

**Attachment C: Stormwater Report
-for Corps and DEQ submittals only
-not included in DSL submittal**



U.S. Department
of Transportation

**Federal Highway
Administration**

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STORMWATER MANAGEMENT PLAN

To: Carrie Warren, WFLHD Project Manager
From: James Neighorn, P.E., WFLHD Hydraulics Engineer
Date: July 17, 2023
Project: Oregon Dunes Trail, OR FLAP Douglas 251(1)

Introduction

The Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA), in cooperation with Douglas County and the United States Forest Service, is proposing to improve OHV access to the Oregon Dunes National Recreation Area (ODNRA). This will include construction of approximately 1.3 miles of off-highway vehicle (OHV) trail route and shifting approximately 3,600 feet of the alignment to Salmon Harbor Drive. This will also include repairing and installing guardrail on 0.5 miles of existing sand access route. The new improvements will extend along Salmon Harbor Drive, beginning at approximate Milepost (MP) 0.14 and ending at approximate MP 1.44. Salmon Harbor Drive is a paved two-lane arterial roadway with no bike lanes and a 6 to 11-foot width grave shoulder which is shared by pedestrians, bicycles, and OHV. The proposed OHV trail construction will provide a paved designated two-way travel path for OHVs, separate from the road, bicycle, and pedestrian use areas.

This report outlines the proposed series of stormwater treatment best management practices (BMPs) proposed for the OHV improvement project.

Existing Conditions

The project begins at the north end of the Umpqua Beach #2 Day Use and Staging Area. Placement of guardrail will start here and extend 0.5 miles north along the sand access route to its intersection with Salmon Harbor Drive. The project then proceeds north along the south side of Salmon Harbor Drive for 1.3 miles and ends west of the bridge over Winchester Creek.

The sand access route running southwest from Salmon Harbor Drive is relatively flat and consists of highly porous sandy soils. Immediately east of the sand access are large emergent wetlands which the project intends to protect with the installation of guardrail.

Salmon Harbor Drive serves as the only access to the Oregon Dunes National Recreation Area (ODNRA) and is bordered on the northwest by Halfmoon and Winchester Bays which make up the Umpqua Rivers outlet into the Pacific Ocean. The Salmon Harbor Marina, Winchester Bay RV Park, oyster farm, and south jetty are also located along the Umpqua River within this section of the roadway. Properties south and west of Salmon Harbor Drive consist of a number of RV parks, campgrounds, and forested County Park lands. The RV parks and campgrounds are flat to moderately sloped areas with maintained grass, landscape plantings, with small wooded patches. The

park lands are steep densely forested slopes that drain toward the roadway. Soils within the project area along Salmon Harbor Drive consist of very well drained Waldport fine sands and Salander silt loam on the south end or well drained Bragton and Millicoma soils on the north end which allows for good dispersion and infiltration of impervious area runoff.

Salmon Harbor drive is a two-laned paved road which is heavily used for recreational access during the summer. Drivers share the road with off highway vehicle (OHV) users. OHV, pedestrians, and cyclists also share use of the north shoulder of the roadway which has created unsafe conditions along the corridor. There are a several wide gravel parking areas along the north side of the road including a large parking area at Oak Rock County Park. On the south there is a gravel parking area just north of the Lighthouse Road intersection.

Along the north side of the roadway, OHV use has reduced or eliminated vegetation coverage resulting in a compacted and eroded 6- to 11-foot-wide shoulder. Runoff from the majority of the roadway, shoulders, and parking along the north drains onto large rock armored slopes and into the bay with limited to no vegetative buffer. The compacted shoulder and lack of vegetated buffer allows concentrated storm runoff and associated pollutants to flow directly into the bay.

Runoff directed south from the roadway, shoulders, and parking area flows into landscaped areas wooded areas, roadside ditches, or storm drainage curb inlets. The runoff which runs into landscape or wooded areas is naturally infiltrated into the permeable soils. The roadside ditches do provide some infiltration and pollutant removal prior to directing flows into either landscaped and wooded areas, or cross drain culverts along Oak Rock County Park. The cross drain culverts adjacent to the park outlet into a 320-foot long grassy swale that flows northeast into the bay. For approximately 600-feet at the west end of the project area, runoff from onsite impervious area and offsite contributing impervious area at the intersection with Ork Rock Road is collected by roadside curb and gutter system which direct flows into curb inlets that pipe flow north into the bay untreated.

Within the project area there are two perennial streams which cross under Salmon Harbor Drive. The first stream crossing is located 380-feet southwest of Lighthouse Road. The stream originates from Lake Marie and flows 0.6 miles along a gently sloped and shallow stream channel before crossing under Salmon Harbor Drive through a 48-inch wide metal pipe arch culvert. The culvert outlets mid-slope onto the rock armoring along the bay. The second stream crossing is located at the Winchester Bay Sanitary District treatment facility. This stream originates from the south and flows approximately 0.5 miles along a ditch before entering a culvert that carries flow through the sewer district property. The culvert outlets into a ditch that flows approximately 130-feet northeast to an 18-inch culvert that crosses under the roadway and outlets mid-slope onto the rock armoring along the bay.

Potential Pollutants

OHV use has the potential to alter a landscape's storm water drainage pattern, especially within high use corridors. These alterations can lead to higher rates of erosion or soil loss, soil compaction, reduced infiltration, and increased stormwater runoff and pollutant loads.

During construction, the primary potential pollutant resulting from improvements to the OHV access and associated realignment of Salmon Harbor Drive is sediment/total suspended solids originating

from soils exposed onsite. Sediment may be entrained in stormwater runoff from cut/fill slope areas that are excavated and graded for the roadway realignment and new OHV access trail.

Post construction, reduction of the sediment/total suspended solids produced by the OHV trail, roadway, parking areas, and adjacent unstable erodible slopes will be the primary concern. Low concentrations of petroleum products, suspended and dissolved metals, and other pollutants normally found in runoff from OHV access trails and roadways may also be expected.

Improvements to the roadway and OHV access is not expected to significantly increase the amount of pollutant generation. Implementation of stormwater best management practices (BMPs) should decrease runoff being directly released into the bay and improve dispersion and infiltration of pollutant laden runoff.

Receiving Waters

The direct receiving waters for this project is Halfmoon and Winchester Bays. Minor amounts of roadway runoff will enter the two unnamed streams directly adjacent to the culvert inlets where they cross under Salmon Harbor Drive. Anadromous fish are not present within these streams.

Winchester Creek will not be impacted since the project ends West of the bridge over the creek and runoff from the project area does not enter the creek.

Stormwater Management Requirements

This stormwater management report outlines the measures provided for this project to meet the requirements outlined under the Standard Local Operating Procedures (SLOPES) by the U.S. Army Corps of Engineers, Portland District (Corps) to maintain or improve roads, culverts, bridges, or utility lines in Oregon.

A section of Salmon Harbor Drive will be reconstructed down to subgrade which will require management of stormwater runoff. Post-construction water quality treatment will be provided by maximizing dispersion and natural infiltration within the project corridor. Since no net increase in impervious area is proposed and runoff discharges directly to the bay, water quantity treatment will not be necessary.

Soils within the project area have a saturated hydraulic conductivity ranging from moderately high to very high (0.6 to 20.0 inches per hour). Given these soil conditions, landscaped and wooded areas within the project area should accept and fully treat the volume of water equal to 50% of the cumulative rainfall from the 2-year, 24-hour storm for the project area. The 2-year, 24-hour storm produces 4-inches of rainfall resulting in 2-inch for the water quality rainfall.

Contributing Impervious Areas and Flows

The existing impervious area within the project area is approximately 5.40 acres. The proposed project will construct a 14-foot wide paved trail dedicated for OHV use along the gravel shoulder areas south of Salmon Harbor Drive. This will require the removal of the gravel parking area just north of the Lighthouse Road. Creating a dedicated OHV path allows for portions of roadway to be realigned and reconstructed with a 24-foot paved travelway and reduced 3-foot wide paved/gravel

shoulders. These improvements will result in approximately 5.17 acres of impervious area (See Table 1) which is a net decrease of 0.23 acres in impervious area.

Table 1 - Proposed Surfaces	Pollution Generating Impervious Surfaces (acres)
Proposed New Impervious	1.16
Proposed Replaced Impervious	4.01
Proposed Removed Existing	1.39

Much of the south side of roadway drains to landscaped or wooded areas where flows are dispersed and infiltrated. These areas are disconnected from any impact to the bay. The roadway areas that have the potential to deliver direct discharges to the bay are the primary concern for treatment.

The contributing existing impervious surfaces within the project limits, with direct discharges to the bay, is approximately 1.85 acres (See Table 2). This includes 1.43 acres from onsite project areas and an additional offsite contributing area of 0.42 acres. The proposed removal of the gravel parking area just north of Lighthouse Road and narrower roadway shoulder widths will reduce onsite runoff directly discharging to the bay without treatment to 0.81 acres. Full treatment of this 0.81 acres was not proposed since these areas are located directly adjacent to the rock bank along the bay. The area that separates the roadway shoulder and rock bank is narrow and does not allow room to provide full treatment without constructing out into the waterway. To the extent possible the proposed impervious roadway shoulder has been reduced or shifted to allow for restoration and planting of a narrow vegetated strip that should provide partial infiltration of runoff. To provide additional mitigation for the untreated project impervious area, 600-feet of curb and gutter inlet collection system will be removed on the north end of the project. This storm system had routed untreated flows directly into the bay. The removal will allow an additional 0.42 acres of offsite contributing impervious area from the intersection of Ork Rock Road to sheet flow south and disperse onto landscaped areas.

Table 2- Treatment Areas								
	Total Project Area (acres)	Onsite Impervious Area (acres)	Onsite Landscape Area (acres)	Offsite Contributing Impervious Area (acres)	Direct Discharge Areas	Dispersed/Treated Areas		
					Untreated (acres)	Dispersed Onsite (acres)	Dispersed offsite (acres)	Total Treated (acres)
Existing Condition	8.24	5.40	2.84	0.42	1.85	3.97	0.00	3.97
Proposed Condition	8.24	5.17	3.07	0.42	0.81	4.36	0.42	4.78
Net Change	0.00	-0.23	0.23	0.00	-1.04	0.39	0.42	0.81

Stormwater Treatment Best Management Practices (BMPs)

As described above, this project will rely on improving site layout, vegetation/soil protection, and providing a dedicated spaces for OHV use to reduce erosion and sediment while maximizing dispersion and infiltration of stormwater runoff.

Reducing Erosion and Sediment

A primary pollutant generated from this site is sediment/total suspended solids. The project will limit and reduce the amount of potential sediment generated along the road and OHV corridor by correcting roadway deficiencies and providing a paved durable surface that can withstand OHV use. The improved pavement surface will help maintain proper sheet flow off the travelway and reduce maintenance. The paved surface will also eliminate sediment produced by the rutting and pumping of fine soils previously induced by OHV use during wet weather.

OHV use will be directed away from the shoreline of the bay and onto the new dedicated OHV path along the south side of the road. A portion of Salmon Harbor Drive will be re-aligned and reconstructed to eliminate the over-widened shoulders. The north shoulder will consist of a narrower paved/gravel shoulder which will be limited to bicycle and pedestrian use. This will significantly reduce compaction and erosion issues which have contributed to pollutants directly entering the bay. Proposed vegetation establishment and increased infiltration along the buffer area between the roadway and bay will also reduce the volume of direct runoff and associated pollutants from entering the ocean waters.

The project also includes repairing and installing guardrail on 0.5 miles of existing OHV sand access route west of the roadway improvements. Installation of guardrail will not only improve safety but will prevent OHV users from propagating informal access trails that impact sensitive wetland areas and cause erosion outside the designated route. Protecting these areas from OHV use will improve vegetation establishment that provides important sediment control and infiltration/water quality benefits.

During construction the project will limit the amount of natural vegetated areas impacted by cut or fill slopes through the construction of retaining walls where practical. Where soil is exposed, erosion and sediment control BMPs such as silt fence, wattles, filter berms, soil stabilizers, temporary blankets, and ditch check dams will be installed. Immediate revegetation of all exposed soil during and after construction will also be vital in reducing potential for sediment entering the waterways.

Roadway and OHV Path Runoff Dispersion and Infiltration

Utilizing the natural dispersion areas within the project corridor is considered the primary means for providing stormwater runoff treatment. This method of treatment is appropriate for the project where roadway runoff can be directed onto adjacent vegetated landscape and wooded areas.

The natural undisturbed soil/duff layer and vegetation within the project corridor provide an important stormwater function by providing for infiltration; nutrient, sediment, and pollutant adsorption; sediment and pollutant biofiltration; water interflow storage and transmission; and

pollutant decomposition. Natural sheet flow dispersion onto undisturbed vegetated slopes provides the simplest and most effective method for attenuation, infiltration, and treatment of runoff. The soils along the project corridor consist of fine sands and silts. These soils have the moderately high to very high infiltration capacity needed for effective dispersion and infiltration treatment.

This project proposes to maintain flow into dispersion areas wherever possible. Constructing engineered stormwater facilities along bay shoreline would impact ocean waters. Therefore, the roadway has been re-aligned and reconstructed to the extent practical to direct stormwater runoff away from the bay. Constructing the dedicated OHV path southeast of the road allows it to be sloped such that runoff sheetflows and infiltrates onto the landscaped and wooded areas away from the bay. These improvements reduce the total impervious area and reduce the impervious area directly discharging untreated into the bay.

Existing wetlands, hillslopes, private property, and sanitary sewer treatment facilities limited the amount the road could be shifted away from the bay in several areas. In two areas (approximately 0.81 acres), the project was not able to redirect roadway stormwater runoff away from the bay. In these locations the roadway was shifted, and shoulders reduced to the extent practical to produce a narrow (less than 3-foot width) vegetated strip which will be restored and planted to provide partial infiltration and treatment of runoff.

Approximately 600-feet of curb and gutter inlet collection system will be removed on the northeast end of the project. This will allow 0.42 acres of offsite impervious area from the Ork Rock Road intersection, which previously discharging untreated into the bay, to sheet flow, disperse, and infiltrate onto landscape areas to the south.

Maintenance

Maintenance will be conducted on all BMPs to ensure their effective operation and will generally follow the guidelines found in the ODOT's Road Maintenance Guide (ODOT 2004). Maintenance of vegetation in ODOT's Road Maintenance Guide is generally described as:

Activities designed to restore sight distance, minimize or remove shading that may cause icy road conditions, and control or prevent slope failure. These activities are also designed to control unwanted vegetation, control noxious weeds, comply with city, county or local ordinances, reduce fire danger, reduce snowdrift accumulation near roadways, and to maintain a clear zone along the roadway. These actions involve mechanical mowing, trimming, removal of brush and cleanup.

Douglas County will be responsible for the ongoing BMP maintenance and will coordinate with WFLHD project managers and to ensure all objectives are being met.

Conclusion

The stormwater treatment proposed for this project provides pollutant removal to the maximum extent practicable while minimizing disturbance of adjacent vegetated areas and impacts to the shoreline of the bay. Promoting the use of the natural landscaped and wooded areas for dispersion helps to reduce the removal of trees and native soils which would be required to construct additional

stormwater treatment facilities. Stabilization and planting of disturbed areas will protect soils from erosion and return the area more quickly to a naturally vegetated state that will provide important stormwater infiltration and pollutant removal.

The proposed project improvements will reduce total pollution generating impervious surfacing within the project area by 0.23 acres, reduce the amount untreated impervious area entering the waterways by 1.04 acres, and ultimately improve runoff conditions along the bay.

Attachments: Appendix A – Area Maps
Appendix B – Photos
Appendix C – Soil and Rainfall Data

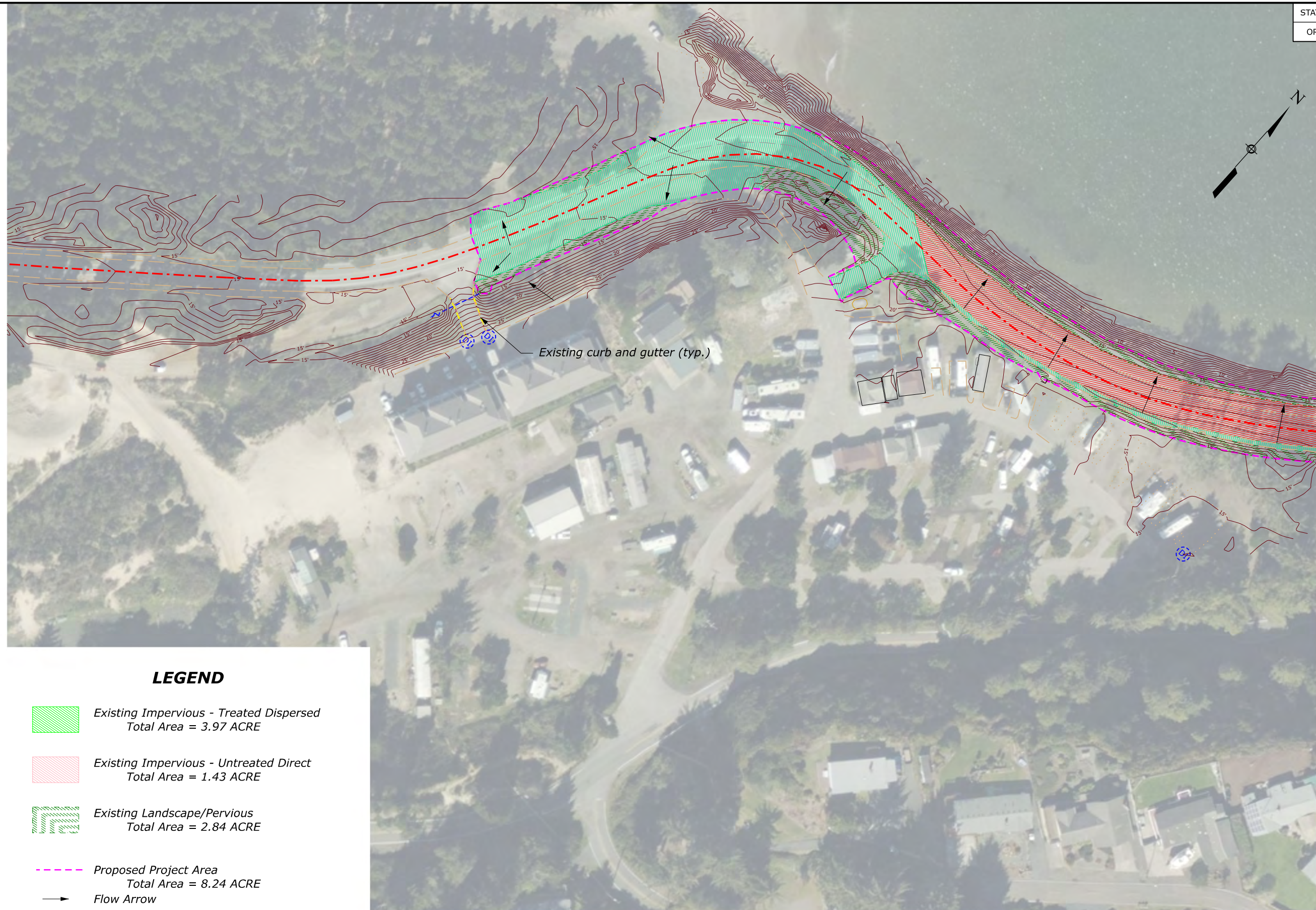
Appendix A – Area Maps

STATE	PROJECT	SHEET NUMBER
OR	OR FLAP DOUGLAS 251(1)	



PROJECT AREA MAP

STATE	PROJECT	SHEET NUMBER
OR	OR FLAP DOUGLAS 251(1)	E.1



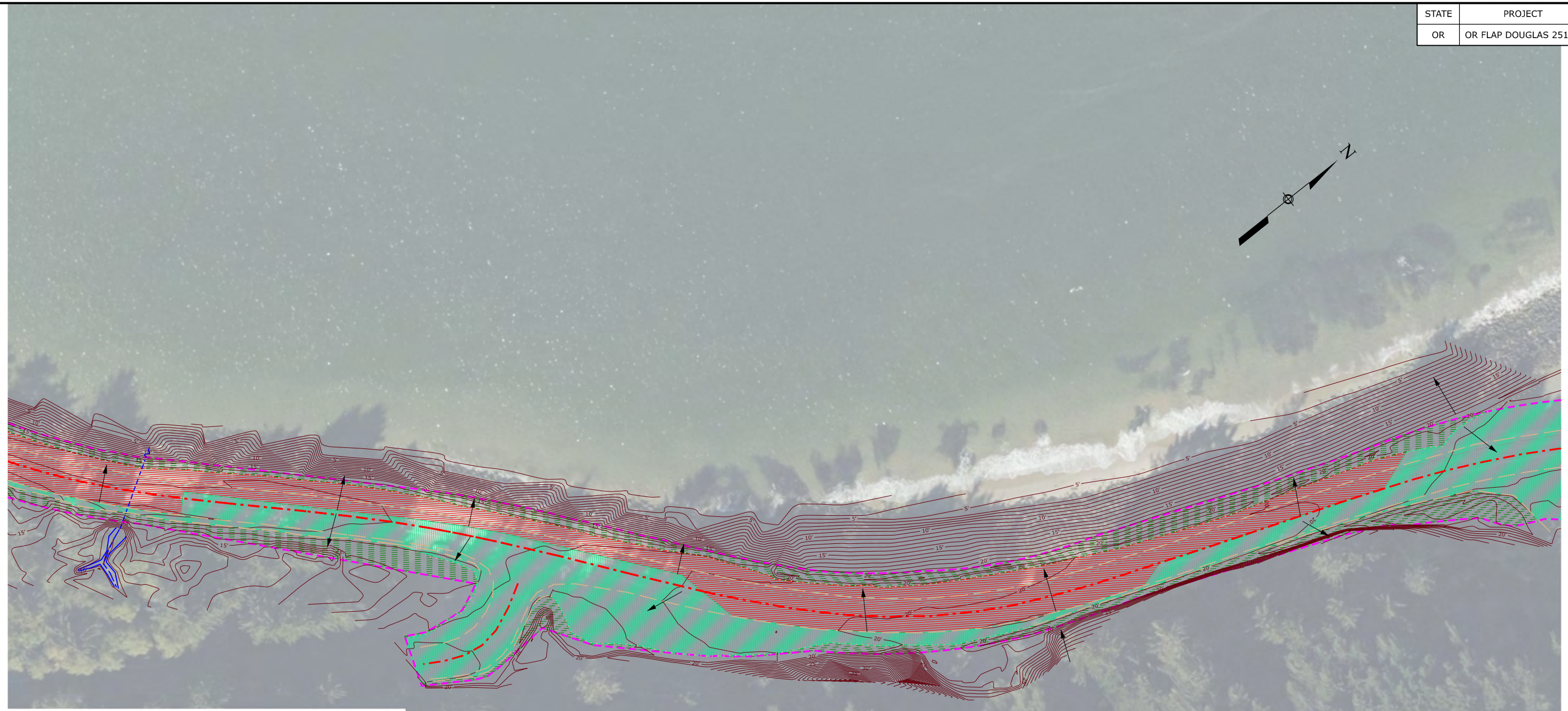
LEGEND

-  Existing Impervious - Treated Dispersed
Total Area = 3.97 ACRE
-  Existing Impervious - Untreated Direct
Total Area = 1.43 ACRE
-  Existing Landscape/Pervious
Total Area = 2.84 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow






**STORMWATER MANAGEMENT
EXHIBIT 1 - EXISTING
CONDITIONS**

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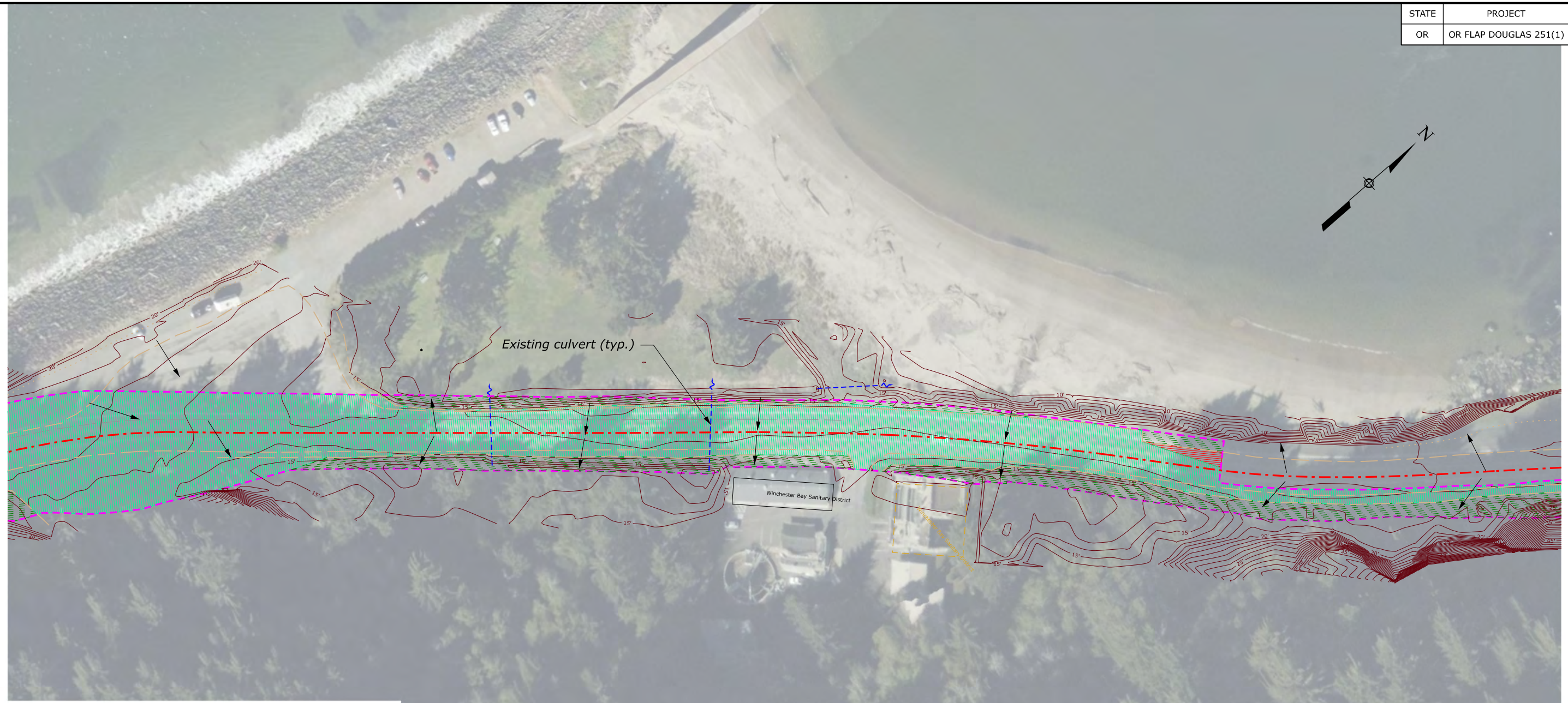
LEGEND

-  Existing Impervious - Treated Dispersed
Total Area = 3.97 ACRE
-  Existing Impervious - Untreated Direct
Total Area = 1.43 ACRE
-  Existing Landscape/Pervious
Total Area = 2.84 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

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**STORMWATER MANAGEMENT
EXHIBIT 2 - EXISTING
CONDITIONS**

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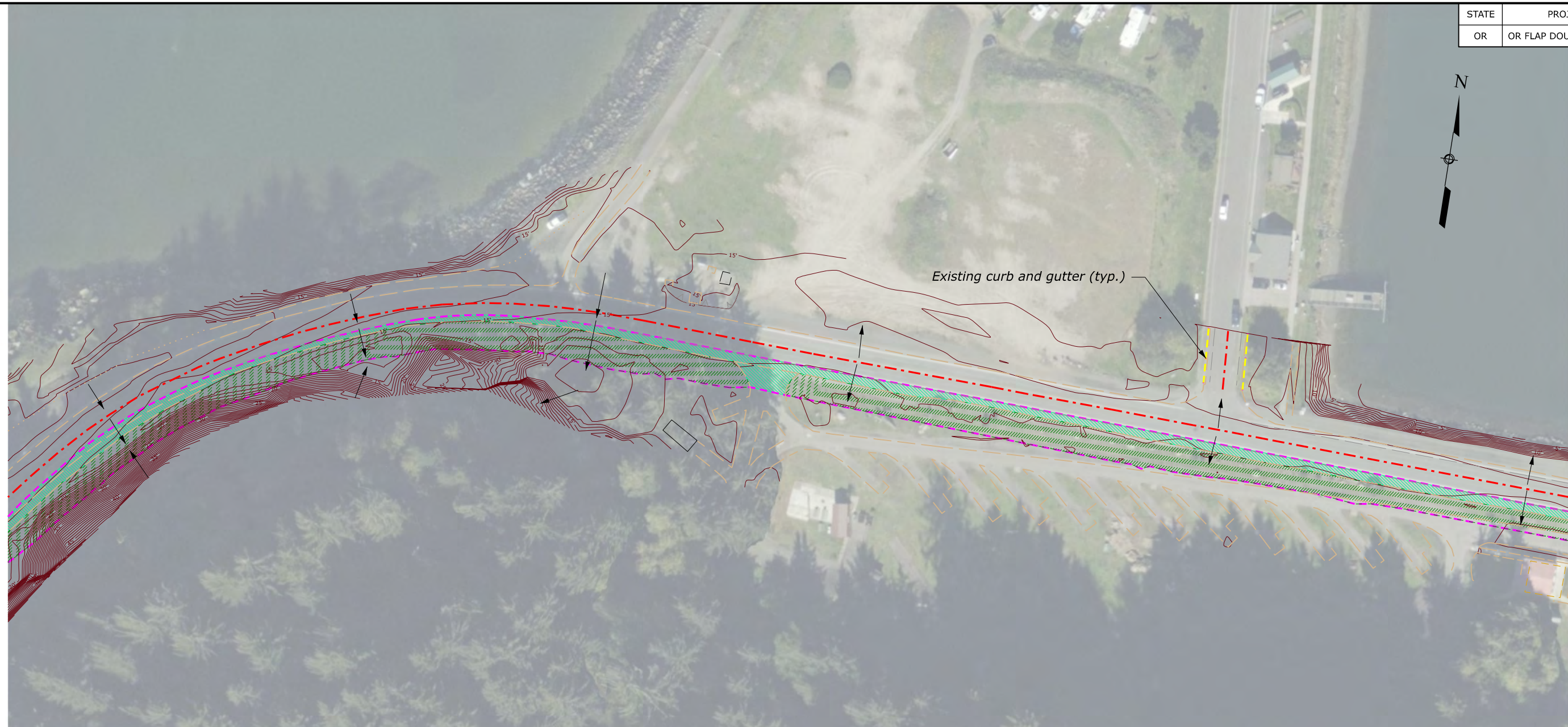
LEGEND

-  Existing Impervious - Treated Dispersed
Total Area = 3.97 ACRE
-  Existing Impervious - Untreated Direct
Total Area = 1.43 ACRE
-  Existing Landscape/Pervious
Total Area = 2.84 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

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EXHIBIT 3 - EXISTING
CONDITIONS**

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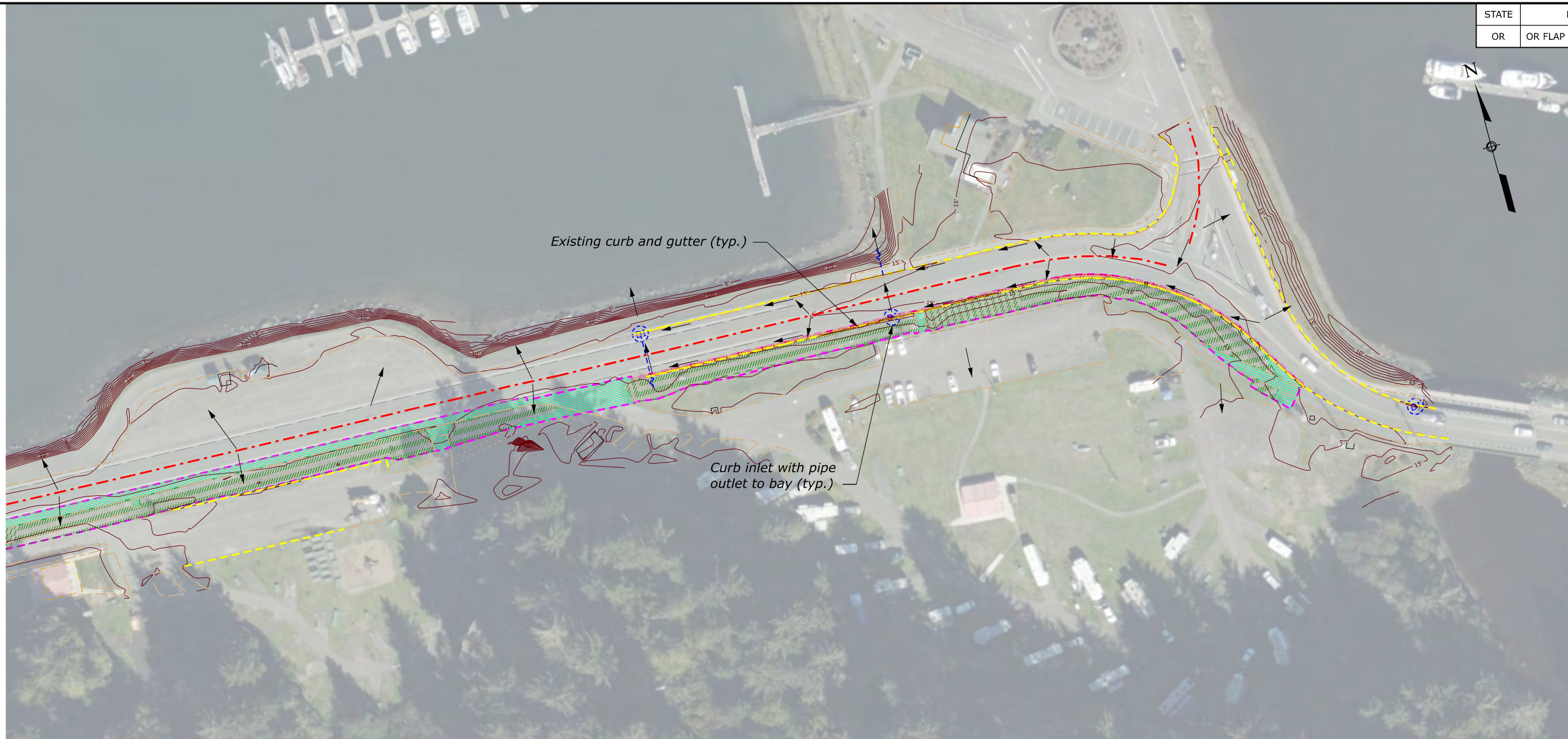
LEGEND

-  Existing Impervious - Treated Dispersed
Total Area = 3.97 ACRE
-  Existing Impervious - Untreated Direct
Total Area = 1.43 ACRE
-  Existing Landscape/Pervious
Total Area = 2.84 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

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**STORMWATER MANAGEMENT
EXHIBIT 4 - EXISTING
CONDITIONS**

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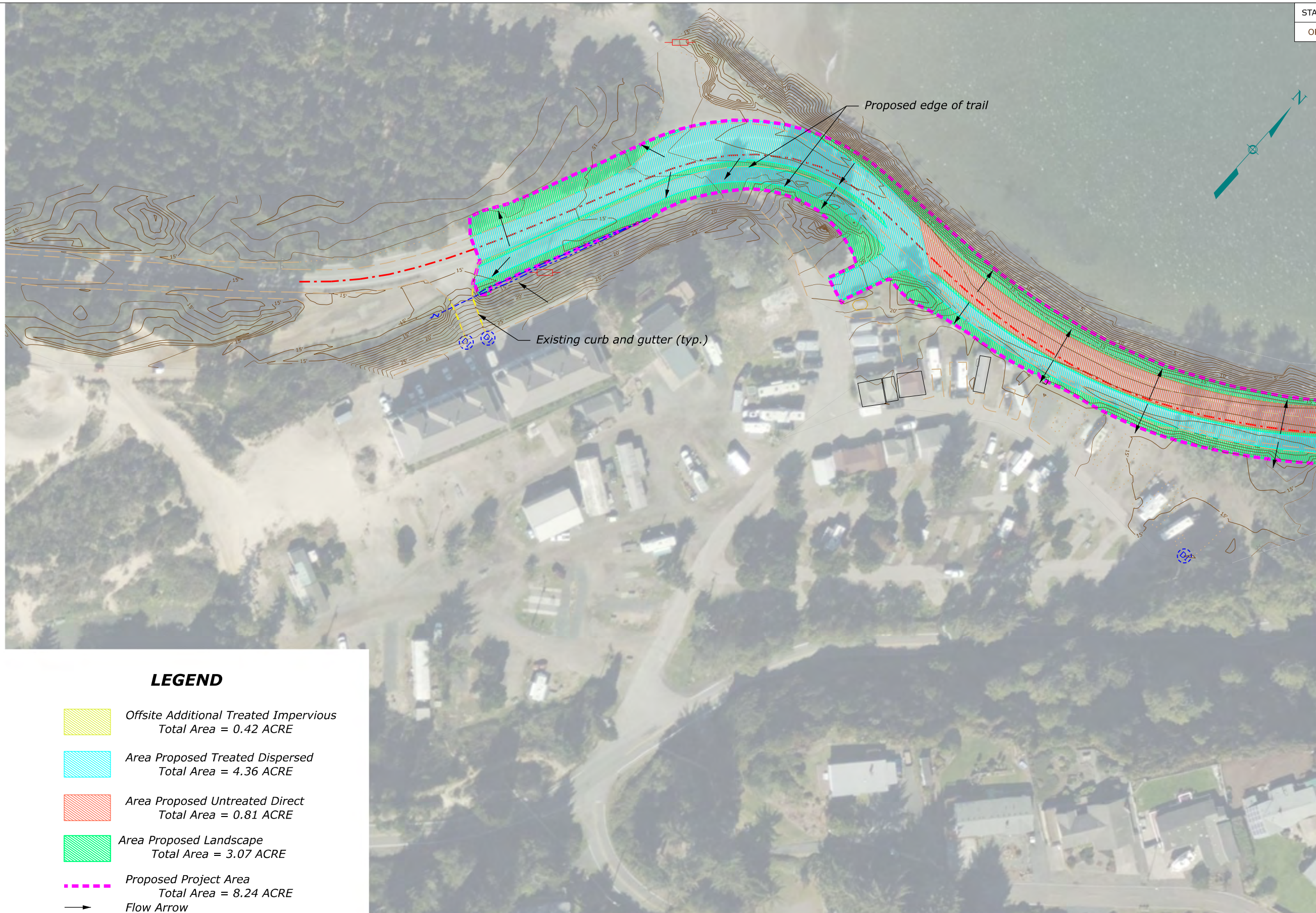


