Interstate Bridge Replacement Program

Columbia River Bridge Package

Wetland and Waterbodies Delineation Report - Washington

January 2024

Final

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EXECUTIVE SUMMARY

This report was prepared for the Interstate Bridge Replacement Program (IBR Program) care of the Washington State Department of Transportation (WSDOT) and identifies the delineated wetlands and waterbodies within the study area of the first construction package (i.e., the Columbia River Bridge Package) of the IBR Program in the state of Washington.

The IBR Program team is made up of a number of regional transportation partners, including WSDOT, the Oregon Department of Transportation (ODOT), Clark County Public Transportation Benefit Area (C-TRAN), Tri-County Metropolitan Transportation District (TriMet), Oregon Metro, Southwest Washington Regional Transportation Council, the Cities of Portland and Vancouver, and the Ports of Portland and Vancouver.

The IBR Program includes a series of projects within a 5-mile stretch of Interstate 5 near milepost (MP) 306 in Oregon at the southern end, and extending north to approximately MP 2.75 in Washington. The IBR Program would implement the projects over a period of several years, starting with the construction of the Columbia River bridge crossing, referenced as Package 1.

No wetlands were identified during the wetland delineation procedures for the first construction package within the study area. However, the Columbia River runs through the southern portion of the study area.

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ACRONYMS AND ABBREVIATIONS

CRC	Columbia River Crossing
IBR	Interstate Bridge Replacement
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
I-5	Interstate 5
MP	milepost
NAVD-88	North American Vertical Datum of 1988
NGVD-29	National Geodetic Vertical Datum of 1929
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
ODOT	Oregon Department of Transportation
OHWM	ordinary high water mark
RB	riparian buffer
RMA	Riparian Management Area
SR	state route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VMC	Vancouver Municipal Code
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

1. INTRODUCTION

The Interstate Bridge Replacement (IBR) Program is a renewal of the previously suspended Columbia River Crossing (CRC) project. The Program would replace the aging Interstate Bridge across the Columbia River with a modern, seismically resilient multimodal structure. The proposed infrastructure improvements would be located along a 5-mile stretch of the Interstate 5 (I-5) corridor in Portland, Oregon, and Vancouver, Washington.

The IBR Program team is made up of a number of regional transportation partners, including the Oregon Department of Transportation (ODOT), Washington State Department of Transportation (WSDOT), Clark County Public Transportation Benefit Area (C-TRAN), Tri-County Metropolitan Transportation District (TriMet), Oregon Metro, Southwest Washington Regional Transportation Council, the Cities of Portland and Vancouver, and the Ports of Portland and Vancouver.

The IBR Program includes a series of projects within a 5-mile stretch of I-5 near milepost (MP) 306 in Oregon at the southern end, and extending north to approximately MP 2.75 in Washington. The IBR Program would implement the projects over a period of several years, starting with the construction of the Columbia River bridge crossing, referenced as Package 1. Package 1 includes a new pair of bridges over the Columbia River—one for northbound and one for southbound travel—built west of the existing Interstate Bridge. Package 1 also includes interchange improvements and connections to State Route (SR) 14 in Vancouver, Washington, and to Hayden Island in Portland, Oregon. When all highway, transit, and active transportation is moved to the new Columbia River bridges, the existing Interstate Bridge (both spans) would be removed.

The purpose of this delineation report is to document the presence, location, condition, and size of potentially jurisdictional wetlands and other waters of the state or U.S. within the Package 1 study area. Once verified by the appropriate agencies, this delineation will allow the IBR Program team to avoid, minimize, and/or mitigate the Program's impacts to wetlands and waters that are determined to be jurisdictional. This report focuses on the Washington portion of the Package 1 project area; wetlands and waters delineated within the portion of the Package 1 study area in Oregon are presented in a separate report.

Wetland delineation surveys were conducted in spring 2023 within areas potentially impacted by the IBR Program within WSDOT rights of way and where right-of-entry permission was granted. Surveys were conducted to identify and delineate the boundaries of areas potentially under the jurisdiction of the Washington State Department of Ecology (Ecology) and/or the U.S. Army Corps of Engineers (USACE). Further study may be needed in locations where right-of-entry permission was not granted This report provides supporting documentation for potential federal, state, and local permit applications.

2. PROPOSED PROJECT

2.1 Project Location

The main project area is located along I-5 in northwestern Oregon and southwestern Washington, and is bisected by the Columbia River. Figure 1 shows the project area, including the Oregon and Washington sections (all figures are provided in Appendix A). Throughout the remainder of this report, only the Washington portion of the project area will be discussed. Wetlands and waters identified within Oregon are presented in a separate report.

The study area for Package 1 within Washington is in the city of Vancouver, in Clark County. The study area is within Sections 27 and 34 of Township 02 North, Range 01 East of the Willamette Meridian. The study aera spans south to north from I-5 MP 0 to approximately I-5 MP 0.8 and west to east on SR 14 from MP 0 to approximately MP 0.5. The study area is location is in land resource region Western Mountains, Valleys, and Coast Region. Currently, the immediate study area is used as major transportation corridors with commercial and for recreational purposes in Vancouver. Figure 2 shows the tax lot maps of the main study area.

2.2 Project Purpose and Description

The IBR program would replace the aging Interstate Bridge across the Columbia River with a modern, seismically resilient, multimodal structure, and the Program would construct associated infrastructure improvements along a 5-mile stretch of the I-5 corridor in Portland, Oregon, and Vancouver, Washington. Through a collaborative process with the federal lead agencies—the Federal Highway Administration and the Federal Transit Administration—and the local and regional agencies sponsoring the IBR program, a Modified Locally Preferred Alternative (LPA) has been developed. The Modified LPA includes the following elements:

- A new bridge built west of the existing bridges on North Portland Harbor and the Columbia River.
- Improvements to seven interchanges north and south of the Columbia River, as well as related enhancements to the local street network.
- Extension of light-rail from the Expo Center in Portland to E. Evergreen Boulevard in Vancouver, along with associated transit improvements such as transit stations and park and rides.
- Addition of one auxiliary lane in each direction and safety shoulders on the bridge.
- A variety of improvements for people who walk, bike, and roll throughout the Program area.
- Variable-rate tolling for motorists using the river crossing as a demand management and financing tool.

