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Draft Wetland and Stream Assessment Report

Prepared for



March 2023

Prepared by
Parametrix

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Prepared for

City of Federal Way

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Parametrix. 2023. Draft Wetland and Stream
Assessment Report.
Prepared by Parametrix,
Seattle, Washington.
March 2023.

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ACRONYMS AND ABBREVIATIONS

BPA	Bonneville Power Administration
BRT	Bus rapid transit
CCA	City Center Access
City	City of Federal Way
DNR	Washington Department of Natural Resources
EA	Environmental assessment
Ecology	Washington State Department of Ecology
FWLE	Federal Way Link Extension
FWRC	Federal Way Revised Code
HGM	Hydrogeomorphic wetland classification
HOV	High-occupancy vehicle
HUC	Hydrologic unit code
I-5	Interstate 5
KCC	King County Code
LRA	Land resource area
MLRA	Major land resource area
MP	Milepost
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary high-water mark
PAB	Palustrine aquatic bed
PEM	Palustrine emergent
PFO	Palustrine forested
PHS	Priority habits and species
PSS	Palustrine scrub-shrub
SR	State route
TMDL	Total maximum daily load
TDLE	Tacoma Dome Link Extension
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WETS	Climate analysis for wetlands tables
WDFW	Washington State Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation
WRIA	Water resource inventory area

1. INTRODUCTION

This technical report was prepared for the city of Federal Way (City) to document the wetland and stream critical areas and proposed impacts associated with the City Center Access Project, hereafter referred to as the “CCA Project.” The CCA Project will provide improved multimodal mobility and access for regional and local trips while protecting the interstate system by providing congestion relief along S 320th Street and expanded multimodal facilities across Interstate 5 (I-5). The project will consist of the following project elements:

- Modification of the S 320th Street interchange by adding braided ramps and access at S 324th Street.
- Construction of a new two-lane bridge over I-5 at S 324th Street.
- Extension of S 324th Street from 23rd Avenue S to Weyerhaeuser Way S.
- Widening S 324th Street from State Route (SR) 99 to 23rd Avenue S.
- Improvements to S 320th Street east of I-5 to add HOV lanes.
- Nonmotorized improvements along 23rd Avenue S, S 320th Street, and S 324th Street.

Further, within the CCA Project study area there are three barriers to fish passage (Site IDs 992364, 995299, and 995300), as identified by the Washington State Department of Fish and Wildlife (WDFW) and the Washington State Department of Transportation (WSDOT) (WDFW 2020). Correction of these barriers, as proposed within this project, has been determined to be necessary according to a federal permanent injunction requiring the state of Washington to accelerate fish barrier corrections for salmon and steelhead streams in the Puget Sound area (Federal Court Injunction 2013) and the WSDOT Fish Passage Performance Report (WSDOT 2019).

The purpose of this report is to identify and describe wetlands, streams, and jurisdictional ditches that occur within the project study area. This report helps the city achieve the following:

- Support the National Environmental Policy Act (NEPA) for the CCA Project.
- Avoid and minimize impacts to wetlands and other aquatic ecosystems during the project design process and construction.
- Document wetland and stream boundary determinations and jurisdictional ditch locations, where right of entry was received, for review by regulatory authorities.
- Estimate unavoidable project impacts to aquatic ecosystems based on the project’s preliminary design.

All aquatic ecosystems identified in this report are assumed to be under U.S. Army Corps of Engineers (USACE) jurisdiction unless otherwise noted.

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2. PROPOSED PROJECT

2.1 Project Location

The project is largely located within the City and Water Resource Inventory Area (WRIA) 10 (Puyallup/White Watershed). However, the project and its study area extend east along S 320th Street into unincorporated King County and WRIA 9 (Green/Duwamish Watershed) as it approaches Military Road South (Figure 2-1).

The center of the project, located at I-5 and S 320th Street, is at latitude 47.314849 and longitude -122.297775. The project study area includes parts of Sections 9, 10, 15, 16, and 21 in Township 21 North, Range 4 East, Willamette Meridian, and within U.S. Department of Agriculture (USDA) Major Land Resource Area (MLRA) 2 and USDA Land Resource Region (LRR) A.

2.2 Project Purpose

The City initiated the City Center Access Project to determine what transportation system changes are needed to preserve future mobility in the City Center. The Federal Way City Center Core is designated as one of 29 regional growth centers identified in the Puget Sound Regional Council Vision 2050. The purpose of the Federal Way City Center Access project is to improve the economic vitality of the City Center and to improve the quality of life for people who work, play, and live in the City by increasing multimodal mobility and access to regional and local trips while protecting the integrity of the interstate system. Access and mobility are limited by congestion issues along S 320th Street between Pacific Highway S and Military Road, including to and from I-5, and by the lack of multimodal facilities across I-5.

2.3 Preferred Alternative

The S 324th Street Interchange Alternative 2I (Grade Separated Ramps plus Roundabouts at S 324th Street) was identified as the alternative that best meets the purpose and need of the project. Alternative 2I was recommended to the Federal Way City Council in November 2019, based on the results of alternatives analysis screening. The City Council agreed to move forward with Alternative 2I.

Below is a description of the elements included in the Preferred Alternative. This description is based on the preliminary design, and it is subject to change as design progresses.

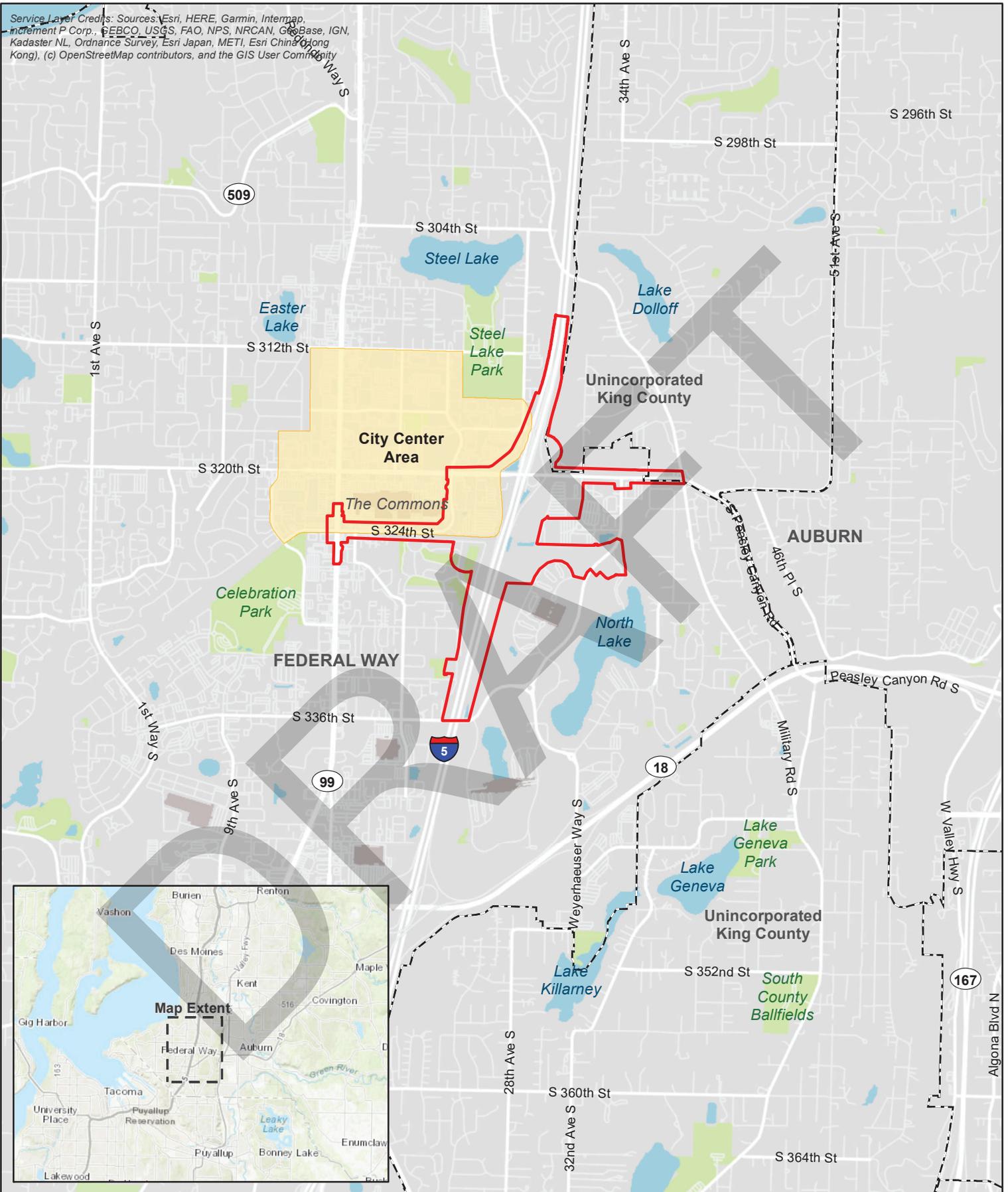
2.3.1 Access Modifications

The Preferred Alternative includes a modified interchange at S 320th Street, with braided ramps and new access at S 324th Street. There are no new gore points along I-5, but the existing gore points north and south of the S 320th Street interchange will be relocated. The northbound off-ramp gore will move 2,100 feet south, the northbound on-ramp gore will move 150 feet north, the southbound off-ramp gore will move 550 feet north, and the southbound on-ramp gore will move 2,200 feet south.

All on-ramps from S 320th Street and S 324th Street will be metered. They will not include high-occupancy vehicle (HOV) bypasses.

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GEBCO, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Date: 5/17/2021 Author: worshahly Path: U:\PSO\Projects\Clients\2441-City\FederalWay\554-2441-022-City Center Access\99\Srcs\GIS\MapDocs\Wetlands\Fig2-1 WetlandReport_VicinityMap.mxd



Parametrix
 Source: King County, City of Federal Way,
 © Mapbox, © OpenStreetMap

- Study Area (300 feet)
- City Center Area
- City Boundary



0 500 1,000 2,000
 Feet

Figure 2-1
 Vicinity Map
 Federal Way City Center Access
 Project: Wetland Report
 Federal Way, WA

2.3.2 S 324th Street Roadway Improvements

The Preferred Alternative includes a new two-lane bridge along S 324th Street, crossing I-5, and roundabouts at the ramp terminals. Both ramp terminals will have single-lane roundabouts with slip lanes in the northwest and southwest quadrants of the S 324th Street/I-5 southbound ramps intersection.

West of the new S 324th Street interchange, S 324th Street will be five lanes from State Route (SR) 99 to 23rd Avenue S and four lanes from 23rd Avenue S to I-5 southbound ramps. There will be a two-lane roundabout at the S 324th Street/23rd Avenue S intersection. The Preferred Alternative also includes intersection improvements at S 324th Street/SR 99 that will help manage westbound queues from the new interchange, including an additional southbound left-turn lane and an additional northbound left-turn lane.

The roundabout design at the S 324th Street/23rd Avenue S intersection has been reviewed by Sound Transit and Bonneville Power Administration (BPA). BPA's transmission tower relocations surrounding the intersection will be designed to accommodate the proposed Sound Transit Tacoma Dome Link Extension (TDLE) and City Center Access project improvements.

East of the new S 324th Street interchange, S 324th Street will be three lanes from I-5 northbound ramps to Weyerhaeuser Way S. There will be a single-lane roundabout at S 324th Street/Weyerhaeuser Way S that will include a relocated access to the boat ramp.

2.3.3 S 320th Street Roadway Improvements

There are currently HOV lanes in both directions along S 320th Street between SR 99 and 20th Avenue S. The Preferred Alternative for this project includes HOV lanes on S 320th Street in both directions between 20th Avenue S and Military Road to support future bus rapid transit (BRT) along S 320th Street included in the King County Metro long-range plan. Between 20th Avenue S and I-5 southbound ramps, a general-purpose lane in each direction will be converted to an HOV lane. Crossing I-5 between I-5 southbound ramps and I-5 northbound ramps, the S 320th Street bridge will be widened to include a new HOV lane in both directions and a lengthened left-turn lane for the I-5 southbound on-ramp. Between I-5 and Military Road, S 320th Street will be widened to accommodate the added HOV lanes.

2.3.4 Nonmotorized Improvements

The Preferred Alternative includes nonmotorized improvements on both S 324th Street and S 320th Street. Between SR 99 and Weyerhaeuser Way, there will be a shared-use path on the north side of S 324th Street and a sidewalk on the south side of S 324th Street. There is potential for the shared-use path to connect to the BPA Trail in the future. A shared-use path on the west side of 23rd Avenue S between S 324th Street and S 320th Street is included. The S 320th Street bridge crossing I-5 will have a sidewalk on the north and south side. Between I-5 northbound ramps and Military Road S, there will be a sidewalk on the north and south side.

The Preferred Alternative includes nonmotorized improvements on both S 324th Street and S 320th Street. Between SR 99 and I-5 southbound ramps, there will be a shared-use path on the north side of S 324th Street and a sidewalk on the south side of S 324th Street. Crossing I-5 between the I-5 southbound ramps and I-5 northbound ramps, the S 324th Street bridge will have a shared-use path on the north side and sidewalk on the south side. There is a potential for the shared-use path to connect to the BPA Trail in the future. The S 320th Street bridge crossing I-5 will have a sidewalk on the north side.

