WETLAND REVERIFICATION AND IDENTIFICATION FIELD REPORT

ENVIRONMENTAL ASSESSMENT

CHEHALIS RIVER, WASHINGTON

Prepared for the Chehalis Flood Control Zone District, Lewis County, Washington

August 2024

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ACRONYMS AND ABBREVIATIONS

Applicant	Chehalis River Basin Flood Control Zone District
DBH	Diameter at Breast Height
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
FRE	Flood Retention Expandable
H	Horizontal
HGM	Hydrogeomorphic
NEPA	National Environmental Policy Act
NWI	National Wetlands Inventory
OBL	Obligate
PEM	Palustrine emergent
PFO	Palustrine forested
PSS	Palustrine scrub shrub
SEPA	State Environmental Policy Act
V	Vertical

1 PURPOSE

The purpose of this document is to summarize the findings of a wetland reconnaissance field effort as part of the Proposed Chehalis River Basin Flood Damage Reduction Project (Ecology, 2020). The Chehalis River Basin Flood Control Zone District (Applicant) is proposing the construction of the Flood Retention Expandable (FRE) facility (Proposed Action) on the upper Chehalis River, near the Town of Pe Ell, Washington.

The field effort consisted of two primary tasks:

- The reverification of wetlands previously delineated in 2018 (Anchor QEA, 2018) within the construction disturbance area, the Flood Retention Expandable (FRE) inundation area, and forest conversion area.
- Initial reconnaissance to preliminary identification of potential wetlands within three 65-acre quarry sites that would be developed as part of the Proposed Action (Ecology, 2020). The preliminary identification of potential wetlands does not constitute a wetland delineation. A full wetland delineation will be needed in the future as a requirement of the environmental permitting process.

The remainder of this section discusses the purpose of the wetland reverification and preliminary identification efforts. Sections 2.0 through 4.0 discuss the field approach, methods, and results.

1.1 WETLAND REVERIFICATION PURPOSE

Wetlands were previously delineated by Anchor (Anchor QEA, 2018) in the construction disturbance area and FRE inundation area. These definitions were conducted to characterize the affected environment as part of the analyses conducted for the SEPA DEIS and NEPA DEIS. Jurisdictional wetland delineations must be reverified after 5 years to ensure that site conditions have not changed. The U.S. Army Corps of Engineers (USACE) requested a reverification of the 2018 wetland delineation because the current and ongoing use of the 2018 wetland data has passed that 5-year timeline. The intent of this field work was to informally reverify the wetlands delineated by Anchor QEA to confirm that the 2018 delineation data was still applicable and could support completion of SEPA and NEPA environmental review processes.

1.2 WETLAND IDENTIFICATION PURPOSE

Recent modifications to the project design to minimize potential cultural impacts resulted in the relocation of the proposed FRE and an increased demand for construction aggregate. To support construction of the FRE, three quarry sites near the proposed FRE location were identified as potential sources of rock aggregate. The purpose of conducting a preliminary wetland identification in the quarry areas was to identify the need for future characterization of potential wetlands within the newly identified quarry areas as a component of characterizing the affected environment in the quarry areas for the SEPA and NEPA review documents.

2 FIELD APPROACH

Field reconnaissance, site observations, and data collection were conducted from June 5 to 7 and from June 10 to 13, 2024. Initially, field work was scheduled to begin on June 3, but work

was delayed because weather forecasts predicted that a prolonged and extreme storm system would inundate the project area, with the potential for rising water and floods. With a goal to inform a draft environmental assessment of quarries this summer, the field efforts were conducted and prioritized according to the time and resources available to meet a mid-June schedule. The subsections below provide additional detail on the field approach employed for (1) reverification of wetlands in the Construction Disturbance Area, the FRE Inundation Area, and Forest Conversion Area; and (2) identification of wetland in the Northwest, West, and South Quarry areas.