LEGEND







-  Existing Impervious - Treated Dispersed
Total Area = 3.97 ACRE
-  Existing Impervious - Untreated Direct
Total Area = 1.43 ACRE
-  Existing Landscape/Pervious
Total Area = 2.84 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

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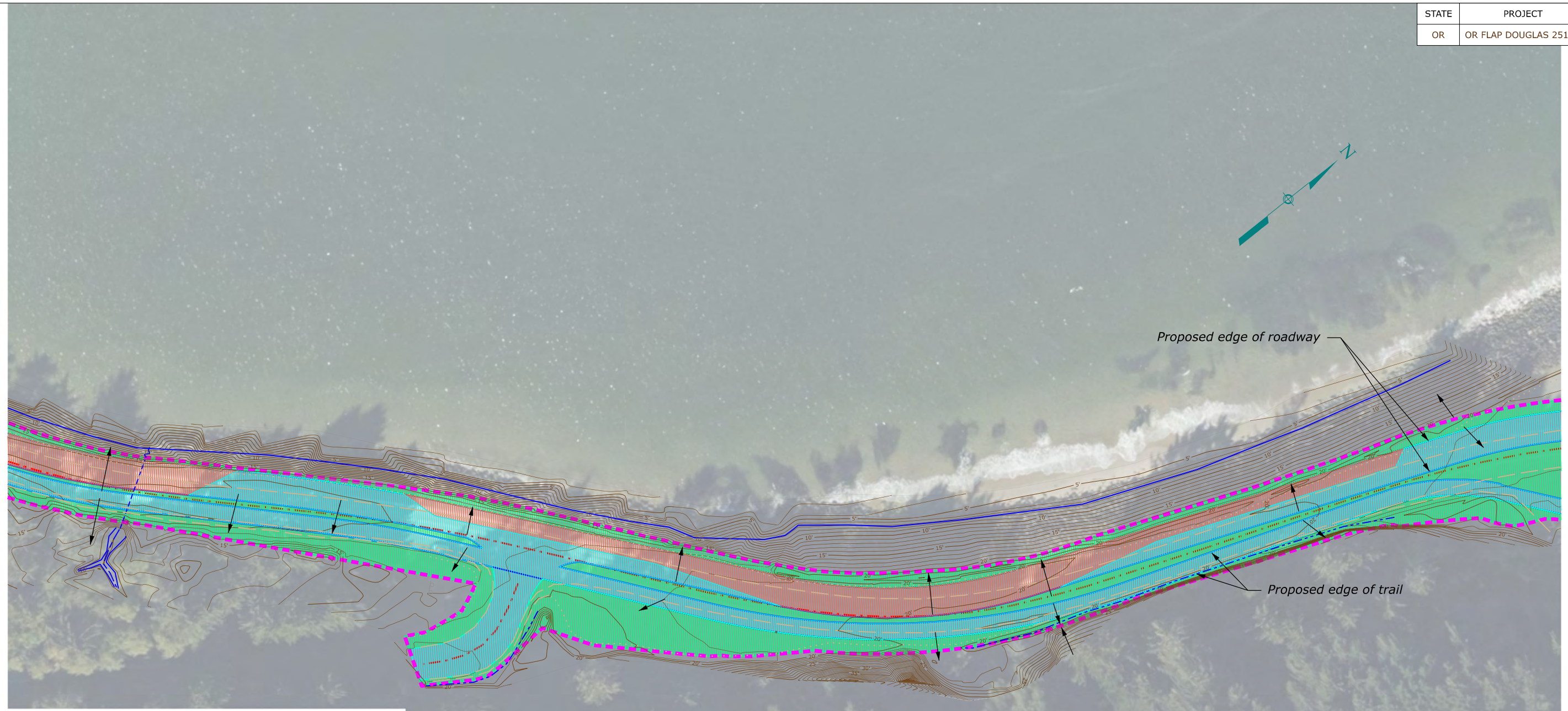
**STORMWATER MANAGEMENT
EXHIBIT 5 - EXISTING
CONDITIONS**









LEGEND

-  Offsite Additional Treated Impervious
Total Area = 0.42 ACRE
-  Area Proposed Treated Dispersed
Total Area = 4.36 ACRE
-  Area Proposed Untreated Direct
Total Area = 0.81 ACRE
-  Area Proposed Landscape
Total Area = 3.07 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

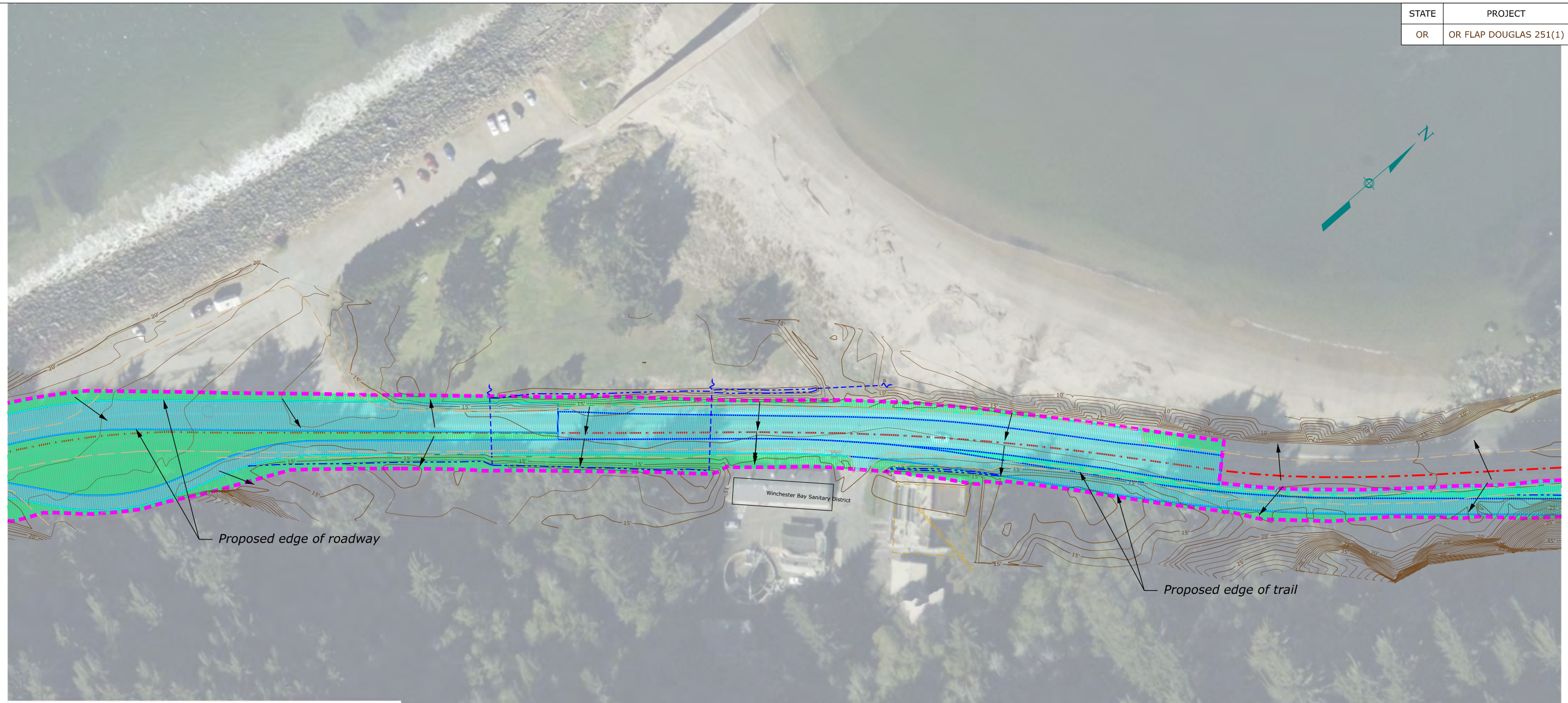
**STORMWATER MANAGEMENT
EXHIBIT 1 - PROPOSED
CONDITIONS**









LEGEND

-  Offsite Additional Treated Impervious
Total Area = 0.42 ACRE
-  Area Proposed Treated Dispersed
Total Area = 4.36 ACRE
-  Area Proposed Untreated Direct
Total Area = 0.81 ACRE
-  Area Proposed Landscape
Total Area = 3.07 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

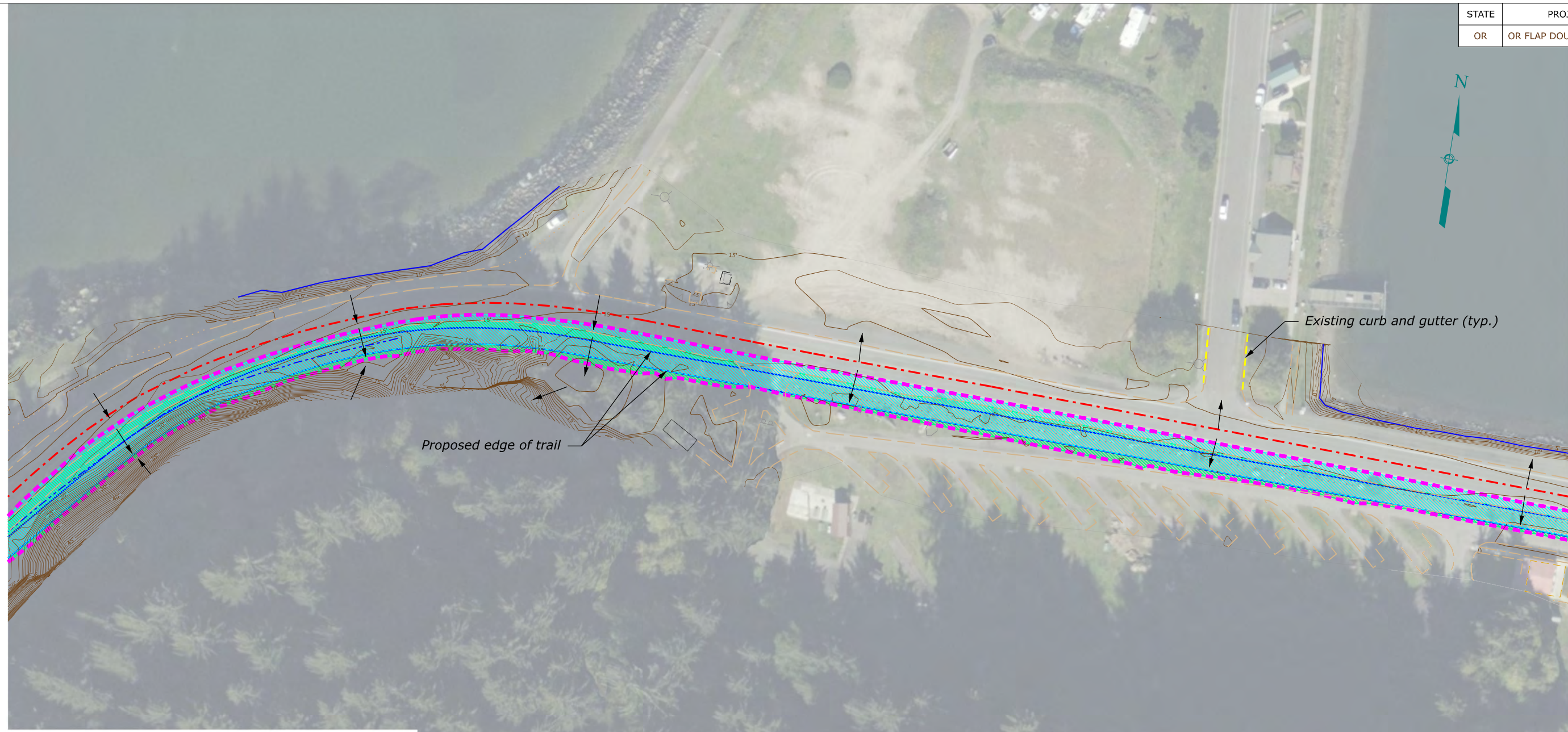
**STORMWATER MANAGEMENT
EXHIBIT 2 - PROPOSED
CONDITIONS**









LEGEND

-  Offsite Additional Treated Impervious
Total Area = 0.42 ACRE
-  Area Proposed Treated Dispersed
Total Area = 4.36 ACRE
-  Area Proposed Untreated Direct
Total Area = 0.81 ACRE
-  Area Proposed Landscape
Total Area = 3.07 ACRE
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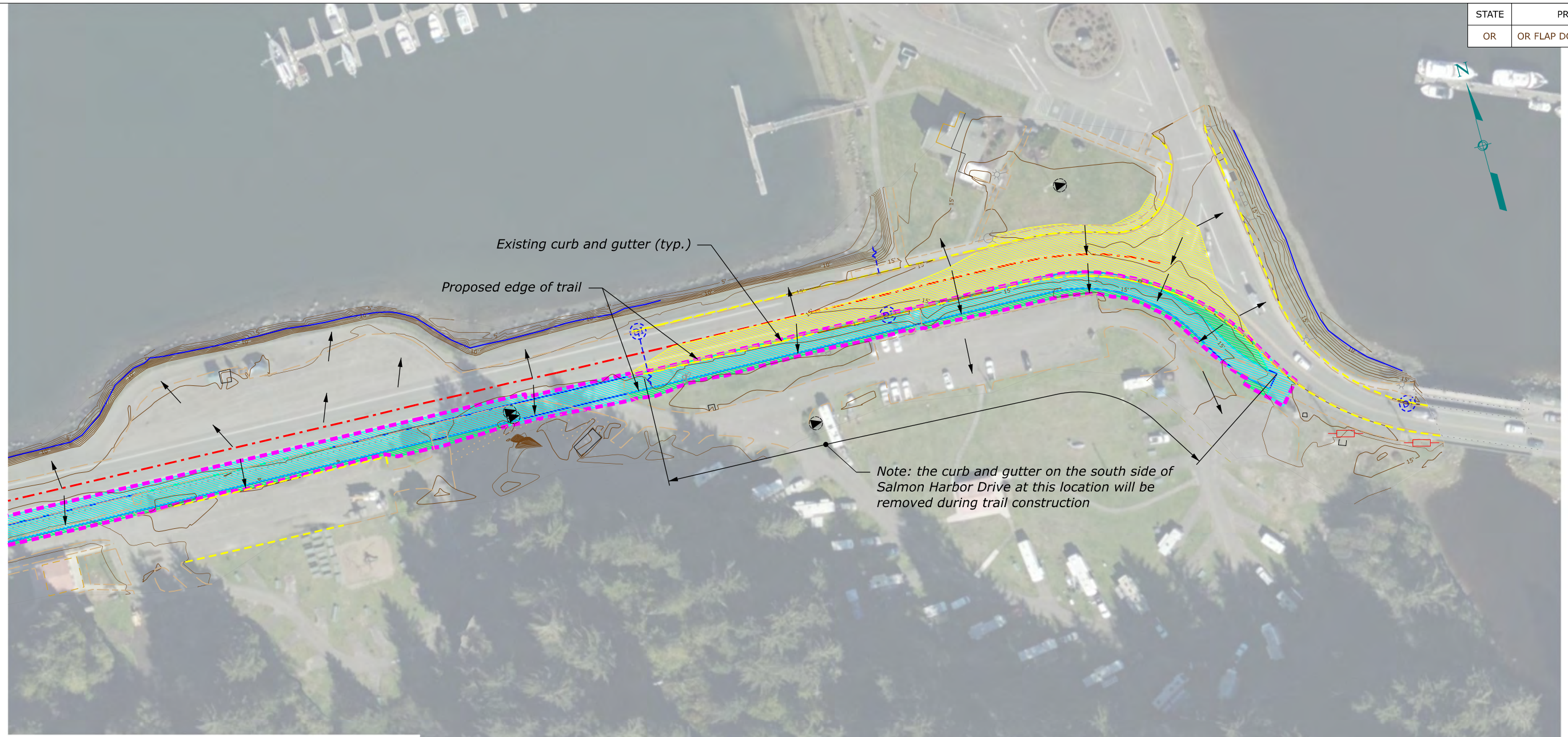
**STORMWATER MANAGEMENT
EXHIBIT 3 - PROPOSED
CONDITIONS**









LEGEND

-  Offsite Additional Treated Impervious
Total Area = 0.42 ACRE
-  Area Proposed Treated Dispersed
Total Area = 4.36 ACRE
-  Area Proposed Untreated Direct
Total Area = 0.81 ACRE
-  Area Proposed Landscape
Total Area = 3.07 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

**STORMWATER MANAGEMENT
EXHIBIT 4 - PROPOSED
CONDITIONS**



LEGEND

-  Offsite Additional Treated Impervious
Total Area = 0.42 ACRE
-  Area Proposed Treated Dispersed
Total Area = 4.36 ACRE
-  Area Proposed Untreated Direct
Total Area = 0.81 ACRE
-  Area Proposed Landscape
Total Area = 3.07 ACRE
-  Proposed Project Area
Total Area = 8.24 ACRE
-  Flow Arrow

**STORMWATER MANAGEMENT
EXHIBIT 5 - PROPOSED
CONDITIONS**

Appendix B - Photos



Sanitary pump station vaults and control panels (south side looking East)



Widened gravel shoulder used by OHV directly along rocky shoreline (looking East)



Widened gravel shoulder used by OHV directly along rocky shoreline (looking West)



Widened paved/gravel shoulder used by OHV southeast side of road (looking Northeast)



Wooded area south of roadway (looking south)



Rock armoring along bay shoreline



Unnamed stream southwest of Lighthouse Drive (looking Southeast)



Unnamed stream south of Lighthouse Drive - culvert outlet into bays rocky shore



Widened gravel shoulder used by OHV and gravel parking to the left (looking Southwest)



Widened gravel shoulder with rutting, ponding, and erosion (looking North)



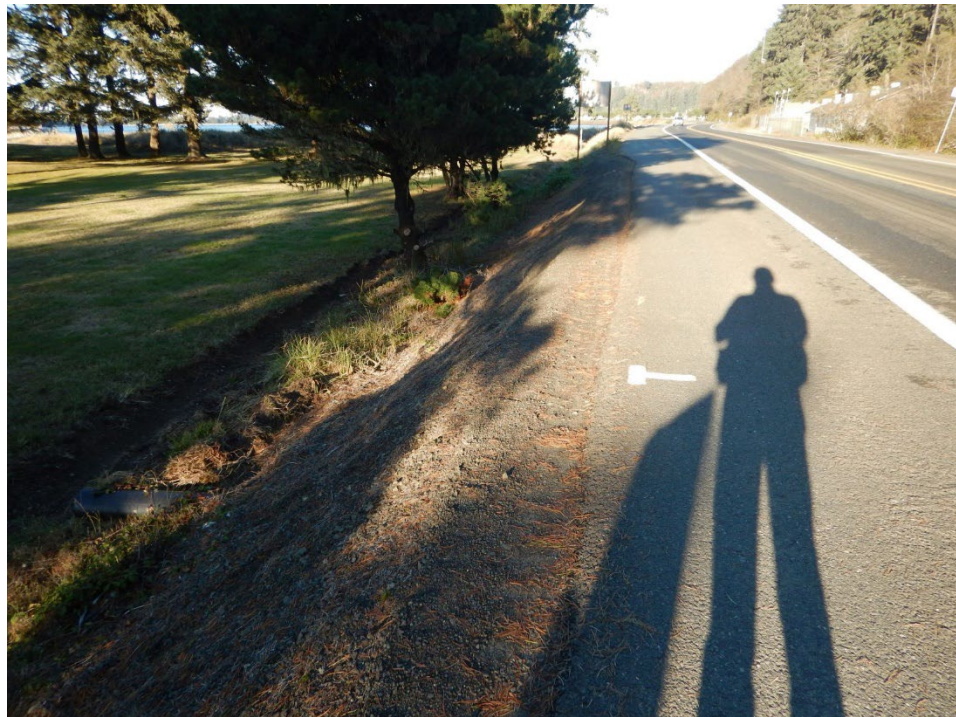
Widened gravel shoulder with rutting, ponding, and erosion (looking North)



Oak Rock County Park gravel entrance and parking



Widened paved/gravel shoulder and ditch adjacent to wooded hillside (looking Northeast)



Flat grassy swale area and culvert outlet at Oak Rock County Park (looking Northeast)



Sanitary wastewater treatment plant and maintenance facility (looking East)



Unnamed stream outlet pipe at Winchester Bay Sanitary District (looking Southeast)



Wooded hillslope and widened paved/gravel shoulder on south side (looking Northeast)



Landscaped area along south side of road (looking West)



Landscaped and wooded area with driveway south of road (looking South)



Landscaped and wooded area south of road (looking West)



Widened paved/gravel shoulder and landscaped area south of road (looking East)



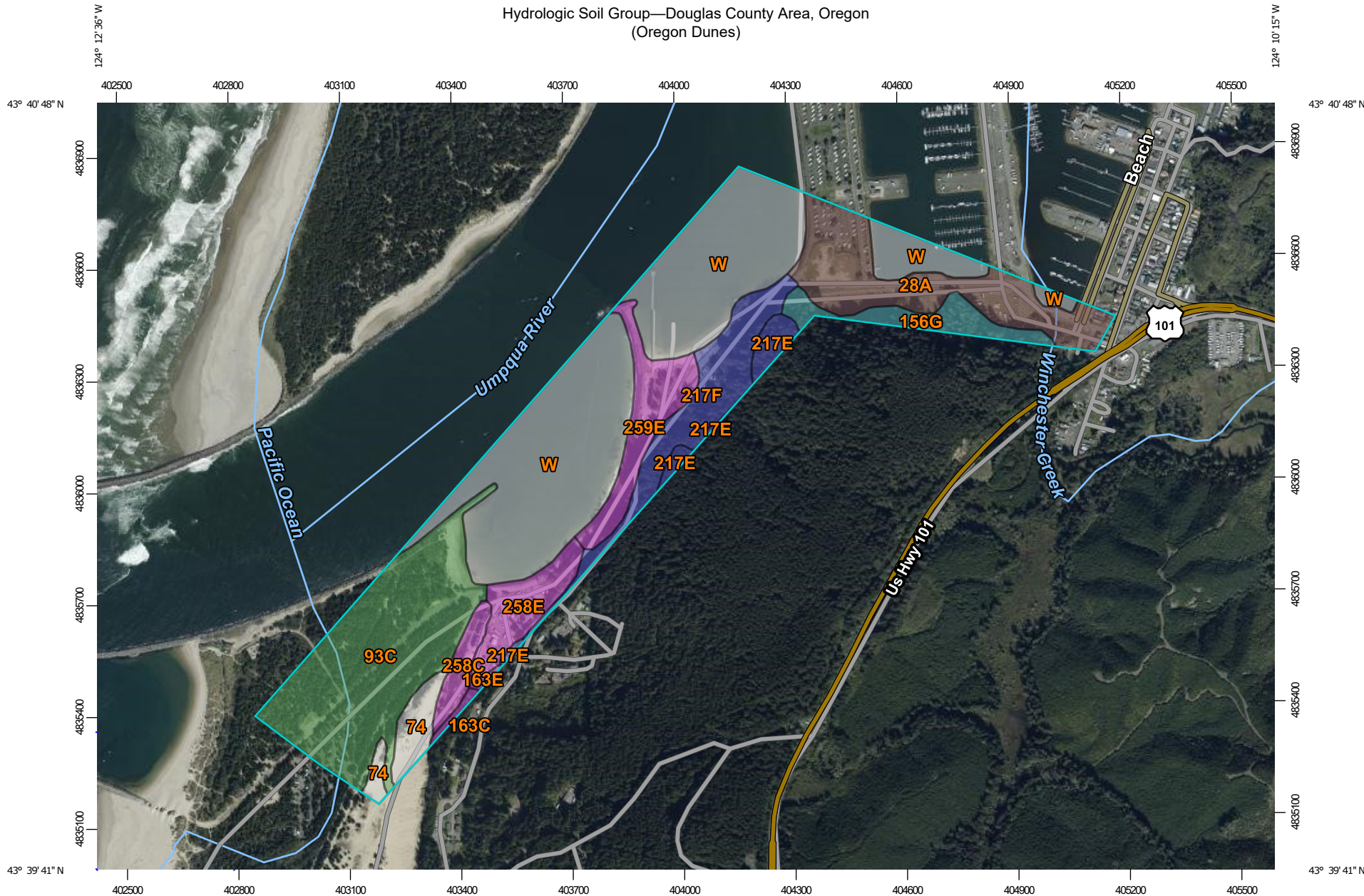
Curb & inlet storm system to be removed and landscape area south of road (looking West)



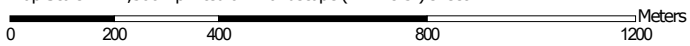
Curb & inlet storm system to be removed and landscape are south of road (looking East)

Appendix C – Soil and Rainfall Data

Hydrologic Soil Group—Douglas County Area, Oregon
(Oregon Dunes)



Map Scale: 1:14,500 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



Hydrologic Soil Group—Douglas County Area, Oregon
(Oregon Dunes)

MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Douglas County Area, Oregon
Survey Area Data: Version 21, Oct 27, 2021

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

Date(s) aerial images were photographed: Oct 5, 2019—Oct 10, 2019

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
28A	Bragton muck, 0 to 1 percent slopes	B/D	28.7	11.9%
74	Dune land		6.9	2.9%
93C	Heceta-Waldport complex, 0 to 12 percent slopes	A/D	50.8	21.1%
156G	Millicoma-Reedsport complex, 60 to 90 percent slopes	C	8.8	3.7%
163C	Netarts fine sand, 2 to 12 percent slopes	A	0.8	0.3%
163E	Netarts fine sand, 12 to 30 percent slopes	A	0.6	0.2%
217E	Salander silt loam, 12 to 30 percent slopes	B	4.4	1.8%
217F	Salander silt loam, 30 to 60 percent slopes	B	18.8	7.8%
258C	Waldport fine sand, 0 to 12 percent slopes	A	4.7	2.0%
258E	Waldport fine sand, 12 to 30 percent slopes	A	10.1	4.2%
259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	A	13.6	5.6%
W	Water		92.4	38.4%
Totals for Area of Interest			240.6	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (K_{sat}), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (<http://soils.usda.gov>)

Report—Physical Soil Properties

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties—Douglas County Area, Oregon														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
28A—Bragton muck, 0 to 1 percent slopes														
Bragton	0-25	-15-	-60-	10-25- 35	0.10-0.15 -0.20	4.00-9.00-14.00	0.30-0.35-0.40	—	50.0-70.0 -90.0			1	8	0
	25-38	-15-	-60-	10-25- 35	0.20-0.35 -0.50	4.00-9.00-14.00	0.20-0.25-0.30	—	20.0-35.0 -50.0					
	38-60	—	—	5-13- 20	0.80-1.00 -1.20	4.00-9.00-14.00	0.16-0.18-0.20	0.0- 1.5- 2.9	1.0- 5.5-10. 0					
74—Dune land														
Dune land	0-6	-99-	- 1-	0- 1- 1	—	42.00-91.74-14 1.14	0.04-0.05-0.05	0.0- 1.5- 2.9	0.0- 0.1- 0.1	.10	.10		1	250
	6-60	-99-	- 1-	0- 1- 1	—	42.00-91.74-14 1.14	0.03-0.04-0.05	0.0- 1.5- 2.9	—					

Physical Soil Properties—Douglas County Area, Oregon														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
93C—Heceta-Waldport complex, 0 to 12 percent slopes														
Heceta	0-2	-92-	- 1-	3- 7- 10	1.20-1.30 -1.40	42.00-91.74-14 1.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	1.0- 2.5- 4.0	.02	.02	5	1	250
	2-60	-90-	- 1-	3- 9- 15	1.30-1.45 -1.60	42.00-91.74-14 1.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	0.1- 0.6- 1.0	.02	.02			
Waldport	0-2	-96-	- 1-	1- 3- 5	1.40-1.50 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	1.0- 3.0- 5.0	.02	.02	5	1	250
	2-62	-96-	- 1-	1- 3- 5	1.40-1.50 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.02			
156G—Millicoma-Reedsport complex, 60 to 90 percent slopes														
Millicoma	0-1	-35-	-50-	0-15- 25	0.10-0.20 -0.30	42.00-373.00-7 05.00	0.30-0.45-0. 60	—	60.0-75.0 -95.0			3	6	48
	1-11	-43-	-40-	10-18- 25	1.10-1.15 -1.20	4.00-9.00-14.00	0.10-0.13-0. 15	0.0- 1.5- 2.9	8.0-11.5-1 5.0	.10	.20			
	11-31	-43-	-40-	10-18- 25	1.10-1.15 -1.20	14.11-28.23-42. 34	0.04-0.08-0. 12	0.0- 1.5- 2.9	1.0- 2.5- 4.0	.10	.32			
	31-40	—	—	—	—	—	—	—	—					
Reedsport	0-5	-43-	-40-	10-18- 25	0.70-0.85 -1.00	4.00-9.00-14.00	0.11-0.13-0. 15	0.0- 1.5- 2.9	5.0- 8.5-12. 0	.10	.24	3	6	48
	5-32	-37-	-36-	20-27- 35	1.00-1.15 -1.30	4.00-9.00-14.00	0.12-0.15-0. 17	0.0- 1.5- 2.9	2.0- 4.5- 7.0	.15	.24			
	32-42	—	—	—	—	—	—	—	—					

Physical Soil Properties--Douglas County Area, Oregon														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
163C—Netarts fine sand, 2 to 12 percent slopes														
Netarts	0-3	-35-	-50-	0-15- 25	0.10-0.20 -0.30	42.00-373.00-7 05.00	0.30-0.45-0. 60	—	60.0-75.0 -95.0			5	1	250
	3-8	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	42.00-91.74-14 1.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	4.0- 6.0- 8.0	.02	.02			
	8-24	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	14.11-28.23-42. 34	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.05	.05			
	24-63	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	42.00-91.74-14 1.14	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.02			
163E—Netarts fine sand, 12 to 30 percent slopes														
Netarts	0-3	-35-	-50-	0-15- 25	0.10-0.20 -0.30	42.00-373.00-7 05.00	0.30-0.45-0. 60	—	60.0-75.0 -95.0			5	1	250
	3-8	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	42.00-91.74-14 1.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	4.0- 6.0- 8.0	.02	.02			
	8-24	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	14.11-28.23-42. 34	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.05	.05			
	24-63	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	42.00-91.74-14 1.14	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.02			

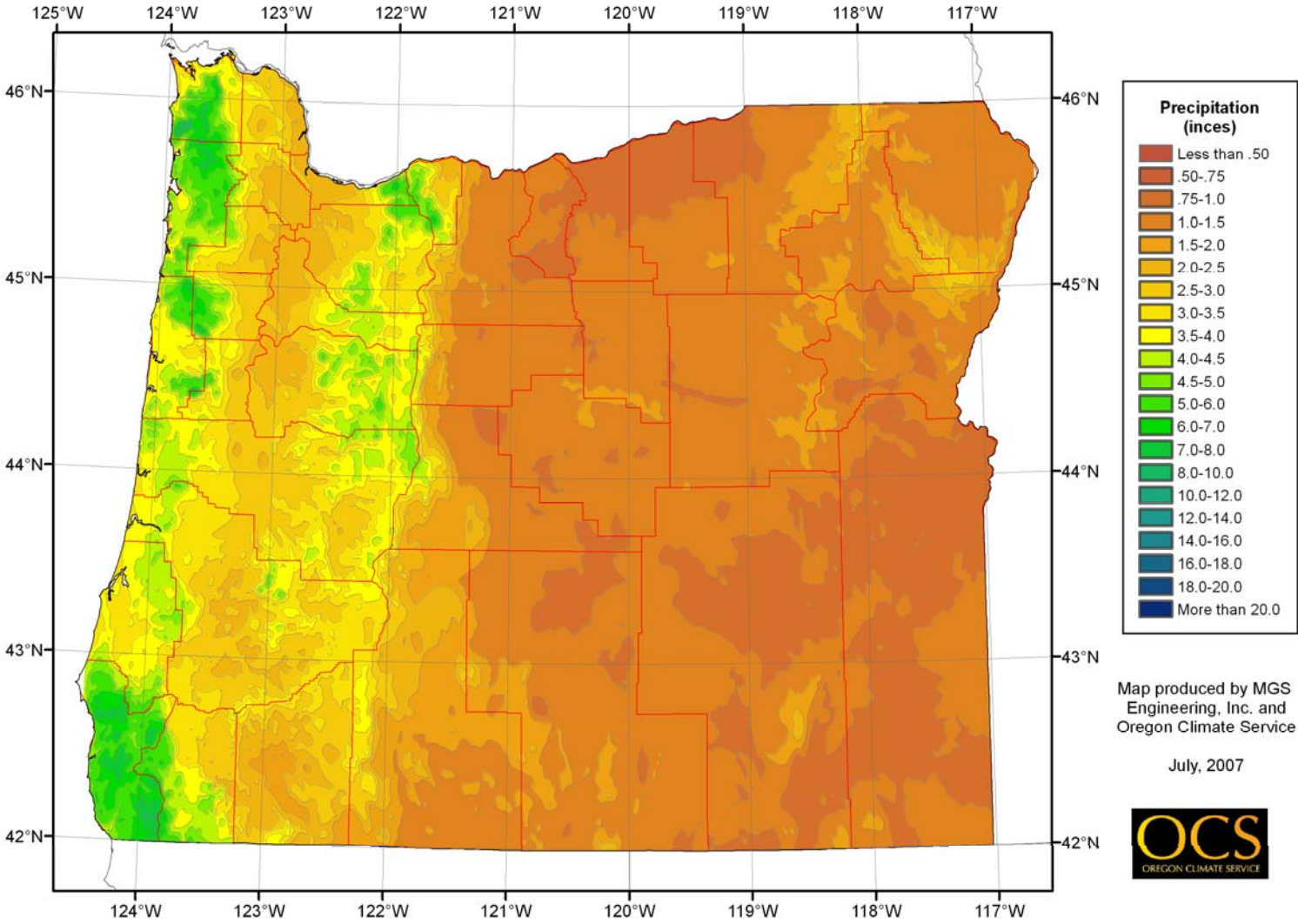
Physical Soil Properties--Douglas County Area, Oregon														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
217E— Salander silt loam, 12 to 30 percent slopes														
Salander	0-3	-35-	-50-	0-15- 25	0.10-0.20 -0.30	42.00-373.00-7 05.00	0.30-0.45-0. 60	—	60.0-75.0 -95.0			5	5	56
	3-20	-14-	-73-	10-13- 15	0.55-0.60 -0.65	4.00-9.00-14.00	0.35-0.40-0. 45	0.0- 1.5- 2.9	10.0-12.5 -15.0	.37	.37			
	20-64	- 9-	-67-	18-24- 30	0.65-0.85 -1.05	4.00-9.00-14.00	0.30-0.35-0. 40	0.0- 1.5- 2.9	2.0- 5.0- 8.0	.37	.37			
217F— Salander silt loam, 30 to 60 percent slopes														
Salander	0-3	-35-	-50-	0-15- 25	0.10-0.20 -0.30	42.00-373.00-7 05.00	0.30-0.45-0. 60	—	60.0-75.0 -95.0			5	5	56
	3-20	-14-	-73-	10-13- 15	0.55-0.60 -0.65	4.00-9.00-14.00	0.35-0.40-0. 45	0.0- 1.5- 2.9	10.0-12.5 -15.0	.37	.37			
	20-64	- 9-	-67-	18-24- 30	0.65-0.85 -1.05	4.00-9.00-14.00	0.30-0.35-0. 40	0.0- 1.5- 2.9	2.0- 5.0- 8.0	.37	.37			
258C— Waldport fine sand, 0 to 12 percent slopes														
Waldport	0-3	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	3.0- 5.5- 8.0	.02	.02	5	1	250
	3-62	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.02			

Physical Soil Properties--Douglas County Area, Oregon														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
258E— Waldport fine sand, 12 to 30 percent slopes														
Waldport	0-3	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	3.0- 5.5- 8.0	.02	.02	5	1	250
	3-62	-96-	- 1-	1- 3- 5	1.30-1.45 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.02			
259E— Waldport fine sand, thin surface, 0 to 30 percent slopes														
Waldport, thin surface	0-2	-96-	- 1-	1- 3- 5	1.40-1.50 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	1.0- 3.0- 5.0	.02	.02	5	1	250
	2-63	-96-	- 1-	1- 3- 5	1.40-1.50 -1.60	141.00-141.14- 141.14	0.05-0.06-0. 07	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.02			
W—Water														
Water	—	—	—	—	—	—	—	—	—					

Data Source Information

Soil Survey Area: Douglas County Area, Oregon
 Survey Area Data: Version 21, Oct 27, 2021

24-hour 2-year Precipitation, Oregon



Attachment D: Wetland Functional Assessment Memo



DAVID EVANS
AND ASSOCIATES INC.