2.3.5 Correction of Fish Passage Barriers

To comply with a federal injunction requiring the state of Washington to correct fish barriers in WRIAs 1 through 23 (United States et al. vs. Washington et al. No. C70-9213 Sub proceeding No. 01-1, dated March 29, 2013), three existing crossings conveying East Fork Hylebos Creek – Tributary 0016A through the project limits will be corrected. All three have been identified as fish barriers by WDFW and the WSDOT Environmental Services Office (Site IDs 995300, 995299, and 992364).

2.3.6 Design Compatibility

The Preferred Alternative design accommodates the Sound Transit Federal Way Link Extension (FWLE) and TDLE projects, BPA transmission tower relocations, and the future widening of I-5. The Sound Transit FWLE and TDLE WSDOT Compatibility Reports establish the WSDOT Compatibility Line, to which the City Center Access project must adhere. Other design constraints and considerations include avoiding impacts to the existing bog and minimizing impacts to the BP 14-inch Olympic Pipeline, King County Metro Park and Ride, and adjacent development. The roadway design incorporates input received from the City, WSDOT, and Sound Transit during design coordination meetings and submittal reviews.

2.3.7 Project Phasing

The design and construction of the City Center Access improvements will likely have to be phased due to funding limitations. Table 2-1 summarizes the anticipated project phases. The first phase of construction is at least 5 years out (2027). Culvert replacements identified in Section 2.3.5 are anticipated to begin in 2024 or 2025, before work begins on Phase 1. Construction of the new crossing structure under South 324th Street may be included with Phase 1, or it may be completed concurrently with the other fish passage improvements in 2024/2025.

Table 2-1. Anticipated Project Phasing

	Local Street Improvements and Connections	Ramp and Interchange Improvements
Phase 1	<ul style="list-style-type: none"> Construct new S 324th St between 23rd Ave S and I-5 southbound ramp intersections. Improve S 324th St and SR 99 intersection with added turn lanes. 	<ul style="list-style-type: none"> Construct/revise I-5 southbound off ramps to S 320th St and S 324th St. Construct/revise on ramps from S 320th St and S 324th St to I-5 southbound.
Phase 2	<ul style="list-style-type: none"> Widen S 324th St between SR 99 and 23rd Ave S. Construct new S 324th St from I-5 southbound ramp intersection to Weyerhaeuser Way, including S 324th St bridge and Weyerhaeuser Way intersection. 	<ul style="list-style-type: none"> Construct I-5 northbound off ramp to S 324th St. Construct portion of I-5 northbound off ramp to S 320th St.
Phase 3A	<ul style="list-style-type: none"> Replace S 320th St bridge over I-5. Widen S 320th St from I-5 southbound ramp intersection to Military Rd. Restripe S 320th St to provide BAT lanes from SR 99 to southbound ramp intersection. 	<ul style="list-style-type: none"> Reconstruct S 320th St loop ramp to I-5 northbound. Construct the remaining portion of I-5 northbound off ramp to S 320th St.
Phase 3B	<ul style="list-style-type: none"> Local improvements associated with this project are substantially complete. 	<ul style="list-style-type: none"> Realign the I-5 northbound on ramp from S 320th St. Construct the I-5 northbound on ramp from S 324th St.

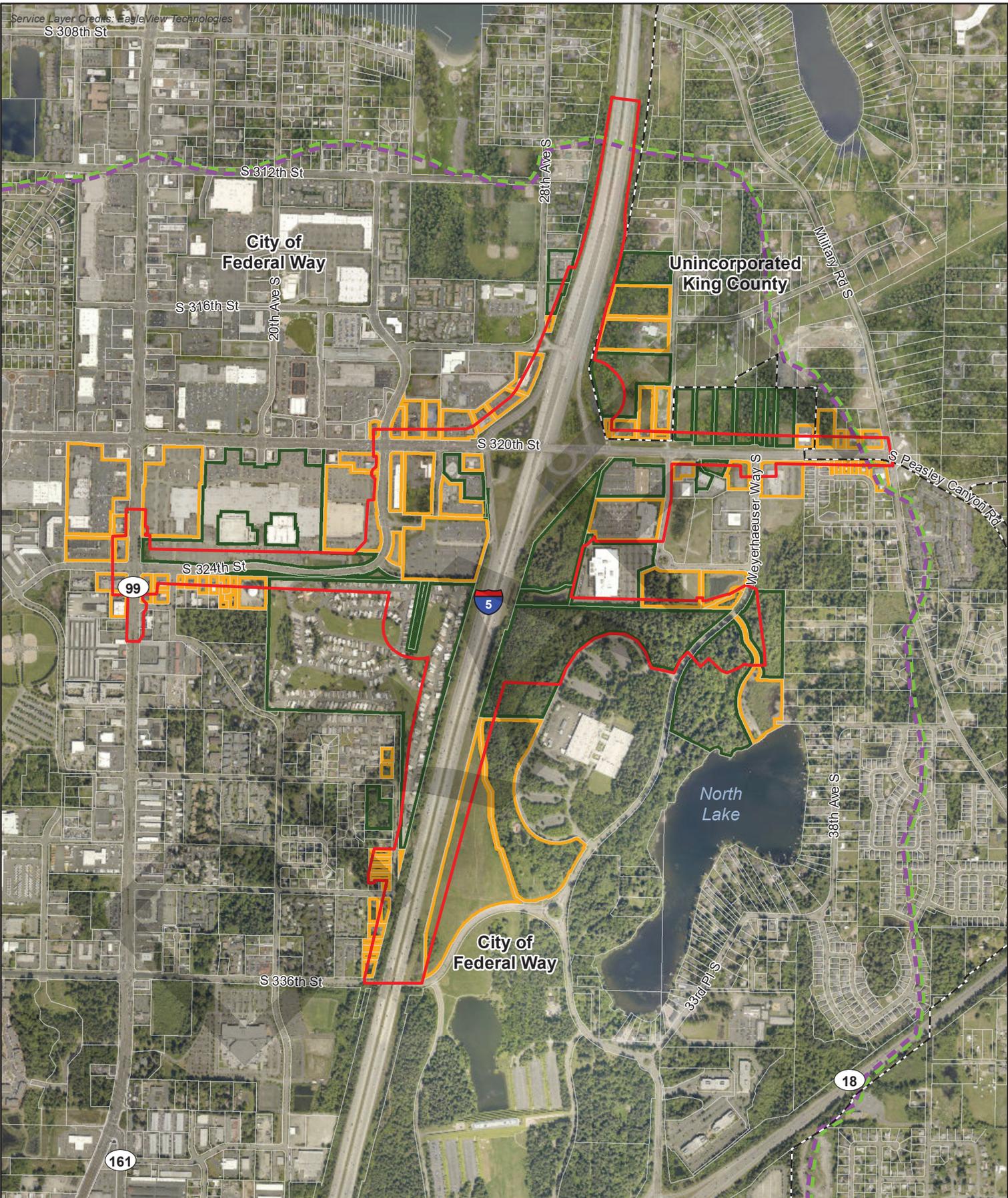
Note: BAT lane = Business access and transit lane

With the anticipated project phasing, the proposed I-5 southbound off ramp to S 324th Street will be constructed before replacing the existing S 320th Street bridge. The new ramp from I-5 southbound to S 324th Street will have to pass underneath the existing S 320th Street bridge. A temporary retaining wall will be necessary under the west side of the bridge to allow the S 324th Street ramp to travel between the existing bridge piers. The design of the temporary retaining wall and the potential loading increase on the existing bridge pier foundation will be evaluated as the design progresses in future phases.

2.4 Study Area

The project study area extends 300-feet outward from the edge of the proposed project limits (Figure 2-2), which include the following:

- I-5 between milepost (MP) 143 and MP 144, including those access ramps serving S 320th Street at Exit 143
- S 320th Street between 23rd Avenue S to the west and Military Road S to the east
- S 324th Street from State Route 99 (SR 99) to the west to 23rd Avenue S to the east
- 23rd Avenue S from S 324th Street to the north approximately 500 feet
- Those areas between S 324th Street and Weyerhaeuser Way S on portions of King County Parcel Nos. 7622400021, 7978200526, 2154650170, 1621049056, 2154650180, 1621049036, and 7978200520
- The inlets and outlets of three crossings below the I-5 northbound on-ramp (Site ID 995300), below S 320th Street (Site ID 995299), and below I-5 (Site ID 992364)



Date: 5/17/2021 Author: worshahly Path: U:\PSO\Projects\Clients\2441-City\FederalWay\554-2441-022-City Center Access\99\Srcs\GIS\MapDocs\Welland\Fig-2- WetlandReport- StudyArea.mxd

Parametrix
 Source: King County,
 City of Federal Way



0 250 500 1,000
 Feet

-  City Boundary
-  Parcel Boundary
-  WRIA 9
-  WRIA 10
-  Study Area (300 feet)
- Right-of-Entry Status**
-  Access Granted
-  No Access/No Access Requested

Figure 2-2
 Study Area
 Federal Way City Center Access
 Project: Wetland Report
 Federal Way, WA

3. METHODS

The following data sources were reviewed for information on precipitation, topography, drainage patterns, soils, vegetation, and potential or known wetlands and streams in the project vicinity:

- Natural Resources Conservation Service (NRCS) Climate Data for King County, Station Seattle Tacoma Airport, Washington (NRCS 2020a) (Appendix A-1 and A-2, Appendix A)
- U.S. Geological Survey (USGS) Digital Raster Graphics topographic maps (USGS 2020) (Appendix A-3, Appendix A)
- National Wetlands Inventory (NWI) maps (USFWS 2017) (Appendix A-4, Appendix A)
- NRCS, Soil Survey of King County Washington (NRCS 2020b) and Washington State Hydric Soils (NRCS 2020c) (Appendix A-5, Appendix A)
- Federal Way Critical Areas Map (Federal Way 2016) (Appendix A-6, Appendix A)
- King County iMap Wetlands Inventory Map (King County 2018) (Appendix A-7, Appendix A)
- Mapped wetlands within the Woodbridge Business Park (Talasaea 2020)

3.1 Wetland Delineation, Classification, Functions, and Buffers

Wetlands within the study area where right of entry was granted were delineated using routine methods described in the following:

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

Wetland boundaries were delineated based on on-site observations of vegetation, soils, and hydrology in conjunction with background information listed above. Wetland field work occurred between July 2020 and May 2021.

Wetlands were classified using the U.S. Fish and Wildlife Service (USFWS) classification system (aka the Cowardin system) (USFWS 2017; FGDC 2013) and the Hydrogeomorphic Classification System (HGM) (Brinson 1993). Wetlands were rated using the Washington State Wetland Rating System for Western Washington – 2014 Update (Hruby 2014), as required under both Federal Way Revised Code (FWRC) 19.145.420(1) and King County Code (KCC) 21A.24.318. Scientific plant names in this report are from the USACE National Wetland Plant List, Version 3.3 (USACE 2016).

Federal Way's wetland buffers, as described in FWRC 19.145.420, were applied to the wetlands in the project where they occur within the city limits in conjunction with Washington State Department of Ecology (Ecology) tables for adjusting rating scores (2004 to 2014 versions with July 2018 modifications) (Ecology 2018). Per FWRC 19.145.420(3), buffers are not required for any isolated wetland smaller than 1,000 square feet in area. Buffer widths within Federal Way range from 50 to 300 feet, depending upon the wetland rating and habitat score.

King County's wetland buffers, as described in KCC 21A.24.325, were applied to the single wetland within the study area, which occurs within unincorporated King County. Buffer widths within unincorporated King County range from 25 to 300 feet, depending on wetland rating, habitat score, and intensity of land use impacts.

3.2 Stream Delineation, Classification, and Buffers

The ordinary high-water mark (OHWM) of the stream within the project study area was delineated using USACE guidance for OHWM identification (USACE 2005; USACE 2014). Fish presence is assumed based on available WDFW Fish Passage Inventory (WDFW 2020a), Fish Distribution data (WDFW 2020c), and a site visit by Parametrix fish biologist Steve Krueger on August 18, 2020. Federal Way's stream buffers, as described within FWRC 19.145.270, were applied to streams in the project in conjunction with Washington State Department of Natural Resources (DNR) Forest Practices Rules, water type classifications (DNR 2020).

3.3 Other Waters

Biologists evaluated ditches and other water conveyances to determine if they meet USACE criteria for jurisdictional features. This report provides USACE with the information necessary to make jurisdictional determinations. Jurisdictional recommendations were based on the following:

- Background information topographic maps to determine flow direction, connectivity, and ditch functions
- Field investigations to determine presence of relatively permanent water as indicated by OHWM indicators (USACE 2005; USACE 2014) and connection to downstream traditional navigable waters
- The most current regulations, methods, and guidance established by USACE
- Best professional judgment

Jurisdictional assessment fieldwork was completed between July 24, 2020, and September 2, 2020.