2.1 WETLAND REVERIFICATION FIELD APPROACH

The field plan for wetlands reverification required (1) observing and collecting data on wetlands identified in 2018 and (2) determining if the previous identification could be verified by field observations. For wetlands located within the construction disturbance area, the plan was to reverify 16 wetlands totaling 1.9 acres. Within the proposed FRE inundation area, the plan was to reverify a selected representative subset of the wetlands (i.e., 10%, or 7 of the 73 wetlands). In the Forest Conversion Area, a subset of three wetlands were selected for reverification. Wetlands were selected for reverification to provide geographic coverage and a representative range of hydrogeomorphic (HGM) and Cowardin wetland classes. Two of the 16 wetlands targeted for reverification in the construction disturbance area were not accessible (see Section 4.1). Table 1 summarizes the number of wetlands planned for reverification and the number that were observed.

Table 1. Chehalis Reverification Wetlands Summary

Wetland Area	Wetlands Reverification Plan	Wetlands Observed
Construction Disturbance Area (2024)	16	14
FRE Inundation Area	7	7
Forest Conversion Area	3	3

2.2 WETLAND IDENTIFICATION FIELD APPROACH

The National Wetlands Inventory (NWI) contains data indicating potential wetland areas along NWI-identified drainages in the three quarries. NWI data is obtained from high-altitude imagery analysis that contains an inherent margin of error. The intent of this field work was to confirm if wetland indicators exist, and if so, to provide a preliminary qualitative description of potential wetlands at each of the three quarry sites. These preliminary identifications do not constitute a delineation. Wetland data was collected in an effort to better characterize the density and quantity of wetlands within the proposed quarry sites. The wetland data collected is intended to support the SEPA and NEPA environmental reviews. Table 2 summarizes the quarry areas and NWI-identified areas with potential riverine wetlands. Figure 1 shows the locations of each of the Quarry Areas and potential wetland areas included in the NWI database.

Table 2. Quarry Wetlands Identification Summary

Quarry ID	Quarry Area (acres)	NWI-Identified Areas with Potential Riverine Wetlands
Northwest Quarry	65	9
West Quarry	65	8
South Quarry	65	4

Figure 1. Quarry Areas and FRE Footprint

*HU8_17100103 refers to the shape file name and Hydrologic Unit Code for the NWI data.

3 METHODS

The wetland reconnaissance field efforts employed methods and applied guidance from the U.S. Army Corps of Engineers (USACE, 1987), the State of Washington Department of Ecology (Ecology, 2020), and a simplified version of the methodology used for the wetland delineation (Anchor QEA, 2018), as described below. The proposed methodology was limited by the terms of the landowner access agreement that limited data collection to observation only and did not permit ground disturbing activities. Thus, soil pits and ground penetration with hand augers were not allowed and not included in this methodology. In addition, the access agreement prohibited the generation of wetland maps. As a result of these constraints, the wetland reconnaissance was limited to visual observations of vegetation and surface conditions. Sections 3.1 and 3.2 discuss the wetland reverification and identification methods employed during the field effort.

3.1 WETLAND REVERIFICATION METHODS

The field team reviewed previous work by Anchor QEA to provide a baseline for comparison with current conditions, including the previous Wetland Determination Data Forms (USACE, 2010) and the Rating Summary – Western Washington Forms (Ecology, 2023). As part of the reverification process, wetland areas and boundaries were identified based on presence of a hydrophytic plant community and indicators of wetland hydrology. These areas were assessed to identify the Cowardin Classifications and HGM Classification for the reverification of the wetlands. The subsections below provide additional information on indicators and classifications.

3.1.1 Vegetation

The boundaries of hydrophytic plant communities were determined based on an adaptation of the USACE Dominance Test (USACE, 2010). These boundaries were determined at the edge of where there were either Obligate (OBL) wetland species or a dominance (>50% cover) of Facultative, Facultative Wet, or OBL wetland species across each independent Vegetation Stratum (Tree, Shrub/Sapling, Herb) present.

3.1.2 Hydrology

Wetland hydrology was identified by the observation of primary and secondary indicators. If any of the indicators were observed, they were noted and considered when determining the approximated wetland reverification boundary. Primary and secondary indicators include the following (USACE, 2010):

- **Primary Indicators:** Surface Water, High Water Table, Saturation, Water Marks, Sediment Deposits, Drift Deposits, Algal Mat or Cust, Iron Deposits, Surface Soil Cracks, Inundation Visible on Aerial Imagery, Sparsely Vegetated Concave Surface, Water Stained Leaves, Salt Crust, Aquatic Invertebrates, Hydrogen Sulfide Odor, Oxidized Rhizospheres along Living Roots, Presence of Reduced Iron, Recent Iron Reduction in Plowed Soils, Stunted or Stressed Plants, and any other visible indicators.
- **Secondary Indicators:** Water-Stained Leaves, Drainage Patterns, Saturation Visible on Aerial Imagery, Geomorphic Position, Raised Ant Mounds, and Frost-Heave Hummocks.

