CONFLUENCE
ENVIRONMENTAL COMPANY

July 18, 2022

Mr. Chris Beale, Senior Planner
City of Puyallup
333 S Meridian
Puyallup, WA 98371

**Re: Normandy Heights Plat Wetland and Fish and Wildlife Habitat Assessment Report—Third Party Review**

Dear Chris:

Confluence Environmental Company (Confluence) has reviewed the wetland and fish and wildlife habitat assessment report (the critical areas study report) submitted by Soundview Consultants (Soundview) for the Normandy Heights Plat project (PLPMP20220090) located at 2007 Shaw Road, Puyallup Washington (Parcel 0420354039) (Soundview 2022).

## COMPLETENESS REVIEW

Confluence found that the critical areas study report was incomplete according to the regulations outlined in Puyallup Municipal Code (PMC) Chapter 21.06 for Critical Areas Regulations.

The critical areas report is missing a discussion about the proposed stormwater plan. The critical areas study will need to be updated to include a discussion of the proposed stormwater plan or submit a separate stormwater report.

## TECHNICAL REVIEW

Confluence conducted a site visit to the project property on July 5, 2022. During this site visit, we evaluated the location of the boundaries of Wetland A and Stream Z, as described in the report prepared by Soundview.

### Methods

In order to verify the findings in the report, Confluence conducted a brief wetland and stream reconnaissance on the property. This section describes the methods used to identify the presence or absence of wetlands.

For this reconnaissance effort, Confluence evaluated the presence or absence of hydrophytic vegetation, hydric soil, and wetland hydrology indicators at soil probe locations across the site

to determine if the area represented by the soil probe was wetland or upland. Soil probe locations and presence or absence of hydric soil and wetland hydrology indicators were recorded using GPS.

Confluence used the PLANTS Database (NRCS 2022) to provide consistency in scientific naming and the 2018 National Wetland Plant List (Corps 2020) to determine the wetland indicator status of plants.

Confluence used Anderson et al. (2016) to determine the ordinary high water mark (OHWM) of Stream Z in the vicinity of the study area.

## Results

### *Wetlands*

During the site visit, Confluence used a visual assessment to verify soil, vegetation, and hydrology conditions in the vicinity of Data Points (DP)-1 through DP-4 and flags A-1 through A-7 at Wetland A on the project property, and at the the OHWM for Flags Z-1 thought Z-10.

During our field investigation, we observed wetland characteristics east of the delineation boundary flags A-1 and A-2. Additionally, we found an old wetland delineation boundary flag attached to the northeastern site boundary fence line at Flag Z-5. The flag was not labeled with a date or company name. Confluence dug a soil probe labeled CEC-1 on the south side of the stream between Z-5 and Z-6 (Figure 1). Confluence observed several plant species of facultative (FAC) and obligate (OBL) listings, including the following: skunk cabbage (*Symplocarpus foetidus*) (OBL), piggy-back plant (*Tolmiea menziesii*) (FAC), water-parsley (*Oenanthe sarmentosa*) (OBL), salmonberry (*Rubus spectabilis*) (FAC), and lady fern (*Athyrium filix-femina)* (FAC). Presence of these species meets the hydrophytic vegetation criterion. Saturated soils were observed at 9-10 inches below ground surface, with groundwater coming into the test pit at 10 inches, thus meeting the wetland hydrology criterion. Soil in the top layer (0-11 inches) was as 10YR 2/1 silt loam.