The IBR Program's Package 1 includes a new bridge crossing of the Columbia River and tying back into I-5 on Hayden Island in Oregon and near downtown Vancouver in Washington. This package also includes a new interchange with SR 14.

2.3 Study Area

In Washington, the study area extends from the Oregon/Washington state line in the Columbia River to approximately 0.8 miles north on I-5. North of the Columbia River, the study area expands slightly west into downtown Vancouver and approximately 0.5 miles east on SR 14. The physical changes associated with Package 1 would occur in this area in Washington. Figure 1 shows the study area in Washington.

3. METHODS

The wetland delineation relied and expanded upon previous delineation efforts performed for the CRC Project. Where possible, wetland surveys were conducted on all unpaved areas within the study area. However, right-of-entry permission was not granted for all locations and in other locations the ability to dig test pits was not granted. In these cases, recent aerial photography, soils data, National Wetlands Inventory (NWI) maps, and a visual survey from accessible locations were used to determine the likely presence or absence of wetlands.

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 Clark County, Station Vancouver Pearson AP, Washington (NRCS 2023a) (Appendix B-1 and B-2).
- U.S. Geological Survey topographic maps (USGS 2023) (Figure 3).
- NWI maps (FGDC 2013; USFWS 2017) (Figure 4).
- NRCS, Soil Survey of Clark County Washington (NRCS 2023b) and Washington State Hydric Soils (NRCS 2023c) (Figure 5).
- Clark County Wetland Inventory Map in MapsOnline (Clark County 2023).
- Scientific plant names in this report are from the USACE National Wetland Plant List, version 3.5 (USACE 2020).
- Wetlands of High Conservation Value (DNR 2023a).

The content and structure of this wetlands and stream assessment and report preparation follows WSDOT policy and guidance (WSDOT 2023). Fieldwork for this assessment was completed between March 1, 2023, and March 22, 2023, by IBR Program wetland biologists.

3.1 Wetland Delineation, Classification, Functions, and Buffers

The wetland delineation was conducted pursuant to the parameters detailed in the USACE Wetland Delineation Manual (Environmental Laboratory 1987) and the 2010 Regional Supplement (USACE

2010). The 1987 Manual and Regional Supplement require evidence of three parameters in order to determine that wetlands occur on a site: wetland hydrology, hydric soils, and hydrophytic vegetation. A detailed description of the 1987 Manual and Regional Supplement methods can be found on the USACE website (current URL: https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/4532/).

Data for the IBR Program's Package 1 was collected on March 1 and 22, 2023. The study area was surveyed for wetland hydrology, hydrophytic vegetation, and hydric soils when permission was granted to access parcels. In addition, the NRCS Soil Survey Report of Clark County, Washington was consulted to determine soil types potentially present within the study area (McGee 1972). It should be noted that access was provided to some parcels, but the ability to dig test pits was denied.

Dominant vegetation within the study area was identified using botanical references and classified using the National List of Plant Species That Occur in Wetlands: 1988 National Summary and 1993 Supplement: Northwest (Region 9) (Reed 1988, 1993). All areas where greater than 50 percent of the vegetation was hydrophytic (FAC or wetter) (i.e., grass areas) were further examined for indicators of wetland hydrology.

To meet the wetland hydrology criterion, soils in the study area must be inundated or saturated to the surface for a period in the growing season that is long enough to develop anaerobic conditions (at least 5 percent of the growing season). The growing season in the Portland-Vancouver metro area is approximately 288 days (from February 15 through November 29 [McGee 1972]), and 5 percent of the growing season in the study area is 14 days. The early growing season is generally the best time to assess the hydrology of a study area because inundation or saturation to the surface should be present during this time if the area is a wetland. When data must be collected outside of the early growing season, other primary indicators of wetland hydrology (drainage patterns, water marks, etc.), or two or more secondary indicators of wetland hydrology (oxidized root channels, water-stained leaves), may be used to evaluate wetland hydrology. The wetland delineation was conducted in March during the early growing season and no indicators of wetland hydrology (i.e. standing water, drainage patterns, water marks, etc.) were observed.

This wetland delineation found no areas with 50 percent or more hydrophytic vegetation with positive indicators of wetland hydrology, and no formal sample plots were recorded.

3.2 Stream Delineation, Classification, and Buffers

The ordinary high water mark (OHWM) of the Columbia River within the study area was delineated using USACE guidance for OHWM identification (USACE 2005) and Ecology guidance for OHWM identification for Shoreline Management Act Compliance (Ecology 2016). Fish presence was determined based on available Washington Department of Fish and Wildlife (WDFW) Fish Passage Inventory (WDFW 2023a) and Fish Distribution data (WDFW 2023b).

City of Vancouver stream buffers (City of Vancouver 2023) were applied to the Columbia River in the study area, in conjunction with Washington State Department of Natural Resources (DNR) Forest

Practices Rules, water type classifications (DNR 2023b). Buffer widths totaled 175 feet based on Type S riparian management area and riparian buffer area widths (City of Vancouver 2023).

3.3 Wetland and Stream Boundaries Documentation

Stream OHWM determinations were collected using Esri Field Maps software on a global positioning system (GPS) equipped tablet paired with an Arrow global navigation satellite system receiver mapping grade unit. The on-site stream boundaries extended beyond the study area. Boundaries extending outside of the study area were estimated using available mapping resources and visual observations from accessible areas.

