



Memorandum

Date: June 10, 2025

Subject: Wetland Verification
SEA Industrial Wastewater Treatment Plant (IWTP) Expansion Project

From: Dan Roscoe, WSP

To: Adele Pozzuto, Port of Seattle

INTRODUCTION

The Port of Seattle (Port) is developing plans to expand the Industrial Wastewater Treatment Plant (IWTP) at the Seattle-Tacoma International Airport (SEA). The IWTP Expansion will provide significant increases in capacity and operational flexibility to adapt to changing weather and deicing conditions during airport operations. The expansion will also bring the facility into compliance with the Port's Industrial Waste Discharge permit and National Pollutant Discharge Elimination permit conditions. The expansion will require extensive changes to both the infrastructure and operations of the IWTP.

The selected IWTP concept adds onsite aerobic biochemical oxygen demand (BOD) treatment using an aerated gravel bed (AGB) technology and is upgrading the controls and treatment system at the existing IWTP. The AGB Site is the location of the AGB BOD treatment process as well as a portion of high BOD storage.

WSP conducted a wetland verification within a study area comprised of two units (AGB Study Area and Lagoon 3 Study Area; see Figure 1) to support project planning and environmental permitting for the project. The Port conducts regular delineations of the wetlands in the area to support planning activities and to fulfill regulatory monitoring requirements. Three wetlands surrounding the existing IWTP (shown in Figure 2) are known to be present from previous delineations. Wetlands in the vicinity of the IWTP were most recently delineated for the Port in 2022 for the Snow Storage Expansion Project. In May of 2025, WSP sought to verify that the 2022 delineation remains valid for permitting purposes. Regulatory agencies generally consider 5 years to be the lifespan of delineations, as boundaries of wetlands have tendency to fluctuate over time with changes in hydrologic inputs, vegetative succession, and changes in land use.

Figure 1. IWTP Wetland Verification Study Area



METHODS

A wetland verification was conducted by reviewing the most recent wetland delineation report and critical areas report from 2022 and conducting an in-person site visit to either concur or note potential changes in the boundary (Anchor QEA 2022; Clearway Environmental 2022). The in-person site visit was conducted on May 21, 2025, while walking the extents of the premises. WSP conducted a rapid assessment along the previously identified wetland boundaries following routine methods described in:

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

The rapid boundary assessments, based on observations of vegetation, hydrology, and soil, were compared against the prior wetland delineation boundaries. The prior wetland delineation boundaries were located in the field using ArcGIS Field Maps uploaded with a georeferenced version of the previous delineation boundaries. GPS accuracy was limited to a Samsung Galaxy S22+ built-in GPS capability, approximately 10-30 feet. Locations were also verifiable by comparison of local surroundings and aerial imagery.

RESULTS

Previous Report Findings

Three wetlands were delineated in 2022, all located within the Lagoon 3 Study Area. Table 1 provides a summary of the results from the 2022 Critical Areas Report and Figures 2 and 3 show the delineated wetlands.

Table 1. Summary of Wetlands Delineated in the Study Area in 2022

Wetland Name	Cowardin Class	HGM Class	Ecology and City Wetland Rating	Habitat Score	Area (acres)	City of SeaTac Buffer Width (feet)*
IWS-A	PFO	Depressional	III	4	0.78	60
IWS-B	PFO	Depressional	III	4	0.54	60
WL28	PSS	Depressional	I	6	29.7	165

Anchor QEA 2022

*As of June 2025. Buffers may change, as the City of SeaTac is planning to introduce major revisions to their Critical Areas Code in 2025 or 2026 (personal communication, 2025)