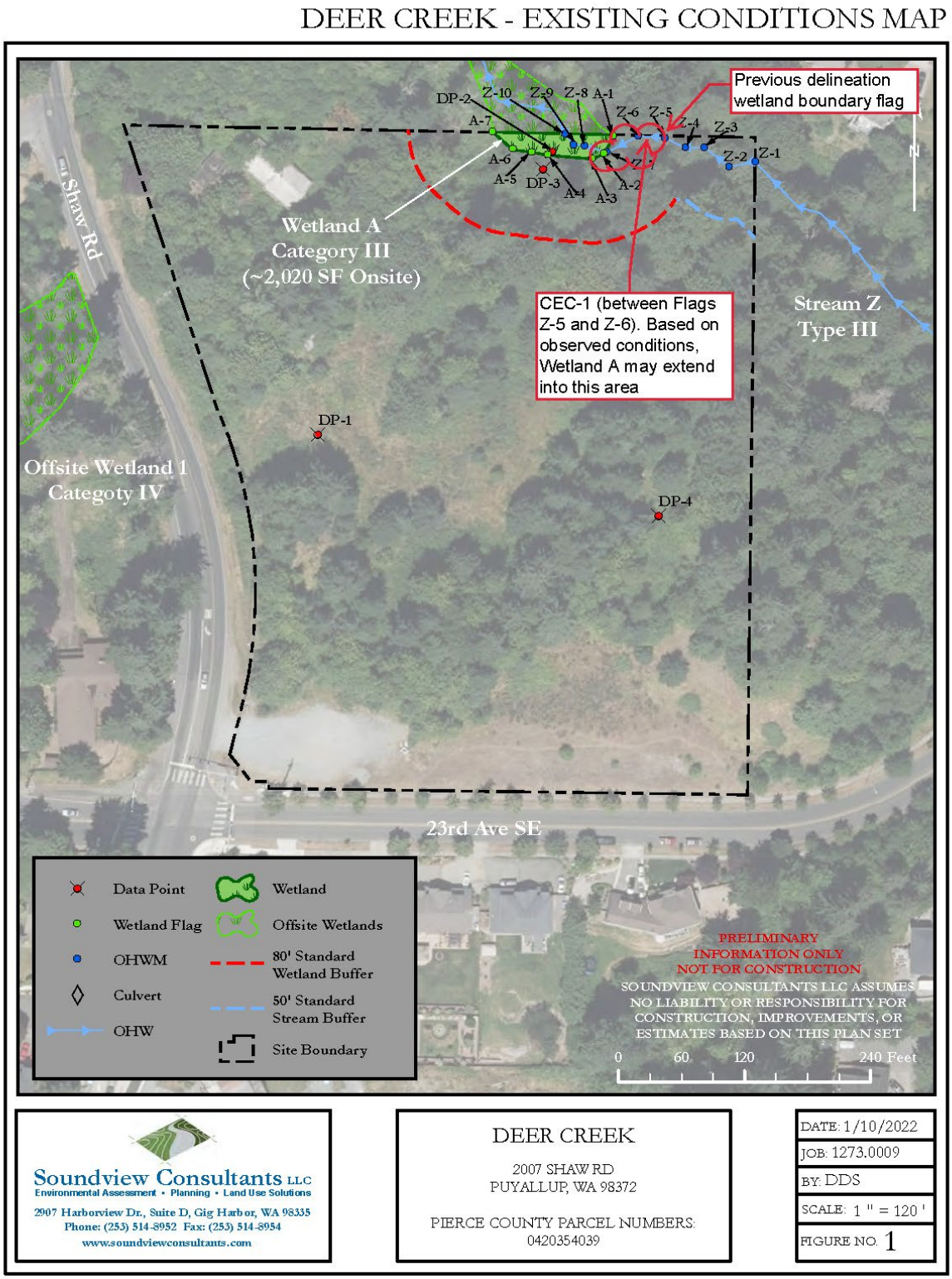


**Figure 1. Location of CEC-1 and possible wetland area**

Confluence did not dig past 11 inches, but assumed that A11—Depleted Below Dark Surface or A12—Thick Dark Surface are possible given the 10YR 2/1 soil color and depth. Otherwise Confluence agrees with the wetland boundary between Flags A-2 through A-7 and the approximated off-site boundary.