4. EXISTING CONDITIONS

4.1 Landscape Setting

The study area is located along I-5 in southwestern Washington, adjacent to the Columbia River. Figure 1 shows the study area.

Currently, the immediate study area is used as major transportation corridors; commercial, industrial, and residential purposes; and for parks and open spaces. Figure 2 shows the tax lot maps of the study area.

4.1.1 Site Alterations

Mainstem aquatic habitat in the lower Columbia River has been substantially altered from its historic condition by a variety of factors, including basin-wide water management operations, construction, and operation of mainstem hydroelectric projects, and other human practices that have degraded water quality and habitat.

Flood-control measures have been implemented that affect the entire lower river environment. Levees and river embankments were constructed in the early 1900s on both sides of the river, isolating much of the floodplain from all but the highest flows. Later, as the floodplain underwent increased development, elaborate pumping operations were implemented on the Oregon side to prevent overbank flow.

In addition, construction of the mainstem Columbia River dams, culminating in completion of the Bonneville Dam in 1938, effectively regulates flows and limits flooding events. Currently, 23 mainstem and more than 300 tributary dams regulate the flow of the Columbia River to the Pacific Ocean (Bottom et al. 2005).

Increased urbanization and land use changes in the study area over the last century have decreased the number of wetlands in the study area. Transportation corridors and other developments have fragmented historic wetland systems, leaving a few highly constrained systems located outside of the study area. The terrestrial portion of the study area in Washington is predominantly developed with transportation infrastructure, including I-5 in the middle of the study area, SR 14 and the BNSF

railroad tracks running east-west, and local surface streets in downtown Vancouver. The other dominant alterations include the commercial and residential structures and associated parking and landscaping associated with downtown Vancouver.

4.1.2 Watershed Description

The Columbia River dominates the landscape of the study area, which lies within the Columbia River watershed (HUC 10-1710030702). Study area elevations vary from approximately 10 feet above mean sea level at the Columbia River to about 60 feet above mean sea level in the northern portion of the study area (Figure 3).

Columbia River/North Slope Watershed

The Interstate Bridge is located at RM 106 of the Columbia River. The Columbia River within the study area has been highly altered by human disturbance. Urbanization extends to the shoreline. There has been extensive removal of historic streamside forests and wetlands. Riparian areas have been further degraded by the construction of dikes and levees and the placement of stream bank armoring. For several decades, industrial, residential, and upstream agricultural sources have contributed to profound water quality degradation in the Columbia River. Additionally, the river receives high levels of disturbance in the form of heavy barge traffic. The Columbia River is a highly managed stream that now resembles a series of slack water lakes upstream of the study area due to existing dams, rather than its original free-flowing state. Within the study area, the Columbia River is more free-flowing because it is below Bonneville Dam; however, the upstream dams are a major factor in downstream water discharge and quality. The second major factor regulating stream flow in the study area is tidal influence from the Pacific Ocean. Although the saltwater wedge does not extend into the study area, high tide events affect flow and stage in the Columbia River up to Bonneville Dam at RM 146.1.

4.2 Climate, Precipitation and Hydrology

4.2.1 Climate

The general climate of the area is described as oceanic, resulting from prevailing westerly air from the Pacific Ocean and the Cascade mountains acting as barriers against the extreme temperature of the interior. West of the Cascades, these features result in mild temperatures year-round with dry summers and frequent winter precipitation. Approximately 70 percent of the annual precipitation occurs from October to March.

4.2.2 Precipitation

Precipitation recorded at the Portland International Airport weather station on March 1 and March 22, 2023, was 0.01 and 0 inches, respectively. Approximately 1.49 inches of rain fell during the two weeks immediately preceding March 1, and approximately 2.55 inches of rain fell during the two weeks immediately preceding March 22. The total precipitation recorded for March 2023 was 5.40 inches. Total precipitation recorded for the water year through March 22 was 29.59 inches (NRCS 2023d).

According to the WETS table for Portland (WETS Station OR6751), average precipitation, based on data collected from 1991 through 2020, is 4.83 inches for March. Average precipitation for the water year recorded during the same time period at the WETS station is 33.82 inches through March (NRCS 2023d).

Precipitation for the year through the March 1 and March 22, 2023, site visits totaled 10.18 inches (Table 4-1). According to the National Oceanic and Atmospheric Administration, this represents 70 percent of the normal amount of rainfall for this period (NRCS 2023d).

Table 4-1. Yearly Precipitation for 2023 (January 1 to March 22, 2023)

Date	Precipitation for Water Year 2023 (inches)	Precipitation Previous 2 Weeks (inches)	Departure from Normal (inches)	Percent of Normal Precipitation
January 1, 2023, to March 22, 2023	10.18	14.64	-4.46	70%

Table 4-1 shows the monthly precipitation data for the three months prior to the site visits using the 30 percent probability range around the average (March 1 and March 22, 2023). Precipitation is below-normal for January and February, and was above-normal for December and March, and was approximately 85 percent of the average for the period. Observations of wetland hydrology were interpreted with below-normal precipitation in mind.

Table 4-2. Monthly Precipitation for Three Months Prior to March 1 and March 22, 2023, Site Visit

Date	Precipitation (inches)	Normal (inches)	Departure from Normal (inches)	Percentage of Normal Precipitation
December 2022	8.62	7.35	1.27	117%
January 2023	3.71	6.36	-2.65	58%
February 2023	2.74	4.74	-2.00	58%
March 1–22, 2023	3.73	3.54	0.19	105%
Totals	18.80	21.99	-3.19	85%

During the 14-day period starting March 8, 2023, and including the March 22 site visit, precipitation was 2.55 inches, which was 0.22 inches more than the normal amount of rainfall for that period according to the NRCS (NRCS 2023a).