A range finder was used to approximate the wetland reverification boundaries. If the area measured with the range finder was within 10% of the area calculated in the previous wetland identification, the area was determined to not have changed.

3.1.3 Cowardin Classification

Field observations confirmed or updated the previous Cowardin class designations for each wetland. The Cowardin class is the wetland community type defined by the USFWS classification (Cowardin et al., 1979). The following wetland community types were found to be dominant in the 2018 delineation (Anchor QEA, 2018):

- **Palustrine Forested (PFO)**: At least 30% cover of woody vegetation that is more than 20 feet high
- **Palustrine Scrub-Shrub (PSS)**: At least 30% cover of woody vegetation that is less than 20 feet high
- **Palustrine Emergent (PEM)**: Erect, rooted, herbaceous vegetation present for most of the growing season in most years

3.1.4 Hydrogeomorphic Classification

Field observations confirmed or updated the previous HGM classification based on the Washington State Wetland Rating System – Western Washington (Hruby and Yahnke, 2023). The following HGM classifications were previously identified for the delineated wetlands (Anchor QEA, 2018):

- **Depressional**: Depressional wetlands occur in areas where elevations are lower than the surrounding landscape (i.e. depressions) and the movement of surface water and shallow subsurface water is toward the lowest point of the wetland.
- **Riverine**: Riverine wetlands are located in valleys associated with stream or river channel and occur within the active floodplain of the stream or river where they are frequently flooded by overbank flow during flooding events. Riverine wetlands may also receive water from sources such as groundwater discharge and slope discharges.
- **Slope**: Slope wetlands occur on hill or valley slopes where groundwater "daylights" and begins running along the surface, or immediately below the soil surface. Flow in these wetlands is unidirectional (downslope) and the gradient is steep enough that the water is not impounded.

3.2 Wetland Identification Methods

In the quarry areas, the Applicant's field crew walked each of the drainages identified in the NWI dataset of potential areas that could be accessed safely. Areas with non-coniferous dominance were observed for signs of hydrophytic vegetation dominance and wetland hydrology indicators. Areas with dominant hydrophytic vegetation and indicators of wetland hydrology were noted. Approximate areas of reconnaissance access routes and observation points represent the extent covered by this field effort (Figures 2, 3, and 4). Wildlife activity and steep grades limited the field crew's access and ability to work in some quarry areas.

