS RUBRA / RED ALDER	*39*	*15 GAL.*	*40 - 65ft. ht.*	*25 - 40ft. w.*
	CERCOCARPUS LEDIFOLIUS / CURL-LEAF MOUNTAIN MAHOGANY	*33*	*15 GAL.*	*10 - 15ft. ht.*	*6 - 10ft. w.*
	CORNUS NUTTALLII / PACIFIC DOGWOOD	*60*	*24" BOX*	*25 - 40ft. ht.*	*15 - 25ft. w.*
	POPULUS TREMULOIDES / QUAKING ASPEN	*26*	*15 GAL.*	*25 - 40ft. ht.*	*15 - 25ft. w.*
	PSEUDOTSUGA MENZIESII / DOUGLAS FIR	*25*	*15 GAL.*	*> 65ft. ht.*	*10 - 15ft. w.*
	TAXUS BREVIFOLIA / PACIFIC YEW	*48*	*24" BOX*	*15 - 25ft. ht.*	*10 - 15ft. w.*
	TSUGA HETEROPHYLLA / WESTERN HEMLOCK	*9*	*15 GAL.*	*> 65ft. ht.*	*25 - 40ft. w.*

SHRUBS & GROUNDCOVER SCHEDULE

SYMBOL	BOTANICAL / COMMON NAME	QTY	SIZE
SHRUBS			
	SLOPE STABILIZATION SHRUBS	*173*	
	GAULTHERIA SHALLON / SALAL		*5 GAL.*
	MAHONIA NERVOSA / OREGON GRAPE		*5 GAL.*
	ROSA NUTKANA / NOOTKA ROSE		*5 GAL.*
	RUBUS SPECTABILIS / SALMONBERRY		*5 GAL.*
	SALIX PURPUREA 'NANA' / DWARF PURPLE OSIER WILLOW		*5 GAL.*
	POWERLINE-FRIENDLY / SCREENING SHRUBS	43,261 SF	
	CORNUS SERICEA / RED TWIG DOGWOOD	*249*	*5 GAL.*
	MAHONIA AQUIFOLIUM / OREGON GRAPE	*899*	*5 GAL.*
	PHILADELPHUS LEWISII / WILD MOCKORANGE	*999*	*5 GAL.*
	PHYSOCARPUS OPULIFOLIUS / NINEBARK	*561*	*5 GAL.*
	RIBES SANGUINEUM / RED FLOWERING CURRANT	*848*	*5 GAL.*
	SYMPHORICARPOS ALBUS / COMMON WHITE SNOWBERRY	*749*	*5 GAL.*
	VACCINIUM OVATUM / EVERGREEN HUCKLEBERRY	*749*	*5 GAL.*
	FIRE-RESISTANT GROUNDCOVER	39,775 SF	
	ARCTOSTAPHYLOS UVA-URSI / KINNIKINNICK	*6,201*	*5 GAL.*
	CORNUS UNALASCHKENSIS / WESTERN BUNCHBERRY	*3,674*	*1 GAL.*
	MAHONIA REPENS / CREEPING OREGON GRAPE	*2,067*	*1 GAL.*
	SLOPE STABILIZATION SEED MIX	81,196 SF	
	AGROSTIS CAPILLARIS / COLONIAL BENTGRASS		*SEED*
	ASTER SUBSPICATUS / DOUGLAS ASTER		*SEED*
	CLARKIA AMOENA / FAREWELL TO SPRING		*SEED*
	DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS		*SEED*
	ELYMUS GLAUCUS / BLUE WILDRYE		*SEED*
	ERIOPHYLLUM LANATUM / WOOLLY SUNFLOWER		*SEED*
	FESTUCA IDAHOENSIS / IDAHO FESCUE		*SEED*
	STORM WATER BASIN SEED MIX	104,996 SF	
	ACHLYS TRIPHYLLA / VANILLA LEAF		*SEED*
	ADIANTUM ALEUTICUM / WESTERN MAIDENHAIR FERN		*SEED*
	CAMASSIA QUAMASH / SMALL CAMAS		*SEED*
	CORNUS UNALASCHKENSIS / WESTERN BUNCHBERRY		*SEED*
	FRAGARIA CHILOENSIS / BEACH STRAWBERRY		*SEED*
	JUNCUS EFFUSUS / SOFT RUSH		*SEED*
	TRILLIUM OVATUM / COAST TRILLIUM		*SEED*

SEE SHEET L2 FOR LANDSCAPE NOTES AND EXAMPLE TREE PHOTOS.

NORTH

0 60 120 240 feet

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OVERALL SITE PLAN PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT. TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION
March 7, 2024

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
4	REVISED PER CLIENT COMMENTS	03/07/2024	MRT	MRT	JZ	BC
3	REVISED PER ENGINEER'S NEW SITE PLAN	02/20/2024	MRT	MRT	JZ	BC
2	REVISED PER ENGINEER'S NEW SITE PLAN	09/19/2023	MRT	MRT	JZ	BC
1	REVISED WETLAND BOUNDARY AND BUFFERS	05/09/2023	JZ		JZ	BC

DSGN MRT
DRN MRT
CKD JZ
SCALE: AS NOTED ON PLANS

DUDEK
1 SW COLUMBIA STREET, SUITE 1500
PORTLAND OREGON 97258
971.930.1712

GOLDENEYE ENERGY STORAGE, LLC
GOLDENEYE ENERGY STORAGE PROJECT
PRELIMINARY LANDSCAPE PLANS
CONCEPTUAL PLANTING PLAN

JOB NUMBER 12655.18
REV
DRAWING NUMBER **L1**

GENERAL NOTES

1. THE LANDSCAPE PLANS HAVE BEEN DESIGNED IN COMPLIANCE WITH SKAGIT COUNTY CODE CHAPTER 14.16, SECTION 830 - LANDSCAPING REQUIREMENTS.
2. THE LANDSCAPING WILL PROVIDE VISUAL SCREENS AND BARRIERS TO CREATE A PHYSICAL SEPARATION BETWEEN THE ENERGY STORAGE FACILITY AND THE ADJACENT LAND USES.
3. THE LANDSCAPING WILL PROVIDE INCREASED AREAS OF PERMEABLE SURFACES TO ALLOW FOR INFILTRATION OF SURFACE WATER INTO GROUND WATER RESOURCES AND A REDUCTION IN THE QUANTITY OF STORMWATER DISCHARGE WHILE PROMOTING WATER QUALITY.
4. DETAILED PLANTING AND IRRIGATION CONSTRUCTION PLANS AND SPECIFICATIONS ARE ANTICIPATED TO BE PREPARED AT A LATER DATE, BASED UPON THESE PRELIMINARY PLANS.

PLANTING NOTES

1. A DIVERSITY OF NATIVE-TO-THE-REGION PLANT SPECIES ARE INCORPORATED TO PROMOTE NATIVE WILDLIFE HABITAT AS WELL AS WATER USE EFFICIENCY THROUGH WATER BUDGETING AND EFFICIENT IRRIGATION.
2. A MIXTURE OF EVERGREEN AND DECIDUOUS TREES SHALL BE INTERSPERSED WITH LARGE SHRUBS AND GROUNDCOVER PLANTS. ON-CENTER SPACING SHALL BE APPROPRIATE FOR THE SPECIES TYPE AND TO ACHIEVE THE INTENT OF THE VISUAL SCREENS AND BARRIERS.
3. PLANT SELECTION IS INFORMED BY SKAGIT COUNTY'S NATIVE PLANT GUIDE. EXISTING VEGETATION AND SIGNIFICANT TREES SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE.
4. LOCAL GENETIC STOCK FOR ALL PLANT SPECIES IS PREFERRED.
5. ALL PLANTS WILL CONFORM TO AMERICAN ASSOCIATION OF NURSERYMEN (AAN) GRADES AND STANDARDS AS PUBLISHED IN THE "AMERICAN STANDARD FOR NURSERY STOCK" MANUAL.
6. THE ORGANIC CONTENT OF SOILS IN ANY LANDSCAPE AREA WILL BE AS NECESSARY TO PROVIDE ADEQUATE NUTRIENT AND MOISTURE-RETENTION LEVELS FOR THE ESTABLISHMENT OF PLANTINGS.
7. PLANTING AREAS WILL BE TOP-DRESSED WITH AT LEAST TWO INCHES OF WALK-ON-FIR BARK MULCH TO MINIMIZE EVAPORATION.
8. PLANTS HAVING SIMILAR WATER USE CHARACTERISTICS WILL BE GROUPED TOGETHER IN DISTINCT HYDROZONES.

MAINTENANCE NOTES

1. ALL LANDSCAPING WILL BE MAINTAINED FOR THE LIFE OF THE PROJECT.
2. ALL LANDSCAPE MATERIALS WILL BE PRUNED AND TRIMMED AS NECESSARY, BEGINNING NO EARLIER THAN ONE YEAR AFTER PLANTING, TO MAINTAIN A HEALTHY GROWING CONDITION OR TO PREVENT PRIMARY LIMB FAILURE.
3. WITH THE EXCEPTION OF DEAD, DISEASED OR DAMAGED TREES SPECIFICALLY RETAINED TO PROVIDE WILDLIFE HABITAT; OTHER DEAD, DISEASED, DAMAGED OR STOLEN PLANTINGS WILL BE REPLACED WITHIN THREE MONTHS OR DURING THE NEXT PLANTING SEASON IF THE LOSS DOES NOT OCCUR IN A PLANTING SEASON.
4. LANDSCAPE AREAS WILL BE MAINTAINED FREE OF TRASH.
5. IRRIGATION SYSTEMS WILL BE MAINTAINED AND INSPECTED PERIODICALLY TO ENSURE PROPER PERFORMANCE. REPLACEMENT OF COMPONENTS WILL BE OF ORIGINALLY SPECIFIED PARTS OR MATERIALS, OR THEIR EQUIVALENTS.

IRRIGATION NOTES

1. A WATER CONSERVING, BELOW GRADE, IRRIGATION SYSTEM WILL BE DESIGNED AND INSTALLED TO FACILITATE PLANT ESTABLISHMENT.
2. AN AUTOMATIC, ELECTRICALLY CONTROLLED IRRIGATION SYSTEM SHALL BE PROVIDED AS REQUIRED FOR PROPER IRRIGATION, DEVELOPMENT, AND MAINTENANCE OF THE VEGETATION IN A HEALTHY, DISEASE-RESISTANT CONDITION.
3. THE DESIGN OF THE SYSTEM SHALL PROVIDE ADEQUATE WATER FOR THE VEGETATION SELECTED.
4. DETAILED IRRIGATION DESIGN WILL CONSIDER SOIL TYPES AND INFILTRATION RATES, USE EFFICIENT IRRIGATION EQUIPMENT AND SCHEDULES, AND MINIMIZE OVERSPRAY AND RUNOFF.
5. IRRIGATION WATER WILL BE APPLIED IN A MANNER THAT WILL AVOID RUNOFF, LOW HEAD DRAINAGE, OVERSPRAY OR OTHER SIMILAR CONDITIONS WHERE WATER FLOWS ONTO ADJACENT PROPERTY, NON-IRRIGATED AREAS AND IMPERVIOUS SURFACES.
6. SYSTEMS WILL BE DESIGNED WITH THE MINIMUM AVERAGE IRRIGATION EFFICIENCY OF 0.625.
7. AN AUTOMATIC SHUTOFF OR OVERRIDE CAPABILITIES USING RAIN SHUTOFFS OR MOISTURE SENSORS WILL BE USED.
8. SYSTEMS WILL UTILIZE A CENTRAL CONTROL VALVE CONNECTED TO AN AUTOMATIC CONTROLLER.
9. TREES WILL BE IRRIGATED USING TREE ROOT ZONE WATERING SYSTEMS (2 UNITS PER TREE). SHRUB / GROUND COVER PLANTS WILL BE IRRIGATED USING BUBBLER NOZZLES (1 FOR EACH PLANT). TREE ROOT ZONE WATERING SYSTEMS WILL BE OPERATED ON SEPARATE VALVES FROM BUBBLER SYSTEMS.
10. SYSTEMS WILL MAKE PROVISIONS FOR WINTERIZATION BY PROVIDING MANUAL DRAINS OR A MEANS TO BLOW OUT LINES WITH PRESSURIZED AIR.
11. SEPARATE VALVES WILL BE USED TO IRRIGATE PLANTS WITH DIFFERING WATER NEEDS.
12. IF USED, SPRINKLER HEADS WITH CONSISTENT APPLICATION RATES WILL BE SELECTED FOR PROPER AREA COVERAGE, OPERATING PRESSURE, AND ADJUSTMENT CAPABILITY.

SEE SHEET L1 FOR CONCEPTUAL PLANTING PLAN.

PROPOSED TREE SPECIES - EXAMPLE IMAGES

Acer circinatum

Acer macrophyllum

Alnus rubra

Cercocarpus ledifolius

Cornus nuttallii

Populus tremuloides

Pseudotsuga menziesii

Taxus brevifolia

Tsuga heterophylla

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March 7, 2024

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3	REVISED PER ENGINEER'S NEW SITE PLAN	02/20/2024	MRT	MRT	JZ	BC
2	REVISED PER ENGINEER'S NEW SITE PLAN	09/19/2023	MRT	MRT	JZ	BC
1	REVISED WETLAND BOUNDARY AND BUFFERS	05/09/2023	JZ		JZ	BC

DSGN	MRT	
DRN	MRT	
CKD	JZ	

SCALE: AS NOTED ON PLANS

DUDEK
1 SW COLUMBIA STREET, SUITE 1500
PORTLAND OREGON 97258
971.930.1712

GOLDENEYE ENERGY STORAGE, LLC
GOLDENEYE ENERGY STORAGE PROJECT
PRELIMINARY LANDSCAPE PLANS

LANDSCAPE NOTES AND TREE PHOTOS

JOB NUMBER 12655.18
REV
DRAWING NUMBER **L2**

Bank Use Plan

Goldeneye Energy Storage Project

JUNE 2024

Prepared for:

GOLDFINCH ENERGY STORAGE, LLC
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Contact: Tommy Nelson

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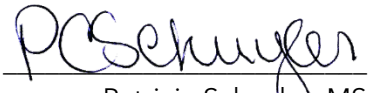


Patricia Schuyler, MS
Biologist and Project Manager

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations ii

1 Project Description 1

2 Existing Conditions: Wetlands and Other Aquatic Resources 1

3 Avoidance and Minimization of Wetland and Other Aquatic Resource Impacts 2

4 Unavoidable Aquatic Resource Impact Acreage 3

5 Impacted Wetland and Aquatic Resource Functions 4

6 Wetland and Other Aquatic Resource Compensation Site Selection Rationale 5

7 Wetland and Other Aquatic Resource Functions Compensated at Wetland Mitigation Bank 5

8 Wetland and Other Aquatic Resource Functions Not Compensated at the Wetland Mitigation Bank 6

9 Proposed Mitigation Credits 6

10 Credit Purchase or Transfer Timing 6

11 References 7

FIGURES

1 Aquatic Resources Surveys 8

2 Mitigation Bank Locations 9

TABLES

1 Wetlands within the Proposed Goldeneye Energy Storage Project Site 1

2 Non-Wetland Waters within the Gen-Tie Line Review Area 2

3 Expected Impacts to Wetlands (Acres) 3

4 Wetland Mitigation Bank Credits Proposed for Use by Project Impact (Acres) 6

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
DOE	Washington State Department of Ecology
gen-tie	generation transmission
JARPA	Joint Aquatic Resources Permit Application
SWPPP	stormwater pollution prevention plan

1 Project Description

Goldfinch Energy Storage, LLC (the applicant), is currently proposing a utility-scale energy storage facility in Skagit County, Washington (County). A project vicinity map is provided with the Aquatic Resource Delineation Report (Appendix E to Attachment C of this Joint Aquatic Resources Permit Application [JARPA] package). The project consists of a proposed 200 megawatt/800 megawatt-hour battery energy storage system located on private lands. The proposed project requires filling of 1.78 acres of wetlands in an active agriculture area. The full project description and associated impacts are provided in the Critical Areas Report provided in this JARPA package (Attachment C).

2 Existing Conditions: Wetlands and Other Aquatic Resources

The proposed project site, including the generation transmission (gen-tie) line alignment, includes 1.47 acres of wetlands as well as a portion of Hansen Creek. The wetlands identified within the boundaries of the project site are summarized in Table 1. The full delineation reports prepared for the project are provided in Appendix E of Attachment C. The delineation reports provide an overview of the aquatic resources and their associated buffers.

Table 1. Wetlands within the Proposed Goldeneye Energy Storage Project Site

Feature Name	Cowardin Code[a]	HGM	DOE[b]	Skagit County[c]	Wetland Size (Acres)	Buffer Width (Feet) [d]
Energy Storage Site						
WET-A	PEM	Depressional	III	III	0.152	150
WET-B	PEM	Depressional	III	III	0.006	150
WET-C	PEM	Depressional	III	III	0.027	150
WET-D	PEM	Depressional	IV	IV	0.004	50
WET-E	PEM	Depressional	IV	IV	0.002	50
WET-F	PEM	Depressional	IV	IV	0.979	50
WET-G	PEM	Depressional	IV	IV	0.008	50
Gen-Tie Line Alignment						
WET-H	PSS	Riverine	III	III	0.09	150
WET-I	PSS	Depressional	III	III	0.20	150
				Wetlands Total	**1.47**	**N/A**

Notes: HGM = hydrogeomorphic classification; DOE = Washington State Department of Ecology; N/A = not applicable.

[a] PSS = palustrine scrub-shrub; PEM = palustrine emergent.

[b] DOE rating (Hruby and Yahnke 2023).

[c] Skagit County follows the DOE rating system (Hruby and Yahnke 2023).

[d] Skagit County wetland buffer width based on wetland category and high intensity land use (Skagit County 2023).

Within the energy storage site, all wetlands are categorized as depressional, with Wetland A being the most notable area as a depression excavated into the subsoil by the County (per landowner). There are 1.178 acres of wetlands

within the energy storage site. All other wetlands of the site are relatively shallow depressions found in a low swathe crossing the property from the northwest to the southeast. The wetlands appear to be in their present configuration after decades of heavy compaction due to livestock after initial drainage attempts, assumed to have occurred in the late nineteenth or early twentieth century, that included ditching and likely subsurface tile installation.

Wetlands associated with the gen-tie line alignment total 0.29 acres and include a riverine wetland associated with Hansen Creek and a wetland enhancement area adjacent to Hansen Creek. The riverine wetland (WET-H) is dominated by blackberry (*Rubus* sp.) thickets. The wetland enhancement area (WET-I) has been planted with willow (*Salix* sp.) and rose (*Rosa* sp.) species.

The portion of Hansen Creek that overlaps with the proposed gen-tie line alignment is summarized in Table 2. For the main energy storage site, only the extent of the ordinary high water mark was documented to provide a point from which to establish the required buffer.

Table 2. Non-Wetland Waters within the Gen-Tie Line Review Area

Feature Name	WDNR Water Type	Portion within the Review Area	Skagit County Buffer Width	303(d) Listed (parameters)
Hansen Creek	S	190 linear feet (0.08 acres)	200 feet	Bacteria and other microbes, low oxygen, temperature Aquatic Life-Core, Summer Salmonid Habitat

Notes: WDNR = Washington Department of Natural Resources; S = shorelines of the state.

3 Avoidance and Minimization of Wetland and Other Aquatic Resource Impacts

The proposed project is required to provide a gen-tie line to connect the energy storge site with the Sedro-Woolley Substation located just to the south of the project site. The gen-tie line must cross over Hansen Creek to connect to the substation. An overhead connection is not feasible given the existing utilities. Therefore, the connection will be placed underground via directional drilling. Directional drilling avoids impacts to Hansen Creek and surrounding wetlands (Wetlands H and I) (0.29 acres). However, due to the position of the wetlands within the energy storage site, avoidance of these features is not feasible. Therefore, all 1.178 acres of wetlands delineated within the energy storage site will be permanently impacted.

General avoidance and minimization measures have been developed to avoid and minimize effects resulting from the proposed project, particularly considering partially impacted features that border the site. These measures will include, but are not limited to, the following:

- Worker awareness training
- Construction best management practices and monitoring

- Stormwater pollution prevention plan (SWPPP)
- Erosion and sediment control plan
- Spill prevention, containment, and countermeasure plan
- Fugitive dust control

As the project is planned and progresses into construction and operation phases, these measures will be implemented.

To avoid indirect impacts to Hansen Creek, riparian buffer enhancement will occur as a part of the proposed landscape plan. Demolition of the existing residence and associated structures present in and around the 200-foot buffer for the creek is required to construct the proposed project. The area adjacent to Hansen Creek but outside the 200-foot buffer will be revegetated with native plants per the landscape plan currently being prepared for the project. The conceptual planting plan is provided in the Critical Areas Report (Attachment E of this JARPA). A diversity of native plants has been incorporated into the overall planting plan for the project to promote the continued use of the site by local wildlife in addition to being water-wise. Therefore, the proposed project will result in the extension of the riparian corridor adjacent to Hansen Creek by restoring this area.

Stormwater management plans will be developed in consultation with the Washington State Department of Ecology (DOE) and County requirements. In compliance with Washington Administrative Codes 173-200 and 463-76, the applicant will obtain a Construction Stormwater General Permit. This permit requires a SWPPP that includes monitoring expectations, which will be developed prior to the start of construction.

The project will be designed to avoid increasing stormwater flow off the site by developing an on-site stormwater management area. Per the conceptual planting plan provided in Appendix F of Attachment E to this JARPA, the stormwater management area will occur within the Bonneville Power Administration overhead power line right-of-way. All stormwater will be collected and treated on site before being discharged off site. The stormwater management area will be seeded with native species per the planting plan in Appendix F of Attachment E. Implementation of the measures identified in the SWPPP in addition to on-site collection of stormwater will ensure that the proposed project does not result in impacts to water quality.

4 Unavoidable Aquatic Resource Impact Acreage

Due to the position of the wetlands within the energy storage site, avoidance of these features is not feasible. Therefore, all 1.178 acres of wetlands delineated within the energy storage site will be permanently impacted (Table 3). Figure 1, Aquatic Resources Surveys, shows the proposed site plan with impacts to wetlands.

Table 3. Expected Impacts to Wetlands (Acres)

Feature Name	Wetland Size	Permanent Impact	Temporary Impact	Buffer Impact[a]	Indirect Impact	Cowardin Code[b]	HGM	DOE/ Skagit County[c]
WET-A	0.152	0.152	0	N/A	N/A	PEM	Depressional	III
WET-B	0.006	0.006	0	N/A	N/A	PEM	Depressional	III

Table 3. Expected Impacts to Wetlands (Acres)

Feature Name	Wetland Size	Permanent Impact	Temporary Impact	Buffer Impact[a]	Indirect Impact	Cowardin Code[b]	HGM	DOE/ Skagit County[c]
WET-C	0.027	0.027	0	N/A	N/A	PEM	Depressional	III
WET-D	0.004	0.004	0	N/A	N/A	PEM	Depressional	IV
WET-E	0.002	0.002	0	N/A	N/A	PEM	Depressional	IV
WET-F	0.979	0.979	0	N/A	N/A	PEM	Depressional	IV
WET-G	0.008	0.008	0	N/A	N/A	PEM	Depressional	IV
WET-H	0.09	0	0	0	N/A	PSS	Riverine	III
WET-I	0.20	0	0	0	N/A	PSS	Depressional	III
Totals	1.47	1.178	0	0	N/A	N/A	N/A	N/A

Notes: HGM = hydrogeomorphic classification; DOE = Washington Department of Ecology; N/A = not applicable.
[a] N/A = not applicable because no impacts are anticipated.
[b] PSS = palustrine scrub-shrub, PEM = palustrine emergent.
[c] DOE rating (Hruby and Yahnke 2023); Skagit County follows the DOE rating system (Hruby and Yahnke 2023).

5 Impacted Wetland and Aquatic Resource Functions

A full description of the impacted wetlands can be found in the delineation reports provided as Appendix E to Attachment C of this JARPA submittal. The wetland functions and values were assessed using the DOE's Washington State Rating System for Eastern Washington (Hruby and Yahnke 2023) and the ratings are provided in Table 3. Impacts will occur to category III and IV depressional wetlands. Overall, the wetlands provide low to moderate levels of water quality, hydrologic, and habitat functions.

A summary of the resources functions of these wetlands is provided below.

- Water Quality Functions. The on-site wetlands are assumed to be comprised of relic pasture seed mix. All vegetation on the project site was mowed, except for around the property perimeter where a shrubby area separating the site from neighboring properties was noted. Use of the site by cattle contributes to water pollutants entering the watershed. By removing the livestock land use, the water quality within and surrounding the project site will be improved. The proposed project will improve overall water quality functions through the collection and treatment of water prior to discharge from the site, as described in Section 3.
- Hydrologic Functions. The wetlands were noted in an area that has experienced heavy ungulate use for years, and like much of the area, the surface of the soils is heavily compacted, holding precipitation at the surface for longer periods than under normal soil conditions. The proposed project will replace the hydrological functions of the on-site wetlands with a stormwater management area, as described in Section 3.
- Habitat Functions. Due to the heavy use of the site by grazing animals, the habitat functions of the on-site wetlands are low. The on-site wetlands do not provide habitat for special-status species. Planting of the

buffer associated with Hansen Creek with native species would expand the riparian corridor for this portion of Hansen Creek and provide habitat for local wildlife.

6 Wetland and Other Aquatic Resource Compensation Site Selection Rationale

The goal of the mitigation plan is to fully compensate for all wetland impacts associated with this project through the purchase of mitigation credits at an agency-approved mitigation bank. There are two approved mitigation banks within the County that currently have credits that could mitigate for project impacts: Skagit Environmental Bank and Nookachamps Mitigation Bank. Both banks have been approved by the DOE, U.S. Army Corps of Engineers, and Skagit County to sell mitigation credits. The proposed project is located in the service area for both banks but plans on purchasing credits from the Skagit Environmental Bank (Figure 2, Mitigation Bank Locations).

7 Wetland and Other Aquatic Resource Functions Compensated at Wetland Mitigation Bank

The bank provides credits for depressional and riverine wetlands in the form of universal credits.

- **Water Quality Functions.** A goal of the mitigation bank is to improve water quality through the removal of toxins, nutrients, and sediment into and from the on-site creeks.
- **Hydrologic Functions.** The primary ecological goal of the Skagit Environmental Bank is to restore hydrologic processes on the site to initiate reestablishment of floodplain emergent, scrub-shrub, and forested wetlands.
- **Habitat Functions.** The creation of these habitats will provide valuable forage for ungulates and other mammals. These wetlands will also provide cover for nesting, resting, and foraging waterfowl and upland birds, habitat for small mammals and reptiles, reproductive habitat for amphibians, and rearing and wintering habitat for fish.

The wetlands proposed to be impacted within the project site do not serve any of these functions. Therefore, purchase of credits from the Skagit Environmental Bank will provide for better functions than the impacted wetlands currently provide.

8 Wetland and Other Aquatic Resource Functions Not Compensated at the Wetland Mitigation Bank

There are no functions of the wetlands to be affected by the project that will not be compensated for by the mitigation bank.

9 Proposed Mitigation Credits

The site is composed of Category III wetlands, which require 1.0 credits per acre of impact, and Category IV wetlands, which require 0.85 credits per acre of impact. The project proposes fill of 1.178 acres of wetland: 0.185 acres are Category III and 0.995 acres are Category IV (84% of the total). The ratios are based on those provided in the Skagit Environmental Bank mitigation banking instrument. Based on Table 4, the project applicant is required to purchase 1.029 bank credits.

Table 4. Wetland Mitigation Bank Credits Proposed for Use by Project Impact (Acres)

Feature Name	Wetland Size	Permanent Impacts	Indirect Impact	DOE Rating	Credit Needed	Credits Proposed
WET-A	0.152	0.152	N/A	III	1	0.152
WET-B	0.006	0.006	N/A	III	1	0.006
WET-C	0.027	0.027	N/A	III	1	0.027
WET-D	0.004	0.004	N/A	IV	0.85	0.003
WET-E	0.002	0.002	N/A	IV	0.85	0.002
WET-F	0.979	0.979	N/A	IV	0.85	0.832
WET-G	0.008	0.008	N/A	IV	0.85	0.007
Totals	**1.178**	**1.178**	**N/A**	**N/A**	**N/A**	**1.029**

Notes: DOE = Washington State Department of Ecology; N/A = not applicable.

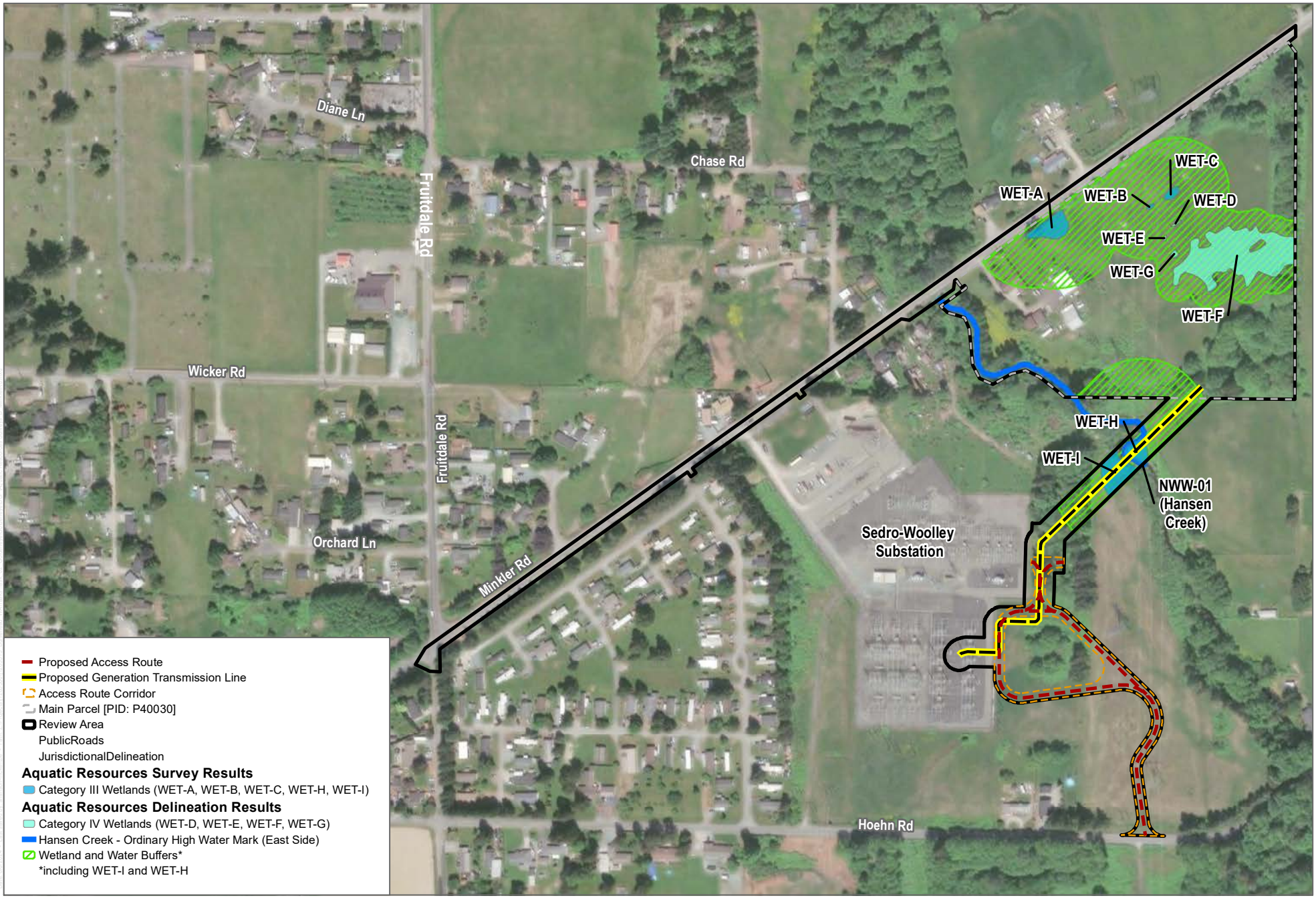
10 Credit Purchase or Transfer Timing

The proposed project is scheduled to start construction in October 2025. Credits will not be purchased until all wetland-related permits are issued. Prior to impacting wetlands, the applicant will submit proof of purchase to the regulatory agencies (DOE and U.S. Army Corps of Engineers) as part of their permit conditions.

11 References

Hruby, T., and A. Yahnke. 2023. Washington State Wetland Rating System for Western Washington: 2014 Update, Version 2.0. Publication No. 23-06-009. Olympia: Washington State Department of Ecology. Updated July 2023. https://ecology.wa.gov/water-shorelines/wetlands/tools-resources/rating-systems.

Skagit County. 2023. Skagit County Codes; Critical Areas Ordinance. https://www.codepublishing.com/WA/SkagitCounty/#!/SkagitCounty14/SkagitCounty142 4.html#14.24.