MEMORANDUM

DATE: June 21, 2023

TO: Jennifer Corwin
Western Federal Lands Highway Division, Federal Highway Administration
610 East 5th Street
Vancouver, WA 98661

FROM: Ethan Rosenthal, David Evans and Associates, Inc. (DEA)

SUBJECT: Wetland Functional Assessment

PROJECT: OR DOUGLAS 251(1) Oregon Dunes National Recreation Area - Umpqua Dunes Access Improvements

CC:

David Evans and Associates, Inc. (DEA) completed a wetland functional assessment for the Oregon Dunes National Recreation Area: Umpqua Dunes Access Improvements project in Winchester Bay, Oregon. Wetlands with proposed permanent impacts were assessed. These included Wetlands 9, 10, and 13, which were documented in the project wetland delineation report (DEA 2022), which received concurrence from the Oregon Department of State Lands (DSL) on April 11, 2023 (DSL WD#2022-0537).

METHODS

Oregon Administrative Rule (OAR) 141-085-0685(4) notes that for non-tidal wetlands with 0.2 acres or less of permanent impacts, best professional judgment (BPJ) is an acceptable method for assessing wetland functions. For the proposed project, individual wetland impacts are all less than 0.2 acres and all permanent impacts combined will be less than 0.2 acres. Therefore, the best professional judgement method was used for project wetlands. The OAR further notes that when using BPJ assessed functions should match the group-level functions outlined in the Oregon Rapid Wetland Assessment Protocol (ORWAP)(Adamus and Verble 2020) and that a rating of low, moderate, or higher shall be provided along with a written rationale. **Table 1** lists the group functions and associated more detailed specific functions and values outlined by ORWAP.

Table 1: Group Functions and Associated Specific Functions and Values

GROUP FUNCTION	SPECIFIC FUNCTIONS AND VALUES
Hydrologic Function	Water Storage and Delay
Water Quality	Sediment Retention and Stabilization Phosphorous Retention Nitrate Removal and Retention
Fish Habitat	Anadromous Fish Habitat Resident Fish Habitat
Aquatic Habitat	Amphibian and Reptile Habitat Waterbird Nesting Habitat



DATE: June 21, 2023

FROM: Ethan Rosenthal, David Evans and Associates, Inc. (DEA)

TO: Jennifer Corwin

SUBJECT: Wetland Functional Assessment

	Waterbird Feeding Habitat
Ecosystem Support	Aquatic Invertebrate Habitat Songbird, Raptor, and Mammal Habitat Water Cooling Native Plant Diversity Pollinator Habitat Organic Nutrient Export

ASSESSMENT FINDINGS

Wetland 9

Wetland 9 is a very narrow (typically 1 to 2 feet wide) linear palustrine emergent (PEM) wetland at the base of steep slopes that is impounded by the roadway and infiltrates under the roadway. Dominant vegetation consists of slough sedge (*Carex obnupta*) and common velvet grass (*Holcus lanatus*). A thin sheen of surface water is present during the wet season but dries up by summertime. Functional assessment results are provided in **Table 2**.

Table 2: Wetland 9 Functional Assessment Results

FUNCTION	RATING	RATIONALE
Hydrologic function	None	Wetland does not have the capacity to store water to prevent downstream flooding. Furthermore, the Umpqua River estuary is just to the other side of the roadway and therefore there would be negligible value in the storage if it could occur (i.e., the downstream flood potential is a function of ocean conditions, with the subject wetland having no influence).
Water Quality Support	Low	The wetland may provide some filtration and treatment of stormwater from the adjacent roadway. However, due to sandy soils residence time is likely low and the opportunity for runoff interaction with the wetland likely brief.
Fish Habitat	None	Wetland does not contain surface water other than a thin sheen and it has no direct connection to a fish bearing stream.
Aquatic Habitat	Low	Surface water presence is negligible. Wetland likely accumulates sediment running off the roadway, which would adversely affect aquatic organisms. Habitat structure is negligible.
Ecosystem Support	Low	Wetland generally lacks surface water, has low plant diversity, is adversely affected by road runoff, and habitat structure is negligible.



DATE: June 21, 2023

FROM: Ethan Rosenthal, David Evans and Associates, Inc. (DEA)

TO: Jennifer Corwin

SUBJECT: Wetland Functional Assessment

Wetland 10

Wetland 10 is a palustrine forested wetland (PFO) with a border of palustrine scrub shrub (PSS) adjacent to Salmon Harbor Drive. Dominant vegetation consists of red alder, Sitka spruce (*Picea sitchensis*), Hooker's willow (*Salix hookeriana*) and slough sedge, with slough sedge predominant along the roadside edge within maintained right of way. It is a slope wetland, fed by groundwater from the surrounding hillside, with hydrology partially impounded by the roadway. Surface water of a few inches may occur in deeper portions of the wetland during the winter wet season but is likely negligible along the edge within the right of way. A culvert in the central portion of the wetland drains under the road to a roadside ditch. The ditch drains to the adjacent bay. Functional assessment results are provided in **Table 3** and are focused on the portion of the wetland in the road right of way where impacts are proposed.

Table 3: Wetland 10 Functional Assessment Results

FUNCTION	RATING	RATIONALE
Hydrologic function	Low	Wetland is a slope wetland with limited capacity for water storage, particularly within the right of way. Further from the right of way is slightly deeper and some storage may be provided. However, the Umpqua River estuary is just to the other side of the roadway and therefore the value of this storage is negligible.
Water Quality Support	Moderate	The wetland may provide some filtration and treatment of stormwater from the adjacent roadway.
Fish Habitat	None	Wetland does not provide fish habitat. Surface water is limited and there is no direct surface connection to fish bearing waters. Fish can not access the wetland from the Ocean via the drainage ditch.
Aquatic Habitat	Low	Surface water presence is negligible along the right of way but may be present in some localized depressions further from the roadway and could support amphibian life stages. Road maintenance activities along the right of way diminishes habitat quality within the right of way portion of the wetland.
Ecosystem Support	Low to moderate	Function is degraded due to roadway maintenance in the right of way portion of the wetland. Beyond the right of way, the wetland supports a native plant community of common coastal wetland species, which would support songbirds, mammals, invertebrates, mammals, and pollinator species.



DATE: June 21, 2023

FROM: Ethan Rosenthal, David Evans and Associates, Inc. (DEA)

TO: Jennifer Corwin

SUBJECT: Wetland Functional Assessment

Wetland 13

Wetland 13 is a PFO wetland adjacent to Salmon Harbor Drive. Dominant vegetation consists of red alder, salmonberry (*Rubus spectabilis*), and slough sedge. Slough sedge is dominant within the maintained right of way. It is a slope wetland, fed by groundwater from the surrounding hillside with no obvious outlet. Surface water is believed to be negligible and present only for short duration as a thin surface layer if at all. Functional assessment results are provided in **Table 4** and are focused on the portion of the wetland in the road right of way where impacts are proposed.

Table 4: Wetland 13 Functional Assessment Results

FUNCTION	RATING	RATIONALE
Hydrologic function	low	Wetland has minimal capacity to store water to prevent downstream flooding. Furthermore, the Umpqua River estuary is just to the other side of the roadway and therefore there would be limited value in the storage if it could occur.
Water Quality Support	low	The wetland may provide some filtration and treatment of stormwater from the adjacent roadway. However, due to sandy soils residence time is likely low and the opportunity for runoff interaction with the wetland likely brief.
Fish Habitat	none	Wetland does not contain surface water other than a thin sheen and it has no direct connection to a fish bearing stream.
Aquatic Habitat	low	Surface water presence is negligible. Wetland likely accumulates sediment running off the roadway, which would adversely affect aquatic organisms. Habitat structure is negligible in the right of way where impacts will occur.
Ecosystem Support	Low to moderate	Function is degraded due to roadway maintenance in the right of way portion of the wetland. Beyond the right of way, the wetland supports a native plant community of common coastal wetland species, which would support songbirds, mammals, invertebrates, mammals, and pollinator species.

REFERENCES

Adamus, P., K. Verble. 2020. Manual for the Oregon Rapid Wetland Assessment Protocol (ORWAP, revised): Version 3.2. Oregon Department of State Lands, Salem, OR.

David Evans and Associates, Inc. (DEA). 2022. OR Douglas 251(1), Oregon Dunes National Recreation Area Umpqua Dunes Access Improvements, Wetland Delineation Report. Prepared for Federal Highways Administration, Western Federal Lands Highway Division. September 2022.

**Attachment E: Wetland Delineation-(Corps and DEQ submittal)
Report and DSL concurrence letter**



Oregon

Tina Kotek, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregon.gov/dsl

April 11, 2023

Federal Highway Administration-WFLHD
Scott Smithline
610 East 5th Street
Vancouver, WA 98661

State Land Board

Tina Kotek
Governor

Re: **WD # 2022-0537 Approved**
Wetland Delineation Report for Oregon Dunes National Recreation Area,
Umpqua Dunes Access Improvements
Douglas County; T22S R12W S7; R13W S12 and S13;
Multiple Tax Maps and Tax Lots (See Attached Table) and
Salmon Harbor Drive ROW (Portions of All)

Shemia Fagan
Secretary of State

Tobias Read
State Treasurer

Dear Scott Smithline:

The Department of State Lands has reviewed the wetland delineation report prepared by David Evans and Associates, Inc. for the site referenced above. Please note that the study area includes only portions of the tax lots described in the attached table (see the attached maps). Based upon the information presented in the report and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in revised Figure 6, sheets 1-5, 5A, 6, 6A, and 7-8 of the report. Please replace all copies of the preliminary wetland maps with these final Department-approved maps.

Within the study area, 14 wetlands (Wetland W1 through W13; Wetland Ditch D1, totaling approximately 1.22 acres), 2 waterways (Stream 1 and Stream 2), and an undetermined area of estuarine habitat within the Umpqua River Estuary (Stream 3) were identified. All are subject to the permit requirements of the state Removal-Fill Law. Normally, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL cannot be determined). However, the Umpqua River Estuary is designated essential salmonid habitat; therefore, fill or removal of any amount of material below the Highest Measured Tide (HMT) elevation may require a state permit. The elevation of HMT along the Umpqua River estuary in Winchester Bay is 10.0 feet above MLLW (10.19 feet above NAVD88).

This concurrence is for purposes of the state Removal-Fill Law only. We recommend that you attach a copy of this concurrence letter to any subsequent state permit application to speed application review. Federal, other state agencies or local permit requirements may apply as well. The U.S. Army Corps of Engineers will determine jurisdiction under the Clean Water Act, which may require submittal of a complete Wetland Delineation Report.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. If you have any questions, please contact the Jurisdiction Coordinator for Douglas County, Lynne McAllister, at (503) 986-5300.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Ryan", written in a cursive style.

Peter Ryan, SPWS
Aquatic Resource Specialist

Enclosures

ec: Phil Rickus, David Evans and Associates, Inc.
Ethan Rosenthal, David Evans and Associates, Inc.
Douglas County Planning Department
Darla White, Corps of Engineers
Lauren Stebbins, PWS, DSL
Oregon Coastal Management Program

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

A complete report and signed report cover form, along with [applicable review fee](#), are required before a report review timeline can be initiated by the Department of State Lands. All applicants will receive an emailed confirmation that includes the report's unique file number and other information.

Ways to submit report:

- ❖ **Under 50MB** - A single unlocked PDF can be emailed to: wetland.delineation@dsl.oregon.gov.
- ❖ **50MB or larger** - A single unlocked PDF can be uploaded to [DSL's Box.com](#) website. After upload notify DSL by email at: wetland.delineation@dsl.oregon.gov.
- ❖ **OR** a hard copy of the unbound report and signed cover form can be mailed to: Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.

Ways to pay review fee:

- ❖ By credit card on [DSL's epayment portal](#) after receiving the unique file number from DSL's emailed confirmation.
- ❖ By check payable to the Oregon Department of State Lands attached to the unbound mailed hardcopy **OR** attached to the complete signed cover form if report submitted electronically.

Contact and Authorization Information	
<input checked="" type="checkbox"/> Applicant <input type="checkbox"/> Owner Name, Firm and Address: Scott Smithline, Environmental Manager FHWA-WFLHD 610 East 5th Street Vancouver, WA 98661	Business phone # (360) 619-7785 Mobile phone # (optional) E-mail: scott.smithline@dot.gov
<input checked="" type="checkbox"/> Authorized Legal Agent, Name and Address (if different): Jennifer Corwin, Environmental Protection Specialist FHWA-WFLHD 610 East 5th Street Vancouver, WA 98661	Business phone # (360) 619-7623 Mobile phone # (optional) E-mail: jennifer.corwin@dot.gov
I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.	
Typed/Printed Name: <u>Scott S. Smithline</u> Signature: <u>SCOTT RUSSELL SMITHLINE</u> <small>Digitally signed by SCOTT RUSSELL SMITHLINE Date: 2022.08.31 13:59:16 -07'00'</small> Date: <u>08/31/2022</u> Special instructions regarding site access: _____	
Project and Site Information	
Project Name: Oregon Dunes National Recreation Area Umpqua Dunes Access Improvements	Latitude: 43.670254 Longitude: -124.193169 decimal degree - centroid of site or start & end points of linear project
Proposed Use: The project will improve a 1.8-mile Off-Highway Vehicle access route to the Oregon Dunes National Recreation Area (ODNRA) near Winchester Bay in Douglas County, OR.	Tax Map # See attached spreadsheet Tax Lot(s) Tax Map # Tax Lot(s)
Project Street Address (or other descriptive location): From north to south: MP 0.14 - 1.44 on Salmon Harbor Drive, ending at the ODNRA via the 0.5-mile OHV sand access route.	Township See sp Range Section QQ Use separate sheet for additional tax and location information
City: Winchester Bay County: Douglas	Waterway: River Mile:
Wetland Delineation Information	
Wetland Consultant Name, Firm and Address: Ethan Rosenthal, Ecologist David Evans and Associates, Inc. 2100 S River Pkwy, Suite 100 Portland, OR 97201	Phone # (503) 499-0572 Mobile phone # (if applicable) E-mail: ejro@deainc.com
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.	
Consultant Signature: <u>Ethan Rosenthal</u> <small>Digitally signed by Ethan Rosenthal DN: E=E.Rosenthal@deainc.com, O=David Evans and Associates, Inc., CN=Ethan Rosenthal Date: 2022.02.14 09:20:17-0800'</small> Date: <u>02/14/2023</u>	
Primary Contact for report review and site access is <input type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent	
Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Study Area size: 21.1092 acres Total Wetland Acreage: 1.2202	
Check Applicable Boxes Below	
<input type="checkbox"/> R-F permit application submitted <input type="checkbox"/> Mitigation bank site <input type="checkbox"/> EFSC/ODOE Proj. Mgr: _____ <input type="checkbox"/> Wetland restoration/enhancement project (not mitigation) <input type="checkbox"/> Previous delineation/application on parcel If known, previous DSL # _____	<input checked="" type="checkbox"/> Fee payment submitted \$ <u>500</u> <input type="checkbox"/> Resubmittal of rejected report (\$100) <input type="checkbox"/> Request for Reissuance. See eligibility criteria. (no fee) DSL # _____ Expiration date _____ <input type="checkbox"/> LWI shows wetlands or waters on parcel Wetland ID code _____
For Office Use Only	
DSL Reviewer: _____ Fee Paid Date: ____ / ____ / ____ DSL WD # _____ Date Delineation Received: ____ / ____ / ____ DSL App.# _____	

TAXID	Owner	Address	City State Zip
221313BA01700	Roberts, Stephanie & Myrmo, George & Dubois, Randy M Etal	P.O. Box 3215	Eugene,OR 97403
221313BA01900	Douglas County	1036 SE Douglas Ave	Roseburg,OR 97470
22131200300	Douglas County	1036 SE Douglas Ave	Roseburg,OR 97470
22131200202	Douglas County	1036 SE Douglas Ave	Roseburg,OR 97470
221207C00100	Douglas County	1036 SE Douglas Ave	Roseburg,OR 97470
221313BA01600	Douglas County	1036 SE Douglas Ave	Roseburg,OR 97470
22131300301	Douglas County	1036 SE Douglas Ave	Roseburg,OR 97470
221207B00100	Douglas County	1036 SE Douglas Ave	Roseburg,OR 97470
22131200200	State of Oregon Department of State Lands Asset Management Section	775 Summer St NE Suite 100	Salem,OR 97301-1279

Township	Range	Section	QQ
22S	12W	7	NESW, NWSW
22S	13W	12	NESE, NWSE, SWSE, SESW
22S	13W	13	NWNW, NENW, SWNW, NWSE

Table 1: Wetlands, OR Dunes National Recreation Area-Umpqua Dunes Access Project

ID ¹	Figure 6 Sheet #(s)	Latitude	Longitude	Size in Study Area ²	Cowardin Class ³	HGM Class ⁴	Sample Plots	Photo Points	Preliminary Jurisdiction Estimation/ Additional Information for Jurisdictional Determination
D1	5	43.673142	-124.190931	0.0050	PEM	Slope	D1-P1	12	Average 2' wide wetland ditch that occasionally receives water from Wetland 10 via a culvert underneath Salmon Harbor Drive but no signs of flow and appears to infiltrate prior to reaching the Bay. Lies in mapped NHD path and appears to be in historic wetland area prior to road construction and therefore likely jurisdictional to DSL and USACE. It is 255' long within the study area and drains north outside of the study area to Halfmoon Bay and the Umpqua River. Boundary was based soils and hydrology corresponding with a slight change in topography.
W1	1	43.660698	-124.203199	0.5303	PFO	DEP	W1-P1, P3	1	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W2	1	43.660499	-124.202435	0.0033	PFO	DEP	W2-P1	n/a	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W3	1	43.661312	-124.203171	0.0695	PFO	DEP	W3-P1	2	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W4	1	43.661718	-124.202904	0.0529	PSS	DEP	W4-P1	n/a	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W5	1	43.661865	-124.202808	0.0957	PFO	DEP	W5-P1	3	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W6	1	43.66242	-124.20249	0.0131	PFO	DEP	W6-P1	n/a	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W7	2	43.666049	-124.199788	0.0540	PFO	DEP	W7-P1	5	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydrophytic vegetation, hydric soils, and wetland hydrology with a corresponding rise in topography. Jurisdictional to both DSL and USACE.
W8	4	43.670487	-124.192825	0.0284	PFO	Slope	W8-P1	9	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and infiltrates through sandy soils. It appears to be impounded by Salmon Harbor Drive. The boundary was based on topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
W9	5	43.671336	-124.19243	0.0071	PFO	Slope	W9-P1	10	Linear wetland at the base of steep slopes that is impounded by the roadway and infiltrates. Fed by groundwater from steep slopes above. The boundary was based on topography, and absence of wetland soils and hydrology. It is jurisdictional to DSL and presumed non-jurisdictional to USACE because it is isolated.
W10	5	43.672864	-124.191053	0.2210	PFO	Slope	W10-P1	11	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and appears to be partially impounded by Salmon Harbor Drive. A culvert in the central portion of the wetland drains underneath Salmon Harbor Drive to Ditch 1 and ultimately Halfmoon Bay and the Umpqua River. The boundary was based on a topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
W11	6	43.673285	-124.190244	0.0060	PEM	Riverine	W11-P1	n/a	Fringe wetland along Stream 2. Stream 2 is in a narrow ditched channel within the study area; Wetland 11 is located in a 1' wide band on both sides of Stream 2 which provides the consistent high water table for wetland conditions. The boundary was based on topography, soils, and hydrology, which were no longer present above the wetland fringe. Hydrology is received from and discharges to Stream 1. It is jurisdictional to DSL and USACE.
W12	6	43.67401	-124.189651	0.0243	PFO	Slope	W12-P1	14	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and appears to be impounded by Salmon Harbor Drive with no obvious outlet. The boundary was based on a topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
W13	6	43.67448	-124.1891	0.1097	PFO	Slope	W13-P1	15	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and appears to be impounded by Salmon Harbor Drive with no obvious outlet. The boundary was based on a topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
Total				1.2203					

1- W = Wetland - and ID#
 2- Size in study area is given in acres
 3- Cowardin Class: PEM = palustrine emergent, PSS = palustrine scrub-shrub, PFO = palustrine forested
 4- HGM Class: DEP = depressional

Table 2: Waters, OR Dunes National Recreation Area-Umpqua Dunes Access Project

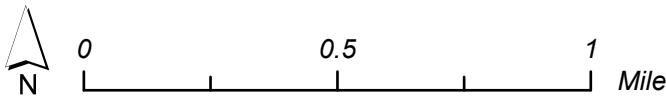
Name/ ID	Figure 6 Sheet #s)	Latitude	Longitude	Cowardin Class	ESH (Yes/No)	OHW Width (feet)	Photo Points	Preliminary Jurisdiction Estimation/ Additional Information for Jurisdictional Determination
Stream 1	4	43.668757	-124.194989	Riverine, upper perennial, SB4	N	5	7	Perennial stream with only 18 linear feet within the study area before it enters a culvert to drain underneath Salmon Harbor Drive and then into Halfmoon Bay / the Umpqua River. This culvert presents a fish barrier for fish migration upstream into S1 from Halfmoon Bay. Within the study area S1 is confined to the channel by steep slopes associated with roadway fill. Outside of the study area S1 has a gently-sloped and shallow stream channel that is connected to a complex of riparian wetlands. The majority of the riparian area both within and outside the study area is dominated by native forested and shrub vegetation, with some weedy encroachment from the neighboring campground (e.g., English ivy, yellow-flag iris, Himalayan blackberry). OHWM is 4.5ft based on a the absence of perennial vegetation, sediment sorting, and scour. Streambed material is a mix of silt and large gravel to small cobble. On the NWI is mapped as riverine/perennial, originating approximately 0.6 mile upstream of the study area at Lake Marie and crossing Salmon Harbor Drive apx. 650' southwest of actual location. Jurisdictional to both DSL and USACE.
Stream 2	5, 6	43.673285	-124.190244	Riverine, upper perennial, SB4	N	1.5	13	Ditched natural stream that runs alongside Salmon Harbor Drive. It originates approximately 0.5 mile upstream of the study area. It is ditched upstream of the study area where it passes through a Winchester Bay Sanitary District property, then ditched for another 130' within the study area before crossing underneath Salmon Harbor Drive through a culvert and draining into Halfmoon Bay on the Umpqua River. This culvert presents a fish barrier for fish migration upstream into S1 from Halfmoon Bay. Within the study area the OHWM is a consistent 1.5', determined by scour and the absence of perennial vegetation within a managed ditched channel. Mud bottom. It is mapped as riverine/perennial on the NWI crossing the study area apx.130' north of actual location. A narrow wetland band is present on both sides of S2 (W11). Jurisdictional to both DSL and USACE.
Stream 3 (Umpqua River Estuary)	4,5	43.670902	-124.192962	Marine, Intertidal, RS2	Y	n/a	7	The Umpqua River, which consists of HMT at 10.19' elevation on large riprap west of Salmon Harbor Drive. It OHW extends well outside the SA and is approximately 0.45 miles wide where it meets the edge of the SA. Jurisdictional to both DSL and USACE.
<p>All ditches in study area, except where specifically noted, met DSL exemption criteria for roadside ditches (i.e. <10ft wide, no fish, etc.) See methods section of report for additional information on assumption of Corps and DSL jurisdictional determination of ditches.</p>								

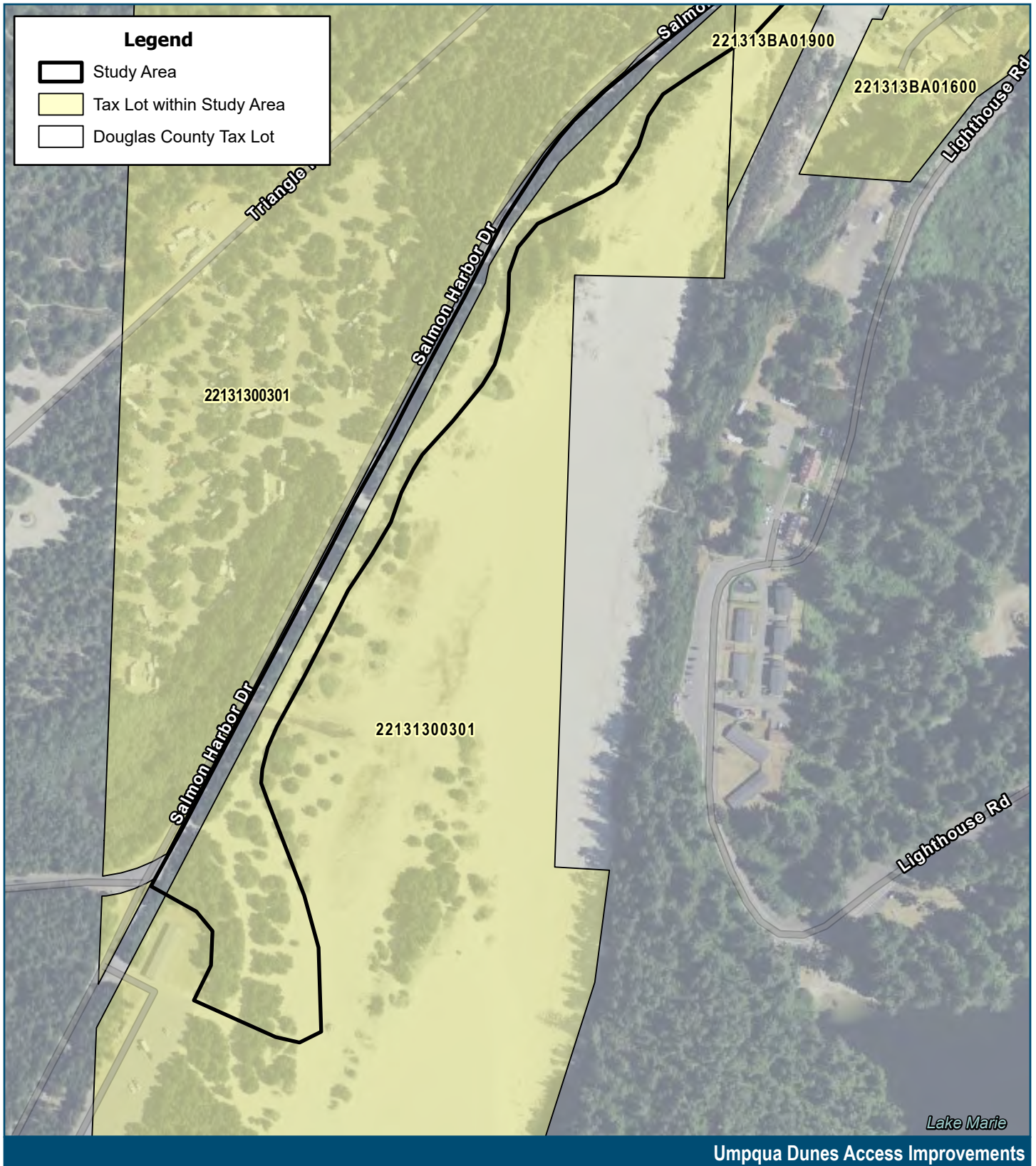


Umpqua Dunes Access Improvements

ESRI, ArcGIS Online, USA Historical Topo Maps, 1985. Winchester Bay, Oregon.

Figure 1
Vicinity

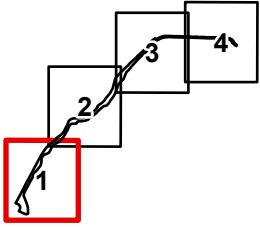
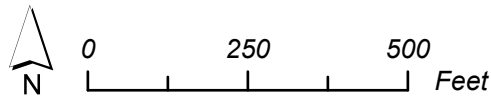


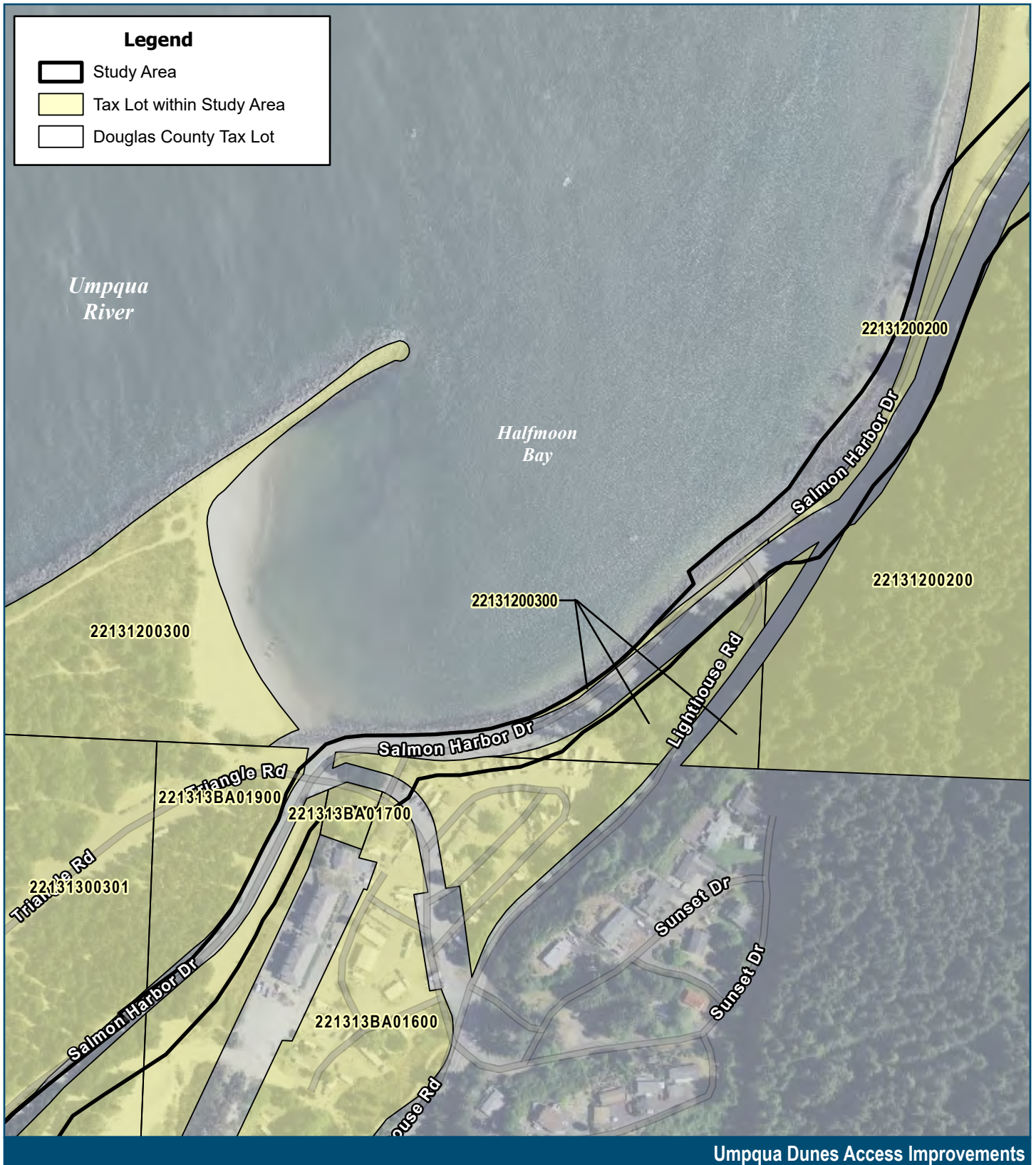


Douglas County GIS Data (Parcel Boundaries), 2018.

Umpqua Dunes Access Improvements

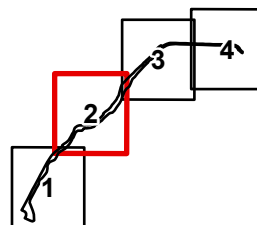
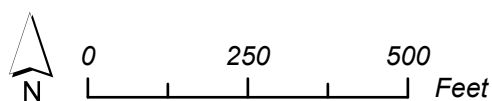
Figure 2, Sheet 1 of 4
Tax Lots

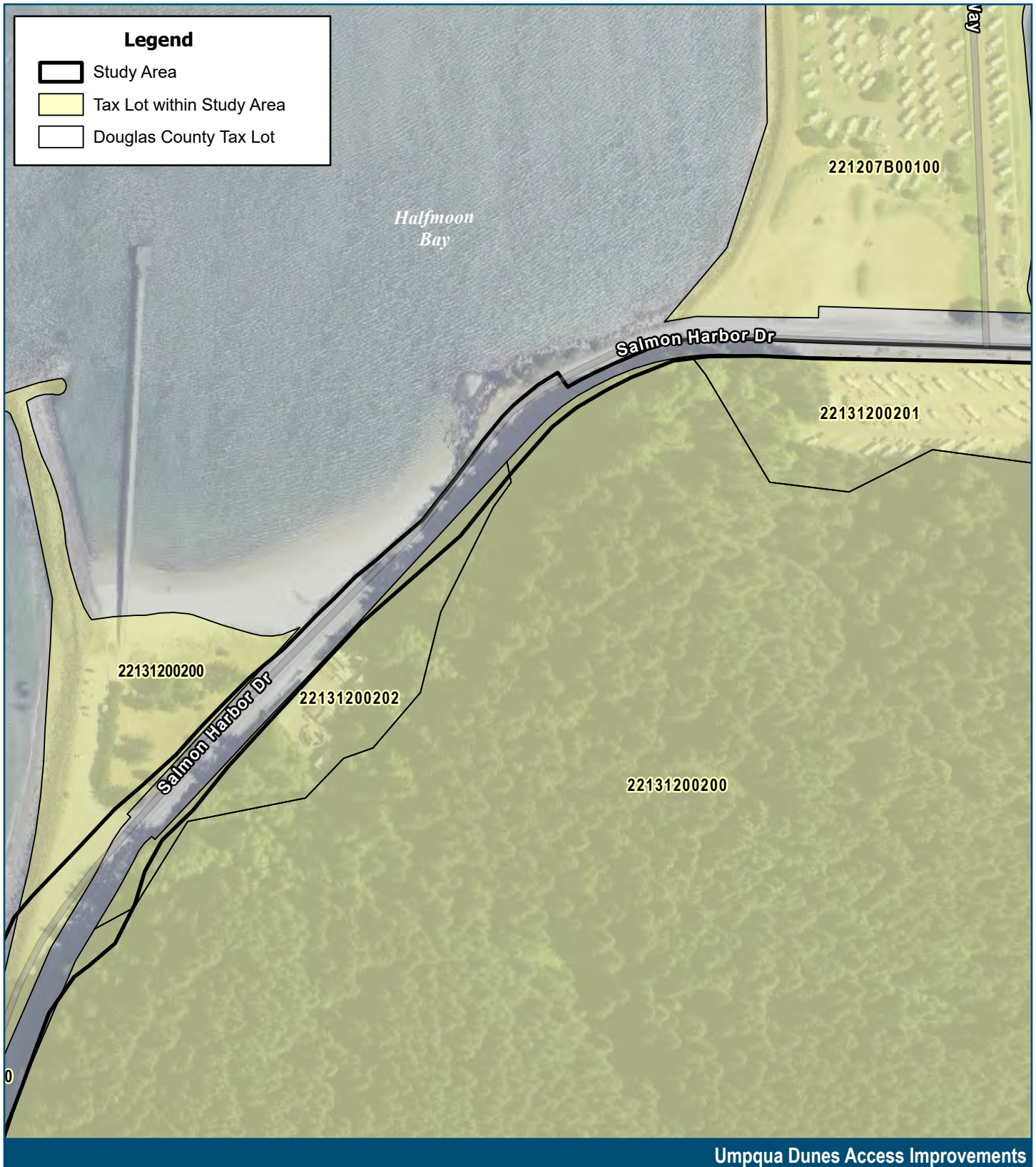




Douglas County GIS Data (Parcel Boundaries), 2018.

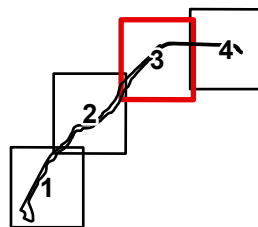
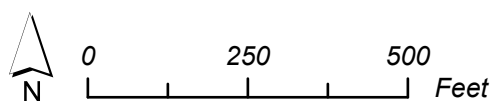
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Tax Lots

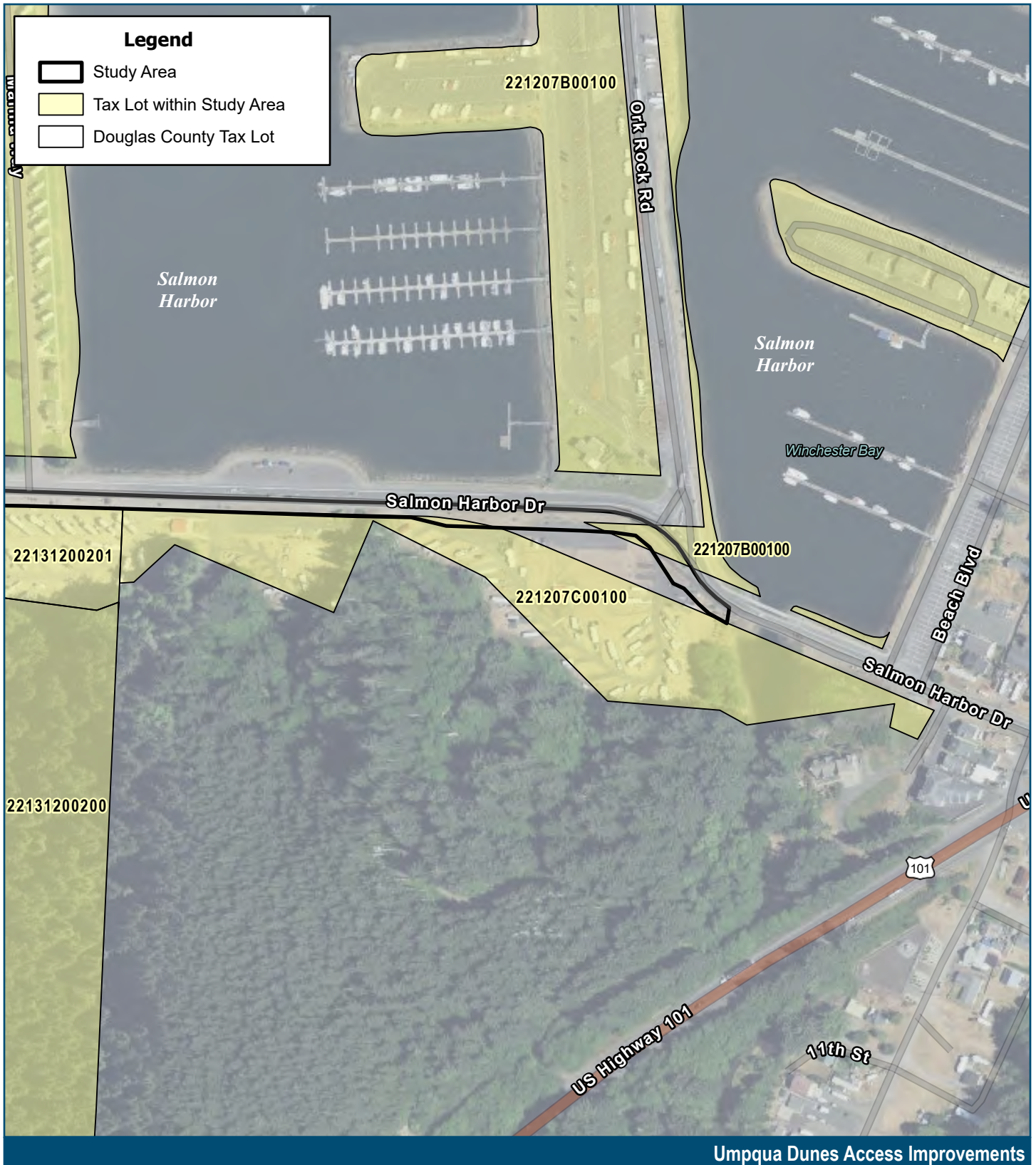




Douglas County GIS Data (Parcel Boundaries), 2018.