Figure 2. Northwest Quarry Observation Points

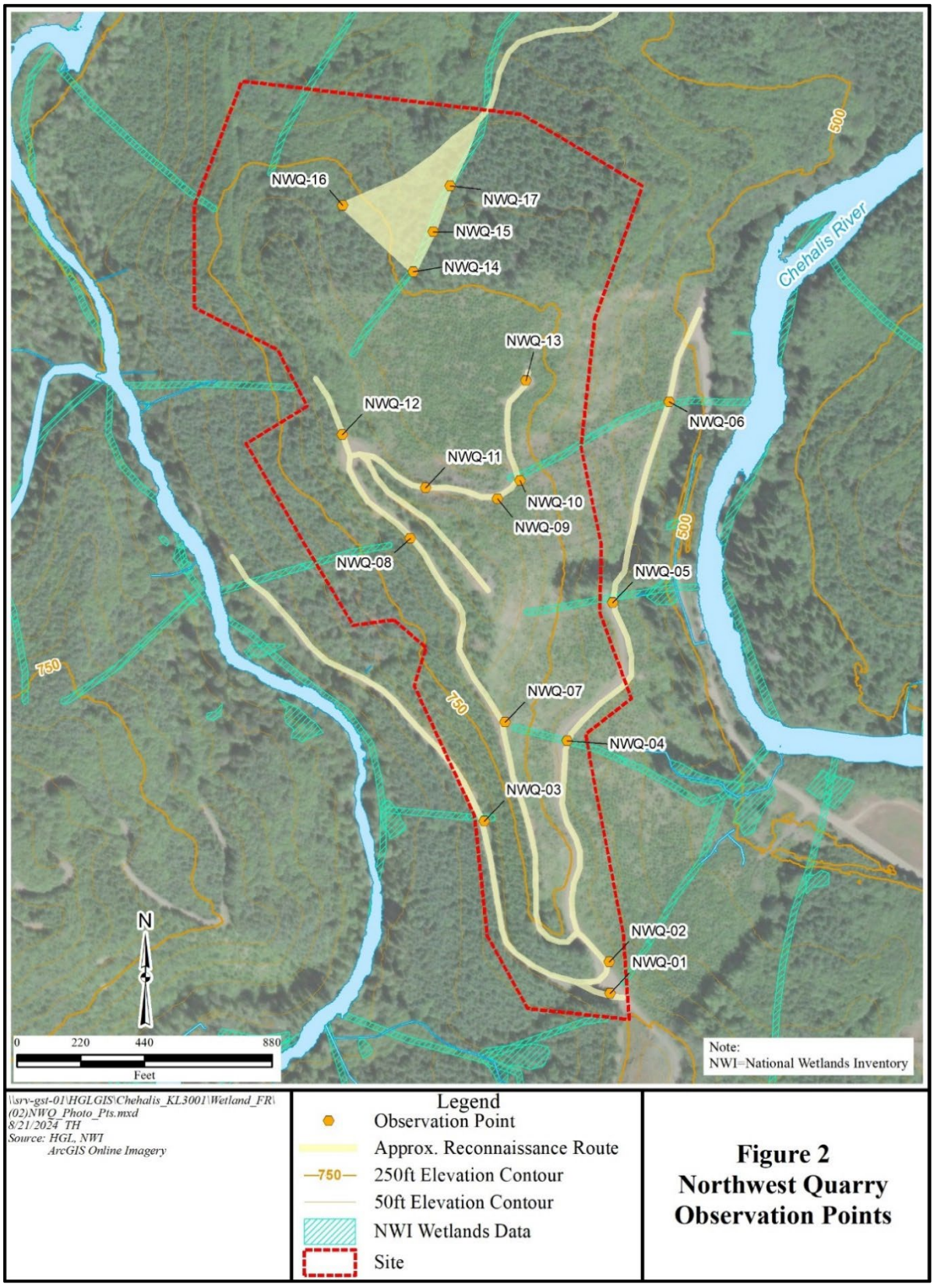


Figure 3. West