SOURCE: Maxar 2017; Skagit County 2021; Skagit Wetlands & Critical Areas, LLC. 2023

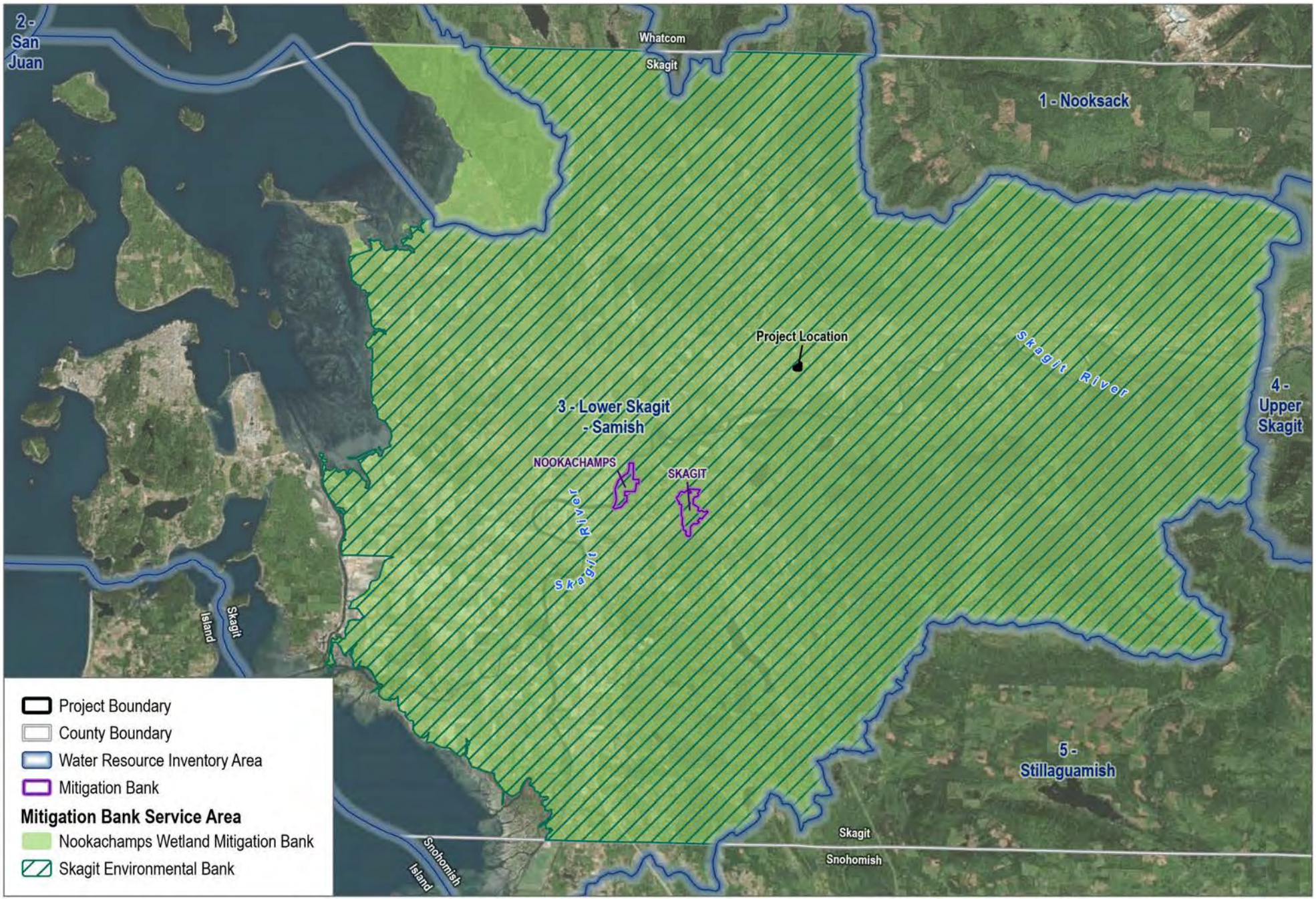
DUDEK

0 195 390 Feet

FIGURE 1

Aquatic Resources Surveys

Bank Use Plan for Goldeneye Energy Storage Project



SOURCE: Bing Maps 2023; Washington State Dept of Ecology 2019, 2023; USGS 2019

DUDEK

0 10,000 20,000 Feet

FIGURE 2

Mitigaton Bank Locations

Bank Use Plan for Goldeneye Energy Storage Project

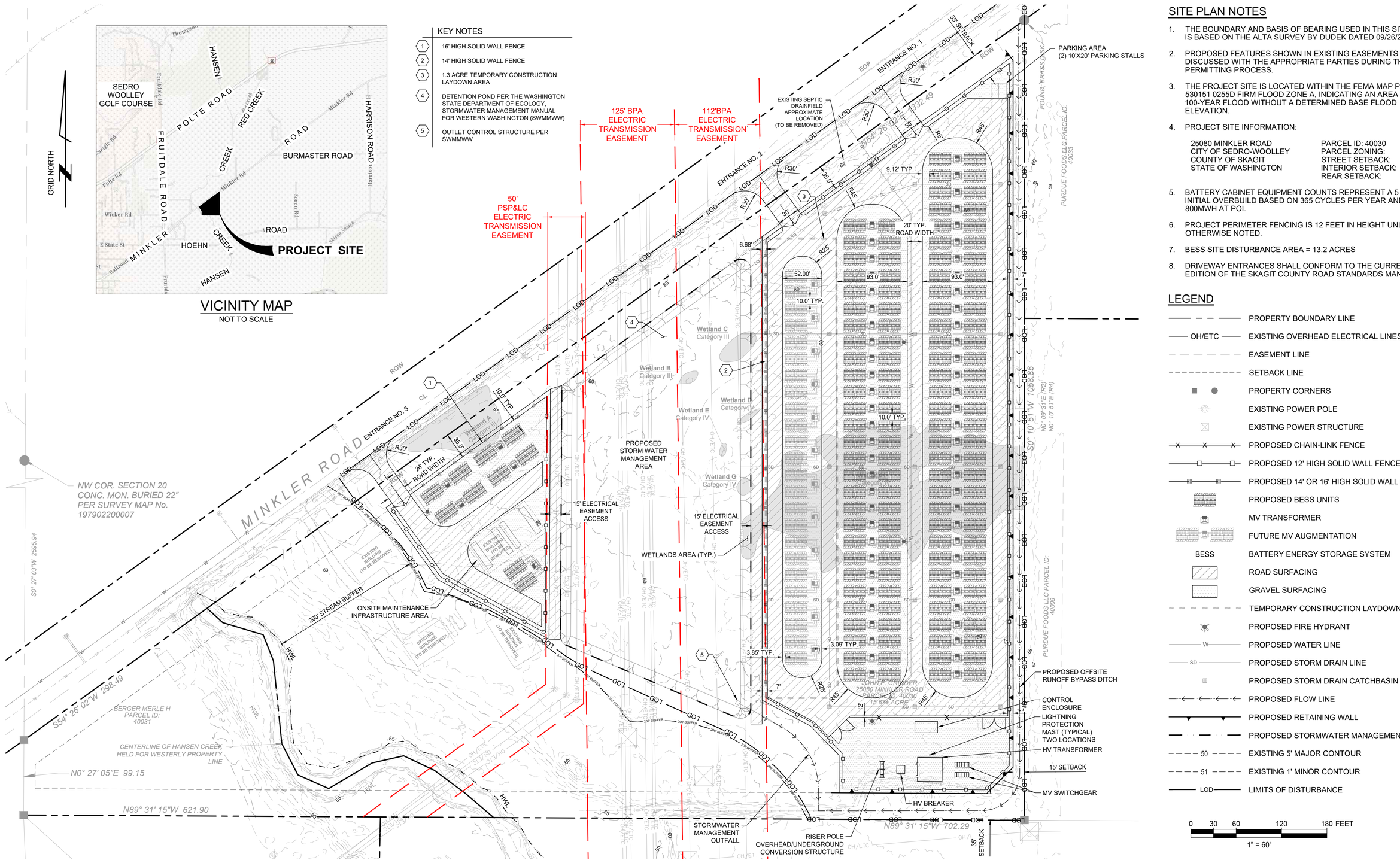
VICINITY MAP

NOT TO SCALE

GRID NORTH

KEY NOTES

1. 16' HIGH SOLID WALL FENCE
2. 14' HIGH SOLID WALL FENCE
3. 1.3 ACRE TEMPORARY CONSTRUCTION LAYDOWN AREA
4. DETENTION POND PER THE WASHINGTON STATE DEPARTMENT OF ECOLOGY, STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (SWMMWW)
5. OUTLET CONTROL STRUCTURE PER SWMMWW



SITE PLAN NOTES

1. THE BOUNDARY AND BASIS OF BEARING USED IN THIS SITE PLAN IS BASED ON THE ALTA SURVEY BY DUDEK DATED 09/26/2022.
2. PROPOSED FEATURES SHOWN IN EXISTING EASEMENTS WILL BE DISCUSSED WITH THE APPROPRIATE PARTIES DURING THE PERMITTING PROCESS.
3. THE PROJECT SITE IS LOCATED WITHIN THE FEMA MAP PANEL 530151 0255D FIRM FLOOD ZONE A, INDICATING AN AREA OF THE 100-YEAR FLOOD WITHOUT A DETERMINED BASE FLOOD ELEVATION.
4. PROJECT SITE INFORMATION:

25080 MINKLER ROAD	PARCEL ID: 40030		
CITY OF SEDRO-WOOLLEY	PARCEL ZONING:	Ag-NRL	
COUNTY OF SKAGIT	STREET SETBACK:	35'	
STATE OF WASHINGTON	INTERIOR SETBACK:	15'	
	REAR SETBACK:	35'	

5. BATTERY CABINET EQUIPMENT COUNTS REPRESENT A 5 YEAR INITIAL OVERBUILD BASED ON 365 CYCLES PER YEAR AND 800MWH AT POI.
6. PROJECT PERIMETER FENCING IS 12 FEET IN HEIGHT UNLESS OTHERWISE NOTED.
7. BESS SITE DISTURBANCE AREA = 13.2 ACRES
8. DRIVEWAY ENTRANCES SHALL CONFORM TO THE CURRENT EDITION OF THE SKAGIT COUNTY ROAD STANDARDS MANUAL.

LEGEND

- PROPERTY BOUNDARY LINE
- OH/ETC — EXISTING OVERHEAD ELECTRICAL LINES
- EASEMENT LINE
- SETBACK LINE
- PROPERTY CORNERS
- EXISTING POWER POLE
- EXISTING POWER STRUCTURE
- PROPOSED CHAIN-LINK FENCE
- PROPOSED 12' HIGH SOLID WALL FENCE
- PROPOSED 14' OR 16' HIGH SOLID WALL FENCE
- PROPOSED BESS UNITS
- MV TRANSFORMER
- FUTURE MV AUGMENTATION
- BESS — BATTERY ENERGY STORAGE SYSTEM
- ROAD SURFACING
- GRAVEL SURFACING
- TEMPORARY CONSTRUCTION LAYDOWN AREA
- PROPOSED FIRE HYDRANT
- W — PROPOSED WATER LINE
- SD — PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN CATCHBASIN
- PROPOSED FLOW LINE
- PROPOSED RETAINING WALL
- PROPOSED STORMWATER MANAGEMENT AREA
- 50 — EXISTING 5' MAJOR CONTOUR
- 51 — EXISTING 1' MINOR CONTOUR
- LOD — LIMITS OF DISTURBANCE

0 30 60 120 180 FEET

1" = 60'

THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

PRELIMINARY

NOT FOR CONSTRUCTION

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
A	ISSUED FOR INFORMATION	4/24/24	BTB	BTB	TJG	TWH

DSGN | DRN | CKD

SCALE: 1" = 60'

FOR 22x34 DWG ONLY

POWER ENGINEERS

GOLDENEYE BATTERY STORAGE, LLC

GOLDENEYE BESS PROJECT 200MW/800MWH BESS

PRELIMINARY SITE PLAN

JOB NUMBER 180161

REV A

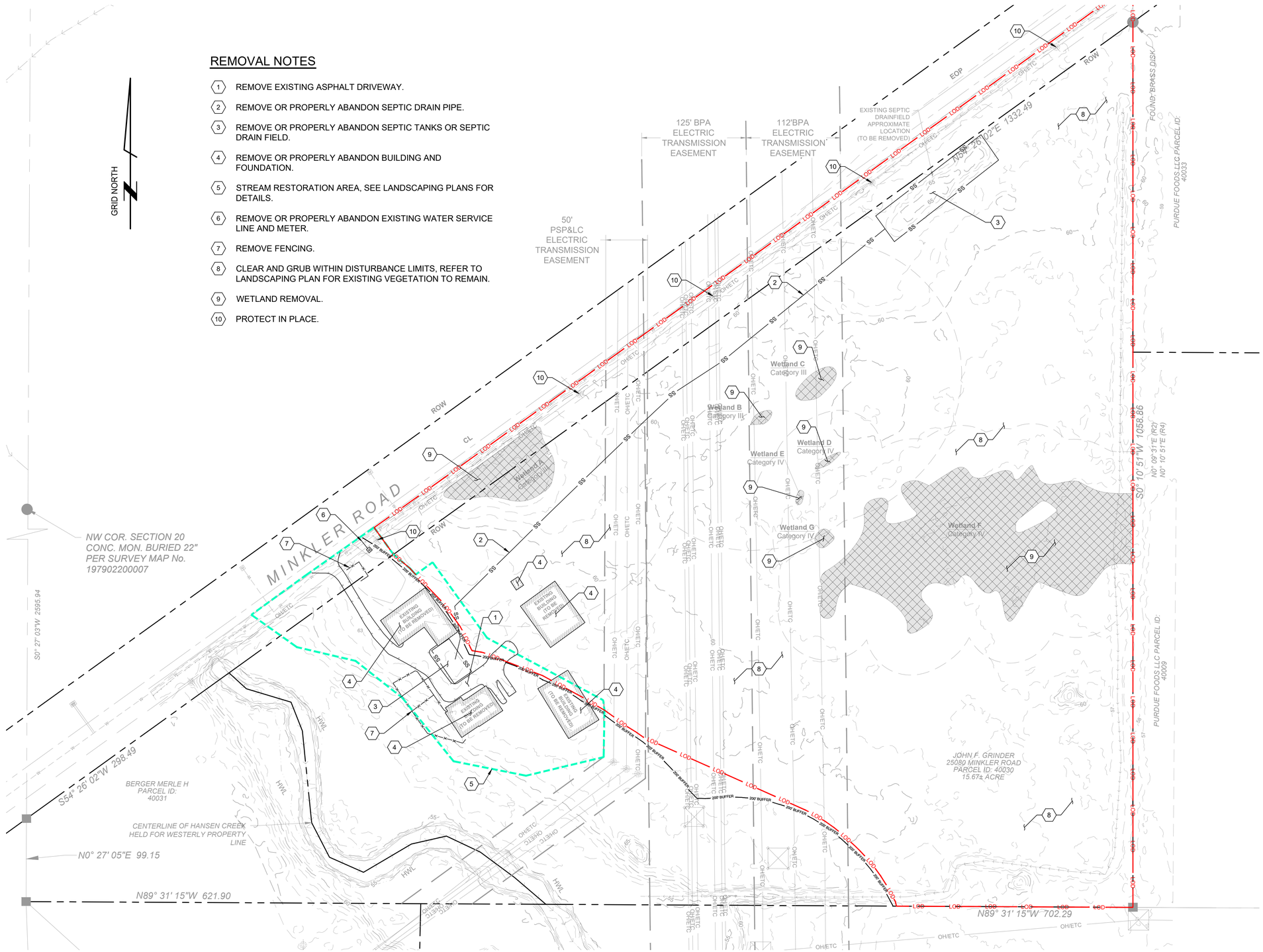
DRAWING NUMBER C1-1

GE_REV_A_C1-1.DWG

REMOVAL NOTES

1. REMOVE EXISTING ASPHALT DRIVEWAY.
2. REMOVE OR PROPERLY ABANDON SEPTIC DRAIN PIPE.
3. REMOVE OR PROPERLY ABANDON SEPTIC TANKS OR SEPTIC DRAIN FIELD.
4. REMOVE OR PROPERLY ABANDON BUILDING AND FOUNDATION.
5. STREAM RESTORATION AREA, SEE LANDSCAPING PLANS FOR DETAILS.
6. REMOVE OR PROPERLY ABANDON EXISTING WATER SERVICE LINE AND METER.
7. REMOVE FENCING.
8. CLEAR AND GRUB WITHIN DISTURBANCE LIMITS, REFER TO LANDSCAPING PLAN FOR EXISTING VEGETATION TO REMAIN.
9. WETLAND REMOVAL.
10. PROTECT IN PLACE.

GRID NORTH



REMOVAL NOTES

1. THE BOUNDARY AND BASIS OF BEARING USED IN THIS SITE PLAN IS BASED ON THE ALTA SURVEY BY DUDEK DATED 09/26/2022.
2. REFER TO THE ALTA SURVEY COMPLETED BY DUDEK FOR ADDITIONAL INFORMATION PERTAINING TO THE EXISTING SITE CONDITIONS.
3. THE EXISTING SANITARY SEWER/SEPTIC AREAS SHOWN ARE BASED ON THE INFORMATION CONTAINED WITHIN SKAGIT COUNTY PLANNING AND DEVELOPMENT SERVICES ON-SITE SEWAGE PERMIT #13-0076. LOCATIONS OF STRUCTURES AND PIPING SHALL BE FIELD VERIFIED PRIOR TO COMMENCEMENT OF THE REMOVAL ACTIVITIES.
4. ALL REMOVALS SHALL BE DONE IN ACCORDANCE WITH THE RULING AHJ'S APPLICABLE REQUIREMENTS.

LEGEND

- PROPERTY BOUNDARY LINE
- OH/ETC — OVERHEAD ELECTRICAL LINES
- EASEMENT LINE
- WETLAND BUFFER LINE
- 200' BUFFER — 200' STREAM BUFFER LINE
- PROPERTY CORNERS
- POWER POLE
- POWER STRUCTURE
- FENCE
- EDGE OF ASPHALT
- W — WATERLINE
- SS — SEPTIC SEWER LINE
- SS / SS — SEPTIC DRAIN FIELD OR TANK AREA
- BUILDING REMOVAL
- STREAM RESTORATION AREA
- WETLAND REMOVAL AREA
- 50 — 5' MAJOR CONTOUR
- 51 — 1' MINOR CONTOUR
- LOD — BESS SITE LIMITS OF DISTURBANCE

0 30 60 120 180 FEET
1" = 60'

GE_REV_A_C1-2.DWG

THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT. TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

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DSGN		
DRN		
CKD		

SCALE: 1" = 60'
FOR 22x34 DWG ONLY

POWER ENGINEERS

GOLDENEYE BATTERY STORAGE, LLC
GOLDENEYE BESS PROJECT
200MW/800MWH BESS
PRELIMINARY
REMOVALS & STREAM RESTORATION PLAN

JOB NUMBER 180161
REV A
DRAWING NUMBER C1-2

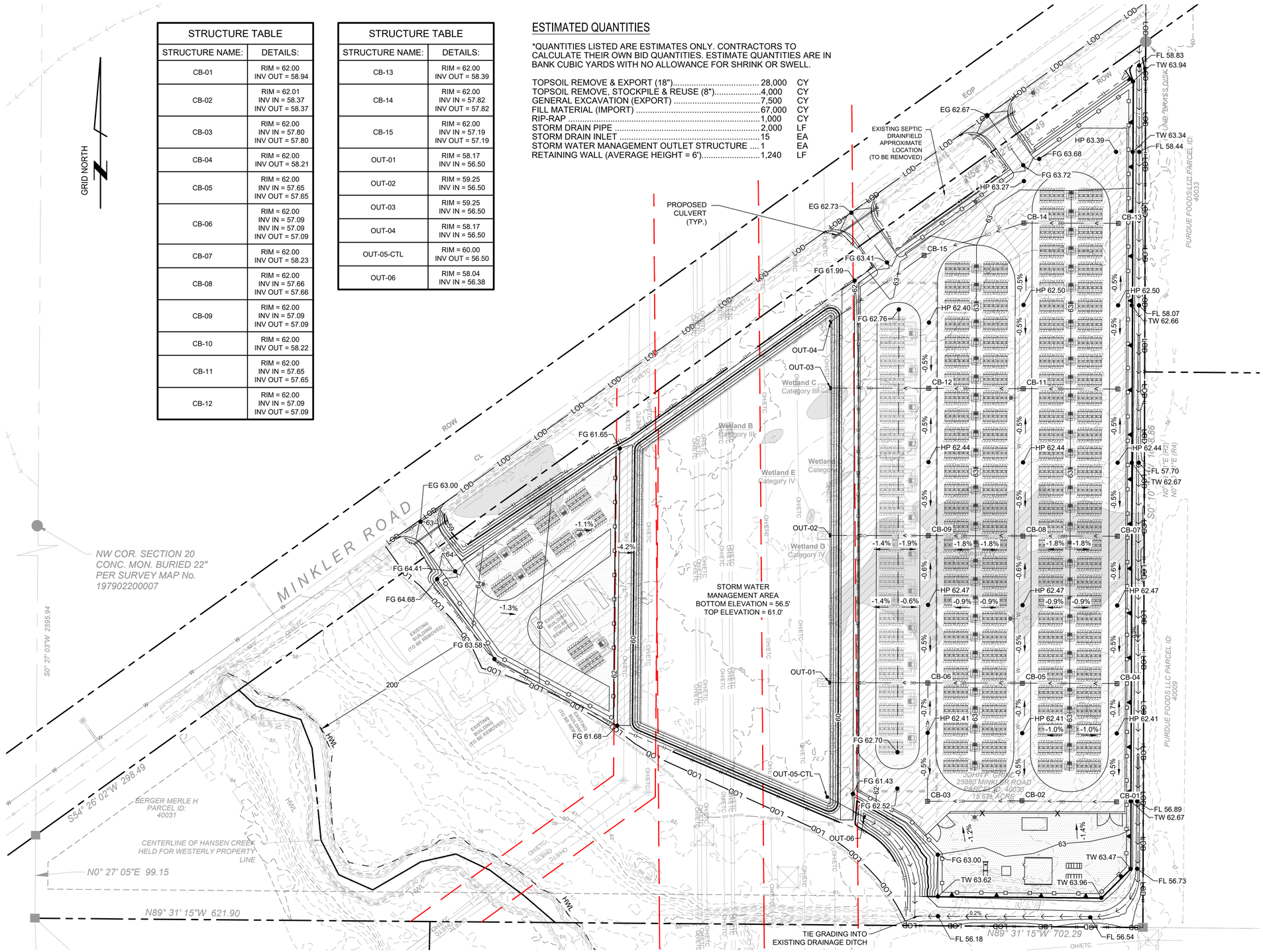
STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
CB-01	RIM = 62.00 INV OUT = 58.94
CB-02	RIM = 62.01 INV IN = 58.37 INV OUT = 58.37
CB-03	RIM = 62.00 INV IN = 57.80 INV OUT = 57.80
CB-04	RIM = 62.00 INV OUT = 58.21
CB-05	RIM = 62.00 INV IN = 57.65 INV OUT = 57.65
CB-06	RIM = 62.00 INV IN = 57.09 INV IN = 57.09 INV OUT = 57.09
CB-07	RIM = 62.00 INV OUT = 58.23
CB-08	RIM = 62.00 INV IN = 57.66 INV OUT = 57.66
CB-09	RIM = 62.00 INV IN = 57.09 INV OUT = 57.09
CB-10	RIM = 62.00 INV OUT = 58.22
CB-11	RIM = 62.00 INV IN = 57.65 INV OUT = 57.65
CB-12	RIM = 62.00 INV IN = 57.09 INV OUT = 57.09

STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
CB-13	RIM = 62.00 INV OUT = 58.39
CB-14	RIM = 62.00 INV IN = 57.82 INV OUT = 57.82
CB-15	RIM = 62.00 INV IN = 57.19 INV OUT = 57.19
OUT-01	RIM = 58.17 INV IN = 56.50
OUT-02	RIM = 59.25 INV IN = 56.50
OUT-03	RIM = 59.25 INV IN = 56.50
OUT-04	RIM = 58.17 INV IN = 56.50
OUT-05-CTL	RIM = 60.00 INV OUT = 56.50
OUT-06	RIM = 58.04 INV IN = 56.38

ESTIMATED QUANTITIES

*QUANTITIES LISTED ARE ESTIMATES ONLY. CONTRACTORS TO CALCULATE THEIR OWN BID QUANTITIES. ESTIMATE QUANTITIES ARE IN BANK CUBIC YARDS WITH NO ALLOWANCE FOR SHRINK OR SWELL.

TOPSOIL REMOVE & EXPORT (18")	28,000	CY
TOPSOIL REMOVE, STOCKPILE & REUSE (8")	4,000	CY
GENERAL EXCAVATION (EXPORT)	7,500	CY
FILL MATERIAL (IMPORT)	67,000	CY
RIP-RAP	1,000	CY
STORM DRAIN PIPE	2,000	LF
STORM DRAIN INLET	15	EA
STORM WATER MANAGEMENT OUTLET STRUCTURE	1	EA
RETAINING WALL (AVERAGE HEIGHT = 6')	1,240	LF



GRADING NOTES

1. EXISTING AND PROPOSED CONTOURS ARE SHOWN AT 1' INTERVALS.
2. ALL CUT & FILL SLOPES SHALL BE AT 3:1 UNLESS NOTED OTHERWISE.
3. THE TOP LAYER OF UNSUITABLE ORGANIC TOPSOIL MATERIAL WITHIN THE GRADING LIMITS SHALL BE STRIPPED TO A MINIMUM DEPTH OF EIGHTEEN (18) INCHES AND DISPOSED OF OFF SITE.
4. FOR GEOTECHNICAL INFORMATION REFER TO THE GEOTECHNICAL ENGINEERING REPORT AND PRELIMINARY PERCOLATION EVALUATION PREPARED BY TERRA-GEO.
5. FOR DESIGNATED TRAFFIC AREAS REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL SUBGRADE PREPARATION AND RECOMMENDATIONS.
6. GROUNDWATER SEEPAGE WAS OBSERVED IN ALL BORINGS AND TEST PITS BETWEEN 5'-10' BELOW THE EXISTING SURFACE.
7. GRADING IS BASED ON THE ASSUMED BASE FLOOD ELEVATION(BFE) OF 61.3'. FOUNDATIONS SHALL BE AT LEAST 1.0' ABOVE BFE.
8. RESULTS FROM THE SITE FLOOD STUDY COMPLETED BY POWER ENGINEERS HAS SHOWN THE PROPOSED DEVELOPMENT HAS NOT INCREASED THE WATER SURFACE ELEVATION OF THE BFE MORE THAN ONE FOOT AT ANY POINT.
9. TOTAL DISTURBANCE AREA = 575,000 S.F. / 13.20 ACRES.
10. THE STORMWATER MANAGEMENT POND IS TO BE BUILT IN ACCORDANCE WITH THE CURRENT EDITION OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY, STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (SWMMWW).

LEGEND

- PROPERTY BOUNDARY LINE
- PARCEL LINES
- OH/ETC — EXISTING OVERHEAD POWER
- ASSUMED SETBACK LINE
- EXISTING POWER POLE
- EXISTING POWER LINE STRUCTURE
- RETAINING WALL
- STORM DRAIN PIPE
- STORM DRAIN INLET
- CHAIN-LINK FENCE
- 8' PRECAST PANEL FENCE
- PROPOSED BATTERY ENCLOSURE UNITS
- MV TRANSFORMER
- FUTURE AUGMENTATION BESS UNITS
- BESS — BATTERY ENERGY STORAGE SYSTEM
- ROAD SURFACING
- GRAVEL SURFACING
- RIPRAP
- 60 — EXISTING MAJOR CONTOUR
- 59 — EXISTING MINOR CONTOUR
- 60 — MAJOR CONTOUR
- 59 — MINOR CONTOUR
- -1.0% — GRADING SLOPE ARROW
- FLOW LINE
- DAYLIGHT LINE
- LOD — DISTURBANCE LIMITS
- TW — TOP OF WALL
- FL — FLOW LINE
- FG — FINISHED GRADE
- EG — EXISTING GRADE

0 30 60 120 180 FEET
1" = 60'

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PRELIMINARY
NOT FOR CONSTRUCTION

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A	ISSUED FOR INFORMATION	4/24/2024	BTB	BTB	TJG	TWH

DSGN | DRN | CKD
SCALE: 1" = 60'
FOR 22x34 DWG ONLY

POWER ENGINEERS

GOLDENEYE BATTERY STORAGE, LLC
GOLDENEYE BESS PROJECT
200MW/800MWH BESS
PRELIMINARY GRADING PLAN

JOB NUMBER 180161
REV A
DRAWING NUMBER C2-1

GE_REV_A_C2-1.dwg

CUT/FILL TABLE

NUMBER	COLOR	CUT(-) / FILL(+) RANGE	AREA (SF)
1		-6' TO -4'	10,698
2		-4' TO -2'	101,130
3		-2' TO 0'	31,960
4		0' TO 2'	69,994
5		2' TO 4'	141,657
6		4' TO 6'	140,546
7		6' TO 8'	5,448

GRADING CUT/FILL NOTES

1. EXISTING AND PROPOSED CONTOURS ARE SHOWN AT 1' INTERVALS.
2. ALL CUT & FILL SLOPES SHALL BE AT 3:1 UNLESS NOTED OTHERWISE.
3. CUT/FILL DATA SHOWN IS THE DIFFERENCE BETWEEN THE EXISTING GRADE SURFACE AND THE PROPOSED GRADE SURFACE. NO ALLOWANCE HAS BEEN MADE FOR SHRINK OR SWELL.

LEGEND

- PROPERTY BOUNDARY LINE
- PARCEL LINES
- OH/ETC — EXISTING OVERHEAD POWER
- ASSUMED SETBACK LINE
- EXISTING POWER POLE
- EXISTING POWER LINE STRUCTURE
- RETAINING WALL
- STORM DRAIN PIPE
- STORM DRAIN INLET
- CHAIN-LINK FENCE
- 8' PRECAST PANEL FENCE
- PROPOSED BATTERY ENCLOSURE UNITS
- MV TRANSFORMER
- FUTURE AUGMENTATION BESS UNITS
- BESS — BATTERY ENERGY STORAGE SYSTEM
- ROAD SURFACING
- GRAVEL SURFACING
- RIPRAP
- 60 — EXISTING MAJOR CONTOUR
- 59 — EXISTING MINOR CONTOUR
- 60 — MAJOR CONTOUR
- 59 — MINOR CONTOUR
- -1.0% — GRADING SLOPE ARROW
- FLOW LINE
- DAYLIGHT LINE
- LOD — DISTURBANCE LIMITS

0 30 60 120 180 FEET
1" = 60'

GRID NORTH

PROPOSED CULVERT (TYP.)

EXISTING SEPTIC DRAINFIELD APPROXIMATE LOCATION (TO BE REMOVED)

NW COR. SECTION 20
CONC. MON. BURIED 22"
PER SURVEY MAP No.
197902200007

MINKLER ROAD

S01° 27' 03"W 2595.94

S54° 26' 02"W 298.49

N89° 31' 15"W 621.90

N0° 27' 05"E 99.15

CENTERLINE OF HANSEN CREEK HELD FOR WESTERLY PROPERTY LINE

BERGER MERLE H
PARCEL ID:
40031

PURDUE FOODS LLC PARCEL ID:
40033

PURDUE FOODS LLC PARCEL ID:
40009

JOHN F. GRIMES
25080 MINKLER ROAD
PARCEL ID: 40032
15.67± ACRES

N89° 31' 15"W 702.29

S0° 10' 51"W 1058.86

N0° 09' 31"E (R2)
N0° 10' 51"E (R4)

TIE GRADING INTO EXISTING DRAINAGE DITCH

Wetland B Category III
Wetland C Category III
Wetland E Category IV
Wetland F Category IV
Wetland G Category IV

EXISTING BUILDING (TO BE REMOVED)

FOUND BRASS DISK

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DSGN
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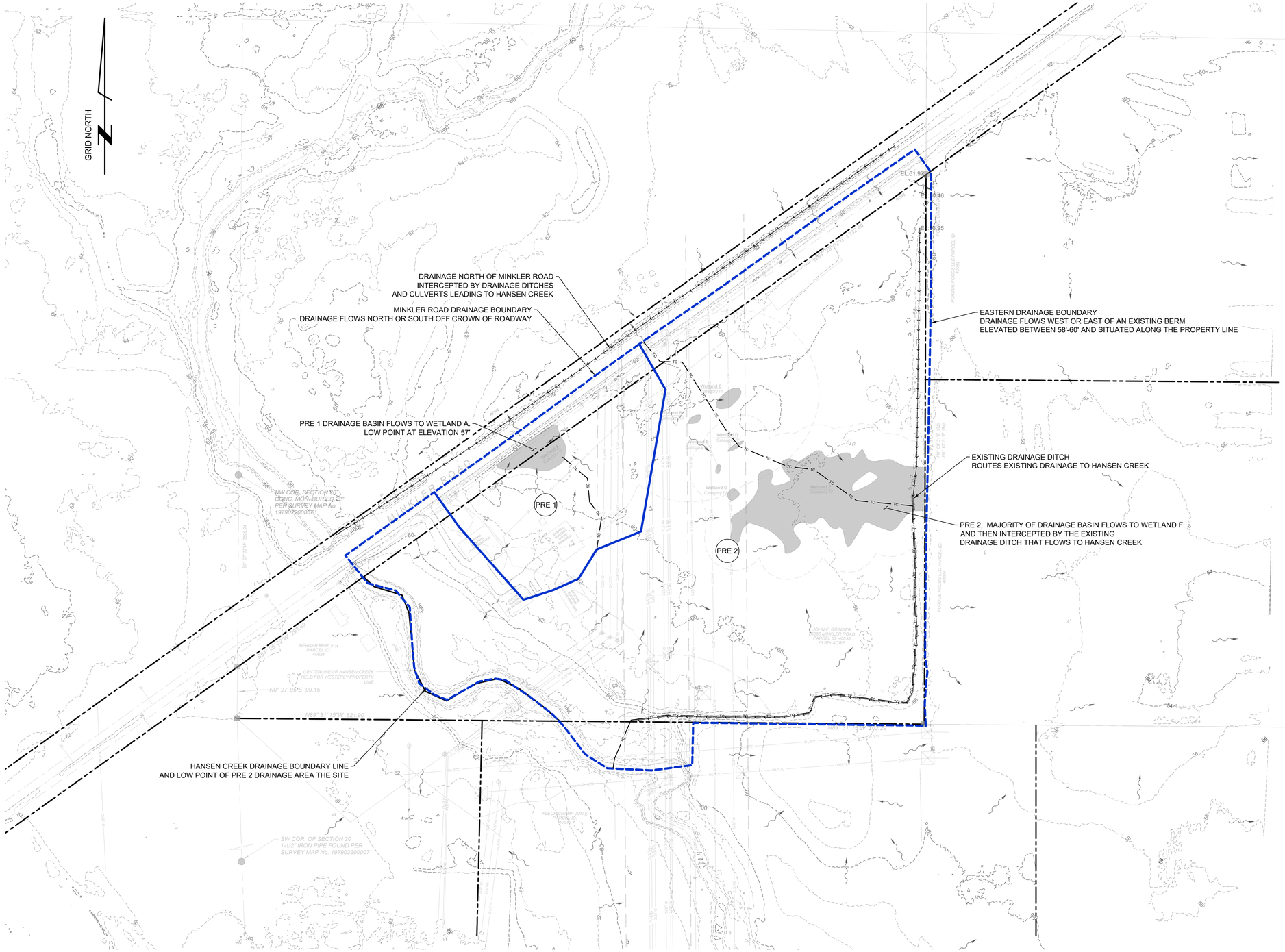
POWER ENGINEERS

GOLDENEYE BATTERY STORAGE, LLC
GOLDENEYE BESS PROJECT
200MW/800MWH BESS
PRELIMINARY CUT/FILL MAP

JOB NUMBER 180161
REV A
DRAWING NUMBER C2-2

GE_REV_A_C2-1.dwg



EXISTING DRAINAGE NOTES

1. EXISTING CONTOURS ARE SHOWN AT 2' INTERVALS.
2. DATA SHOWN BELOW WAS COMPLETED UTILIZING AUTODESK SANITARY AND SEWER ANALYSIS. PRELIMINARY CALCULATIONS WERE DONE WITH THE FOLLOWING STORM DURATION INPUT VALUES:

   SCS TYPE 1A STORM DISTRIBUTION WITH:

   2-YEAR, 24- HOUR STORM DEPTH OF 2.36" AND
   100-YEAR, 24-HOUR STORM DEPTH OF 4.11"

LEGEND

- PROPERTY BOUNDARY LINE
- PARCEL LINES
- OH/ETC — EXISTING OVERHEAD POWER
- EXISTING DRAINAGE BASIN BOUNDARY
- TC — TC — TC — TIME OF CONCENTRATION(ToC) FLOW PATH
- EXISTING FENCE
- EXISTING ASPHALT EDGE
- EXISTING POWER POLE
- EXISTING POWER LINE STRUCTURE
- 60 — EXISTING 10' MAJOR CONTOUR
- 58 — EXISTING 2' MINOR CONTOUR
- FLOW LINE
- EXISTING DRAINAGE FLOW DIRECTION
- (PRE #) PRE DEVELOPED DRAINAGE BASIN LABEL

SUBBASIN PRE 1			
LAND COVER	AREA (AC)	SOIL GROUP	CN
EXISTING BUILDINGS	0.14	C	98
EXISTING DRIVEWAY	0.05	C	98
EXISTING WETLANDS	0.15	C	98
MINKLER ROAD	0.17	C	98
50 - 75% GRASS COVER, FAIR	1.87	C	79
WOODS & GRASS COMBINATION, GOOD	0.31	C	72
COMPOSITE AREA & WEIGHTED CN	2.69		81.8

SUBBASIN PRE 2			
LAND COVER	AREA (AC)	SOIL GROUP	CN
EXISTING BUILDINGS	0.06	C	98
EXISTING DRIVEWAY	0.10	C	98
EXISTING WETLANDS	1.03	C	98
MINKLER ROAD	0.30	C	98
50 - 75% GRASS COVER, FAIR	7.34	C	79
WOODS & GRASS COMBINATION, GOOD	6.42	C	72
COMPOSITE AREA & WEIGHTED CN	15.25		77.9

SUB BASIN	AREA (AC)	SOIL GROUP	CN	ToC (MIN)	2-YEAR 24-HR PEAK FLOW (CFS)	100-YEAR 24-HR PEAK FLOW (CFS)
PRE 1	2.69	C	81.8	33	0.4	1.25
PRE 2	15.25	C	77.9	68	1.14	4.47
TOTAL	**17.94**					

0 50 100 200 300 FEET
1" = 100'

GE_REV_A_C2-3.dwg

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DSGN | DRN | CKD
SCALE: 1" = 100'
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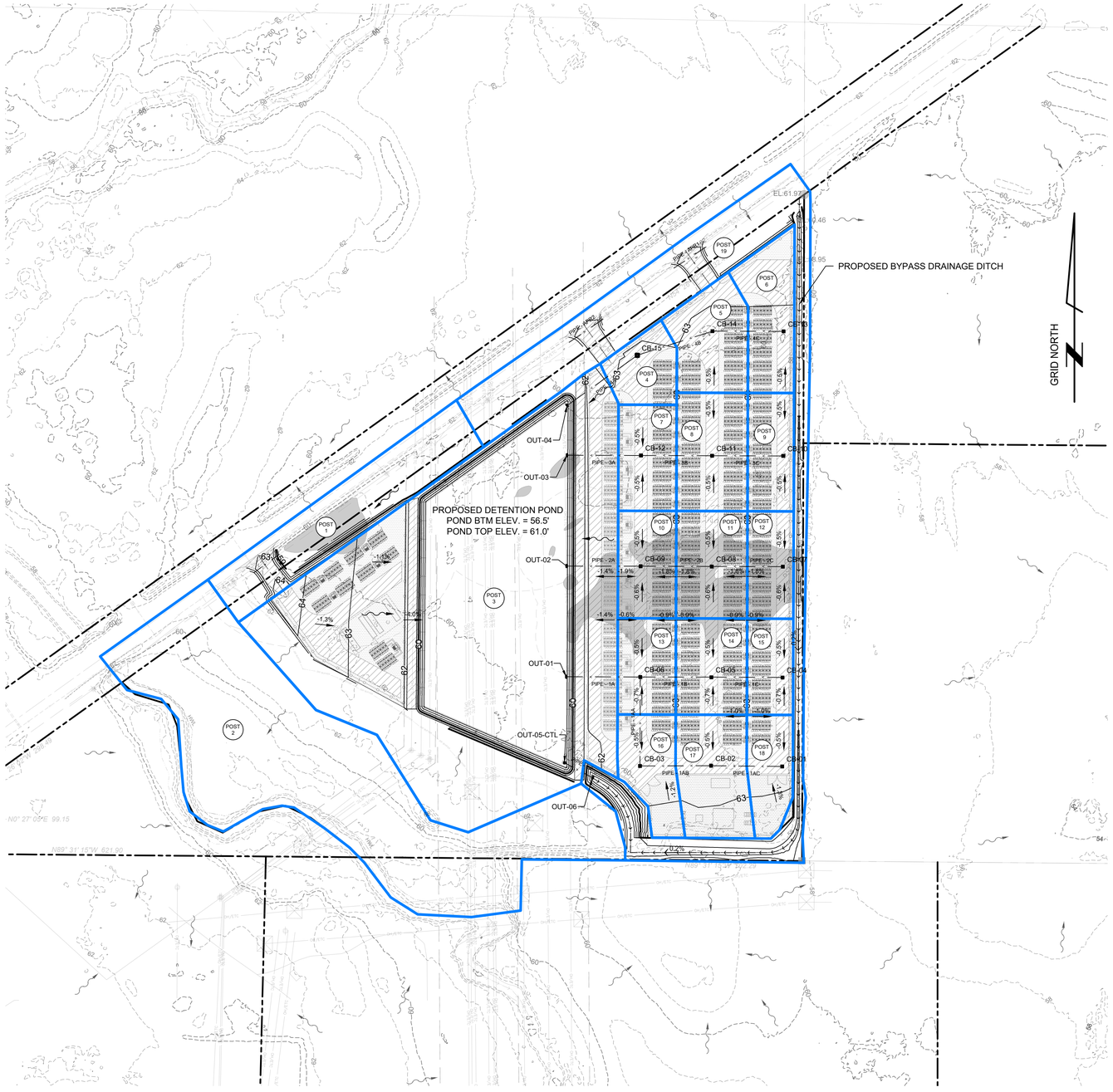
POWER ENGINEERS

GOLDENEYE BATTERY STORAGE, LLC
GOLDENEYE BESS PROJECT
200MW/800MWH BESS
EXISTING DRAINAGE PLAN

JOB NUMBER 180161
REV A
DRAWING NUMBER C2-3



PROPOSED DRAINAGE NOTES

1. THE SITE WAS MODELED WITH WWHM2012 TO PRELIMINARILY SIZE THE REQUIRED DETENTION POND VOLUME. SOFTWARE INPUTS AND OUTPUT SHOWN BELOW:

   PREDEVELOPED AREA:
   13.2 ACRES C, FOREST FLAT, (PERVIOUS)

   MITIGATED AREA:
   3.15 ACRES C, LAWN, STEEP, (PERVIOUS)
   2.62 ACRES ROADS/FLAT, (IMPERVIOUS)
   3.35 ACRES ROOF TOPS/FLAT, (IMPERVIOUS)
   1.75 ACRES PARKING/FLAT, (IMPERVIOUS)
   2.33 ACRES POND, (IMPERVIOUS)

   REQUIRED POND SIZE:
   6.998 AC-FT POND VOLUME AT RISER HEAD,
   80,800 SF POND BOTTOM, 4.5' DEEP W/3:1 SIDE SLOPES

   REQUIRED OUTLET STRUCTURE:
   18" DIAMETER, 3.5' RISER HEIGHT, RECTANGULAR
   NOTCHED RISER WITH 1.905' HEIGHT BY .111' WIDTH
   NOTCH AND 2.51" DIAMETER ORIFICE.