### Wetland Determination Forms (Appendix E)

Wetland determination forms for Wetland A's DP-1U and DP-2W had incorrect indicator statuses on their vegetation listings. For the DP-2W Wetland Determination Form, vine maple (*Acer circinatum*), piggy-back plant, and field horsetail (*Equisetum arvense*) were all rated as facultative upland (FACU) but according to the Corps National Plant List are rated as FAC. Additionally Scotch broom (*Cytisus scoparius*) was listed as FACU on the DP-1U Wetland Determination Form and it is not listed on the Corps National Plant List. Given all the species are all considered FAC (excluding Scotch broom), the correct indicator status for each species would not impact the Dominance Test currently listed on the Wetland Determination Forms but the forms should still be updated to reflect the correct indicator status in.

### Wetland Rating Forms (Appendix F)

Wetland rating form for Wetland A states that for Section H1.1 Wetland A is classified within the Cowardin classes as a scrub-shrub. However, the Pierce County (2022) aerials series clearly shows Wetland A as a scrub-shrub and forested wetland, though the forested portion of the Wetland occurs mostly on the off-site area. Therefore, the Cowardin classes for Wetland A should be scrub-shrub and forested, with the forested class containing 3 out of 5 strata, for a total of 2 points. Section H1.2 included "saturated only" for types of hydroperiods present but with the classification of the on-site Stream Z, the "permanently flowing stream or river in, or adjacent to, the wetland" should also be included to this section for a total of 1 point. Lastly, H1.4 only included the single Cowardin classification of scrub shrub identified in Section H1.1 and does not include the forested wetland classification. Therefore, the section H1.4 interspersion of habitats should have a total of 1 point. Section H2.1 was calculated incorrectly, per the rating manual (Hruby 2014), "Accessible habitat is defined as the amount of habitat that can be reached from the wetland without crossing a human land use (e.g., roads, fields, and development). Some lower intensity human land uses such as parks do not completely isolate a habitat. As a result, low and moderate intensity land uses are not completely discounted as accessible habitat." So, the "undisturbed habitat" polygon just east of the parcel needs to include in the accessible habitat calculation, because there is no "human disturbance" between it and the wetland. Revisions to the habitat sections of the wetland rating forms for Wetland A will result in changes to the wetland score but may not change overall rating or standard buffer.

### *Streams*

Flags Z-1 through Z-10 appear to mark the centerline of Stream Z and not the OHWM. Confluence agrees with the placement of the flags, marking the stream centerline. The report describes the stream as having an average OHWM of less than 2 feet in width. However, we could not confirm the widths because OHWM flags were not placed. In areas where we measured OHWM, including locations where Z flags were hung, widths were greater than 2 feet. Therefore, we disagree with the width of the OHWM.

However, we do disagree with the Type III stream tying. It should be noted that WDFW does not use man-made fish barriers, such as culverts, as rationale to determine if a stream is fish bearing or not. Based on our analysi, Stream Z meets the WAC 222-16-031 definition of fish-bearing: streams with an OHWM of 2 feet or greater and a gradient of 16% or less. Due to the designation of Deer Creek as a Type II stream, all reaches of the creek are required to meet a 100-foot buffer.

Because the stream centerline was flagged and not the OHWM, it is also unclear in the report if the stream buffer shown in Figure 1 is a 50-foot buffer from the stream centerline (which what was flagged and presumably surveyed) or a 50-foot buffer from an assumed 2-foot OHWM. Please clarify if the buffer is from the centerline or an assumed 2-foot OHWM. Photos of the stream channel with pin flags marking the OHWM would be helpful and may result in Confluence not having to conduct a second site visit to confirm the OHWM delineation.

## Other Information

The plat drawings show a 60-foot reduced buffer. However, there is no discussion in the critical areas report about this proposed reduction and how the project would meet the criteria for the reduced buffer.

## SUMMARY

In summary, we found several instances of conflicting information in the 2022 critical areas study report. We recommend that Soundview update the report as follows to address the issues detailed in this letter:

- Update the critical areas report to include a discussion about the stormwater management or submit a sperate stormwater management report.
- Revise the wetland determination data forms in Appendix E to correct the vegetation indicator statuses.