4.2.3 Growing Season

According to the WETS table for Portland (WETS Station OR6751), the growing season is from February 15 until November 29, which is 288 days. The field work occurred in March 2023 and therefore was completed during the growing season.

4.3 Mapped Wetlands and Waters

The NWI identifies the Columbia River as a riverine tidal, unconsolidated bottom, permanent-tidal (R1UBV) system (Figure 4). No other wetlands or surface waters are mapped within the study area.

4.4 Mapped Soils

Soils mapped within the Washington portion of the study area include Fill land (Fn); Lauren gravelly loam, 0 to 8 percent slopes (LgB); Lauren gravelly loam, 8 to 20 percent slopes (LgD); and Water (W) (Figure 5). None of these soils are mapped as hydric soils. Below are excerpts from the Clark County Soil Survey of each mapped soil type (McGee 1972; USDA NRCS 2023b).

- **Fill Land (Fn) –** Fill land consists of nearly level areas that have been filled artificially with earth, trash, or both, and then smoothed over. It occurs most commonly in and around Vancouver, Camas, and Washougal. Large areas along the Columbia River waterfront have been filled in by dredging of sand and silt from the river. These areas do not have any clearly defined soil characteristics. Urban development is the primary use.
- **Lauren gravelly loam, 0 to 8 percent slopes (LgB) –** This soil occurs on terraces. The slopes are generally less than 4 percent and approach 8 percent only along the terrace breaks. In a typical profile, the surface layer is very dark brown gravelly and very gravelly loam about 20 inches thick. Below the surface layer is friable, dark-brown very gravelly loam about 13 inches thick. The next layer is dark-brown very gravelly coarse sandy loam about 11 inches thick. The underlying material, to a depth of 70 inches, is dark-brown very gravelly loam coarse sand. The soil is somewhat excessively drained and easily tilled. Surface runoff is slow, and erosion hazard is slight.
- **Lauren gravelly loam, 8 to 20 percent slopes (LgD) –** This soil is along edges of terraces. It is similar to Lauren gravelly loam, 0 to 8 percent slopes, except that the surface layer is 1 to 2 inches thinner. The slopes are short, surface runoff is medium, and the erosion hazard is moderate.

4.5 Vegetation

The study area in Washington includes part of downtown Vancouver, the I-5 corridor, and a portion of the SR 14 corridor east of I-5. The study area is predominantly urban, with some landscaped park areas containing ornamental trees, shrubs, and herbs. Dominant vegetation in the riparian and other landscaped areas present in the Washington portion of the study area includes cottonwood (*Populus balsamifera* - FAC), false indigo bush (*Amorpha fruticose* - FACW), tree of heaven (*Ailanthus altissima* - FACU), Douglas fir (*Pseudotsuga menziesii* - FACU), vine maple (*Acer circinatum* - FACU), Himalayan

blackberry (*Rubus armeniacus* - FAC), tall fescue (*Schendonorus arundinaceus* - FAC), spreading bentgrass (*Agrostis stolonifera* - FAC), Queen Anne's lace (*Daucus carota* – UPL), Canadian thistle (*Cirsium arvense* – FAC), English ivy (*Hedera helix* – FACU), and mowed grasses.

5. RESULTS

5.1 Wetlands

During the wetland and waters delineation, no wetlands were delineated within the study area. There were no areas that demonstrated all three wetland characteristics—i.e., wetland hydrology characteristics, a dominance of hydrophytic vegetation, and hydric soil indicators. Photographs of the study area are shown in Appendix C.

5.2 Streams

5.2.1 Columbia River

During the wetlands and waters delineation, the OHWM of the Columbia River was identified and demarcated within the study area. The OHWM determination used a combination of field indicators, including a break in topography and a distinct stain line on the hardened stream bank. Above the OHWM, vegetation includes red alder (*Alnus rubra* -FAC), scouring rush (*Equisetum hyemale* - FACW), ocean spray (*Holodiscus discolor* - FACU), and swordfern (*Polystichum munitum* - FACU). Below the OHWM, vegetation includes false indigo bush. The distribution of vegetation was also used as a determining factor. Figure 6 shows the surveyed OHWM boundary within the study area. Photographs of the OHWM are shown in the Photo Log in Appendix C.

Additionally, the USACE establishes ordinary high water elevations for the purpose of determining limits of jurisdiction under Section 10 of the Rivers and Harbors Act. The ordinary high water elevation for river mile 106 is 15.8 feet Columbia River Datum, 17.59 feet National Geodetic Vertical Datum of 1929 (NGVD-29), and 21.04 feet North American Vertical Datum of 1988 (NAVD-88).

The Columbia River flows from east to west through the study area, and ultimately drains to the Pacific Ocean. It is the primary hydrologic feature of the study area and is considered a traditional navigable water. The dominant substrate within the Columbia River at this location is silt, sand, and small gravel. The riverbank has also been hardened in most locations with concrete walls, concrete rubble, and evidence of excess concrete poured over the bank during various past construction projects.

The Columbia River meets the criteria for a Type S (shoreline of the state) stream type (Washington Administrative Code [WAC] 222-16-031(3)(i)(A)) as defined by the DNR. The river is classified as permanently flooded riverine, freshwater tidally influenced, unconsolidated bottom deepwater habitat (R1UBV) system by the Cowardin system (Cowardin et al. 1979) and is a Ninth-order stream.

6. REGULATORY REVIEW

6.1.1 Streams

The USACE regulates the Columbia River at the federal level as a water of the United States, and Ecology and the WDFW regulate the river at the state level as a water of the State and shoreline of the State (Type S).

In addition, the Columbia River within the study area is subject to the City's critical areas protection ordinance (Vancouver Municipal Code [VMC] Chapter 20.740). The fish and wildlife habitat conservation section of the ordinance (VMC 20.740.110) designates, classifies, and protects fish and wildlife habitat areas. The ordinance establishes protective buffers associated with streams and specifies that certain permits or approvals be obtained for projects containing streams or their respective buffers.