2. CONVEYANCE DEVICES WERE PRELIMINARILY SIZED UTILIZING AUTODESK SANITARY AND SEWER ANALYSIS. SOFTWARE INPUTS AND OUTPUTS SHOWN IN THE INFORMATION SHOWN BELOW AND WITHIN THE TABLES ON THIS SHEET:

   SCS TYPE 1A STORM DISTRIBUTION WITH 100-YEAR, 24-HOUR STORM DEPTH OF 4.11".

LEGEND

- PROPERTY BOUNDARY LINE
- PARCEL LINES
- PROPOSED DRAINAGE BASIN BOUNDARY
- 60 EXISTING 10' MAJOR CONTOUR
- 58 EXISTING 2' MINOR CONTOUR
- 60 PROPOSED 5' MAJOR CONTOUR
- 59 PROPOSED 1' MINOR CONTOUR
- FLOW LINE
- EXISTING DRAINAGE FLOW DIRECTION
- PROPOSED DRAINAGE FLOW DIRECTION
- -1.0% GRADING SLOPE
- POST # POST DEVELOPED DRAINAGE BASIN LABEL

SUB-BASIN AREA DRAINAGE DETAILS

SUB BASIN	AREA (AC)	SOIL GROUP	CN	ToC (MIN)	2-YEAR 24-HR PEAK FLOW (CFS)	100-YEAR 24-HR PEAK FLOW (CFS)
POST 1	0.94	C	92	6	0.38	0.79
POST 2	3.38	C	77	6	0.33	1.34
POST 3	5.97	C	98	6	3.27	5.85
POST 4	0.26	C	98	6	0.14	0.26
POST 5	0.44	C	98	6	0.24	0.43
POST 6	0.43	C	98	6	0.24	0.43
POST 7	0.36	C	98	6	0.20	0.35
POST 8	0.49	C	98	6	0.27	0.48
POST 9	0.32	C	98	6	0.18	0.31
POST 10	0.36	C	98	6	0.20	0.36
POST 11	0.44	C	98	6	0.24	0.43
POST 12	0.29	C	98	6	0.16	0.28
POST 13	0.32	C	98	6	0.18	0.32
POST 14	0.40	C	98	6	0.22	0.39
POST 15	0.26	C	98	6	0.14	0.25
POST 16	0.35	C	98	6	0.19	0.34
POST 17	0.51	C	98	6	0.28	0.49
POST 18	0.29	C	98	6	0.16	0.29
POST 19	2.13	C	92	24	0.83	1.75
TOTAL	**17.94**					

PIPE DRAINAGE DETAILS

PIPE NAME	PIPE DIAMETER (IN)	100-YEAR 24-HR PEAK FLOW (CFS)	100-YEAR 24-HR PEAK VELOCITY (FPS)	DESIGN FLOW CAPACITY (CFS)	MAX FLOW/ DESIGN FLOW RATIO	MAX FLOW DEPTH/ TOTAL DEPTH RATIO
1A	12	2.07	4.15	2.73	0.76	0.93
1AA	12	1.12	2.38	2.73	0.41	0.58
1AB	12	0.78	2.56	2.73	0.29	0.41
1AC	12	0.29	1.47	2.73	0.11	0.3
1B	12	0.64	1.55	2.72	0.23	0.57
1C	12	0.25	1.48	2.72	0.09	0.27
2A	12	1.07	2.85	2.74	0.39	0.93
2B	12	0.71	2.41	2.73	0.26	0.57
2C	12	0.28	1.56	2.73	0.1	0.28
3A	12	1.14	2.95	2.74	0.42	0.93
3B	12	0.79	2.47	2.73	0.29	0.57
3C	12	0.31	1.57	2.72	0.12	0.3
4A	12	1.12	2.93	2.73	0.41	0.88
4B	12	0.86	2.67	2.73	0.31	0.44
4C	12	0.43	1.87	2.73	0.16	0.33

POND DRAINAGE DETAILS

ELEMENT ID	INVERT ELEVATION (FT)	TOTAL DEPTH (FT)	POND BOTTOM AREA (ACRES)	100-YEAR 24-HR PEAK INFLOW (CFS)	100-YEAR 24-HR PEAK LATERAL INFLOW (CFS)	100-YEAR 24-HR PEAK OUTFLOW (CFS)
POND	56.5	4.5	2.33	11.23	5.84	0.20

BYPASS DITCH DRAINAGE DETAILS

ELEMENT ID	AVERAGE SLOPE (%)	CHANNEL TYPE	CHANNEL HEIGHT (FT)	CHANNEL WIDTH (FT)	100-YEAR 24-HR PEAK FLOW (CFS)	100-YEAR 24-HR PEAK VELOCITY (FPS)	DESIGN FLOW CAPACITY (CFS)	MAX FLOW DEPTH / TOTAL FLOW DEPTH RATIO
BY-PASS DITCH	0.23	TRAPEZOIDAL	1.00	10.00	1.28	1.00	10.05	0.37

0 50 100 200 300 FEET
1" = 100'

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PRELIMINARY
NOT FOR CONSTRUCTION

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
A	ISSUED FOR INFORMATION	4/24/2024	BTB	BTB	TJG	TWH

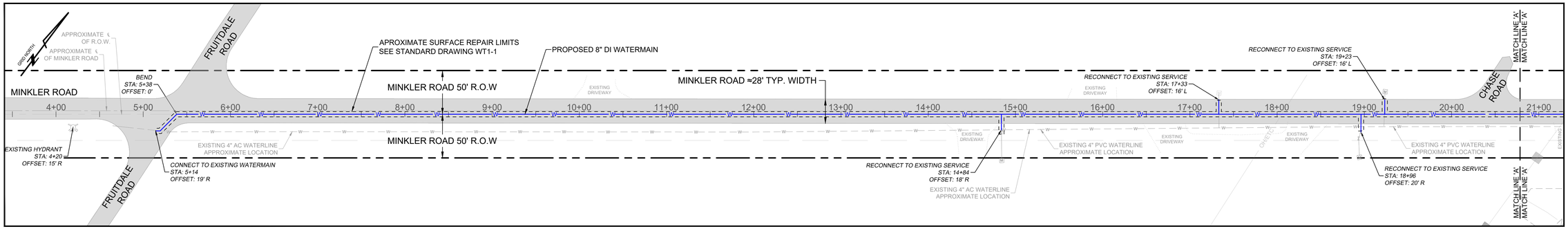
DSGN
DRN
CKD
SCALE: 1" = 100'
FOR 22x34 DWG ONLY

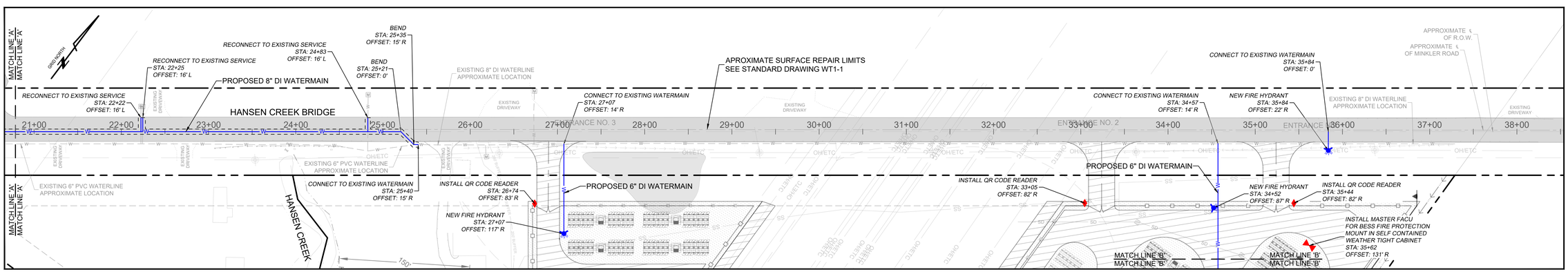
POWER ENGINEERS

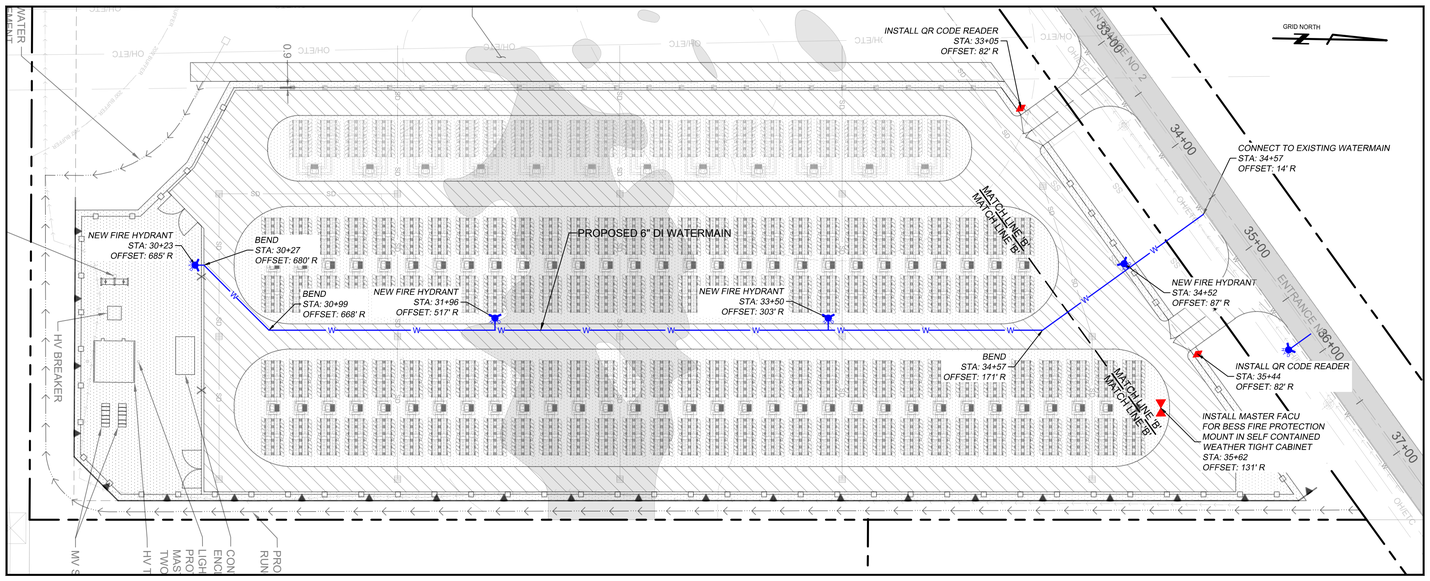
GOLDENEYE BATTERY STORAGE, LLC
GOLDENEYE BESS PROJECT
200MW/800MWH BESS
PROPOSED DRAINAGE PLAN

JOB NUMBER 180161
REV A
DRAWING NUMBER C2-4

GE_REV_A_C2-3.dwg







FIRE PROTECTION PLAN NOTES

1. EXISTING WATERLINE LOCATIONS ARE APPROXIMATE AND ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
2. EXISTING WATERMAIN IS TO BE CAPPED AND ABANDONED IN PLACE, AFTER REMOVAL FROM SERVICE.
3. WATERLINE REPLACEMENT LIMITS OF DISTURBANCE IS TO BE WITHIN THE ASPHALT ROADWAY LIMITS UNLESS OTHERWISE SHOWN.
3. ALL WATERMAIN IMPROVEMENTS SHALL COMPLY WITH THE CURRENT EDITION OF THE SKAGIT COUNTY PUD REQUIREMENTS.
4. ALL ROAD REQUIREMENTS SHALL CONFORM TO THE CURRENT EDITION OF THE SKAGIT COUNTY ROAD STANDARDS MANUAL.
5. PROPOSED HYDRANT LOCATIONS AND FIRE PROTECTION PLAN ARE TO BE REVIEWED AND APPROVED BY THE RULING FIRE AHJ PRIOR TO CONSTRUCTION.
6. WATERLINE FLOW RATE SHALL BE A MINIMUM OF 500 GALLONS PER MINUTE.
7. FIRE HYDRANTS SHALL BE INSTALLED WITH A POST INDICATING VALVE(PIV) WITH A SUPERVISORY SWITCH AND 3/4" NON-METALLIC CONDUIT ROUTED TO THE CONTROL ROOM. THE PIV MAYBE REPLACED WITH A TRUMBULL VALVE POSITION INDICATOR THAT HAS A VALVE BOX FLUSH WITH THE ROADWAY SURFACE.

ESTIMATED QUANTITIES

*QUANTITIES LISTED ARE ESTIMATES ONLY. CONTRACTORS TO CALCULATE THEIR OWN BID QUANTITIES.

8" DUCTILE IRON WATERMAIN	2,050	LF
6" DUCTILE IRON WATERMAIN	1,000	LF
8" BEND	4	EA
6" BEND	3	EA
CONNECT TO NEW OR EXISTING WATERMAIN	4	EA
RECONNECT TO EXISTING SERVICE	7	EA
FIRE HYDRANT	6	EA
ASPHALT RESTORATION (2" THICKNESS ASSUMED)	175	TON
QR CODE READER	2	EA
MASTER FACU	1	EA

LEGEND

- PROPERTY BOUNDARY LINE
- EXISTING WATERLINE
- PROPOSED WATERLINE
- EXISTING HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED QR CODE READER
- PROPOSED MASTER FACU

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PRELIMINARY
NOT FOR CONSTRUCTION

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
A	ISSUED FOR INFORMATION	4/24/2024	BTB	BTB	TJG	TWH

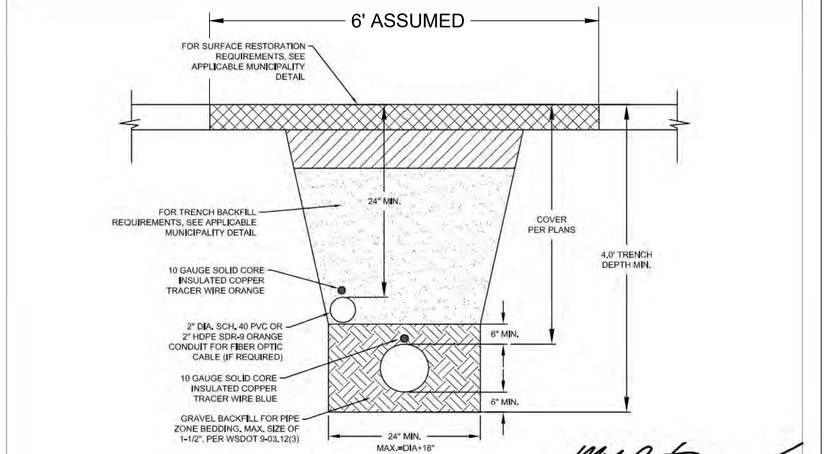
DSGN | DRN | CKD
SCALE: 1" = 60'
FOR 22x34 DWG ONLY

POWER ENGINEERS

GOLDENEYE BATTERY STORAGE, LLC
GOLDENEYE BESS PROJECT
200MW/800MWH BESS
PRELIMINARY FIRE PROTECTION PLAN

JOB NUMBER 180161
REV A
DRAWING NUMBER C3-1

GE_REV_A_C3-1.dwg



NOTES:

1. DEPTH OF BEDDING BELOW PIPE DEPENDANT ON SOIL CONDITIONS. CONSULT WITH ENGINEER.

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER

APPROVED ON: SEPTEMBER 9, 2022

Skagit PUD PUBLIC UTILITY DISTRICT

TYPICAL TRENCH SECTION

SCALE: 1" = 1'	STANDARD
DATE: 11-15-11	
REVISED: 9/8/22	WT1-1
DRAWN BY: JLB	
APPROVED BY: MCH	

CAP OR PLUG | TEE | 90° BEND | 45° BEND | 22-1/2° BEND | 11-1/4° BEND | SECTION AT ALL FITTINGS

THRUST BLOCK REQUIREMENTS

		BEARING AREA REQUIRED IN SQUARE FEET											
		KEY BLOCK** & TEE/CAP OR PLUG test pressures			90 Degree BEND test pressures			45 Degree BEND test pressures			22.5 Degree BEND test pressures		
PIPE SIZE	PIPE SIZE	200	225	250	200	225	250	200	225	250	200	225	250
Nominal	Outside dia.	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
4	4.80	1.8	2.0	2.3	2.6	2.9	3.2	1.4	1.5	1.7	0.7	0.8	0.9
6	6.90	3.7	4.2	4.7	5.3	5.9	6.6	2.9	3.2	3.6	1.5	1.6	1.8
8	9.05	6.4	7.2	8.0	9.1	10.2	11.4	4.9	5.5	6.2	2.5	2.8	3.1
12	13.20	13.7	15.4	17.1	19.4	21.8	24.3	10.5	11.8	13.1	5.3	6.0	6.7
16	17.40	23.8	26.8	29.7	33.6	37.8	42.0	18.2	20.5	22.7	9.3	10.4	11.6
18	19.50	29.9	33.6	37.3	42.2	47.5	52.8	22.9	25.7	28.6	11.7	13.1	14.6
24	25.80	52.3	58.8	65.3	73.9	83.2	92.4	40.0	45.0	50.0	20.4	22.9	25.5

		BEARING AREA REQUIRED IN SQUARE FEET											
		11.25 Degree BEND test pressures											
PIPE SIZE	PIPE SIZE	200	225	250									
Nominal	Outside dia.	psi	psi	psi									
4	4.80	0.3	0.4	0.4									
6	6.90	0.7	0.8	0.8									
8	9.05	1.0	1.1	1.4									
12	13.20	2.4	3.0	3.4									
16	17.40	4.1	5.2	5.8									
18	19.50	5.9	6.8	7.3									
24	25.80	10.2	11.5	12.8									

NOTES:

1. ALL CONCRETE BLOCKING SHALL BE POURED AGAINST DRY, UNDISTURBED SUBGRADE. TABLE IS BASED ON 2000 POUNDS PER SQUARE FOOT ALLOWABLE SOIL BEARING. WEAKER SOIL WILL REQUIRE INCREASED BEARING AREA. SEE SOIL BEARING LOAD CHART.
2. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES. USE FORMING AS NECESSARY.
3. HORIZONTAL ANCHOR BLOCKING CONFIGURATIONS FOR FITTINGS NOT SHOWN SHALL HAVE APPROVAL OF THE P.U.D.
4. THE SQUARE FOOT AREAS REQUIRED FOR BEARING ARE CALCULATED BY THE FOLLOWING FORMULAS:
   T = PA
   T + K = BEARING AREA REQUIRED IN SQUARE FEET
   FORMULA AT TEE & CAP OR PLUG:
   T = 2PA (SIN 1/2 ANGLE) WHERE ANGLE = THE DEGREE BEND OF THE FITTING
   T + K = BEARING AREA REQUIRED IN SQ. FEET
   WHEN:
   T = THRUST IN POUNDS
   P= TEST PRESSURE IN PSI
   A= CROSS-SECTIONAL AREA OF PIPE IN SQ. INCHES
   K= ASSUMED 2000 PSF SOIL BEARING PRESSURE
5. FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT WITH A MIN. OF 8-MIL THICKNESS. IT MUST BE INSTALLED AS PER W.S.D.O.T. STANDARDS AND IN ACCORDANCE WITH A.W.W.A. C105.

BEARING AREA REQUIRED IN SQUARE FEET

THE SAFE SOIL BEARING LOADS SHOWN BELOW ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

SOIL	SAFE BEARING LOAD LBS./SQ. FT.
*MUCK, PEAT, ETC.	0
SOFT CLAY, SILT	1,000
SAND, SANDY SILT	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED W/ CLAY	4,000
HARD SHALE	10,000

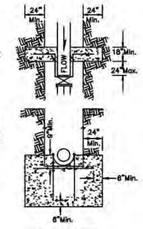
*IN MUCK OR PEAT, ALL THRUSTS SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THRUSTS.

KEY BLOCK USE

THE INSTALLATION OF A KEY BLOCK IS TO BE CONSIDERED ONLY FOR TEMPORARY BLOCKING FOR 5-10 YEARS. IF THE PIPELINE IS TO REMAIN A DEADEND OR AN EXTENSION IS LIKELY TO BE MORE THAN 10 YEARS AWAY, THEN A STANDARD BLOCK FOR CAP OR PLUG WILL BE INSTALLED. USE OF KEY BLOCK IS TO BE APPROVED BY THE DISTRICT.

*KEY BLOCKING SPECIFICATION:

MATERIALS SHALL INCLUDE 3/4-INCH RESTRAINING RODS, HEX NUTS AND WASHERS OF HIGH STRENGTH LOW ALLOY STEEL MEETING AWWA C-111-90 COMPOSITION SPECIFICATIONS, ROMAC "DUCTILE LUG" OR 907 EYE BOLTS AND "600" SERIES PIPE RESTRAINING SYSTEM. THRUST RESTRAINT TO BE CALCULATED AT 7500 POUNDS PER BOLT OR AS RECOMMENDED BY ENGINEER. ALL RODS, EYE BOLTS AND PIPE RESTRAINTS ARE TO BE CLEAN. TWO SEPARATE BRUSH COATS OF ASPHALT COATING AS APPROVED BY THE ENGINEER TO BE APPLIED. A 3-INCH MINIMUM CLEARANCE IS REQUIRED BETWEEN WATER PIPE AND CONCRETE. SOIL IS TO BE COMPACTED TO 95% REBAR TO BE MINIMUM #5 (3/4") SIZE AND HAVE A MINIMUM 9-INCH CLEARANCE FROM ANY CONCRETE SURFACE.



KEY BLOCK

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER

APPROVED ON: MAY 6, 2014

Skagit PUD PUBLIC UTILITY DISTRICT

HORIZONTAL THRUST BLOCKING DETAILS

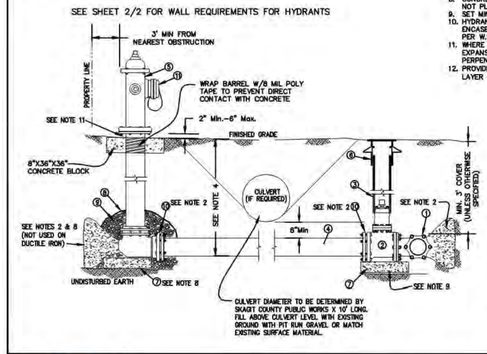
SCALE: NTS	STANDARD
DATE: 3-05-05	
REVISED: 5/6/14	WT-1
DRAWN BY: CAS	
APPROVED BY: GJS	

BILL OF MATERIALS

NO.	NOMENCLATURE	REQ'D.
1	TEE WITH FLANGED BRANCH	1
2	6" VALVE WITH FLOW-LOK CONNECTIONS (SEE NOTE 6)	1
3	CASING, 6" PVC SEWER PIPE	1
4	PIPE, 6" CLASS 50 DUCTILE IRON, FIELD CUT	
5	FIRE HYDRANT WITH PUMPER PORT, CLOW MEDALLION, OR AS APPROVED BY JURISDICTIONAL FIRE DEPARTMENT DISTRICT	1
6	VALVE BOX, CAST IRON OLYMPIC FOUNDRY V8007/SKAGIT (SEE P.U.D. DETAIL)	1
7	BLOCK, PRECAST CONCRETE. SEE NOTE 8.	1
8	FABRIC, GEOTEXTILE, NON-WOVEN (MIRAFI 140N)*	
9	1/4 CY DRAIN ROCK, 1-1/2"-3/4", NO FINES	
10	MEG-A-LUG, 6" FSRP RING 8"	2
11	HYDRANT ADAPTER STORZ STYLE S-37 W/SC CAP & CABLE, 5"x4"PCT	1

*OR EQUIVALENT APPROVED BY THE DISTRICT

SEE SHEET 2/2 FOR WALL REQUIREMENTS FOR HYDRANTS



NOTES:

1. ALL MATERIALS AND BRANDS MUST BE APPROVED BY P.U.D.
2. BLOCK TEE AND HYDRANT WITH POURED CONCRETE ON ALL WATER MAINS OTHER THAN DUCTILE IRON AND ON ALL TAPPING SLEEVES AS REQUIRED PER DISTRICT BLOCKING DETAIL. IN ADDITION, 6" "MEGALUGS" (OR APPROVED EQUIVALENT) ARE TO BE INSTALLED AT VALVE AND HYDRANT M.J. OUTLETS. RESTRAIN ANY JOINTS IN THE PIPELINE WITH "FIELD LOK" GASKETS (OR APPROVED EQUIVALENT) INSTALLED IN THE BELLS OF TYTON JOINT PIPE OR "MEGALUGS" ON M.J. BELLS.
   NO THRUST BLOCK REQUIRED BEHIND TEE ON 6" DUCTILE IRON OR LARGER MAINS.
3. PROTECTIVE BARRIER POSTS MAY BE NECESSARY AT SOME HYDRANT INSTALLATIONS. CONTACT FIRE DEPARTMENT/DISTRICT FOR SPECIFIC REQUIREMENTS.
4. HYDRANT LENGTH AND TRENCH DEPTH SHALL BE SO AS TO PROVIDE FOR HYDRANT SETTING AT 2" MIN. AND 6" MAX. ELEVATION ABOVE FINISH GRADE.
5. SET HYDRANT VERTICAL. USE LEVEL. COMPACT ALL BACKFILL.
6. VALVE SHALL BE AWWA STANDARD GATE, "O" RING PACKING, NON-RISING STEM, 2" OPERATING NUT, RESILIENT WEDGE.
7. HYDRANT LOCATIONS ARE DETERMINED BY THE FIRE MARSHAL WITH AUTHORITY FOR AREA CONCERNED.
8. CONCRETE BLOCK WILL BE BELOW THE DRAIN HOLES AND DRAIN ROCK. TAKE CARE TO NOT PLUG DRAIN HOLES OR CONTAMINATE DRAIN ROCK.
9. SET MINIMUM 1 SQ.FT. CONCRETE SUPPORT TIGHT UP UNDER VALVE AND HYDRANT.
10. HYDRANT BARREL, LEAD, TEE, AND VALVE MUST BE WRAPPED WITH POLYETHYLENE PIPE ENCASEMENT TAPE WHICH IS A MINIMUM OF 8-MIL THICK. IT MUST BE INSTALLED AS PER W.S.D.O.T. STANDARDS AND IN ACCORDANCE WITH A.W.W.A. C105.
11. WHERE HYDRANTS ARE INSTALLED IN THE SIDEWALK, THERE SHALL BE A MINIMUM 3/8" EXPANSION JOINT AROUND THE BARREL OF THE HYDRANT AND AN EXPANSION JOINT PERPENDICULAR ACROSS THE SIDEWALK, INTERSECTING THE HYDRANT BARREL.
12. PROVIDE A MINIMUM OF 3'-0" LEVEL WORKING AREA AROUND HYDRANT USING 6" THICK LAYER OF 5/8" MINUS CRUSHED ROCK COMPACTED TO 95%

ALL FIRE HYDRANTS SHALL COMPLY WITH THE STANDARDS ISSUED BY THE SKAGIT COUNTY FIRE MARSHAL. HYDRANTS SHALL BE THE DRY BARREL TYPE WITH TWO HOSE OUTLETS WITH AN INSIDE DIAMETER OF 2-1/2 INCHES AND ONE LARGE PUMPER OUTLET WITH AN INSIDE DIAMETER OF 4 INCHES. SMALL PORTS SHALL HAVE NATIONAL STANDARD THREADS MEASURING 3.0625 INCHES OUTSIDE DIAMETER AT 7-1/2 THREADS PER INCH. PUMPER PORTS SHALL BE NO. 3 PACIFIC COAST THREADS MEASURING 4.625 INCHES OUTSIDE DIAMETER AT 6 THREADS PER INCH. THE OPERATING NUT SHALL BE 1-1/4 INCH PENTAGON.

A STORZ QUICK COUPLER CONNECTED TO THE PUMPER PORT MAY BE REQUIRED. CONTACT FIRE DISTRICT/DEPARTMENT.

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER

APPROVED ON: May 6, 2014

Skagit PUD PUBLIC UTILITY DISTRICT

STANDARD INSTALLATION OF FIRE HYDRANT "CENTER STEM TYPE"

SHEET 1/2

SCALE: NTS	STANDARD
DATE: 3-25-05	
REVISED: 5/6/14	WH-1a
DRAWN BY: CAS	
APPROVED BY: GJS	

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PRELIMINARY
NOT FOR CONSTRUCTION

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
A	ISSUED FOR INFORMATION	4/24/2024	BTB	BTB	TJG	TWH

DSGN | DRN | CKD

SCALE: NONE

FOR 22x34 DWG ONLY

POWER ENGINEERS

GOLDENEYE BATTERY STORAGE, LLC
GOLDENEYE BESS PROJECT
200MW/800MWH BESS
PRELIMINARY FIRE PROTECTION PLAN DETAILS

JOB NUMBER 180161 | REV A

DRAWING NUMBER C3-2

GE_REV_A_C3-1.dwg

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
Department of Archaeology and Historic Preservation	Lance Wollwage Archaeological Unit	(360) 890-2616	2/9/24
	Allyson Brooks State Historic Preservation Officer	(360) 480-6922	2/9/24
	David Witt Assistant State Archaeologist	(360) 972-4616	5/2924
Department of Ecology	Loree' Randall Chris Luerkens Sonia Mendoza	(360) 485-2796	6/28/23
WA Department of Fish and Wildlife	Alex Richard	(360) 791-3517	2/28/24
	Robert Waddell	(360) 755-7607	3/18/24
WA Department of Commerce	Chris Green Assistant Director for the Office of Economic Development and Competitiveness		12/15/23
	Michael Furze Assistant Director, Energy Division		12/15/23
	Brian Young Clean technology Sector Lead		12/15/23
	Nora Hawkins Senior Energy Policy Specialist		12/15/23
Energy Facility Site Evaluation Council			11/13/23
Port of Skagit	Sara Young Executive Director	(360) 770-7704	5/21/24
Skagit County	Peter Browning Skagit County Commissioner	(360) 770-4321	6/14/24
	Ron Wesen Skagit County Commissioner		6/27/24
	Lisa Janicki Skagit County Commissioner		8/17/22
Upper Skagit Indian Tribe	The Honorable Marilyn M. Scott Tribal Chairwoman	(360) 854-7090	2/29/24
	Scott Schuyler Cultural Resources		
	Rick Hartson Habitat Biologist	(360) 391-8464	2/6/24

Agency Name	Contact Name	Phone	Most Recent Date of Contact
Samish Indian Nation	The Honorable Tom Wooten Tribal Chairman	(360) 293-6404	2/29/24
	Jackie Kerry Tribal Historic Preservation Officer		
Tulalip Tribes of Washington	The Honorable Teri Govin Tribal Chairwoman	(360) 716-4000	2/29/24
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	Steve Hinton Conservation Scientist	(360) 716-4637	6/17/24
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Cultural Resources Inventory

Goldeneye Energy Storage Project, Skagit County, Washington

JUNE 2024

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Intended Use: This report is intended for the exclusive use of Goldfinch Energy Storage, LLC (the applicant), and its representatives. It contains professional conclusions and recommendations concerning the potential for project-related impacts to cultural resources based on the results of Dudek's investigation. It should not be considered to constitute project clearance with regard to the treatment of cultural resources or permission to proceed with the project described in lieu of review by the appropriate reviewing or permitting agency. This report should be submitted to the appropriate federal, state, and local review agencies for their comments prior to the commencement of the project.

Management Summary

Dudek was contracted by Goldfinch Energy Storage, LLC (the applicant), to conduct a cultural resources inventory for the Goldeneye Energy Storage Project (the proposed project) in Skagit County, Washington, west of Sedro-Woolley. The applicant is proposing to develop a battery energy storage system (BESS) facility with an associated generation interconnect (gen-tie) line to Puget Sound Energy's (PSE's) Sedro-Woolley Substation on approximately 19 acres of privately owned land. The project is subject to the Washington State Department of Archaeology and Historic Preservation (DAHP) review under the Washington State Energy Facility Site Evaluation Council in compliance with the State Environmental Policy Act (SEPA).

The recommended area of potential impacts (API) for the project encompasses a total of 160 acres and includes the 16.5-acre project site, gen-tie line, two access road alignments, and the adjacent parcels that contain built environment resources of historic age (45 years or older). The archaeological survey area (ASA) was confined to the battery energy storage site, gen-tie line, and access roads where ground-disturbing activities are planned and encompasses approximately 23 acres.

Dudek's cultural resource inventory was designed to meet current DAHP guidelines. It included a cultural resources literature review, archival research, an archaeological field survey within the ASA (consisting of a pedestrian survey and 60 shovel probes), and a built environment survey of the API. Dudek identified one historic archaeological site (12655.18-01) within the project's ASA, located within the proposed access road, which is no longer being considered by the project. Since no direct project-related impacts are currently proposed at the site's location and the site will be avoided, no further work is recommended. A total of 22 built environment resources were found within the API. Three built environment resources were identified within the API, and DAHP recently determined that they were not eligible for the National Register of Historic Places (NRHP). No further work was completed for these resources. Dudek identified 19 additional resources within the project API. Eighteen of the newly recorded resources were recommended as not eligible for the NRHP. The Bonneville Power Administration Transmission Line Monroe–Custer No. 2 (12655-BE-GE05) is recommended to be eligible for the NRHP. Dudek recommends that the proposed project will not adversely affect this eligible resource.