Quarry Observation Points

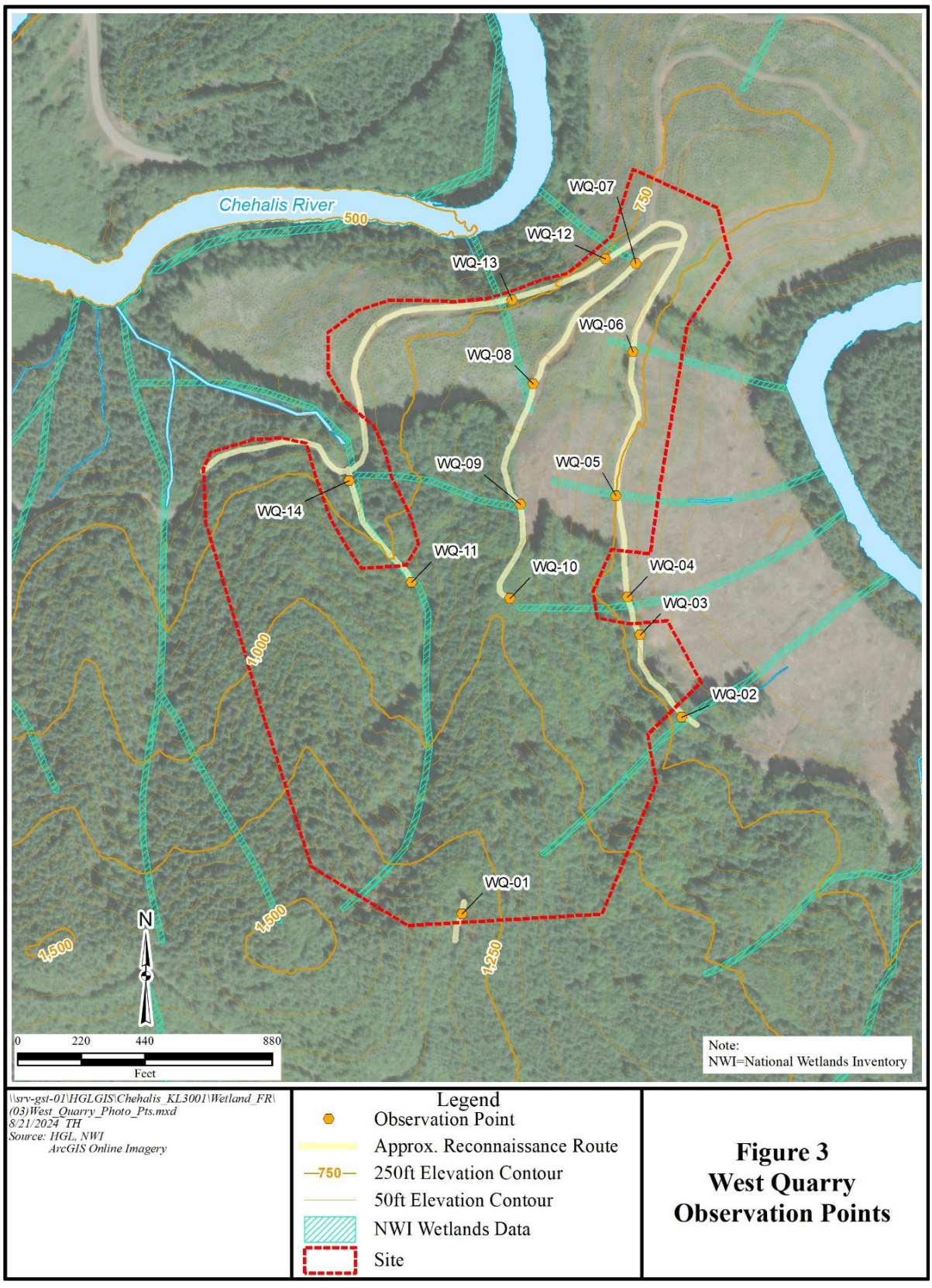
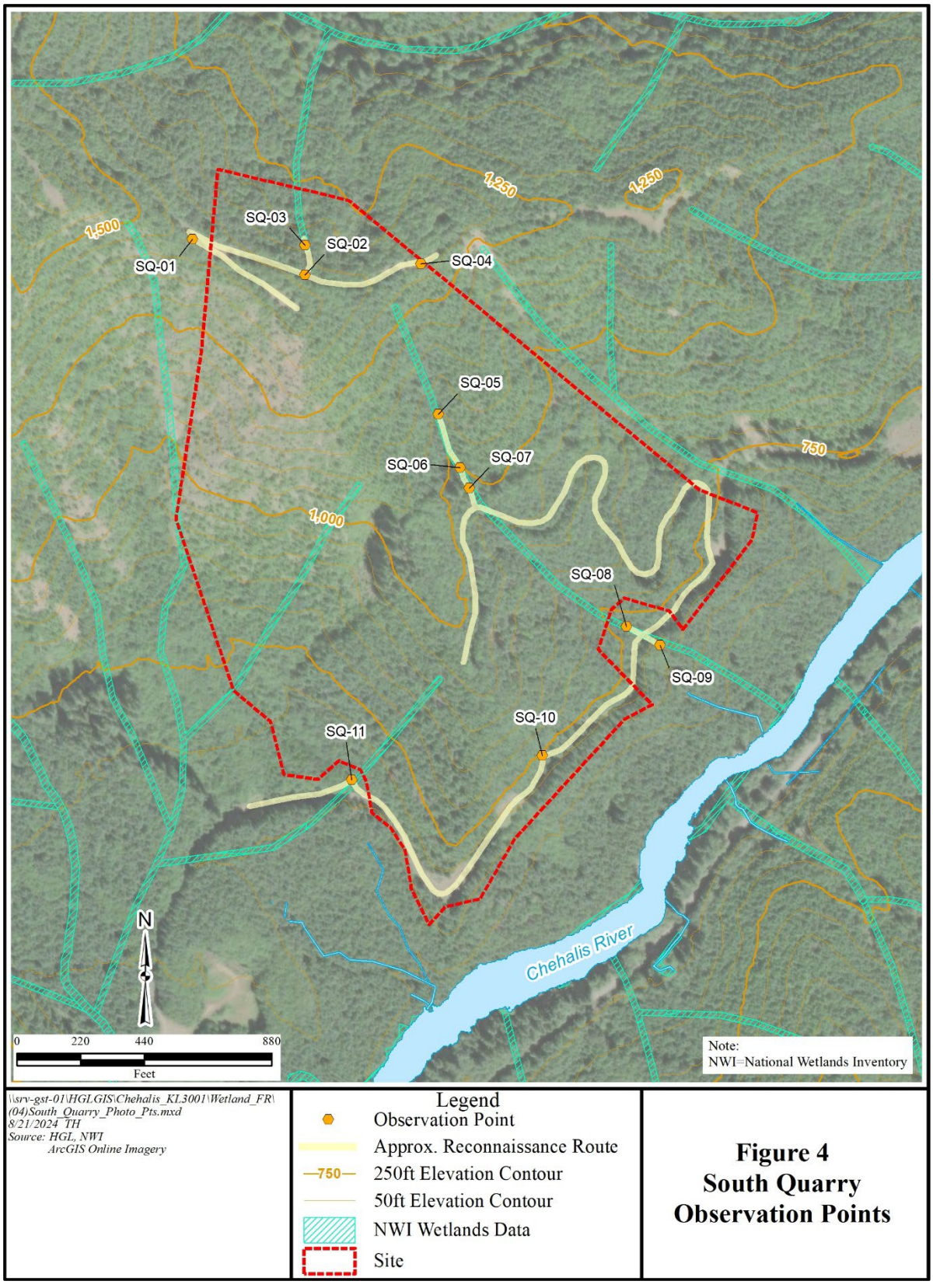