Fish and wildlife habitat conservation areas are defined in Section 20.740.110(A) of the VMC as:

- Habitat used by any life stage of federally designated endangered, threatened, or sensitive fish or wildlife species
- Priority Habitats and areas associated with Priority Species as defined by WDFW
- Waterbodies, including lakes, streams, rivers, and naturally occurring ponds.
- Habitats of Local Importance—areas designated by the City to be of local significance that are not designated as state Priority Habitats.
- Riparian Management Area (RMAs) and Riparian Buffer (RB).

Accordingly, the Columbia River is classified as habitat that is used by federally designated endangered, threatened, and sensitive fish species (i.e., coho, steelhead, sturgeon, etc.), is mapped as a priority habitat by WDFW, and is a waterbody, and the land adjacent to the stream would be classified as RMA and RB by the City.

6.1.2 Riparian Management Area and Riparian Buffers

As mentioned above, the Columbia River meets the definition of a Type S (Shoreline of the state) river as mapped by DNR. VMC 20.740.110(A)(1)(e)(1) defines the RMA for Type S streams as land 100 feet from the OHWM while the RB extends an additional 75 feet landward from the RMA. The combination results in a protective buffer of 175 feet along the Columbia River. Table 6-1 summarizes the classifications, ratings, and buffer widths applicable to the Columbia River.

Table 6-1. Stream and Riparian Summary

Stream	Stream Classification	Buffer Width[d] (feet)
Columbia River	• Cowardin[a] – R1UBV • Stream Order[b] – 9 • Stream Type[c] – S	175

Notes:

a Cowardin et al. (1979) or NWI class: R1UBV = Riverine, Tidal, Unconsolidated Bottom, Permanently Flooded

b Strahler stream ordering system (Strahler 1952)

c DNR stream classification system (WAC 222-16)

d Based on VMC 20.740.110

7. LIMITATIONS

This wetland and stream delineation report documents the investigation, best professional judgment, and conclusions of the IBR Program based on the site conditions encountered at the time of this study. The wetland and stream delineation was performed in compliance with accepted standards for professional wetland biologists and applicable federal, state, and local laws and ordinances, and WSDOT policies and guidance. The information contained in this report is correct and complete to the best of our knowledge. It should be considered a preliminary jurisdictional determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities. The final determination of wetland and OHWM boundaries, classification, and other pertinent regulatory determinations will be made by local, state, and federal agencies with jurisdiction.

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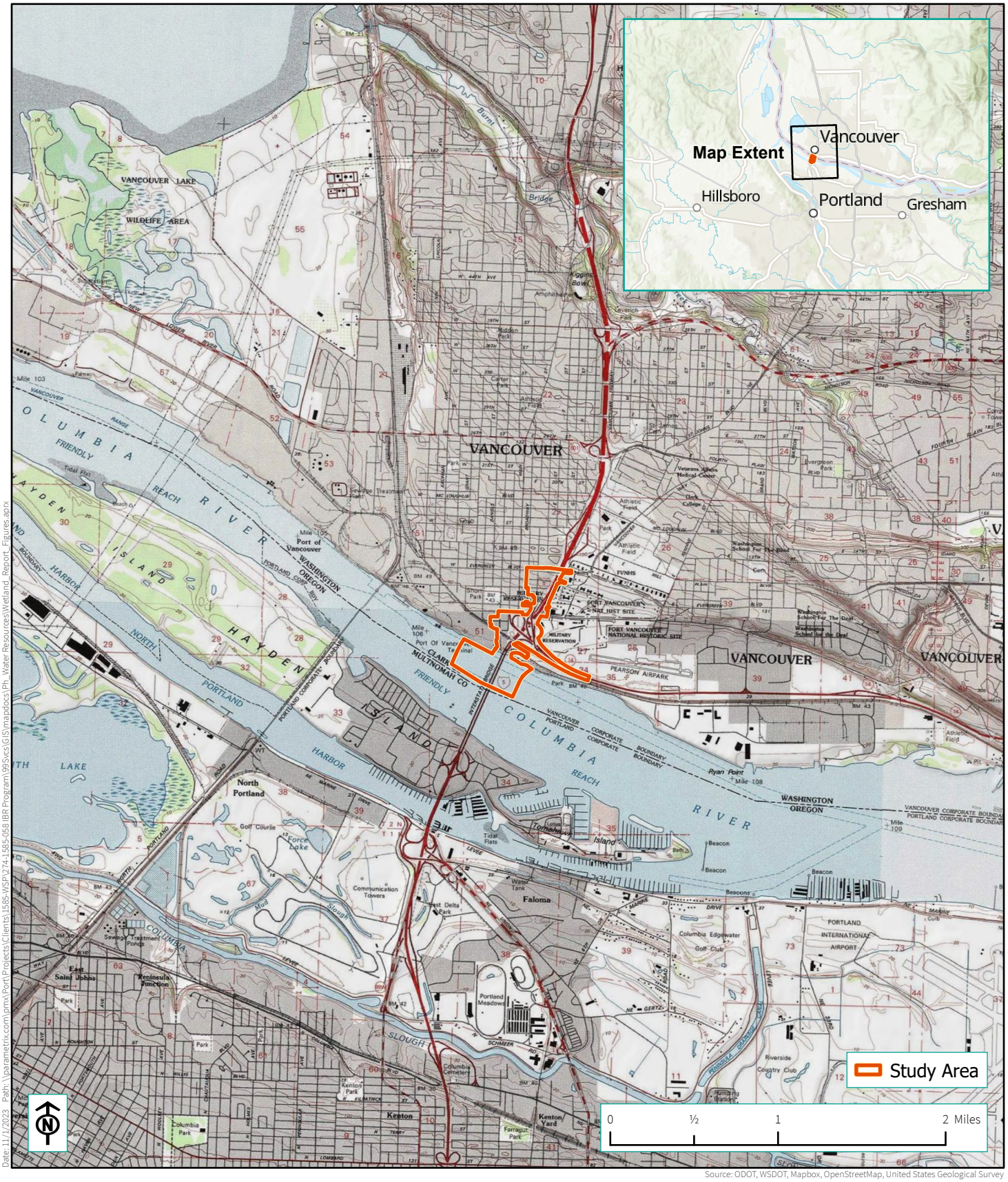
APPENDIX A. FIGURES