Dudek recommends the finding for cultural resources for the proposed project under Section 106 of the National Historic Preservation Act is No Historic Properties Affected.

If the API or scope changes, or if proposed ground-disturbing activities are conducted outside areas tested by Dudek, additional cultural resources investigations may be needed prior to project activities. Dudek recommends that an inadvertent discovery plan be prepared for the project that describes procedures that will be followed by the applicant and its construction contractors should unanticipated archaeological resources or evidence of human burials be encountered during the project's construction.

Table of Contents

SECTION **PAGE NO.**

Acknowledgments i

Management Summary ii

Acronyms and Abbreviations vii

1 Introduction 1
- 1.1 Nature of the Undertaking 1
- 1.2 Regulatory Context 1
- 1.3 Area of Potential Impacts 1

2 Environmental Setting 5
- 2.1 Physiography and Geology 5
- 2.2 Hydrology, Soils, and Vegetation 5

3 Cultural Setting 6
- 3.1 Archaeological Period 6
- 3.2 Ethnographic Period 8
- 3.3 Historic Period 9
  - 3.3.1 Non-Native Exploration and Settlement 11
  - 3.3.2 Railroad Development 11
  - 3.3.3 Sedro-Woolley in the Early and Mid-Twentieth Century 12
  - 3.3.4 Power Development in the API 13

4 Previous Research and Expectations 15
- 4.1 Previous Cultural Resources Investigations 15
- 4.2 Previously Recorded Archaeological Resources 18
- 4.3 Previously Identified Historic Built Environment Resources 19
- 4.4 Historic Map Research 20
- 4.5 Archaeological Expectations 21
- 4.6 Built Environment Expectations 21

5 Methods 22
- 5.1 Archaeological Investigations 22
- 5.2 Built Environment Investigations 22
- 5.3 Resource Evaluation 22

6 Results 24
- 6.1 Archaeological Survey Results 24
  - 6.1.1 Pedestrian Survey 24
  - 6.1.2 Subsurface Survey 26

6.2 Site 12655.18-01 33
6.3 Built Environment Resources Documented in the API 40
6.3.1 Previously Recorded Resources 43
6.3.2 Newly Recorded Resources 45
7 Conclusions and Recommendations 79
8 References 80

TABLES

1 Previous Cultural Resources Investigations within 1 Mile of the ASA 16
2 Previously Recorded Archaeological Resources within 1 Mile of the ASA 19
3 Previously Recorded Historic Built Environment Resources within 1 Mile of the API 20
4 Built Environment Resources Documented in the API 41

EXHIBITS

1 An overview of the BESS site survey in open pasture, facing east. 28
2 An overview of the BESS site showing transmission lines, woods, and open agricultural field, facing southeast. 28
3 An overview of the project's BESS site during pedestrian survey, with wooded area and Hansen Creek in the background, facing south. 29
4 An overview of southern extent of BESS site within wooded area, showing Hansen Creek, facing south. 29
5 An overview showing Hansen Creek, thick vegetation, and SP-36, facing north. 30
6 An overview of modern structural refuse in forested area of the gen-tie line, facing south. 30
7 An overview showing gravel area where the gen-tie line enters Sedro-Woolley Substation, facing south. 31
8 An overview showing the access road alignment AR2 in TPN P40046, facing north. 31
9 An overview showing BESS site and SP-9 in process, facing west. 32
10 An overview of SP-33 in process within gen-tie line, facing west. 32
11 SP-44 at 25 cmbs with historic refuse fragments in situ (Photo 1) and incandescent bulb (Photo 2), plan view. 35
12 Feature 1, "Harvestore" grain-auger feeder system, facing north. 35
13 Feature 2, cultivator and roller overview, facing south. 36
14 Feature 3, John Deere Model A Tractor, facing north. 36
15 Feature 4, early to mid-twentieth century manure spreader, facing north. 37
16 Feature 5, portable water tank, facing west. 37

17 Feature 6, two International Harvestor Sickle Mowers, facing southwest. 38
18 Feature 7, John Deere Model A Tractor, facing north. 38
19 Feature 8, John Deere Z105 Sickle Mower, facing west. 39
20 Feature 9, two historic flail mowers, facing south. 39
21 Feature 10, John Deere Z105 Sickle Mower, facing west 40
22 Photo of the north elevation, from Minkler Road, facing south. 43
23 25084 Minkler Road, located southeast of 25080 Minkler Road. View of main (north) façade, with an obstructed view of the two-car garage, facing south. 44
24 Photo of transmission line structure Sedro-Woolley to Bellingham No. 1 (red arrow) and Murray–Custer No. 1 (black arrow). Tower number 1/5 in the API, facing south. 45
25 24933 Minkler Road (right). View of main (east) façade, and the general-purpose building garage) (left), facing northwest. 46
26 25002 Minkler Road. View from Minkler Road, facing south. 48
27 25016 Minkler Road. View of main (northwest) façade, with an obstructed view of the two-car garage, facing southeast. 50
28 Detailed image of the residence at 25040 Minkler Road, facing southeast. 52
29 View of 25071 Minkler Road from the right-of-way, facing north. 54
30 View of 25029 Minkler Road from the south side of the right-of-way, facing northwest. 56
31 View of residences on Minkler Road labeled 25029 (left) and 25035 (right), facing northwest. 58
32 View of 25097 Minkler Road with the garage (left) and residence (right), facing north. 59
33 The residence is looking east at the west (primary) façade. 62
34 View of the loft barn and general purpose building, facing north, looking at the south and west façades. 63
35 View of the north entrance of the park, along Minkler Road, facing east toward the project site. 65
36 View of mobile home park from south of project area, facing west. 65
37 View of 25077 Hoehn Road from the right-of-way. View of the primary (south) façade, with an obstructed view of the two-car garage facing north 68
38 View of 25291 Hoehn Road from the right-of-way with the loft barn in the background, facing north. 70
39 View of 25295 Hoehn Road from the right-of-way, facing northwest. 72
40 View of the loft barn. 73
41 Photo of PSE transmission structure located in the API, facing south. 75
42 Photo of Transmission Line Monroe–Custer No. 2, structure 49/5. Facing southeast. 78

FIGURES

1 Project Vicinity 3
2 Area of Potential Impacts and Archaeological Survey Area 4
3 Archaeological Survey Results 27
4 12655.18-01 Sketch Map 34
5 Built Environment Survey Results 42

APPENDIX

A Shovel Probe Summary Table

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AC	alternating current
ASA	archaeological survey area
API	area of potential impacts
amsl	average mean sea level
AR1	access road alignment 1
AR2	access road alignment 2
BESS	battery energy storage system
BP	before present
BPA	Bonneville Power Administration
ca.	circa
cmbs	centimeter(s) below surface
CMT	culturally modified tree
DAHP	Washington State Department of Archaeology and Historic Preservation
DC	direct current
gen-tie	generation interconnect
GIS	geographic information system
GLO	General Land Office
HBC	Hudson's Bay Company
kV	kilovolt
MW	megawatt
NPRR	Northern Pacific Railroad
NPS	National Park Service
NRHP	National Register of Historic Places
PSE	Puget Sound Energy
PSP&L	Puget Sound Power & Light Company
SEPA	State Environmental Policy Act
SLS&E	Seattle, Lake Shore & Eastern Railroad
SP	shovel probe
TPN	Tax Parcel Number
WISAARD	Washington Information System for Architectural and Archaeological Records Data

1 Introduction

1.1 Nature of the Undertaking

Goldfinch Energy Storage, LLC (the applicant), proposes to construct a utility-scale battery energy storage system (BESS) and associated generation interconnect (gen-tie) line (the project) on private land in Section 20 of Township 35 North, Range 5 East, Willamette Meridian in Skagit County, Washington (Figure 1, Project Vicinity). The project is approximately 600 feet northeast of the Puget Sound Energy (PSE) Sedro-Woolley Substation, which is planned to be the point of interconnection with the energy transmission system. The project is planned to provide a service to the regional electric grid by receiving energy (charging) from the PSE electric transmission system, storing energy on site, then delivering energy (discharging) back to the point of interconnection. It will have a 200 megawatt (MW)/800 MW-hour capacity.

The project will consist of lithium-ion batteries (which will be installed in racks), inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment interconnected into PSE's Sedro-Woolley Substation (i.e., point of interconnection). The batteries will be installed in purpose-built enclosures designed for aesthetic compatibility with the surrounding area. The enclosures will have battery storage racks with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system will be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current (DC) electricity that must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC, along with transformers to step up the voltage, will be included. Following construction, the proposed use will not create emissions to air, will not require sanitary facilities, and will not require water except to maintain water-efficient and low-impact landscaping designed for the project's frontage.

The applicant retained Dudek to conduct cultural resources investigations for the project. Dudek conducted background research and a literature review and completed a field survey for archaeological and aboveground historic resources. This report summarizes the results of the background research and cultural resources survey.

1.2 Regulatory Context

The project is subject to Washington State Department of Archaeology and Historic Preservation (DAHP) review under the Washington State Energy Facility Site Evaluation Council in compliance with the State Environmental Policy Act (SEPA), which requires the project applicant to identify any places or objects listed in, or eligible for national, state, or local preservation registers and to identify sites of historic, archaeological, scientific, or cultural importance in the vicinity of the project site. Under SEPA, the project applicant will apply for a site certificate from the Energy Facility Site Evaluation Council. The cultural resources investigation conducted for this project is intended to meet current DAHP guidelines and SEPA review requirements.

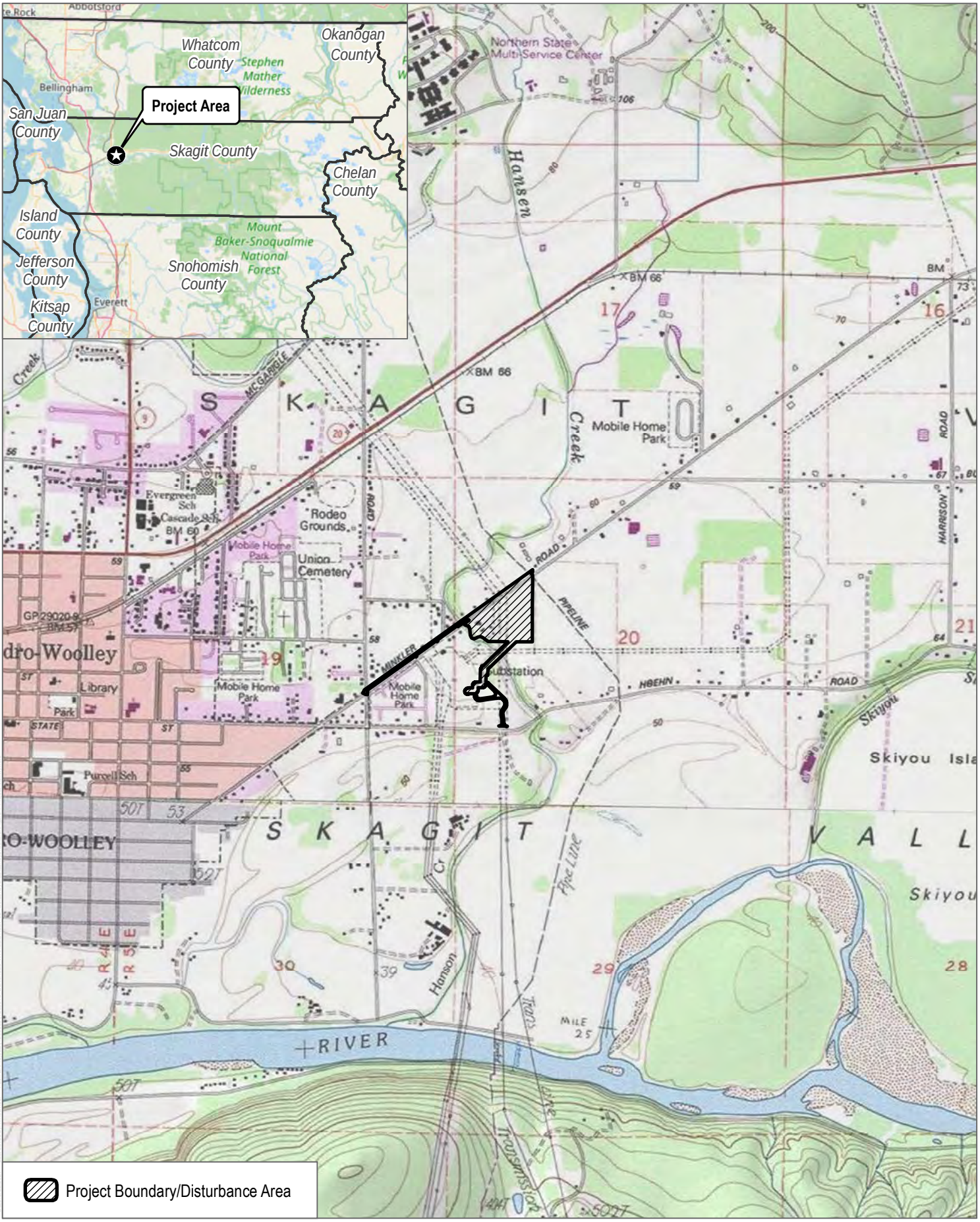
1.3 Area of Potential Impacts

The recommended area of potential impacts (API)—referred to simply as the "API" for the remainder of this report—includes the construction and operation footprint of the project (where there will be project-related ground

disturbances and other direct impacts), consisting of the approximately 16.6-acre BESS site, 2.5-acre gen-tie line route, and two access roads (access road alignment 1 [AR1] and access road alignment 2 [AR2]) to PSE's Sedro-Woolley Substation (combined, approximately 23 acres) within Tax Parcel Numbers (TPNs) P40030, P40042, P40046, P40047, P40022, and P40045. The API also includes resources on adjacent tax parcels that the project will not physically affect. However, they were included in consideration of the project's potential to visually impact the surrounding area. Dudek's built environment survey and evaluation included the entire API, where the historic built environment, if present, could potentially incur adverse effects. The adjacent tax parcels included the parcels designated as TPNs P39774, P39801, P39907, P39908, P40002, P4009, P40019, P40024, P40029, P40031, P40033, P40034, P40037, P40038, P40039, P40041, P40043, P40044, P64380, P64387, P64389, P64390, P64391, and P111528.

Dudek's archaeological survey focused on the project's construction and operation footprint, or the areas where project-related ground disturbances were likely to occur—in other words, where archaeological resources, if present, were likely to incur a direct physical effect (Figure 2, Area of Potential Impacts and Archaeological Survey Area). The archaeological survey area is referred to as the "ASA" for this report.

According to Skagit County Assessor information, TPNs P40022, P40045, P40046, and P40047 are PSE-owned land under Washington State jurisdiction, while TPNs P40030 and P40042 are designated as privately owned land. The total acreage of the API is approximately 160 acres of land.



SOURCE: USGS 7.5 Minute Quadrangle Sedro-Woolley North Series
Township 35N; Range 5E; Sections 19 & 20

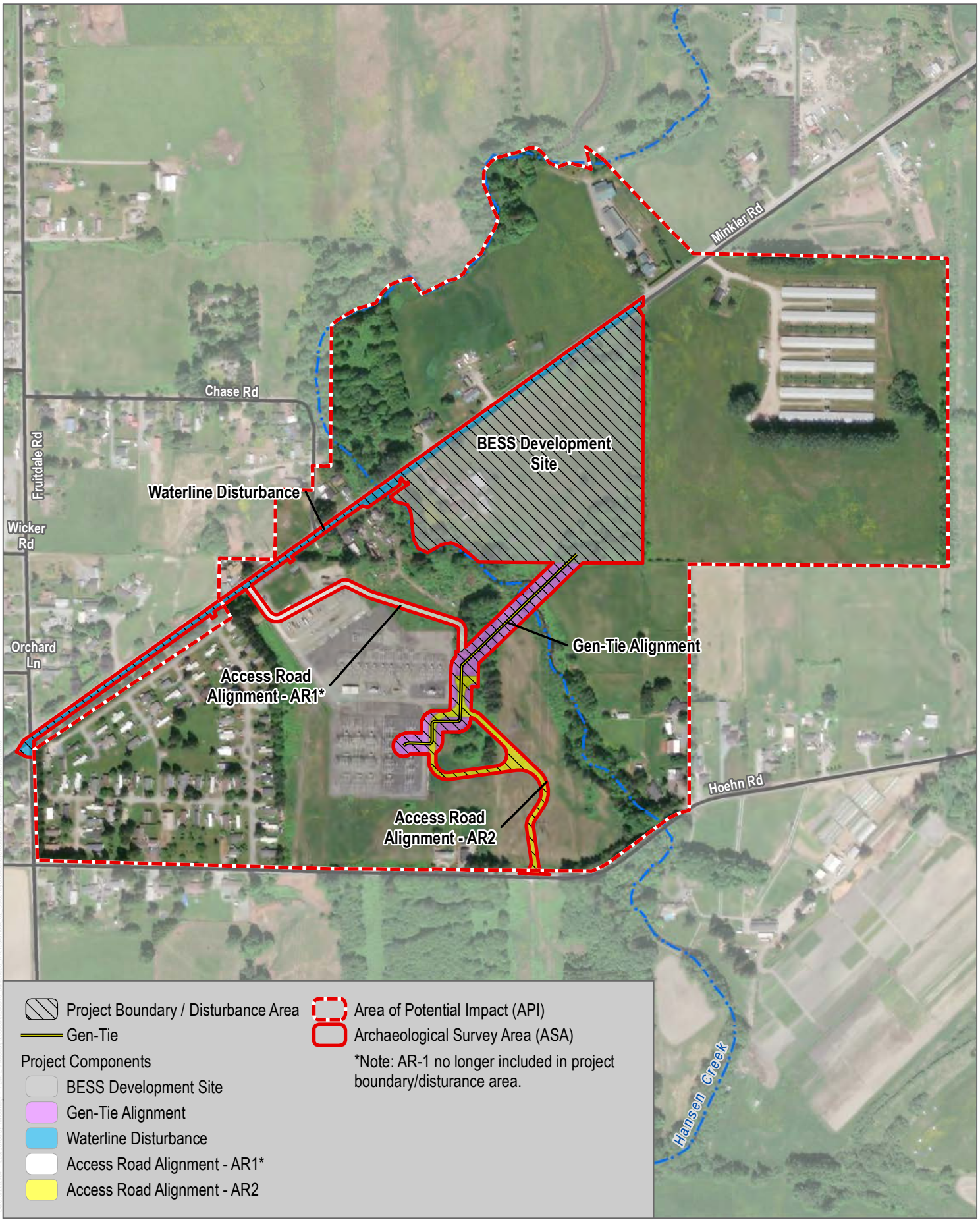
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Vicinity

Goldeneye Energy Storage Project



SOURCE: Esri World Imagery Basemap; WA DOT 2023; USGS NHD 2024

DUDEK

0 275 550 Feet

FIGURE 2

Area of Potential Impact and Archaeological Survey Area (ASA)

Goldeneye Energy Storage Project

2 Environmental Setting

2.1 Physiography and Geology

The project ASA encompasses approximately 23.4 acres (BESS site, gen-tie line, and access roads combined) in Skagit County, Washington, between 50 and 60 feet above mean sea level (amsl). The API is situated in the lowlands of western Washington's Puget Trough physiographic province (Franklin and Dyrness 1988, p. 6). The northern portion of this province is dominated by the Puget Sound (Franklin and Dyrness 1988, p. 16). The Puget Trough is bordered by the Olympic Mountains on the west, the Portland Basin and Willamette Valley on the south, and the Western Cascades on the east. Much of this province is a depressed glaciated area that is partially submerged (Franklin and Dyrness 1988, p. 17).

Surficial geology within the Puget Trough is associated with the most recent glacial event, the Fraser Glaciation, which began around 25,000 years ago when the Cordilleran ice sheet moved south from what is now British Columbia (Booth et al. 2003, pp. 28–29). The Puget Lobe advanced to and retreated from the API between 14,500 and 13,600 years ago. Its retreat deposited glacial outwash in the form of pebbles, cobbles, and boulders and formed the Skagit River Valley in the process.

2.2 Hydrology, Soils, and Vegetation

The API is situated 1.2 miles north of the Skagit River, which originates at Allison Pass in the Canadian Cascades. The Skagit River and its tributaries drain an area of 1.7 million acres and flow into the Puget Sound, approximately 15 miles to the southwest of the API. Hansen Creek originates from Lyman Hill and flows roughly north-south, bisecting the gen-tie line, and is a tributary of the Skagit River. The Skagit River Watershed includes five dams; Gorge, Diablo, and Ross Dams are located on the mainstream of the Skagit River, and the Lower Baker and Upper Baker Dams are located on the Baker River, a tributary of the Skagit River. The Skagit River is subject to snowmelt runoff and rainfall during the fall, winter, and spring. Melting snowpack is characterized by slow rise and long duration mean flows between April and June. Heavy precipitation in the fall and winter is characterized by rapidly rising high stream flows and accounts for the highest annual river levels.

The soils within the Puget Sound basin are generally formed in glacial materials affected by coniferous forest vegetation and commonly have a gravelly sandy loam texture (Franklin and Dyrness 1988, p. 17). The soils mapped within the API are the Field, Sumas, and Minkler series (USDA 1988, 2002, 2005). The Field series consists of deep, moderately well-drained soils formed in alluvium with an admixture of volcanic ash. These soils are on floodplains (USDA 1988). A typical soil profile consists of dark brown silt loam 0–21 centimeters below surface (cmbs), overlying grayish-brown loamy fine sand 21–28 cmbs, and grayish-brown fine sandy loam 28–60 cmbs. The historical use of this soil series includes pastureland and cropland. The Sumas series consists of deep, poorly drained soils formed in recent alluviums. Soils are on river floodplains (USDA 2005). A typical soil profile consists of dark grayish-brown silt loam mottled with dark yellowish-brown silt loam 0–26 cmbs, overlying very dark grayish-brown silt loam with prominent dark brown and brown redox concentrations 26–60 cmbs. The historical use of this series includes cropland and pasture crops. The Minkler series consists of deep, moderately well-drained soils formed in alluvium and lacustrine materials with a mantle of volcanic ash. These soils are on river terraces that rarely flood. A typical soil profile consists of dark grayish-brown to light grayish-brown silt loam 0–15 cmbs, overlying

dark gray to light gray loamy fine sand and very fine sandy loam 15–60 cmbs. The historical use of this soil series includes pasture and cropland (USDA 2002).

The API is within the *Tsuga heterophylla* vegetation zone, which extends from British Columbia through the Olympic Peninsula, Coast Ranges, Puget Trough, and both Cascade physiographic provinces in western Washington (Franklin and Dyrness 1988, pp. 45, 70). This zone is characterized as prairie, oak woodland, and pine forests that include Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*), although in drier portions of the Puget Sound, lodgepole pine (*Pinus contorta*), western white pine (*P. monticola*), quaking aspen (*Populus tremuloides*), and Oregon white oak (*Quercus garryana*) are also common. Vine maple (*Acer circinatum*), rhododendron (*Rhododendron occidentale*), oceanspray (*Holodiscus discolor*), Oregon grape (*Mahonia aquifolium*), snowberry (*Symphoricarpos albus*), white spirea (*Spiraea betulifolia*), shinyleaf spirea (*Spiraea betulifolia* var. *lucida*), Woods' rose (*Rosa woodsii*), Nootka rose (*R. nutkana*), and salal (*Gaultheria shallon*) are common shrubs. Riparian flora such as grasses, black cottonwood (*Populus trichocarpa*), and willow (*Salix* sp.) are common along water bodies. Undeveloped patches of land in the vicinity of the API are consistent with this vegetation zone.

3 Cultural Setting

The authors of this report acknowledge and respect the traditional cultural knowledge and oral traditions of the indigenous peoples of the Northwest Coast region and intend for the chronology presented here to complement, and not to contradict, the knowledge conveyed in oral traditions.

3.1 Archaeological Period

Archaeological evidence indicates that native peoples have lived in western Washington for more than 13,000 years. The earliest time period is defined by Ames and Maschner as the Paleoindian Period, which lasted from the arrival of the first humans in the region up through around 12,500 calibrated years before present (BP) (Ames and Maschner 1999, pp. 64–66). The Manis Mastodon Site (45CA00218), one of the most significant Paleoindian Period sites in North America, is approximately 50 miles southwest of the API on the Olympic Peninsula. The site contained the bones and tusks of multiple mastodons and bison that bore distinctive butchering marks; one mastodon rib was embedded with a bone projectile point that yielded a radiocarbon date of 13,800 BP. This site demonstrated that the region was already used by humans during that time and provided the first definitive evidence that Paleoindian people overlapped with—and indeed hunted—mastodons in North America (Daugherty 1977; Gustafson and Gilbow 1978; Gustafson and Manis 2003; Swaminathan 2014).

Across much of the rest of North America, the Paleoindian Period has frequently been associated with distinctive fluted projectile points belonging to the Clovis tradition. The Clovis point is a large, bifacially flaked stone tool containing a prominent "flute" or flake scar at its base, with lateral and basal edge grinding. Clovis points have been found at sites across North America and into Central America, and it is thought that the people who made the points were highly mobile and would cover large areas in search of big game mammals (Aikens et al. 2011, p. 28; Kirk and Daugherty 2007, p. 13). Individual Clovis points have been recovered as isolated finds in the Puget Sound area, including at locations on Whidbey Island (located approximately 23 miles southwest of the API) and the Kitsap Peninsula (located approximately 62 miles southwest of the API) (Ames and Maschner 1999, p. 65; Carlson 1990, p. 60; Croes et al. 2008, p. 108). While these finds are not associated with radiocarbon dates, evidence of Clovis cultures across North America has been tightly dated to between 13,250 and 12,800 BP (Waters and Stafford 2007).

The Archaic Period occurred between 12,500 and 6400 BP (Ames and Maschner 1999, p. 67). This period is characterized by evidence that people were using an increasing variety and quantity of food resources, including both terrestrial mammals and fish (Ames and Maschner 1999: 72, 83; Carlson 1990, pp. 65–66; Kirk and Daugherty 2007, p. 84). This period is expressed through multiple technological/cultural traditions that were present in the greater region during this time; the tradition that was present on the Olympic Peninsula and in other parts of western Washington during this time was the Olcott complex (Carlson 1990, pp. 60, 62–63). The most distinctive artifacts that appear in Olcott assemblages are leaf-shaped projectile points (also known as Cascade points); other lithic tools associated with this tradition include choppers and scrapers that were made through percussion flaking and are indicative of various processing activities (Bergland 1983; Carlson 1990, pp. 62–63; Croes et al. 2008, p. 108; Kirk and Daugherty 2007, p. 84–85). Most notably, this period is represented within western Washington at the Manis Mastodon Site, which contained an Olcott component overlying the Paleoindian material that included an Olcott-type projectile point, as well as spall tools that all dated from the period (Bergland 1983; Carlson 1990, p.; Kirk and Daugherty 2007, p.).

The Early Pacific Period occurred between 6400 and 3700 BP (Ames and Maschner 1999, p. 88). During this period, the warmer and drier conditions of the early Holocene gave way to a cool and wet climate, and oceans rose to approximately modern levels. These changes produced environments similar to those known today in the Pacific Northwest, and the people adapted to utilization of the resources associated with temperate rain forests and productive fisheries (Ames and Maschner 1999, pp. 88–91, 93). Early Pacific Period technological adaptations reflect a broadening of overall subsistence strategies. While subsistence during the previous periods appeared to have focused mainly on terrestrial mammals and to a lesser degree fish, during this period marine resources, including marine mammals, fish, and shellfish, became increasingly important in the diets of native peoples of the region. Evidence of marine resource subsistence includes not only the bones and shells that survive at shell midden sites—the most common site type along the coast of the Olympic Peninsula—but also a diversity of bone and antler tools, including barbed points for harpoons that have also been preserved at such sites (Ames and Maschner 1999, pp. 88–92; Bergland 1983; Wessen 1990, p. 414). Ground slate projectile points also appear during this period and may have been used to dispatch harpooned sea mammals (Ames and Maschner 1999, p. 92). There is also evidence of woodworking during this period in the form of tools such as ground stone celts and mauls, which continued to be used for woodworking up through the time of contact with Europeans (Ames and Maschner 1999, pp. 92–93).

The Middle Pacific Period occurred between 3800 and 1800 BP (Ames and Maschner 1999, p. 93). This period is marked by the introduction of large plankhouses and villages consisting of one or more plankhouse—these and the use of storage pits show that people by this time had relatively permanent habitation sites where they spent most of the year (Ames and Maschner 1999, pp. 93–94). There is also increasing evidence during this period for social inequality, long-distance trade, and warfare (Ames and Maschner 1999, p. 93; Kirk and Daugherty 2007, p. 98). There was an increased emphasis on marine and riverine resources during this period, particularly salmon; these resources became easier to harvest through technological developments that included toggling harpoons, nets with girdled and perforated sinkers, and fish weirs (Ames and Maschner 1999, pp. 93–94). These cultural features were present up through the historic period, and the Northwest Coast region's distinctive art style also appears to have its origins in this period (Ames and Maschner 1999, pp. 93–94; Kirk and Daugherty 2007, p. 98).

The Late Pacific Period occurred between 1800 and 200 BP (Ames and Maschner 1999, p. 94). The region's climate had stabilized shortly before the beginning of this period, resulting in environmental conditions that have largely continued up to the present (Ames and Maschner 1999, p. 94). Most of the key cultural characteristics that had appeared during the Middle Pacific Period—plankhouse villages, marine and riverine fishing, hunting implements and infrastructure, art, and clear distinctions in social status—continued to develop and flourish during the Late

Pacific Period. On the whole, there appears to be a high degree of cultural continuity among the peoples of the region for most of this period and up through the time of initial contact with Europeans in the eighteenth century (Ames and Maschner 1999, p. 95; Wessen 1990, pp. 418, 420–421). Some of the changes that are evident in the archaeological record during this period include a marked shift away from the manufacture and use of chipped stone tools, the adoption of larger and sturdier woodworking tools, and a corresponding increase in the size of plankhouses that were constructed during this time (Ames and Maschner 1999, pp. 95–96; Wessen 1990, p. 421).

3.2 Ethnographic Period

The API is within the traditional territory of the Southern Coast Salish peoples (Ruby and Brown 1992). The Southern Coast Salish are divided into two main language groups: Lushootseed and Twana. Lushootseed is further divided into North and South dialects. The people who would have inhabited the area surrounding the API probably spoke the Northern Lushootseed dialect (Suttles and Lane 1990, p. 486).

The Southern Coast Salish land use pattern and subsistence strategy traditionally has been based on seasonal availability and included fishing, hunting, and gathering activities (Haeberlin and Gunther 1930; Kelly 2013). Settlement patterns included semi-permanent to permanent villages during the winter and smaller seasonal campsites throughout the spring, summer, and fall. Winter houses were constructed of cedar planks, most often the single-pitch, shed-roof style that was common in the Puget Sound area (Haeberlin and Gunther 1930; Suttles and Lane 1990). Most houses sheltered extended families; wealthy families often supported larger households that included enslaved people. Puget Sound Salish society contained visible strata, including both higher and lower classes and those enslaved. Summer camps usually consisted of small, temporary mat structures occupied by a single family, although several families might work together to build a larger mat house.

Saltwater salmon (*Oncorhynchus* spp.) can be caught year-round; the Southern Coast Salish people have traditionally fished saltwater salmon by trolling and with seines and gill nets (Suttles and Lane 1990, p. 489). Other fish and game of interest to the Southern Coast Salish include saltwater herring (*Clupeidae*), smelt (*Osmeridae*), flounder (*Paralichthys* spp.), lingcod (*Ophiodon elongatus*), rockfishes (*Sebastidae*), sculpin (*Cottoidea*), halibut (*Hippoglossus stenolepis*), and shellfish, seasonal freshwater runs of salmon and sturgeon (*Acipenser* spp.), and freshwater fish including cutthroat (*Oncorhynchus clarkii*), Dolly Varden (*Salvelinus malma*), rainbow trout (*Oncorhynchus mykiss*), mountain whitefish (*Prosopium williamsoni*), and suckers (*Catostomus* spp.), as well as birds, aquatic mammals, and terrestrial mammals, primarily blacktail deer (*Odocoileus hemionus columbianus*) and elk (*Cervus canadensis*) (Belcher 1985; Suttles and Lane 1990, p. 489). Plant foods are mostly seasonal as well and include several types of berries, nuts, and roots and tubers, such as wapato (*Sagittaria latifolia*) and camas (*Camassia* spp.) (Gunther 1945; Suttles and Lane 1990, p. 489). Cattails (*Typha* spp.) and tules (*Schoenoplectus acutus*) have been gathered and twined together for use as house, sleeping, and canoe mats. Baskets were made with coiled, twined, wrapped twining, and checker weaving plant materials. Baskets made with a coiling technique were watertight and could be used for stone boiling (Suttles and Lane 1990, p. 490). Shredded cedar (*Cedrus* spp.) bark was used for clothing (Suttles and Lane 1990, p. 491).

Following Euro-American contact, Southern Coast Salish peoples continued to hunt and fish, but also expanded their agricultural practices (Suttles and Lane 1990). The potato (*Solanum tuberosum*) quickly spread north, probably through native trade networks, and according to Baenen (1981, p. 419) became a staple part of the Native American diet. Boyd (1990, p. 146) contributes the early adoption of the potato as a factor in the relative demographic stability of the Central and Southern Coast Salish compared to surrounding native groups. Nevertheless, the Southern Coast Salish way of life was dramatically altered by diseases that infected the area prior to and following the arrival of Euro-

Americans. Successive epidemics of smallpox, measles, malaria, and dysentery that spread along the Pacific Coast from the first contacts with Euro-Americans in the late 1700s and early 1800s resulted in a demographic collapse (Boyd 1985, 1990). Euro-American settlement in the region increased during the mid-1800s. Some surviving Southern Coast Salish peoples were employed as skilled laborers by the Hudson's Bay Company (HBC) through the early to mid-1800s (Suttles and Lane 1990, p. 500). In 1854 and 1855, the Southern Coast Salish were signatories on several treaties with the newly established Washington Territory, including the Treaties of Medicine Creek, Point Elliott, and Point No Point (Suttles and Lane 1990, p.500). The treaties ceded the tribes indigenous homelands and established seven Southern Coast Salish reservations. In exchange, the tribes were promised reservations within their traditional homelands and the right of access to traditional hunting and fishing grounds.

The Treaty of Medicine Creek was the first in this series of treaties, affecting members of the Nisqually, Puyallup, and Squaxin Island Tribes as well as several other tribes. The Point Elliott Treaty was negotiated in 1855 with the Duwamish, Suquamish, Snohomish, Snoqualmie, Lummi, and Swinomish Tribes (Governor's Office of Indian Affairs n.d.). These treaties called for indigenous people to be removed from their homes and consolidated into reservations, although many native people did not move onto a reservation (Marino 1990, pp. 169–170; Suttles and Lane 1990, p. 500). The Upper Skagit people, consolidated from 11 separate tribes on the Upper Skagit and Sauk Rivers, established the Upper Skagit Reservation in September 1981 (Upper Skagit Indian Tribe 2022).

The unfair terms of the treaties and delays in ratification, the poor reservation locations, the continued epidemics, and the constant encroachment of Euro-American settlers onto tribal lands led to an extreme sense of desolation among the tribes due to the loss of their traditional lands and culture. The territorial government issued orders for the local tribal leaders who voiced their discontent to be taken into "protective custody." This action, along with many other actions taken by the territorial and federal governments, spurred the resistance of the local tribes, leading to the conflicts known as the "Indian Wars" of 1855–1856. The series of small-scale battles between the local tribes and the military and settlers led to the internment and relocation of many tribal people and the eventual hanging in 1858 of Nisqually Chief Leschi for his involvement in the uprising (Carpenter 2002, pp. 170–171; HistoryLink Staff 2003; Marino 1990, pp. 170–171).

In 1974, *United States v. Washington* held that treaty-protected fishing rights were to be protected and entitled to equal opportunity with others to fish outside of the reservations (Suttles and Lane 1990, p. 501). The Skagit System Cooperative, consisting of the Swinomish, Upper Skagit, and Sauk–Suiattle, pooled resources to enhance the salmon stocks in the river system. The Upper Skagit and the Sauk–Suiattle were federally recognized in 1981 and 1972, respectively. Between 1986 and 1987, the Upper Skagit constructed wooden frame houses, a smoke house, and a community center, where the Southern Coast Salish could gather. The improved economic status allowed tribal members to market traditional goods.