Figure 2, Sheet 3 of 4
Tax Lots

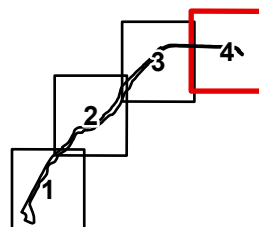
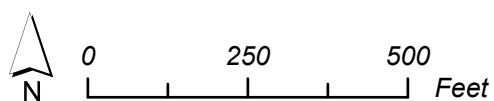


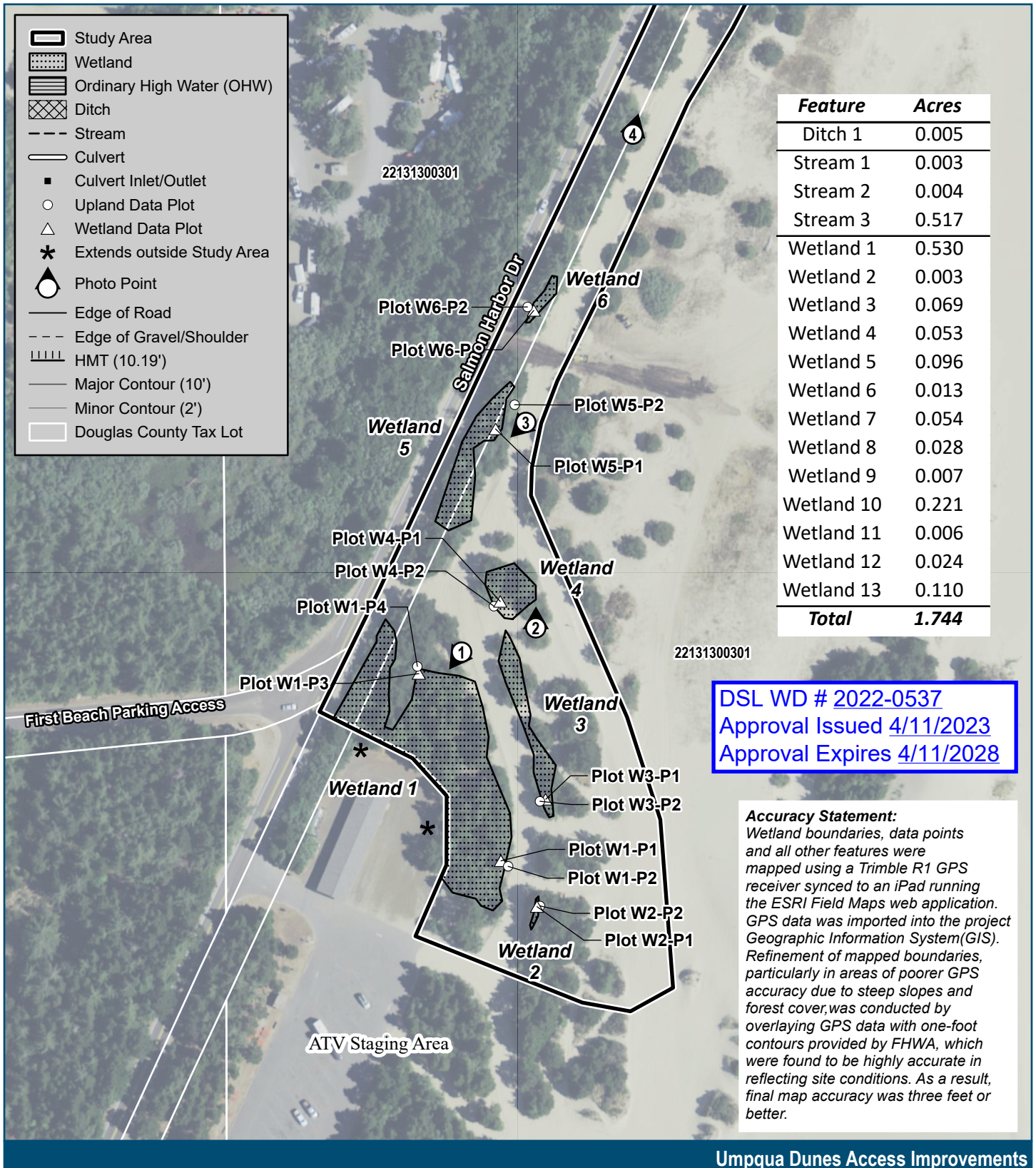


Umpqua Dunes Access Improvements

Douglas County GIS Data (Parcel Boundaries), 2018.

Figure 2, Sheet 4 of 4
Tax Lots

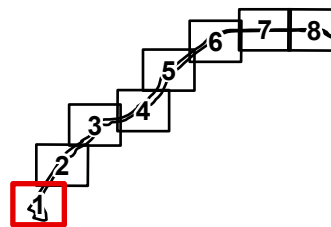
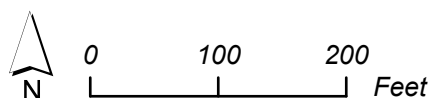


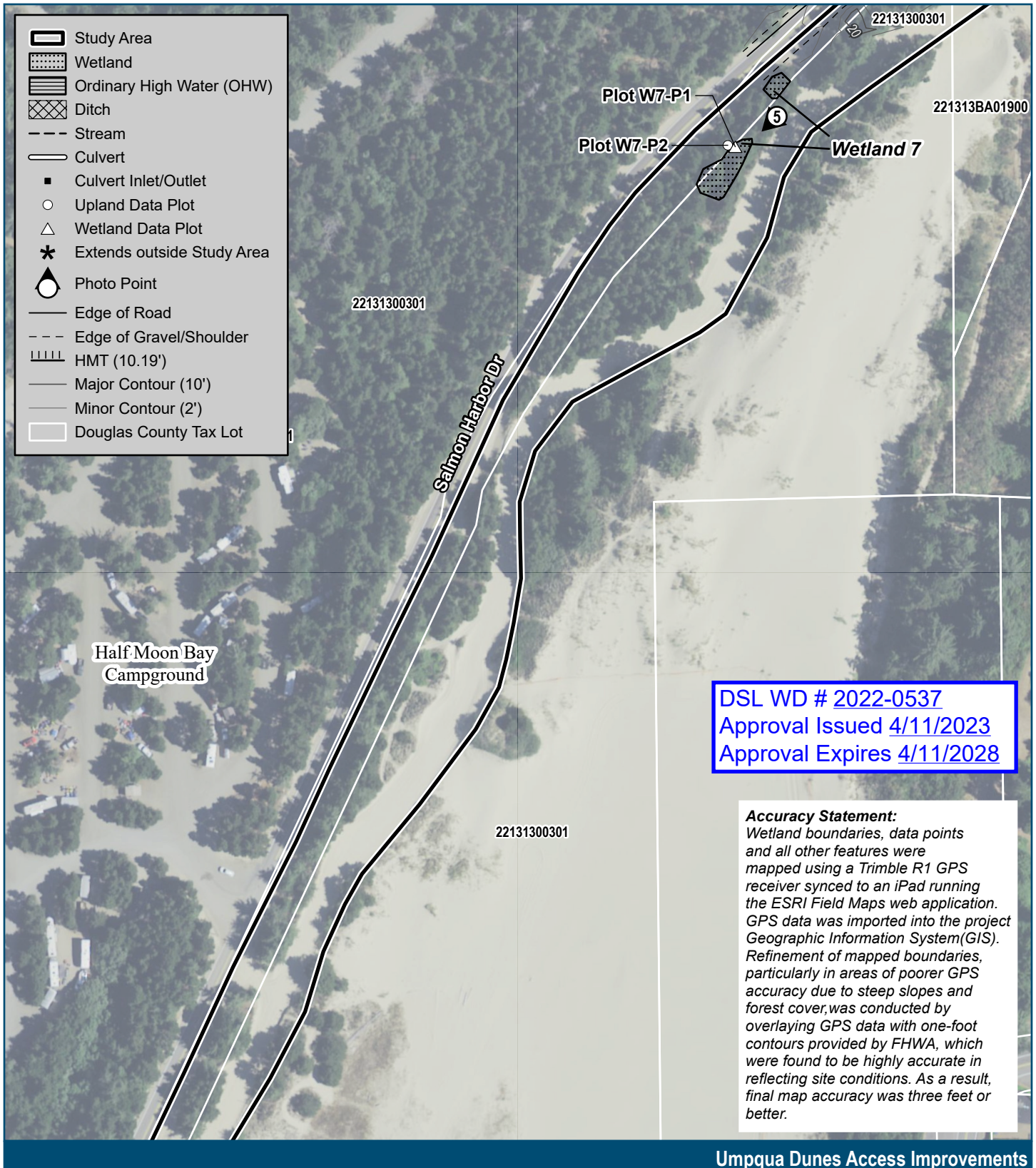


OSIP Imagery. 2019.
 Surveyed Contours, OR State Plane, NAVD88, FHWA.
 Using Tidal Data to Determine Highest Measured Tide (HMT). DSL. 2010.
 Douglas County GIS Data (Parcel Boundaries), 2018.

Umpqua Dunes Access Improvements

Figure 6, Sheet 1
Wetland Delineation



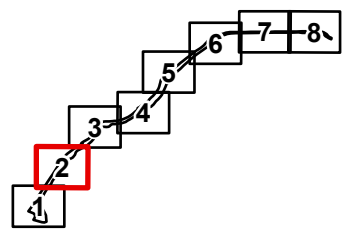
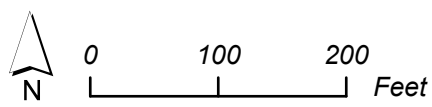


Umpqua Dunes Access Improvements

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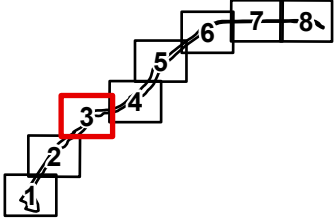
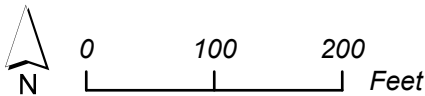
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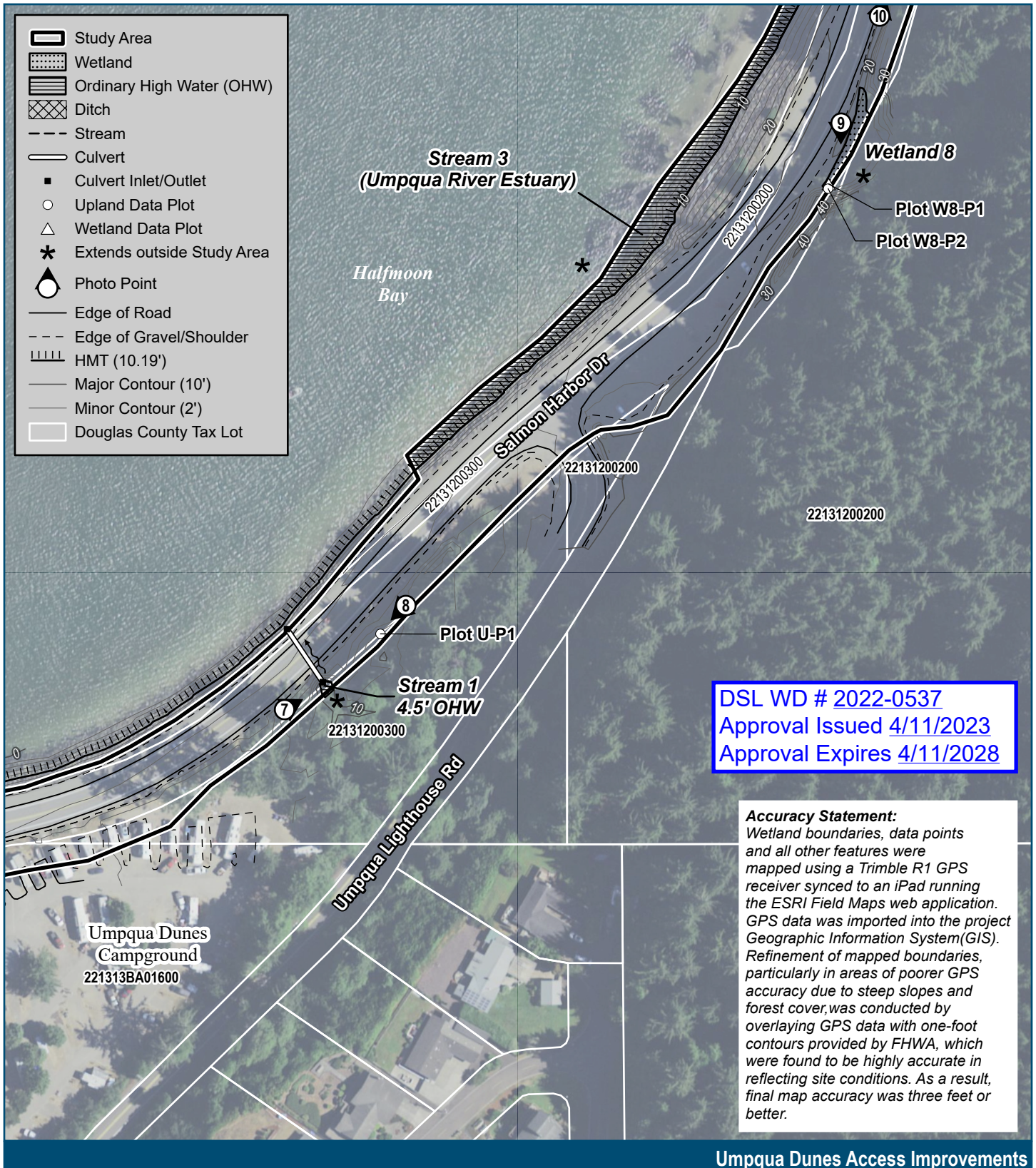
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 Wetland Delineation





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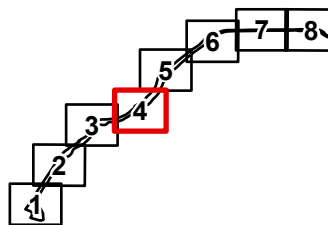
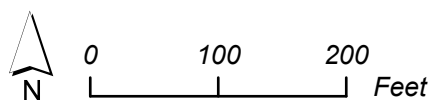
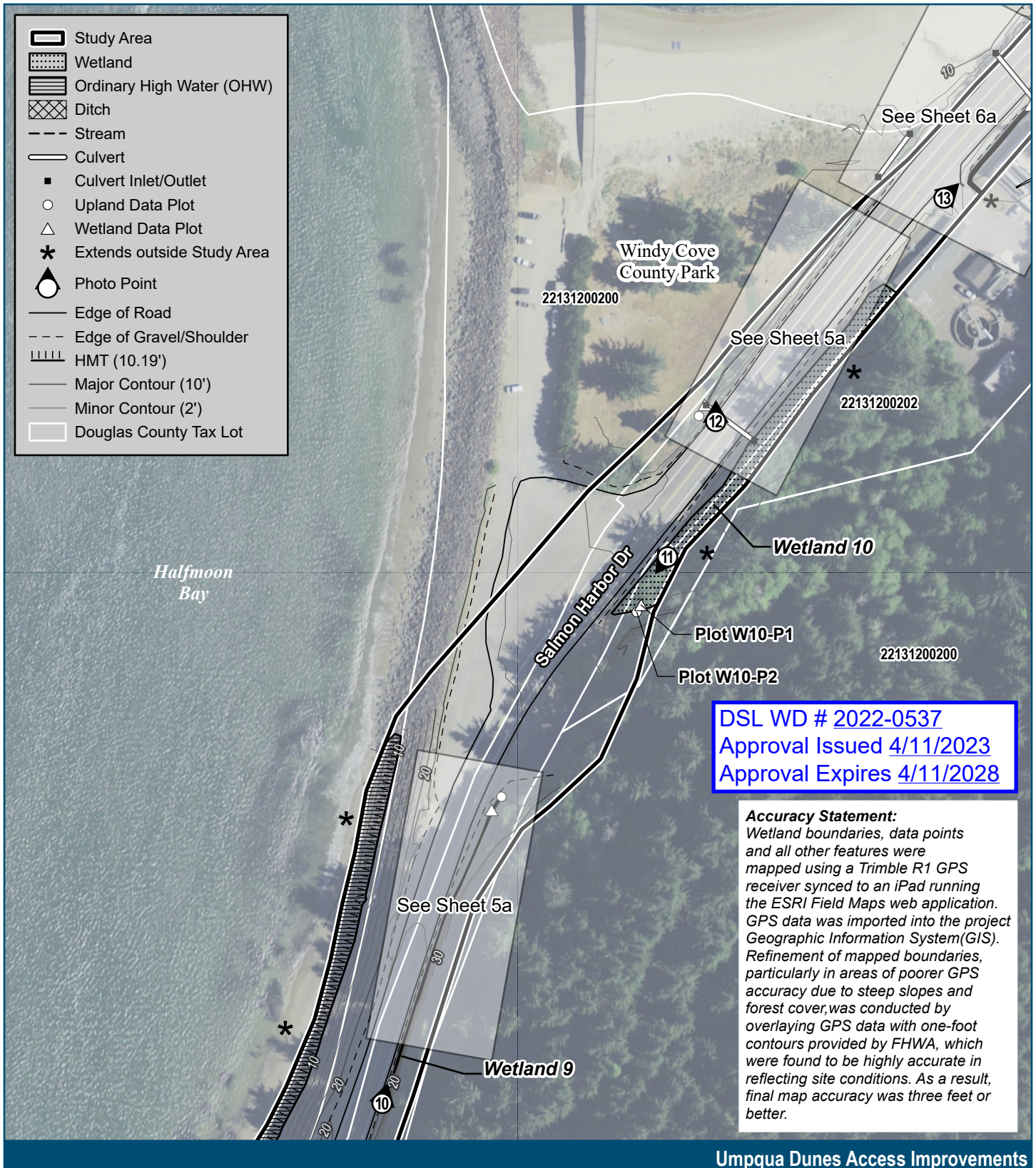


Figure 6, Sheet 4
Wetland Delineation





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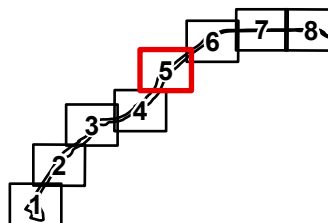
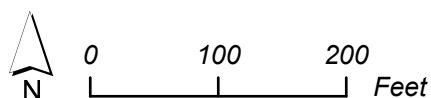
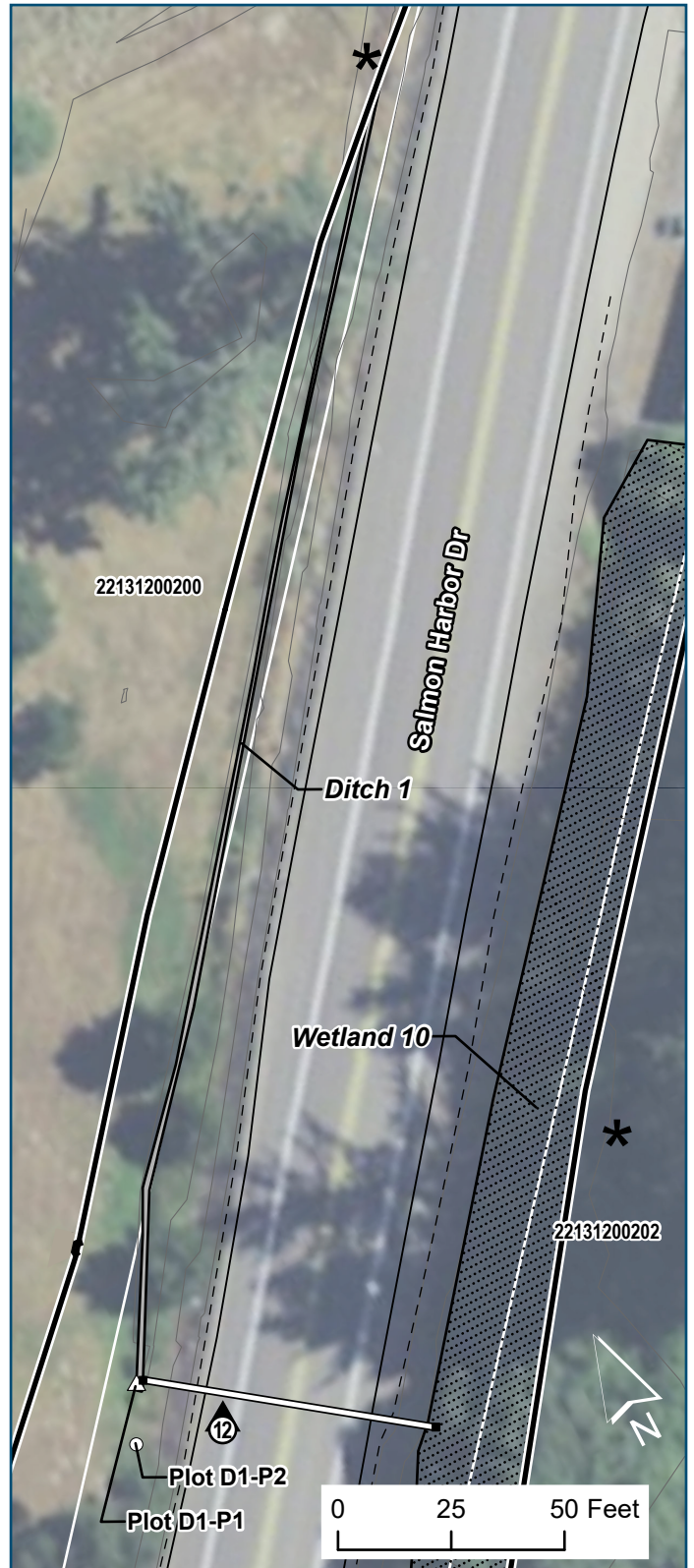
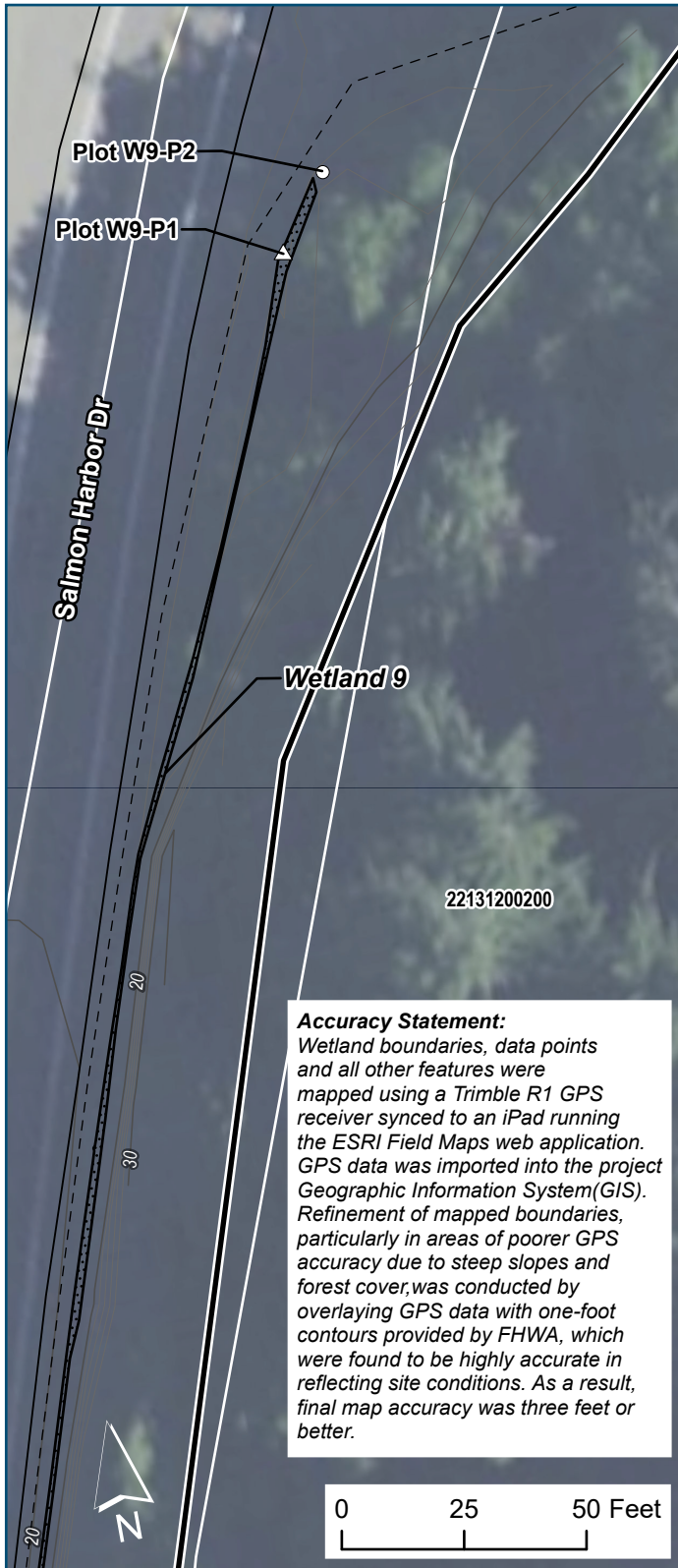


Figure 6, Sheet 5
 Wetland Delineation



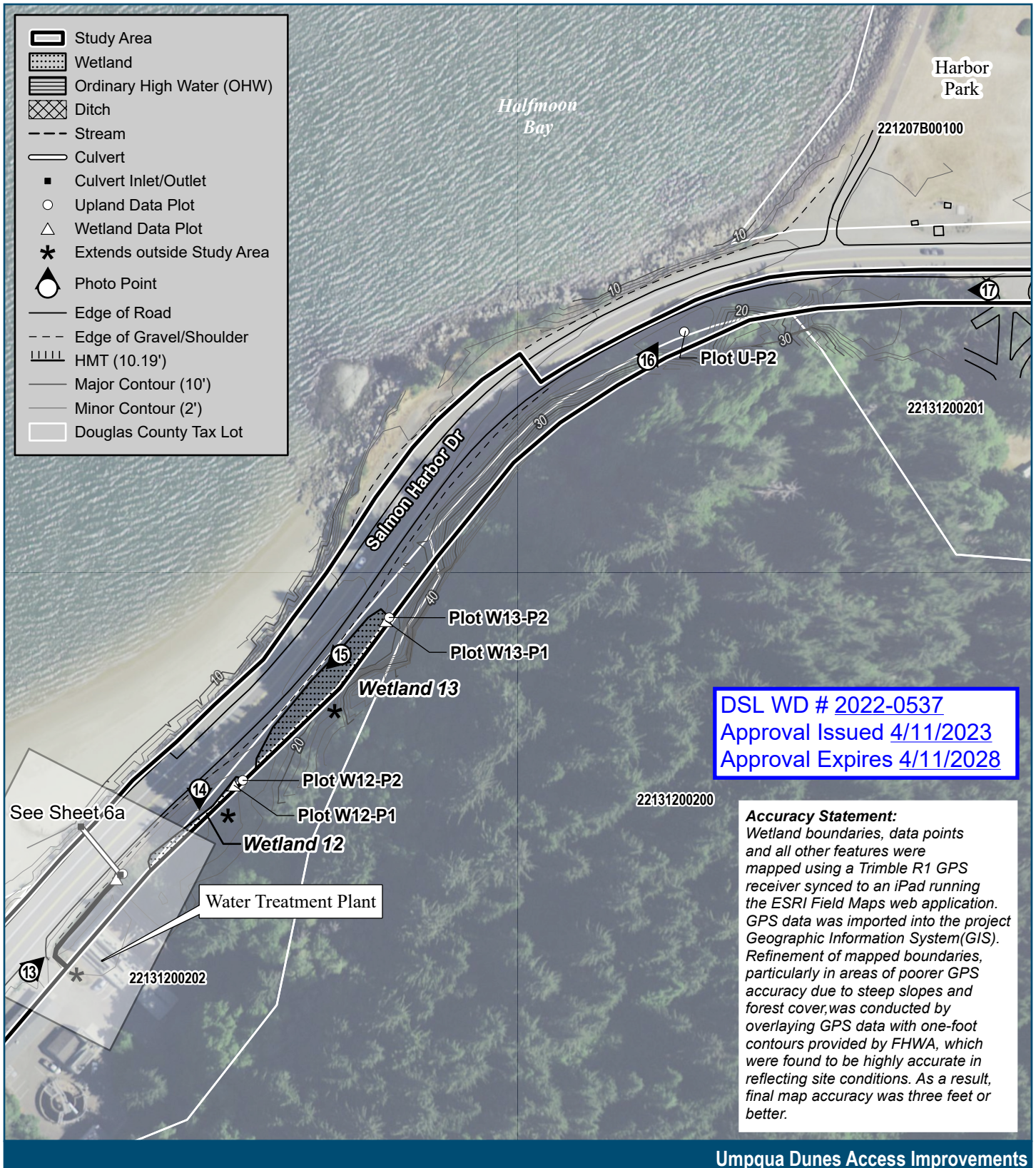


Umpqua Dunes Access Improvements

Figure 6, Sheet 5a
Wetland Delineation

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Approval Expires 4/11/2028





OSIP Imagery. 2019.
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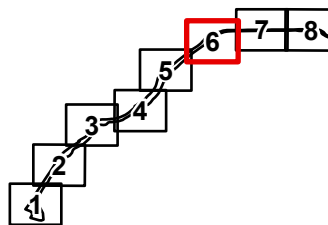
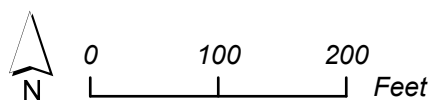


Figure 6, Sheet 6
 Wetland Delineation





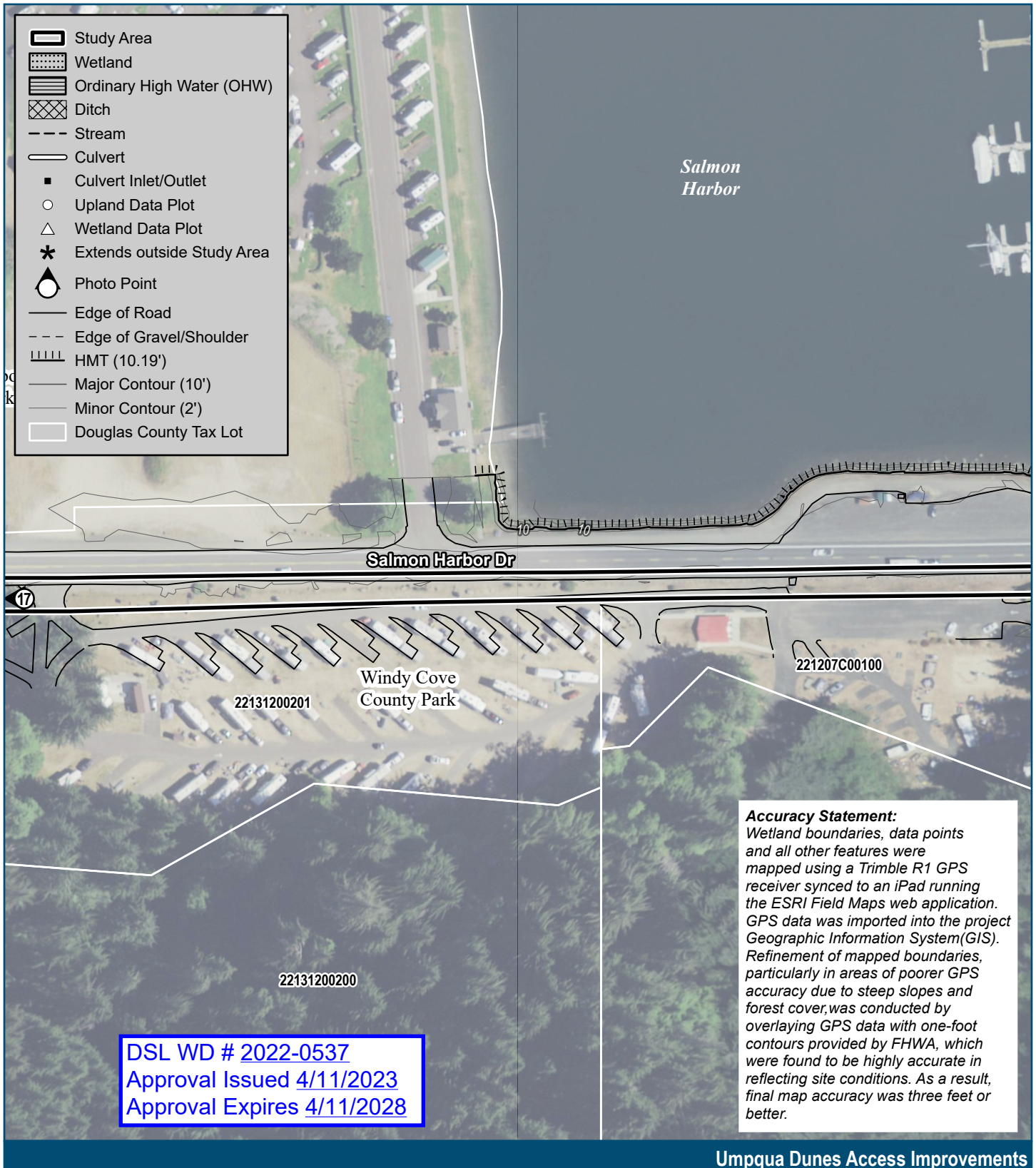
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	Culvert		Extends outside Study Area
	Wetland		Edge of Road
	OHW		Edge of Gravel/Shoulder
	Ditch		Major Contour (10')
	Ditch		Minor Contour (2')
	Upland Data Plot		Douglas County Tax Lot
	Wetland Data Plot		

Umpqua Dunes Access Improvements

Figure 6, Sheet 6a
Wetland Delineation

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Approval Issued 4/11/2023
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 Surveyed Contours, OR State Plane, NAVD88, FHWA.
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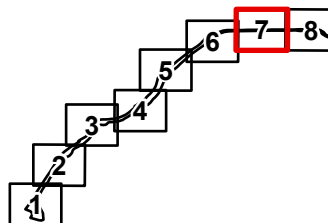
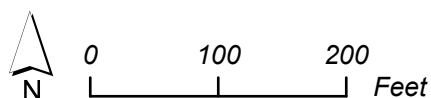
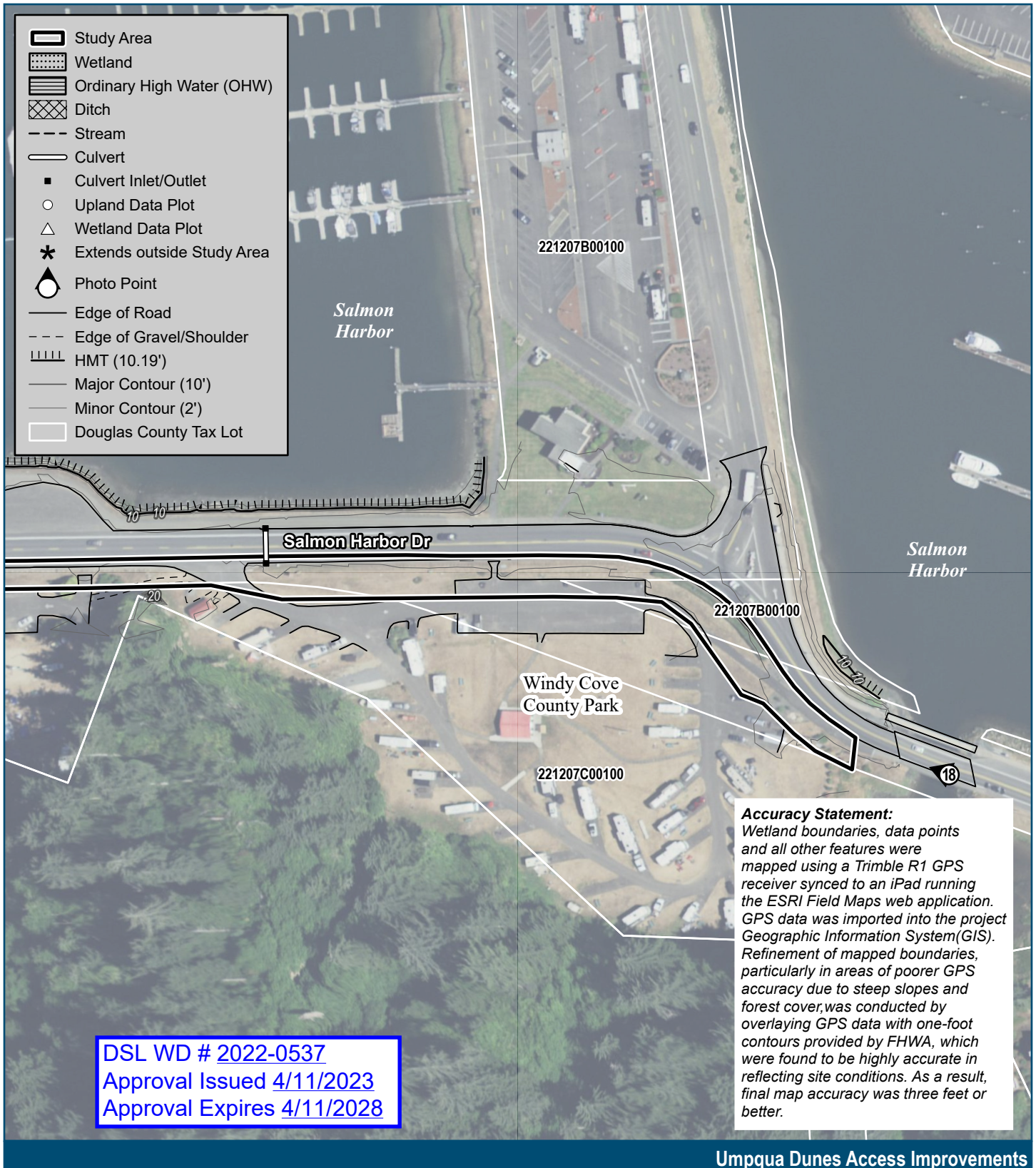


Figure 6, Sheet 7
 Wetland Delineation





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Accuracy Statement:
 Wetland boundaries, data points and all other features were mapped using a Trimble R1 GPS receiver synced to an iPad running the ESRI Field Maps web application. GPS data was imported into the project Geographic Information System (GIS). Refinement of mapped boundaries, particularly in areas of poorer GPS accuracy due to steep slopes and forest cover, was conducted by overlaying GPS data with one-foot contours provided by FHWA, which were found to be highly accurate in reflecting site conditions. As a result, final map accuracy was three feet or better.