Interstate BRIDGE Replacement Program

Figure 1
Project Location



Date: 11/1/2023 Path: \\parametrix.com\pmx\Port\Projects\Clients\1585-WSP\274-1585-058 IBR Program\99Svcs\GIS\mapdocs\Ph_Water Resources\Wetland_Report_Figures.aprx

Oregon Department of Transportation

Washington State Department of Transportation

www.interstatebridge.org

Interstate BRIDGE Replacement Program

Figure 2
Tax Lot Map

Source: ESRI, Clark County

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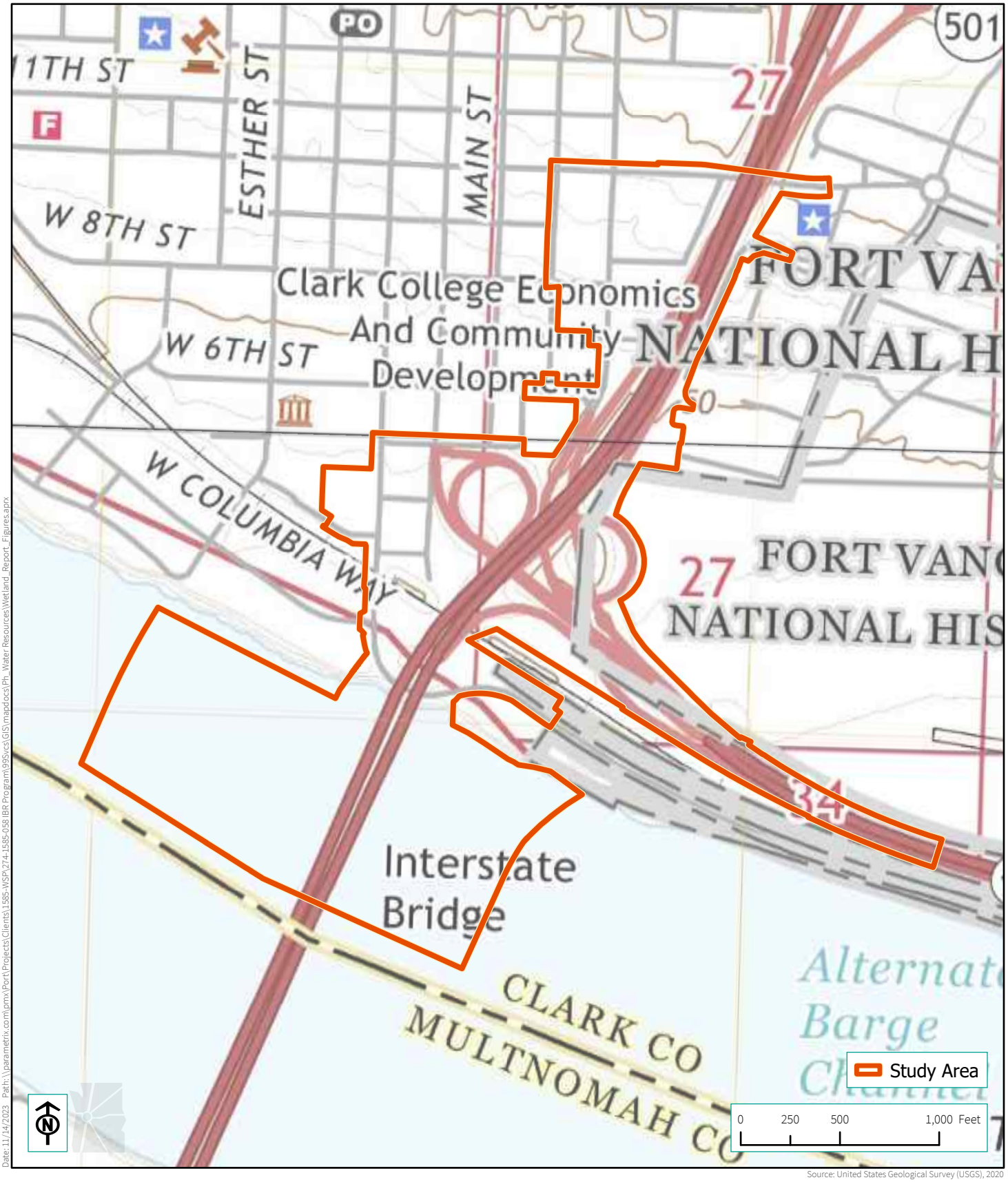
Interstate BRIDGE Replacement Program

Figure 3
USGS Topographic Map



Source: United States Geological Survey (USGS), 2020

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Interstate BRIDGE Replacement Program

Figure 4
NWI Wetlands

Source: ODOT, WSDOT, Mapbox, OpenStreetMap, US Fish & Wildlife Service, Google Earth Aerial Imagery (2022)