3.3 Historic Period

The historic period in the Pacific Northwest began with the arrival of Russian and other European explorers and traders in the late eighteenth century. By the 1770s, Spanish and English expeditions had reached the west coast of Vancouver Island (Arima and Dewhirst 1990, p. 407; Bunting 1997, p. 22). The earliest recorded interactions between the Southwestern Coast Salish peoples and Europeans occurred along the Pacific Coast at the Quinault River in 1775. Sea otter furs were in high demand in China, and the Europeans traded copper and iron, firearms and ammunition, and other European goods to the native peoples in exchange for furs (Arima and Dewhirst 1990, p. 407; Bunting 1997, p. 22; Cole and Darling 1990, pp. 119–120).

Spanish explorer Juan Francisco de Eliza charted the Rosario Strait in 1791, and named it Canal de Fidalgo (Oakley 2004). In 1792, British Royal Navy Captain George Vancouver led an expedition tasked with determining if the Strait of Juan de Fuca was the western end of a northwest passage that connected the Pacific and Atlantic Oceans; his expedition demonstrated that this was not the case, and in the process mapped the coastline of virtually the entire Salish Sea (the body of water that includes Puget Sound, the Strait of Georgia, and the Strait of Juan de Fuca) (Bunting 1997, p. 23; Hult 1954, pp. 20–23).

Increasing competition between European powers and the recently established United States over trade and territorial claims led to the establishment of a series of forts and settlements by the Spanish, British, and Americans to safeguard their interests in the region (Archer 1978, pp. 40–41; Arima and Dewhirst 1990, p. 407; Hult 1954, p. 13). The Spanish briefly established a settlement at Neah Bay at the Olympic Peninsula's northwest corner. However, the Spanish settlement at Neah Bay lasted little more than a month, and by the mid-1790s the Spanish had given up their interests in the Pacific Northwest (Archer 1978, pp. 50, 52; Hult 1954, pp. 16–17).

In the first few decades of the nineteenth century, the British and the United States competed for economic and political control of the Pacific Northwest (Bunting 1997, p. 23; Hult 1954, pp. 31, 37–38). The fur trade continued to be the main economic focus of the British and Euro-Americans who were operating in the Pacific Northwest. However, sea otter was becoming increasingly scarce due to overhunting, and the traders were instead turning their attention to beaver, which were more plentiful throughout the region, and whose pelts were in high demand in Europe and elsewhere as material for making fashionable hats (Bunting 1997; Cole and Darling 1990, pp. 130–131). Astoria was founded in 1811 as Fort Astoria, the headquarters of the American Pacific Fur Company. Fort Astoria was to establish an American claim over the contested lands of the Pacific Northwest and dominance over the Montreal-based North West Company. In 1812, war broke out between the United States and Britain, and in 1813, under the impression that the lands surrounding Astoria would soon be under British control, the company investors stationed at Fort Astoria sold their assets to employees of the North West Company. Astoria was renamed Fort George and was under complete British control until 1818 when joint U.S. and Cultural British jurisdiction was established in the region (Stark 2015; Watters et al. 2009).

In 1821, the North West Company merged with the HBC, which had established several posts in the Pacific Northwest, beginning with the occupation of Fort George. From 1824 to 1825, HBC operation headquarters were moved to Fort Vancouver on the Columbia River, which became the hub of trading in the region. John Work of the HBC traveled north from Fort Vancouver through Skagit Bay and navigated the Swinomish Channel in 1824, located 14 miles west of the API (Oakley 2004).

Fort Langley was built in 1827 along the banks of the Fraser River (near present-day Vancouver, British Columbia). HBC employees began to travel extensively between Fort Vancouver and Fort Langley, trading with and interacting with the local native peoples. Fort Nisqually was established in 1833 as "Nisqually House" near Sequalitchew Creek near the southern end of the Puget Sound, acting as a link between the trading hubs of Fort Vancouver and Fort Langley. The establishment of Fort Nisqually and its agricultural subsidiary, the Puget Sound Agricultural Company, began a period of continuous contact between Euro-Americans and the indigenous people of the region (Galbraith 1957; Williams 2020).

In 1846, the Oregon Treaty drew the British–U.S. line at the 49th parallel and the Pacific Northwest south of the parallel was established under American control (Bunting 1997, pp. 36–37; Cole and Darling 1990, p. 125; Hult 1954, p. 34; Stark 2015; Watters et al. 2009).

3.3.1 Non-Native Exploration and Settlement

In 1841, an expedition led by Lieutenant Charles Wilkes reached Fort Nisqually, where they made their headquarters for exploration and charting of the Puget Sound Area. The Wilkes expedition went through the Rosario Strait and eventually landed on Perry's Island (the present-day Fidalgo Island) located 20 miles west of the API (Crowley 2003; Oakley 2004).

In 1853, the U.S. Congress created the Washington Territory out of the portion of the Oregon Territory lying north of the Columbia River, an act that reflected the growing Euro-American population in the Puget Sound area (Marino 1990, p. 169). The first settlement of Euro-Americans in the area began in the early 1850s; among the first settlers were William Jarman and Enoch Compton, who settled near present-day Edison, located 11 miles northwest of the API. Compton, who was also drawn to the fertile lands near Fidalgo Island, built a cabin and farmstead but later returned to Bellingham as a coal miner. Several other notable settlers of the Fidalgo, Guemes, and other islands of Skagit County from the 1850s–1860s include William Munks, Charles and Robert Beale, H.A. March, and Robert H. Davis (Oakley 2004; IPC 1906, pp. 97–99).

From the 1860s to the 1880s, Euro-American settlement moved east up the Skagit River, starting in present-day La Conner to Mount Vernon and into the Skagit Valley. The discovery of gold at Ruby Creek in 1878 and the removal of massive logjams for commercial river travel upstream along the Skagit brought settlers up the Skagit River. Skagit County, originally part of Whatcom County in 1854, was one of seven new counties established in 1883 in the State of Washington. Mining camps lined the Skagit River, forming settlements around present-day Sedro-Woolley, Hamilton, Birdsview, and Baker (now Concrete). The discovery of coal in 1885 northeast of Sedro-Woolley at an area called "crystal mine" would bring people to what is now Cokedale, 2 miles northeast of the API (Bourasaw 2009). By 1894, Mount Vernon and Sedro-Woolley had their first telephones from the company Wheelock & Glover, and the phones were placed in general stores throughout the County (Oakley 2004).

The town of Sedro was developed from two different settlements in the same area during the 1880s. In 1885, Mortimer Cook established a general store and sternwheeler wharf on the north side of the Skagit River near present-day Sedro-Woolley, located 1.5 miles southwest of the API. He would name the town Bug, and just 1 year later would build the County's first shingle mill in the area (IPC 1906, p. 140). In 1890, Norman R. Kelley established what was known as New Sedro, located 0.5 miles northwest of Cook's General Store. The following year, 1891, Sedro residents organized and scheduled to incorporate both towns. In 1889, a railroad construction agent and developer named Phillip A. Woolley moved north of Sedro to plat his own town in preparation of prospected railroad projects. With the town of Sedro organized, the push for Woolley's company town to incorporate with Sedro lasted throughout the 1890s. Both towns, Sedro and Woolley, were operating independently, with their own separate businesses and railroad facilities, until finally, in 1898, they signed a petition with Skagit County to become the town of Sedro-Woolley (Bourasaw 2008).

3.3.2 Railroad Development

In 1864, President Abraham Lincoln signed an act to create the Northern Pacific Railroad (NPRR) Company. A U.S. federal land grant was given to construct a railroad from Lake Superior, Minnesota, to the Puget Sound of Washington. The original plan was for the line to pass over the Cascade Mountain Range, but plans would later change to connect the line along the Columbia River to Portland, Oregon, and then head north toward Puget Sound. In 1872, Tacoma was chosen as the terminus of the NPRR. With financial troubles in the mid-1870s looming over the completion of the NPRR railroad to Tacoma, Henry Villard of the Oregon Railway and Navigation Co. would take

over operations in 1881 (Drury 2021). The NPRR was already using Villard's Oregon Railway & Navigation Company's tracks from Wallowa, Washington, and Portland, Oregon, but the mission to build their line would continue. By 1887, the Pasco–Tacoma line would be complete over the Cascade Range, and the NPRR would have an independent line over the Cascade Range. Shortly afterward, the Oregon Railway & Navigation Co. was incorporated into the Union Pacific Railroad Company (BNSF 2015, pp. 31–33).

When Seattle was not chosen for the western terminus of the NPRR, the City of Seattle, with the help of East Coast investors, created the Seattle & Walla Walla Railroad and began construction in 1874. Henry Villard bought the company in 1880 and reorganized it as the Columbia & Puget Sound Railroad and built a spur of the line connecting Tacoma to Seattle. In 1885, the Seattle, Lake Shore & Eastern Railroad (SLS&E) was created to build a new line north from Seattle and eventually toward the Canadian Pacific Railroad located at Sumas (Lewis 1912, p. 192; MacIntosh and Crowley 1999).

The first railroad to run through Sedro was the Fairhaven and Southern Railway, completed in 1889, connecting the Skagit River Valley coal mines to the Puget Sound coastal towns and to California. The railroad segment between Sedro-Woolley and Sumas, which lies 1.7 miles west of the API, was completed circa (ca.) 1891 by the SLS&E. A year later, in 1892, the NPRR acquired the tracks that were built by the SLS&E. The Great Northern Railroad, built largely in part by James J. Hill, was completed in 1893, connecting St. Paul, Minnesota, over the cascades to Seattle through Sedro (present-day Sedro-Woolley). The 84-acre property of P.A. Woolley was home to both the Great Northern and Northern Pacific Lines, contributing heavily to the prosperity of the Sedro and Woolley area. Hotels and retail businesses in Sedro moved toward Woolley to operate around the area where the three railroads connected. Coal and the railroad economy fueled the area into the 1910s. In 1920, the Skagit River Railway was built by Seattle City Light, which used the Great Northern Lines to haul supplies from Rockport to Seattle. Many of the railcars used for passenger and cargo use were likely constructed by Skagit Steel & Iron Works of Sedro-Woolley, which was a prominent company in Sedro-Woolley's history (see Section 3.3, Historic Period). The partially steam-powered electric railway was in service until 1954, when Seattle City Light elected to use most of the railway alignment to build a parallel highway, State Route 20 (Benjamin 1987). By 1970, the Northern Pacific merged with other lines to become the Burlington Northern Railroad, which eventually merged with the Santa Fe Railways to become the Burlington Northern Santa Fe Railway (Bourasaw 2009; MacIntosh and Crowley 1999; Stein 2014; Yellin 2022).

3.3.3 Sedro-Woolley in the Early and Mid-Twentieth Century

The four primary industries in Sedro-Woolley after the implementation of railroads were logging, agriculture, Skagit Steel, and the Northern State Hospital. Logging along the north side of the Skagit River coincided with the agricultural industry when migrants known as "stump farmers" would buy land from the logging companies after they had cleared the land (Halgren et al. 2011; Sapp 2007).

Commercial farming in the Skagit Valley began in the 1880s, after the Skagit River Floodplain was walled off behind dikes, creating some of the most fertile farmland in Washington State. Sedro-Woolley is the nearest town to where the Skagit River reaches sea level (Rousso 2021). Migrants from Tennessee and North Carolina settled farther north in Skagit and Snohomish Counties, making a living by either farming or logging (Howard and Taylor 2011, p. 16). During the 1880s and through the 1910s, farmers successfully grew grain crops such as oats, hay, barley, and potatoes. In the 1920s, growing cabbage seeds became a successful endeavor for farmers throughout Skagit County. In the 1930s, the regional agricultural business Charles H. Lilly Company took over the cabbage seed business, and at that point nearly 95% of all cabbage seeds grown in the United States came from Skagit County.

Another popular crop beginning in the 1920s was the production of tulip bulbs, which became very popular after World War II. With many men off to war in World War II, an agreement between the United States and Mexico created the Bracero Program, in which millions of "guest workers" were brought to the United States for work. Many braceros came to the Skagit Valley to harvest crops and settled in the area after the program ended in 1947 (Dougherty 2018; Oakley 2004; Rousso 2021).

Sedro-Woolley Iron Works started as a repair shop run by John G. Anderson in 1901. Anderson quickly gained local investment as the first iron and steel repair business in Sedro-Woolley, and he served the large population of lumber and mining operations located in the area. Anderson and his business partner David G. McIntyre grew the company to become a large and successful mechanic shop, later renamed Skagit Steel & Iron Works (Skagit Steel). Skagit Steel was known for creating a new donkey-style engine hoist for loggers that sold throughout the 1920s and gained Skagit Steel national and international recognition for its technology (Bourasaw 2005).

The development of eastern Sedro-Woolley began after the construction of the Fairhaven and Southern Railway and the SLS&E Company. Mining operations in the Cokedale area and businesses established around the Sedro-Woolley train depot led to a population increase and a unification of the towns of Sedro and Woolley. During the early lumber industry in the 1890s–1900s, lumber companies would sell deforested land back to families with prospects for farmland. Minkler Road is a rural road connecting Cokedale Junction and the Fairhaven and Southern Railway track. By the 1940s, land along Minkler Road was subdivided into parcels, creating some triangular lots along the diagonally oriented road and rectangular and square lots off the main road. Two large land tracts included Chase Acreage, located north of the ASA on the north side of Minkler Road, and Peaveys Acreage, to the east (Metsker Maps 1941, p. 19).

The Northern State Hospital was constructed in 1909 by the State of Washington in response to the overcrowding of other state-run hospitals as a facility for treating the mentally ill. The Olmstead brothers and architects Saunders and Lawton were commissioned to design more than 1,000 acres of agricultural land surrounding the facilities. The property includes gardens, rock buttes, woodlots, and pastures; water features; and roads surrounding the patient facilities. The preexisting agricultural buildings were incorporated into the facilities and viewed as assets to the site plan. The hospital was decommissioned in 1973, and the land is now owned by Skagit County and is known as the Northern State Recreation Area (Bourasaw 2003; McGoffin 2009).

3.3.4 Power Development in the API

Hydroelectric power in the Pacific Northwest began as early as the 1840s along the Willamette River, a major tributary of the Columbia River. During the late 1800s and into the first half of the 1900s, local and privately funded dams and powerhouses were constructed on waterways throughout Oregon and Washington as the need for electricity and hydroelectric power was eminent (Kramer 2010, pp. 12, 13). Small regional utility companies emerged to provide electricity to growing populations in the region. Electric railways, known as interurban lines, soon connected towns throughout Skagit County (Bellingham Herald 1912, p. 1). During the 1910s and 1920s, electric companies began to consolidate. One prominent company in the Pacific Northwest was the Puget Sound Power & Light Company (PSP&L), the present-day PSE. As PSP&L completed the Baker River Dam in 1925, they constructed power stations in Sedro-Woolley, Bellingham, and Everett (Bellingham Herald 1925a, p. 3).

Beginning in the 1930s, power infrastructure throughout the Pacific Northwest became a priority at the federal level. The Federal Power Commission enacted the Bonneville Power Bill to distribute electricity from the Bonneville Dam Project on the Columbia River (Bellingham Herald 1935, p. 11). With the Public Utility District Movement in the 1930s and 1940s, PSP&L and the federally backed Bonneville Power Administration (BPA) would face a

reformation of the electric distribution business. The political battle between publicly and privately owned utilities would halt during World War II due to the federal government's mandate over the power industry during wartime. Beginning after World War II and continuing into the 1950s and 1960s, electric transmission structures built by the PSP&L and BPA would expand throughout the region, connecting northern Washington and southern Washington (Bellingham Herald 1940, p. 1).

Puget Sound Energy

Puget Sound Energy was founded in 1885 when Sydney Z. Mitchell and F.H. Sparling opened a Seattle office of the Edison Electric Light Company. Shortly after establishing electric services in the Washington, Oregon, Montana, and Alaska areas, they created the Seattle Electric Light Company. Over the next 15 years, Mitchell and Sparling established steam-powered central stations in Tacoma, Seattle, Spokane, Bellingham, and many smaller towns in Washington. After the financial panic of 1893, many smaller light and power companies independent of the Seattle Electric Company went out of business. A Boston company, Stone & Webster, purchased many of these existing utilities to grow their industry in the Pacific Northwest. By 1912, the Seattle Electric Company and its incorporated utilities would become the PSP&L. The successor to the PSP&L, PSE, was formed in 1920 partially in response to the gradual move from electric street railway lines to automobiles. The Bellingham-Skagit Railway Company constructed interurban railway lines through Sedro-Woolley from 1910 to 1912, and then, in 1912, merged with the Seattle-Everett Interurban company. This started a major consolidation of freight and power services throughout the Pacific Northwest. From 1912 to 1940, the PSP&L acquired more than 150 utility companies in central and eastern Washington (Votteler 2003, pp. 365–367; Scott and Turbeville 1977, pp. 96–100).

The Sedro-Woolley Substation was constructed in early 1925 and served as the PSP&L's distribution center from the Baker River Power Plant to the cities of Seattle, Burlington, and Bellingham. The substation cost $350,000 to build and takes up to five people to operate. The PSP&L Sedro-Woolley to Baker Switching Station transmission line appears to have been one of the first in the area is located directly south of the API (Bellingham Herald 1925b, pp. 1–3). In the 1940s and 1950s, three 110-kilovolt (kV) lines connected to the Sedro-Woolley Substation, including additional lines to the Baker River Power Plant and Mount Vernon (Bellingham Herald 1957a, p. 12).

Bonneville Power Administration

Congress established the BPA in 1937 as part of Roosevelt's "New Deal" (Kramer 2010, p. i). The venture, which was initially conceived as temporary, now serves one-third of the power needs of the Pacific Northwest, and the BPA is now the operator of one of the nation's largest high-voltage transmission systems (BPA 2021). The history of the BPA is interwoven with the history of the growth, development, and economic prosperity in the Pacific Northwest. Into the 1940s, power in the Pacific Northwest was still mainly limited to urban areas. Rural electrification proved too expensive for smaller power entities and was usually only achieved by creating electric cooperatives. The movement of power was essential to growth in both urban and rural areas. The BPA's early infrastructure development and the rising need for affordable, widespread power put the BPA in the "center of the development of the Columbia River Basin" and later connected the BPA transmission grid to "virtually every power provider in the region" (Kramer 2010, p. 4).

Initially, the BPA was tasked only with the marketing and generation capacity of the Bonneville Dam, operated by the U.S. Army Corps of Engineers. In 1940, the BPA's reach was also expanded to include the Grand Coulee Dam, operated by the U.S. Bureau of Reclamation. The BPA focused on the completion of the "Master Grid," as outlined by the Pacific Northwest Regional Planning Commission in the late 1930s (Kramer 2010, p. 53). The Master Grid included seven primary lines: the Bonneville–Vancouver line, Bonneville–Coulee line, Vancouver–Eugene line,

Vancouver–Kelso line, Vancouver–Chehalis line, Chehalis–Raymond line, and Bonneville–The Dalles line. This Master Grid system remains the backbone of the system today. The period of significance for the Master Grid development is 1938–1945 (Kramer 2012, p. 3).

The war effort refocused the BPA's mission in the early 1940s, shifting much of its focus to defense. The development of new public utility districts and the push to expand electric availability in rural regions slowed to a stop during the war (Kramer 2010, p. 59). However, this did not slow the growth of the BPA. On the contrary, the war forced the BPA to accelerate growth to meet the demands of new wartime industries. The transmission of power played a significant role in the Pacific Northwest's wartime industries, including the development of shipyards, construction of airplane plants, aluminum production, and the powering of southwest Washington's Hanford Nuclear Works. This facility helped to produce the first atomic bomb (Kramer 2010, pp. ii, 17; Curran 1998, pp. 2–3).

After the end of the war and the completion of the Master Grid, the BPA worked to expand its grid system through the construction of feeder lines to transmit power from new dams in the Columbia River, including McNary Dam, Hungry Horse Dam, and John Day Dam (Kramer 2012, p. 1; Kramer 2010, p. 71). This was an effort to meet the increased demand from the postwar population growth in the region. Congress approved power wheeling in 1957, which permitted private utilities to use the BPA transmission system to distribute power. This allowed the BPA to expand, without competition from private power companies, into all of their current service area. In 1974, the Dittmer Control Center was dedicated as one of the "world's most sophisticated, computer-based, management for power transmission" (Kramer 2012, p. 3). This period is known as the System Expansion Period, from 1946 to 1974 (Kramer 2012, p. 3). In addition, the mid-1960s saw an increase in national awareness of the aesthetics of the utilities under Lady Bird Johnson's "America the Beautiful" campaign. The Beautility Movement was a series of recommendations for designing the BPA's construction over the next decade for landscape improvements and modernistic designs. The BPA hired Portland architecture firm Stanton, Boles, Maguire, and Church to evaluate their current facilities and help shape a more Midcentury Modern design to allow them to become more visually appealing. During the Beautility Movement, BPA structures were designed to be modular and express the creative use of materials in substations. For transmission lines, there was an increased national awareness of aesthetics, and a more tubular tower design was introduced in the late 1960s and into the 1970s (Kramer 2010, pp. 96–97).

The BPA now markets wholesale electrical power from 31 federal hydroelectric projects in the Northwest, one nonfederal nuclear plant, and several small nonfederal power plants, serving customers in Idaho, Oregon, Washington, western Montana, and small parts of eastern Montana, California, Nevada, Utah, and Wyoming (BPA 2021).

4 Previous Research and Expectations

Records from the DAHP's Washington Information System for Architectural and Archaeological Records Data (WISAARD) were reviewed to determine whether any cultural resources investigations have been conducted in the vicinity of the API and whether cultural resources have been previously recorded in or near the API and ASA. Historic maps (e.g., General Land Office [GLO] maps, Metsker Maps, historical U.S. Geological Survey topographic maps) were also examined to determine the likelihood of encountering cultural resources in the API.

4.1 Previous Cultural Resources Investigations

Twelve cultural resources surveys have been conducted within 1 mile of the ASA (Table 1). Three of the surveys identified archaeological resources within 1 mile of the ASA.

Six of the surveys were conducted for creek/habitat restoration projects and were conducted in compliance with U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, or Natural Resources Conservation Service guidelines, Executive Order 05-05, or the National Environmental Policy Act. Four of the surveys were conducted for pipeline or transmission line construction or maintenance and were conducted in compliance with the Federal Energy Regulatory Commission or U.S. Army Corps of Engineers guidelines. Two of the surveys were conducted for road improvements in compliance with the Federal Highway Administration guidelines or under Executive Order 05-05. All previous cultural resource investigations are described in further detail below in Table 1.

Table 1. Previous Cultural Resources Investigations within 1 Mile of the ASA

DAHP Report No.	Year	Authors	Report Title	Work Conducted	Distance and Direction from the ASA	Associated Resources within 1 Mile
1694715	2019	Williams, B., and J.H. Macrae	An Archaeological Survey for Skagit River System Cooperative Hansen Creek Restoration Project 2019, SITC-Soldate Parcels and Snyder Conservation Easement	Literature review, pedestrian survey, and shovel probes	0.15 miles NW	45SK592
1348597	2006	Brannen, N.F., and S.R. Schmidt	A Cultural Resource Survey for the Sedro-Woolley-Bellingham No. 1 Line Reroute	Literature review and pedestrian survey	0.18–0.21 miles S	45SK314 and 45SK315
1690032	2017	Jojola, B.E., and B. Williams	2017 Hansen Creek Restoration Archaeological Survey. Sedro-Woolley, Skagit County, Washington. Swinomish Indian Tribal Community THPO Technical Report, La Conner, Washington	Literature review, pedestrian survey, and shovel probes	0.25 miles N	45SK571 and 45SK572
1353374	2009	Piper, J., and R. Smith	Phase 2 Cultural Resources Assessment for the Sedro-Woolley-Horse Ranch Transmission Line Upgrade, Skagit County and Snohomish County, Washington	Literature review, pedestrian survey, and shovel probes	0.25 miles S	None
1680665	2011	Hovezak, M.	Cultural Resource Assessment for the Lower Hansen Creek Restoration Project, Skagit County, Washington	Literature review, pedestrian survey, and shovel probes	0.5 miles NE	None

Table 1. Previous Cultural Resources Investigations within 1 Mile of the ASA

DAHP Report No.	Year	Authors	Report Title	Work Conducted	Distance and Direction from the ASA	Associated Resources within 1 Mile
1696731	2022	Munsell, D.A.	Natural Resources Conservation Service Short Repair for Cultural Resources Identification Survey	Literature review, pedestrian survey	0.55 miles N	None
1680415	2010	Hovezak, M.	Cultural Resource Assessment for the Lower Red Creek Reroute, Hansen Creek Reach 5 Project, Skagit County, Washington	Literature review and shovel probes	0.57 miles NE	None
1690160	2018	Baldwin, G.L., and O. Patsch	Cultural Resources Review of the SR20 East Lane Widening and Sidewalk Project, Sedro-Woolley, WA	Literature review and pedestrian survey	0.75 miles NW	None
1352465	2009	Baldwin, G,L., S.L. Neil, E.P. Arthur, and C.L.S. Kaiser	Archaeological Assessment of the Fruitdale Road/McGarigle Road Improvements Project, Sedro-Woolley, Washington	Literature review, pedestrian survey, and shovel probes	0.75 miles NW	None
1352049	2008	Bush, K.R., T.S. Smart, and A.M. Rollins	Archaeological Investigations Report: Hansen Creek Restoration Project, Skagit County, Washington	Literature review, pedestrian survey, and shovel probes	0.82 miles N	None
1343005	2004	Smith, G.J., and T.L. Ozbun	Cultural Resource Survey for the 26-Inch Pipeline Integrity Project: Pipeline Modification for Hydrostatic Testing from Washougal to Chehalis and From Mount Vernon to Sumas	Literature review, pedestrian survey, and shovel probes	0.85 miles S	None
1688049	2014	Gilpin, J., Schultze, C., Dellert, Pickrell, J.	Northwest Pipeline LLC Washington Expansion Project-Addendum to Cultural Resources Overview and Survey Report: Survey of Highway	Literature review, pedestrian survey, and shovel probes	1 mile S	None

Table 1. Previous Cultural Resources Investigations within 1 Mile of the ASA

DAHP Report No.	Year	Authors	Report Title	Work Conducted	Distance and Direction from the ASA	Associated Resources within 1 Mile
			410 Reroute and Temporary Extra Workspace Areas and Easements			

Notes: ASA = archaeological survey area; DAHP = Washington State Department of Archaeology and Historic Preservation; NW = northwest; S = south; N = north; NE = northeast.
All reports are on file at DAHP.

4.2 Previously Recorded Archaeological Resources

According to WISAARD, seven previously recorded archaeological resources are within 1 mile of the ASA, none of which are located within the ASA. Three are within the API and four are outside the API. No previously recorded resources are located within the ASA. Previously recorded resources include two precontact isolates, one historic isolate, two historic sites, one historic cemetery, and one possible precontact culturally modified tree. Previously recorded archaeological resources are described below and listed in Table 2.

Site 45SK651 was identified 55 feet northeast of the ASA by HDR Engineering and consists of one horseshoe, one whiteware fragment, and one wire nail. Artifacts were identified within a single shovel probe, and all site delineation probes were negative. No cultural resources report is currently associated with the resource on WISAARD. The site is determined not eligible for the National Register of Historic Places (NRHP).

Isolate 45SK314 was identified 15 feet west of the ASA by BPA for a proposed reroute for a transmission line and consists of one ceramic dishware fragment (Brannan and Schmidt 2006). The isolate is listed as potentially eligible for the NRHP.

Site 45SK315 was identified 25 feet west of the ASA by BPA for a proposed reroute for a transmission line and consists of two pieces of possible quartz lithic debitage (Brannan and Schmidt 2006). The site is currently unevaluated for the NRHP.

Site 45SK572 is located approximately 0.19 miles north-northeast of the ASA and consists of one culturally modified tree (Jojola and Williams 2017). The site is currently unevaluated for the NRHP.

Site 45SK571 is located approximately 0.28 miles north-northeast of the ASA. The historic artifacts consist of one aqua glass fragment, one bottle finish, and one white porcelain fragment (Jojola and Williams 2017). The site has been determined not eligible for the NRHP.

Site 45SK592 was identified 0.25 miles northwest of the ASA during an archaeological survey for the Hansen Creek Restoration Project. The site consists of a small historic concentration including one sun-colored amethyst shard, two square nails, and three wire nails (Williams and Macrae 2019). The site has been determined not eligible for the NRHP.

Site 45SK397 is located 0.44 miles west of the ASA and encompasses the Union Cemetery at 1450 Wicker Road, Sedro-Woolley, Washington, 98284. In 2019, skeletal remains were inadvertently encountered by a cemetery

groundskeeper while excavating a grave shaft. The remains of one adult and one 1- to 2-year-old subadult were determined non-forensic by the Sedro-Woolley Police Department and jurisdiction was passed to the DAHP. Funerary objects included wire nails, coffin handles, box hooks, hinges, thumbscrews, an escutcheon, a cap lifter, coffin wood, glass, and a name plate showing "Our Darling" inscription (Vogel 2019). Although the entire cemetery property is recorded as the resource, only the inadvertently discovered burials have been recorded archaeologically. The site is currently unevaluated for the NRHP.

Table 2. Previously Recorded Archaeological Resources within 1 Mile of the ASA

Smithsonian Trinomial/ Resource ID	Resource Type	Brief Description/Comments	NRHP Status	Distance, Direction from ASA
45SK651	Historic Site	One horseshoe, one whiteware fragment, and one wire nail.	Not Eligible	55 feet NE
45SK314	Historic Isolate	Historic dishware fragment.	Potentially Eligible	15 feet W
45SK315	Precontact Site	Two pieces of quartz lithic debitage (noted as an isolate in WISAARD)	Unevaluated	25 feet W
45SK572	Possible Precontact Site	Possible culturally modified tree	Unevaluated	0.19 miles NNE
45SK571	Historic Refuse	One clear glass shard, one aqua glass shard, and one porcelain sherd.	Not Eligible	0.28 miles NNE
45SK592	Historic Refuse	One sun-colored amethyst (SCA) shard, two square nails, and three wire nails.	Not Eligible	0.25 miles NW
45SK397	Historic Cemetery	Union Cemetery	Unevaluated	0.44 miles W

Notes: ASA = archaeological survey area; NRHP = National Register of Historic Places; NE = northeast; W = west; NNE = north-northeast; NW = northwest; WISAARD = Washington Information System for Architectural and Archaeological Records Data.

4.3 Previously Identified Historic Built Environment Resources

According to WISAARD, 11 built environment historic resources have been previously recorded within approximately 1 mile of the API (Table 3). The Hansen Barn and the Shire Barn are documented on the Washington Heritage Barn Register. The Shire Barn is the only eligible resource located within 1 mile of the API, and it represents early twentieth-century farmsteads in the State of Washington. The Casey Childs Mill is an early representation of the lumber industry in the Sedro-Woolley area, and its location along Minkler Road suggests it was active earlier than the 1920s. The Garage No. 1 of the Northern State Hospital is located 1 mile south of the original North State Hospital location and was converted into a residence for hospital crews in the 1920s. Other resources include midcentury residential development, located west of the API closer to the central Sedro-Woolley (DAHP 2024).

Table 3. Previously Recorded Historic Built Environment Resources within 1 Mile of the API

Resource ID	Build Date	Address	Name	Distance and Direction from the API	NRHP Eligibility Determination
670886	1959	1006 Wicker Road	Bethlehem Lutheran Church	0.97 miles W	No determination
691529	1959	1013 Polte Road	Central United Methodist Church	0.94 miles W	No determination
602799	N/A	9319 Claybrook Road	Ostrom House	0.78 miles W	Determined not eligible
60294	N/A	324 Carter Street	Lefeber House	0.83 miles NW	Determined not eligible
55842	1915	24538 Polte Road	Garage No. 1 – Northern State Hospital	0.56 miles NW	No determination
8660	Pre-1920s	River Road/Third Street	Munro Shingle Mill/Casey Childs Mill	1 mile NE	No determination
690888	ca. 1910	26274 Burmaster Road	Hansen Barn/ Mallard Farm	1 mile NE	No determination
676070	1904	26319 Hoehn Road	Shire Barn/ Fender-Sapp Farm	1 mile E	Determined eligible
709035	N/A	1122 Nelson Street	Alvarez Home	0.92 miles SW	Determined not eligible
713939	N/A	1119 E State Street	Residence	0.90 miles SW	Determined not eligible
678378	N/A	816 Bingham Place	N/A	0.92 miles SW	Determined not eligible

Notes: API = area of potential impacts; NRHP = National Register of Historic Places; N/A = not applicable; ca. = circa; W = west; NW = northwest; NE = northeast; E = east; SW = southwest.

4.4 Historic Map Research

Historic maps—including GLO survey maps and historic U.S. Geological Survey topographic maps—were examined to determine the likelihood of encountering cultural resources in the API. These maps provide insight into land use and development within the API in the nineteenth and twentieth centuries.

Cadastral maps drafted by GLO document the API in starting in 1878. The GLO map illustrates Hansen Creek, which runs adjacent to the API in Township 35 North, Range 5 East, Section 20, and feeds into the Skagit River and a tributary into the Skiyou Slough. Notable names of settlers in this area include J. Walker in Section 16 and J. Nelson and A. Erickson in Section 22 (GLO 1878).

U.S. Geological Survey topographic maps extensively document the API between 1921 and the present day. In 1921, one building was depicted just north of Hansen Creek along what is now Minkler Road. Between 1944 and 1953, topographic maps show that one BPA transmission line, Murray–Custer No. 1, runs north and south through the API. Between 1974 and 1981, an additional building was added to the property, three transmission lines bisect

the API, and the Sedro-Woolley Substation is visible. It is unclear if one of the buildings is the same as the 1921 topographic map, but by 1981, there is an L-shaped building located along Minkler Road and a rectangular building set behind it to the southeast (NETR 2024a). Historic maps of Skagit County from 1941 and 1972 reveal specific property ownership information. In 1941, the API was owned by H.E. Tenneson, with surrounding owners including Chase Acreage to the north of Minkler Road, and E. Van Fleet and the PSP&L to the south (Metsker Maps 1941, p. 19). In 1972, the API was owned by Arthur Colfack, with same surrounding owners, including Chase Acreage to the north, and E. Van Fleet and PSP&L to the south. John Tenneson, related to the API parcel owner from 1941, owned a parcel south of the PSP&L, toward the Skagit River. A Metsker Map from 1925 of Skagit County is available but does not reveal any specific property information.

Historic aerials show that two buildings were present on the ASA in 1956. The main building is at the end of a driveway with a cross-gabled roof and a square floor plan. In the 1975 aerial, the roof and floor plan had significant changes, and the L-shaped floor plan building closer to Minkler Road appeared. The barn situated east of the original building appeared in 1981, and the barn to the northeast appeared in 2019. The three transmission line structures appear in the API between 1956 and 1975. Standard residential growth gradually appeared in the surrounding area through the 1970s and 1980s (NETR 2024b).

4.5 Archaeological Expectations

Prior to fieldwork, Dudek formulated expectations for the archaeological sensitivity of the API. Dudek based these expectations on a review of the background information presented above, including the geomorphology and hydrology of the API; the precontact and historic-period context of the vicinity, with information on the types, ages, and contents of previously recorded sites; and consideration of more recent disturbances that may have impacted cultural resources (e.g., road construction and maintenance activities). The Washington State predictive model shows the API falling within the “high risk” probability category, indicating that the area has a high-risk probability of prehistoric archaeological resources within the API.

Precontact archaeological resources could include camp or village locations, fishing and other resource processing locales, and isolated finds of debitage or sparse lithic scatters representing temporary use of that area. Historic development surrounding the API suggests a high probability of encountering historic-period archaeological resources. These resources may include scatters of historic-structural debris, domestic refuse scatters, and isolated finds of cans or bottles that represent a single episode of loss or discard.

4.6 Built Environment Expectations

Prior to fieldwork, Dudek formulated expectations for any historic built environment resources in the API. Dudek based these expectations on a review of the background information presented above and the historic-period context of the vicinity, with information on the types, ages, and contents of previously recorded resources within 1 mile of the API (see Table 3). Given the location adjacent to residential development in Sedro-Woolley, it seems likely that any built environment resources located in the API would be related to early agriculture or residential development of eastern Sedro-Woolley. In addition, we are likely to see the development of transmission lines and power infrastructure located within the API and adjacent to the API due to the adjacent Sedro-Woolley Substation.