Umpqua Dunes Access Improvements

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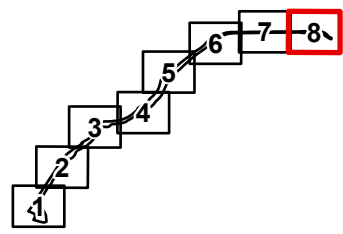
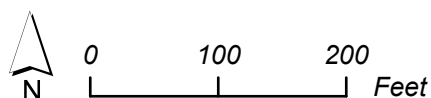


Figure 6, Sheet 8
 Wetland Delineation



OR DOUGLAS 251(1)
Oregon Dunes National Recreation Area
Umpqua Dunes Access Improvements

Contract No. 69056721D000006
Task Order No. 69056722F000075

Wetland Delineation Report

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Western Federal Lands Highway Division
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September 2022

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1.0 INTRODUCTION

This report describes the methods and findings of the wetland and other non-wetland waters delineation for the Umpqua Dunes Access Improvements Project (Project) proposed by the Federal Highway Administration (FHWA). Partner Agencies consist of FHWA, Douglas County (the County) and United States Forest Service (USFS).

FHWA contracted David Evans and Associates, Inc. (DEA) to determine the current presence, location, and size of federal jurisdictional wetlands and other waters of the United States and prepare this report to document their findings. Once verified by the appropriate agencies, this Wetland and Stream Delineation is intended to provide the necessary documentation for Clean Water Act (CWA) permits and certifications. Field work for the project occurred over a week in late-June 2022. The following likely jurisdictional features were delineated: thirteen wetlands, two perennial streams, and one roadside ditch.

1.1 Agency Roles and Responsibilities

Below is a table identifying agency roles and responsibilities under Section 404 of the Clean Water Act for this project.

AGENCY	ROLE AND RESPONSIBILITY
Federal Highway Administration	Permit Applicant
U.S. Army Corps of Engineers	Section 404 CWA Permit
Oregon Department of State Lands	Section 404 CWA Permit per Section 304(t) of CWA

1.2 Report Organization and Nomenclature

This report is organized in accordance with DSL's requirements for wetland delineation reports (Oregon Administrative Rule 141-090) and DSL's guidance for large and linear projects (DSL 2017). In following with the large and linear project guidance, most of the delineation findings are summarized in a series of figures, data sheets, and tables, rather than in detailed report text. These materials are organized into the following appendices.

- Appendix A: Wetland delineation figures
- Appendix B: Data sheets
- Appendix C: Photos
- Appendix D: Delineation results tables
- Appendix E: WETS table

Documentation of delineated features follows the nomenclature provided in Table 1.

Table 1. Mapping and Documentation Terms and Nomenclature

Nomenclature	Meaning
W#, S#, D#, W#-#, U#	W# = wetland, S# = stream, D# = ditch, W#-# = paired sample plots, U# = stand alone upland plot
	The # is the consecutive number assigned to each feature

2.0 PROJECT DESCRIPTION

The FHWA is pursuing the project to improve a 1.8-mile Off-Highway Vehicle (OHV) access route to the Oregon Dunes National Recreation Area (ODNRA) near Winchester Bay in Douglas County, OR. As shown in Figure 1 below, the project limits begin at the County Park Campground (mile post 0.14 on Salmon Harbor Drive), continue to mile post 1.44 on Salmon Harbor Drive, and end at the ODNRA via the 0.5-mile OHV sand access route. Salmon Harbor Drive is a 2-lane arterial road with no bike lanes and a minimum 6 ft wide gravel multi-purpose trail on the shoulder that is shared by OHVs, bicycles and pedestrians. It currently serves as the only access point to the ODNRA and ocean beaches. The current route also requires OHV users to cross Salmon Harbor Drive and five driveways in order to access the ODNRA.

From November to May water settles in low spots on the sand access route in the Dunes that OHV users rely on to access the ODNRA. OHV operators use Salmon Harbor Drive and its shoulder to connect to the ODNRA during this time. OHV usage of Salmon Harbor Drive is concerning for the safety of users and oncoming traffic. OHV utilization of the shoulder contributes to road damages and overall pavement deterioration, leading to increased expenses and potential hazards for all Salmon Harbor Drive users.

A 2018 Oregon Federal Lands Access Program (FLAP) application (Appendix A) identified a project in the ODNRA to allow for improved OHV access to the Umpqua Dunes and address concerns about safety and pavement maintenance on Salmon Harbor Drive. The project was selected for a FLAP grant by the Oregon Program Decision Committee with a modified scope which includes moving an existing 1.3-mile OHV route along Salmon Harbor Drive and rerouting a 0.5-mile sand access route terminating at the ODNRA.

3.0 LANDSCAPE SETTING AND LAND USE

The project extent runs alongside and parallel to Salmon Harbor Drive in Winchester Bay, a small town along the south-central Oregon coast. Land use is predominantly recreational and natural. The ODNRA is located to the south of the study area, which is a popular OHV recreation area. To the west of the study area lies a park, oyster farm, the south jetty on the Umpqua River, and the Pacific Ocean. To the north of the study area is Halfmoon Bay and the Umpqua River and a marina. And east of the project area primarily consists of steep forested slopes with campgrounds and some residential areas interspersed in low-lying areas.

Topography is generally gently to moderately sloped, with two primary land cover types: sand dunes with interspersed coastal shrub and forested habitats, and roadside areas along steep forested slopes. Soils are generally very well drained sandy to mineral soils. Jurisdictional wetland and waterway resources were identified generally in the southern two thirds of the study area.

4.0 SITE ALTERATIONS

Site alterations along approximately the northern two-thirds of the study area consist of Salmon Harbor Drive and associated pullouts and recreation areas (i.e., parking lots, and campgrounds) which have altered hydrology in the area by impounding groundwater from the slopes to the south and east of the road. The southern third of the study area lies within dune habitat, which shifts seasonally according to wind patterns. Within the southern third, the active sand OHV trail has prevented dune vegetation from growing and has caused a buildup of sand in places. However, this road has been in place long enough for normal conditions to occur throughout the study area.

5.0 PRECIPITATION DATA AND ANALYSIS

Field work for the project occurred from June 27 through June 30, 2022. Precipitation data was reviewed for Honeyman State Park, Oregon, which is the closest weather station with available daily precipitation measurements. Table 2 shows actual precipitation measurements on the days of site visit and two weeks prior (NWS 2022). Although some days were missing data, the precipitation record for these field visits reveals little rain for two weeks prior to the site visit (Table 2). Table 4 shows that precipitation amounts during the three months preceding the site visit fluctuated from normal in March, to well above normal in April and May. Precipitation was within 30% of normal for the water year (Table 3).

Although the trend leading into June was higher precipitation than normal, it was assumed that hydrologic conditions were normal due to normal precipitation in March, normal water year precipitation, and little precipitation in the two weeks leading up to the investigation. Therefore, no change in field methods was needed.

Table 2. Precipitation on Day of Field Investigations and Two Weeks Prior in Inches

June 13	June 14	June 15	June 16	June 17	June 18	June 19
M	M	M	M	T	0.06	0.04
June 20	June 21	June 22	June 23	June 24	June 25	June 26
T	0.00	0.00	0.00	0.00	0.00	0.00
June 27*	June 28*	June 29*	June 30*	Total		
M	M	M	0.00	0.10		

*Days of field investigation. Source: (NWS 2022). M= no data available. T= trace.

Table 3. Percent of Normal Precipitation for the Water Year through the First Day of Field Work, June 27, 2022

Date	Observed Precipitation for Water Year (Inches)*	Normal Precipitation for Water Year (Inches)*	Percent of Normal Precipitation
June 27	71.49	64.68	111%

* Data for Honeyman State Park, based on Oct 1, 2021- June 27, 2022. Source: (NWS 2022)

Table 4. Percent of Normal Precipitation for the Three Months Preceding the Field Investigation

Month	Observed Precipitation for Month ¹ (Inches)	Normal Precipitation for Month ² (Inches)	Percent Normal Precipitation	WETS Table 30% Range of Normal ²	Within Normal WETS range?
March	7.51	8.10	93%	5.94 – 9.52	Yes
April	9.45	6.11	155%	4.83 – 7.02	No, above
May	8.84	3.12	283%	1.72 – 3.81	No, above

¹ Observed precipitation data from Honeyman State Park, gage location. Source: (NWS 2022)

² Monthly normal values from WETS Station: Honeyman State Park, 1990- 2020. Source: (NRCS 2022)

6.0 METHODS

6.1 Preliminary Resource Review

Reference materials were reviewed prior to the field investigation to provide information regarding hydric soils, wetland hydrology, site topography, and the possible presence of wetlands and water features.

Topographic maps were examined to determine topography of the site, and adjacent lands that might influence on-site conditions (Appendix A, Figure 1 – Vicinity Map). Tax lots maps are included in Figure 2 of Appendix A. The National Wetland Inventory (NWI) (Appendix A, Figure 3) was examined to determine if wetlands are mapped on site. The Soil Survey map (Appendix A, Figure 4) was reviewed for hydric soils. Aerial photographs of the project corridor were reviewed and are included in Figure 5 of Appendix A.

6.2 Field Methods

The wetland delineation was conducted using the Level 2 Routine Delineation Method described in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987) and further supported by the Regional Supplement (Supplement) to the Corps of Engineers Wetland Delineation Manual, Western Mountains, Valleys, and Coast Region (USACE 2010). This method requires the simultaneous presence of hydrophytic vegetation, hydric soils, and positive wetland hydrology in wetland delineations.

Areas in which wetland hydrology, hydric soils, and hydrophytic vegetation were all present were considered wetlands. Precipitation considerations were discussed in the previous section. Data sheets were completed at each sample plot documenting the vegetation, soils, and hydrology. Sample plots were chosen that represent typical wetland and upland plant communities encountered on the site. Wetland data sheets are included in Appendix C. As required by the Oregon Department of State Lands (DSL), all mapped hydric soil units were sampled, except where no native soil was present within the study area (such as road fill prisms).

6.2.1 Use of DSL Guidance for Large or Linear Projects

Due to the size of the project, the delineation was conducted and has been documented following guidance provided in “Delineations for Large or Linear Projects” (DSL 2017). Based on this guidance, delineation findings are described in the tables in Appendix D.

6.2.2 Jurisdictional Determinations

The Corps and DSL regulate wetlands and other non-wetland waters at the federal and state levels, respectively. The Corps administers the compliance with the Section 404 of the Clean Water Act. DSL administers compliance with Oregon’s Removal-Fill law. Jurisdiction to regulate these features between these two agencies is similar in most instances, but different in some instances due to differing laws, regulations, and court rulings. Relevant distinctions are provided below and were used to determine potential jurisdiction of delineated resources by both agencies.

6.2.2.1 Oregon Removal-Fill Law Jurisdiction

Preliminary Jurisdictional determinations for DSL were made based on Oregon Administrative Rules (OAR) 141-085-0515. Review of DSL jurisdiction of roadside ditches followed OAR 141-085-515 (8) Jurisdictional Ditches, which states that ditches “*are jurisdictional if they are: (a) Created in wetlands, estuaries, tidal rivers or other waters of this state; or (b) Created from upland and meet the following conditions: (A) Contain food and game fish; and (B) Have a free and open connection to waters of this state. A “free and open connection” means a connection by any means, including but not limited to culverts, to or between natural waterways and other navigable and non-navigable bodies of water that allows the interchange of surface flow at bankfull stage or ordinary high water, or at or below mean higher high tide between tidal waterways.*”

Exemptions are provided for roadside ditches, as specified in OAR 141-085-0515 (10) as follows. “*Non-Jurisdictional Roadside and Railroad Ditches. Roadside and railroad ditches that meet the following tests are not jurisdictional: (a) Ten feet wide or less at the ordinary high water line; (b) Artificially created from upland or from wetlands; (c) Not adjacent and connected or contiguous with other wetlands; and (d) Do not contain food or game fish.*”

7.0 DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

Following the DSL guidance for “large or linear projects,” delineated wetlands and non-wetland waters descriptions are summarized in table format (Appendix D), including the size of the resources mapped in Figure 6 of Appendix A. Types of wetlands found within the study area included palustrine emergent, and palustrine forested depressional wetlands, scrub-shrub, and palustrine emergent and palustrine forested slope wetlands, as described briefly below.

7.1 Wetlands

As noted in Section 2.0, soils throughout the study area are generally very well drained sandy to loamy soils. Jurisdictional wetland and waterway resources were identified in the southern two-thirds of the study area. The wetlands in the northern portion of the study area were typically found near the base of steep slopes where groundwater discharge occurs, and in the southern portion, in inter-dunal depressions where the lowest areas were at an elevation low enough to reach the seasonal water table. The wetlands at the base of steep slopes were either impounded by Salmon Harbor Drive and infiltrate through well-drained soils, or drain underneath Salmon Harbor Drive through culverts. A very narrow fringe wetland is also present along both sides of a small, ditched stream.

All wetlands were dominated by native vegetation such as lodgepole pine (*Pinus contorta*), red alder (*Alnus rubra*), coastal willow (*Salix hookeriana*), sweetgale (*Myrica gale*), salmonberry (*Rubus spectabilis*), and slough sedge (*Carex obnupta*).

7.2 Non-Wetland Waters

Two perennial streams were identified and mapped in the central portion of the study area. No intermittent or ephemeral streams were present. Per DSL guidance, characteristics for each individual feature are provided in table form in Appendix D.

7.2.1 *Essential Salmonid Habitat*

There is no Essential Salmonid Habitat (ESH) (DSL 2010-2015) mapped in the project study area or in downstream reaches of drainages that cross the study area. Critical Habitat is located downstream in Halfmoon Bay and the Umpqua River for ESA-listed green sturgeon (*Acipenser medirostris*), eulachon (*Thaleichthys pacificus*), and coho salmon (*Oncorhynchus kisutch*).

7.3 Roadside Ditches

One ditch within the study area contained wetland characteristics. Ditch D1 contained wetland conditions and no signs of an ordinary high-water mark (OHWM). Hydrology received from Wetland 10 via a culvert that passes underneath Salmon Harbor Drive, as well as stormwater from the roadway, and then drains directly to Halfmoon Bay outside of the study area. Ditch D1 is assumed to be jurisdictional to the Corps and DSL, primarily due to the manner in which it provides the hydrologic connections between other jurisdictional features. No other ditches within the study area exhibited wetland characteristics or signs of an OHWM.

8.0 DEVIATION FROM NWI

The pattern of NWI mapped wetlands and streams is generally consistent with the delineation field assessment in the southern portion of the study area. These wetlands are mapped as PEM on the NWI, but during our onsite investigation we found that they are PFO and PSS, and we mapped the wetland complex as a bit more extensive than what is shown on the NWI.

In the northern half of the study area the general locations of Streams 1 and 2 are shown on the NWI. During the onsite investigation we mapped the portion of Stream 1 that crosses the study area approximately 600 feet to the northeast of what is shown on the NWI. Stream 2 as mapped is shown on the NWI generally in the correct location, but it is ditched along the road in the study area before it drains to Winchester Bay. A series of linear palustrine forested features are also mapped in this location on the NWI. These features are present but are wider features where the hydrology has been impounded by the roadway at Wetlands 10, 12, and 13.

9.0 MAPPING METHOD

Wetland boundaries, data points, and all other features were mapped using a Trimble R1 GPS receiver synced to an iPad running ESRI ArcCollector software. GPS data was imported into the project Geographic Information System (GIS). Final map accuracy was three feet or better.

10.0 ADDITIONAL INFORMATION

No additional information is provided.

11.0 RESULTS AND CONCLUSIONS

Detailed descriptions of delineated features are provided in the tables in Appendix D and correspond to the features mapped in Figure 6 of Appendix A. Table 5 provides a summary of overall findings.

Table 5. Summary of Potentially Jurisdictional Resources Delineated in the Study Area

Feature Type	Feature Count	Amount
Wetlands (acres)	13	1.21 ac
Streams -- perennial (linear feet)	2	148 ft
Potentially jurisdictional ditches (linear feet) ¹	1	255 ft (0.006 ac)

¹ Corps and/or DSL jurisdiction, wetland and waterway ditches

12.0 DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of their knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk until it has been reviewed and approved in writing by DSL in Accordance with OAR 141-090-0005 through OAR 141-090-0555.

13.0 PREPARERS AND CONTRIBUTORS

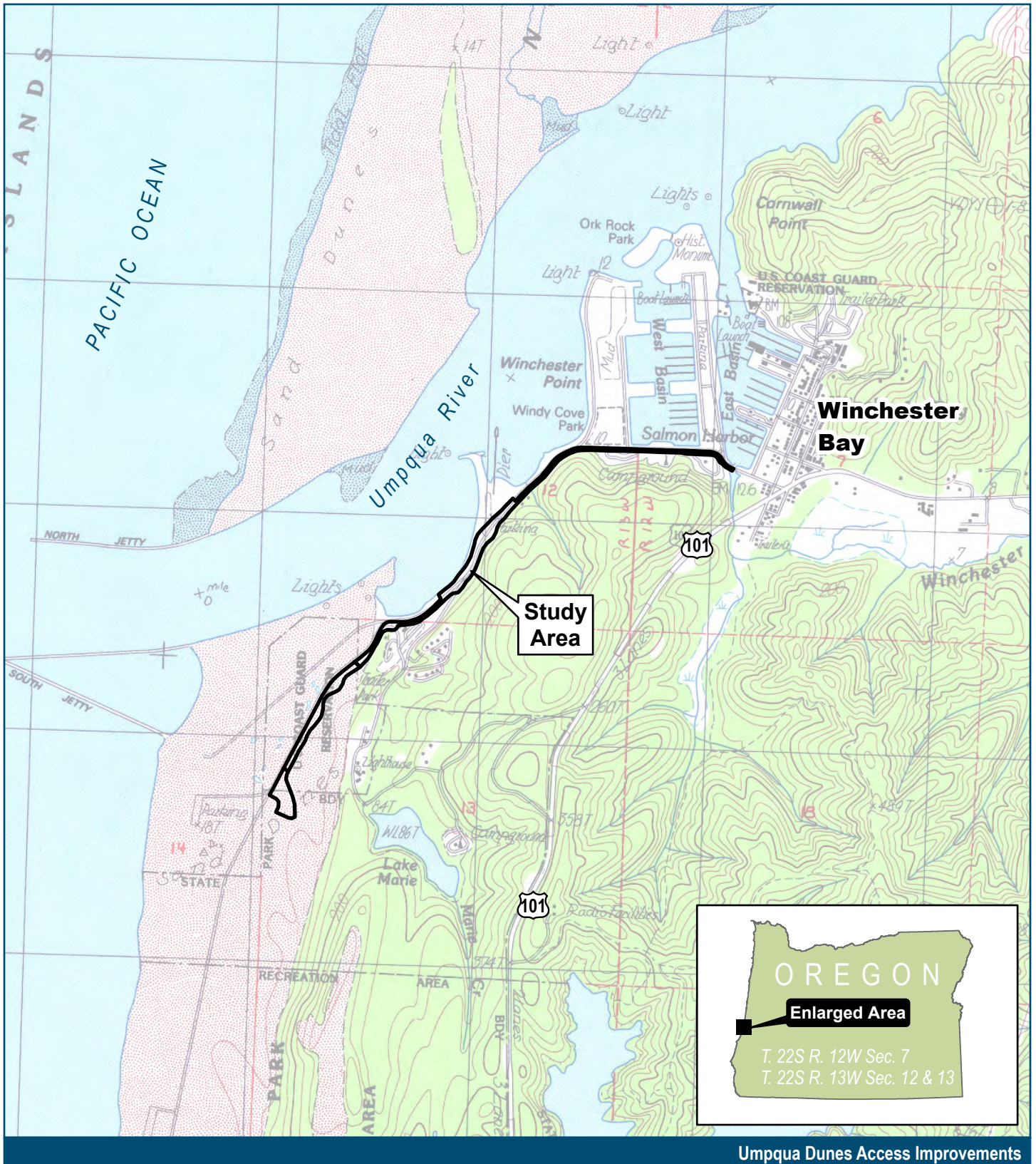
DEA Biologists Valerie Thompson and Phil Rickus performed the wetland delineation. Valerie Thompson is the primary author of this report, and Phil Rickus provided quality control review. Corie Peters, DEA Project Assistant, provided editing assistance. Melissa Foltz, DEA Graphics Specialist, prepared report graphics.

14.0 LITERATURE CITATIONS

- Department of State Lands (DSL). 2017. Delineation Guidance for Large or Linear Projects. January 2017. Available online at: <https://www.oregon.gov/dsl/WW/Documents/LinearLargeProjectDelineationGuidance.pdf>
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APPENDICES

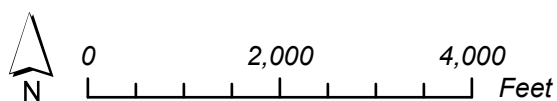
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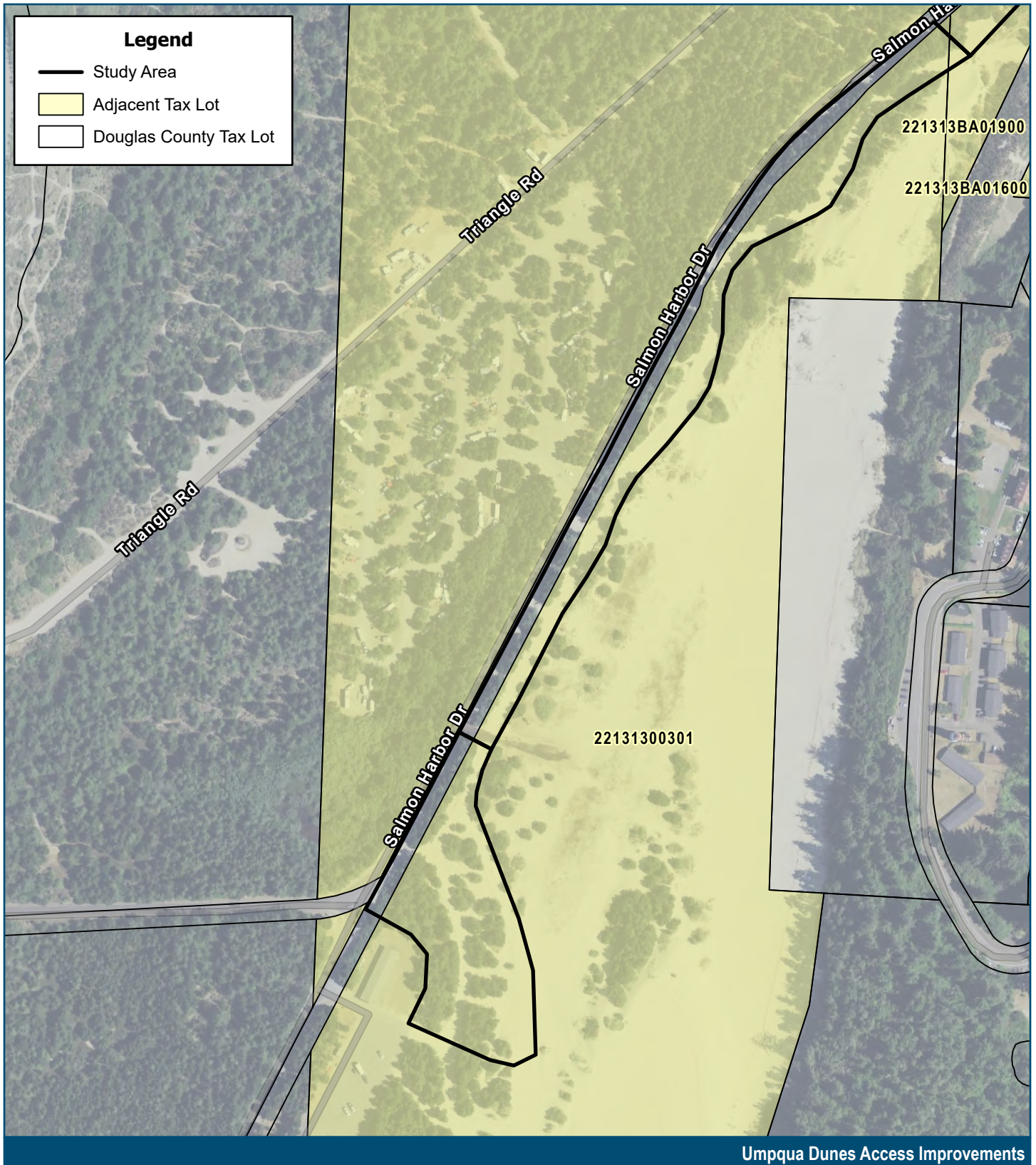


Umpqua Dunes Access Improvements

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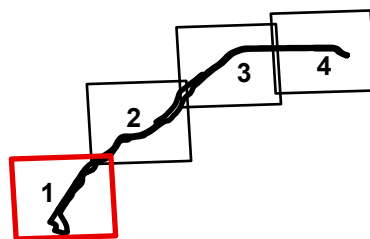
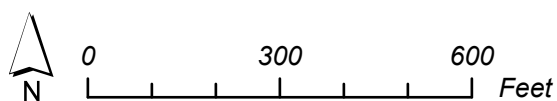
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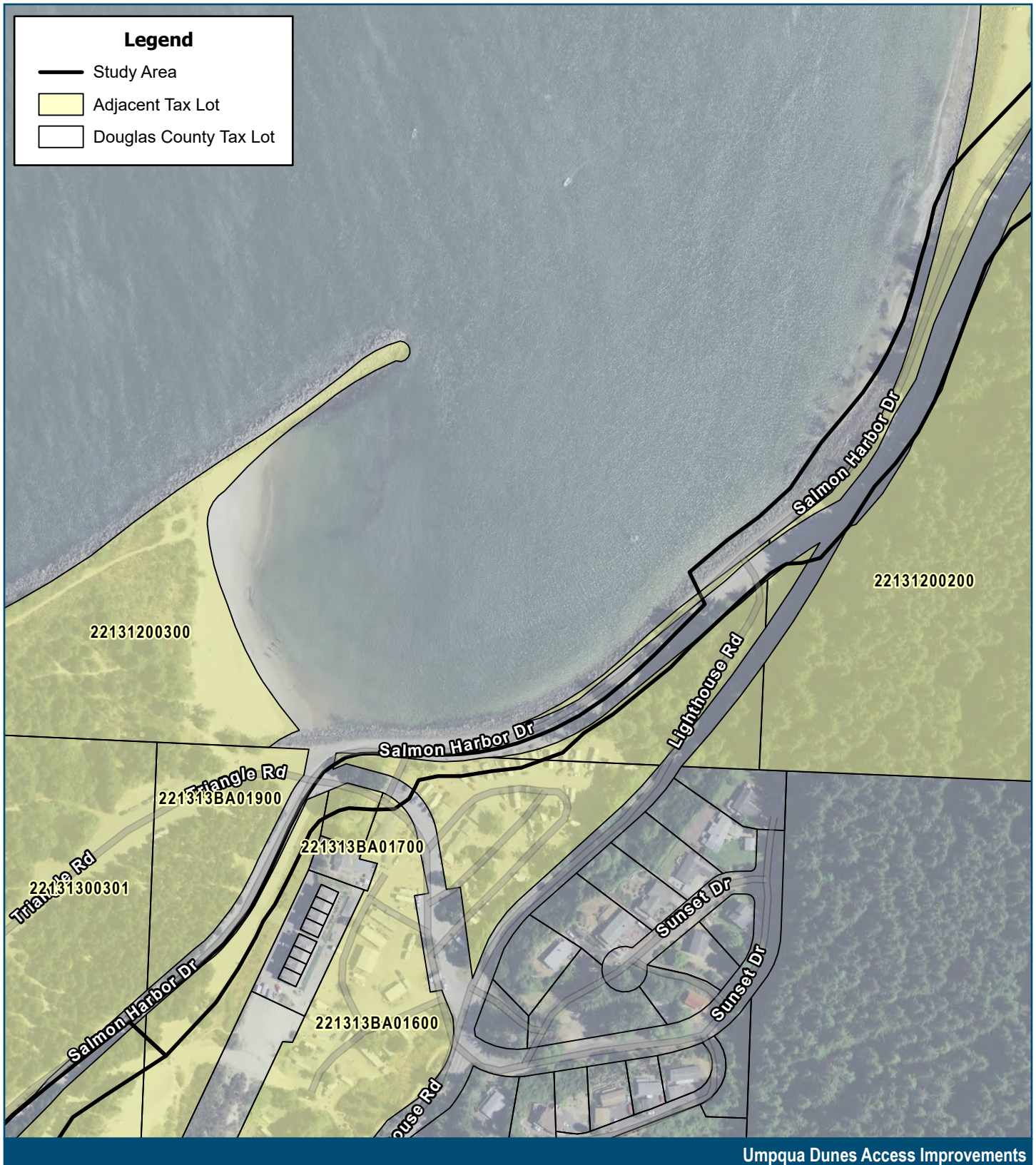




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Tax Lots

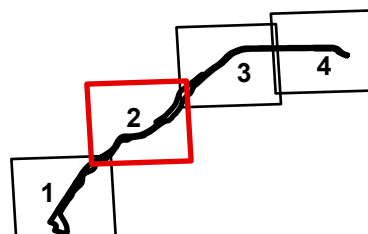
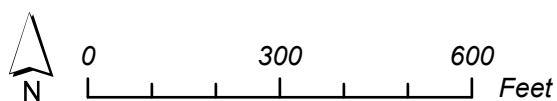


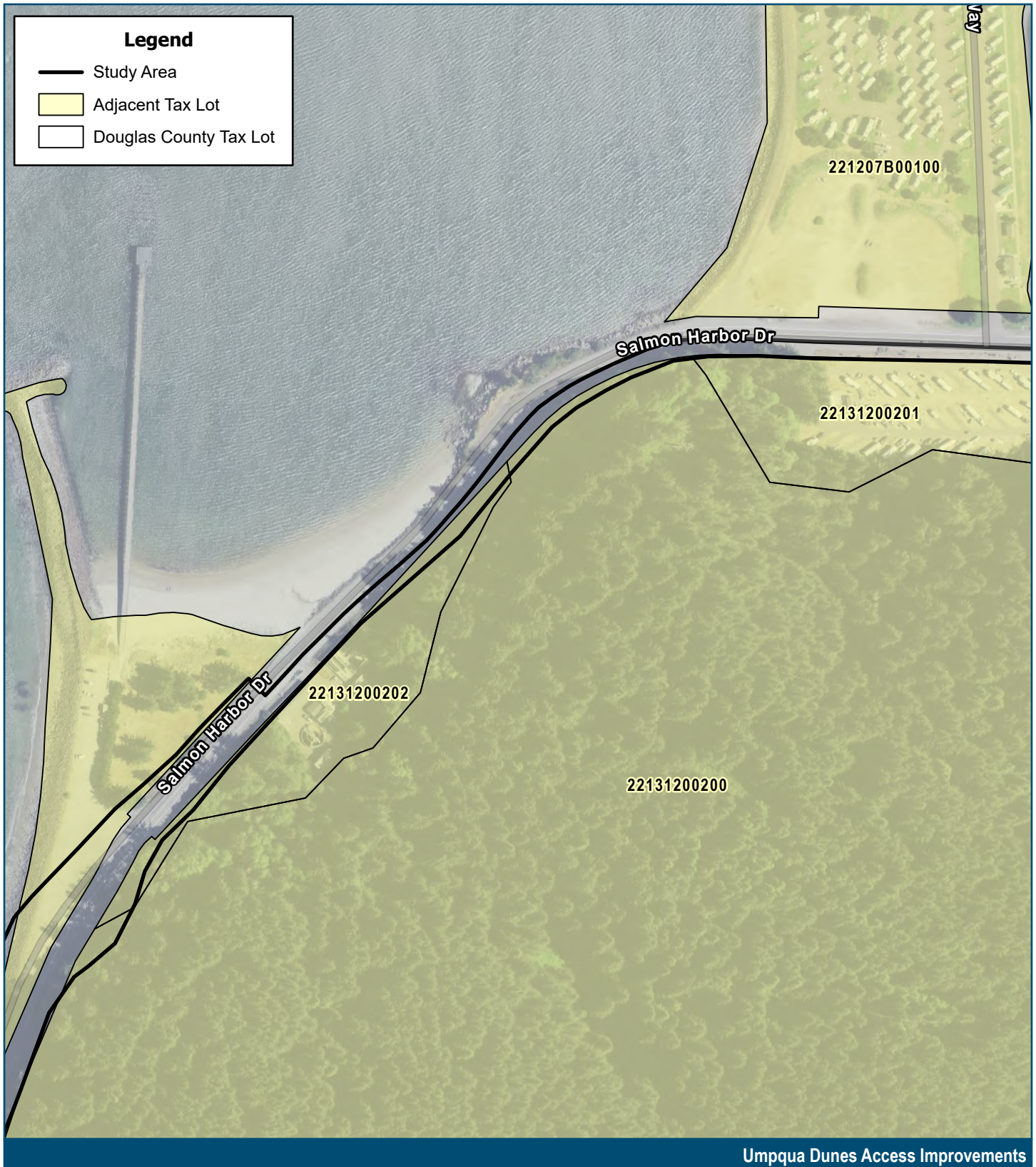


Umpqua Dunes Access Improvements

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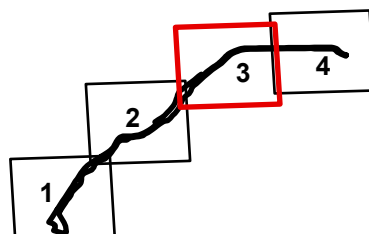
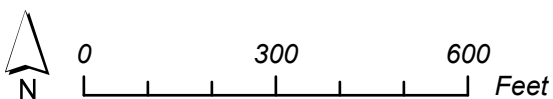