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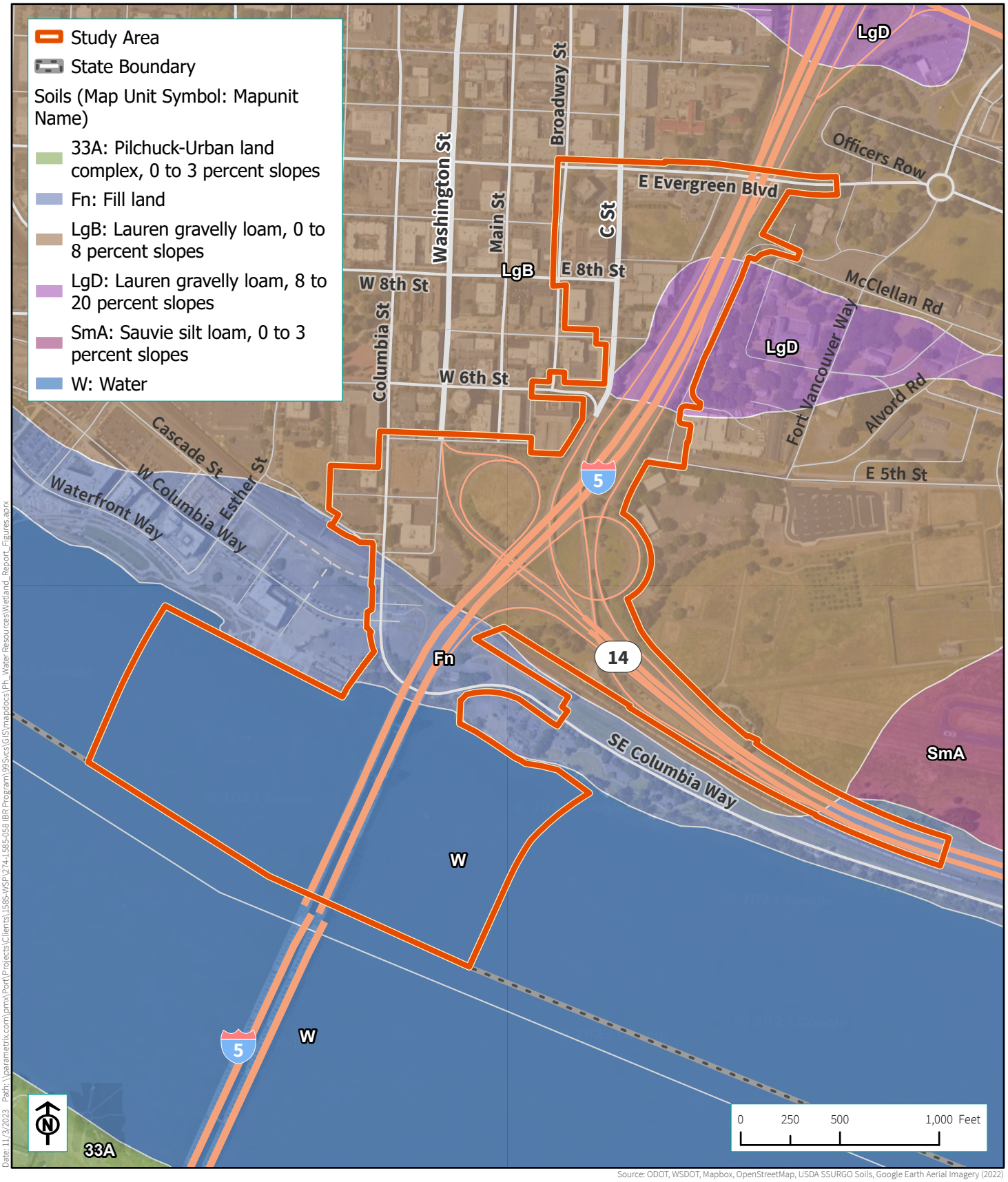
Interstate BRIDGE Replacement Program

Figure 5
Soils



Source: ODOT, WSDOT, Mapbox, OpenStreetMap, USDA SSURGO Soils, Google Earth Aerial Imagery (2022)

Date: 11/3/2023 Path: \\parametrix.com\pmx\Port\Projects\Clients\1585-WSP\274-1585-058 IBR Program\99Svcs\GIS\mapdocs\Ph_Water Resources\Wetland_Report_Figures.aprx