5 Methods

5.1 Archaeological Investigations

The archaeological field investigations were completed in three separate sessions: first the project's BESS site in April 2023, then associated gen-tie line and access road alignment AR1 in March 2024, and then access road alignment AR2 in April 2024. Archaeological field investigations followed DAHP Office guidelines and were designed to determine whether previously unrecorded archaeological resources were present within the archaeological survey area (ASA)–the construction and operation footprint of the proposed project. Archaeological field investigations included pedestrian survey and shovel probes. Pedestrian survey transects were conducted across the ASA at a maximum 20-meter intervals, generally walked from north to south, and meandering transects were walked along areas with thick vegetation (Figure 3, Archaeological Survey Results). The survey crew was equipped with a GPS unit (an iPad tablet using Esri ArcGIS Field Maps and connected to a Trimble R2 with submeter accuracy) containing geographic information system (GIS) shapefiles of the ASA. All soil exposures were inspected for the presence of cultural materials. Observations about topography, vegetation, ground surface visibility, and disturbances were recorded in the project field notebook. Overview and close-up photographs were taken, and each photograph was recorded on a standardized photo log.

Following the pedestrian survey, shovel probes were excavated in areas of low ground visibility where project-related ground disturbances are proposed. Shovel probes measured a minimum of 30 centimeters in diameter and were excavated by hand with a shovel to a minimum of 50 cmbs and two sterile 10-centimeter levels, within the BESS site. Shovel probes extended to a minimum of 70 cmbs within the gen-tie and access road alignments where deeper project-related disturbances are expected. Deeper excavation by hand auger was also utilized at locations with intact sediments to check for deeply buried deposits and where deeper project-related disturbances will occur. Soils from shovel probes were screened through 0.25-inch mesh hardware cloth. Texture, color, and structure of soil horizons observed in each probe were recorded, and the probes were backfilled. The locations of shovel probes were marked on project field maps and recorded using a GPS unit. Overview photographs of shovel probes were taken.

5.2 Built Environment Investigations

A reconnaissance-level survey was completed on February 21 and 22, 2023 and March 14, 2024, by Evan Brisentine, MSHP, who meets the Secretary of the Interior's Standards for Architectural History. During the field surveys, photographs and notes were taken of any built environment components within the API that appeared to be more than 45 years old. Notes and photographs were taken digitally in the ArcGIS Field Maps app, providing visuals of the API and the surrounding area. Details for these resources can be found in Section 6.3, Built Environment Resources Documented in the API. Built resources were evaluated in accordance with DAHP Washington State Standards for Cultural Resources Reporting (DAHP 2022).

5.3 Resource Evaluation

The National Park Service (NPS) has established guidelines for considering NRHP eligibility for a district, site, building, structure, or object (NPS 1995). To be individually eligible for listing in the NRHP, a resource must be significant within a historic context and retain the integrity of those features that convey significance. The significance of a resource within its historic context must relate to one or more of the following criteria (Criteria A–D):

A. Is associated with events that have made a significant contribution to the broad patterns of our history.
B. Is associated with the lives of persons significant in our past (i.e., persons whose activities are demonstrably important within a national, state, or local context).
C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the works of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction (i.e., are part of a district). Discrete features, a building for example, may best be documented under this criterion, although collections of resources may also have significance under Criterion C for architecture or engineering association.
D. Has yielded, or has the potential to yield, information important in history. To be eligible under Criterion D, the property must have, or have had, information to contribute to our understanding of human history and that information must be considered "important." Most often applied to archaeological sites; buildings, structures, and objects may be eligible under Criterion D if they are the principal source of information (NPS 1995, p. 21).

In addition to these basic evaluation criteria, the NRHP outlines further criteria considerations for significance. Moved properties; birthplaces; cemeteries; reconstructed buildings, structures, or objects; commemorative properties; and properties that have achieved significance within the past 50 years are generally not eligible for listing in the NRHP. The criteria considerations are exceptions to these rules, and they allow for the following types of resources to be NRHP eligible (NPS 1995, p. 2):

A. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
B. A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
C. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his or her productive life; or
D. A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, from association with historic events; or
E. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
F. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
G. A property achieving significance within the past 50 years if it is of exceptional importance.

Once the significance of a resource has been determined, the resource then must be judged on its retention of integrity. Integrity is (1) the ability of a property to illustrate history and (2) possession of the physical features necessary to convey the aspect of history with which it is associated (NPS 1995, p. 44). The evaluation of integrity is grounded in an understanding of a property's physical features and how they relate to the property's significance. Historic properties either retain integrity (that is, convey their significance) or they do not. To retain integrity, a property will always possess several, and usually most, of the seven aspects of integrity (NPS 1995, pp. 44–45):

1. *Location* is the place where the historic property was constructed or the place where the historic event occurred.
2. *Design* is the combination of elements that create the form, plan, space, structure, and style of a property.

3. *Setting* is the physical environment of a historic property.
4. *Materials* are the physical elements that were combined or deposited during a particular period and in a particular pattern or configuration to form a historic property.
5. *Workmanship* is the physical evidence of crafts of a particular culture or people during any given period in history or prehistory.
6. *Feeling* is a property's expression of the aesthetic or historic sense of a particular period of time.
7. *Association* is the direct link between an important historic event or person and a historic property.

6 Results

6.1 Archaeological Survey Results

6.1.1 Pedestrian Survey

Proposed BESS Site. This portion of the archaeological field survey was conducted by Dudek archaeologist Lea Loiselle and Evan Brisentine on February 21 and 22, 2023 (Figure 3). The proposed BESS site is located on TPN P40030, which is bounded to the north by Minkler Road, to the south and east by rural pastureland and thick vegetation, and to the west by Hansen Creek, rural single-family residences, and thick vegetation. Pedestrian survey transects were walked north to south across the BESS site. A transmission line runs aligned north–south and bisects the western side of the parcel, and a pipeline runs parallel to the transmission line on the east side of the residential buildings (Exhibits 1 and 2).

The BESS site consists of an open, fairly flat grass field, with the eastern and southern edges consisting of thickly vegetated and woody terrain. The western edge of the ASA consists of small trees and blackberry (*Rubus* sp.) along Hansen Creek (Exhibits 3 and 4). Disturbances identified on the northern portion consist of soils and vegetation pushed into a small pile, and recently excavated and refilled trenches. The western edge of the ASA, parallel to Hansen Creek and behind the landowner's house directly under the towers, has been disturbed due to an in-use horse pasture and the existing transmission towers, and includes a small pile of pushed soils and vegetation. Surface visibility was generally poor (0%–10%) within the ASA due to tall grasses and Himalayan blackberry brambles. Mineral soil exposures at rodent burrows and areas of horse trampling offered the greatest visibility. No archaeological resources were identified.

Gen-Tie Line. This portion of the archaeological field survey was conducted on March 14 and 15, 2024, by Dudek archaeologists Brady Berger and Daniel Martin. Pedestrian survey transects were walked roughly north to south along the gen-tie line corridor, which measures approximately 0.2 miles long by 90 feet wide within privately owned TPN P40042 and PSE-owned TPN P40022. The proposed gen-tie line exits the southern margin of the BESS site, crossing a small unnamed channelized creek into an agricultural field, and then crosses Hansen Creek to a utility corridor and a forested area adjacent and east of the PSE-owned Sedro-Woolley Substation.

The gen-tie line route consists of an open, flat, agricultural field with good surface visibility (40%–60%) before crossing Hansen Creek, which is deeply incised and bordered with willow and blackberry brambles. (Exhibit 5). The gen-tie route then crosses a level grass field within the PSE-owned utility corridor before entering a forested area adjacent to the Sedro-Woolley Substation, also owned by PSE, with poor to good surface visibility (10%–40%). Within the forested area, modern structural refuse including dimensional lumber, plastic corrugated culvert sections, metal

pipes, and metal hardware are strewn throughout (Exhibit 6). The gen-tie line route exits the forested area to a leveled area covered with gravel fill before entering Sedro-Woolley Substation's eastside (Exhibit 7). Vegetation across the gen-tie line route consists of willow, blackberry, Douglas fir, western hemlock, western red cedar, oceanspray, Oregon grape, snowberry, and various grasses.

Proposed access road alignment AR1 in the northwest portion of the ASA was routed immediately preceding fieldwork and was surveyed during this mobilization. During survey of access road alignment AR1, numerous historic agricultural equipment features were observed within the ASA. Each feature within the ASA was recorded and a site boundary was established to include features outside the ASA, but features outside the ASA were not formally recorded. Further details of the site are described below (Section 6.1.2, Subsurface Survey and Section 6.2, Site 12655.18-01).

Access Road Alignments. This portion of the archaeological field survey was conducted on two separate field mobilizations: the initial mobilization for access road alignment AR1 and the second mobilization for access road alignment AR2. On March 14, 2024, Dudek archaeologists Brady Berger and Daniel Martin conducted the field survey for access road alignment AR1. Pedestrian survey transects were walked roughly east to west along the north and northeast side of Sedro-Woolley Substation on TPNs P40022 and P40046. During the field survey, numerous historic agricultural equipment features were observed within the ASA. Each feature within the ASA was recorded and a site boundary was established to include features outside the ASA, but features outside the ASA were not formally recorded. Further details of the site are described below (Sections 6.1.2 and 6.2).

On April 18 and 19, 2024, Dudek archaeologists Brady Berger and Maxwell Deckelmann conducted an archaeological field survey for access road alignment AR2. Pedestrian survey transects were walked roughly north to south, meandering within the access road alignment, from Hoehn Road to the Sedro-Woolley Substation across TPNs P40046, P40047, and P40022. The mentioned parcels are owned by PSE and bound by Hansen Creek to the north and east, Hoehn Road to the south, private residential property to the southwest, and PSE-owned land to the west. Access road alignment AR2 enters TPN P40046 as a single alignment from Hoehn Road oriented to the north, then turns west and diverges into two alignments crossing into TPNs P40047 and P40022 on the eastside of the Sedro-Woolley Substation.

The access road alignments (AR1 and AR2) consist of a flat, open, grassy field with poor surface visibility (0%–20%) used as a utility corridor (Exhibit 8). Many rodent burrows with exposed sediment were present during pedestrian survey and were thoroughly inspected for cultural resources. Exposed sediments were primarily sandy loams, suggesting the landform was subject to seasonal flooding and is an elevated floodplain. The utility corridor is likely disturbed by utility construction activities. No archaeological resources were identified. Vegetation across the access road alignments consists of blackberry, oceanspray, Oregon grape, snowberry, and various grasses.

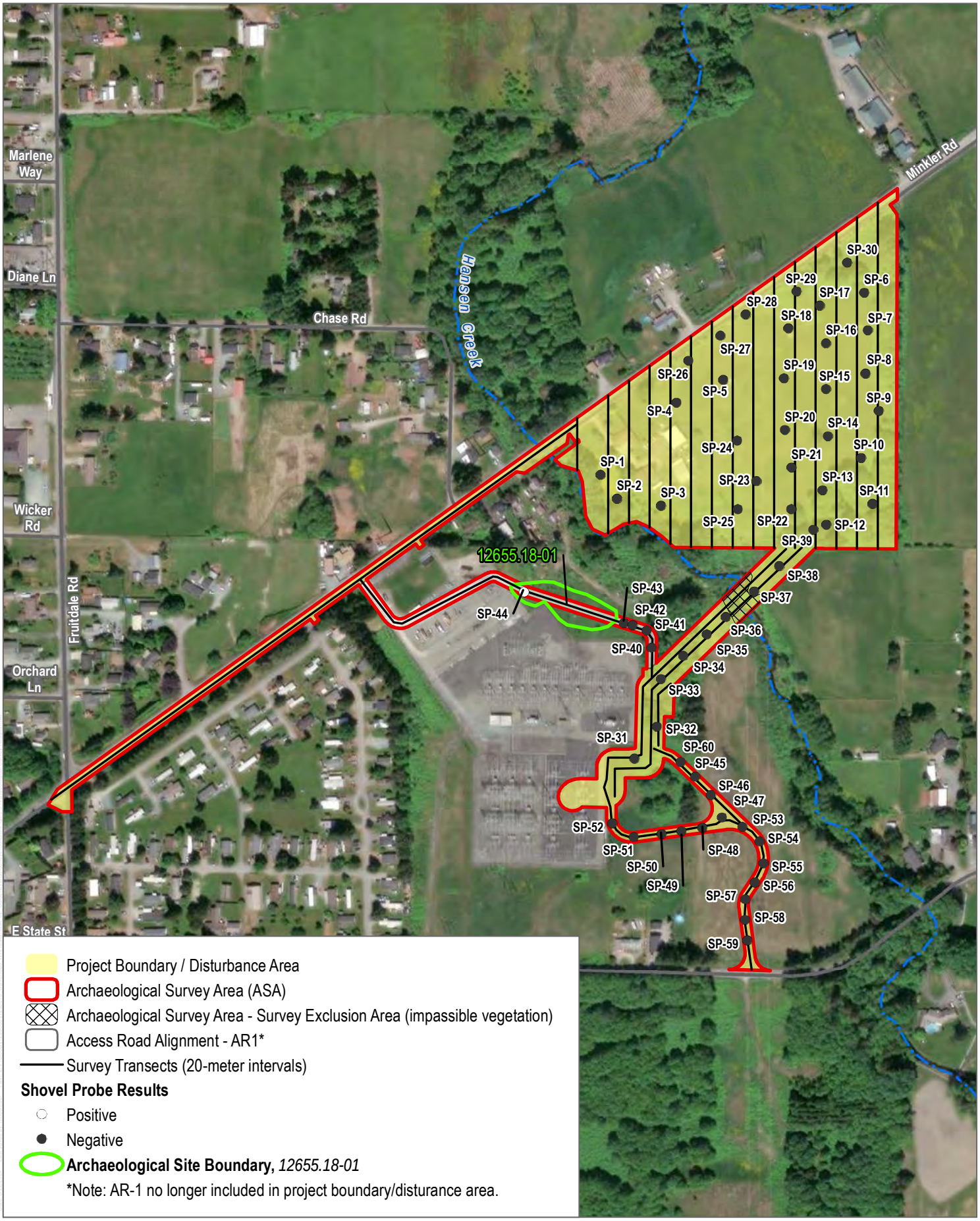
Waterline Disturbance Area. In addition to the access road alignment, a waterline disturbance area bordering the southside of Minkler Road from the project's BESS site to the intersection of Minkler Road and Fruitdale Road was surveyed. The survey included a reconnaissance-level effort with pedestrian survey conducted at locations with mineral soil visibility. The waterline disturbance area is situated within a previously disturbed road grade and no cultural resources were identified at its location.

6.1.2 Subsurface Survey

Following completion of the pedestrian survey, 60 shovel probes (SPs) were excavated across the ASA (the proposed BESS site, gen-tie route, and access road alignments) to test for buried archaeological resources. Shovel probes were placed where the proposed project-related ground disturbances will occur and in areas where ground visibility was poor. Excavated soils were consistent with the Field series, the Minkler series, and the Sumas series mapped for the API (USDA 1988, 2002, 2005) (see Section 2.2, Hydrology, Soils, and Vegetation). Methods for subsurface testing are described in more detail in Chapter 5, Methods. The shovel probes were placed where the proposed project-related ground disturbances will occur (grading to level the ground throughout much of the ASA, gen-tie boring, access road construction, and stormwater swales along the north edge of the ASA) to get even coverage; these locations also exhibited poor ground visibility. Shovel probes were excavated to a maximum depth of 90 cmbs. Hand augers were excavated within some probes, reaching maximum depth of 200 cmbs.

A total of 60 shovel probes were excavated within the ASA for the project (Appendix A; Figure 3). Within the BESS site, 30 shovel probes, SP-1 to SP-30, were excavated. SP-1 to SP-25 were excavated by Lea Loiselle on February 21 and 22, 2023 (Exhibit 9), and SP-26 to SP-30 were excavated by senior archaeologist Zach Windler on April 13, 2023. Nine shovel probes were excavated within the project's gen-tie route, SP-31 to SP-39, by Brady Berger and Daniel Martin on March 14 and 15, 2024, and five shovel probes, SP-40 to 44, were excavated within an initially proposed access road alignment AR1 (Exhibit 10). Five shovel probes, SP-31, SP-33, SP-37, and SP-39, within the gen-tie corridor were extended to depths between 170 to 200 cmbs, by hand auger, where deeper project-related disturbances are proposed to test for deeply buried cultural resources deposits. In proposed alternate access road alignment (AR2), a total of 16 shovel probes, SP-45 to SP-60, were excavated by Brady Berger and Maxwell Deckelmann on May 18 and 19, 2024. Shovel probes SP-46 to SP-50 and SP-53 to SP-59 were excavated at 20-meter intervals due to the proximity of previously recorded artifacts (45SK651, 45SK314, and 45SK315) to access road alignment AR2. No shovel probes were excavated in areas with impassably dense vegetation and blackberries. Additional shovel probe details are listed in Appendix A.

A single positive delineation shovel probe, SP-44, was excavated on the initial boundary of historic site 12655.18-01 to determine the site's vertical and horizontal extent. Artifacts recovered from SP-44 primarily included fragments of electrical items (glass tubes, light bulbs, and various unidentifiable shard, a plug, and metal fragments, and asbestos). The recovered artifacts were indicative of industrial refuse, possibly from the previously decommissioned components of historic Sedro-Woolley Substation. Following the identification of industrial refuse and the presence of asbestos, SP-44 was terminated due to possible contaminants present in the sediment.



SOURCE: Esri World Imagery Basemap; WA DOT 2023; NHD 2024

DUDEK

0 200 400 Feet

FIGURE 3

Archaeological Survey Results

Goldeneye Energy Storage Project

Exhibit 1. An overview of the BESS site survey in open pasture, facing east.

Source: Dudek IMG_1489.

Exhibit 2. An overview of the BESS site showing transmission lines, woods, and open agricultural field, facing southeast.

Source: Dudek IMG_1494.

Exhibit 3. An overview of the project's BESS site during pedestrian survey, with wooded area and Hansen Creek in the background, facing south.

Source: Dudek IMG_1488.

Exhibit 4. An overview of southern extent of BESS site within wooded area, showing Hansen Creek, facing south.

Source: Dudek IMG_1497.

Exhibit 5. An overview showing Hansen Creek, thick vegetation, and SP-36, facing north.

Source: Dudek IMG_0038.

Exhibit 6. An overview of modern structural refuse in forested area of the gen-tie line, facing south.

Source: Dudek IMG_376.

Exhibit 7. An overview showing gravel area where the gen-tie line enters Sedro-Woolley Substation, facing south.

Source: Dudek IMG_3992.

Exhibit 8. An overview showing the access road alignment AR2 in TPN P40046, facing north.

Source: Dudek IMG_1490.

Exhibit 9. An overview showing BESS site and SP-9 in process, facing west.

Source: Dudek IMG_1521.

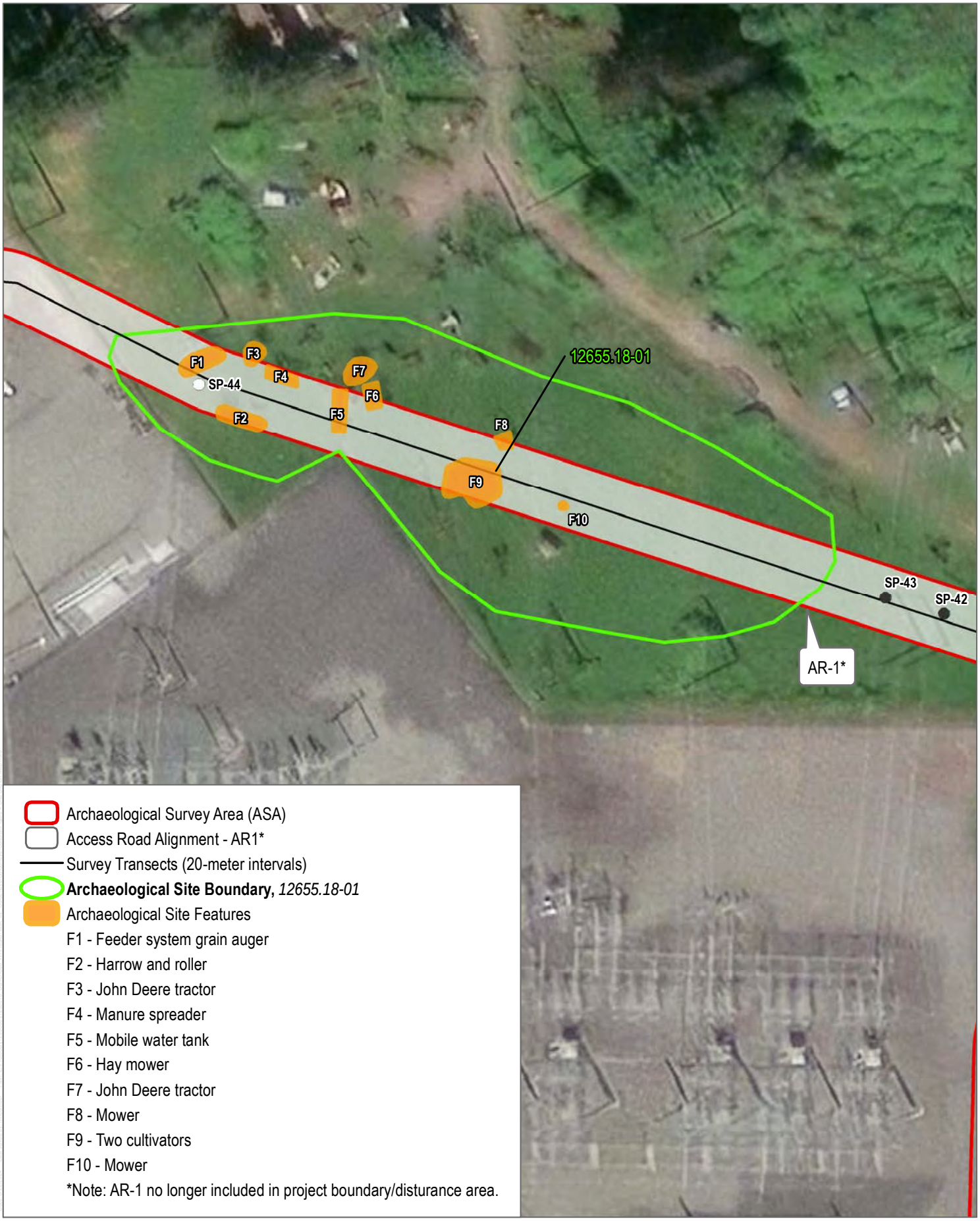
Exhibit 10. An overview of SP-33 in process within gen-tie line, facing west.

Source: Dudek IMG_1511.

6.2 Site 12655.18-01

Archaeological site 12655.18-01 is a historic site located immediately north of the Sedro-Woolley Substation, within proposed access road alignment AR1 (Figure 4, 12655.18-01 Sketch Map; Exhibits 11 to 21). The site is located south of private residential property and north of Sedro-Wooley Substation, within a utility corridor. Vegetation includes various short grasses and blackberry brambles, resulting in poor mineral soil visibility (0%–20%). The site was identified during pedestrian survey for the initially proposed access road alignment AR1 and measures approximately 340 feet by 100 feet, is a minimum of 10 inches (25 centimeters) deep, and lies at an elevation of 60 feet amsl. The soil is a very dark brown and appears disturbed by utility construction and leveling of discarded industrial components. A single site boundary delineation probe (SP-44) was excavated and contained 86 pieces of historic industrial refuse, including one asbestos fragment. Once the asbestos fragment was observed, the probe was terminated due to possible hazardous sediment contamination. The site boundary was determined based on surficial artifacts and features, private property boundaries, and ASA boundaries. Additional historic agricultural equipment is present outside the ASA boundary, suggesting the site is larger than the recorded portion within the ASA. For the purpose of the project, Dudek only recorded details of archaeological features and artifacts within the project's ASA. The site boundary extends outside the ASA to include the additional historic agricultural equipment observed outside the ASA but those components of the site are not included in detail in this site description. Additional historic agricultural equipment outside the ASA includes five tractors, two portable water tanks, one harrow, one tiller, and one mower.

Historic site 12655.18-01 consists of a historic agricultural equipment cache and subsurface industrial refuse. Twelve pieces of historic agricultural equipment (10 features) were recorded within the ASA, including one grain harvester, a roller and harrow, two John Deere tractors, one manure spreader, one mobile water tank, four sickle mowers, and two flail mowers, which are described below in further detail. Modern refuse was present on the ground surface within the site, but no surficial archaeological artifacts were observed. Subsurface artifacts observed in SP-44 (Exhibit 11) include 11 colorless glass shards and 24 lamp glass shards from 0–10 cmbs; 1 incandescent bulb fragment, 1 colorless glass tube fragment, 1 220-volt electrical plug, 1 intact light bulb, 16 amber glass shards, and 15 colorless glass shards from 10–20 cmbs; and 15 miscellaneous metal fragments and 1 asbestos fragment at 20–25 cmbs. All artifacts were reburied in SP-44; no artifacts were collected.



SOURCE: Esri World Imagery Basemap; WA DOT 2023; NHD 2024

DUDEK

0 25 50 Feet

FIGURE 4

12655.18-01 Sketch Map

Goldeneye Energy Storage Project

Exhibit 11. SP-44 at 25 cmbs with historic refuse fragments in situ (Photo 1) and incandescent bulb (Photo 2), plan view.

Photo 1

Photo 2

Source: IMG_0051.

Feature 1 is located on the western end of the site and consists of a "Harvestore" grain-auger feeder system. The grain-auger feeder is constructed with galvanized steel and affixed to the top of a trailer, measuring approximately 17 feet long by 5 feet wide by 3 feet high (Exhibit 12).

Exhibit 12. Feature 1, "Harvestore" grain-auger feeder system, facing north.

Source: IMG_0051.

Feature 2 is located in the southwest corner of the site, 20 feet south of Feature 1, and consists of two pieces of historic agricultural equipment, an International Harvester cultivator, and a roller attachment (Exhibit 13). The International Harvester cultivator measures approximately 12 feet long by 10 feet wide by 3.5 feet high. The roller attachment is 2 feet east of the harvester and measures approximately 10 feet long by 3 feet wide by 2 feet high. Both pieces of historic agricultural equipment are made of steel and may be connected and towed in series by a tractor.

Exhibit 13. Feature 2, cultivator and roller overview, facing south.

Source: IMG_0053.

Feature 3 is located on the western portion of the site, 15 feet east of Feature 1, and consists of a John Deere Model A Tractor built between 1934 and 1953 (Mowitz 2024). The tractor appears to be complete, measures 11 feet long by 5 feet wide by 5.5 feet in height, and is heavily weathered (Exhibit 14).

Exhibit 14. Feature 3, John Deere Model A Tractor, facing north.

Source: IMG_0060.

Feature 4 is located in the western portion of the site, 12 feet east of Feature 3, and consists of an early to mid-twentieth century David Bradley Manure Spreader (Exhibit 15). The spreader is constructed with angle iron and dimensional lumber, measures 8 feet long by 4 feet wide by 4 feet in height, and designed to be pulled behind a tractor.

Exhibit 15. Feature 4, early to mid-twentieth century manure spreader, facing north.

Source: IMG_0063.

Feature 5 is located in the central and western portion of the site, 16 feet east of Feature 4, and consists of a portable water tank (Exhibit 16). The water tank is affixed to a metal trailer with large tires and measures approximately 10 feet long by 5 feet wide by 5 feet in height.

Exhibit 16. Feature 5, portable water tank, facing west.

Source: IMG_0071.

Feature 6 is located in the central and western portion of the site, 10 feet east of Feature 5, and consists of two International Harvester Model 24 Sickle Mowers (Exhibit 17). Each sickle mower measures approximately 4.5 feet long by 4 feet wide by 6 feet in height, and shows welded versus riveted assembly suggesting the mowers are from post-World War II.

Exhibit 17. Feature 6, two International Harvester Sickle Mowers, facing southwest.

Source: IMG_0070.

Feature 7 is located in the central western portion of the site, 10 feet north of Feature 6, and consists of a John Deere Model A Tractor, built between 1934 and 1953 (Mowitz 2024). The tractor appears to be complete, measures 11 feet long by 5 feet wide and 5.5 feet in height, and is heavily weathered (Exhibit 18).

Exhibit 18. Feature 7, John Deere Model A Tractor, facing north.

Source: IMG_0075.

Feature 8 is located in the central eastern portion of the site, 60 feet east of Feature 6, and consists of a John Deere Z105 Sickle Mower (Exhibit 19). The sickle mower measures approximately 4.5 feet long by 4 feet wide by 4.5 feet in height, and dates to the early to mid-twentieth century.

Exhibit 19. Feature 8, John Deere Z105 Sickle Mower, facing west.

Source: IMG_0081.

Feature 9 is located in the central and western portion of the survey area, 20 feet south of Feature 8, and consists of two flail mowers: a Bear Cat 72A flail mower and a New Holland flail mower (Exhibit 20). The mowers measure approximately 10 feet long by 8 feet wide by 4 feet in height each and are situated 4 feet apart. The mowers appear to be recently moved based on recent disturbance of the ground surface.

Exhibit 20. Feature 9, two historic flail mowers, facing south.

Source: IMG_0086 and IMG_0087.

Feature 10 is located in the eastern portion of the site, 35 feet east of Feature 9, and consists of a John Deere Z105 Sickle Mower (Exhibit 21). The sickle mower measures approximately 4.5 feet long by 4 feet wide by 4.5 feet in height, and dates to the early to mid-twentieth century.

Exhibit 21. Feature 10, John Deere Z105 Sickle Mower, facing west.

Source: IMG_0092.

NRHP Evaluation

Site 12655.18-01 is a historic agricultural equipment cache and subsurface historic refuse scatter recorded along the alignment of AR1. The site is bound by the PSE Sedro-Woolley Substation to the west and south, private property to the north, and two consecutive negative delineation shovel probes (SP-42 and SP-43) to the east. The site boundary is expanded outside the ASA to include additional historic agricultural refuse and features (abandoned equipment) noted during site recordation. Site delineation shovel probe SP-44 produced 86 pieces of historic refuse between 0 and 25 cmbs and was then terminated due the appearance of asbestos and other possible contaminants. The vertical and horizontal extent of the site remains undetermined at the northwest end. Therefore, site 12655.18-01 should be considered unevaluated for listing in the NRHP until its vertical and horizontal boundary is fully delineated and the distribution of associated of cultural materials within the site can be assessed.

Management Recommendation: Avoidance/Further Archaeological Investigations. Site 12655.18-01 is situated within access road alignment AR1, which is no longer being considered by the project and will be avoided by project-related disturbances. Dudek recommends no further work at the location of site 12655.18-01.

6.3 Built Environment Resources Documented in the API

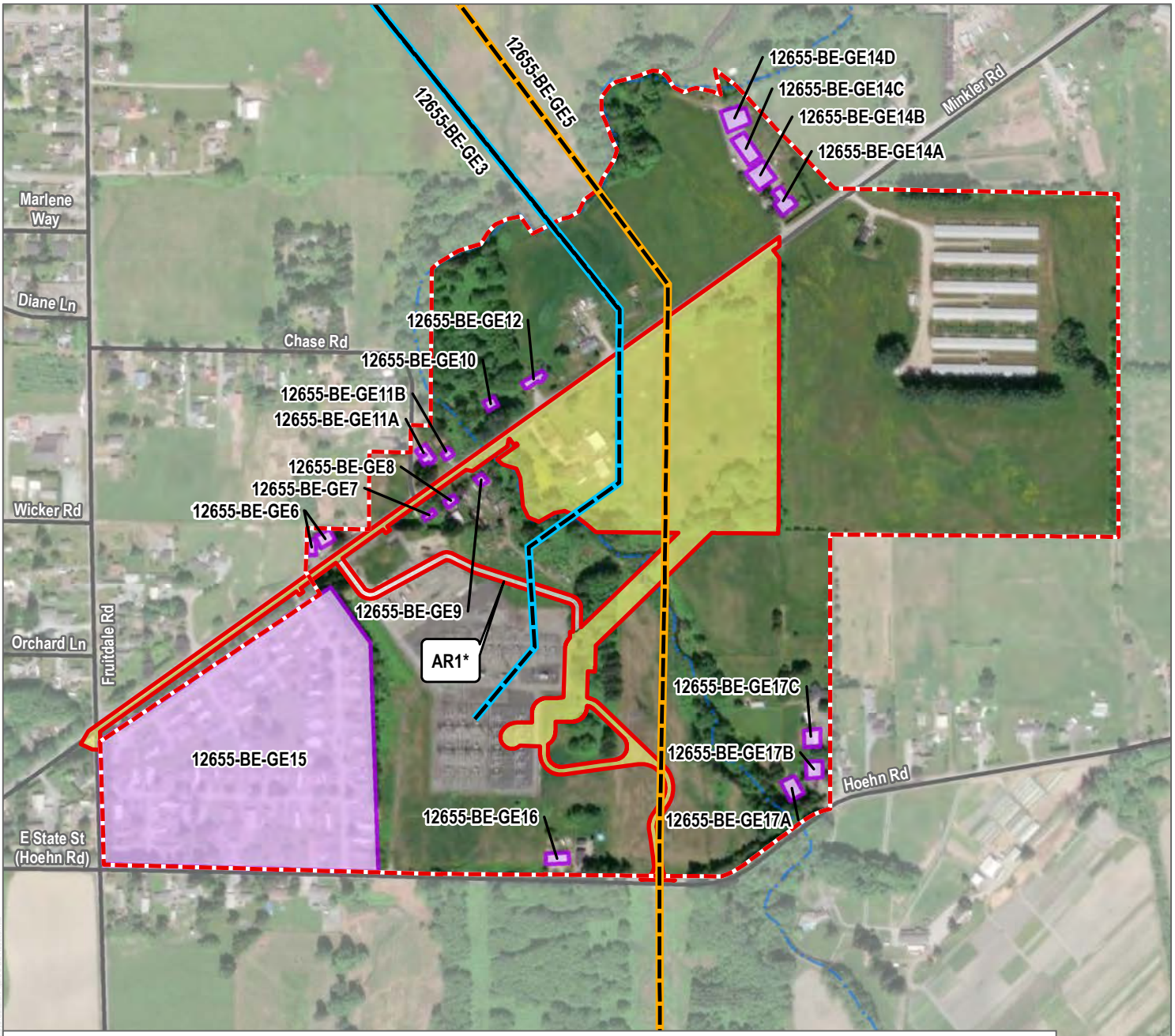
Dudek architectural historian Evan Brisentine conducted the built environment field survey on February 21 and 22, 2023, and March 14, 2024, to determine whether built environment resources were present within the API. Three resources that were surveyed were recently determined not eligible by DAHP (12655-BE-GE01, 12655-BE-GE02, and 12655-BE-GE04). These were not reevaluated as part of this undertaking. During the survey, Dudek documented 19 built environment resources within the API (Table 4) (see Figure 5, Built Environment Survey Results). Following the built environment survey, 25135 Minkler Road (12655-BE-GE13) was found to not have any historic age buildings and structures. No further work was completed for this property. A single resource, the BPA Transmission Line Monroe–Custer No. 2 (12655-BE-GE05), was found to be eligible for the NRHP.

Table 4. Built Environment Resources Documented in the API

Dudek Field No./DAHP Property ID*	Tax Parcel Number	Address, Sedro-Woolley, Skagit County, WA/Resource Type	Year Built	Eligibility Recommendation
Previously Recorded Resources				
12655-BE-GE01/732928	P40030	25080 Minkler Road	1974	Determined Not Eligible (4/22/2024)
12655-BE-GE02/732929 and 732930	P40030	25084 Minkler Road House and Barn	1910/1975	Determined Not Eligible (4/22/2024)
12655-BE-GE04/733030	N/A	BPA Transmission Line Sedro-Woolley–Bellingham/ No. 1 Murray–Custer No. 1	1947/1997	Determined Not Eligible (4/22/2024)
Newly Recorded Resources				
12655-BE-GE03	N/A	PSE Transmission Line Sedro-Woolley–Whatcom Falls	ca. 1966	Not Eligible
12655-BE-GE05	N/A	BPA Transmission Line Monroe–Custer No. 2	1968	Eligible
12655-BE-GE06	P40002	24933 Minkler Road/Residence	1959	Not Eligible
12655-BE-GE07	P40019	25002 Minkler Road/Residence	1938	Not Eligible
12655-BE-GE08	P40024	25016 Minkler Road/Residence	1940	Not Eligible
12655-BE-GE09	P40031	25040 Minkler Road/Residence	1905	Not Eligible
12655-BE-GE10	P64390	25071 Minkler Road/Residence	1930	Not Eligible
12655-BE-GE11A	P111528	25029 Minkler Road/Residence	1920	Not Eligible
12655-BE-GE11B	P111528	25035 Minkler Road/Residence	1956	Not Eligible
12655-BE-GE12	P64389	25097 Minkler Road/Residence	1930	Not Eligible
12655-BE-GE14A	P40034	25263 Minkler Road/Residence	1925	Not Eligible
12655-BE-GE14B	P40029	25263 Minkler Road/Loft Barn	ca. 1930	Not Eligible
12655-BE-GE14C	P40029	25263 Minkler Road/General Purpose Building	ca. 1960	Not Eligible
12655-BE-GE14D	P40029	25263 Minkler Road/Machine Shed	ca. 1930	Not Eligible
12655-BE-GE15	P39908	24892 Minkler Road/Residence	1954	Not Eligible
12655-BE-GE16	P40043	25077 Hoehn Road/Residence	1952	Not Eligible
12655-BE-GE17A	P40037	25291 Hoehn Road/Residence	1958	Not Eligible
12655-BE-GE17B	P40037	25295 Hoehn Road/Residence	1974	Not Eligible
12655-BE-GE17C	P40038	25295 Hoehn Road/Loft Barn	1920	Not Eligible

Notes: API = area of potential impacts; DAHP = Washington State Department of Archaeology and Historic Preservation; N/A = not applicable; BPA = Bonneville Power Administration; ca. = circa.