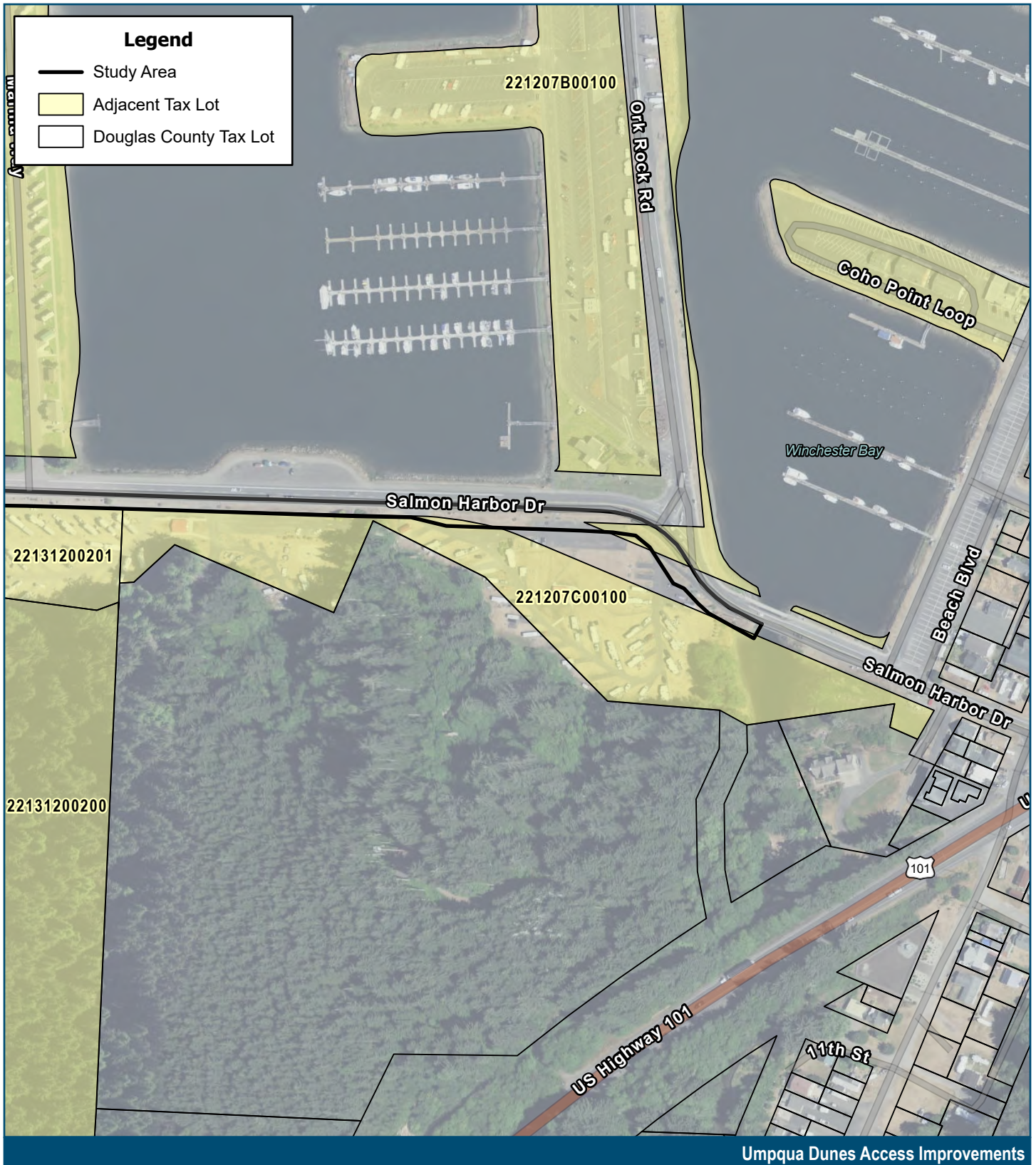


Umpqua Dunes Access Improvements

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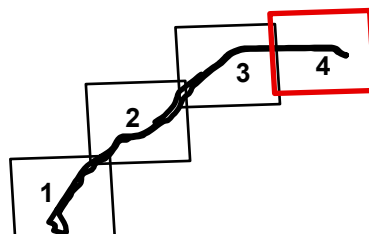
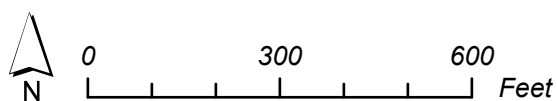
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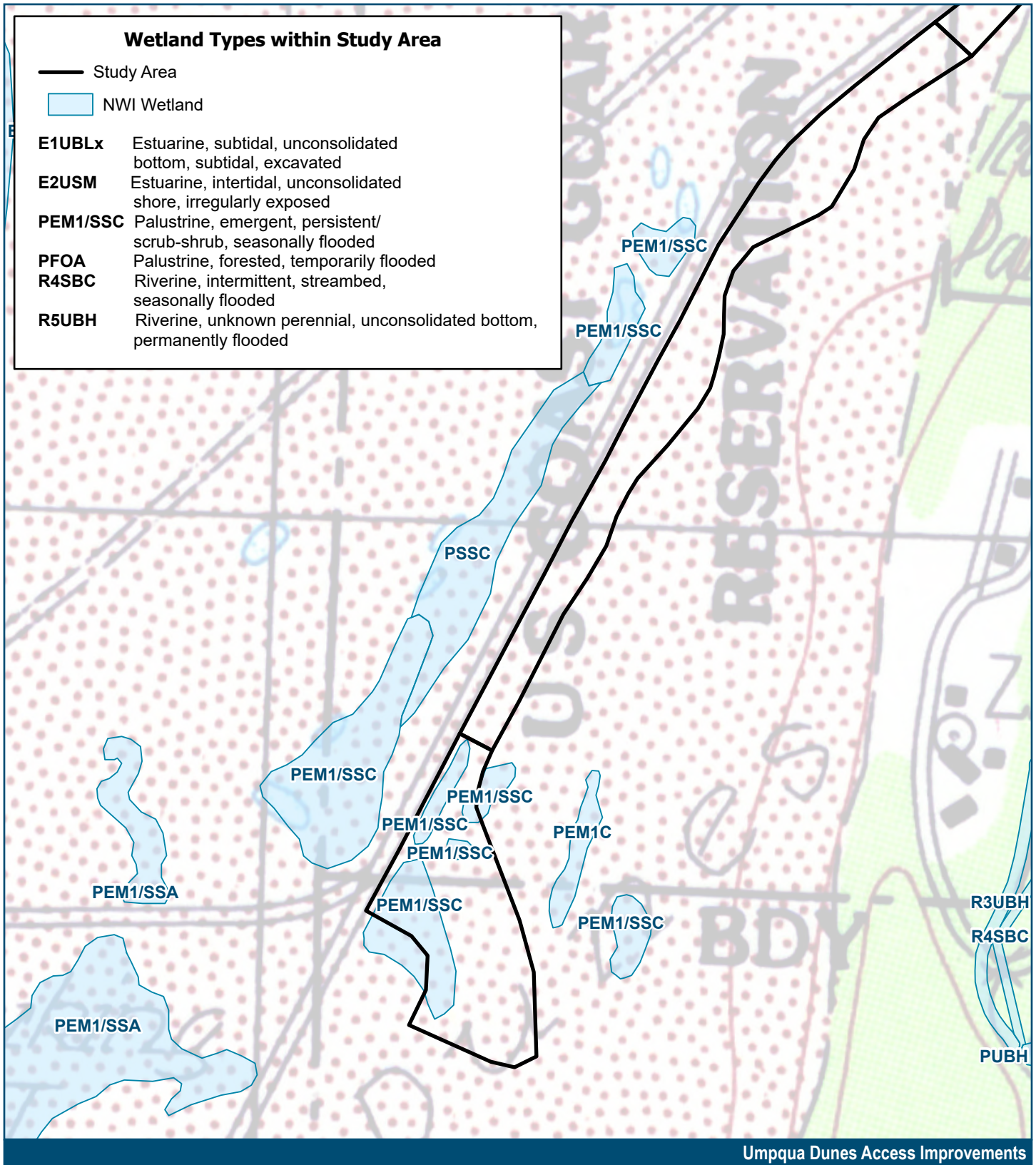




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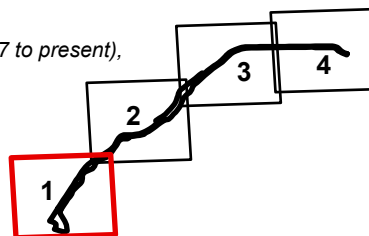
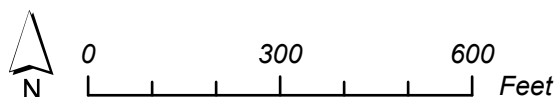
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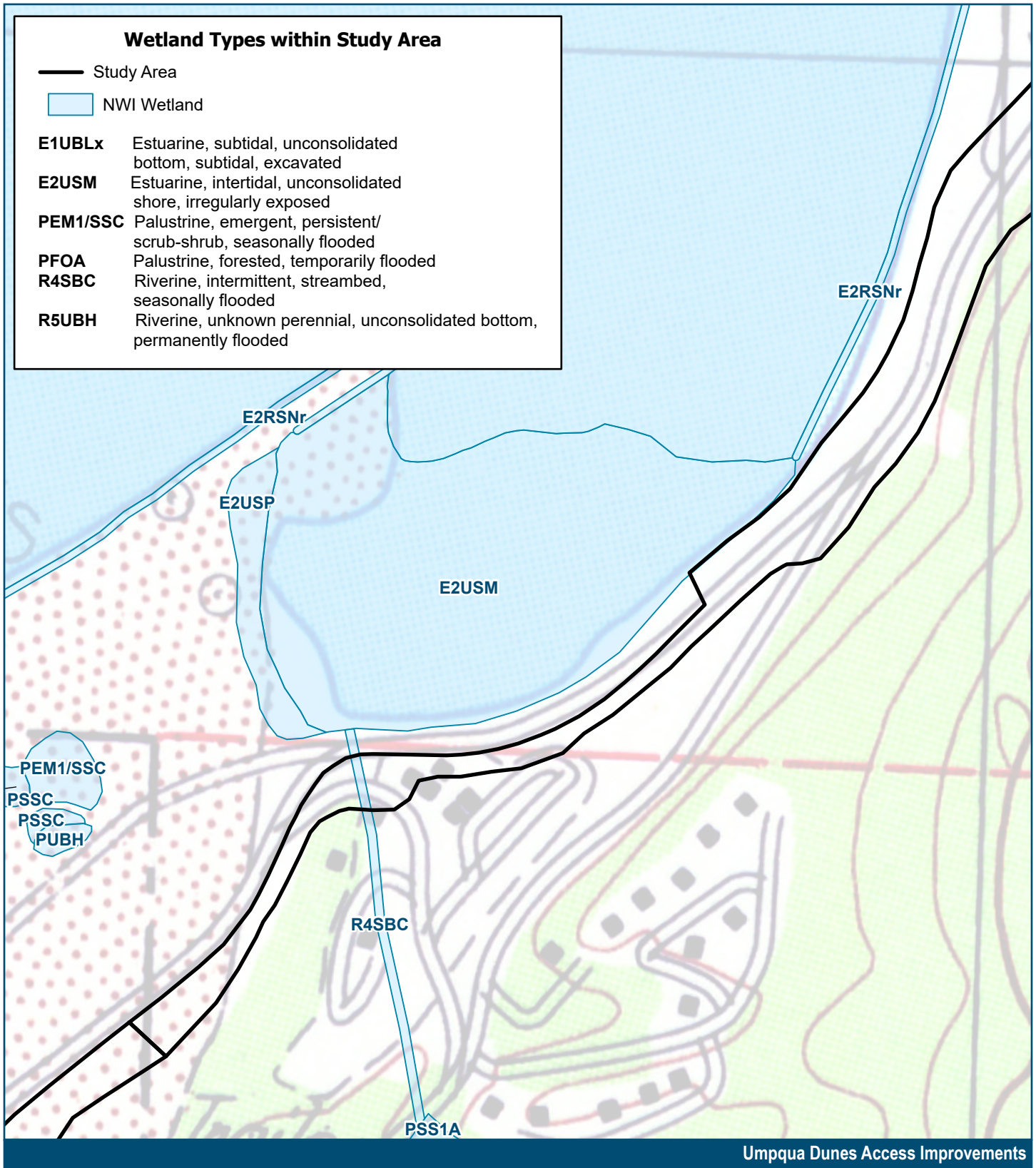




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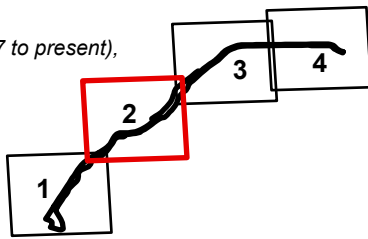
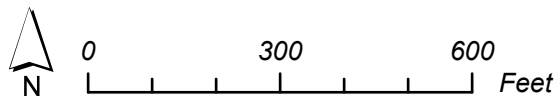
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 National Wetland Inventory

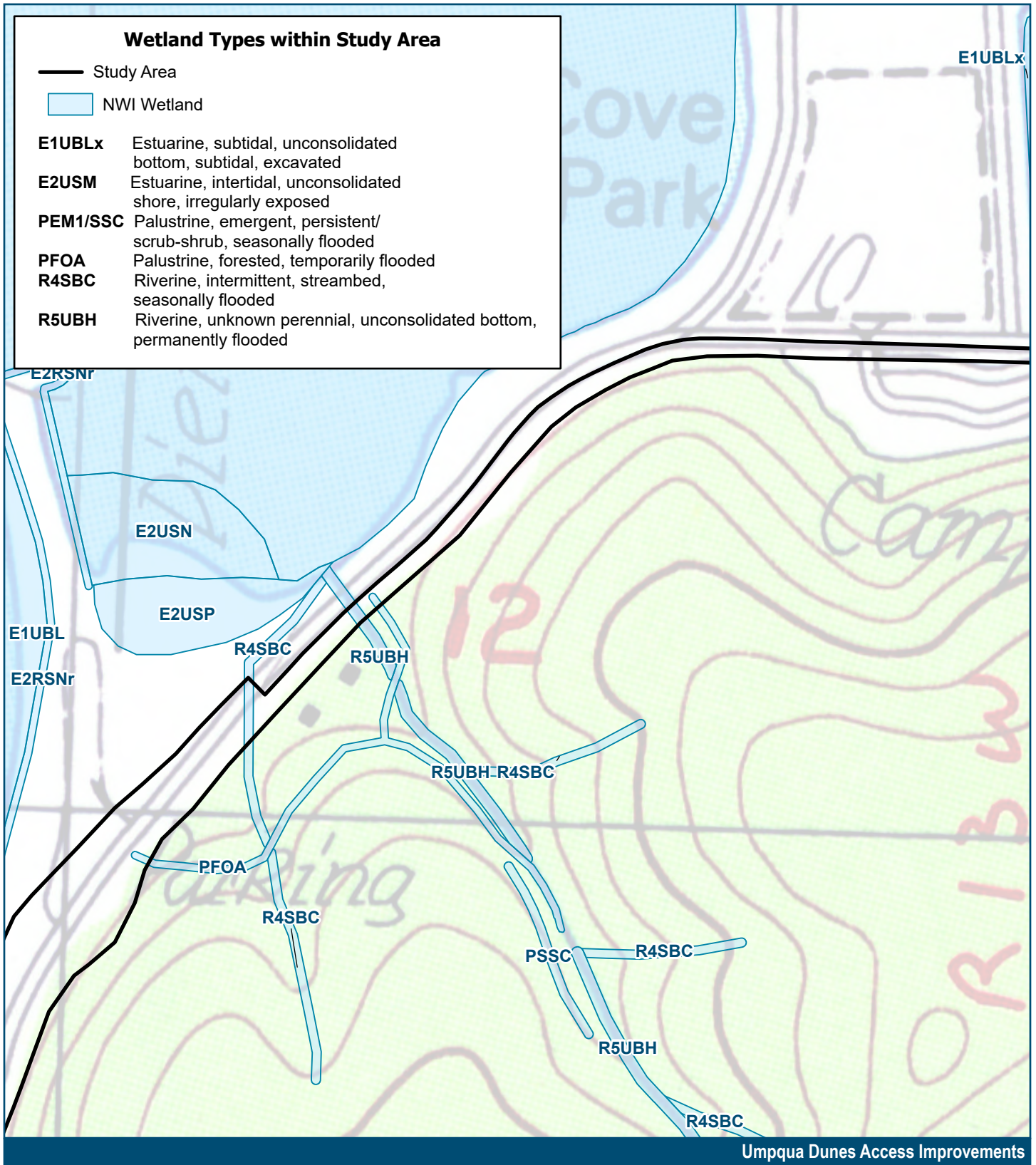




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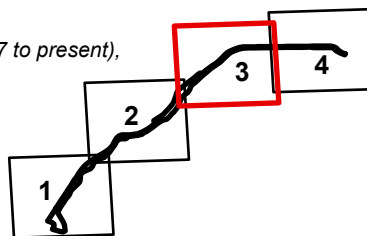
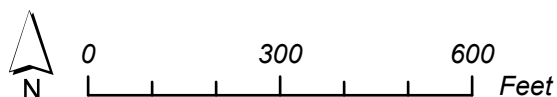
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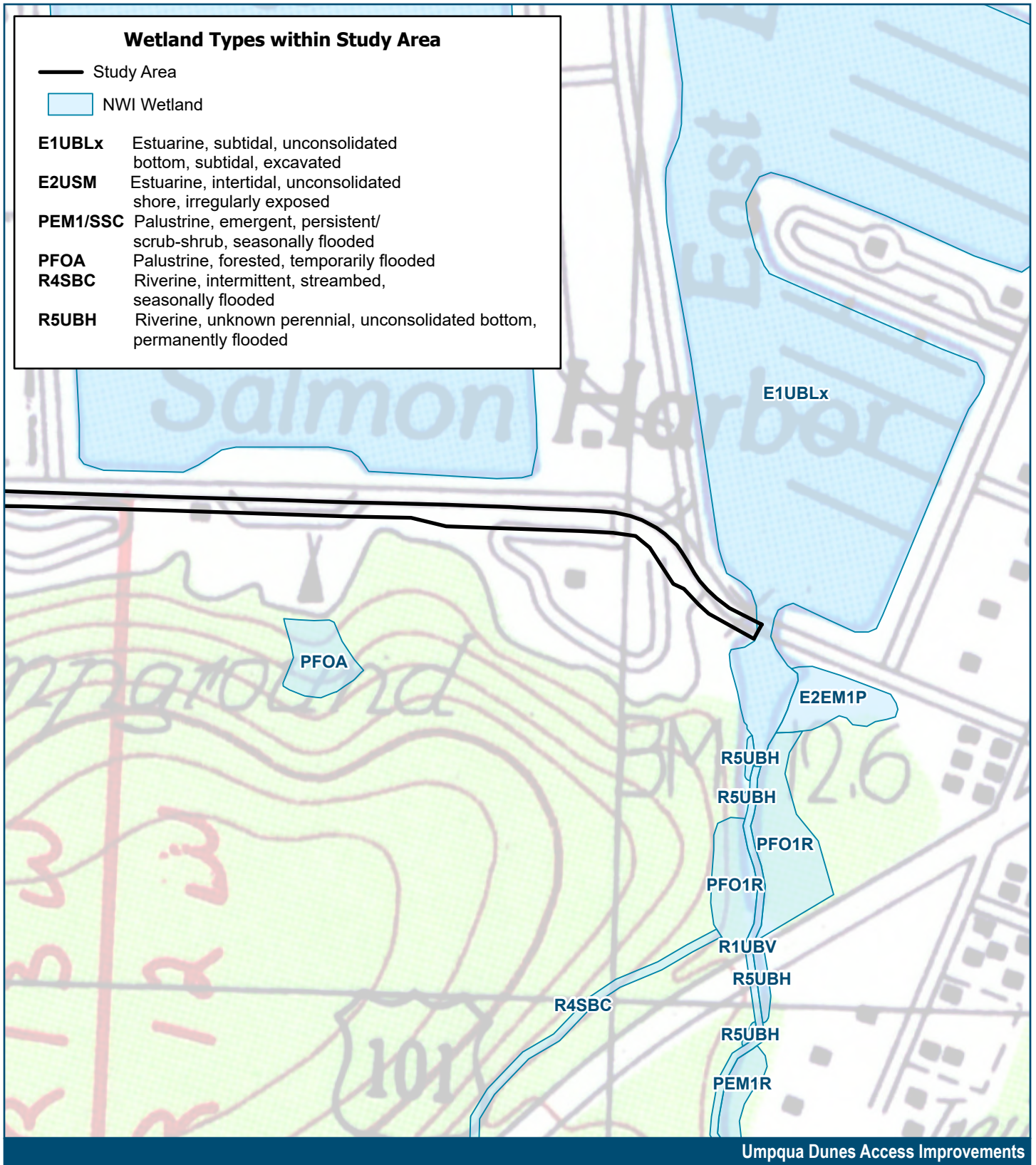




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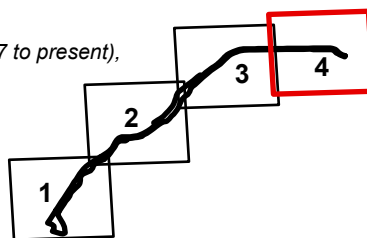
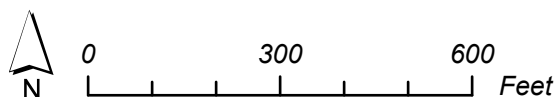
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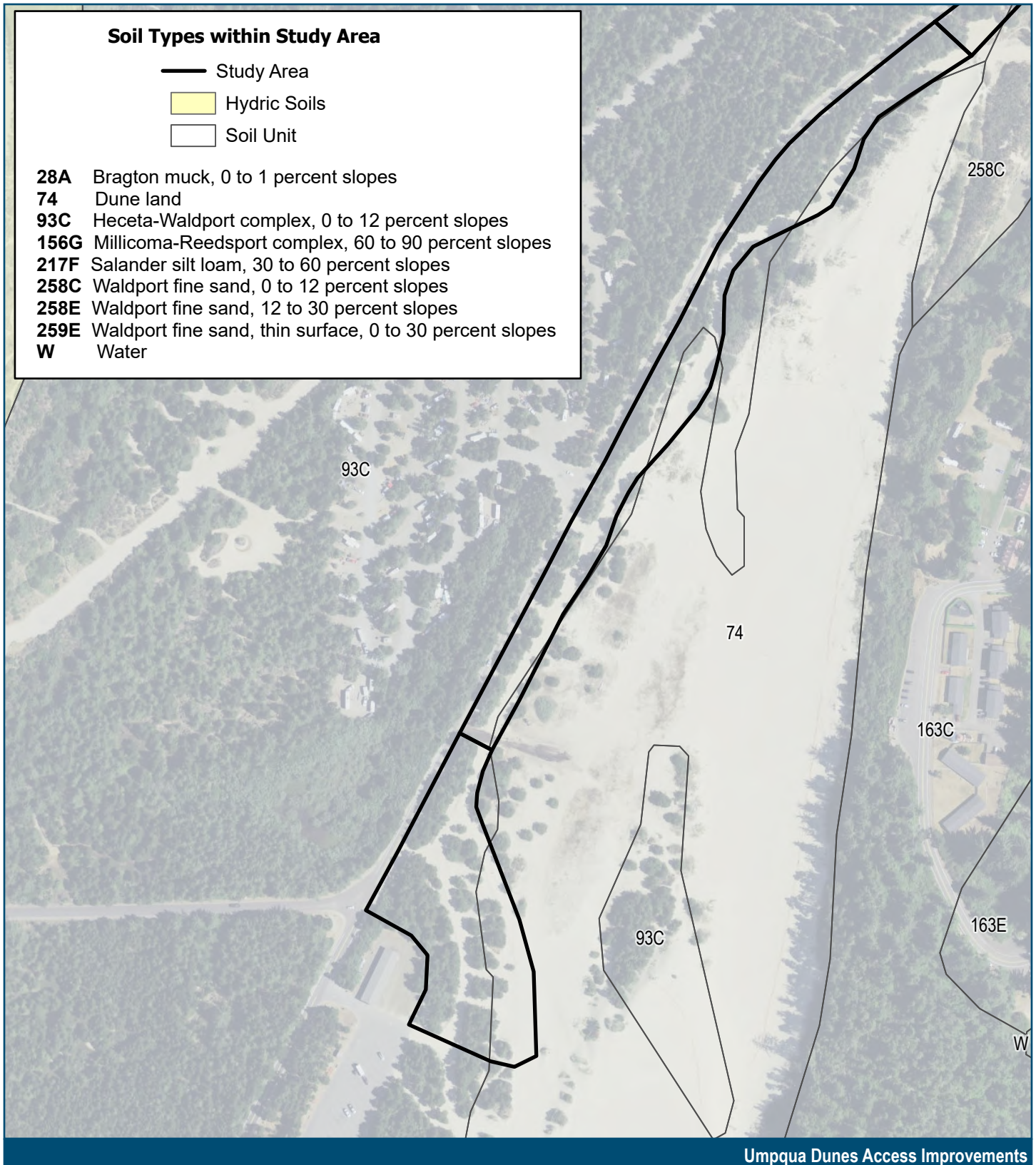




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Figure 3, Sheet 4
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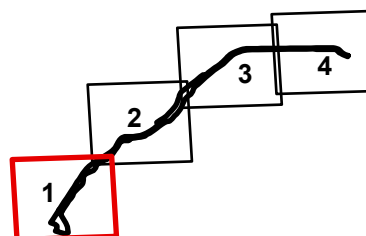
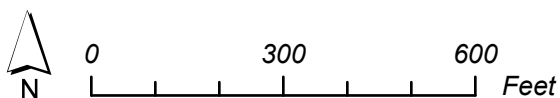


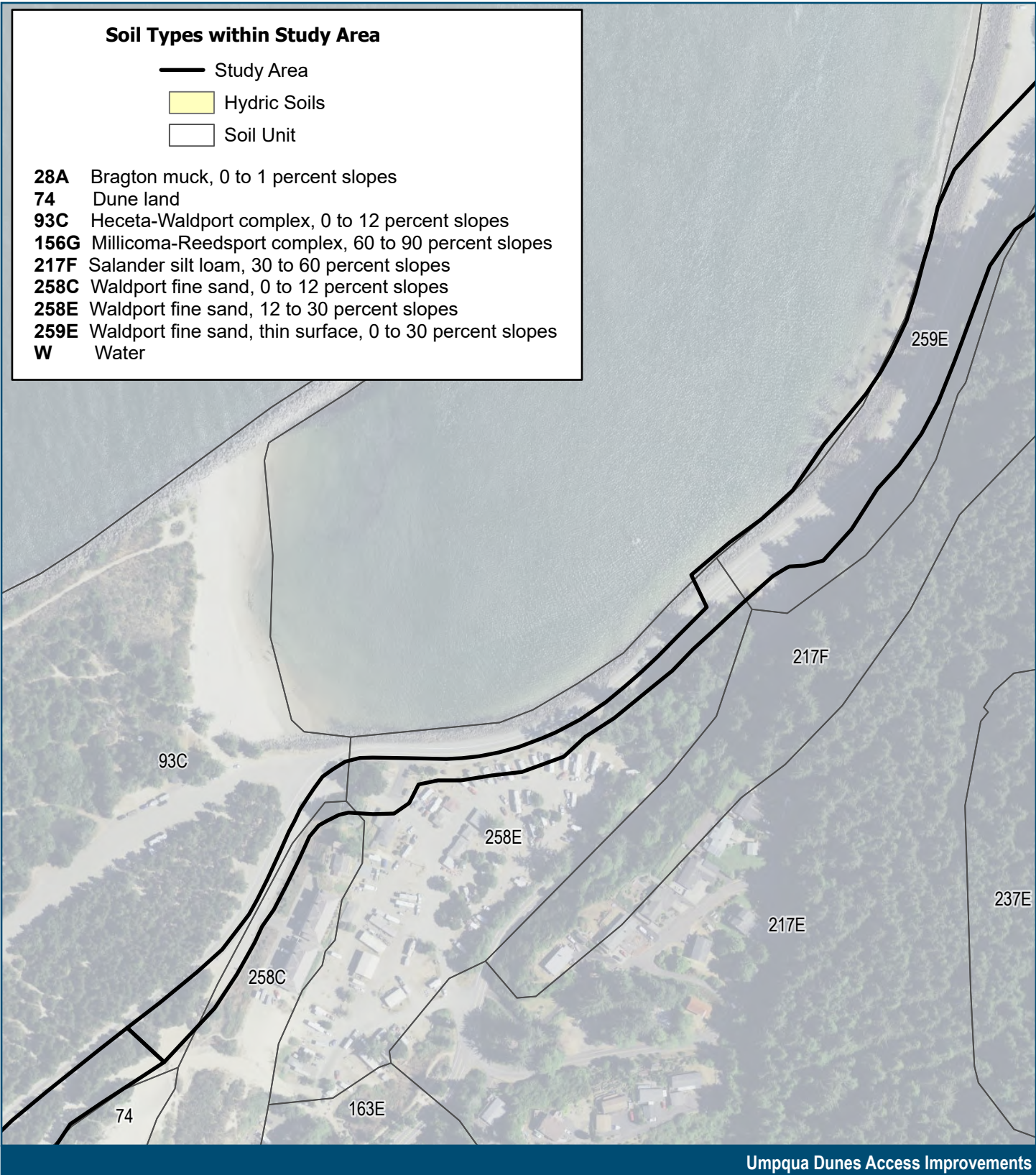


Umpqua Dunes Access Improvements

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 Natural Resources Conservation Service (NRCS), 2018, Soil Survey
 Geographic (SSURGO) database for Douglas County Area, Oregon.

Figure 4, Sheet 1
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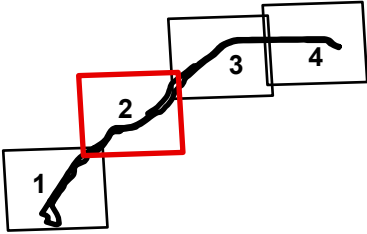
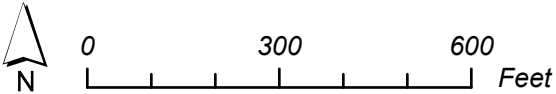


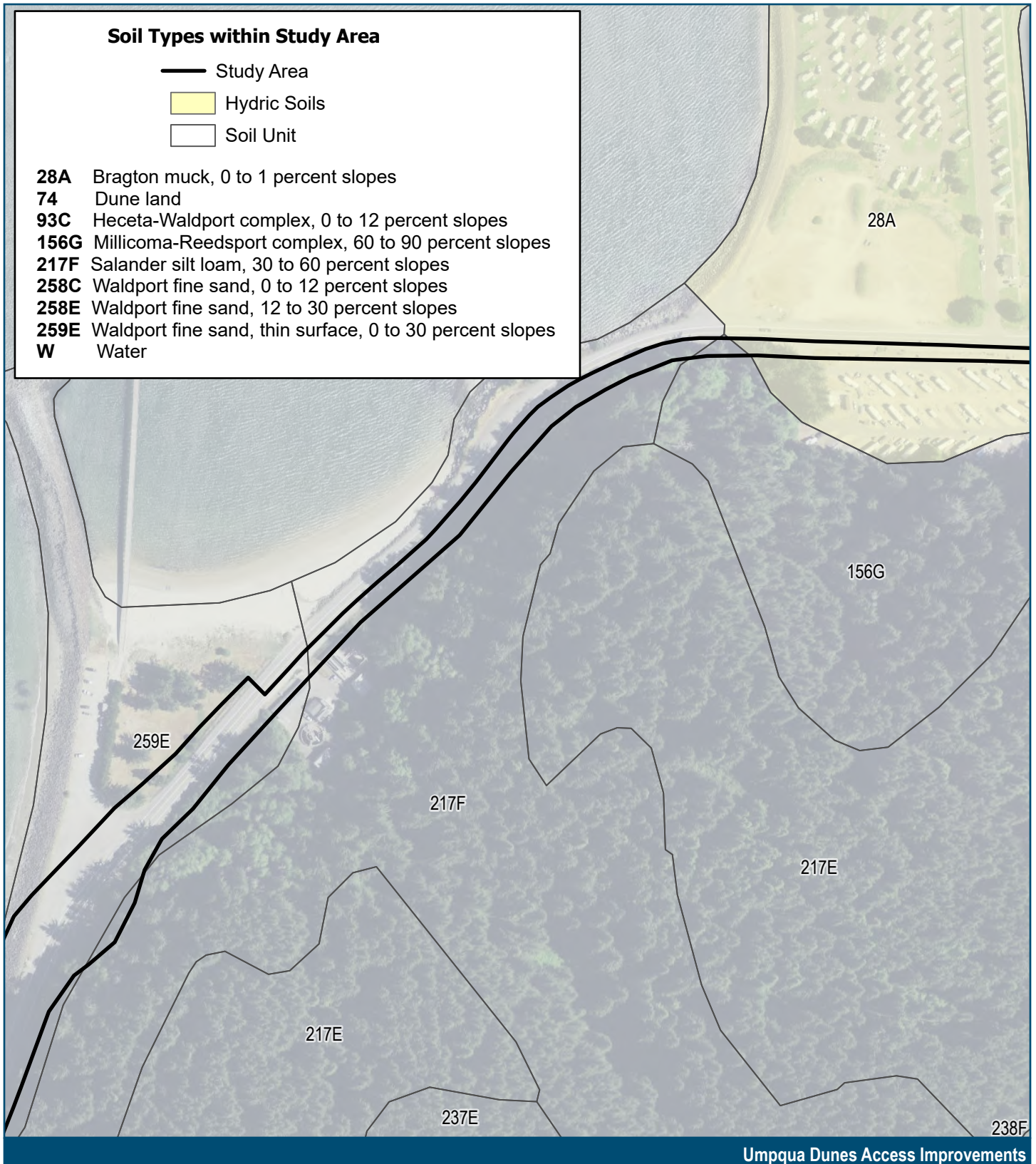


Umpqua Dunes Access Improvements

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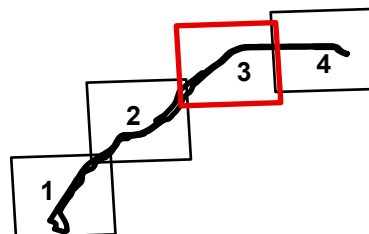
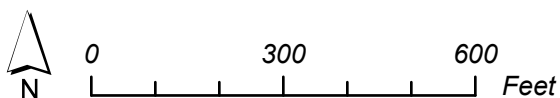
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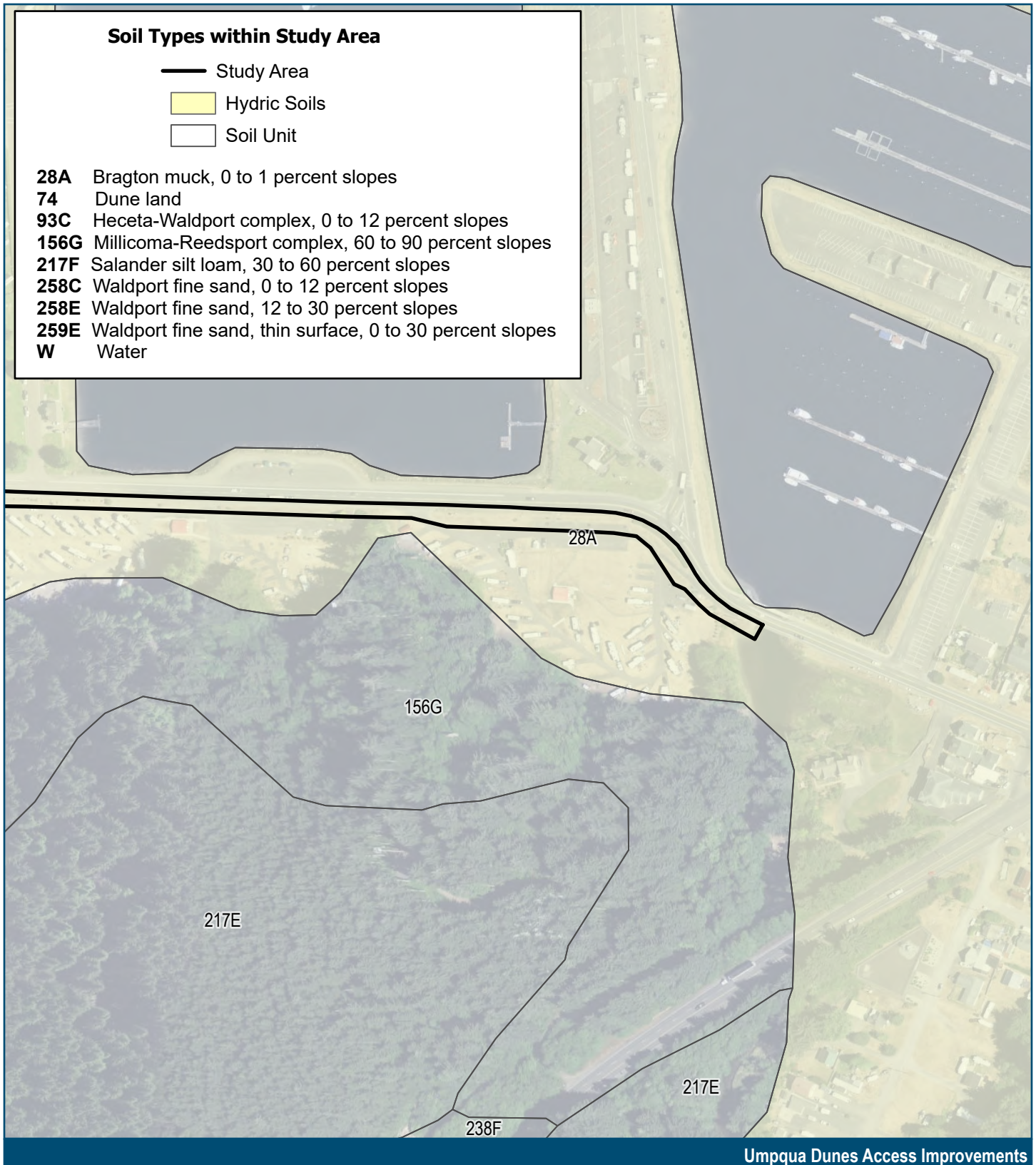




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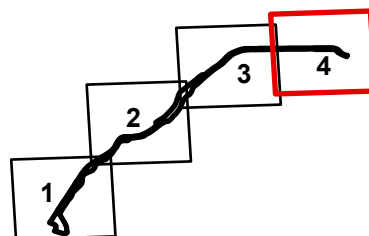
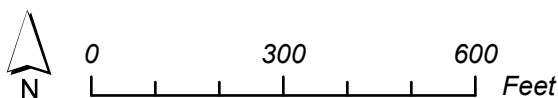
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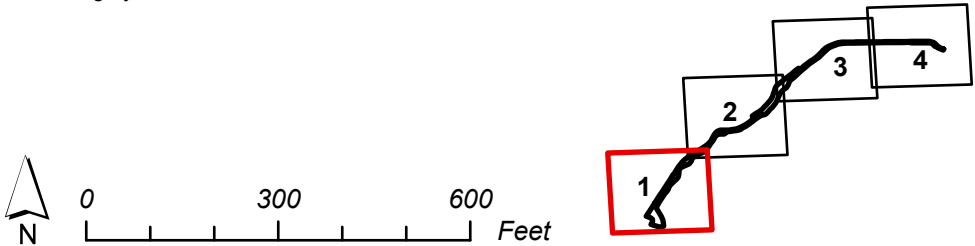




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Umpqua Dunes Access Improvements