Figure 4. South Quarry Observation Points



4 RESULTS

This section presents the results of the wetland reverification and identification field efforts.

4.1 WETLAND REVERIFICATION RESULTS

Table 1 in Section 2.1 summarizes the number of wetlands reverified in each area. As indicated in the table, two wetlands in the construction disturbance area were not accessible and could not be reverified.

Tables 3, 4, and 5 summarize the reverification of HGM class, Cowardin class, and any observed changes in area for the construction disturbance area, the FRE inundation area, and the forest conversion area, respectively. The HGM Classification was evaluated for each wetland according to Washington State Wetland Rating System (Hrubry & Yahnke, 2023). The 2024 field reconnaissance identified only one wetland with a difference in HGM Class determination; the difference is likely the result of a difference in interpretation rather than a physical change on the HGM class in the last 7 years. All changes to the Cowardin classes were likely due to establishment of shrubs and trees in the last 7 years; this recent growth now comprises the uppermost layers of vegetation and accounts for more than 30% of the aerial cover.

The areal extent of one wetland in the construction disturbance area appeared to differ slightly from the previously measured extent. The field crew concluded that the apparent change in size is likely due to a potential error in the 2018 GIS data, rather than due to an inherent expansion of the wetland area. The area appeared to change from approximately 300 sf in 2018 to approximately 370 sf in 2024. However, the plant species indicated on the 2018 delineation datasheets were only found in the reverified area, and the location of the 2018 GIS data was in a forested area, upslope of the reverified area. The upslope area did not have the plant community, topography, or hydrology to support the dominance of emergent plants species described in the 2018 delineation datasheets.

In addition to reverifying the extent of delineated wetlands, the field crew also observed an NWI-indicated potential wetland area that was not included in the 2018 delineation. The potential wetland was observed on a floodplain on the left bank of the Chehalis River, in the construction disturbance area. The NWI potential wetland area was observed to have hydrophytic dominance in all three strata as well as wetland indicators. The NWI area was accessed at two locations via a road upslope of the floodplain. In some portions of this floodplain, the field crew observed wetland hydrology indicators and noted that hydrophytic plants were dominant in each independent vegetation stratum. The areas where standing water and saturated soils were observed as indicators of wetland hydrology coincide with areas CR-S04 and CR-S06, which were identified as part of the Waters/Ordinary High Water Mark in the 2018 delineation report (Anchor, 2018).