* DAHP Property ID left blank until provided by DAHP.



Parcels
Project Boundary / Disturbance Area
Archaeological Survey Area
Access Road Alignment - AR1*
Area of Potential Impacts (API)

Architectural Resources

12655-BE-GE3, PSE Transmission Line Sedro Woolley-Whatcom Falls
12655-BE-GE5, BPA Transmission Line Monroe-Custer No.2
Architectural Resource - Polygons

- 12655-BE-GE6, 24933 Minkler Road, built 1959
- 12655-BE-GE7, 25002 Minkler Road, built 1938
- 12655-BE-GE8, 25016 Minkler Road, built 1940
- 12655-BE-GE9, 25040 Minkler Road, built 1905
- 12655-BE-GE10, 25071 Minkler Road, built 1930
- 12655-BE-GE11A, 25029 Minkler Road, built 1920
- 12655-BE-GE11B, 25035 Minkler Road, built 1956
- 12655-BE-GE12, 25097 Minkler Road, built 1930
- 12655-BE-GE14A, 25263 Minkler Road (Residence), built 1925
- 12655-BE-GE14B, 25263 Minkler Road (Loft Barn), built c. 1930
- 12655-BE-GE14C, 25263 Minkler Road (General Purpose Building), built c. 1960
- 12655-BE-GE14D, 25263 Minkler Road (Machine Shed), built c. 1930
- 12655-BE-GE15, 24892 Minkler Road, Van Fleets Mobile Home Park, built 1954
- 12655-BE-GE16, 25077 Hoehn Road, built 1952
- 12655-BE-GE17A, 25291 Hoehn Road, built 1958
- 12655-BE-GE17B, 25295 Hoehn Road, built 1974
- 12655-BE-GE17C, 25295 Hoehn Road, built 1920

*Note: AR-1 no longer included in project boundary/disturbance area.

SOURCE: Esri World Imagery Basemap; WA DOT 2023; NHD 2024

DUDEK

0 295 590 Feet

FIGURE 5

Built Environment Survey Results

Goldeneye Energy Storage Project

6.3.1 Previously Recorded Resources

6.3.1.1 25080 Minkler Road (12655-BE-GE01/732928)

During the built environment field survey, Dudek surveyed the residence at 25080 Minkler Road. Before completing reporting for this project, DAHP determined that the residence was not eligible as part of the Murray–Custer No. 1 Non-Ceramic Replacement Geotechnical Investigations Project (DAHP Project No. 2022-04-02507). As the resources were determined not eligible, no further work was completed for this parcel (Exhibit 22).

Exhibit 22. Photo of the north elevation, from Minkler Road, facing south.

Source: Dudek IMG_0812.

6.3.1.2 25084 Minkler Road (12655-BE-GE02/732929 and 732930)

During the built environment field survey, Dudek surveyed the residence and barn at 25084 Minkler Road. Before completing reporting for this project, DAHP determined that the residence was not eligible as part of the Murray–Custer No. 1 Non-Ceramic Replacement Geotechnical Investigations Project (DAHP Project No. 2022-04-02507). As the resources were determined not eligible, no further work was completed for this parcel (Exhibit 23).

Exhibit 23. 25084 Minkler Road, located southeast of 25080 Minkler Road. View of main (north) façade, with an obstructed view of the two-car garage, facing south.

Source: Dudek IMG_0881.

6.3.1.3 Bonneville Power Administration Transmission Line Sedro-Woolley–Bellingham No. 1/Murray–Custer No. 1 (12655-BE-GE04/733030)

During the built environment field survey, Dudek surveyed the BPA Sedro-Woolley–Bellingham No. 1/Murray–Custer No. 1 Transmission Line. Before completing reporting for this project, DAHP determined that the transmission line was not eligible as part of the Murray–Custer No. 1 Non-Ceramic Replacement Geotechnical Investigations Project (DAHP Project No. 2022-04-02507). As the resource was determined not eligible in April of 2024, no further work was completed for this resource (Exhibit 24).

Exhibit 24. Photo of transmission line structure Sedro-Woolley–Bellingham No. 1 (red arrow) and Murray–Custer No. 1 (black arrow). Tower number 1/5 in the API, facing south.

Source: Dudek IMG_0832.

6.3.2 Newly Recorded Resources

6.3.2.1 24933 Minkler Road (12655-BE-GE06)

Property Description

The residence, located at 24933 Minkler Road, faces Minkler Road in the center portion of the parcel designated as TPN P40002. The house, constructed in 1959, is a single-story Ranch-style building with a central entrance on the main façade. The roof is side-gabled and is clad in composite shingles with a decorative front-facing pitch in the center of the front-facing façade. It appears to have horizontal vinyl siding. The building is U-shaped in floor plan and has a concrete foundation, with additions to the northwest elevation between 1975 and 1981 (NETR 2024b). Additions to the property include a general-purpose building (garage) to the southwest of the primary residence and a multi-purpose shed to the north of the residence in 1990. Between 2008 and 2021, changes to the building include decorative cedar rake shingles on the roof pitches in the side and front façade and the removal of two exterior chimneys (Google Earth 2024; Skagit County Assessor 2024, Parcel ID P40002) (Exhibit 25).

Exhibit 25. 24933 Minkler Road (right). View of main (east) façade, and the general-purpose building garage) (left), facing northwest.

Source: Dudek IMG_4102.

Historic Overview

While the Skagit County Assessor indicates the house was built in 1959, no original ownership information was located during archival research for the subject property. A 1941 map shows that R.E. Mansfield owns the property (Metsker Maps 1941, p. 19); historical aerial photographs verify the built date as there was no house on the property until the late 1950s (NETR 2024b). A 1972 map shows that Milo Dralle owned the parcel (Metsker 1972). Dralle came from a family that had lived in Sedro-Woolley and was born in Skagit County in 1938 (Ancestry.com 1938). Besides marriage and other announcements, Milo, his wife Patricia, and their children rarely made the newspaper. Although Milo was involved in two motor vehicle accidents, no one was seriously injured during either of the crashes (Bellingham Herald 1957b, p. 3; 1966, p. 18). According to the Skagit County Assessor, the property currently includes two parcels, P40002 and P39907; the parcels appear to have been tied to joint sales since 1996. In September 1971, the parcel was purchased by Milo and Patricia Dralle and they owned the home until 1991; since then, the property has exchanged ownership six times, with the current owner William Walker as of April 2020 (Skagit County Assessor 2024).

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative for a time. By the 1940s, the town's population had grown to almost 3,000 people, which more than doubled by 1980. To serve the growing population, residential, commercial, and civic building construction increased during the 1950s, 1960s, and 1970s (NETR 2024b). The subject property, constructed in 1959, is part of this increased need to accommodate new residents. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. It is also not known to be directly associated with

events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 24933 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: R.E. Mansfield (1941) and Milo and Patricia Dralle (1972). Archival research did not uncover information that would indicate these owners/occupants made significant contributions to our past. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is a modest and undistinguished example of a 1950s ranch house. It is a ubiquitous property type found throughout the region; lacks distinctive characteristics of its type, period, or construction method; and does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a common property type and style, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 24933 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.2 25002 Minkler Road (12655-BE-GE07)

Property Description

The residence, located at 25002 Minkler Road, is situated in the parcel designated as TPN P40019. The house, constructed in 1938, is a single-story Minimal Traditional-style building with a gable and wing roof. The roof is clad in composition shingles, and the siding is made of horizontal wood boards. The home sits on a concrete foundation with a three-step concrete porch leading to the main entrance in the northwest corner elevation. There are six windows on the main façade: two single-pane windows, one to the left and right of the main entrance. There are three narrow vertical single-pane windows in the center of the main elevation and a one-by-one window encased in metal. The building has an L-shaped floor plan with an extended wing at the southeast elevation. Historic aerials show that an additional outbuilding is east of the primary residence. The building is not visible from the right-of-way but appears to be part of the original construction (Exhibit 26). The outbuilding has a front gabled roof.

Exhibit 26. 25002 Minkler Road. View from Minkler Road, facing south.

Source: Dudek IMG_4122.

Historic Overview

The earliest development records on the property include one structure located directly on Minkler Road just south of Hansen Creek before 1944. County Assessor parcel data indicate the historic address was 2288 Minkler Road, but there is no indication of when the current site address was established (NETR 2024a; Skagit County Assessor 2024). In 1941, the API was owned by H.E. Tenneson. H.E. and T.E. Tenneson owned multiple parcels south of Minkler Road, and the PSP&L owned the property where the Sedro-Woolley Substation is located (Metsker Maps 1941, p. 19).

The Skagit County Assessor indicates the house was built in 1938, and no original ownership information was located during the archival research of the subject property, but the property was likely constructed during the Tenneson ownership period. The Tenneson family immigrated from Norway in 1897 and became naturalized U.S. citizens in 1908 (Ancestry.com 1908). The family stayed in Skagit County, working as farmers or laborers between the 1900s and 1910s (U.S. Census Bureau 1910). In the 1920s, Hans and Nels Tenneson are listed as dairy farm owners (U.S. Census Bureau 1920a). The dairy operation was the primary occupation for members of the Tenneson family during the 1930s–1950s (U.S. Census Bureau 1930a, 1940, 1950). By 1972, the parcel is owned by Arthur Colfack (Metsker Maps 1972). Colfack came from a family that had lived in Sedro-Woolley since the 1940s (Metsker Maps 1972; Bellingham Herald 1943, p. 2). In January 1980, R. Frizzell purchased the parcel, and the Frizzell family owned the house until 2001.

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be

lucrative. Agricultural and dairy farms began to grow in the region to support the population. By the 1940s, the town's population had grown to almost 3,000 people, creating a need for new housing for the growing population. New construction along Minkler Road began to increase after the war as the city grew outward from its core (NETR 2024a). The subject property, constructed in 1938, was part of a growing number of rural agricultural homes built along Minkler Road. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. It is also not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25002 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: H.E. Tenneson (1941) and Arthur Colfack (1972). Archival research found that the Tenneson family were known dairy farmers in the area, but they were not known to have gained importance within the dairying industry in the region. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is a modest and undistinguished example of a Minimal Traditional-style house. It is a ubiquitous property type found throughout the region and lacks distinctive characteristics of its type, period, or construction method. It does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a common property type and style, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25002 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.3 25016 Minkler Road (12655-BE-GE08)

Property Description

The residence, located at 25016 Minkler Road, is in the southern portion of the parcel designated as TPN P40024. The house, constructed in 1940, is a single-story, Minimal Traditional-style building that faces Minkler Road. The home sits on a concrete foundation. The house has a side-gabled roof with a front-facing gable porch extension over the main entrance. The primary siding of the building is horizontal wood board. Windows on the main façade include four one-by-one horizontal sliding windows that appear to be encased in vinyl. Between 1956 and 1975, additions to the home occurred to the southwest elevation. Between 2006 and 2009, a garage was built southeast of the main residence (NETR 2024b) (Exhibit 27).

Exhibit 27. 25016 Minkler Road. View of main (northwest) façade, with an obstructed view of the two-car garage, facing southeast.

Source: Dudek IMG_4125.

Historic Overview

The Skagit County Assessor indicates the house was built in 1940. No original ownership information was found during archival research on the subject property. An outbuilding was built in 2007 (Skagit County Assessor 2024, Parcel ID P40024). A 1941 map shows the parcel as owned by H. Tenneson (Metsker Maps 1941). The Tenneson family immigrated from Norway in 1897 and became naturalized U.S. citizens in 1908 (U.S. Census Bureau 1920a). The family stayed in Skagit County as farmers or laborers between the 1900s and the 1910s (U.S. Census Bureau 1910). In the 1920s, Hans and Nels Tenneson were enumerated as dairy farm owners (U.S. Census Bureau 1920a). The dairy operation was the primary occupation for members of the Tenneson family during the 1930s–1950s (U.S. Census Bureau 1930a, 1950). A 1972 map shows that Arthur Colfack owns the parcel (Metsker Maps 1972). Colfack came from a family that had lived in Sedro-Woolley since the 1940s (Metsker Maps 1972; Bellingham Herald 1943, p. 2). In October 1986, the parcel was purchased by Vernelle Jech and sold to the current owner in September 2004.

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative. Agricultural and dairy farms were established to support the growing region. In the 1940s, the town's population had grown to almost 3,000 people, creating a need for new housing for the growing population. New construction along Minkler Road began to increase after the war as the city grew outward from its core (NETR 2024a). The subject property, constructed in 1940, was part of a growing number of rural agricultural homes built along Minkler Road. While this growth was part of a regional trend, this property did not play a significant role in

this trend and did not influence it. It is also not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25016 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: H.E. Tenneson (1941), Arthur Colfack (1972), and Vernelle Jech (1986). Archival research found that the Tenneson family were known dairy farmers in the area, but they were not known to have gained importance within the dairying industry in the region. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is a modest and undistinguished example of a Minimal Traditional-style house. It is a ubiquitous property type found throughout the region; lacks distinctive characteristics of its type, period, or construction method; and does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a common property type and style, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25016 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that “only after significance is fully established can you proceed to the issue of integrity” (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property’s current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.4 25040 Minkler Road (12655-BE-GE09)

Property Description

The residence, located at 25040 Minkler Road, is situated in the northern portion of the parcel designated as TPN P40031. The house, constructed in 1905, is a two-story building with a front-facing gabled roof and a hipped roof on the southwest elevation. The 1905 portion of the home appeared to have once had elements of the folk Victorian style. However, the porch and porch roof have been removed, making it difficult to see any resemblance to a particular style. A new addition with more modern style elements was added to the east façade, with a shed style roof and an exterior wall surface made of wood sheet. The home sits on a concrete foundation. The home’s siding varies throughout but includes horizontal boards, shingles, vertical boards, and wood sheets. The primary façade has a centered entrance, with two windows on the first floor and one on the second. The two windows on the first floor are one-over-one and appear to be original wood. The porch roof overhang over the first-floor main entrance has appeared to be destroyed or removed. The second-story window appears to be horizontal sliding one-by-one encased in metal.

The southwest elevation has a two-story extension with a metal roof and is clad in vertical wood board siding. There is an entrance next to what appears to be eight two-by-two square windowpanes and three side-by-side horizontal

windows encased in metal (Exhibit 28). According to Skagit County Assessor data, there is no information regarding additions or alterations to the building or the property. No other buildings are visible from the right-of-way due to debris, automobiles, and vegetation.

Exhibit 28. Detailed image of the residence at 25040 Minkler Road, facing southeast.

Source: Dudek IMG_4134.

Historic Overview

The Skagit County Assessor indicates the house was built in 1905, and no original ownership information was found during archival research on the subject property. An additional structure on the property is an outbuilding constructed in 2007 (Skagit County Assessor 2024, Parcel ID P40031).

A 1941 map shows the parcel as owned by H. Tenneson (Skagit County Assessor 2024; Metsker Maps 1941). The Tenneson family immigrated from Norway in 1897 and became naturalized U.S. citizens in 1908 (U.S. Census Bureau 1920a). The family stayed in Skagit County, working as farmers or laborers between the 1900s and 1910s (U.S. Census Bureau 1910). In the 1920s, Hans and Nels Tenneson are listed as dairy farm owners (U.S. Census Bureau 1920a). The dairy operation was the primary occupation for members of the Tenneson family during the 1930s–1950s (U.S. Census Bureau 1930a, 1950). A 1972 map shows that Arthur Colfack owns the parcel (Metsker Maps 1972). Colfack came from a family that had lived in Sedro-Woolley since the 1940s (Metsker Maps 1972; Bellingham Herald 1943, p. 2). In 1956, there were multiple outbuildings on the property. By 1975, numerous agricultural buildings were located southeast of the primary residence. From the 1980s into the 2000s, it appears the buildings deteriorated and were surrounded by automobiles and agricultural equipment. In October 1986, the parcel was purchased by Vernelle Jech and sold to the current owner in September 2004.

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative. A 1921 topographic map shows several houses along Minkler Road and a bridge near the API at Hansen Creek. Minkler Road development increased after World War II as the city grew outward from its core (NETR 2024a). The subject property, constructed in 1905, was part of the initial development of Minkler Road. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. It is also not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25040 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: H.E. Tenneson (1941), Arthur Colfack (1972), and Vernelle Jech (1986). Archival research found the Tenneson family were known dairy farmers in the area, but they were not known to have gained importance within the dairying industry in the region. Very few instances of the name Tenneson were found in local papers, and the name of the dairy they owned was not uncovered. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property has undergone numerous alterations since its 1905 construction. The remaining components of the building lack distinctive characteristics of its type, period, or construction method and do not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a modest house, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25040 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that “only after significance is fully established can you proceed to the issue of integrity” (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property’s current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.5 25071 Minkler Road (12655-BE-GE10)

Property Description

The residence, located at 25071 Minkler Road, is in the southern portion of the parcel designated as TPN P64390. The house, constructed in 1930, is a two-story building with some Craftsman-style details, such as the exposed rafter tails, horizontal wood siding, one-over-one double-hung windows, and brackets on the gable ends. The house has a gable roof with clipped eaves and two exterior chimneys on the north elevation. On the west elevation are three windows: two on the first story and one on the second. A pair of diamond-shaped windows appear on the

south elevation, potentially within a stairwell between floors. Due to limited visibility, no other features were identified during the survey (Skagit County Assessor 2024) (Exhibit 29).

Exhibit 29. View of 25071 Minkler Road from the right-of-way, facing north.

Source: Dudek IMG_4213.

Historic Overview

A 1925 map shows the land in this parcel and the surrounding area labeled as Skiyou (Metsker Maps 1925). The Skagit County Assessor indicates the house was built in 1930. No original ownership information was located during archival research for the subject property (Skagit County Assessor 2024, Parcel ID P64390). In 1941, the parcel was within Chase Acreage, owned by M. Hovedal et al. (Metsker Maps 1941). The Hovedal family immigrated from Ytterhogal, Sweden, to Skagit County ca. the 1920s (U.S. Census Bureau 1930b). The family included Olof, also spelled Olaf (father), and Martha (mother), and their children Martin, John, Mathew, and George. The family became naturalized citizens in 1936 (U.S. Census Bureau 1930b). In 1942, Martin's draft card listed his residence as a Sedro-Woolley and his next of kin as Hans Tennyson (also spelled Tenneson, a name that appears on nearby parcels) (U.S. Selective Service System 1942; Metsker Maps 1941, 1972).

By 1956, the main residence appeared to be connected to Minkler Road, which had a dirt road driveway and was surrounded by multiple plots of farmland. In 1975, the farmland disappeared. Vegetation coming from Hansen Creek starts to thicken and row toward the property. By 1998, the property was surrounded by trees and was barely visible from aerial photographs. At some point between 2008 and 2021, the entrance to the property was overgrown with vegetation and looked no longer inhabited. Skagit County Assessor does not include historical transfers for this parcel, with the oldest transfer occurring in December 1996 (NETR 2024a, 2024b; Skagit County Assessor 2024, Parcel ID P64390).

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative for a time. By 1921, topographic maps show that buildings had dotted the road between Sedro-Woolley and Cokedale Junction (NETR 2024a). The subject property, constructed in 1930, is part of the continued development along Minkler Road. While this growth was part of a local trend, this property did not play a significant role in this trend and did not influence it. It is also not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25071 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: the Hovedal family (1941). Archival research did not find information indicating that these owners/occupants contributed significantly to our past. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is an example of the Craftsman style. While the building exhibits many elements of the style within its region, it lacks distinctive characteristics of its type, period, or construction method and does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a common property type and style, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25071 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that “only after significance is fully established can you proceed to the issue of integrity” (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property’s current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.6 25029-25035 Minkler Road (12655-BE-GE11A and B)

Property Description

The parcel designated as TPN P111528 has three known addresses: 25029 Minkler Road, 25035 Minkler Road, and 24951 Chase Road. The two addresses on Minkler Road, 25029 and 25035, are visible from the right-of-way. Based on the project API’s purview, only the residences along Minkler Road within this designated parcel were evaluated as part of this undertaking.

Historic Overview

Skagit County Accessor lists 25029 and 25035 Minkler Road addresses within the parcel designated as TPN P111528. The address of the subject property is 25029 Minkler Road. The County’s improvement records provide

built dates and descriptions of any additions that occur on the parcel. According to County records, the subject property was built in 1920 (Skagit County Assessor 2024: Parcel ID P11152). A 1925 map shows the land in this parcel and the surrounding area labeled as Skiyou (Metsker Maps 1925). A 1941 map shows the parcel within Chase Acreage owned by M. Hovedal et al. (Metsker Maps 1941). The Hovedal family immigrated from Ytterhogal, Sweden, to Skagit County ca. the 1920s (U.S. Census Bureau 1930b). The family, including Olof [also spelled Olaf (father)] and Martha (mother) and their children Martin, John, Mathew, and George, became naturalized citizens in 1919 (U.S. Census Bureau 1930b). In 1942, Martin's draft card listed his residence as a Sedro-Woolley and his next of kin being Hans Tennyson (also spelled Tenneson, a name that appears on nearby parcels) (U.S. Selective Service System 1942; Metsker Maps 1941, 1972).

25029 Minkler Road (12655-BE-GE11A)

25029 Minkler Road, constructed in 1920, is a 1.5-story vernacular building with a multiple-pitched front gabled roof. Features of the main roof include a hipped portion on the southwest face and a dormer on the east face. Additions to the house include a flat-roofed single-story wing with a partially covered patio on the southwest elevation and a flat-roofed attached garage on the northwest elevation. The siding on the house's first floor is of plywood, and the second story appears to be a horizontal vinyl board. The roof is made of composite shingles (Skagit County Assessor 2024, Parcel ID P111528). Windows on the main façade appear to be encased in vinyl (Exhibits 30 and 31). The Skagit County Assessor indicates the house was built in 1920. No original ownership information was found during archival research on the subject property (Skagit County Assessor 2024). Historic aerial photographs verify that the current house is original. Skagit County Assessor does not include historical transfers for this parcel, with the oldest transfer occurring in December 1996.

Exhibit 30. View of 25029 Minkler Road from the south side of the right-of-way, facing northwest.

Source: Dudek IMG_4128.

Statement of Significance for 25029 Minkler Road

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative. By 1921, topographic maps show that buildings had dotted the road between Sedro-Woolley and Cokedale Junction (NETR 2024a). The subject property, constructed in 1920, is part of the post-World War I development along Minkler Road. While this growth was part of a local trend, this property did not play a significant role in this trend and did not influence it. It is also not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25029 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: the Hovedal family (1941). Archival research did not find information indicating that these owners/occupants contributed significantly to our past. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is a modest home with very light ornamentation. Historically, it may have had elements of the folk Victorian style, but no detailing remains. The building does not exhibit many elements of any particular style; lacks distinctive characteristics of its type, period, or construction method; and does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a common property type and style, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25029 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that “only after significance is fully established can you proceed to the issue of integrity” (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property’s current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

25035 Minkler Road (12655-BE-GE11B)

25035 Minkler Road was built in 1956. It is a Minimal Traditional-style home with a side gable roof and an attached flat-roofed overhang single-car garage. The roof is clad in composite shingles, and the siding is made of horizontal board. According to Historic Aerials, the attached garage was added between 1981 and 1998. Archival research reveals no major changes or alterations to the residence (NETR 2024b; Skagit County Assessor 2024, Parcel ID P111528).

Exhibit 31. View of residences on Minkler Road labeled 25029 (left) and 25035 (right), facing northwest.

Source: Dudek IMG_4136.

Statement of Significance for 25035 Minkler Road

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative. By 1921, topographic maps show that buildings had dotted the road between Sedro-Woolley and Cokedale Junction (NETR 2024a). The subject property, constructed in 1956, is part of the post-World War II midcentury development along Minkler Road. While this growth was part of a local trend, this property did not play a significant role in this trend and did not influence it. It is also not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25035 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: the Hovedal family (1941). Archival research did not find information indicating that these owners/occupants contributed significantly to our past. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is a modest home with very light ornamentation. The building does not exhibit many elements of any particular style; lacks distinctive characteristics of its type, period, or construction method; and does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a common property type and style, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25035 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.7 25097 Minkler Road (12655-BE-GE12)

Property Description

The residence, located at 25097 Minkler Road, is on the parcel designated as TPN P64389 along the north side of Minkler Road. The house, constructed in 1930, is a one-story, Minimal Traditional-style building with a cross-gabled roof clad in composite shingles. On the main façade is an elevated porch area with an extended wing from the main entrance covered in a saltbox roof. The siding is made of wood shake and has an exterior chimney on the southwest elevation. Windows on the main façade include two one-by-one horizontal windows to the north side of the main entrance and one three-paned picture window to the south side of the entrance. To the southwest of the residence is a detached garage that was constructed between 1956 and 1975 (NETR 2024b). The garage has a front-facing gable roof made of composite shingles and appears to be made of wood panel siding (Exhibit 32). Alterations identified include reroofing of the main residence between 2008 and 2021. Additions to the property include a covered concrete patio, a wood deck along the southwest wing of the entrance, and a detached garage (Google Earth 2024; Skagit County Assessor 2024, Parcel ID P64389).

Exhibit 32. View of 25097 Minkler Road with the garage (left) and residence (right), facing north.

Source: Dudek IMG_4151.

Historic Overview

A 1925 map labels the land for this parcel as Skiyou (Metsker Maps 1925). According to Skagit County Assessor records, the subject property was built in 1930. A 1941 map shows the parcel as owned by M.G. Rosenau et al. (Metsker Maps 1941). Mollie Gronemeyer and Arthur Rosenau were married in Skagit, Washington, in November 1924. Arthur immigrated to the United States from Russia in the early twentieth century and became a naturalized citizen prior to 1920 (Washington State Archives 1904; U.S. Census Bureau 1920c). According to Skagit County Assessor records, the subject property was built in 1930. No further information was found about Mollie Rosenau. A 1972 Metsker Map shows no alterations to the parcel; however, it does not list the owner's name as it has in other years. Historic land transfer records are not available for this property, with the oldest transfer dating to May 2003 (Skagit County Assessor 2024, Parcel ID P64389).

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative. By 1921, topographic maps show that buildings had dotted the road between Sedro-Woolley and Cokedale Junction (NETR 2024a). The subject property, constructed in 1930, is part of the rural agricultural development along Minkler Road. While this growth was part of a local trend, this property did not play a significant role in this trend and did not influence it. It is also not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25097 Minkler Road is recommended as not eligible for the NRHP under Criterion A.

Archival research found the following historic period owners and occupants: the Rosenau family (Metsker Maps 1941). Archival research did not find information indicating that these owners/occupants contributed significantly to our past. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is a modest, Minimal Traditional-style home. The building lacks distinctive characteristics of its type, period, or construction method. It does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a common property type and style, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25097 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.8 25263 Minkler Road (12655-BE-GE14A, B, C, and D)

Historic Overview

A 1925 map labels the land for this parcel as Skiyou (Metsker Maps 1925). A 1941 map shows the parcel as owned by S. Sorenson (Metsker Maps 1941). The Sorenson family lived in Snohomish and Skagit Counties since the late nineteenth century (U.S. Census Bureau 1920b). The Sorenson family is listed as operating a farm between Snohomish City and Park Place ca. 1870–1889, and an O.C. Sorenson lived in North Edmond around 1890 (IPC 1906, pp. 271, 356). The Sorenson name did not appear in Sedro-Woolley until ca. 1920 (U.S. Census Bureau 1920b). Soren Sorenson is listed as living on Cement Road in Sedro-Woolley. Sorenson stated his occupation as a farmer on his own land. According to the Skagit County Assessor records, the subject property was built in 1925. Sorenson is likely the original homeowner. The oldest available aerial photograph, from 1956, shows the house and barn in their current configuration (NETR 2024b). Historic land transfer records are not available for this property, with the oldest recording showing Carl Sorenson sold the property to the current owners in May 2002 (Skagit County Assessor 2024, Parcel IDs P40034 and P40029).

Property Description

The residence and agricultural property, located at 25263 Minkler Road, is situated within a portion of the parcels designated as TPNs P40034, P40029, and P64391. This property has four historic-age buildings, including a residence, a machine shed, a general-purpose building, and a loft barn. The residence was built in 1925, while the machine shed and loft barn were known to have been constructed between 1925 and 1951. The general-purpose building was built between 1956 and 1975 (NETR 2024b).

The Residence (12655-BE-GE14A)

The residence at 25263 Minkler Road is on the parcel designated as TPN P40034. The house, constructed in 1925, is a one-story midland hall and parlor with a central entrance accessed by wood stairs leading to a full-width wood porch. An exterior chimney is on the southeast elevation. The residence has a side-gabled roof clad in metal with a glossy baked enamel finish. The house appears to have vinyl siding and a concrete block foundation. Windows on the primary and southeast elevations appear to be vinyl. Northwest and northeast elevations were not visible during the survey. A detached garage between the residence and loft barn was not visible from the right-of-way and was built in 2003 (Skagit County Assessor 2024, 25263 Minkler Road; NETR 2024b) (Exhibit 33).

Exhibit 33. The residence is looking east at the west (primary) façade.

Source: Skagit County Assessor.

The Loft Barn (12655-BE-GE14B)

The loft barn, constructed between 1925 and 1951, has a front gable roof clad in metal with a glossy baked enamel finish. The barn is clad in horizontal wood board siding. On the west elevation, a dropped roof overhang is partially enclosed, creating a covered porch. A sliding metal barn door is located on the west façade. A dropped roof extension on the east elevation appears to be a garage. Six windows on the south elevation are visible—five on the first story and one within the roof pitch. Major alterations to the building appear to have occurred between 2003 and 2006 (NETR 2024b).

The General-Purpose Building (12655-BE-GE14C)

The general-purpose building, constructed between 1956 and 1975, has a rectangular floor plan and a front gabled roof clad in metal with a glossy baked enamel finish and minimal eave overhang. The siding appears to be sheet siding. The building's architectural details were not visible due to its distance from the right-of-way. Historic aerials show the building had a roof replacement ca. 2010 (NETR 2024b) (Exhibit 34).

The Machine Shed (12655-BE-GE14D)

The machine shed, constructed between 1925 and 1951, has a rectangular floor plan with a side-gabled roof. The roof is clad in metal with a glossy baked enamel finish. The main gable roof is built with trussed rafter supports and vertical wood beams from the foundation. The open-air structure appears to have roof extensions added along the east, south, and west elevations between 2003 and 2009 (NETR 2024b).

Exhibit 34. View of the loft barn and general purpose building, facing north, looking at the south and west façades.

Source: Dudek IMG_4199.

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the farming, timber, and coal industries proved lucrative. A 1921 topographic map shows several houses along Minkler Road and along Hoehn Road either at the intersection, clustered near Hansen Creek, or generally dispersed along the roadways. The residence at 25263 Minkler Road was part of the early development of Minkler Road. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. The property has undergone numerous changes since its initial construction. The site lacks temporal cohesion and does not appear to convey an association with a single event or with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Therefore, the property at 25263 Minkler Road does not meet NRHP Criterion A.

Archival research found the Sorenson family to be the property owners at the time of construction of the subject property. Archival research revealed limited information on Soren or his family in association with the property. They were not known to have gained significant importance within any industry or event tied to the property within the region. Although the Sorensons were early farmers within the area, archival research revealed minimal information in association with the property. Therefore, 25263 Minkler Road is recommended as not eligible under NRHP Criterion B.

The subject property has undergone numerous alterations since its construction in 1925. The remaining or visible components of the building lack distinctive characteristics of its type, period, or construction method and do not possess high artistic values. The original building permit for the property could not be obtained, and research could

not identify an architect or builder. The property is a ubiquitous example of a rural residential property in the region, and it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25263 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.9 Van Fleets Mobile Home Park, 24892 Minkler Road (12655 BE GE15)

Property Description

The Van Fleets Mobile Home Park, located at 24835 Minkler Road, is situated within the parcel designated as TPN P39908 (Exhibits 35 and 36). The 20-acre lot is bound by Minkler Road to the North, Fruitdale Road to the west, Hoehn Road to the south, and the Sedro-Woolley Substation to the east. The original residence turned into an office, was originally constructed in 1954 along Hoehn Road. The residence was not visible from the project area or adjacent parcels to the project area; therefore, it was not included in this report. The Van Fleets Mobile Home Park is identified as one resource.

Today, there are approximately 74 mobile homes located within the parcel designated as P39908. By 1975, there were 15 mobile homes located on the property. By 1981, there were 61 mobile homes located on the property (NETR 2024b). The mobile homes of historic age are not visible to the project area due to the tree line along the east portion of the parcel or because they are a fair distance from the project area.

Exhibit 35. View of the north entrance of the park, along Minkler Road, facing east toward the project site.

Source: Dudek IMG_4239.

Exhibit 36. View of mobile home park from south of project area, facing west.

Source: Dudek IMG_4035.

Historic Overview

A 1941 map indicates the land for this parcel as owned by E. Van Fleet (Metsker Maps 1941). The Van Fleet family has lived in Sedro-Woolley and Skagit County since the late nineteenth century (Washington Territorial Census 1885). The Van Fleet family is known as one of the earliest Euro-American settlers in this area, with the family name being associated with a schoolhouse built by the local Methodist community in the late 1890s (IPC 1906, pp. 119, 226). According to the Skagit County Assessor records, the single-family residence was built in 1954. In 1956, there were three buildings on the property, all along Hoehn Road. The residence was surrounded by agricultural fields (NETR 2024b). A 1972 map shows V. Van Fleet owns the parcel east of the transmission line and west of Hansen Creek. Historic land transfer records are not available for this property, with the oldest dating to November 1989 (Skagit County Assessor 2024, Parcel ID P39908).

Statement of Significance

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative. A 1921 topographic map shows several houses along Minkler Road and Hoehn Road either at the intersection, clustered near Hansen Creek, or generally dispersed throughout the roadways. By the 1950s, the property owned by the Van Fleets was a relatively sizable agricultural property (NETR 2024b). The original residential property, constructed in 1954, was part of the continued post-World War II development of Hoehn and Minkler Roads. While this growth was part of a regional trend, this property did not play a significant role in these events. While this residence remains on the property, beginning in 1970, a mobile home park was developed on the surrounding agricultural land, and the residence is now the management office for this development. While the development of multi-family housing is related to overall growth in the Sedro-Woolley area, it did not significantly contribute to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, the Van Fleets Mobile Home Park at 24892 Minkler Road does not meet NRHP Criterion A.

Archival research found the following historic period owners and occupants: Earl, Edith, and sons Virgil and Ray Van Fleet. The Van Fleet family were known dairy farmers in the area, but they were not known to have gained importance within the dairy or fruit industry in the region. Minimal references to the Van Fleet family were found in local papers, and a significant contribution to the community was not found. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property has undergone numerous construction periods since 1954 when the original residence was constructed. Beginning in 1971, 74 mobile homes have been added to the property. Only 17 were added between 1971 and 1979. The remaining historic age mobile homes do not possess high artistic values. Research could not identify an architect or builder. Overall, the Van Fleets Mobile Home Park at 24892 Minkler Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that “only

after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.10 25077 Hoehn Road (12655-BE-GE16)

Property Description

The residence, located at 25077 Hoehn Road, is in the southern portion of the parcel designated as TPN P40043 The house, constructed in 1952, is a single-story Minimal Traditional-style building with a small gable front and wing oriented on the east side of the main façade. The roof is clad in composite shingles, and the siding is made of wood shingles. Three concrete steps with wooden handrails lead up to the porch. Between 1998 and 2003, an addition and a concrete-covered porch were constructed between the garage and the main residence, connecting the two buildings. The extension is visible by the extended roof height in the construction area. Windows on the main façade include one single-pane window between the main entrance and concrete-covered patio and two one-over-one windows to the east of the main entrance (Exhibit 37). In addition, an outbuilding was added to the property between 1998 and 2003, north of the main residence (NETR 2024b).