4. EXISTING CONDITIONS

4.1 Landscape Setting

The project study area is located within the Puget Sound lowlands and near Federal Way's City Center. It is centered on the I-5 freeway corridor (Figures 2-1 and 2-2). The project is located on a topographic ridge, with most of the project occurring in WRIA 10 (Puyallup/White) and a small portion of the project occurring WRIA 9 (Green/Duwamish). The project study area is in a highly urbanized land-use area that includes commercial, light industrial, office, residential, and recreational uses. Patches of relatively undisturbed forest occur east of I-5, both north and south of S 320th Street. However, according to the City's comprehensive plan, significant growth is planned for the project study area.

4.2 Watershed Description

The project is largely located in the Hylebos Creek – Frontal Commencement Bay watershed (HUC 171100190205) of WRIA 10: Puyallup/White, with a small portion along the eastern edge of the project, near the S 320th Street intersection with Military Road, extending into the Green River watershed (HUC 1711003130305) within WRIA 9: Green/Duwamish. The project falls within USDA MLRA 2 and USDA LRR A.

While the project is mapped in both WRIA 9 (Green/Duwamish) and WRIA 10 (Puyallup/White), surface flow in the project study area appears to only enter aquatic ecosystems in WRIA 10 (Puyallup/White). None of the observed aquatic ecosystems identified in WRIA 9 (Green/Duwamish) drains towards the Green/Duwamish waterway or its tributaries. Therefore, discussion herein will be focused on aquatic ecosystems in WRIA 10 (Puyallup/White) and, more specifically, the Hylebos Creek basin.

The Hylebos Creek basin is heavily developed, and it includes several reaches downstream and within other tributaries that are impaired by dissolved oxygen, bacteria, mercury, temperature, copper, lead, zinc, and pH. Hylebos Creek drains to Commencement Bay near the Port of Tacoma, where there is an approved Total Maximum Daily Load (TMDL) Water Quality Plan established to control dioxin. Major land uses within the Hylebos Creek basin include heavy and light industrial, commercial, office, and residential.

4.3 Climate, Precipitation, and Growing Season

According to the Climate Analysis for Wetlands Tables (WETS) for the Seattle-Tacoma Airport Weather Station (NRCS 2020a), the average mean temperature in the project vicinity for the 30-year period between 1991 and 2020 is 53.0 °F, falling within an average range of 45.6°F to 60.4 °F. The growing season (28 °F or greater) has a 50 percent probability of occurring between February 9 and December 14 (309 days). Therefore, all fieldwork occurred during the growing season (Appendix A-1, Appendix A).

The Regional Delineation Supplement Version 2.0 (USACE 2010) recommends using the methods described in Chapter 19 in the Engineering Field Handbook (NRCS 2015) to determine whether precipitation occurring in the three full months prior to the site visit was normal, drier than normal, or wetter than normal. The actual rainfall for the three months prior to field work ranged from drier to wetter than normal based on the 30-year average from 1991 through 2020. Light precipitation was recorded in the 10 days preceding field work on April 30, 2019; July 24, August 13, 18, and 19, September 2, November 11, 2020; and January 7 and 11, 2021 (Appendix A-2, Appendix A).

4.4 Wetlands

4.4.1 Overview

Parametrix mapped 18 wetlands in the portion of the study area where property access was granted (Wetlands 1 through 3, 5 through 7, and 9 through 20; features originally mapped as Wetlands 4 and 8 were determined to be non-regulated stormwater facilities). Wetland type, rating, and buffers are summarized below in Table 4-1. Figures 4-1 through 4-15 present the mapped wetland locations, as well as mapping data from previous work (Talasaea 2020) and estimated boundaries observed from adjacent roadways, to provide context in areas where this project team did not have property access. Detailed information on each wetland is provided in Appendix B. Wetland delineation data sheets and rating forms are provided in Appendix C and D, respectively. Photographs of the wetlands are included in Appendix E.

Nine wetlands are associated with Stream 1 (East Fork Hylebos Creek – Tributary 0016A): Wetland W5, Wetland W6, Wetland W10, Wetland W11, Wetland 22, Wetland 24, Wetland 25, Wetland 26, and Wetland 27. Wetland W5 is a large wetland containing bog vegetation community. Wetlands 22 through 27 are approximated boundaries based on online resources and aerial photography. Further field studies and expanded property access will be required if exact wetland boundaries are needed. Wetland 27 is mapped outside the study area, although preliminary rating suggests the buffer may extend within or close to the study area.

Four of the wetlands Parametrix delineated (Wetland W1, Wetland W2, Wetland W3, and W20) are not federally jurisdictional as they have no direct connection to other jurisdictional waters. These wetlands could still be considered waters of the state, regulated by Ecology and subject to local critical areas code.

Additionally, there are several constructed stormwater ponds and other facilities identified within the study area for context (Figures 4-1 through 4-15). As these stormwater ponds and features are artificial and were constructed for the express purposes of conveying, storing, and treating stormwater, they are not regulated wetlands.

Table 4-1. Wetlands within the Project Study Area

Wetland ^a	Wetland Classification				Wetland Acreage in Study Area	Buffer Width (feet) ^f
	USFWS Class ^b	HGM Class ^c	Ecology Rating ^d	Local Rating ^e		
W1	PEM, PSS	Slope, Depressional	III	III	0.16	80
W2	PSS	Depressional	IV	IV	0.03	50
W3	PEM	Depressional	III	III	0.02	0 ⁱ
W5	PEM, PSS, PFO	Depressional	I/II	I/II	1.76 (bog, Cat I)/ 5.48 (Cat II)	250/150
W6	PEM, PSS	Riverine	III	III	0.11	80
W7	PEM	Depressional	IV	IV	0.03	50
W9	PEM	Slope	IV	IV	0.01	50
W10	PAB, PEM, PSS, PFO	Depressional	III	III	0.15	80
W11	PAB, PEM, PSS, PFO	Depressional	II	II	8.19	150

Table 4-1. Wetlands within the Project Study Area (continued)

Wetland ^a	Wetland Classification				Wetland Acreage in Study Area	Buffer Width (feet) ^f
	USFWS Class ^b	HGM Class ^c	Ecology Rating ^d	Local Rating ^e		
W12	PEM	Depressional	III	III	0.04	80
W13	PEM, PSS, PFO	Depressional	III	III	0.45	80
W14	PSS, PFO	Depressional	III	III	0.26	80 ^g
W15	PEM, PSS	Depressional	IV	IV	0.14	50
W16	PSS, PFO	Riverine	II	II	0.03	150
W17	PFO	Depressional	III	III	0.13	80
W18	PAB, PSS, PFO	Depressional	II	II	0.62	150
W19	PAB, PEM, PSS, PFO	Depressional	II	II	0.22	150
W20	PEM	Slope	IV	IV	0.16	50
W21	PEM, PFO	Depressional	III	III	0.34 ^h	80
W22	PFO	Riverine	III	III	0.81 ^h	80
W23	PSS, PFO	Riverine	III	III	0.27 ^h	80
W24	PEM	Depressional	IV	IV	0.02 ^h	0 ⁱ
W25	PFO	Riverine	II	II	1.48 ^h	150
W26	PFO	Riverine	III	III	0.68 ^h	80

^a Some wetland numbers (W4, W8, and W16) are skipped due to changes in study area and merging wetlands per rating unit requirements.

^b NWI Class based on vegetation: PFO = palustrine forested, PSS = palustrine scrub-shrub, PEM = palustrine emergent, PAB = palustrine aquatic bed (FDGC 2013; Cowardin et al. 1979)

^c Brinson et al. 2005

^d Ecology rating (Hruby 2014)

^e Federal Way wetland rating (City of Federal Way 2021) or King County wetland rating (King County 2021)

^f Federal Way wetland buffer width based on wetland category, habitat score, and wetland size (City of Federal Way 2021)

^g King County wetland buffer width based on wetland category, habitat score, and wetland size (King County 2021)

^h Approximate acreage based on aerial imagery and preliminary data resources

ⁱ Per FWCC 19.145.420, wetlands less than 1000 square feet have no regulated buffer

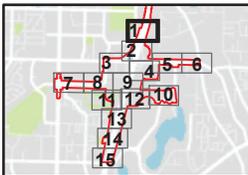


Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



Study Area

Parcel Boundary

Wetland

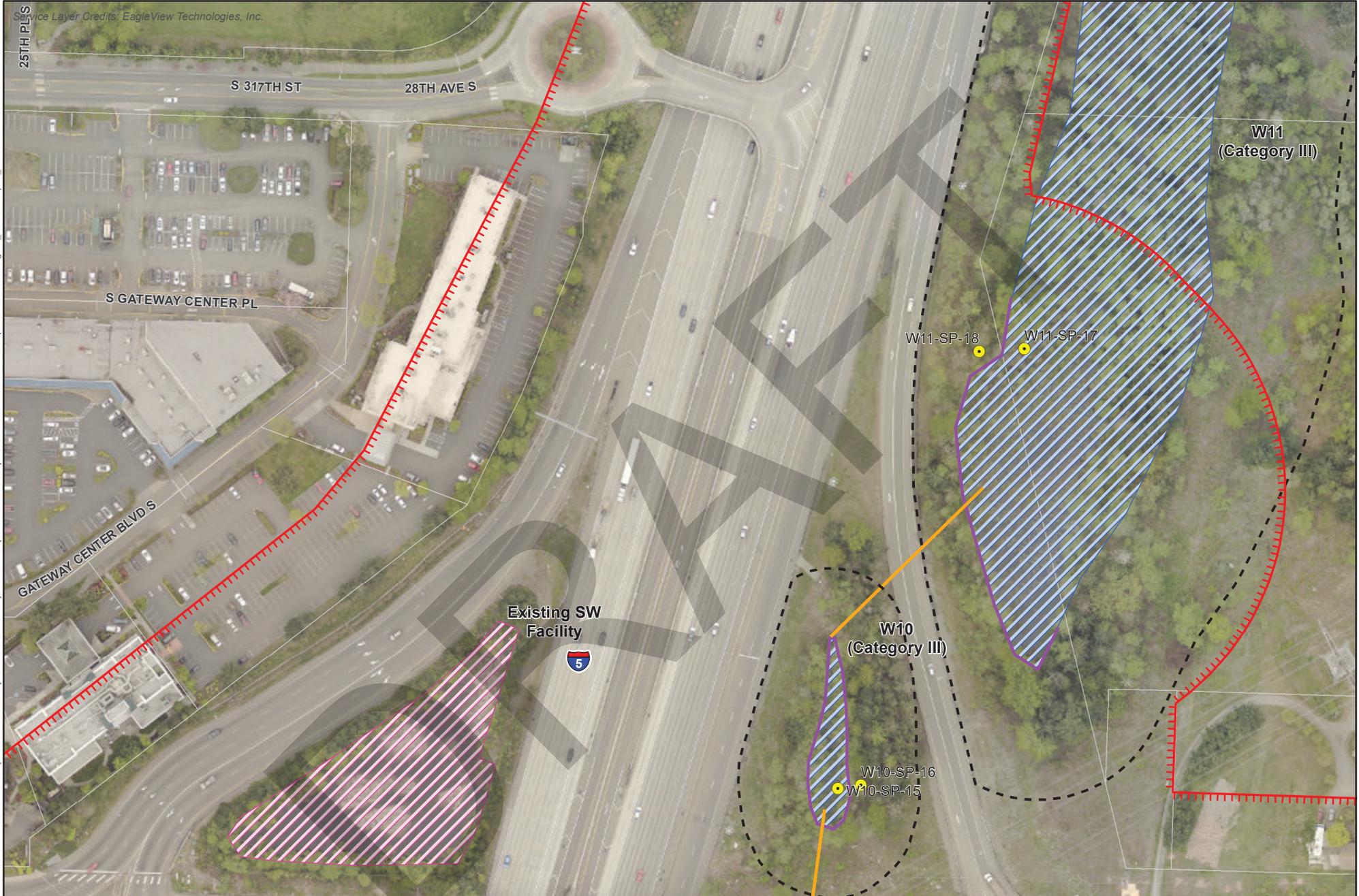
Wetland Buffer

Figure 4-1

Wetlands and Streams
Federal Way City Center Access
Project: Wetland Report

(Page 1 of 15)

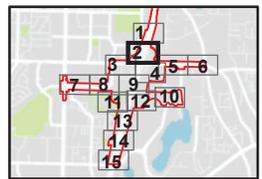
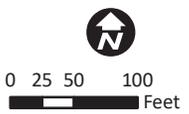
Federal Way, WA