- Reassess and revise the delineation of Wetland A to include the wetland area to the northeast of the stream and update the field-flagging to extend to the site boundary and wetland boundary flag attached to the fence. Update the report and appendices C, D, and E accordingly.
- Update the Appendix F – wetland rating form sections H1.1 H1.2 and H1.4 for Wetland A as described above. Please note that this is may also result in an increase in wetland buffer widths.
- Update the report to provide data on OHWM widths and clarify if the buffer was measured from the centerline or the OHWM. Please include photos showing the OHWM.
- Update the report and change the stream typing from Type III to Type II.
- Update site plans to depict changes in wetland size, wetland category, stream type, and associated buffers.

Respectfully yours,

**KERRIE McARTHUR, PWS, CERP, FP-C**
Managing Senior Biologist
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## ATTACHMENTS

Reviewed Wetland Determination Forms
Reviewed Wetland Rating Forms

## REFERENCES

Anderson, P.S., S. Meyer, P. Olson, and E. Stockdale. 2016. Determining the ordinary high water mark for Shoreline Management Act compliance in Washington State. October 2016 final review. Washington State Department of Ecology, Shorelands & Environmental Assistance Program, Lacey, Washington. Ecology Publication No. 16-06-029.

Corps (U.S. Army Corps of Engineers). 2020. National wetland plant list, version 3.5 [online document]. Corps Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire. Available at: https://wetland-plants.sec.usace.army.mil/ nwpl_static/v34/home/home.html (accessed July 5, 2022).

Hruby, T. (2014). Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.

NRCS (National Resources Conservation Service). 2022. The PLANTS database [online database]. U.S. Department of Agriculture, NRCS, National Plant Data Team, Greensboro, North Carolina. Available at: https://plants.sc.egov.usda.gov/java/ (accessed July 5, 2022).

Soundview (Soundview Consultants). 2022. Wetland and fish and wildlife habitat assessment report, Deer Creek. Prepared for RM Homes, Puyallup, Washington by Soundview Consultants, Gig Harbor, Washington.

Pierce County. 2022. Pierce County Public GIS [online database]. Pierce County, Tacoma, Washington. Available at: https://matterhornwab.co.pierce.wa.us/publicgis/ (accessed July 5, 2022).

J:\C_Puyallup_001395\001395.007_Task 7_Normandy Heights Plat\Report

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

Project/Site: 1273.0009 - Deer Creek City/County: Puyallup/Pierce Sampling Date: 1/5/22

Applicant/Owner: RM Homes State: WA Sampling Point: DP-1U

Investigator(s): Ryan Krapp and Mae Ancheta Section, Township, Range: 35, 20 North, 04 East

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): A2 Lat: 47.170783 Long: -122.25236993 Datum: WGS 84

Soil Map Unit Name: Indianola loamy sand, 5 to 15 percent slopes NWI classification: N/A

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: Not all three wetland criteria met; only hydrophytic vegetation present. Data was collected in the west-central portion of the subject property in a low topographic depression.

### 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: 30 ft)** | | | |
| 1. Cytisus scoparius | 10 | Yes | ~~FACU~~ NI |
| 2. Rubus armeniacus | 5 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 15 | = Total Cover | |
| **Herb Stratum (Plot size: 10 ft)** | | | |
| 1. Agrostis capillaris | 70 | Yes | FAC |
| 2. Rubus ursinus | 15 | No | FACU |
| 3. Dactylis glomerata | 10 | No | FACU |
| 4. Cirsium arvense | 3 | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 98 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30 ft)** | | | |
| 1. | | | |
| 2. | | | |
| | 0 | = Total Cover | |

% Bare Ground in Herb Stratum 2

**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: 67% (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:**

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 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: Hydrophytic vegetation criteria met through the Dominance Test due to the presence of FAC species typical of upland areas.

## SOIL

Sampling Point: DP-1U

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 10 | 10YR 3/2 | 100 | - | - | - | - | SaLo | Sandy loam |
| 10 - 15+ | 10YR 3/3 | 100 | - | - | - | - | SaLo | 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: None

Depth (inches): --

**Hydric Soil Present?** Yes ☐ No ☒

Remarks:

No hydric soil criteria met.