Table 3. Wetland Reverification Summary – Construction Disturbance Area

Construction Disturbance Area				
Wetland ID	**HGM Class**	**2017 Cowardin Class**	**2024 Cowardin Class**	**Area Change**
WP	Riverine[1]/ Slope	PEM	PEM	Increased 25%; likely a prior GIS error[2]
WB	Depressional / Slope	PSS/PEM	PSS/PFO	No change
WR	Slope	PSS/PEM	PSS/PEM	No change
CR-S04-WA	Slope	PEM	PEM/PSS	No change
CR-S02-WA	Slope	PFO/PSS/PEM	PFO/PSS/PEM	No change
WE	Slope	PEM	PEM	No change
WD	Slope	PSS/PEM	PSS/PEM	No change
WC	Slope	PSS/PEM	PFO	No change
WO	Slope	PEM	PEM	No change
CR-RB01-WA	Slope	PFO	PFO	No change
WF	Slope	PEM	PEM	No change
WQ	Slope	PEM	PEM	No change
WAI	Slope	PEM	PEM/PSS	No change
WAJ	Slope	PEM	PEM/PSS	No change

Notes:

[1]Added Riverine to HGM Class in 2024 according to definitions in Hrubry & Yahnke (2023).

[2]The area observed in 2024 was approximately 370 sf compared to the area reported in 2018, which was 300 sf. The plant species documented in the 2018 delineation datasheets were only observed within the area that was reverified in 2024. The 2018 GIS location for this wetland was located in the field as part of the 2024 study. The GIS polygon was located within a forested area, nearby but upslope of the 2024 reverified area, with a plant community, topography, and hydrology that would not have supported the dominance of emergent plants species described in the 2018 delineation datasheets. The applicant interpreted these observations to indicate a prior GIS error for this ~300 sf wetland.

Table 4. Wetland Reverification Summary – FRE Inundation Area

FRE Inundation Area				
Wetland ID	**HGM Class**	**2017 Cowardin Class**	**2024 Cowardin Class**	**Area Change**
WT	Depressional / Slope	PFO/PEM	PFO/PEM	No change
WU	Slope	PEM	PEM	No change
CR-LB02-WA	Depressional / Slope	PFO/PSS/PEM	PFO/PSS/PEM	No change
WW	Depressional / Slope	PFO/PSS/PEM	PFO/PSS/PEM	No change
WV	Depressional / Slope	PEM	PEM	No change
WY	Depressional	PEM	PEM	No change
CR-WF	Slope	PFO/PSS	PFO	No Change

Table 5. Wetland Reverification Summary – Forest Conversion Area

Forest Conversion Area				
Wetland ID	**HGM Class**	**2017 Cowardin Class**	**2024 Cowardin Class**	**Area Change**
CR-RB08-T3-WA	Slope	PEM	PEM/PSS	No change
CR-RB08-T5-WA	Slope	PEM	PFO/PSS/PEM	No change
CR-S16-WA	Slope	PEM	PEM/PSS	No change

4.2 WETLAND IDENTIFICATION RESULTS

Table 2 in Section 2.2 summarizes the wetlands identified in the Northwest, West, and South Quarries. Figures 2, 3, and 4 follow the text of this section and illustrate the approximate locations of observation points in each of the quarry areas.

4.2.1 Northwest Quarry

Figure 2 (see Section 3.2) shows the observation points in the Northwest Quarry. Observations from points NWQ-1 through NWQ-13 did not have dominant hydrophytic vegetation or wetland hydrology within the Quarry. Specific observations to note include the following:

- Hydrophytic vegetation dominance and hydrology indicators were observed in several areas along the North/Central NWI drainage on the north aspect of the Quarry (see points NWQ-15 & 17).
- Hydrophytic vegetation dominance was observed associated with observation points NWQ-14 & 16.
- NWQ- 16 is not near the NWI drainage line likely due to the high margin of error

inherent in NWI data. The reconnaissance included evaluating all visible areas where there was a dominance of non-coniferous vegetation to see if there were potential wetland indicators.