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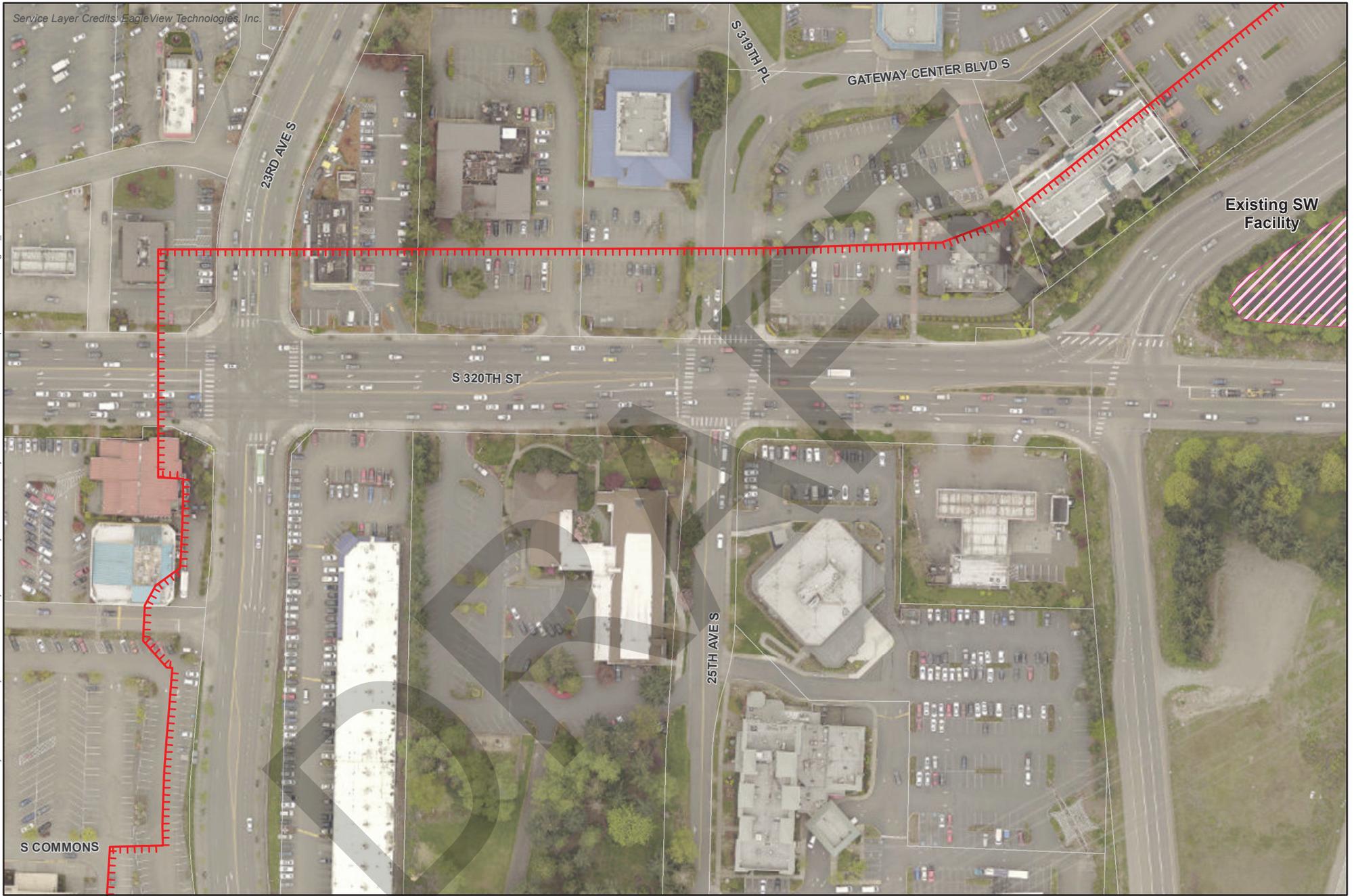
Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



- Study Area
- Parcel Boundary
- Sample Point
- Stormwater Feature
- Wetland
- Wetland Buffer
- Stream (Pipe)
- Wetland, Delineated

Figure 4-2
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
 (Page 2 of 15)
 Federal Way, WA

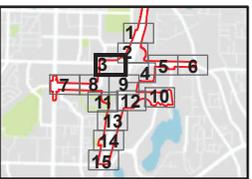


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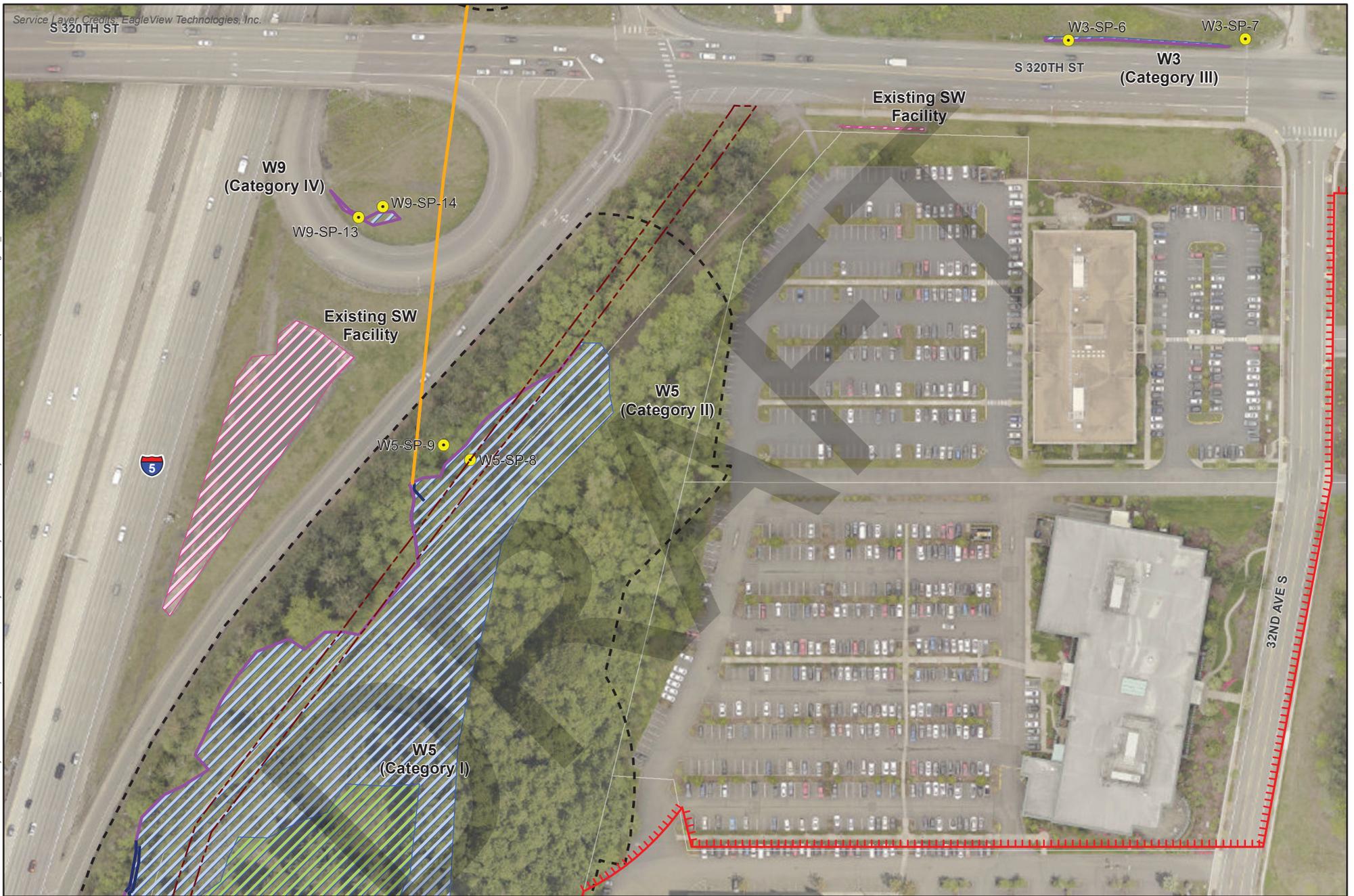
0 25 50 100 Feet



-  Study Area
-  Stormwater Feature
-  Parcel Boundary

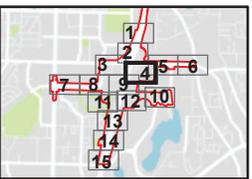
Figure 4-3
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

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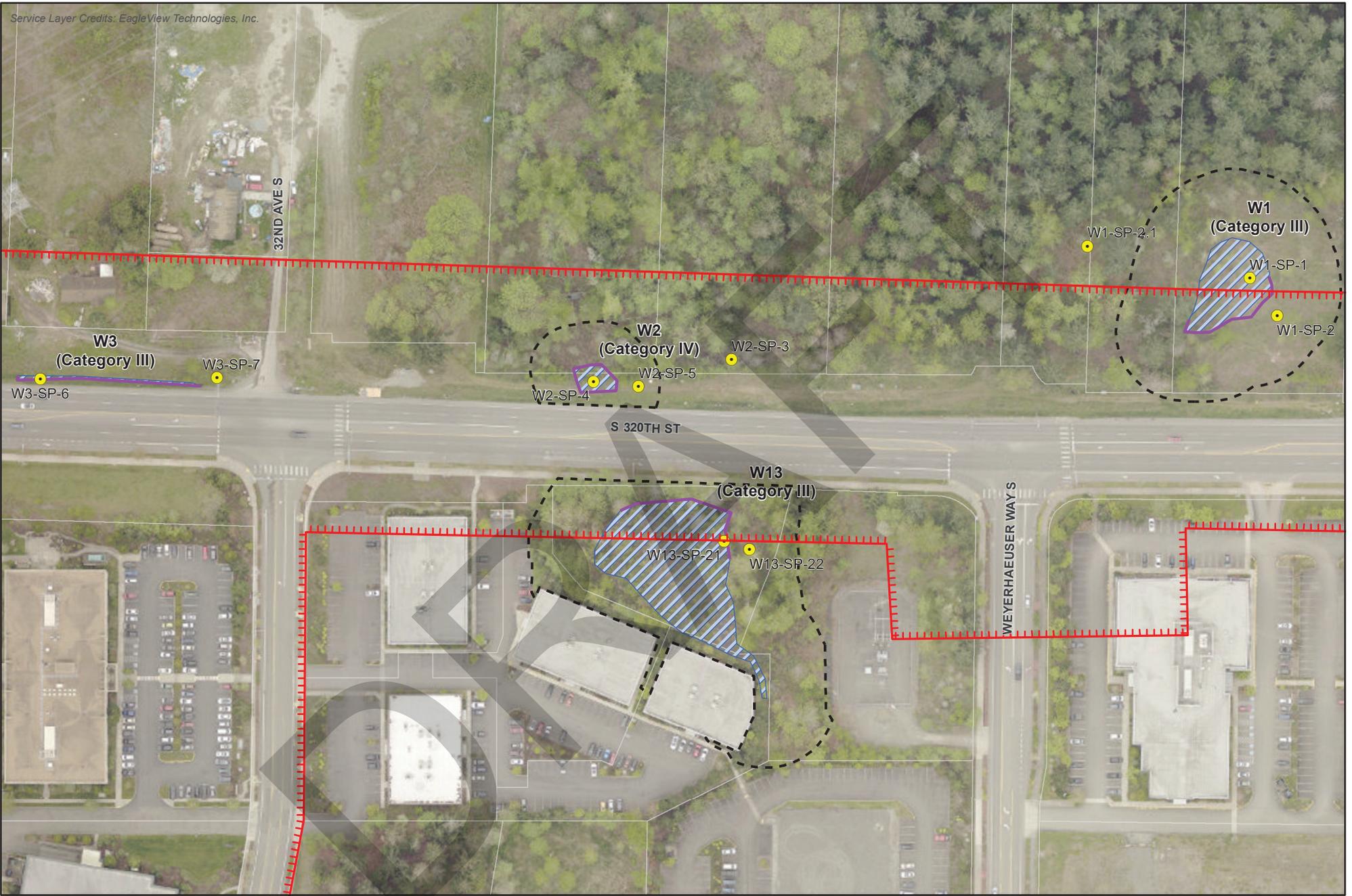
Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



- Study Area
- Parcel Boundary
- Olympic Pipeline Easement
- Sample Point
- Stormwater Feature
- Wetland
- Wetland (Bog)
- Wetland Buffer
- Stream (Pipe)
- OHWL, Delineated
- Wetland, Delineated

Figure 4-4
Wetlands and Streams
Federal Way City Center Access
Project: Wetland Report
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Federal Way, WA