## 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): None

Water Table Present? Yes ☐ No ☒ Depth (inches): None

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): None

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

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

Remarks:

No wetland hydrology criteria met. Soil pit left open for 20 minutes.

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

Project/Site: 1273.0009 - Deer Creek City/County: Puyallup/Pierce Sampling Date: 1/5/22

Applicant/Owner: RM Homes State: WA Sampling Point: DP-2W

Investigator(s): Ryan Krapp and Mae Ancheta Section, Township, Range: 35, 20 North, 04 East

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): A2 Lat: 47.171534 Long: -122.25149739 Datum: WGS 84

Soil Map Unit Name: Indianola loamy sand, 5 to 15 percent slopes NWI classification: N/A

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:
All three wetland criteria met. Data was collected in Wetland A.

### 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: 30 ft) | | | |
|---|---|---|---|
| 1. Acer circinatum | 40 | Yes | FACU (FAC) |
| 2. Rubus armeniacus | 30 | Yes | FAC |
| 3. Rubus spectabilis | 10 | No | FAC |
| 4. | | | |
| 5. | | | |
| | 80 | = Total Cover | |

| Herb Stratum (Plot size: 10 ft) | | | |
|---|---|---|---|
| 1. Ranunculus repens | 10 | Yes | FAC |
| 2. Tolmiea menziesii | 10 | No | ~~FACU~~ FAC |
| 3. Equisetum arvense | 5 | No | ~~FACU~~ FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 25 | = Total Cover | |

| Woody Vine Stratum (Plot size: 30 ft) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | 0 | = Total Cover | |

% Bare Ground in Herb Stratum 75

**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: 67% (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:**

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 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:
Hydrophytic vegetation criteria met through the Dominance Test.

## SOIL

Sampling Point: DP-2W

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 10 | 10YR 2/2 | 100 | - | - | - | - | SaLo | Sandy loam |
| 10 - 16+ | 2.5YR 4/1 | 97 | 7.5YR 4/4 | 3 | C | M/PL | Sand | |

[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: None

Depth (inches): --

**Hydric Soil Present?** Yes ☒ No ☐

Remarks:

Hydric soil criteria met through indicator A11.

## 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): None

Water Table Present? Yes ☒ No ☐ Depth (inches): 1

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

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

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

Remarks:

Wetland hydrology criteria met through primary indicators A2 and A3.

Wetland name or number Wetland A

**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
____Emergent
__X__Scrub-shrub (areas where shrubs have > 30% cover)
__X__Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points = 1
1 structure: points = 0

0 X 2

per Pierce Co. circuit series > Wetland is forested in most of off-site area

*If the unit has a Forested class, check if:*

__X__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

**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
____Seasonally flooded or inundated
____Occasionally flooded or inundated
__X__Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 type present: points = 0

0 X 1

__X__Permanently flowing stream or river in, or adjacent to, the wetland - Stream 2
____Seasonally flowing stream in, or adjacent to, the wetland
____**Lake Fringe wetland** **2 points**
____**Freshwater tidal wetland** **2 points**

**H 1.3. Richness of plant species**

Count the number of plant species in the wetland that cover at least 10 ft$^2$.

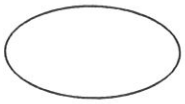
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species points = 2
5 - 19 species points = 1
< 5 species points = 0

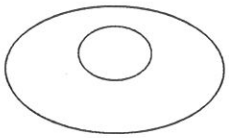
1

**H 1.4. Interspersion of habitats**

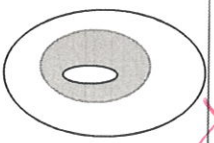
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