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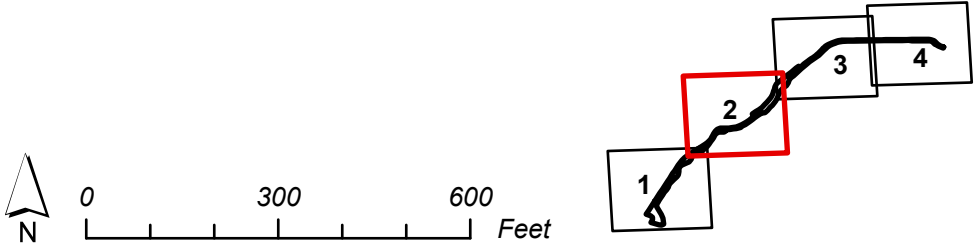




Umpqua Dunes Access Improvements

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Figure 5, Sheet 2
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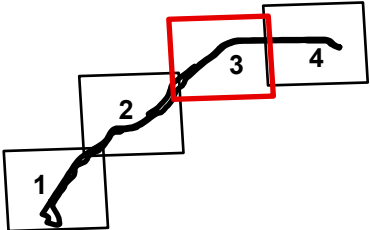
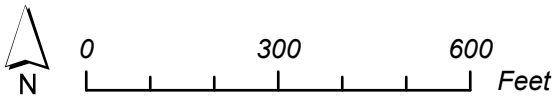




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Umpqua Dunes Access Improvements

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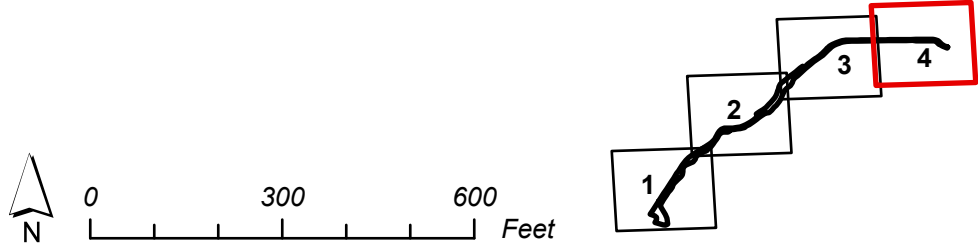


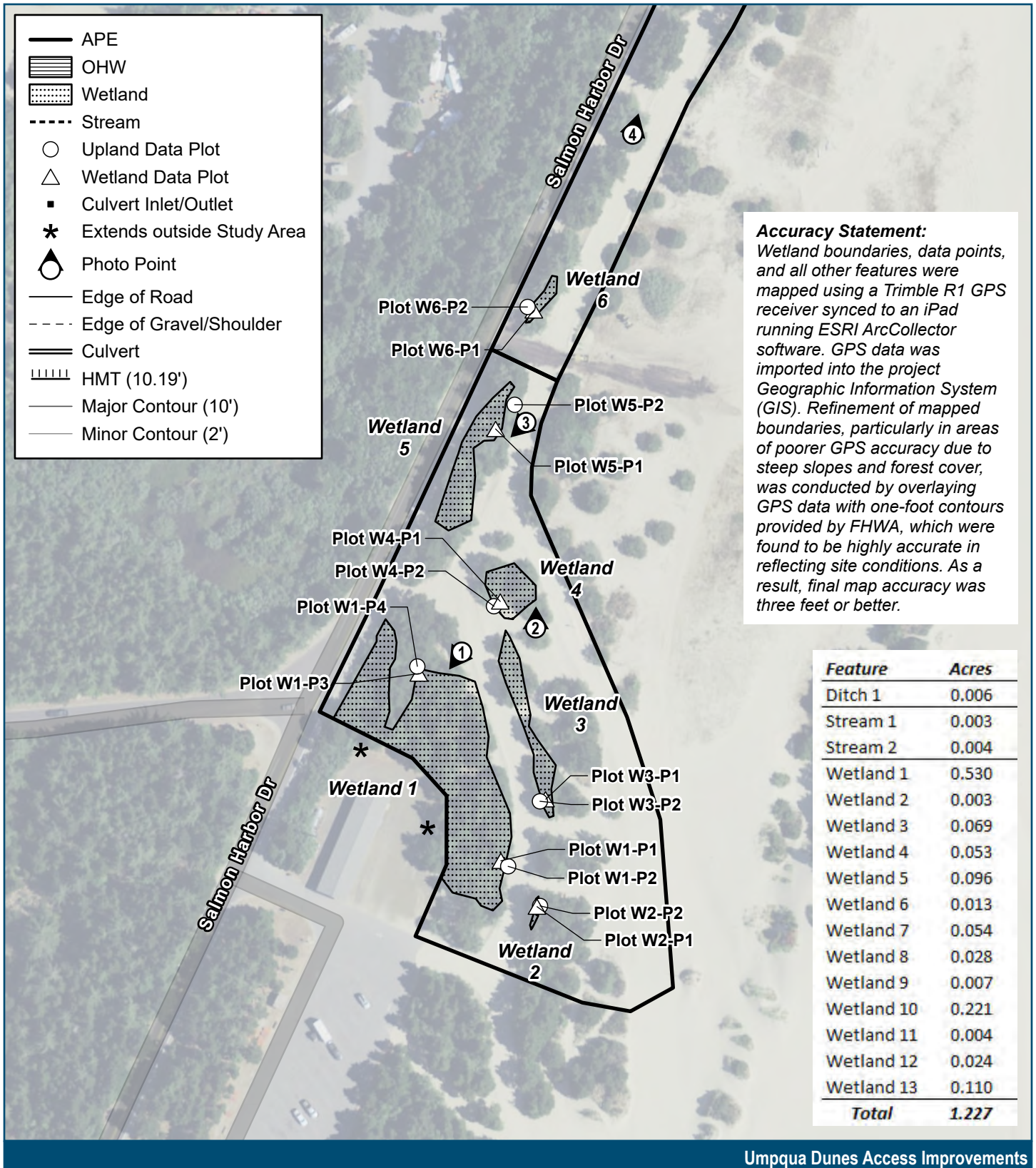


Umpqua Dunes Access Improvements

OSIP Imagery. 2019.

Figure 5, Sheet 4
Aerial Photograph (2019)





OSIP Imagery. 2019.
 Surveyed Contours, OR State Plane, NAVD88, FHWA.
 Using Tidal Data to Determine Highest Measured Tide (HMT). DSL. 2010.

Umpqua Dunes Access Improvements

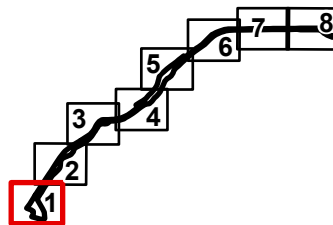
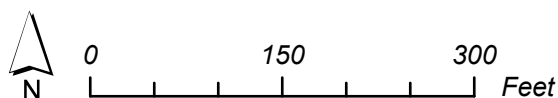
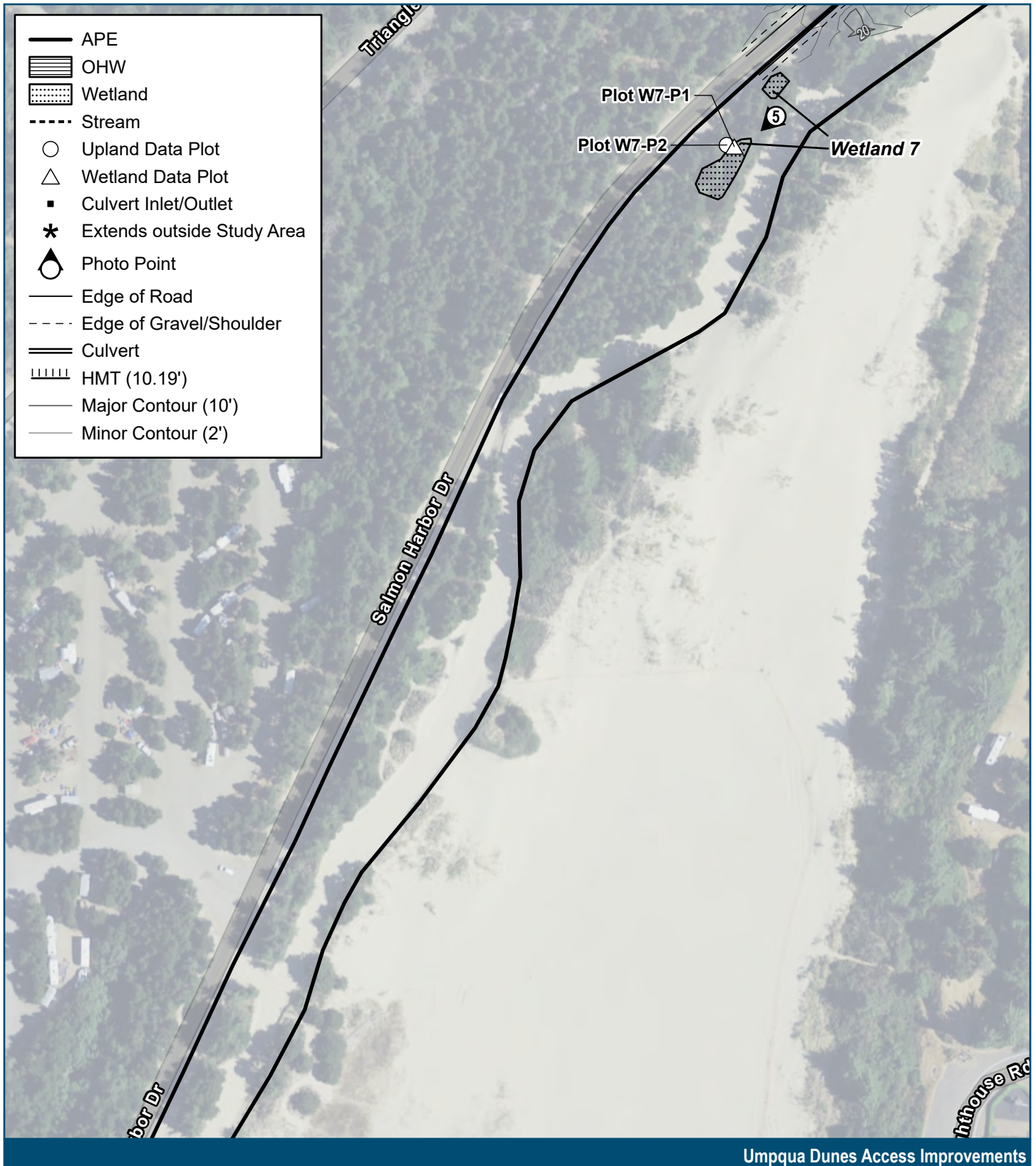


Figure 6, Sheet 1
Wetland Delineation

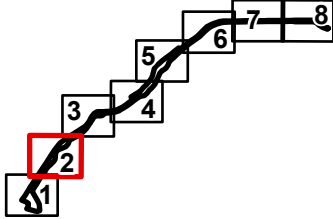
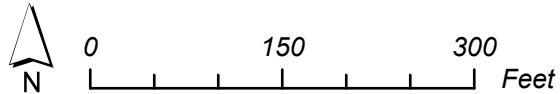


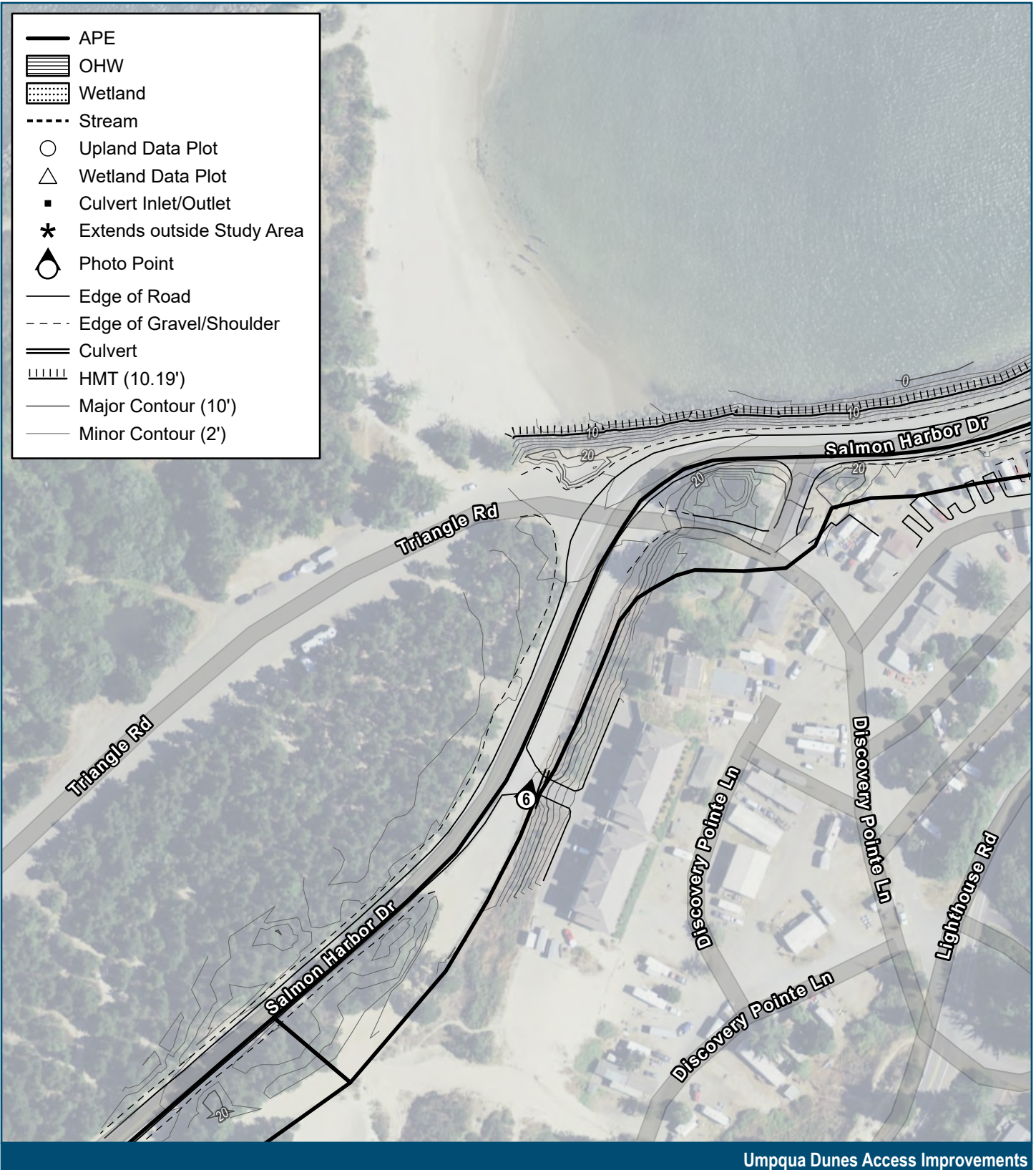


Umpqua Dunes Access Improvements

OSIP Imagery. 2019.
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 Using Tidal Data to Determine Highest Measured Tide (HMT). DSL. 2010.

Figure 6, Sheet 2
 Wetland Delineation





Umpqua Dunes Access Improvements

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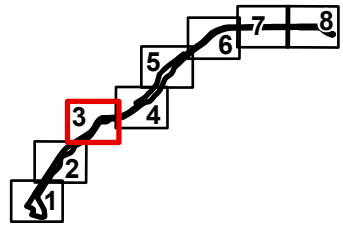
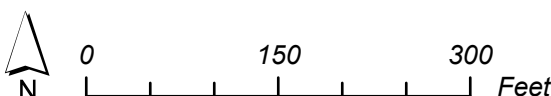
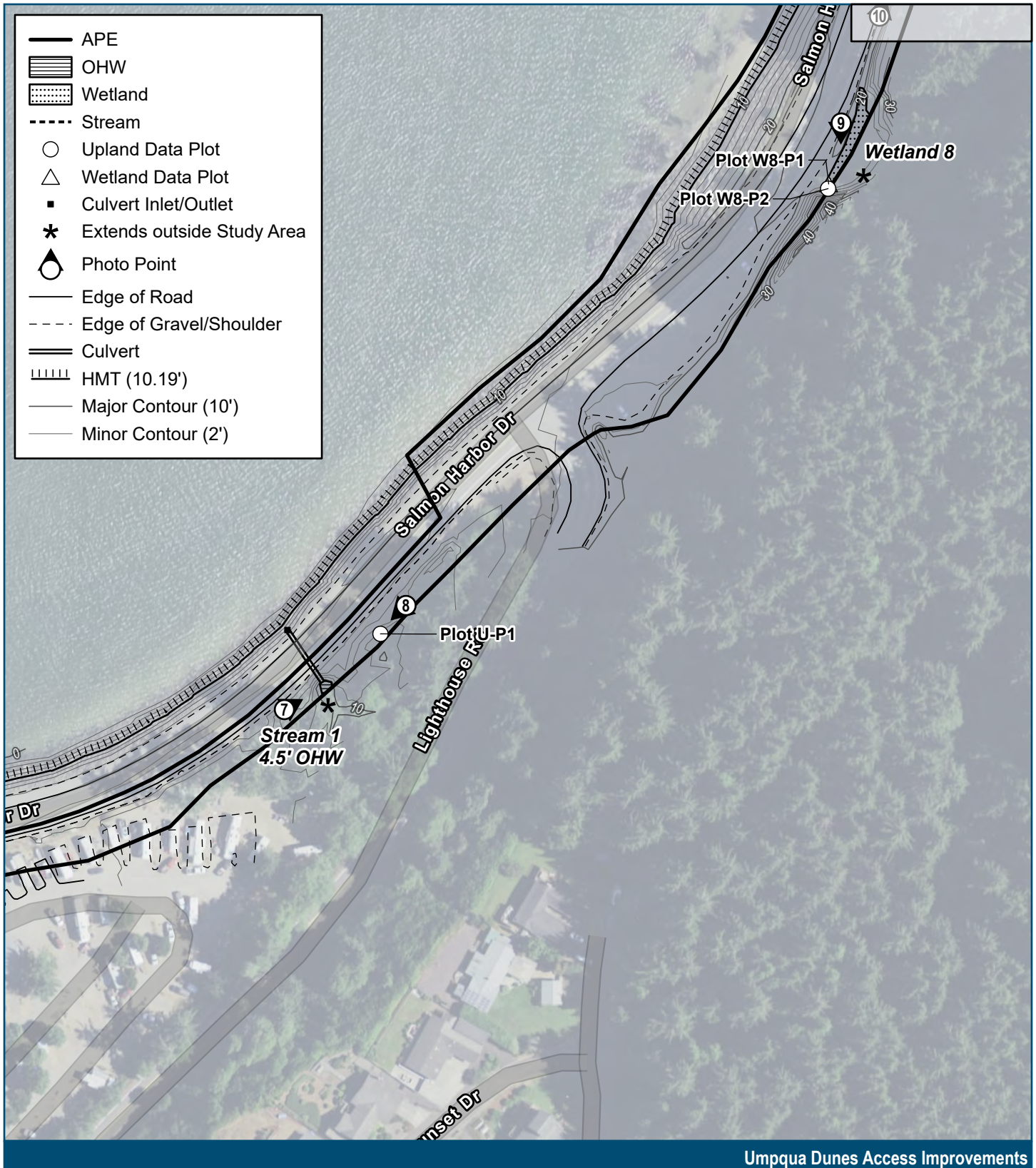


Figure 6, Sheet 3
 Wetland Delineation

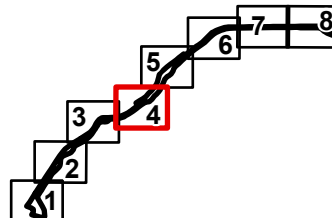
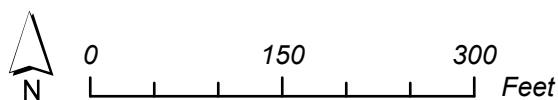


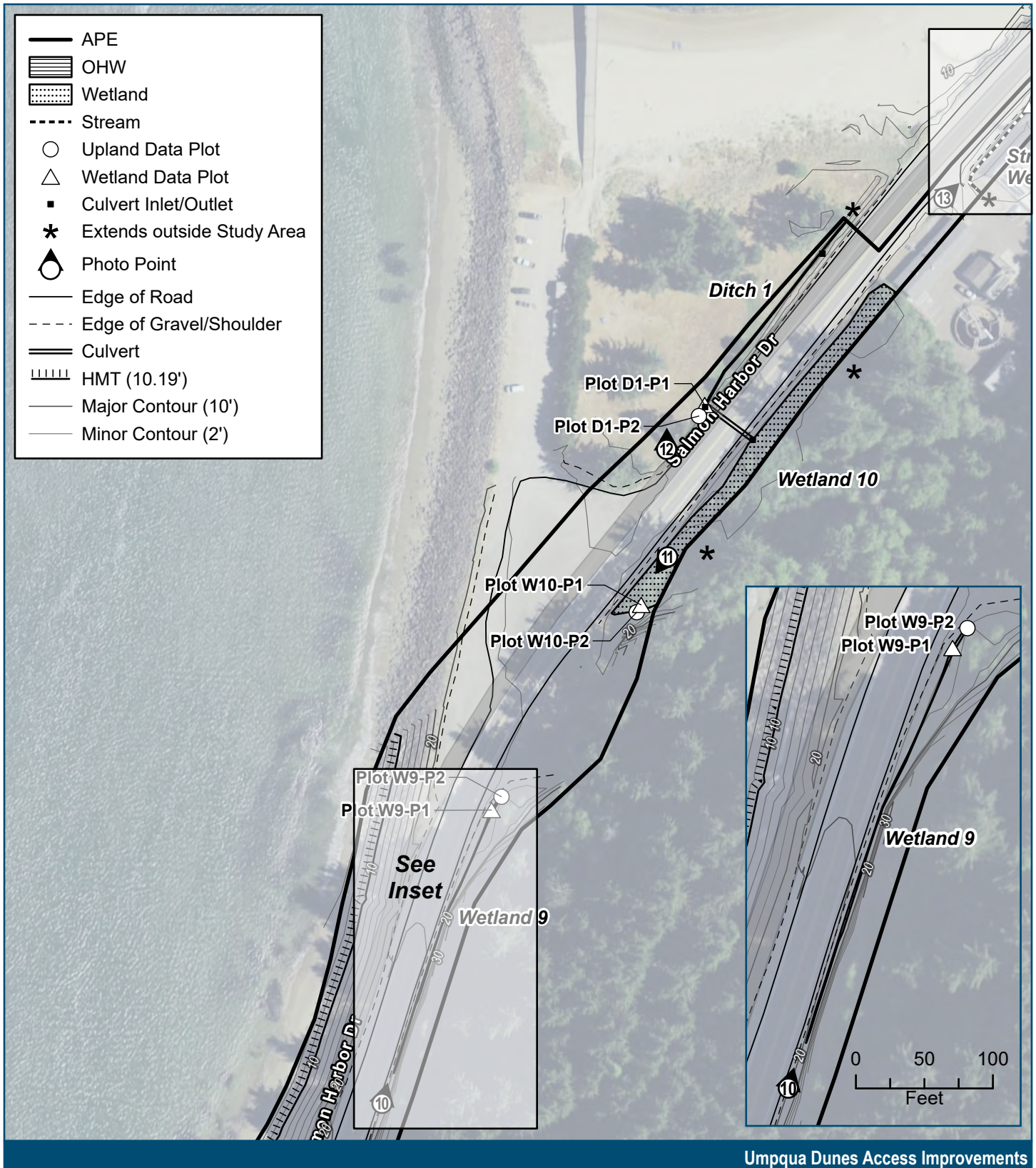


Umpqua Dunes Access Improvements

OSIP Imagery. 2019.
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 Using Tidal Data to Determine Highest Measured Tide (HMT). DSL. 2010.

Figure 6, Sheet 4
 Wetland Delineation

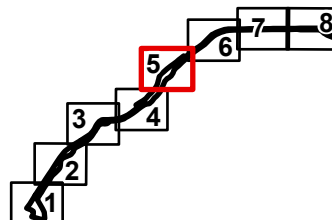
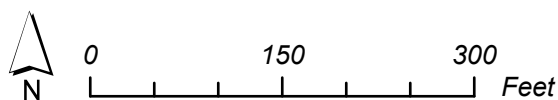


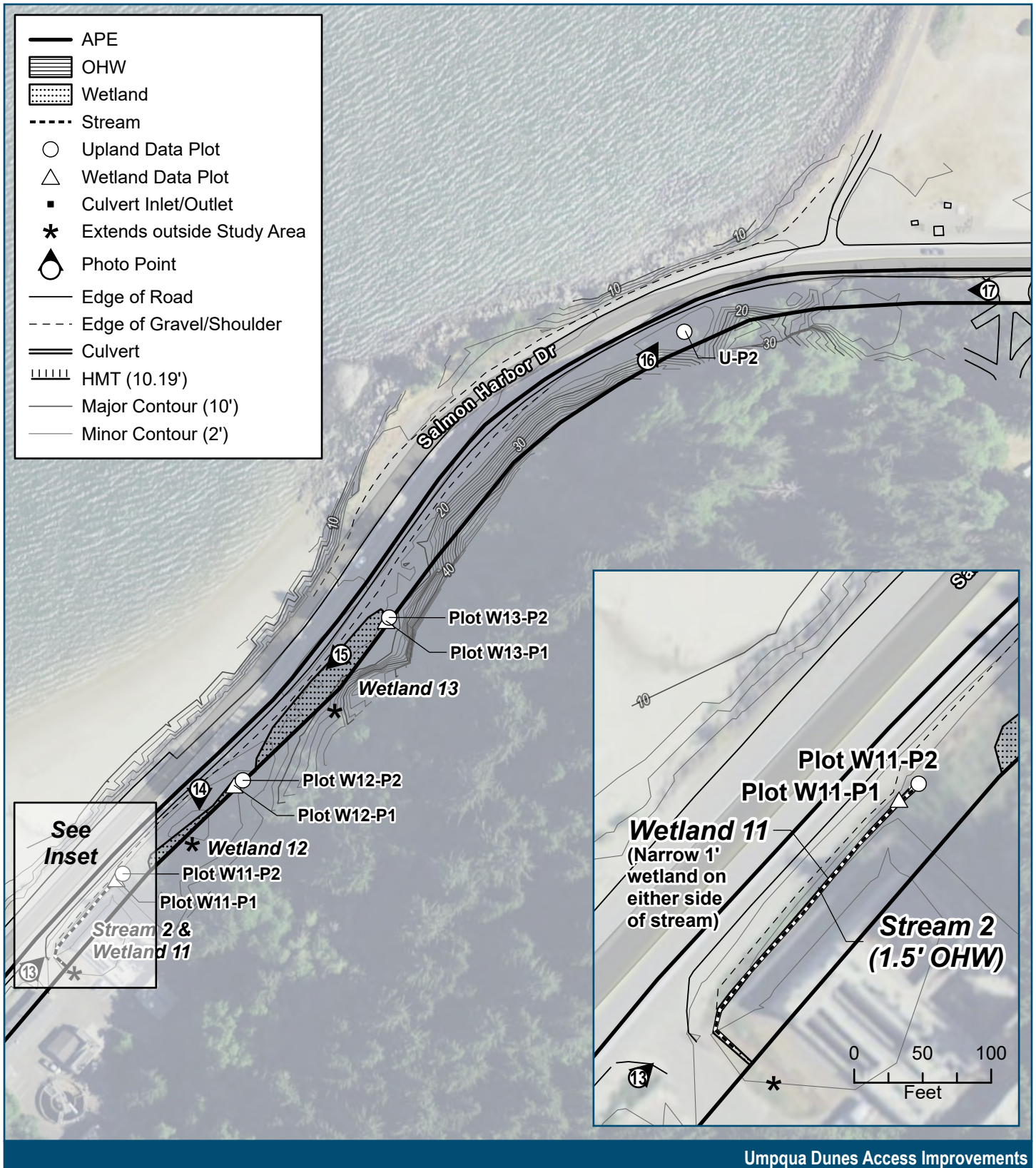


Umpqua Dunes Access Improvements

OSIP Imagery. 2019.
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 Using Tidal Data to Determine Highest Measured Tide (HMT). DSL. 2010.

Figure 6, Sheet 5
 Wetland Delineation





Umpqua Dunes Access Improvements

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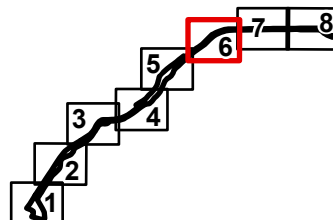
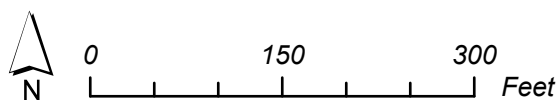


Figure 6, Sheet 6
 Wetland Delineation





Umpqua Dunes Access Improvements

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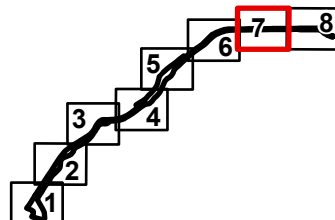
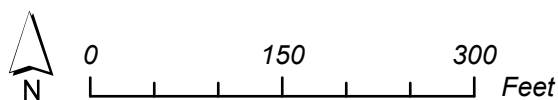
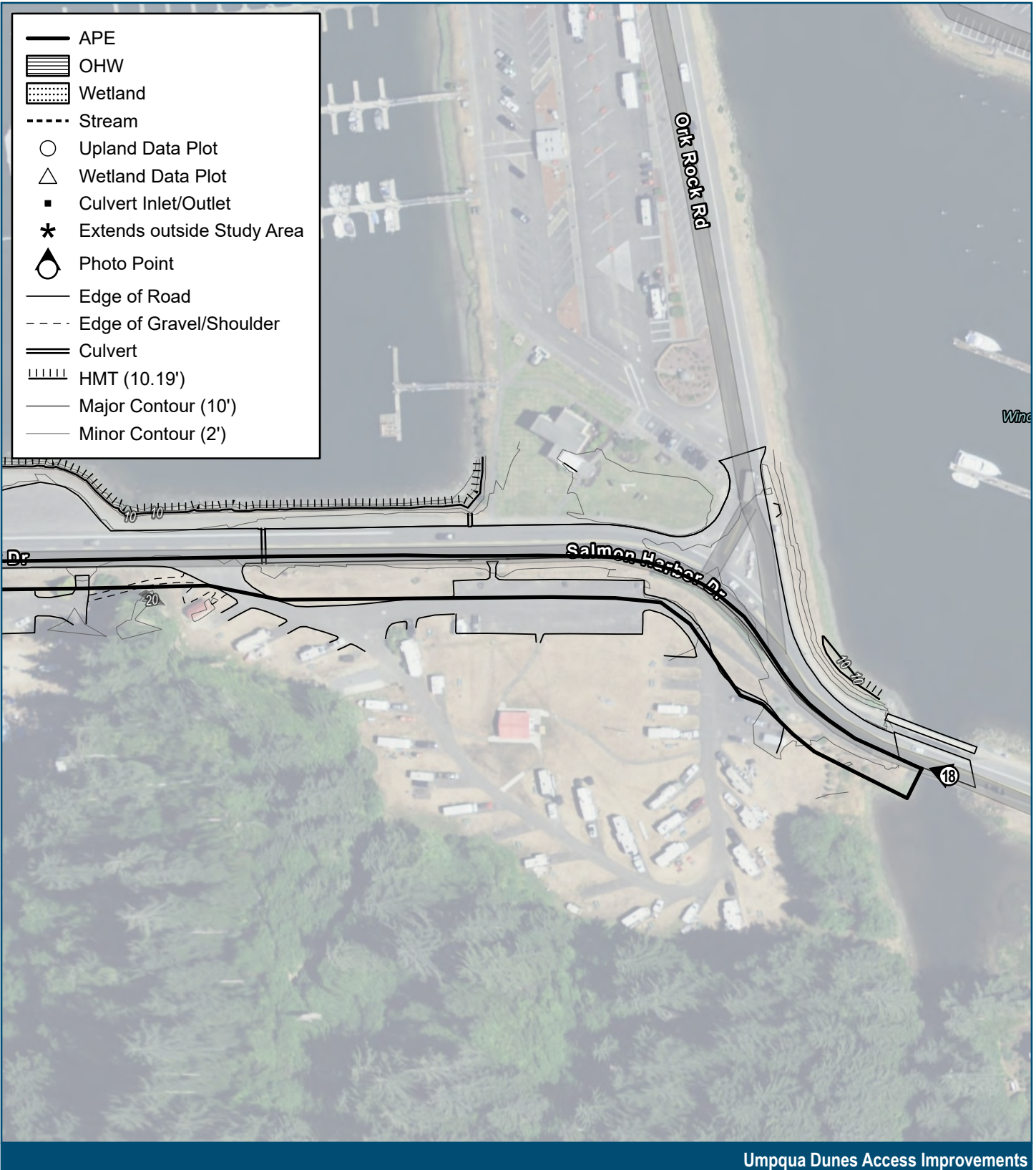


Figure 6, Sheet 7
 Wetland Delineation





Umpqua Dunes Access Improvements

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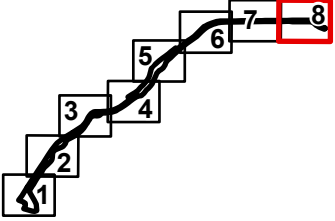
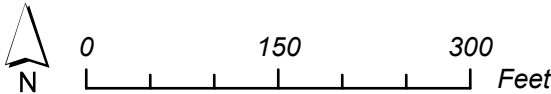


Figure 6, Sheet 8
 Wetland Delineation



APPENDIX B: DATA SHEETS

Plot_ID	Type	WetlandID	Latitude	Longitude	SoilID	SoilType	County
D1-P1	Wetland	Ditch 1	43.67286	43.67286	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas
D1-P2	Upland	Ditch 1	43.672826	43.672826	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas
U-P1	Upland	None	43.668902	43.668902	258E	Waldport fine sand, 12 to 30 percent slopes	Douglas
U-P2	Upland	None	43.675408	43.675408	217F	Salander silt loam, 30 to 60 percent slopes	Douglas
W1-P1	Wetland	Wetland 1	43.660651	43.660651	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W1-P2	Upland	Wetland 1	43.660635	43.660635	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W1-P3	Wetland	Wetland 1	43.661213	43.661213	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W1-P4	Upland	Wetland 1	43.661235	43.661235	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W10-P1	Wetland	Wetland 10	43.672259	43.672259	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas
W10-P2	Upland	Wetland 10	43.672237	43.672237	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas
W11-P1	Wetland	Wetland 11	43.673761	43.673761	217F	Salander silt loam, 30 to 60 percent slopes	Douglas
W11-P2	Upland	Wetland 11	43.673777	43.673777	217F	Salander silt loam, 30 to 60 percent slopes	Douglas
W12-P1	Wetland	Wetland 12	43.674043	43.674043	217F	Salander silt loam, 30 to 60 percent slopes	Douglas
W12-P2	Upland	Wetland 12	43.674059	43.674059	217F	Salander silt loam, 30 to 60 percent slopes	Douglas
W13-P1	Wetland	Wetland 13	43.674538	43.674538	217F	Salander silt loam, 30 to 60 percent slopes	Douglas
W13-P2	Upland	Wetland 13	43.674548	43.674548	217F	Salander silt loam, 30 to 60 percent slopes	Douglas
W2-P1	Wetland	Wetland 2	43.660514	43.660514	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W2-P2	Upland	Wetland 2	43.660516	43.660516	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W3-P1	Wetland	Wetland 3	43.660836	43.660836	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W3-P2	Upland	Wetland 3	43.66083	43.66083	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W4-P1	Wetland	Wetland 4	43.66143	43.66143	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W4-P2	Upland	Wetland 4	43.661416	43.661416	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W5-P1	Wetland	Wetland 5	43.661949	43.661949	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W5-P2	Upland	Wetland 5	43.662021	43.662021	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W6-P1	Wetland	Wetland 6	43.662305	43.662305	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W6-P2	Upland	Wetland 6	43.662315	43.662315	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W7-P1	Wetland	Wetland 7	43.665953	43.665953	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W7-P2	Upland	Wetland 7	43.665958	43.665958	93C	Heceta-Waldport complex, 0 to 12 percent slopes	Douglas
W8-P1	Wetland	Wetland 8	43.670255	43.670255	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas
W8-P2	Upland	Wetland 8	43.670242	43.670242	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas
W9-P1	Wetland	Wetland 9	43.671642	43.671642	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas
W9-P2	Upland	Wetland 9	43.671682	43.671682	259E	Waldport fine sand, thin surface, 0 to 30 percent slopes	Douglas

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: D1-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 7
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is in a shallow swale at the downstream end of a culvert that drains an upslope wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5x30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Pinus contorta</u>	30	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
30 = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>N/A</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
0 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Holcus lanatus</u>	15	N	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Carex obnupta</u>	20	Y	OBL	
3. <u>Juncus effusus</u>	25	Y	FACW	
4. <u>Schedonorus arundinaceus</u>	25	Y	FAC	
5. <u>Lotus corniculatus</u>	15	N	FAC	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
100 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____				
2. _____				
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

SOIL

Sampling Point: D1-P1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					sandy loam	
4-16	10YR 4/7	93	7.5YR 3/6	7	C	M	loamy 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.)						Indicators for Problematic Hydric Soils³:		
	Histosol (A1)		<input checked="" type="checkbox"/> Sandy Redox (S5)			2 cm Muck (A10)		
	Histic Epipedon (A2)		<input type="checkbox"/> Stripped Matrix (S6)			Red Parent Material (TF2)		
<input type="checkbox"/>	Black Histic (A3)		Loamy Mucky Mineral (F1) (except MLRA 1)			Very Shallow Dark Surface (TF12)		
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
	Depleted Below Dark Surface (A11)		Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
	Thick Dark Surface (A12)		Redox Dark Surface (F6)					
<input type="checkbox"/>	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)					
	Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Redox Depressions (F8)					
Restrictive Layer (if present):						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:					
Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/>	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/>	Salt Crust (B11)	<input type="checkbox"/>	Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/>	Aquatic Invertebrates (B13)	<input type="checkbox"/>	Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/>	Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/>	Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/>	FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/>	Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/>	Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					
Field Observations:					
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____			
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					
Hydrology from inputs from upslope wetland (via culvert) and stormwater from Salmon Harbor Drive.					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: D1-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 10
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is slightly above a shallow wetland swale.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Holcus lanatus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Carex obnupta</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
3. <u>Plantago lanceolata</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Rumex acetosella</u>	<u>7</u>	<u>N</u>	<u>FACU</u>	
5. <u>Hypochaeris radicata</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
6. <u>Anthoxanthum odoratum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
77 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>23</u>				
Remarks:				

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: U-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 10
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: Plot is located at the lowest point within a forested depression.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea sitchensis</u>	80	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. <u>Alnus rubra</u>	15	N	FAC	
3. <u>Salix hookeriana</u>	5	N	FACW	
4. _____				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 = _____
100 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Gaultheria shallon</u>	10	Y	FACU	
2. <u>Rubus spectabilis</u>	5	N	FAC	
3. <u>Salix hookeriana</u>	5	N	FACW	
4. <u>Sambucus racemosa</u>	15	Y	FACU	
5. _____				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
35 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Carex obnupta</u>	15	Y	OBL	
2. <u>Polystichum munitum</u>	10	N	FACU	
3. <u>Maianthemum dilatatum</u>	25	Y	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
50 = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. <u>Hedera helix</u>	10	Y	FACU	
2. _____				
10 = Total Cover				
% Bare Ground in Herb Stratum <u>50</u>				
Remarks:				

SOIL

Sampling Point: U-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	7.5YR 2.5/2	100					Org with sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

Soil is organic duff material with some sand.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

No additional secondary indicators were present. Preceding precipitation in the two months prior to investigation were significantly above normal, and water year was normal.