4.2.2 West Quarry

Figure 3 (see Section 3.2) shows the observation points in the West Quarry. Observations from points WQ-1, WQ-5, WQ-9, and WQ-10 did not have dominant hydrophytic vegetation or wetland hydrology within the Quarry. Specific observations to note include the following:

- Hydrophytic vegetation dominance and hydrology indicators were observed along the North/Central drainage that crosses the length (north to south) of the Quarry on the north aspect. Hydrophytic vegetation and hydrology indicators were observed throughout the drainage from the north observation point (WQ-14) to 300 to 400 feet past the southernmost observation point (WQ-11).
- The other north aspect drainages (WQ-7, WQ-12 & WQ-8 & WQ-13) were largely eroding but some hydrophytic vegetation and wetland hydrology indicators were observed.
- The southern, west aspect drainages (WQ-2, 3, 4, & 6) were steep, sometimes almost vertical, with hydrophytic vegetation and wetland hydrology indicators.

4.2.3 Southern Quarry

Figure 4 (see Section 3.2) shows the observation points in the South Quarry. Observations from points SQ-1, SQ-2, SQ-4, SQ-7 did not have dominant hydrophytic vegetation or wetland hydrology within the Quarry. Specific observations to note include the following:

- Hydrophytic vegetation dominance and soft soils were observed within the north aspect NWI drainage (SQ-3).
- The largest area of observed hydrophytic vegetation and hydrology was upstream from a road prism in the center of the quarry (SQ-6), in the NWI drainage on the south-eastern aspect. The observed hydrophytic vegetation and hydrology extended several hundred feet upstream (SQ-5) of the road prism.
- Hydrophytic vegetation and hydrology were observed at the observation points on the southern edge, outside of the quarry (SQ-11, SQ-8, SQ-9). These areas quickly transitioned to conifer dominance and/or were dried out as the drainage crossed into the quarry boundary.

5 CONCLUSIONS

The wetland reverification documented no change in wetland size for the 24 wetlands included in the study. The Cowardin class was updated for 9 of the observed 24 wetlands. Revisions to the Cowardin class reflected. All changes to the Cowardin classes were likely due to establishment of shrubs and trees in the last 7 years. The results of the reverification indicate that the 2018 wetland delineation remains suitable and usable to characterize wetlands within the affected environment in the ongoing NEPA and SEPA environmental reviews. Future permit applications necessary to permit project impacts to wetlands and determine mitigation requirements will require an updated wetland delineation.

The wetland identification observations of the three quarry sites provided ground-truthing for the approximate wetland locations indicated by the NWI for those sites. Field observations noted that most of the observation points located within the proposed quarry sites did not have dominant hydrophytic vegetation or wetland hydrology in contrast to the wetland locations shown on the NWI. The wetlands shown on the NWI are predominantly linear features that follow the topographic drainages. Dominant hydrophytic vegetation and/or wetland hydrology was observed further downslope in most drainages compared to the extent of wetlands shown on the NWI. Based on these observations, it is concluded that the NWI likely overstates the extent of wetland within each of the three quarry sites compared to the anticipated extent of wetlands that would be mapped by field indicators as part of a formal wetland determination. Therefore, using the wetlands mapped on the NWI would be a conservative approach to characterizing wetlands as part of the affected environment and estimating wetland impacts and mitigation during the NEPA and SEPA environmental reviews. It is recommended that the Applicant, USACE, and Ecology consider that approach in lieu of performing a formal wetland determination at this phase of environmental review. A future permitting phase will require a jurisdictional wetland determination to document wetlands, evaluate wetland impacts, and determine appropriate mitigation.

The draft mitigation plan prepared by the Applicant identifies and quantifies wetland mitigation opportunities to address anticipated wetland mitigation needed to address the wetland impacts associated with the proposed project action. The available identified mitigation opportunities would provide more than enough mitigation to address the potential additional wetland impacts associated with quarry development among the three quarry sites evaluated by this wetland identification field report. Additional wetland mitigation opportunities may be available as part of quarry restoration. The excess wetland mitigation available at the Marwood Farms site would be more than enough to address the conservative worst-case scenario of potential wetland impacts at the quarry sites.

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