Figure 2. 2022 and 2006 Delineation Comparison

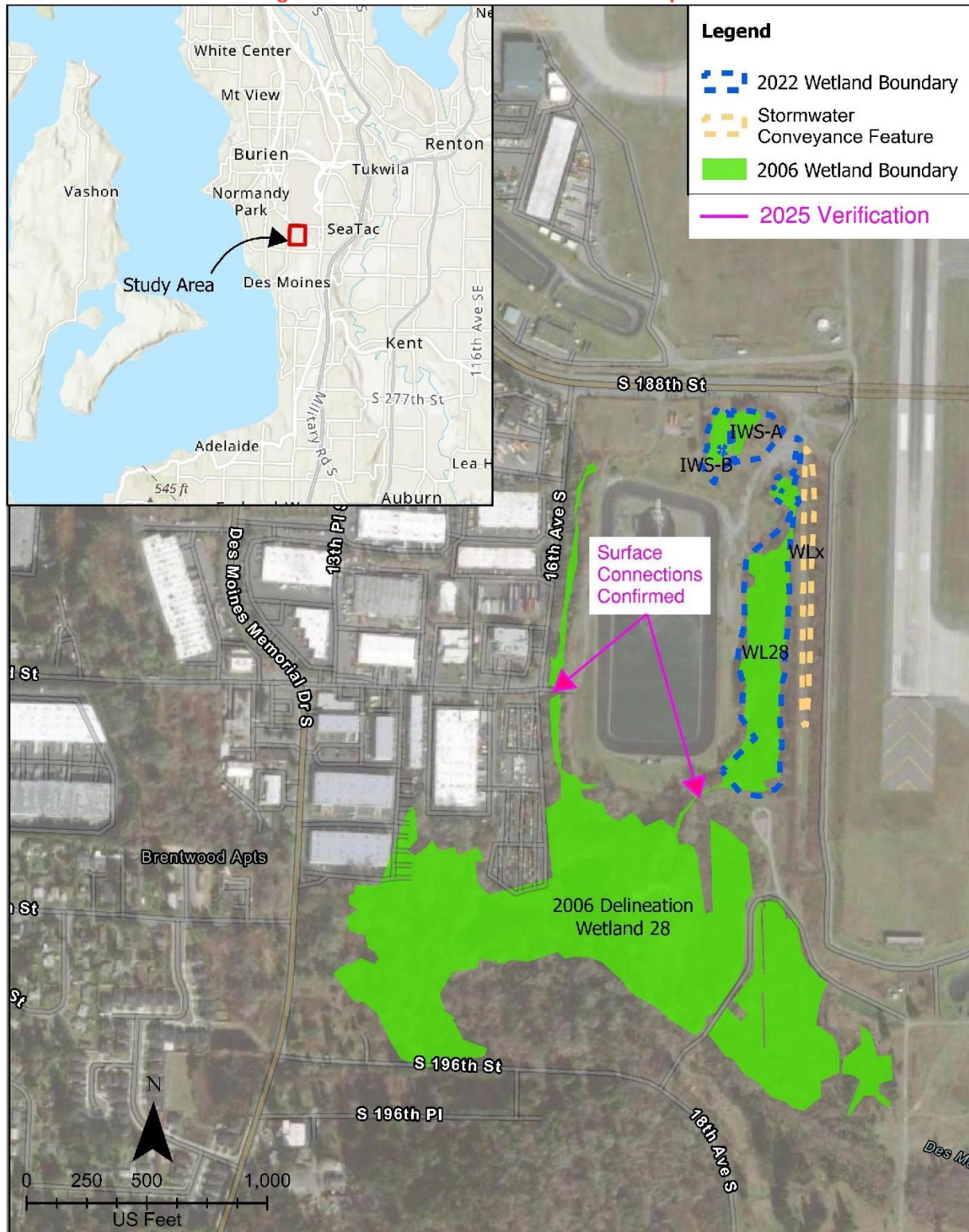


Figure 3. 2022 and 2017 Delineation Comparison



The 2022 delineation report includes overlays of the 2022 delineation boundaries and the wetland delineation boundaries from 2006 and 2017 (Figures 2 and 3). The 2022 boundaries indicated expansions of IWS-A and IWS-B to the south. The 2022 delineation recorded WL28 expanding outward in some areas and retracting in others. The study area in the 2022 delineation did not capture the entire boundary of WL28, rather just the northern lobe, but the report accepted information from prior delineations regarding the southern, and western portions of Wetland 28 as correct (Figure 2). Wetlands IWSa and IWSb were delineated separately, 0.78 acres and 0.54 acres, respectively. Under the 2022 delineation, IWS-A and IWS-B expanded 0.23 acres from the 2017 delineation and WL28 expanded 0.04 acres (Anchor QEA 2022; Clearway Environmental 2022).