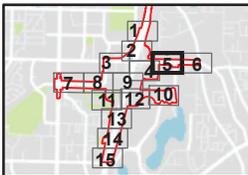


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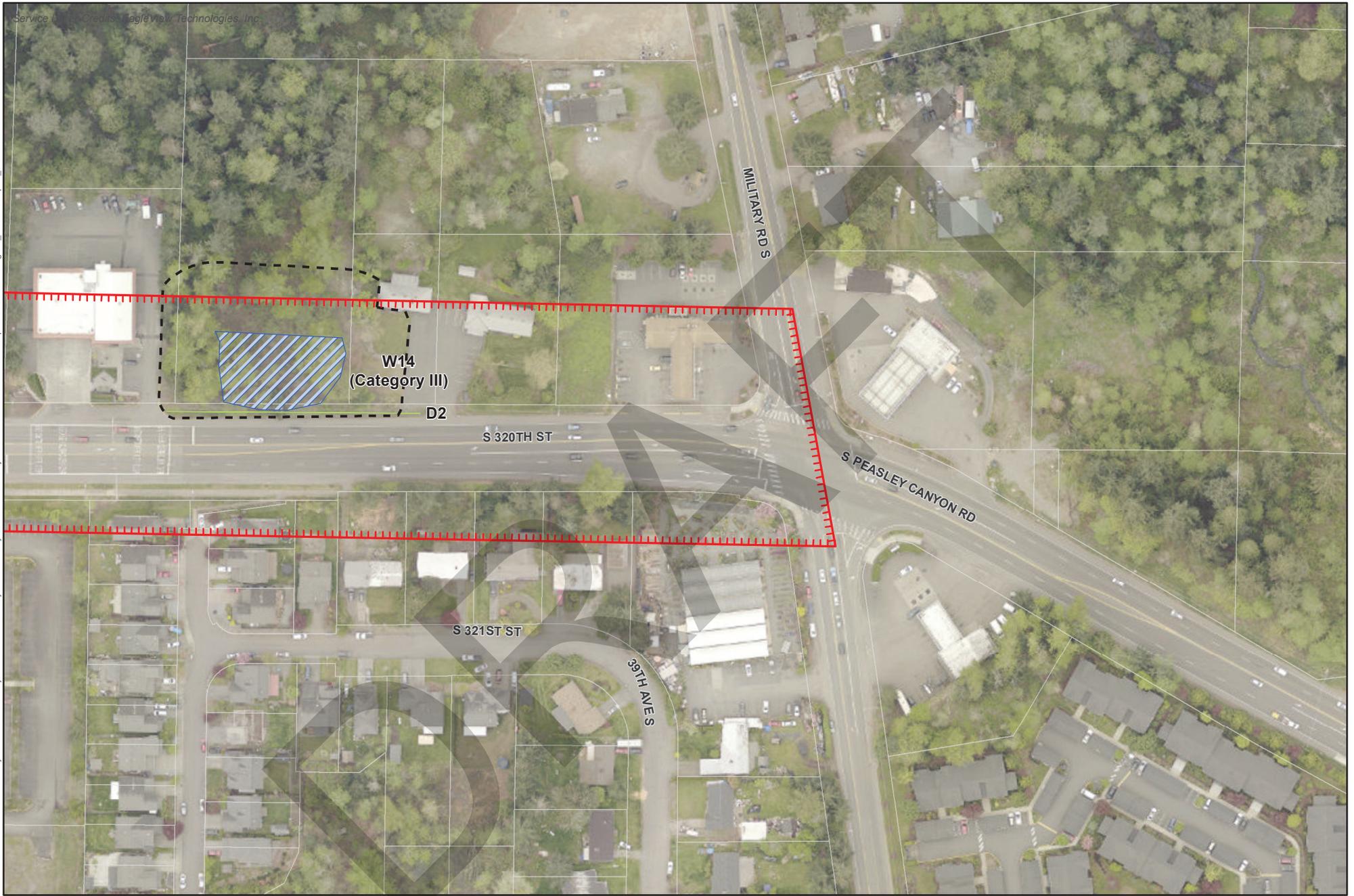


0 25 50 100 Feet



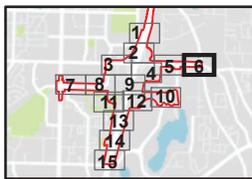
- Study Area
- Wetland
- Wetland, Delineated
- Parcel Boundary
- Wetland Buffer
- Sample Point

Figure 4-5
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA



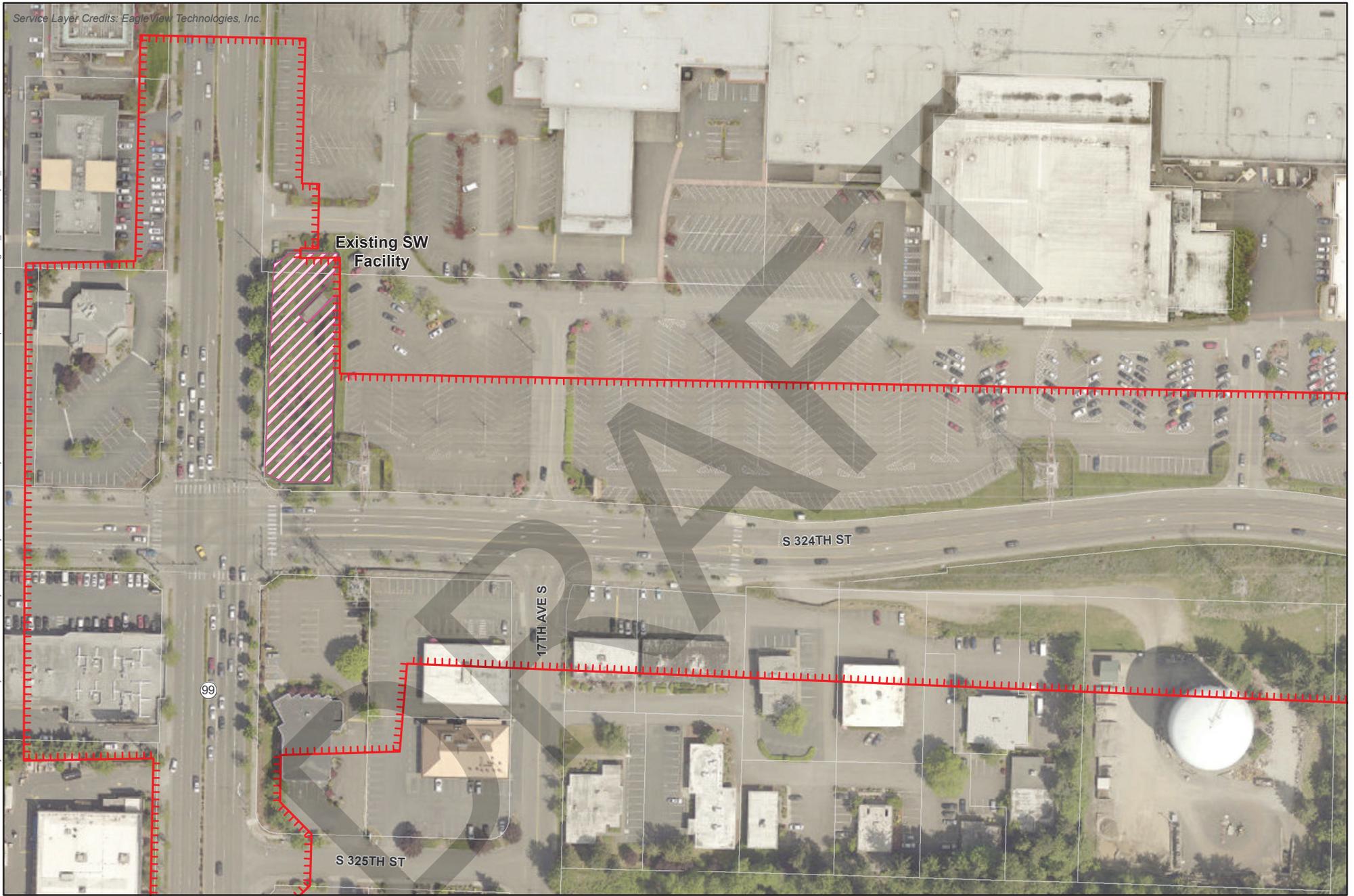
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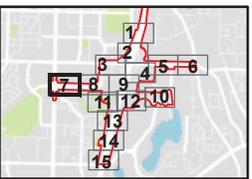
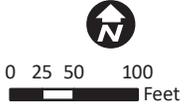
- Study Area
- Parcel Boundary
- Wetland
- Wetland Buffer
- Ditch

Figure 4-6
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
 (Page 6 of 15)
 Federal Way, WA



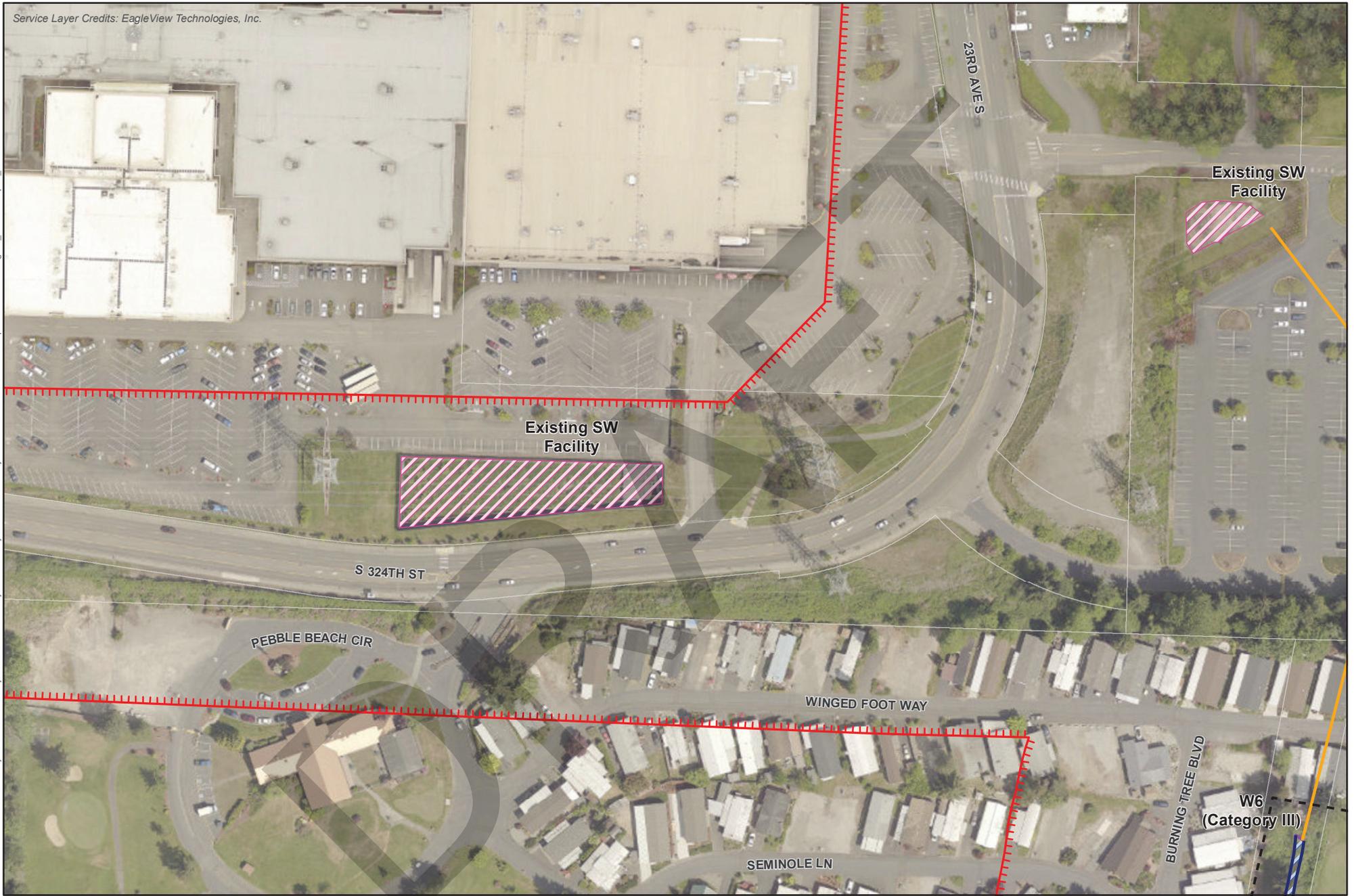
Parametrix

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- Study Area
- Stormwater Feature
- Parcel Boundary

Figure 4-7
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

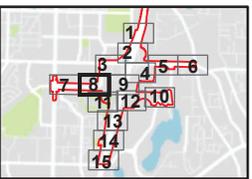


Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



- Study Area
- Stormwater Feature
- Stream (Pipe)
- Parcel Boundary
- Wetland
- OHWL, Delineated
- Wetland, Delineated
- Wetland Buffer

Figure 4-8
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

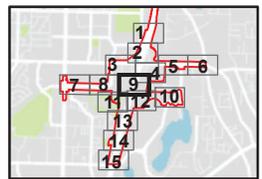


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Parametrix

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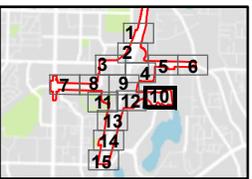
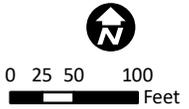
- Study Area
- Parcel Boundary
- Olympic Pipeline Easement
- Sample Point
- Stormwater Feature
- Wetland
- Wetland (Bog)
- Wetland Buffer
- Stream (Pipe)
- OHWL, Delineated
- Wetland, Delineated

Figure 4-9
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
 (Page 9 of 15)
 Federal Way, WA



Parametrix

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- Study Area
- Parcel Boundary
- Sample Point
- Stormwater Feature
- Wetland
- Previously Mapped Wetland
- Wetland Buffer
- Stream (Pipe)
- OHWL, Delineated
- Wetland, Delineated

Figure 4-10
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

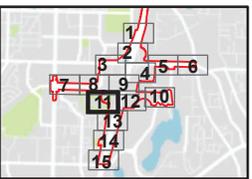


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Parametrix

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- Study Area
- Wetland
- Stream (Pipe)
- Parcel Boundary
- Wetland Buffer
- OHWL, Delineated
- Wetland, Delineated
- Sample Point