**None** = 0 points



**Low** = 1 point

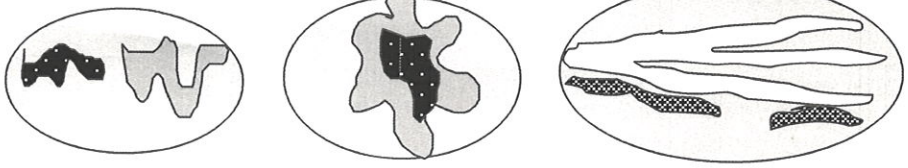


**Moderate** = 2 points

0 X 1

up 2 Cowardin classes

All three diagrams in this row are **HIGH** = 3points



Wetland name or number Wetland A

| | |
|---|---|
| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>__x__ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).<br>__x__ Standing snags (dbh > 4 in) within the wetland<br>__x__ 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)<br>____ 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)*<br>____ 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 amphibians)*<br>____ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*) | 3 |
| Total for H 1 — Add the points in the boxes above | X 4 8 |

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

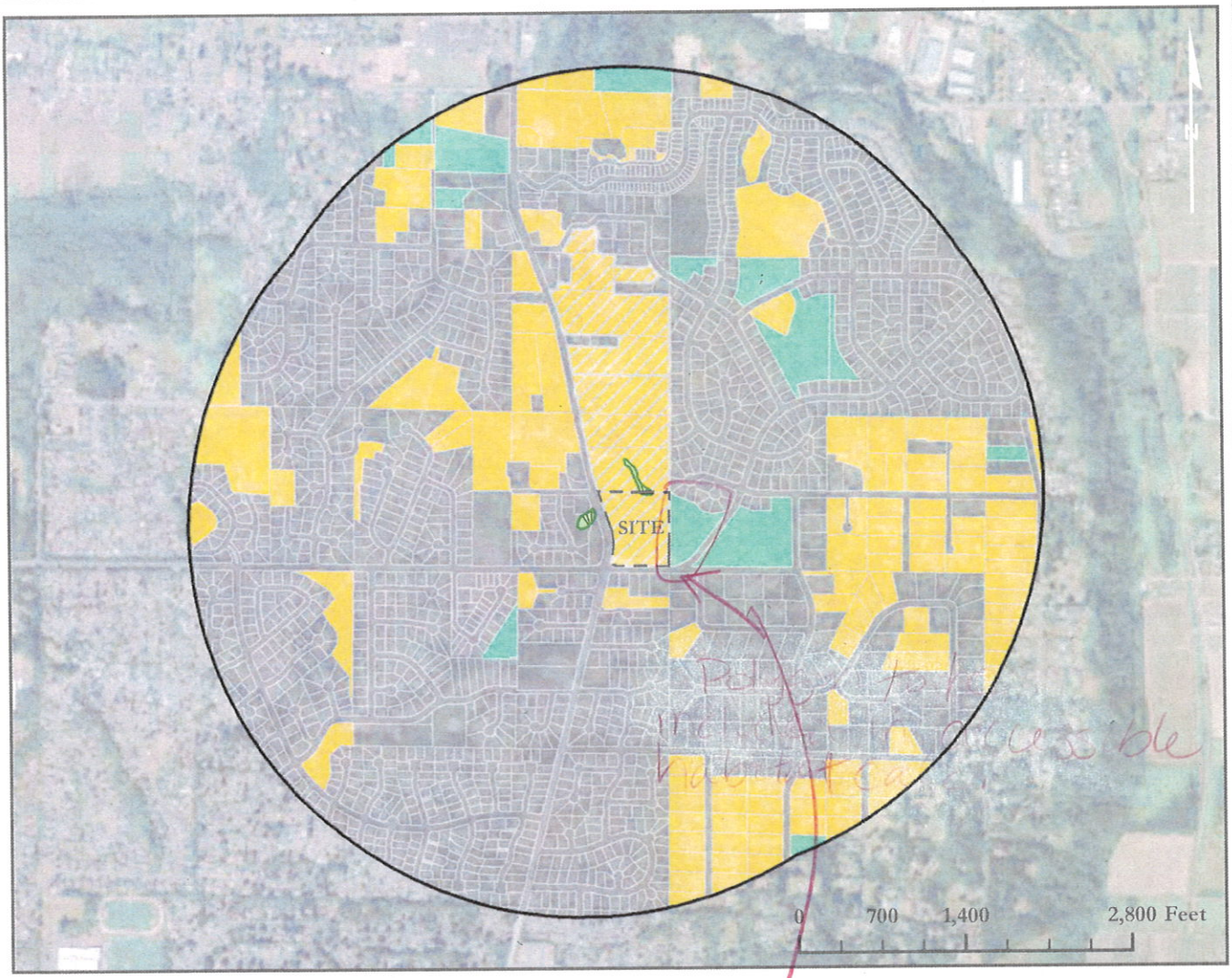
| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | |
|---|---|
| H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).<br>*Calculate:* [0.00] % undisturbed habitat + [(% moderate and low intensity land uses) [4.55] /2] = 2.275 %<br>If total accessible habitat is:<br>> 1/3 (33.3%) of 1 km Polygon — points = 3<br>20-33% of 1 km Polygon — points = 2<br>10-19% of 1 km Polygon — points = 1<br>< 10% of 1 km Polygon — points = 0<br>Needs to be recalculated There is an undisturbed Polygon on figure that should be included as accessible | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:* [4.24] % undisturbed habitat + [(% moderate and low intensity land uses) [25.15] /2] = 16.81 %<br>Undisturbed habitat > 50% of Polygon — points = 3<br>Undisturbed habitat 10-50% and in 1-3 patches — points = 2<br>Undisturbed habitat 10-50% and > 3 patches — points = 1<br>Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 1 |
| H 2.3. Land use intensity in 1 km Polygon: If<br>> 50% of 1 km Polygon is high intensity land use — points = (- 2)<br>≤ 50% of 1 km Polygon is high intensity — points = 0 | -2 |
| Total for H 2 — Add the points in the boxes above | -1 |