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: U-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 3
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: Plot is located at the lowest point of a terrace at the base of steep slopes. Hydrology clearly lacking.					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>20x30'</u>)				
1. <u>Rubus spectabilis</u>	70	Y	FAC	
2. <u>Sambucus racemosa</u>	20	Y	FACU	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
90 = Total Cover				
Herb Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
0 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: U-P2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 6/4	100					loamy sand	

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W1-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located within a forested depression between a sand ATV trail and Salmon Harbor Drive.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
Tree Stratum (Plot size: <u>30'r</u>)				
1. <u>Pinus contorta</u>	40	Y	FAC	
2. _____				
3. _____				
4. _____				
	40	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>30'r</u>)				
1. <u>Morella californica</u>	20	Y	FACW	
2. <u>Salix hookeriana</u>	10	Y	FACW	
3. _____				
4. _____				
5. _____				
	30	= Total Cover		
Herb Stratum (Plot size: <u>5'r</u>)				
1. <u>Carex obnupta</u>	45	Y	OBL	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	45	= Total Cover		
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____				
2. _____				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>55</u>				
Remarks:				

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

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species _____ x 1 = _____
 FACW species _____ x 2 = _____
 FAC species _____ x 3 = _____
 FACU species _____ x 4 = _____
 UPL species _____ x 5 = _____
 Column Totals: _____ (A) _____ (B)
 Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 5 - Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: W1-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					sand	high organic content
2-16	5Y 4/2	70	5Y 5/2	30	D	M	sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W1-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Plot is located on sandy slope above a forested wetland.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>10x30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
1. <u>Pinus contorta</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____	<u>25</u> = Total Cover				Total % Cover of: _____ Multiply by: _____
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10x30'</u>)				OBL species _____ x 1 = _____	
1. <u>Morella californica</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	FACW species _____ x 2 = _____	
2. <u>Salix hookeriana</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	FAC species _____ x 3 = _____	
3. <u>Vaccinium ovatum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	FACU species _____ x 4 = _____	
4. <u>Gaultheria shallon</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	UPL species _____ x 5 = _____	
5. _____				Column Totals: _____ (A) _____ (B)	
	<u>55</u> = Total Cover			Prevalence Index = B/A = _____	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Carex obnupta</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____					<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____					
9. _____					
10. _____					
11. _____					
	<u>25</u> = Total Cover			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)					
1. _____					
2. _____					
	<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>75</u>					
Remarks:					

SOIL

Sampling Point: W1-P2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 5/3	100					sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W1-P3
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located within a forested wetland depression.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
1. <u>Pinus contorta</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____					Total % Cover of: _____ Multiply by: _____
	<u>60</u> = Total Cover			OBL species _____ x 1 = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30'</u>)				FACW species _____ x 2 = _____	
1. <u>Salix hookeriana</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	FAC species _____ x 3 = _____	
2. _____				FACU species _____ x 4 = _____	
3. _____				UPL species _____ x 5 = _____	
4. _____				Column Totals: _____ (A) _____ (B)	
5. _____				Prevalence Index = B/A = _____	
	<u>15</u> = Total Cover			Hydrophytic Vegetation Indicators:	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)					<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
1. <u>Carex obnupta</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>		<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
2. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
3. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
5. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
	<u>50</u> = Total Cover			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)					
1. _____					
2. _____					
	<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>50</u>					
Remarks:					

SOIL

Sampling Point: W1-P3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					sand	high organic content
2-16	5Y 4/2	70	5Y 5/2	30	D	M	sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Plot was moist but not saturated. Adjacent upland plots were completely dry to 16+ inches.

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W1-P4
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): convex Slope (%): 10
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located on bench within a wetland depression.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>10x30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
1. <u>Pinus contorta</u>	<u>90</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
3. _____				Prevalence Index worksheet:
4. _____	<u>90</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10x30'</u>)				OBL species _____ x 1 = _____
1. <u>Morella californica</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	FACW species _____ x 2 = _____
2. <u>Vaccinium ovatum</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	FAC species _____ x 3 = _____
3. _____				FACU species _____ x 4 = _____
4. _____				UPL species _____ x 5 = _____
5. _____	<u>75</u> = Total Cover			Column Totals: _____ (A) _____ (B)
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Prevalence Index = B/A = _____
1. <u>Carex obnupta</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____	<u>20</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
% Bare Ground in Herb Stratum <u>80</u>	<u>0</u> = Total Cover			
Remarks:				

SOIL

Sampling Point: W1-P4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 7/3	100					sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W2-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located within a small forested wetland depression.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: <u>10x30'</u>)					
1. <u>Pinus contorta</u>	90	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. _____					
3. _____					
4. _____					
<u>90</u> = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10x30'</u>)					
1. <u>Vaccinium ovatum</u>	20	Y	FACU	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 = _____	
2. <u>Morella californica</u>	35	Y	FACW		
3. _____					
4. _____					
5. _____					
<u>55</u> = Total Cover					
Herb Stratum (Plot size: <u>5'</u>)					
1. <u>Carex obnupta</u>	65	Y	OBL		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
<u>65</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>N/A</u>)					
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____					
<u>0</u> = Total Cover					
% Bare Ground in Herb Stratum <u>35</u>					
Remarks:					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W2-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 30
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located on slope above a wetland depression.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15x20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Pinus contorta</u>	75	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
2. _____				
3. _____				
4. _____				
	75	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15x20'</u>)				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 = _____
1. <u>Gaultheria shallon</u>	5	Y	OBL	
2. <u>Vaccinium ovatum</u>	10	Y	FACU	
3. _____				
4. _____				
5. _____				
Herb Stratum (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
Woody Vine Stratum (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
0 = Total Cover				
% Bare Ground in Herb Stratum <u>100</u>				
Remarks:				

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W3-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located within a small forested wetland depression.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
Tree Stratum (Plot size: <u>10x20'</u>)				
1. <u>Pinus contorta</u>	10	Y	FAC	
2. _____				
3. _____				
4. _____				
	10	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>10x20'</u>)				
1. <u>Salix hookeriana</u>	20	Y	FACW	
2. <u>Myrica gale</u>	50	Y	OBL	
3. <u>Gaultheria shallon</u>	5	N	FACU	
4. _____				
5. _____				
	75	= Total Cover		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Carex obnupta</u>	45	Y	OBL	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	45	= Total Cover		
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____				
2. _____				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>55</u>				
Remarks:				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: W3-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					sand	high organic content
2-16	5Y 4/2	70	5Y 5/2	30	D	M	sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (**LRR A**)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 10
 Saturation Present? Yes No Depth (inches): 8
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W3-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 25
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: Plot is located on slope above a wetland depression.					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
= Total Cover					Total % Cover of: _____ Multiply by: _____
Sapling/Shrub Stratum (Plot size: <u>5x20'</u>)				OBL species _____ x 1 = _____	
1. <u>Cytisus scoparius</u>	<u>7</u>	<u>Y</u>	<u>NL</u>	FACW species _____ x 2 = _____	
2. _____	_____	_____	_____	FAC species _____ x 3 = _____	
3. _____	_____	_____	_____	FACU species _____ x 4 = _____	
4. _____	_____	_____	_____	UPL species _____ x 5 = _____	
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)	
= Total Cover				Prevalence Index = B/A = _____	
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Carex obnupta</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____		<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____	_____	_____	_____		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____	_____	_____	_____		<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____		<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____	_____	_____	_____		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____	_____	_____	_____		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
= Total Cover				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Woody Vine Stratum (Plot size: <u>N/A</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
= Total Cover					
% Bare Ground in Herb Stratum <u>75</u>					
Remarks:					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W4-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: Plot is located within a small forested wetland depression.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>10'</u>)				
1. <u>Salix hookeriana</u>	20	Y	FACW	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
20 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Carex obnupta</u>	95	Y	OBL	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Poa annua</u>	7	N	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
102 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/27/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W4-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 30
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located on slope above a wetland depression.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>5x20'</u>)				
1. <u>Cytisus scoparius</u>	10	Y	NL	
2. <u>Salix hookeriana</u>	25	Y	FACW	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5'r</u>)				
1. <u>Carex obnupta</u>	10	Y	OBL	
2. <u>Juncus lesueurii</u>	15	Y	FACW	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>75</u>				
= Total Cover				
Remarks:				

Hydrophytic Vegetation Present? Yes No

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W5-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located within a depression where a wetland is mapped on the NWI.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>20x30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
1. <u>Pinus contorta</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____					Total % Cover of: _____ Multiply by: _____
	<u>25</u> = Total Cover			OBL species _____ x 1 = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>20x30'</u>)				FACW species _____ x 2 = _____	
1. <u>Vaccinium ovatum</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	FAC species _____ x 3 = _____	
2. <u>Myrica gale</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	FACU species _____ x 4 = _____	
3. _____				UPL species _____ x 5 = _____	
4. _____				Column Totals: _____ (A) _____ (B)	
5. _____				Prevalence Index = B/A = _____	
	<u>90</u> = Total Cover			Hydrophytic Vegetation Indicators:	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)					<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
1. <u>Carex obnupta</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>		<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
2. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
3. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
5. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____					
8. _____					
9. _____					
	<u>25</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____					
2. _____					
	<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>					
Remarks:					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W5-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 40
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located on slope above an NWI-mapped wetland depression.	

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u>	<u>(Plot size: 5x30')</u>				
1. <u>Pinus contorta</u>		25	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____					Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____					
		25	= Total Cover		
<u>Sapling/Shrub Stratum</u>	<u>(Plot size: 5x30')</u>				
1. <u>Myrica gale</u>		15	Y	OBL	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 = _____
2. <u>Vaccinium ovatum</u>		15	Y	FACU	
3. _____					
4. _____					
5. _____					
		30	= Total Cover		
<u>Herb Stratum</u>	<u>(Plot size: 5')</u>				
1. <u>Carex obnupta</u>		45	Y	OBL	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
		45	= Total Cover		
<u>Woody Vine Stratum</u>	<u>(Plot size: N/A)</u>				
1. _____					Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____					
		0	= Total Cover		
% Bare Ground in Herb Stratum <u>55</u>					
Remarks:					

SOIL

Sampling Point: W5-P2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 6/3	100					sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W6-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located within a densely vegetated forested depression.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: <u>15x20'</u>)					
1. <u>Pinus contorta</u>	15	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. <u>Myrica gale</u>	40	Y	OBL		
3. <u>Salix hookeriana</u>	20	Y	FACW		
4. _____					
	75	= Total Cover		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 = _____	
Sapling/Shrub Stratum (Plot size: <u>15x20'</u>)					
1. <u>Rubus armeniacus</u>	10	Y	FAC		
2. <u>Salix hookeriana</u>	30	Y	FACW		
3. _____					
4. _____					
	40	= Total Cover			
Herb Stratum (Plot size: <u>5'</u>)					
1. <u>Carex obnupta</u>	90	Y	OBL	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u>Hedera helix</u>	2	N	FACU		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
	92	= Total Cover			
Woody Vine Stratum (Plot size: <u>N/A</u>)					
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____					
	0	= Total Cover			
% Bare Ground in Herb Stratum <u>8</u>					
Remarks:					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W6-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 80
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located on slope above a wetland depression.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>5x30'</u>)				
1. <u>Rubus armeniacus</u>	10	Y	FAC	
2. <u>Cytisus scoparius</u>	5	Y	NL	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
15 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Carex obnupta</u>	90	Y	OBL	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
90 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks:				

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W7-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located within a forested wetland depression.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>20'r</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)	
1. <u>Pinus contorta</u>	<u>85</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____					Total % Cover of: _____ Multiply by: _____
	<u>85</u> = Total Cover			OBL species _____ x 1 = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>20'r</u>)				FACW species _____ x 2 = _____	
1. <u>Morella californica</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	FAC species _____ x 3 = _____	
2. <u>Vaccinium ovatum</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	FACU species _____ x 4 = _____	
3. _____				UPL species _____ x 5 = _____	
4. _____				Column Totals: _____ (A) _____ (B)	
5. _____				Prevalence Index = B/A = _____	
	<u>15</u> = Total Cover			Hydrophytic Vegetation Indicators:	
<u>Herb Stratum</u> (Plot size: <u>5'r</u>)					<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
1. <u>Carex obnupta</u>	<u>90</u>	<u>Y</u>	<u>OBL</u>		<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
2. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
3. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
5. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____					
8. _____					
9. _____					
	<u>90</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____					
2. _____					
	<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>					
Remarks:					

SOIL

Sampling Point: W7-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	2.5Y 4/3	96	10YR 5/6	4	C	M	sand	

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 17
 Saturation Present? Yes No Depth (inches): 14
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W7-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): bench Local relief (concave, convex, none): convex Slope (%): 20
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Remarks:
 Plot is located on shallow bench within a forested wetland depression.

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>15'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. <u>Pinus contorta</u>	<u>90</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
3. _____				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 = _____
4. _____				
	<u>90</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Gaultheria shallon</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Vaccinium ovatum</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Cytisus socparius</u>	<u>5</u>	<u>N</u>	<u>NL</u>	
4. _____				
5. _____				
	<u>45</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <u>Taraxacum officinale</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Goodyera oblongifolia</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>7</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)				
1. _____				
2. _____				
	<u>0</u> = Total Cover			
% Bare Ground in Herb Stratum <u>93</u>				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:				

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W8-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot at toe of slope where hillslopes drain to forested wetland partially impounded by roadway.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>20'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)	
1. <u>Alnus rubra</u>	<u>90</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____	<u>90</u> = Total Cover				Total % Cover of: _____ Multiply by: _____
<u>Sapling/Shrub Stratum</u> (Plot size: <u>20'</u>)				OBL species _____ x 1 = _____	
1. <u>Rubus spectabilis</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	FACW species _____ x 2 = _____	
2. _____				FAC species _____ x 3 = _____	
3. _____				FACU species _____ x 4 = _____	
4. _____				UPL species _____ x 5 = _____	
5. _____	<u>80</u> = Total Cover			Column Totals: _____ (A) _____ (B)	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Prevalence Index = B/A = _____	
1. <u>Carex obnupta</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators:	
2. <u>Athyrium filix-femina</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>		<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
3. <u>Equicetum arvense</u>	<u>5</u>	<u>N</u>	<u>FAC</u>		<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
4. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
5. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
7. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
8. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
9. _____					
10. _____					
11. _____	<u>40</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____					
2. _____					
% Bare Ground in Herb Stratum <u>60</u>	<u>0</u> = Total Cover				
Remarks:					

SOIL

Sampling Point: W8-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100					Muck	
6-16	10YR 2/2	75					sandy muck	
6-16			10YR 4/6	10			sand	
6-16			10YR 3/2	15	D	M	sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

The 6-16" layer was primarily a dark sandy muck, meeting S1. Within that layer there were somewhat spherical-shaped distinct sand inclusions that were not masked in organic materials and were a stripped matrix, represented by the two lower rows in the soil table, which meet S6. 10YR 4/6 made up 10% of the 6-16" layer; 10YR 3/2 made up 15% of the 6-16" layer. Inclusions are presumed to be a result from the construction of Salmon Harbor Drive, as they're not present in other plots in the vicinity and they do not appear to be a natural deposition.

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)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): surface
 Saturation Present? Yes No Depth (inches): surface
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W8-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): bench Local relief (concave, convex, none): convex Slope (%): 70
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: Plot is located on shallow bench within a forested wetland depression, 3' higher than wetland plot.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>10x30'</u>)				
1. <u>Gaultheria shallon</u>	5	N	FACU	
2. <u>Rubus spectabilis</u>	90	Y	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
95 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Polystichum munitum</u>	5	N	FACU	
2. <u>Athyrium filix-femina</u>	5	N	NL	
3. <u>Maianthemum dilatatum</u>	50	Y	FAC	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
60 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>40</u>				
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: W8-P2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	7.5YR 3/3	90					loamy sand	
	10YR 4/6	60	10YR 3/2	40			Sand	10% inclusion in soil profile

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

Mixed soil profile, 90% loamy sand, with 10% somewhat spherical distinct sand inclusions throughout. Inclusions are presumed to be a result from the construction of Salmon Harbor Drive, as they're not present in other plots in the vicinity and they do not appear to be a natural deposition.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W9-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located at northern boundary of linear wetland.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>5x30</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)	
1. <u>Alnus rubra</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____					Total % Cover of: _____ Multiply by: _____
	<u>60</u> = Total Cover			OBL species _____ x 1 = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>5x30</u>)				FACW species _____ x 2 = _____	
1. <u>Sambucus racemosa</u>	<u>7</u>	<u>N</u>	<u>FACU</u>	FAC species _____ x 3 = _____	
2. <u>Rubus spectabilis</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	FACU species _____ x 4 = _____	
3. <u>Rubus parviflorus</u>	<u>15</u>	<u>N</u>	<u>FACU</u>	UPL species _____ x 5 = _____	
4. _____				Column Totals: _____ (A) _____ (B)	
5. _____				Prevalence Index = B/A = _____	
	<u>92</u> = Total Cover			Hydrophytic Vegetation Indicators:	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)					<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
1. <u>Carex obnupta</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>		<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
2. <u>Oenanthe sarmentosa</u>	<u>15</u>	<u>N</u>	<u>OBL</u>		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
3. <u>Holcus lanatus</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>		<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Cirsium arvense</u>	<u>10</u>	<u>N</u>	<u>FAC</u>		<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
5. <u>Galium aparine</u>	<u>5</u>	<u>N</u>	<u>FACU</u>		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____					Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. _____					
9. _____					
	<u>85</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)					
1. _____					
2. _____					
	<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>					
Remarks:					

SOIL

Sampling Point: W9-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					sandy loam	
3-16	10YR 6/4	89	10YR 5/2	10	D	M	Sandy loam	
			10YR 5/6	1	C	M		

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (**LRR A**)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Fed by groundwater from steep slopes above, which is impounded by the road. There is no outlet; the wetland infiltrates.

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W9-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 40
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located on shallow topographic rise where upland begins at the north end of a linear wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus rubra</u>	25	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (A/B)
4. _____				
	25	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet:
1. <u>Rubus parviflorus</u>	40	Y	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Rubus spectabilis</u>	15	Y	FAC	OBL species _____ x 1 = _____
3. <u>Sambucus racemosa</u>	10	N	FACU	FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
	65	= Total Cover		UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators:
1. <u>Oenanthe sarmentosa</u>	2	N	OBL	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Vicia americana</u>	15	Y	FAC	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Galium aparine</u>	10	N	FACU	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. <u>Dactylis glomerata</u>	30	Y	FACU	<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
	57	= Total Cover		
Woody Vine Stratum (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>43</u>				
Remarks:				

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W10-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located at the edge of a wetland that collects and holds groundwater from surrounding slopes.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus rubra</u>	95	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
95 = Total Cover				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 = _____
<u>Sapling/Shrub Stratum</u> (Plot size: <u>20'</u>)				
1. <u>Rubus armeniacus</u>	5	N	FAC	
2. <u>Rubus spectabilis</u>	90	Y	FAC	
3. _____				
4. _____				
5. _____				
95 = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <u>Carex obnupta</u>	100	Y	OBL	
2. <u>Oenanthe sarmentosa</u>	5	N	OBL	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
105 = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)				
1. _____				
2. _____				
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

SOIL

Sampling Point: W10-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					sand	high organic content

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Fed by groundwater from steep slopes above, which is impounded by the road. There is no outlet; the wetland infiltrates.

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W10-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 10
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located on forested slope slightly upslope of wetland plot at change in vegetation community.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>20x30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
1. <u>Alnus rubra</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____					Total % Cover of: _____ Multiply by: _____
	<u>30</u> = Total Cover			OBL species _____ x 1 = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>20x30'</u>)				FACW species _____ x 2 = _____	
1. <u>Sambucus racemosa</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	FAC species _____ x 3 = _____	
2. <u>Rubus spectabilis</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	FACU species _____ x 4 = _____	
3. _____				UPL species _____ x 5 = _____	
4. _____				Column Totals: _____ (A) _____ (B)	
5. _____				Prevalence Index = B/A = _____	
	<u>65</u> = Total Cover			Hydrophytic Vegetation Indicators:	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)					<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
1. <u>Carex obnupta</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>		<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
2. <u>Polystichum munitum</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
3. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
5. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____					Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. _____					
9. _____					
10. _____					
	<u>70</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)					
1. _____					
2. _____					
	<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>30</u>					
Remarks:					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W11-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 80
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is in a narrow riparian wetland along a small ditched perennial stream.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>1x5'</u>)				
1. <u>Scirpus microcarpus</u>	15	Y	OBL	
2. <u>Oenanthe sarmentosa</u>	10	N	OBL	
3. <u>Juncus effusus</u>	10	N	FACW	
4. <u>Phalaris arundinacea</u>	25	Y	FACW	
5. <u>Equisetum arvense</u>	7	N	FAC	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
67 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>33</u>				
Remarks:				

SOIL

Sampling Point: W11-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					sand	high organic content

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Rock refusal at 8".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 8
 Saturation Present? Yes No Depth (inches): 6
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Hydrology due to high water table from small perennial stream.

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W11-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 15
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: Plot is located on a terrace above a 1' wide, riverine wetland along a small ditched perennial stream.					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>N/A</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>20x30'</u>)				
1. <u>Lonicera involucrata</u>	15	Y	FAC	
2. <u>Cytisus scoparius</u>	10	Y	NL	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Anthoxanthum odoratum</u>	25	Y	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Phalaris arundinacea</u>	15	Y	FACW	
3. <u>Equisetum arvense</u>	5	N	FAC	
4. <u>Schedonorus arundinaceus</u>	30	Y	FAC	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>20x30'</u>)				
1. <u>Rubus ursinus</u>	50	Y	FACU	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>25</u>				
Remarks:				

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W12-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located at the lowest point of an NWI-mapped wetland.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)	
1. <u>Alnus rubra</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)	
2. <u>Picea sitchensis</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>		
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)	
4. _____					
	<u>80</u>	= Total Cover		Prevalence Index worksheet:	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30'</u>)					Total % Cover of: _____ Multiply by: _____
1. <u>Salix hookeriana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>		OBL species _____ x 1 = _____
2. <u>Rubus spectabilis</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>		FACW species _____ x 2 = _____
3. <u>Rhamnus purshiana</u>	<u>5</u>	<u>N</u>	<u>NL</u>		FAC species _____ x 3 = _____
4. _____				FACU species _____ x 4 = _____	
5. _____				UPL species _____ x 5 = _____	
	<u>35</u>	= Total Cover		Column Totals: _____ (A) _____ (B)	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Prevalence Index = B/A = _____	
1. <u>Carex obnupta</u>	<u>90</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators:	
2. <u>Polystichum munitum</u>	<u>20</u>	<u>N</u>	<u>FACU</u>		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
3. _____					<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
4. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
5. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
7. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
8. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
9. _____					
10. _____					
11. _____					
	<u>110</u>	= Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<u>Woody Vine Stratum</u> (Plot size: <u>30'</u>)					
1. <u>Rubus ursinus</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>		
2. _____					
	<u>5</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					
Remarks:					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W12-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): convex Slope (%): 50
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Plot is located at the toe of a forested slope above a wetland terrace.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>20x30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
1. <u>Picea sitchensis</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____	<u>80</u> = Total Cover				Total % Cover of: _____ Multiply by: _____
<u>Sapling/Shrub Stratum</u> (Plot size: <u>20x30'</u>)				OBL species _____ x 1 = _____	
1. <u>Rubus spectabilis</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	FACW species _____ x 2 = _____	
2. <u>Gaultheria shallon</u>	<u>75</u>	<u>Y</u>	<u>FACU</u>	FAC species _____ x 3 = _____	
3. _____				FACU species _____ x 4 = _____	
4. _____				UPL species _____ x 5 = _____	
5. _____				Column Totals: _____ (A) _____ (B)	
	<u>90</u> = Total Cover			Prevalence Index = B/A = _____	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Carex obnupta</u>	<u>15</u>	<u>Y</u>	<u>OBL</u>		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____					<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____					
9. _____					
10. _____					
11. _____					
	<u>15</u> = Total Cover			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)					
1. _____					
2. _____					
	<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>85</u>					
Remarks: Most of the wetland within study area is scrub-shrub, with spruce mainly on the edge.					

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W13-P1
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Plot is located in a wetland terrace at the base of steep forested hillslopes.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>30'</u>)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
1. <u>Alnus rubra</u>	<u>95</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
3. _____				Prevalence Index worksheet:	
4. _____	<u>95</u> = Total Cover				Total % Cover of: _____ Multiply by: _____
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30'</u>)				OBL species _____ x 1 = _____	
1. <u>Rubus spectabilis</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	FACW species _____ x 2 = _____	
2. _____				FAC species _____ x 3 = _____	
3. _____				FACU species _____ x 4 = _____	
4. _____				UPL species _____ x 5 = _____	
5. _____	<u>30</u> = Total Cover			Column Totals: _____ (A) _____ (B)	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Prevalence Index = B/A = _____	
1. <u>Carex obnupta</u>	<u>75</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators:	
2. <u>Gaultheria shallon</u>	<u>15</u>	<u>N</u>	<u>FACU</u>		<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
3. _____					<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
4. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
5. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
7. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
8. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
9. _____					
10. _____					
11. _____	<u>90</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>N/A</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____					
2. _____					
% Bare Ground in Herb Stratum <u>10</u>	<u>0</u> = Total Cover				
Remarks:					

SOIL

Sampling Point: W13-P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					Loamy sand	
1-5	7.5YR 2.5/2	100					sand	high organic content
5-16	10YR 3/4	80	2.5Y 4/4	20	D	M	sand	

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Fed by groundwater from steep slopes above.

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

Project/Site: OR Dunes National Recreation Area-Umpqua Dunes Access Project City/County: Winchester Bay / Douglas Sampling Date: 6/28/2022
 Applicant/Owner: Federal Highway Administration - Western Federal Lands Highway Division State: OR Sampling Point: W13-P2
 Investigator(s): V. Thompson, P. Rickus Section, Township, Range: See spreadsheet
 Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): convex Slope (%): 50
 Subregion (LRR): A Lat: See spreadsheet Long: See spreadsheet Datum: NAD 83
 Soil Map Unit Name: See spreadsheet NWI classification: See spreadsheet

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: Plot is located on a slight rise at the toe of a forested slope above a wetland terrace.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20x30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus rubra</u>	100	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
4. _____				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 = _____
100 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>20x30'</u>)				
1. <u>Rubus spectabilis</u>	17	Y	FACU	
2. _____				
3. _____				
4. _____				
5. _____				
17 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Polystichum munitum</u>	65	Y	FACU	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Tellima grandiflora</u>	5	N	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
70 = Total Cover				
Woody Vine Stratum (Plot size: <u>N/A</u>)				
1. _____				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____				
0 = Total Cover				
% Bare Ground in Herb Stratum <u>30</u>				
Remarks:				

APPENDIX C: Photographs



Photo 1. Wetland 1 (6/28/22)



Photo 2. Wetland 3 (6/28/22)



Photo 3. Wetland 5 (6/28/22)



Photo 4. OHV trail looking north (6/28/22)



Photo 5. wetland 7 (6/28/22)



Photo 6. Upland roadside area looking north just north of intersection of Salmon Harbor Drive with the sand road.



Photo 7. Stream 1 flows from right to left in this photo (4.5' OHW). (6/28/22)



Photo 8. Upland Plot U-P1 was taken in the lowest point within this mixed upland/wetland plant community.



Photo 9. Wetland 8 (6/28/22)



Photo 10. wetland 9 is present within a narrow band where the bottom of the road fill meets the bottom of the steep hillslope. (6/28/22)



Photo 11. Wetland 10 (6/29/22)



Photo 12. Ditch 1 receives water from Wetland 10 via black plastic culvert in foreground. (6/29/22)



Photo 13. Stream 2 flows from bottom to top of this photo (1.5' OHW), with a narrow fringe of wetland on either side. (6/29/22)



Photo 14. Wetland 12 (6/29/22)



Photo 15. Wetland 13 (6/29/22)



Photo 16. U-P2 was recorded within a topographically low point with a facultative plant community. (6/29/22)



Photo 17. Looking west (6/29/22)



Photo 18. Looking west. Study area ends on the far side of Winchester Creek well above the HMT of the tidally-influenced creek (6/29/22)

APPENDIX D: Delineation Results Tables

Table 1: Wetlands, OR Dunes National Recreation Area-Umpqua Dunes Access Project

ID ¹	Cowardin Class ³	HGM Class ⁴	Sample Plots	Photo Points	Preliminary Jurisdiction Estimation/ Additional Information for Jurisdictional Determination
D1	PEM	Slope	D1-P1	12	Average 2' wide wetland ditch that receives water from Wetland 10 via a culvert underneath Salmon Harbor Drive, and stormwater from Salmon Harbor Drive. It is 255' long within the study area and drains north outside of the study area to Halfmoon Bay and the Umpqua River. Boundary was based on soils and hydrology corresponding with a slight change in topography. Jurisdictional to DSL and USACE.
W1	PFO	DEP	W1-P1, P3	1	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W2	PFO	DEP	W2-P1	n/a	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W3	PFO	DEP	W3-P1	2	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydrophytic vegetation, hydric soils, and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W4	PSS	DEP	W4-P1	n/a	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W5	PFO	DEP	W5-P1	3	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W6	PFO	DEP	W6-P1	n/a	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydric soils and wetland hydrology with a corresponding rise in topography. Wetlands 1-6 are part of the same inter-dunal wetland complex that is mapped on the NWI. Jurisdictional to both DSL and USACE.
W7	PFO	DEP	W7-P1	5	Forested wetland within an inter-dunal depression. Wetland hydrology is due to seasonal vertical fluctuations in groundwater in well-draining sandy soils; no inlets or outlets are present, and surface flows would not be expected outside of irregular flood events. Boundary was based on absence of hydrophytic vegetation, hydric soils, and wetland hydrology with a corresponding rise in topography. Jurisdictional to both DSL and USACE.
W8	PFO	Slope	W8-P1	9	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and infiltrates through sandy soils. It appears to be impounded by Salmon Harbor Drive. The boundary was based on topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
W9	PFO	Slope	W9-P1	10	Linear wetland at the base of steep slopes that is impounded by the roadway and infiltrates. Fed by groundwater from steep slopes above. The boundary was based on topography, and absence of wetland soils and hydrology. It is jurisdictional to DSL and presumed non-jurisdictional to USACE because it is isolated.
W10	PFO	Slope	W10-P1	11	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and appears to be partially impounded by Salmon Harbor Drive. A culvert in the central portion of the wetland drains underneath Salmon Harbor Drive to Ditch 1 and ultimately Halfmoon Bay and the Umpqua River. The boundary was based on a topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
W11	PEM	Riverine	W11-P1	n/a	Fringe wetland along Stream 2. Stream 2 is in a narrow ditched channel within the study area; Wetland 11 is located in a 1' wide band on both sides of Stream 2 which provides the consistent high water table for wetland conditions. The boundary was based on topography, soils, and hydrology, which were no longer present above the wetland fringe. Hydrology is received from and discharges to Stream 1. It is jurisdictional to DSL and USACE.
W12	PFO	Slope	W12-P1	14	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and appears to be impounded by Salmon Harbor Drive with no obvious outlet. The boundary was based on a topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
W13	PFO	Slope	W13-P1	15	Wetland in slight depressional terrace at the base of steep slopes. Fed by groundwater from surrounding slopes and appears to be impounded by Salmon Harbor Drive with no obvious outlet. The boundary was based on a topographic rise corresponding with absence of wetland soils and hydrology. It is jurisdictional to both DSL and USACE.
Total					

1- W = Wetland - and ID#
 2- Size in study area is given in acres
 3- Cowardin Class: PEM = palustrine emergent, PSS = palustrine scrub-shrub, PFO = palustrine forested
 4- HGM Class: DEP = depressional

Table 2: Waters, OR Dunes National Recreation Area-Umpqua Dunes Access Project

Name/ ID ¹	Figure 6 Sheet #(s)	Latitude	Longitude	Cowardin Class ²	ESH (Yes/No)	OHW Width (feet)	Photo Points	Preliminary Jurisdiction Estimation/ Additional Information for Jurisdictional Determination
S1	4	43.668757	-124.194989	P	N	5	7	Perennial stream with only 18 linear feet within the study area before it enters a culvert to drain underneath Salmon Harbor Drive and then into Halfmoon Bay / the Umpqua River. This culvert presents a fish barrier for fish migration upstream into S1 from Halfmoon Bay. Within the study area S1 is confined to the channel by steep slopes associated with roadway fill. Outside of the study area S1 has a gently-sloped and shallow stream channel that is connected to a complex of riparian wetlands. The majority of the riparian area both within and outside the study area is dominated by native forested and shrub vegetation, with some weedy encroachment from the neighboring campground (e.g., English ivy, yellow-flag iris, Himalayan blackberry). OHWM is 4.5ft based on the absence of perennial vegetation, sediment sorting, and scour. Streambed material is a mix of silt and large gravel to small cobble. On the NW1 is mapped as riverine/perennial, originating approximately 0.6 mile upstream of the study area at Lake Marie and crossing Salmon Harbor Drive apx. 650' southwest of actual location. Jurisdictional to both DSL and USACE.
S2	5, 6	43.673285	-124.190244	P	N	1.5	13	Ditched natural stream that runs alongside Salmon Harbor Drive. It originates approximately 0.5 mile upstream of the study area. It is ditched upstream of the study area where it passes through a Winchester Bay Sanitary District property, then ditched for another 130' within the study area before crossing underneath Salmon Harbor Drive through a culvert and draining into Halfmoon Bay on the Umpqua River. This culvert presents a fish barrier for fish migration upstream into S1 from Halfmoon Bay. Within the study area the OHWM is a consistent 1.5', determined by scour and the absence of perennial vegetation within a managed ditched channel. Mud bottom. It is mapped as riverine/perennial on the NW1 crossing the study area apx.130' north of actual location. A narrow wetland band is present on both sides of S2 (W11). Jurisdictional to both DSL and USACE.
<p>1- S = stream, creek, or ditched natural tributary, D = ditch, P = pond. Unnamed unless noted 2- Cowardin Riverine Class: P= Upper perennial (R3), I= Intermittent (R4), E= Ephemeral (R6) Ditches that did not meet wetland criteria or did not have signs of relatively permanent flow were not assumed to be under Corps jurisdiction. All ditches in study area, except where specifically noted, met DSL exemption criteria for roadside ditches (i.e. <10ft wide, no fish, etc.) See methods section of report for additional information on assumption of Corps and DSL jurisdictional determination of ditches.</p>								

APPENDIX E: WETS Table

WETS Station: HONEYMAN STATE PARK, OR								
Requested years: 1990 - 2020								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	50.4	38.2	44.3	10.45	7.93	12.17	14	0.1
Feb	52.4	38.4	45.4	8.22	5.78	9.75	-	0.1
Mar	54.9	39.0	46.9	8.10	5.94	9.52	14	0.0
Apr	58.3	41.4	49.8	6.11	4.83	7.02	11	0.0
May	62.3	45.6	53.9	3.12	1.72	3.81	7	0.0
Jun	65.1	48.8	56.9	2.39	1.17	2.92	4	0.0
Jul	68.3	50.5	59.4	0.56	0.17	0.57	1	0.0
Aug	68.5	51.5	60.0	0.77	0.33	0.90	2	0.0
Sep	67.6	50.0	58.8	2.25	0.68	2.67	3	0.0
Oct	61.4	45.3	53.4	5.49	3.31	6.65	8	0.0
Nov	53.9	41.4	47.6	9.98	7.35	11.71	-	0.0
Dec	49.1	37.7	43.4	11.42	8.55	13.35	14	0.1
Annual:					60.17	73.05		
Average	59.3	44.0	51.7	-	-	-	-	-
Total	-	-	-	68.84			-	0.4
GROWING SEASON DATES								
Years with missing data:	24 deg = 18	28 deg = 16	32 deg = 14					
Years with no occurrence:	24 deg = 10	28 deg = 0	32 deg = 0					
Data years used:	24 deg = 13	28 deg = 15	32 deg = 17					
Probability	24 F or higher	28 F or higher	32 F or higher					
50 percent *	Insufficient data	Insufficient data	Insufficient data					
70 percent *	Insufficient data	Insufficient data	Insufficient data					
* Percent chance of the growing season occurring between the Beginning and Ending dates.								

**Attachment F: DSL Fee-in-lieu Mitigation Payment
Calculator (for DSL submittal only)**