Figure 4-11
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

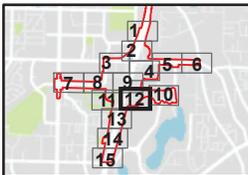


Parametrix

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0 25 50 100 Feet



-  Study Area
-  Parcel Boundary
-  Olympic Pipeline Easement
-  Stormwater Feature
-  Previously Mapped Wetland
-  Wetland Buffer

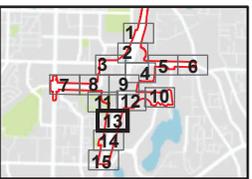
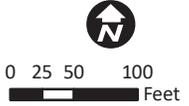
Figure 4-12
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

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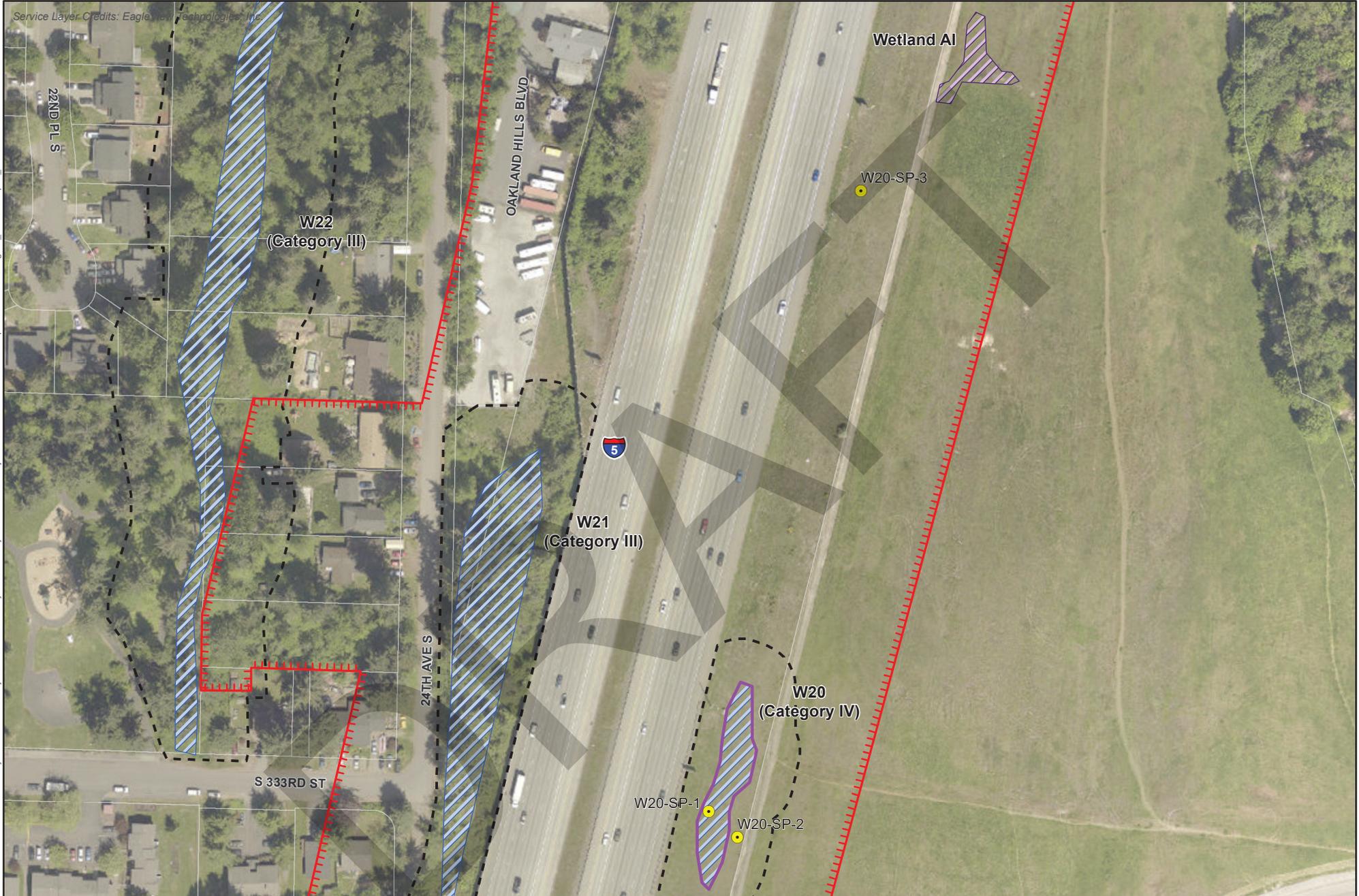
Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



-  Study Area
-  Wetland
-  Parcel Boundary
-  Wetland Buffer
-  Olympic Pipeline Easement
-  Sample Point

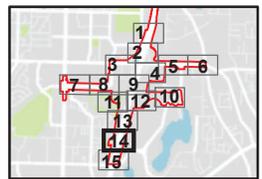
Figure 4-13
 Wetlands and Streams
 Federal Way City Center Access
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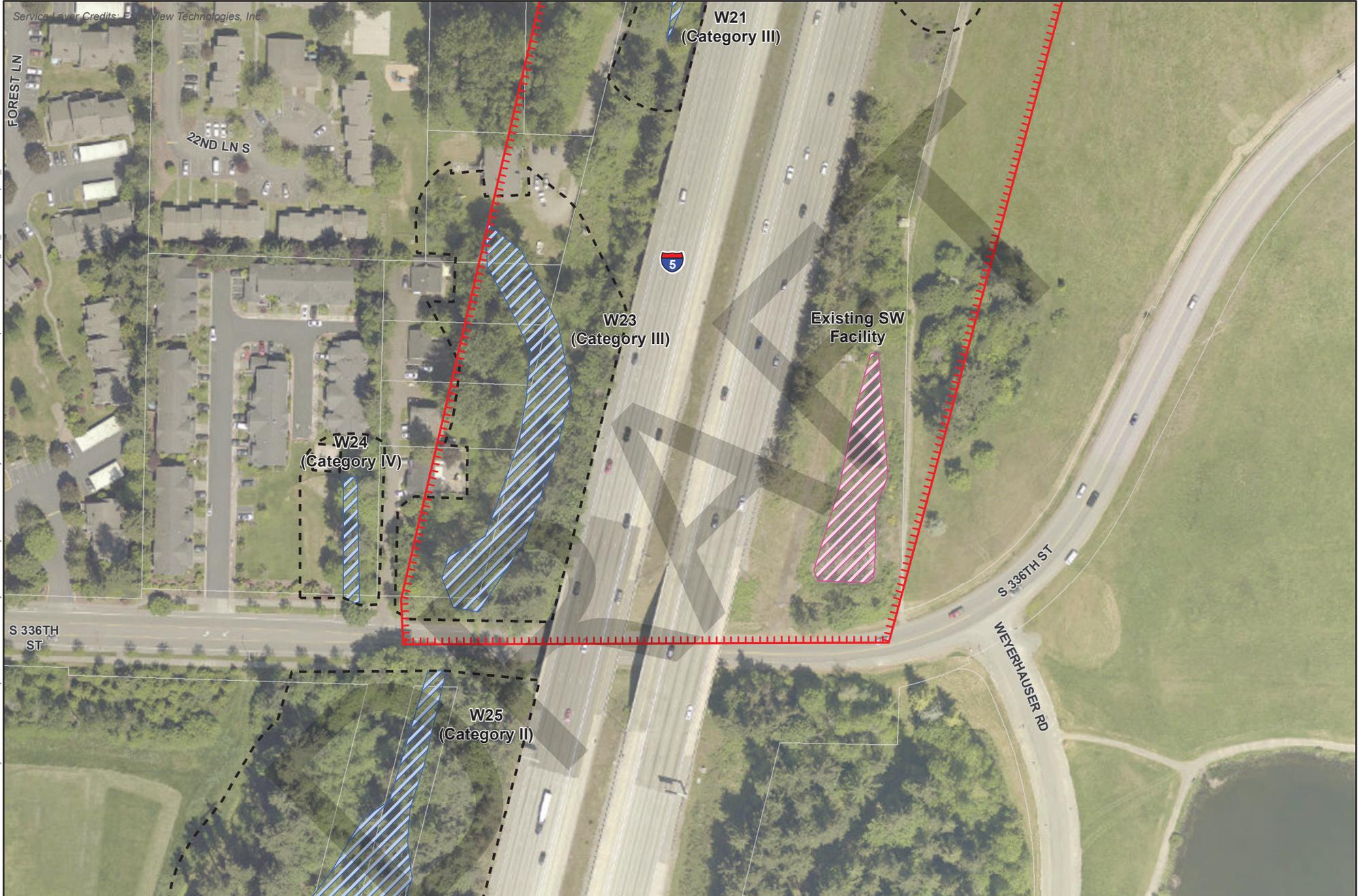
Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



- Study Area
- Wetland
- Wetland, Delineated
- Parcel Boundary
- Previously Mapped Wetland
- Sample Point
- Wetland Buffer

Figure 4-14
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

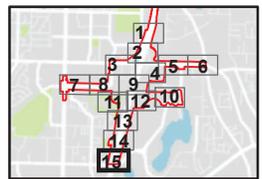
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Parametrix
 Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100
 Feet



-  Study Area
-  Stormwater Feature
-  Parcel Boundary
-  Wetland
-  Wetland Buffer

Figure 4-15
 Wetlands and Streams
 Federal Way City Center Access
 Project: Wetland Report
 (Page 15 of 15)
 Federal Way, WA

4.4.2 Vegetation

Vegetation communities in the study area range from those communities typical of highly disturbed environments within urban communities to those communities typical of relatively undisturbed forested and wetland environments. The vegetation communities within disturbed environments through the city core and surrounding urban development are typified by landscaped ornamental and native plantings with fragmented palustrine emergent and scrub-shrub wetlands dominated by reed canarygrass (*Phalaris arundinacea*), Himalayan blackberry (*Rubus armeniacus*), and red-osier dogwood (*Cornus alba*). Dominant vegetation within relatively undisturbed forested communities includes upland species, such as bigleaf maple (*Acer macrophyllum*) and Douglas-fir (*Pseudotsuga menziesii*), and dominant wetland species such as red alder (*Alnus rubra*), Oregon ash (*Fraxinus latifolia*), and black cottonwood (*Populus balsamifera*).

Those relatively undisturbed wetland communities within the project study area include palustrine aquatic bed, palustrine emergent, palustrine scrub-shrub, and palustrine forested Cowardin communities dominated by sedges (*Carex obnupta*), common ladyfern (*Athyrium cyclosorum*), creeping buttercup (*Ranunculus repens*), salmonberry (*Rubus spectabilis*), and red alder. A bog, which appears to be relatively undisturbed physically and is located within the project study area, is dominated by western hemlock (*Tsuga heterophylla*), bog laurel (*Kalmia polifolia*), and Labrador tea (*Ledum groenlandicum*).

4.4.3 Soils

Eight soil types are mapped by NRCS within the project area (NRCS 2020a):

- Alderwood gravelly sandy loam AgB, 0 to 8 percent slopes; Hydric Rating: 10
- Alderwood gravelly sandy loam AgC, 8 to 15 percent slopes; Hydric Rating: 5
- Alderwood gravelly sandy loam AgD, 15 to 30 percent slopes; Hydric Rating: 5
- Arents, Alderwood material AmB, 0 to 6 percent slopes; Hydric Rating: 0
- Arents, Alderwood material AmC, 6 to 15 percent slopes; Hydric Rating: 0
- Everett-Alderwood gravelly sandy loam EwC, 6 to 15 percent slopes; Hydric Rating: 5
- Tukwila muck Tu; Hydric Rating: 100
- Orcas peat Or; Hydric Rating: 100
- Seattle muck Sk; Hydric Rating: 100

The predominant soil mapped in the project area is Alderwood gravelly sandy loam, with 0 to 8 percent slopes. Apart from soils mapped as muck or peat, all soils are moderately well drained and do not have hydric soil conditions (NRCS 2020b). A soil survey map is included in Appendix A.

4.4.4 Hydrology

Wetlands hydrology in much of the project area is supported by a high groundwater table, precipitation leading to surface flow runoff from adjacent roads, and Stream 1. Many of the wetlands are depressional systems that sit adjacent to major roadways. These wetlands likely receive their hydrology from road runoff and a high groundwater table. Wetlands that sit adjacent to or that are associated with Stream 1 likely receive their hydrology source from the perennial flowing stream system, Stream 1, and a high groundwater table.

4.4.5 Wetland Buffers

Wetland buffers range from a variety of habitats that are moderately to highly disturbed. Wetland buffers include forested, scrub-shrub, and herbaceous habitats. Disturbance types include regularly mown roadside grasses, access roads, and adjacent roadways.

4.5 Streams

Stream 1 (East Fork Hylebos Creek – Tributary 0016A) generally flows northeast to southwest through a highly modified channel through the project study area. Summary information for Stream 1 is shown in Table 4-2. Out of the project study area, Stream 1 continues south for approximately 2.1 miles before turning east near S 356th Street and crossing I-5, where it converges with other incoming tributaries and forms East Fork Hylebos Creek. East Fork Hylebos Creek continues to flow on the east side of I-5 and converges with West Fork Hylebos Creek near the Porter Way crossing of I-5. From this point, the stream continues as Hylebos Creek, crossing back to the west side of I-5 and discharging to the Hylebos Waterway in Tacoma.