2025 Wetland Verification Findings

The rapid boundary assessment conducted by WSP in 2025 found that all three wetlands in the Lagoon 3 Study Area were present. The WSP biologist found that the 2022 delineation was acceptable within a reasonable, commonly accepted margin of error, however the 2006 and 2017 delineations were generally more accurate (Figure 2 and Figure 3).

The WSP biologist did not find wetland vegetation, soil or hydrology in the mapped southwestern expansion of IWS-B in the 2022 delineation (Figure 3). Portions of IWS-A, particularly the northeastern corner, did not meet hydrophytic vegetation criteria. One apparent example was an area with only two species present, Pacific madrone (*Arbutus menziesii*) and salal (*Gaultheria shallon*), which have an upland indicator status and a facultative upland indicator status, respectively (WSDOT 2016; USACE 2025).

The differences in the WL28 boundary appeared to be related to the level of detail in the delineation. For example, where the 2017 boundary made six points around a wetland corner, the 2022 boundary made two. This appears to have resulted in a “rounding of edges” which overestimated the wetland boundary in some areas and underestimated in others. WSP confirmed the surface water connection at the south end of the WL28 2022 delineation, which makes it part of the large Category I wetland (see Figure 2). WSP also confirmed that a wetland in a ditch-like feature is present on the west side of the IWTP (paralleling 16th Ave S) with a surface water connection to WL28, which makes it part of the large Category 1 wetland (see Figure 2).

Within the AGB Study Area, no regulated aquatic resources (wetlands or streams) were identified. There were abundant small depressions on the abandoned concrete foundations that pond water. Abundant black cottonwood trees (*Populus balsamifera ssp. trichocarpa*) were present, growing within the concrete depressions and cracks in concrete, which are often found in wetlands. However, the ponding conditions were created by non-permeable concrete or compact gravel fills.

Conclusions and Recommendations

As stated above, the WSP biologist found that the 2022 delineation was acceptable within a reasonable, commonly accepted margin of error. The 2022 boundary was, on average, larger than

previous delineations and the 2025 rapidly assessed boundary. Permit applications prepared with the 2022 delineation would therefore be a conservative approach and comply with the “no net loss” of wetlands policy employed by federal, state, and local regulatory agencies. However, the Port may be required to provide additional mitigation if project activities occur in locations where wetland and buffer boundaries are overstated.

Based on the wetland boundary that WSP rapidly assessed in 2025, a more detailed redelineation would likely reflect the 2006 and 2017 boundaries more closely than the 2022 boundaries. Conducting a detailed, formal redelineation depends upon the anticipated project impacts and the Port’s tolerance for providing additional mitigation.

REFERENCES

Anchor QEA. 2022. Critical Areas Report: Snow Storage Expansion Project. Prepared for Port of Seattle.

Clearway Environmental. 2022. Final 2022 Wetland Redelineation Report: Planned Lagoon 3 Snow Storage Facility. Prepared for Port of Seattle.

[USACE] United States Army Corps of Engineers. 2025. National Wetland Plant List. Accessed Jun 06, 2025. Available at: <https://nwpl.sec.usace.army.mil/>

[WSDOT] Washington State Department of Transportation. 2016. WSDOT Wetland Monitoring Plant List. Available at: <https://wsdot.wa.gov/sites/default/files/2021-10/Env-Wet-PlantList.pdf>