**Rating of Landscape Potential** If score is:___ **4-6 = H** ___ **1-3 = M** __X__ **< 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.*<br>Site meets ANY of the following criteria: — points = 2<br>— It has 3 or more priority habitats within 100 m (see next page)<br>— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>— It is mapped as a location for an individual WDFW priority species<br>— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>— 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<br>x Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1<br>Site does not meet any of the criteria above — points = 0 | 1 |

**Rating of Value** If score is:___ **2 = H** __X__ **1 = M** ___ **0 = L** *Record the rating on the first page*

# DEER CREEK - HABITAT MAP




| | | |
|---|---|---|
| H.2.0 Wetland A | | |
| H.2.1 | | |
| | Abutting Undisturbed Habitat | 0.00% |
| | Abutting Moderate & Low Intensity Land Uses | 4.55% |
| | **Accessible Habitat** | **2.27%** |
| H.2.0 Wetland 1 | | |
| H.2.1 | | |
| | Abutting Undisturbed Habitat | 0.00% |
| | Abutting Moderate & Low Intensity Land Uses | 0.00% |
| | **Accessible Habitat** | **0.00%** |
| H.2.2 | | |
| | Undisturbed Habitat | 4.24% |
| | Moderate & Low Intensity Land Uses | 25.15% |
| | **Undisturbed Habitat in 1 KM Polygon** | **16.82%** |
| H.2.3 | | |
| | **High Intensity Land Use in 1 KM Polygon** | **70.61%** |

polygon should be included in accessible habitat calc. because there is no human disturbance between polygon + wetland

- 1 KM Polygon
- Accessible Habitat
- High Intensity Land Use
- Moderate & Low Intensity Land Use
- Undisturbed Habitat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DEER CREEK

2007 SHAW RD
PUYALLUP, WA 98372

PIERCE COUNTY PARCEL NUMBERS:
0420354039

| | |
|---|---|
| DATE: | 1/10/2022 |
| JOB: | 1273.0009 |
| BY: | DDS |
| SCALE: | 1 " = 1,400 ' |
| FIGURE NO. | 4 of 5 |