The headwaters of Stream 1 are located in Wetland W11, northeast of I-5 and S 320th Street, although no evidence of defined channel was observed. Seasonal ponding within Wetland W11 results in surface flow through a 30-inch concrete pipe crossing for approximately 245 feet below the I-5 northbound on-ramp (Site 995300) and into Wetland W10. Wetland W10 is a permanently ponded wetland bordered by S 320th Street to the south, I-5 to the west, and the northbound I-5 on-ramp to the north and east. Ponding within Wetland W10 results in flow through a submerged 30-inch concrete pipe for approximately 665 linear feet, crossing under S 320th Street (Site ID 995299) to the south before entering the upper limits of its defined channel, located within Wetland W5.

The upper limits of the delineated channel begin at the outlet of the S 320th Street crossing (Site ID 995299), where flow enters Wetland W5. Surface flow travels approximately 50 feet within a defined channel to the southeast towards the Olympic Pipeline easement. Due to the permanent flow out of Wetland W10, this upper reach of Stream 1 also appears to be permanently flowing. However, as the channel intersects with the Olympic Pipeline easement, it disappears, and its surface water transitions to permanent ponding that gradually flows through a palustrine scrub-shrub vegetation community and into the delineated bog interior within Wetland W5, east of the Olympic Pipeline easement. Evidence of a defined channel was spotted on the southeast portion of the bog. This channel flows east where I-5 travels into the culvert crossing (Site ID 992364).

Within Wetland W5, west of the Olympic Pipeline easement, another channel forms along the toe of the I-5 fill slope. This channel is likely formed from sheet flow coming off I-5 during rain events. This channel meets with the main channel of Stream 1 at the I-5 culvert crossing.

Upon leaving Wetland W5, Stream 1 courses through approximately 1,640 linear feet of pipe below I-5 and the King County Metro Park and Ride before daylighting in a straightened and incised channel within Wetland W6 west of the Belmor Park Golf Course. The stream continues south, with some sections in pipes, through W27, W26, W22, W23, and W25 before flowing out of the study area.

Table 4-2. Stream 1 (East Fork Hylebos Creek Tributary 0016a) Summary

Stream 1 (East Fork Hylebos Creek) - Information Summary	
	<p>Stream Name East Fork Hylebos Creek</p> <p>WRIA Name/Stream # 10.0016A</p> <p>WDFW Site ID 995300, 995299, and 992364</p> <p>Local Jurisdiction Federal Way</p> <p>DNR Water Type F</p> <p>Local Stream Rating F</p> <p>Buffer Width 100 feet</p> <p>Documented Fish Use^a None</p> <p>Stream 1 (East Fork Hylebos Creek – Tributary 0016A) traverses through the project study area from northeast to southwest, flowing through three crossings identified as partial fish passage barriers per WDFW and WSDOT.</p>
	<p>Location of Stream Relative to Project Corridor</p> <p>East Fork Hylebos Creek flows south along the west side of I-5 for approximately 2.1 miles before turning east near S 356th Street and crossing I-5 to join other tributaries to form East Fork Hylebos Creek, which converges with West Fork Hylebos Creek near the Porter Way crossing of I-5. From this point, the stream continues as Hylebos Creek, crossing back across to the west side of I-5 and discharging to the Hylebos Waterway in Tacoma.</p>
	<p>Connectivity</p> <p>No fish use has been documented within Stream 1 in the study area. Coho and winter-run steelhead are documented 1.1 miles downstream. Chum have been documented 1.6 miles downstream of the study area. Pink salmon are presumed to occur in the lower reaches of East Fork Hylebos Creek.</p>
	<p>Fish Habitat</p> <p>The riparian buffer condition in the study area ranges from highly modified to relatively undisturbed conditions. East of I-5, the upper limits of Stream 1 flow through large wetland complexes with forested, scrub-shrub, emergent, and aquatic bed vegetation communities with abundant shade, wood material, and organic matter accumulations. West of I-5, Stream 1 enters an incised straightened channel with a narrow fringe of riparian forest and scrub-shrub buffer surrounded by residential and recreational land-uses.</p>

^a Documented fish species known to occur in the stream from available data sources (WDFW 2020a; WDFW 2020b)

4.6 Other Waters

All ditches in the study area are believed to convey only ephemeral flow. Accordingly, most ditches are assumed to be non-jurisdictional, except for that portion of Ditch D2 which occurs within Wetland W14 (Figure 4-1).

4.7 Species and Habitats of Interest

There is no documented, historical, or presumed fish use in Stream 1 (East Fork Hylebos Creek - Tributary 0016A) within the project study area. Under current conditions, human-created barriers to fish passage prevent anadromous salmonids from entering stream reaches in the study area (WDFW 2020a, 2020b). The presence of resident fish is unlikely, given the intermittent flow of the stream and the presence of barriers between the study area and potential population sources downstream. However, the basin size, channel width, and gradient of the stream indicate the potential to support fish in the future. For this reason, the stream is classified as a Type F stream, in accordance with FWRC 19.145.260.

The documented distribution of Chinook salmon distribution in the Hylebos Creek watershed does not extend into East Fork Hylebos Creek or its tributaries (WDFW 2020a). Chinook salmon are presumed to be present in East Fork Hylebos Creek only in the lowest 730 feet of the stream (WDFW 2020a), approximately 2.9 miles downstream of the study area (WDFW 2020a). Chinook salmon are not presumed to use habitats in East Fork Hylebos Creek or its tributaries upstream of that point, but there are no gradient barriers that preclude access to East Fork Hylebos Creek Tributary 0016A in the study area (WDFW 2020a).

Coho salmon and winter-run steelhead have been documented in East Fork Hylebos Creek approximately 1.1 miles downstream of the study area (WDFW 2020a). Chum salmon have been documented in East Fork Hylebos Creek approximately 1.6 miles downstream of the study area. Pink salmon have not been documented in the Hylebos Creek system, but they are presumed to occur in East Fork Hylebos Creek as far upstream as 2.9 miles downstream of the study area (WDFW 2020a). As noted above, the basin size, channel width, and gradient of East Fork Hylebos Creek Tributary 0016A in the study area indicate the potential to support these species in the future. The only other WDFW-mapped priority habitats in the study area are wetlands that correspond with project wetland mapping (WDFW 2020).

5. PROJECT IMPACTS

The project will have direct and indirect impacts on wetlands, streams, and their buffers. Direct impacts will include permanent impacts (the cut and fill limits), as well as temporary impacts on adjacent areas when providing construction access. Direct permanent and temporary impacts are detailed in Table 5-1. Project impacts are shown in Figures 5-1 through 5-15.

Table 5-1. Direct Impacts on Wetlands and Streams in the Project Study Area

Resource	Permanent Impacts (acres)	Temporary Impacts (acres)
W1	0	<0.01
W3	0.02	0
W2	0.03	0
W5 (Category II)	0.38	0.82
W5 (Bog, Category I)	0	0
W6	0.01	0.03
W7	<0.01	0.03
W9	<0.01	0.01
W10	0.01	0.14
W11	0	0.77
W12	0.03	0
W13	0	<0.01
W14	0.16	0.09
W15	0	0.14
W16	0	0.01
W17	0.12	0
W18	0.03	0.17
W19	0.02	0.12
W20	0	0.05
W21	0.40	0.24
W23	0	0.28
Wetlands, est (Weyerhaeuser)	<0.01	0.59
Total Wetlands	1.21	3.49
Total Stream	<0.01	<0.01
Total Stream and Wetland Buffers	6.05	12.24

Indirect impacts include alteration to the wetlands or streams as a result of changes in stormwater management and/or hydrologic changes as a result of revised stream crossing structures. The stormwater management plan has been developed carefully to maintain or improve the existing hydrologic and chemical connections between the aquatic areas and adjacent paved areas. The plan meets the current stormwater design manual criteria. Due to the presence of a wetland with bog conditions (Wetland 5), stormwater in this area was enhanced to meet King County special requirements for stormwater management near bogs. The revised stream crossing structures were designed to retain the current topography within wetlands and the invert elevations of the new crossing inlets. These considerations should maintain current wetland conditions. Current conditions (some untreated stormwater, undersized culverts) result in short periods of flooding during large storm events due to backwater effects. Post-project conditions would reduce the height and duration of these events, stabilizing the hydroperiod, which would be beneficial for the existing plant communities and wildlife.

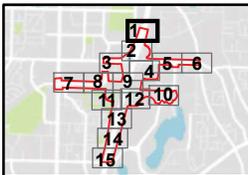


Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



Study Area

Project Footprint

Footprint Type

Permanent

Construction

Impact Type

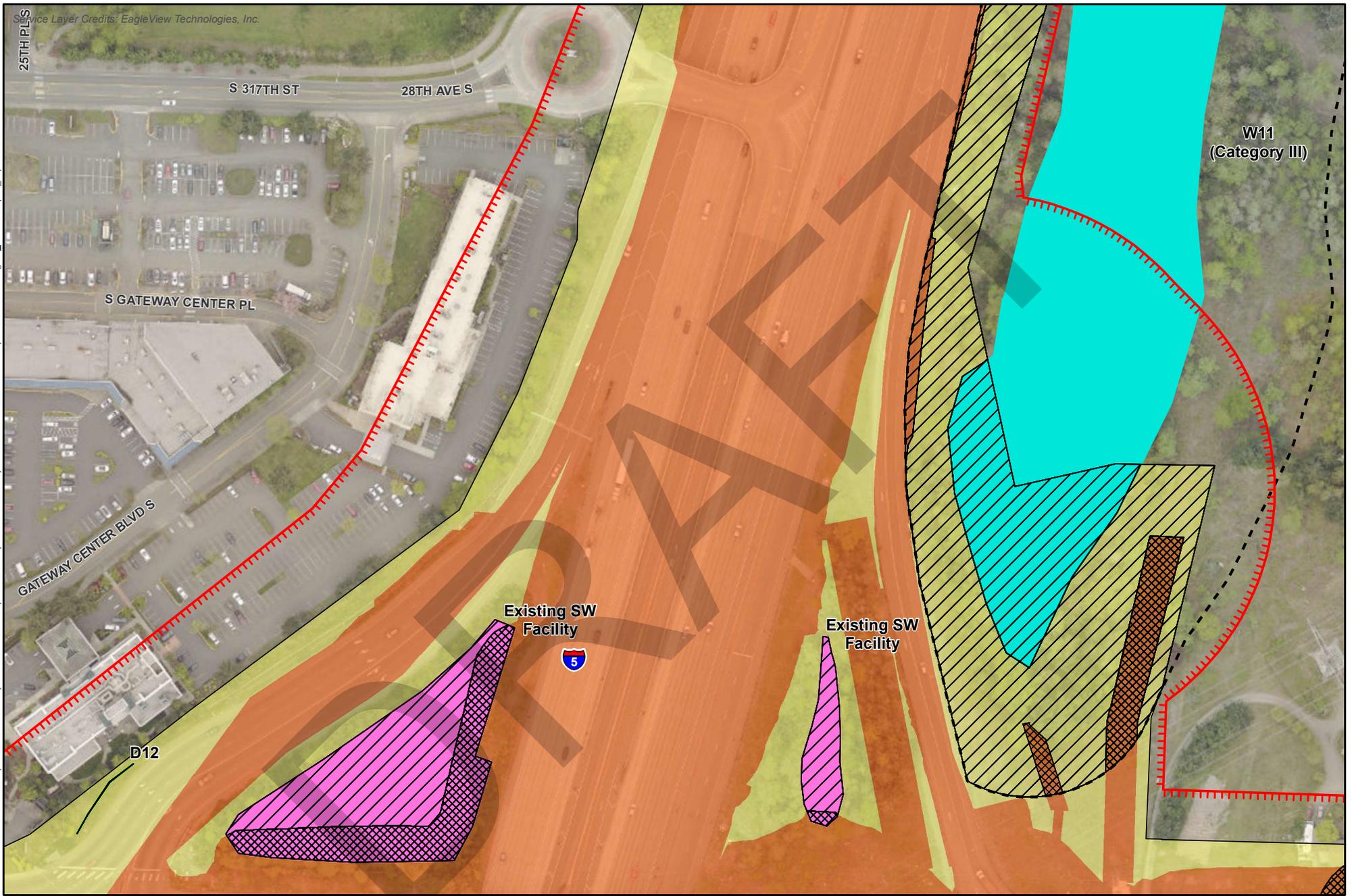
Construction

Permanent

Wetland

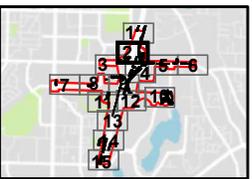
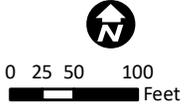
Wetland Buffer

Figure 5-1
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
 (Page 1 of 15)
 Federal Way, WA