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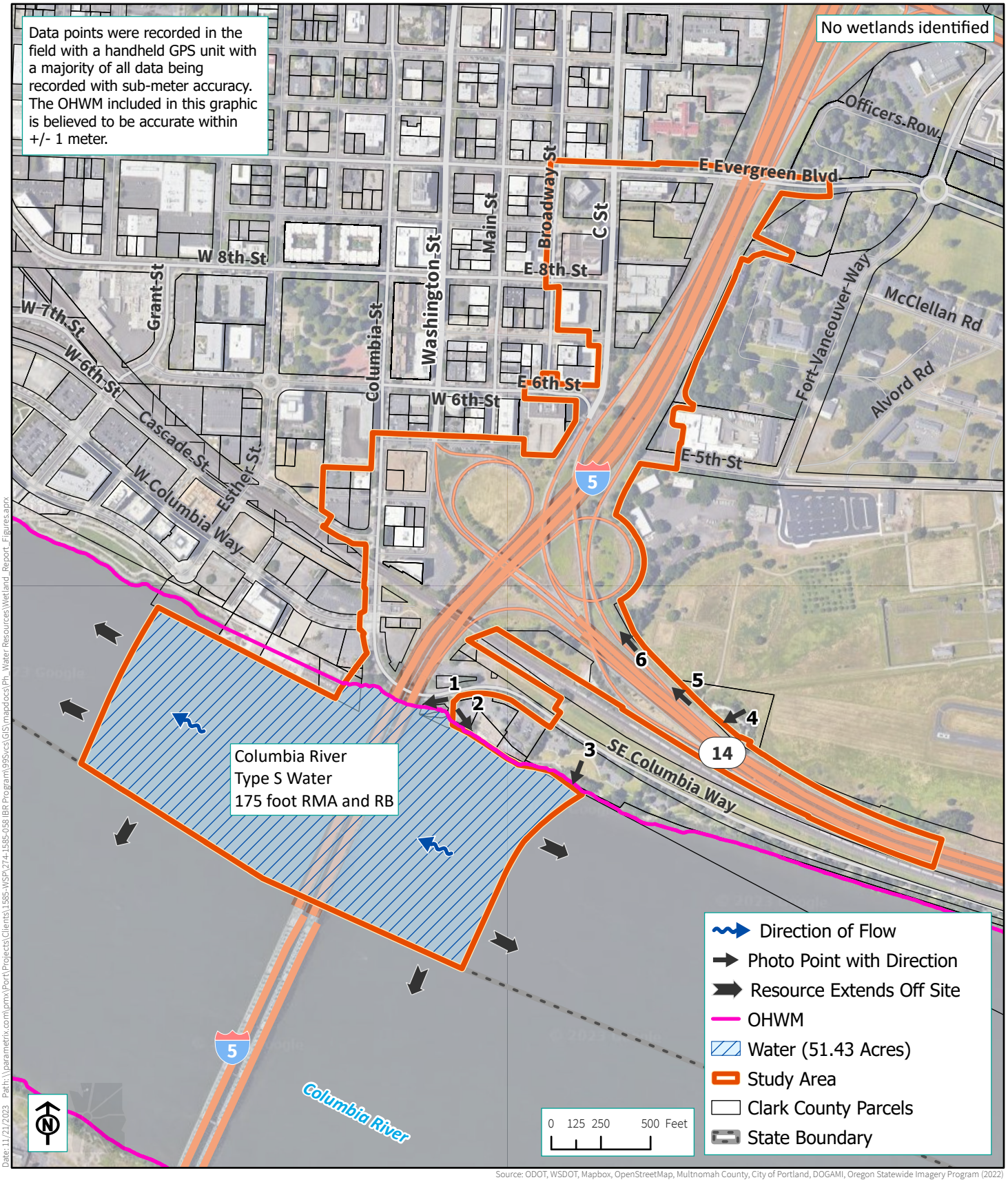
Interstate BRIDGE Replacement Program

Figure 6
Delineated Resources



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Source: ODOT, WSDOT, Mapbox, OpenStreetMap, Multnomah County, City of Portland, DOGAMI, Oregon Statewide Imagery Program (2022)

APPENDIX B. BACKGROUND INFORMATION

Appendix B-1. Comparison of Observed and Normal Precipitation

The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0 (USACE 2010) recommends using methods described in Chapter 19 in Engineering Field Handbook (NRCS 2015)[1] 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. The following table shows this information.

Monthly Precipitation Data for Portland International Airport, Oregon

	Month	3 yrs. in 10 less than[a]	Average[a]	3 yrs. in 10 more than[a]	Rain fall[a]	Condition dry, wet, normal[b]	Condition Value	Month weight value	Product of previous two columns
1st prior month	February	2.50	3.73	4.47	2.49	Dry	1	3	3
2nd prior month	January	3.22	5.01	6.03	3.34	Dry	1	2	2
3rd prior month	December	4.08	5.85	6.95	7.76	Wet	3	1	3
								Sum	**8**

[a] NRCS 2023d

[b] Conditions are considered normal if they fall within the low and high range around the average.

Note:	If sum is		Condition value:	
	6–9	then prior period has been drier than normal	Dry (D)	= 1
	10–14	then period has been normal	Normal (N)	= 2
	15–18	then period has been wetter than normal	Wet (W)	= 3

Conclusions: Drier than normal precipitation conditions were present prior to the March 1, 2023, field visit.

[1] Natural Resources Conservation Service (NRCS). 2015. Part 650 Engineering Field Handbook National Engineering Handbook: Chapter 19 – Hydrology tools for Wetland Identification and Analysis. 210–VI–NEH, Amend. 75, September 2015. Available: <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=37808.wba> Accessed November 17, 2023.

Appendix B-2. Daily Precipitation for 10 Days Preceding Fieldwork, Vancouver, Washington

To determine if light, moderate, or heavy precipitation occurred in the 10 days prior to field work, the 10-day total is compared to 1/3 of the monthly average precipitation for the month evaluated (NRCS 2023d).

Daily precipitation data preceding the March 1, 2023, and March 22, 2023, field visits for Portland International Airport, Oregon

Date (2023)	Daily Precipitation (inches)[a]	Date (2023)	Daily Precipitation (inches)[a]
February 28	0.18	March 21	0.00
February 27	0.18	March 20	0.14
February 26	0.39	March 19	0.21
February 25	0.00	March 18	0.00
February 24	0.00	March 17	0.00
February 23	T	March 16	0.00
February 22	0.84	March 15	0.03
February 21	0.07	March 14	0.00
February 20	0.08	March 13	1.19
February 19	T	March 12	0.23
Sum	**1.74**	**Sum**	**1.8**

[a] NRCS 2023d

"T" values indicate a trace value was recorded.

Conclusions:

- Moderate to heavy precipitation was recorded in the 10 days preceding March 1, 2023, field work.
- Moderate to heavy precipitation was recorded in the 10 days preceding the March 22, 2023, field work.

APPENDIX C. PHOTO LOG

Photosheet

Photo No.	Date
1	March 1, 2023

View of the OHWM of the Columbia River under the Interstate Bridge in Washington.

Photo No.	Date
2	March 1, 2023

View of the OHWM of the Columbia River west of the Interstate Bridge.

Photo No.	Date
3	March 1, 2023

View of the OHWM at the east end of the study area along Columbia River.

Photo No.	Date
4	March 1, 2023

Vancouver Land Bridge over State Route 14, north of State Route 14 facing southwest.

Photo No.	Date
5	March 1, 2023

North of eastbound State Route 14, facing west.

Photo No.	Date
6	March 1, 2023

View of upland area east of Interstate 5 Exit 1B off-ramp to downtown, facing northwest.