Historic Overview

According to the Skagit County Assessor records, the subject property was built in 1952. A 1941 map indicates this parcel as owned by E. Van Fleet (Metsker Maps 1941). The Van Fleet family has lived in Sedro-Woolley and Skagit County since the late nineteenth century (Washington Territorial Census 1885). The Van Fleet family is known as one of the earliest Euro-American settlers in this area, with the family name being associated with a schoolhouse built by the local Methodist community in the late 1890s (IPC 1906, pp. 119, 226). A 1972 map shows V. Van Fleet owns the parcel east of the transmission line and west of Hansen Creek. Historic land transfer records are not available for this property, with the oldest dating back to November 1989 (Skagit County Assessor 2024, Parcel ID P64387).

Exhibit 37. View of 25077 Hoehn Road from the right-of-way. View of the primary (south) façade, with an obstructed view of the two-car garage facing north.

Source: Dudek IMG_4041.

Statement of Significance: 25077 Hoehn Road

Sedro Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the timber and coal industries proved to be lucrative. A 1921 topographic map shows several houses along Minkler Road and along Hoehn Road either at the intersection, clustered near Hansen Creek, or generally dispersed throughout the roadways. By the 1950s, the property owned by the Van Fleets was a relatively large agricultural property separated by forested areas (NETR 2024a). The original residential property, constructed in 1955, was part of early residential development of Hoehn and Minkler Roads. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. While this residence still remains on the property, the development of this individual residence did not lead to large population growth in this specific area. The residential parcel became surrounded by the PSP&L Sedro-Woolley Substation and transmission line rights-of-way and has completely changed the landscape from its original residential/agricultural use. 25077 Hoehn Road is not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, 25077 Hoehn Road does not meet NRHP Criterion A.

Archival research found the following historic period owners: Earl, Edith, and sons Virgil and Ray Van Fleet. The Van Fleet family were known dairy farmers in the area, but they were not known to have gained significant importance within the dairy or fruit industry in the region associated with this property. References to the Van Fleet family were not found to be associated with the property, and their contribution to the community was not outstanding. Therefore, the building is recommended as not eligible under NRHP Criterion B.

The subject property is a modest and undistinguished example of a Minimal Traditional-style house. The property at 25077 Hoehn Road lacks distinctive characteristics of its type, period, or construction method and does not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. Minimal county assessor data on the property were obtained, and research could not identify an architect or builder. As it is a standard design, layout, and indistinct building model, it is unlikely that the residence was not the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25077 Hoehn Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

6.3.2.11 25291-25295 Hoehn Road (12655-BE-GE17A, B, and C)

Property Description

The parcels designated as TPNs P40037, P40038, P40039, P40041, and P40042 have three residential properties with the following addresses: 25291 Hoehn Road, 25295 Hoehn Road, and 25299 Hoehn Road. 25291 and 25295 Hoehn Road are visible from the right-of-way and are the only residential buildings of historic age. Both parcels were identified together because they share the same property history throughout most of the twentieth century. In addition, one agricultural building, the loft barn, is of historical age. However, it has limited visibility from the right-of-way.

Historic Overview

The earliest visual of the property is a topographic map from 1921 that shows one building located on the property directly east of Hansen Creek (NETR 2024a). A 1941 map shows Anton Pearson owned the parcel. However, archival research did not reveal any information about Pearson living near Hoehn Road (Metsker Maps 1941). By 1972, The property was owned by Carl Sorenson (Metsker Maps 1972). The Sorenson family has lived in Snohomish and Skagit Counties since the late nineteenth century (U.S. Census Bureau 1920b). The Sorenson family is listed as operating a farm between Snohomish City and Park Place ca. 1870–1889, and an O.C. Sorenson lived in North Edmond around 1890 (IPC 1906, pp. 271, 356). Previously living in the surrounding area, the Sorenson name did not appear in Sedro-Woolley until ca. 1920. Soren Sorenson is listed as living on Cement Road in Sedro-Woolley and stated his occupation as a farmer on his own land (U.S. Census Bureau 1920b).

Historic aerial photographs from 1956 show multiple buildings on the property that appear to be ancillary buildings situated around and in between the current location of 25291 Hoehn Road and the loft barn. It appears there was a building in the same location as 25291 Hoehn Road with a completely different floor plan. County assessor data state 25291 Hoehn Road was built in 1958 (NETR 2024b; Skagit County Assessor 2024). According to County records, the barn is currently on a different parcel (P40038). However, this parcel is also owned by Dena and Jon Fleurichamp. The County's improvement records established that the barn and an associated outbuilding were constructed in 1920. It is likely the loft barn was constructed at or around this time. In 1993, building address 25299 Hoehn Road was constructed north of the barn on parcel P40039 (Skagit County Assessor 2024). Aerial photographs taken in 1998 resemble the present day, with only slight changes to landscaping and infrastructure improvements (NETR 2024b).

25291 Hoehn Road (12655-BE-GE17A)

25291 Hoehn Road is located on the parcel designated TPN P40037. The residence at 25291 Hoehn Road, built in 1958, is a single-story, Minimal Traditional-style building with a front gabled roof and a rectangular floor plan with an attached three-bay carport garage. The roof is clad in composite shingles, and the siding appears to be metal and vinyl (Skagit County Assessor 2024). Historic Aerials show the carport was added between 1975 and 1981 (NETR 2024b). Only the south elevation of the building is visible from the right-of-way due to vegetation and the setback from the main road. The main façade and entrance of the building is unknown. There are no windows on the south elevation and no visible windows on the east elevation (Skagit County Assessor 2024) (Exhibit 38).

Exhibit 38. View of 25291 Hoehn Road from the right-of-way with the loft barn in the background, facing north.

Source: Dudek IMG_4063.

Statement of Significance for 25291 Hoehn Road

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the farming, timber, and coal industries proved to be lucrative. A 1921 topographic map shows several houses along Minkler Road and along Hoehn Road either at the intersection, clustered near Hansen Creek, or generally dispersed throughout the roadways. Archival research revealed ownership of the property. However, there is no definitive evidence of who lived in the property at the time of the initial period of construction, which is 1920 (NETR 2024a, 2024b; Metsker Maps 1941, 1972; Skagit County Assessor 2024). The subject property was built in 1956 and was part of Hoehn Road's post-World War II development. Populations across the state and the nation were growing exponentially at this time. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. Based on the large period of significance from which the original construction (1920) and the continual construction into the late twentieth century that exists on the property, the property lacks temporal cohesion. The residence at 25291 Hoehn Road is not known to be directly associated with events that have significantly contributed to the

history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, the residence located at 25291 Hoehn Road does not meet NRHP Criterion A.

Archival research did not reveal the owners of the property at the time of construction of the residence.

No individual or group is known to have gained importance within any industry or to have been a notable early settler in the region. Therefore, the residence at 25291 Hoehn Road is recommended as not eligible under NRHP Criterion B.

The subject property has undergone numerous alterations since its construction in 1958, such as adding the carport garage. The remaining or visible components of the building lack distinctive characteristics of its type, period, or construction method and do not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permit for the property could not be obtained, and research could not identify an architect or builder. As it is a standard residential construction for the midcentury in Sedro-Woolley, the region, and the nation, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25291 Hoehn Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion for 25291 Hoehn Road

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

25295 Hoehn Road (12655-BE-GE17B)

The residence at 25295 Hoehn Road is located on the parcel designated as TPN P40037. The residence at 25295 Hoehn Road, built in 1974, is a 1.5-story, Split Level Ranch-style house with a gable on hip roof, clad in composite shingle. The siding appears to be wood board. The main entrance is on the east elevation with nine, side-sliding metal windows. A concrete-covered patio with a hipped roof overhang is centered on the façade. The building's foundation is built on the hillside, and the house appears to have a finished basement (NETR 2024b; Skagit County Assessor 2024) (Exhibit 39).

Exhibit 39. View of 25295 Hoehn Road from the right-of-way, facing northwest.

Source: Dudek IMG_4085.

Statement of Significance for 25295 Hoehn Road

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the farming, timber, and coal industries proved to be lucrative. A 1921 topographic map shows several houses along Minkler Road and along Hoehn Road either at the intersection, clustered near Hansen Creek, or generally dispersed throughout the roadways. Archival research revealed ownership of the property. However, there is no definitive evidence of who lived in the property at the time of the initial period of construction, which is 1920 (NETR 2024a, 2024b; Metsker Maps 1941, 1972; Skagit County Assessor 2024). The subject property was built in 1974 and was part of the later midcentury development along Hoehn Road. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. Based on the large period of significance from which the original construction (1920) and the continual construction into the late twentieth century that exists on the property, the property lacks temporal cohesion. The residence at 25295 Hoehn Road is not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, the residence located at 25295 Hoehn Road does not meet NRHP Criterion A.

Archival research reveals that Carl Sorenson owned the property at the time of the residence's construction. The Sorensons were a respectable farming family in the community; however, they are not known to gain significant importance within any industry or to have been a notable early settler in the region. Therefore, the residence at 25295 Hoehn Road is recommended as not eligible under NRHP Criterion B.

The subject property has not undergone any notable alterations since its construction in 1974. The remaining or visible components of the building lack distinctive characteristics of its type, period, or construction method and do

not possess high artistic values by articulating a particular design concept to the extent that it expresses an aesthetic ideal. The original building permits for the property could not be obtained, and research could not identify an architect or builder. As it is a standard residential construction for the mid-late century in Sedro-Woolley, the region, and the nation, it is unlikely that it was the work of a master architect or builder. Lastly, the property does not contribute to the significance of a potential or existing historic district. Overall, 25295 Hoehn Road lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion for 25295 Hoehn Road

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

The Loft Barn (12655-BE-GE17C)

The loft barn is located on the parcel designated as TPN P40038. The loft barn, built in 1920, is an agricultural building with a front-facing gabled roof made with an extended metal shed roof on the east and west elevations. The roof appears to be made of metal, and the only siding visible from the right-of-way on the south elevation appears to be wood. There are no known alterations or additions to the building. One other agricultural building on the property, located north of the loft barn, was built ca. 1989 (NETR 2024b) (Exhibit 40).

Exhibit 40. View of the loft barn.

Source: Skagit County Tax Assessor.

Statement of Significance for Loft Barn

Sedro-Woolley was incorporated in 1898, merging two neighboring towns: Sedro and Woolley. The town had three railroads, which provided numerous growth opportunities, and early on, the farming, timber, and coal industries proved to be lucrative. A 1921 topographic map shows several houses along Minkler Road and Hoehn Road either at the intersection, clustered near Hansen Creek, or generally dispersed throughout the roadways. The loft barn was part of Hoehn Road's rural residential development. While this growth was part of a regional trend, this property did not play a significant role in this trend and did not influence it. The property lacks temporal cohesion due to the considerable development of the property between the initial construction date (1920) and the present. The loft barn is not known to be directly associated with events that have significantly contributed to the history of Sedro-Woolley, Washington, or the nation. Research also did not identify a significant historical event on the property. Therefore, the loft barn located on the parcel designated P40038 is recommended as not eligible under NRHP Criterion A.

Archival research found that Anton Pearson was likely the property owner of the loft barn at the time it was constructed. Archival research revealed limited information on him or his family. They were not known to have gained importance within any industry or to have been notable early settlers in the region. Very few instances of the name Pearson were found in local papers. Therefore, the loft barn is recommended as not eligible under NRHP Criterion B.

The subject property appears to have been minimally altered since its construction in 1920. The barn is an unremarkable example of agricultural buildings constructed in the 1920s. There is no indication that the barn was designed or built by a master builder, which would be unlikely for a building of this type. Overall, the loft barn on TPN P40038 lacks architectural significance and does not meet NRHP Criterion C.

Under NRHP Criterion D, as a built environment resource, the building is not the principal source of important information.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

Approach to Historic Electric Resources

While there is no known management plan accessible for PSE alignments and facilities, the power infrastructure, including lines and stations, was developed in the mid-1960s and has a similar design to that of other companies during this period. The main aspects of categorizing transmission lines and structures pertain to tower configuration, voltage output, and technology used.

According to BPA's guide to evaluating transmission infrastructure and electrical distribution technology, resources are typically eligible under Criterion A or C. Some built aspects of the system, including Streamline Moderne designs associated with the 1960s substations and, later, the Beautility-influenced structures of the 1960s, may gain additional significance under Criterion C for their design and architectural qualities. Such eligibility, almost by

definition, will be in addition to or exist in parallel to the qualities of the resource that may result in significance as defined by the multiple property document (Kramer 2012, p. 38).

6.3.2.12 Puget Sound Energy Transmission Line Sedro-Woolley to Whatcom Falls (12655-BE-GE03)

Property Description

The PSE Transmission Line Sedro-Woolley to Whatcom Falls is a 115 kV single-circuit line constructed and energized ca. 1966. The wooden-pole structure includes three vertical wooden poles connected by X-shaped framing below the cross arm, which holds four overhead wires that cross over the API, as shown in Exhibit 41. The transmission line connects to the northeast corner of the Sedro-Woolley Substation and runs parallel to BPA transmission lines north toward Bellingham. The transmission line divides near Whatcom Falls, connecting west to the Bellingham Substation and east to Lake Louise Road past Geneva, Washington.

Exhibit 41. Photo of PSE transmission structure located in the API, facing south.

Source: Dudek IMG_0831.

Historic Overview

The construction of the PSP&L transmission line from Sedro-Woolley to Whatcom Falls partially resulted from the construction of the BPA's Bellingham Substation, which was aligned to serve PSP&L and the Whatcom County Utility District. The PSP&L built the Sedro-Woolley Substation in early 1925 in part to transmit power from the Baker River

Power Plant into the cities of Seattle, Bellingham, and Burlington (see Section 3.3.4, Power Development in the API). Archival research does not indicate a specific date of construction for this transmission, although historic aerials indicate a period between 1956 and 1974 (Bellingham Herald 1954, p. 3; NETR 2024b). In 1997, the PSP&L and Washington Energy Company merged to become PSE (PSE 2023).

Statement of Significance

The PSE Transmission Line Sedro-Woolley to Whatcom Falls is a standard midcentury example of power infrastructure growth throughout Skagit County and the State of Washington. This transmission line, based on the date range of its construction, does not represent a pivotal time in the growth of the PSP&L as a company providing power throughout the state. The transmission line is not associated with the original construction of the Sedro-Woolley Substation or its service from the Baker River Power Plant, and it is not associated with the significant development of power infrastructure systems of the PSE in the Pacific Northwest; therefore, this line is not recommended as eligible under NRHP Criterion A.

PSE Transmission Line Sedro-Woolley to Whatcom Falls has not been found to be associated with any individual significant persons. Even though it is associated with the work of the PSE as an entity, Transmission Line Sedro-Woolley to Whatcom Falls is not representative of any individual's work for their contributions to the County's early power infrastructure. The PSE Transmission Line Sedro-Woolley to Whatcom Falls is not associated with a single individual's important historic work and is therefore recommended not eligible under NRHP Criterion B.

The PSE Transmission Line Sedro-Woolley to Whatcom Falls is an example of a low-voltage transmission line built as part of the large-scale power system expansion between hydroelectric and substation power services. This construction method was implemented in a wide variety of transmission lines built throughout Skagit County and the State of Washington and does not possess high artistic value; therefore, this line is recommended not eligible under NRHP Criterion C. The transmission line structure, being a simple wooden structure, does not exemplify a distinctive characteristic, represent the work of a master, or express a breakthrough in technology at the time of its construction.

The PSE Transmission Line Sedro-Woolley to Whatcom Falls construction techniques are well documented and will not likely present further information potential. Therefore, the PSE Transmission Line Sedro-Woolley to Whatcom Falls is recommended as not eligible under NRHP Criterion D.

Integrity Discussion

National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation states that the integrity of a property is based upon the historical significance and character-defining features of that property and that "only after significance is fully established can you proceed to the issue of integrity" (NPS 1995, p. 45). Upon conclusion that the subject property does not meet any of the required criteria for significance, the property's current state of integrity is inconsequential. As such, no assessment of integrity is provided in this evaluation.

6.3.2.13 Bonneville Power Administration Transmission Line Monroe–Custer No. 2 (12655-BE-GE05)

Property Description

The BPA Transmission Line Monroe–Custer No. 2 Transmission Line is a 500 kV single-circuit line energized on November 24, 1968, designed and constructed as the Snohomish–Blaine No. 1 line, although it does not appear to have ever been operated using that name.

The Monroe–Custer No. 2 alignment consists of 420 lattice steel towers and associated components. The majority of these towers (313) are of the "08" structure class, which feature a flat configuration with all insulator strings and three phases of conductor suspended from a cross-arm in a horizontal plane. These towers also have a square base, with footings set square in the direction of the line. Of the total 420 structures on the line, there are 51 dead-end structures (where the line loads the tower in tension, such as turning angles) and 369 suspension structures (with the conductor strung along a virtually straight line) (Exhibit 42).

Historic Overview

After the end of the war and the completion of the Master Grid, BPA worked to expand its grid system through the construction of feeder lines to transmit power from new dams in the Columbia River, including McNary Dam, the Hungry Horse Dam, and the John Day Dam (Kramer 2012, p. 1; 2010, p. 71). This was an effort to meet the increased demand from the postwar population growth in the region. Congress approved power wheeling in 1957, which permitted private utilities to use the BPA transmission system to distribute power. This allowed the BPA to expand, without competition from private power companies, into all of their current service areas. In 1974, the Dittmer Control Center was dedicated as one of the "world's most sophisticated, computer-based, management for power transmission" (Kramer 2012, p. 3). This period is known as the System Expansion Period, which spans from 1946 to 1974 (Kramer 2012, p. 3). In addition, the mid-1960s saw an increase in national awareness of the aesthetics of the utilities under Lady Bird Johnson's "America the Beautiful" campaign. The Beautility Movement was a series of recommendations for designing the BPA's construction over the next decade for landscape improvements and modernistic designs. The BPA hired Portland architecture firm Stanton, Boles, Maguire, and Church to evaluate their current facilities and help shape a more Midcentury Modern design to allow them to become more visually appealing. During the Beautility Movement, BPA structures were designed to be modular and express the creative use of materials in substations. For transmission lines, there was an increased national awareness of aesthetics, and more tubular tower designs were introduced in the late 1960s and into the 1970s (Kramer 2010, pp. 96–97).

Exhibit 42. Photo of Transmission Line Monroe–Custer No. 2, structure 49/5. Facing southeast.

Source: Dudek IMG_0836.

NRHP Evaluation

The BPA Transmission Line Monroe–Custer No. 2 originally operated as the Monroe–Custer No. 1 line, and then was changed to Monroe–Custer No. 2 on February 11, 1975. The confusing nature of the operating name changes is a quirk of BPA's naming convention, and the Monroe–Custer No. 2 is flanked on the east and west by two lines that run parallel between the same termination points. To clarify (or perhaps cause more confusion), the operating line names of the parallel lines are listed below along with their design names:

- Monroe–Custer No. 1 (designed as Monroe–Custer No. 2)
- Monroe–Custer No. 2 (designed as Snohomish–Blaine No. 1)
- Murray–Custer No. 1 (designed as Arlington–Bellingham)

The line was constructed along with several others to strengthen the BPA grid in northwest Washington and provide for Canadian interchanges with B.C. Hydro at Blaine Substation (AECOM 2018). The line runs for 85.81 circuit miles between BPA's Monroe Substation in Snohomish County, Washington, and BPA's Custer Substation in Whatcom County, Washington.

Given its date of construction, its association with BPA's System Expansion period of significance (1946–1974), and its continued transmission of power, this line meets BPA's Multiple Property Documentation minimum eligibility standards for inclusion in the NRHP under Criterion A.

Integrity Discussion

The BPA Transmission Line Monroe–Custer No. 2 was analyzed against the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. The line retains its integrity of location and setting, as it has not been relocated, and its setting continues to reflect its rural residential nature. The integrity of design, materials, and workmanship have been maintained, as routine maintenance does not generally diminish the integrity of these types of industrial transmission structures. Overall, the integrity of feeling and association is intact, as the BPA Transmission Line Monroe–Custer No. 2 alignment can still convey its association and feeling of mid-1960s BPA power infrastructure.

Management Recommendation: The addition of power infrastructure along the line's right-of-way will not adversely affect the BPA Transmission Line Monroe–Custer No. 2. The adjacent areas are not character-defining features of the line. No further work is recommended for this resource.

7 Conclusions and Recommendations

Dudek completed a cultural resources inventory for the Goldeneye Energy Storage Project on privately owned property in Skagit County, Washington. The inventory included a literature review and archival research, an archaeological survey (pedestrian survey and 60 shovel probes), and a reconnaissance-level survey of the built environment and waterline disturbance area. One archaeological resource was identified within the ASA. Dudek identified a total of 22 built environment resources within the API.

The proposed project consists of a proposed 200 MW/800 MW-hour battery energy storage system on privately owned lands approximately 0.4 miles northeast of the Sedro-Woolley Substation. The proposed facility will support and provide a buffer for the County's electric grid by receiving energy (charging) from the PSE Sedro-Woolley Substation, storing energy on the site, and later delivering energy (discharging) back to the point of interconnection when needed. The project will not generate electricity.

Dudek identified one historic archaeological site (12655.18-01) within the project's ASA, located within the proposed access road AR1, which is no longer being considered by the project. The site was not evaluated to determine its eligibility for listing in the NRHP, as a full delineation of the site boundary could not be completed at this time. The recorded portion of the site will be submitted to the DAHP via WISAARD. No further work is recommended at this time as AR1 has been removed from the project, and the site has been avoided.

Dudek identified 22 built environment historic-era resources within the API. Three of the identified properties were found ineligible for the NRHP by the DAHP in April of 2024 and were not evaluated as part of this undertaking. Based on Dudek's field survey, archival research, and historic resource evaluation, 18 of the newly recorded resources surveyed and evaluated were recommended as not eligible for the NRHP. The BPA Transmission Line Monroe–Custer No. 2 (12655-BE-GE05) is recommended to be eligible for the NRHP. Dudek recommends that the proposed project will not adversely affect this eligible resource.

Dudek recommends a finding of no historic properties affected for the project, as proposed. If the API or scope changes, or if proposed ground-disturbing activities are conducted outside of areas tested by Dudek, additional cultural resources investigations may be needed prior to project activities. Dudek recommends that an inadvertent discovery plan be prepared for the project that describes procedures that will be followed by Goldfinch Energy

Storage, LLC, and its construction contractors should unanticipated archaeological resources or evidence of human burials be encountered during the project's construction.

8 References

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Appendix A
Shovel Probe Summary Table

Summary of Shovel Probe Results

SP No.	Depth (cmbs)	Result	Description/Notes	UTM Easting	UTM Northing
1	50	Negative	0–25 cmbs brown sandy silt loam with some sand, less than 1% gravels, 25–50 cmbs gray sandy silt, iron oxide staining, less than 1% gravels.	558859	5373014
2	55	Negative	0–55 cmbs gray sandy silt loam, sand increasing with depth.	558881	5372991
3	53	Negative	0–53 cmbs dark yellowish-brown sandy silt loam, sand content increasing with depth, less than 1% gravels.	558918	5372986
4	50	Negative	0–50 cmbs light brown sandy silt, granular structure, less than 1% rounded gravels.	558932	5373085
5	55	Negative	0–55 cmbs light grayish-brown silt transitioning to sandy silt, less than 1% rounded gravels, water table at 25 cmbs.	558976	5373109
6	50	Negative	0–50 cmbs brown silt loam, slightly sticky. ~5% subrounded gravels and pebbles.	559108	5373197
7	50	Negative	0–25 cmbs brown silt loam, ~1% gravels; 25–50 cmbs light grayish-brown sandy silt ~1% gravels.	559116	5373160
8	50	Negative	0–25 cmbs brown silt loam, ~1% gravels; 25–50 cmbs light grayish-brown sandy silt ~1% gravels. Water table at 50 cmbs.	559117	5373118
9	53	Negative	0–25 cmbs brown silt loam, ~1% gravels; 25–53 cmbs light grayish-brown sandy silt ~1% gravels.	559132	5373083
10	53	Negative	0–25 cmbs brown silt loam, ~1% gravels; 25–53 cmbs light grayish-brown sandy silt ~1% gravels.	559110	5373037
11	57	Negative	0–37 cmbs brown silt loam: 37–57 cmbs gray sandy silt, many roots.	559125	5372993
12	54	Negative	0–54 cmbs brown silt loam, less than 1% gravels.	559081	5372972
13	55	Negative	0–55 cmbs brown silt loam, less than 1% gravels.	559073	5373005
14	53	Negative	0–53 cmbs dark yellowish-brown silty clay, less than 1% gravels.	559080	5373057
15	52	Negative	0–53 cmbs dark yellowish-brown silty clay, less than 1% gravels.	559080	5373102
16	50	Negative	0–25 cmbs brown silt loam, less than 1% gravels: 25–50 cmbs dark yellowish-brown silt loam, iron oxide inclusions, 0–53 cmbs dark yellowish-brown silty clay, less than 1% gravels.	559079	5373147
17	56	Negative	0–56 cmbs brown silt loam, ~5% rounded to subrounded gravels.	559072	5373183
18	53	Negative	0–53 cmbs dark yellowish-brown silt loam, sticky and plastic, less than 1% gravels.	559042	5373160
19	55	Negative	0–55 brown silt loam, sticky and plastic, less than 1% gravels, water table at 50 cmbs.	559035	5373112
20	53	Negative	0–25 cmbs brown silt loam; 25–53 cmbs dark yellowish-brown silt loam.	559036	5373062
21	52	Negative	0–52 cmbs brown silt loam, slightly sticky and slightly plastic, less than 1% gravels, fine rootlets.	559044	5373026

Summary of Shovel Probe Results

SP No.	Depth (cmbs)	Result	Description/Notes	UTM Easting	UTM Northing
22	53	Negative	0–20 cmbs brown sandy silt, less than 1% gravels: 20–53 light brown silty sand, less than 1% gravels.	559044	5372985
23	50	Negative	0–50 cmbs dark brown silt loam, less than 1% gravels, moderately compact.	559014	5373011
24	52	Negative	0–52 cmbs dark brown silt loam, less than 1% gravels, water table at 30 cmbs.	558992	5373050
25	57	Negative	0–56 cmbs brown sandy silt, 56–57 cmbs gray coarse-grained sand.	558992	5372985
26	52	Negative	0–30 cmbs brown silt loam with no gravel; fine–small roots near surface; slightly plastic, smooth; small chunks of burnt earth and charcoal; 30–52 cmbs grayish-brown fine–sandy loam with gray and orange mottling of fine–sandy clay; no gravel; slightly plastic; friable.	558947	5373126
27	50	Negative	0–27 cmbs brown silt loam with no gravel; fine–small roots near surface; slightly plastic, smooth; small chunks of burnt earth and charcoal; 27–50 cmbs grayish-brown fine–sandy loam with gray and orange mottling of fine–sandy clay; no gravel; slightly plastic; friable.	558998	5373172
28	50	Negative	0–28 cmbs brown silt loam with several 5–10 cm diameter rounded cobbles; fine–small roots near surface; slightly plastic, smooth; small chunks of burnt earth and charcoal; 28–50 cmbs grayish-brown fine–sandy loam with gray and orange mottling of fine–sandy clay; no gravel; slightly plastic; friable.	559049	5373196
29	50	Negative	0–26 cmbs brown silt loam with very few subrounded, subangular pebble-sized gravels and several 5–10 cm diameter rounded cobbles; fine–small roots near surface; slightly plastic, smooth; small chunks of burnt earth and charcoal; 26–50 cmbs grayish-brown fine–sandy loam with gray and orange mottling of fine–sandy clay; no gravel; slightly plastic; friable.	559093	5373225
30	60	Negative	0–60 cmbs grayish-brown fine–sandy loam; no gravel; slightly plastic; friable—located in a graded/disturbed clearing surrounded by blackberry brambles.	558976	5373151
31	170	Negative	0–10 cmbs light brown silt loam, subrounded pebbles at ~1% rock content, loose compaction, moderately sorted. 10–60 cmbs light brown sandy silt loam, subrounded pebbles at ~1% rock content, loose to moderately compact, few burnt earth and charcoal flecks @50cmbs; 60–90 cmbs light brown silt loam, decrease in sand content, loose compaction; 90–170 cmbs gray sand, varying lenses of particle size, no rocks, few charcoal flecks @90cmbs.	558903	5372741
32	70	Negative	0–15 cmbs brown silt, angular and rounded pebbles and cobbles at ~40% rock content, moderately compact, poorly sorted (appears to be fill); 15–70 cmbs brown	558924	5372772

Summary of Shovel Probe Results

SP No.	Depth (cmbs)	Result	Description/Notes	UTM Easting	UTM Northing
			loam, subangular to rounded pebbles and cobbles at ~25% rock content, moderately compact, poorly sorted.		
33	140	Negative	0–20 cmbs dark brown silt loam, subrounded to subangular pebbles and cobbles at ~5% rock content, moderately well sorted; 20–80 cmbs light grayish brown silt loam, increase in course sand @50cmbs, few subrounded pebbles; 80–140 cmbs light grayish brown fine sand, well sorted, moderately compact, subrounded pebbles at ~1% rock content.	558926	5372819
34	80	Negative	0–20 cmbs dark brown sandy loam, moderately compact, poorly sorted; 20–30 cmbs brownish gray sand with varying particle size; 30–80 cmbs gray sand with few small rounded pebbles.	558947	5372842
35	80	Negative	0–15 cmbs brown silt loam, loose compaction, many roots, subrounded pebbles at ~5% rock content; 15–80 cmbs brown loam mottled with gray sand, sand content increasing with depth, well sorted, moderate to loose compaction, no roots, no rocks.	558969	5372863
36	90	Negative	0–15 cmbs brown silt loam, loose compaction, many roots, subrounded pebbles at ~5% rock content; 15–55 cmbs light brown grayish silt loam, subrounded pebbles at ~5% rock content, slightly sticky and plastic, reddish mottling with charcoal flecks and iron oxide stains; 55–90 cmbs gray brown clay loam, mottled with iron oxide staining, no rocks, no roots, loose to moderate compaction.	558987	5372880
37	180	Negative	0–25 cmbs dark brown silt loam, many fine rootlets, well sorted, moderately compact; 25–90 cmbs gray sandy loam, loose compaction, well sorted, few iron oxide stains, particle size decreasing with depth; 90–180 cmbs gray fine sand and clay, sticky and plastic, moderately compact, particle size decreasing with depth, very well sorted.	559013	5372906
38	90	Negative	0–20 cmbs dark brown silt loam, many fine rootlets, well sorted, moderately compact; 20–90 cmbs brown silt loam, well sorted, moderate to loose compaction, few and fine rootlets, no rocks.	559037	5372931
39	200	Negative	0–15 cmbs sandy loam, no rocks, few roots, loose compaction; 15–40 cmbs brownish gray sandy loam, no rocks, moderately compact; 40–80 grayish brown sand loam, very few subrounded pebbles; 80–200 cmbs gray sand, few redux inclusions, decreasing particle size with depth, water table at 200 cmbs.	559069	5372967
40	90	Negative	0–20 cmbs dark brown sandy loam gravels and pebbles at ~1% rock content, mottled with brownish gray sand;	558916	5372849

Summary of Shovel Probe Results

SP No.	Depth (cmbs)	Result	Description/Notes	UTM Easting	UTM Northing
			20–90 cmbs brownish gray loamy sand with few small pebbles and gravels.		
41	80	Negative	0–20 cmbs dark brown sandy loam, no rock content, moderately compact, wavy transition to next strat; 20–40 cmbs brownish gray loamy sand, mottled with iron oxide; 40–80 cmbs gray sand.	558910	5372866
42	80	Negative	0–25 cmbs brown silt loam, moderately compact, subrounded to subangular pebbles at ~2% rock content; 25–45 cmbs light brown sand loam, moderately to loosely compact, no rocks; 45–80 cmbs gray sand, coarse particle size, particle size decreasing with depth.	558897	5372870
43	80	Negative	0–25 cmbs brown silt loam, moderately compact, subrounded to subangular pebbles at ~2% rock content; 25–45 cmbs light brown sand loam, moderately to loosely compact, no rocks; 45–80 cmbs gray sand, coarse particle size, particle size decreasing with depth.	558889	5372872
44	25	Positive	0–25 cmbs very dark brown loam, many fine roots, subangular and subrounded pebbles and gravels at ~1% rock content, charcoal fragments. 0–10 cmbs: ~10 clear glass shards, ~20 lamp glass shards. 10–20 cmbs: 1 historic incandescent bulb fragment, 1 clear glass tube fragment, 1 220v electrical plug, 1 intact light bulb, ~30 shards of amber and clear glass, ~15 miscellaneous metal fragments, 1 asbestos fragment. (probe terminated due to likely contaminated soils from historic industrial debris).	558792	5372899
45	80	Negative	0–40 cmbs dark brown silty loam with less than 1% gravels, non-sticky and non-plastic, not friable, few charcoal flecks; 40–80 cmbs brownish gray sandy loam, moderately compact, well sorted, no roots, no rocks.	558962	5372726
46	70	Negative	0–40 cmbs dark brown silty loam with less than 1% gravels, non-sticky and non-plastic, not friable, few charcoal flecks; 40–70 cmbs brownish gray sandy loam, moderately compact, well sorted, no roots, no rocks.	558977	5372708
47	80	Negative	0–30 cmbs dark brown silty loam, no gravels, non-sticky and non-plastic, no inclusions; 30–80 cmbs gray loam, moderately compact, well sorted, no roots, no rocks.	558989	5372687
48	75	Negative	0–30 cmbs dark brown silty loam, ~20% gravels, non-sticky and non-plastic, no inclusions; 30–75 cmbs gray loam, moderately compact, well sorted, no roots, no rocks.	558970	5372676
49	80	Negative	0–30 cmbs dark brown silty loam, ~20% gravels, non-sticky and non-plastic, no inclusions; 30–75 cmbs gray loam, moderately compact, well sorted, no roots, no rocks.	558950	5372672
50	80	Negative	0–80 cmbs brown silty loam, no gravels, few rootlets, slightly sticky and slightly plastic, well sorted	558931	5372669

Summary of Shovel Probe Results

SP No.	Depth (cmbs)	Result	Description/Notes	UTM Easting	UTM Northing
51	80	Negative	0–25 cmbs dark brown loam, compact, fine rootlets; 25–50 cmbs light brown sand loam, fine particle size, moderately compact; 50–80 cmbs grayish yellow sandy loam, moderately compact, no roots, no rocks.	558904	5372666
52	80	Negative	0–30 cmbs dark brown loam, compact, fine rootlets, slightly sticky and slightly plastic; 30–80 cmbs light brown sandy loam, fine particle size, moderately compact.	558883	5372678
53	80	Negative	0–40 cmbs brown sandy loam, moderately compact, slightly sticky and slightly plastic; 40–80 cmbs gray sand, well sorted, no inclusions, non-sticky and non-plastic.	559009	5372678
54	80	Negative	0–30 cmbs brown sandy loam, small rootlets and charcoal flecks, poorly sorted, slightly sticky and slightly plastic. 30–80 cmbs gray sand, no inclusions, non-sticky and non-plastic, moderately compact, moderately well sorted.	559026	5372665
55	80	Negative	0–30 cmbs brown sandy loam, small rootlets and charcoal flecks, poorly sorted, slightly sticky and slightly plastic. 30–80 cmbs gray sand, no inclusions, non-sticky and non-plastic, moderately compact, moderately well sorted.	559030	5372644
56	80	Negative	0–30 cmbs brown sandy loam, small rootlets and charcoal flecks, poorly sorted, slightly sticky and slightly plastic. 30–80 cmbs gray sand, no inclusions, non-sticky and non-plastic, moderately compact, moderately well sorted.	559022	5372625
57	75	Negative	0–40 cmbs brown sandy loam, small rootlets and charcoal flecks, poorly sorted, slightly sticky and slightly plastic. 40–75 cmbs gray sand, no inclusions, non-sticky and non-plastic, moderately compact, moderately well sorted.	559013	5372609
58	80	Negative	0–30 cmbs brown sandy loam, small rootlets and charcoal flecks, poorly sorted, slightly sticky and slightly plastic. 30–80 cmbs gray sand, no inclusions, non-sticky and non-plastic, moderately compact, moderately well sorted.	559014	5372589
59	80	Negative	0–80 cmbs brown loam, charcoal inclusions, many rootlets, slightly sticky and slightly plastic, compacted.	559016	5372569
60	70	Negative	0–20 brown silt loam, compact, moderately well sorted, slightly sticky and slightly plastic, burnt earth lens with charcoal (root burn); 20–40 cmbs, grayish brown sandy loam, moderately compact, friable peds, slightly sticky and slightly plastic. 40–70 cmbs gray sand, well sorted.	558947	5372739

Notes: SP = shovel probe; cmbs = centimeters below surface; UTM = Universal Transverse Mercator; ~ = approximately.