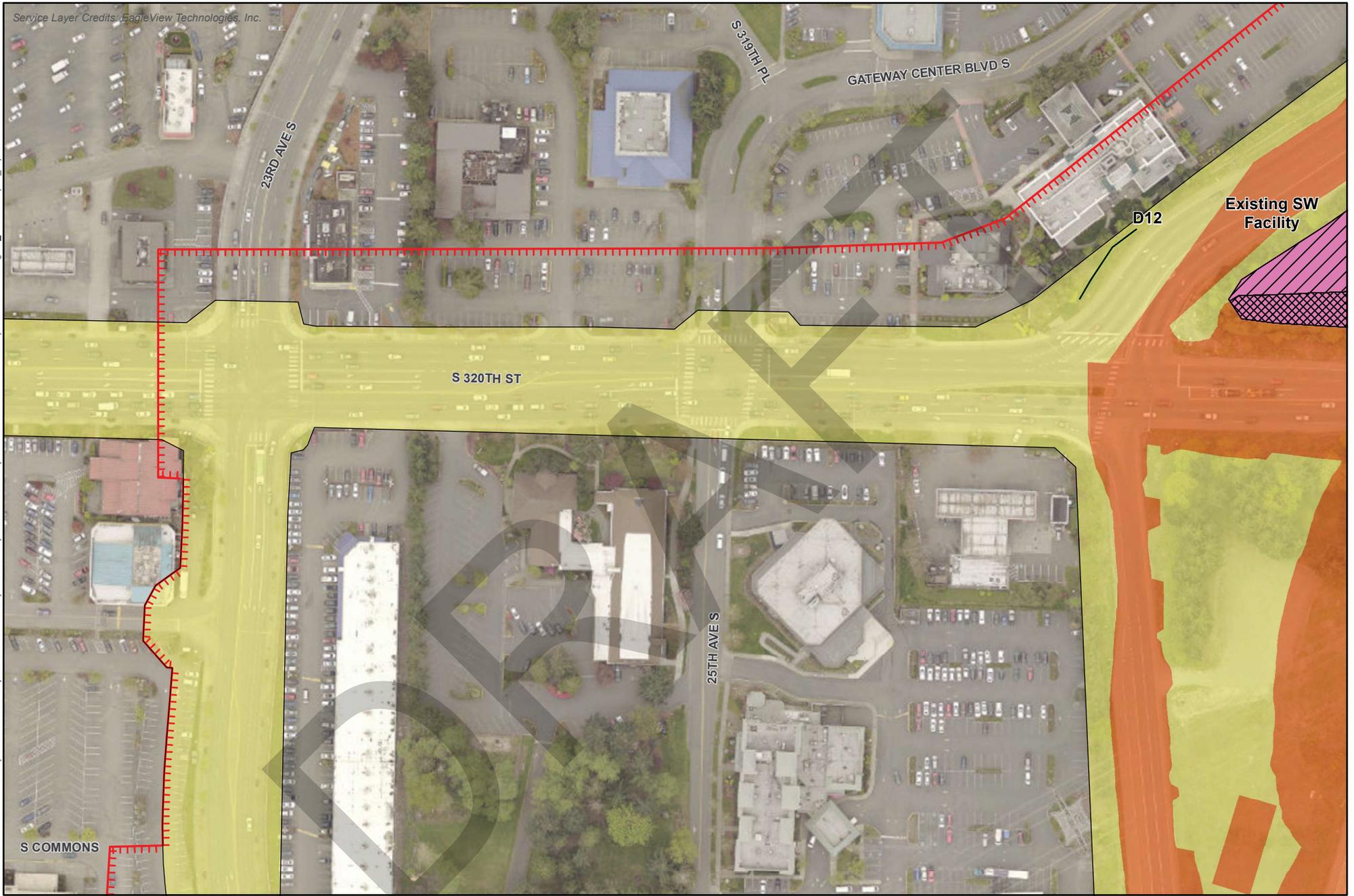
Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



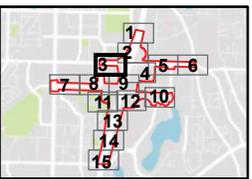
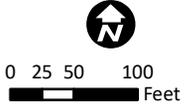
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|-----------------------|--------------------|--------------------|
| Study Area | Impact Type | Stormwater Feature |
| Project Footprint | Construction | Ditch |
| Footprint Type | Permanent | Wetland |
| Permanent | Wetland Buffer | |
| Construction | | |

Figure 5-2
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
 (Page 2 of 15)
 Federal Way, WA



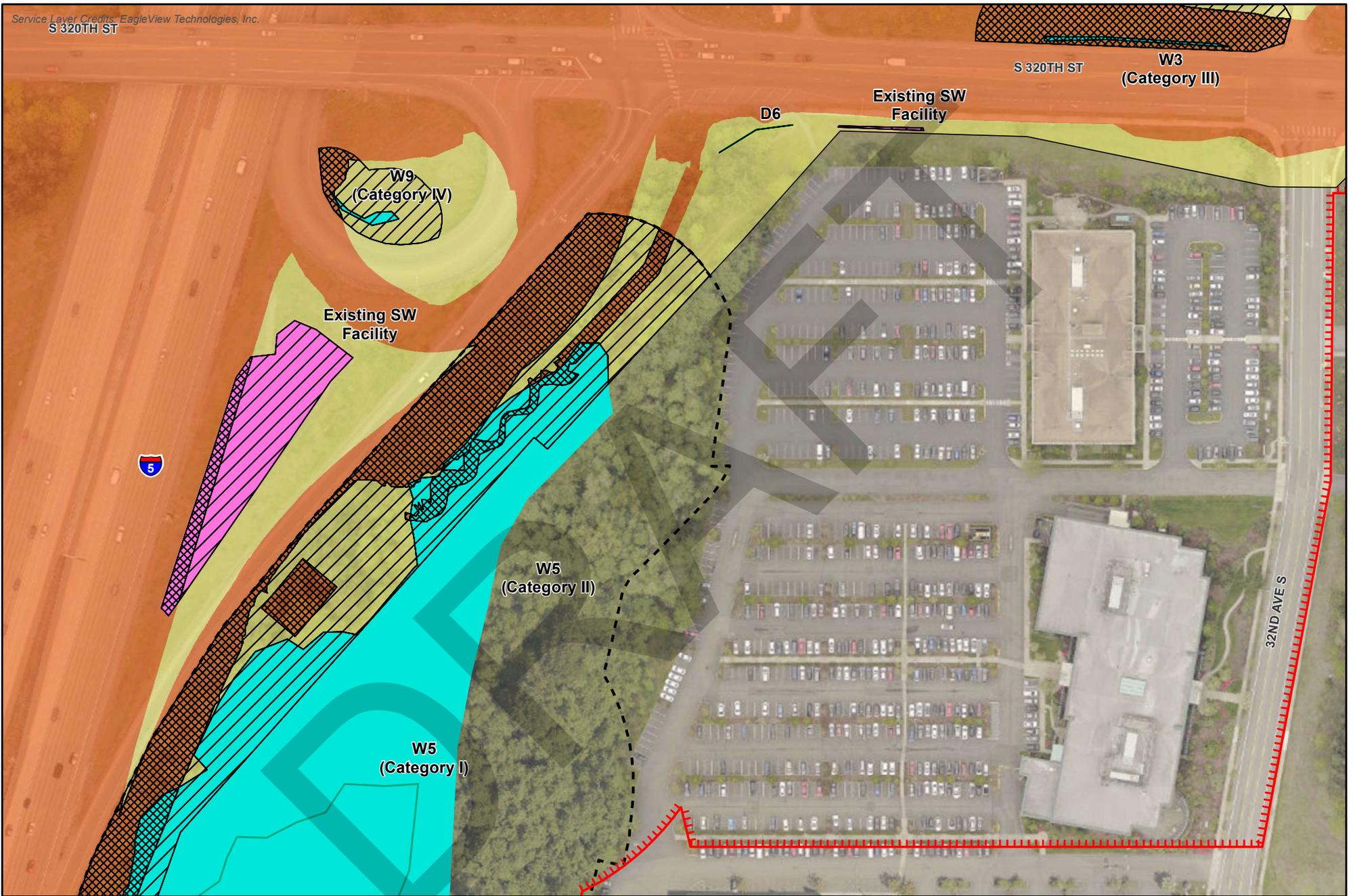
Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



- Study Area
- Project Footprint
- Footprint Type**
- Permanent
- Construction
- Impact Type**
- Construction
- Permanent
- Stormwater Feature
- Ditch

Figure 5-3
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
 (Page 3 of 15)
 Federal Way, WA

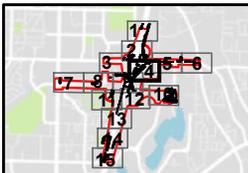


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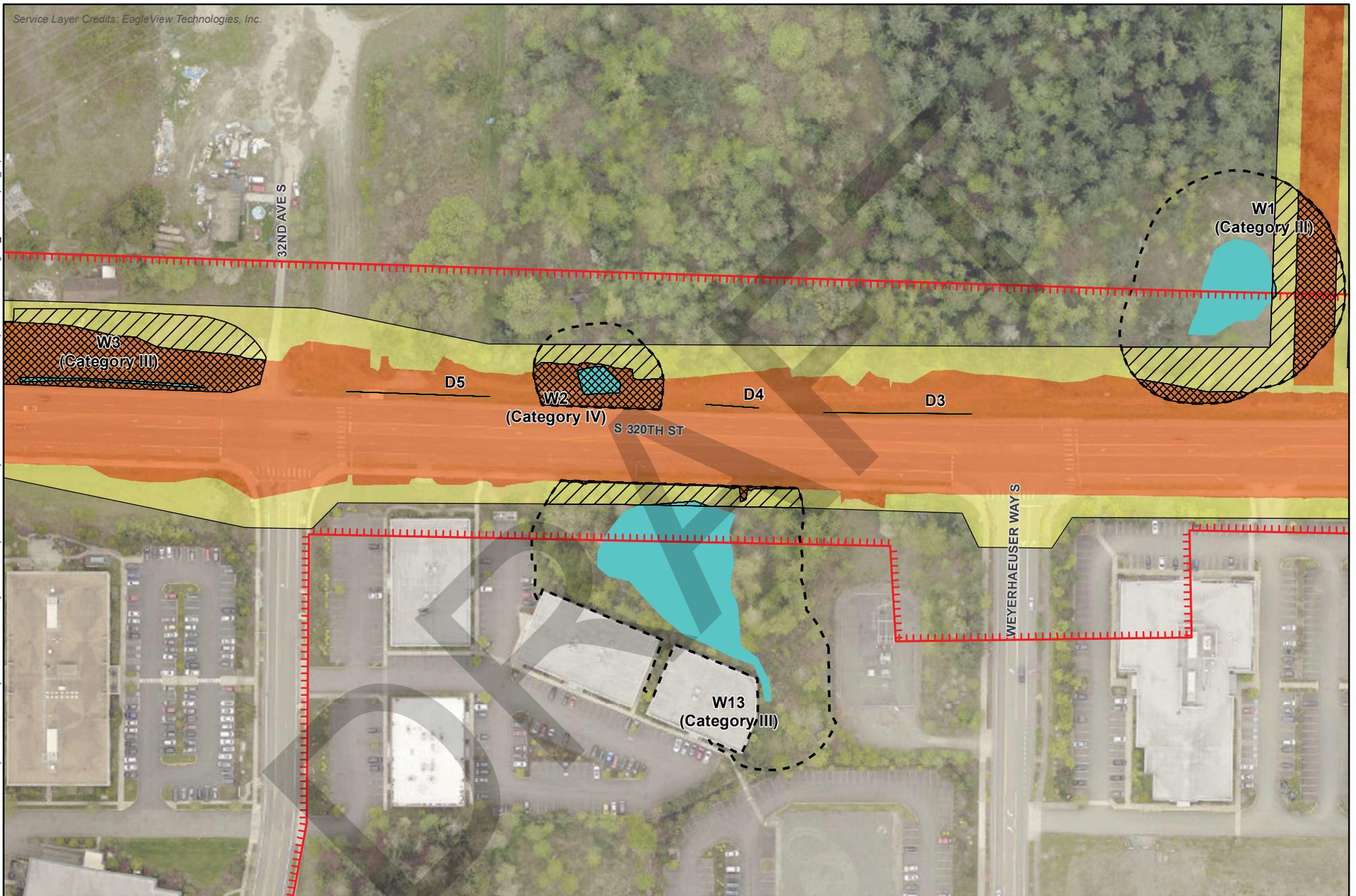


0 25 50 100 Feet



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|-----------------------|--------------------|--------------------|
| Study Area | Impact Type | Stormwater Feature |
| Project Footprint | Construction | Ditch |
| Footprint Type | Permanent | Wetland |
| Permanent | Wetland Buffer | Bog Boundary |
| Construction | | |

Figure 5-4
Wetland and Stream Impacts
Federal Way City Center Access
Project: Wetland Report
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Federal Way, WA

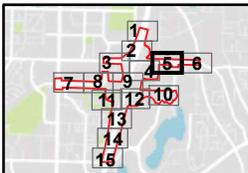


Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



Study Area

Project Footprint

Footprint Type

Permanent

Construction

Impact Type

Construction

Permanent

Ditch

Wetland

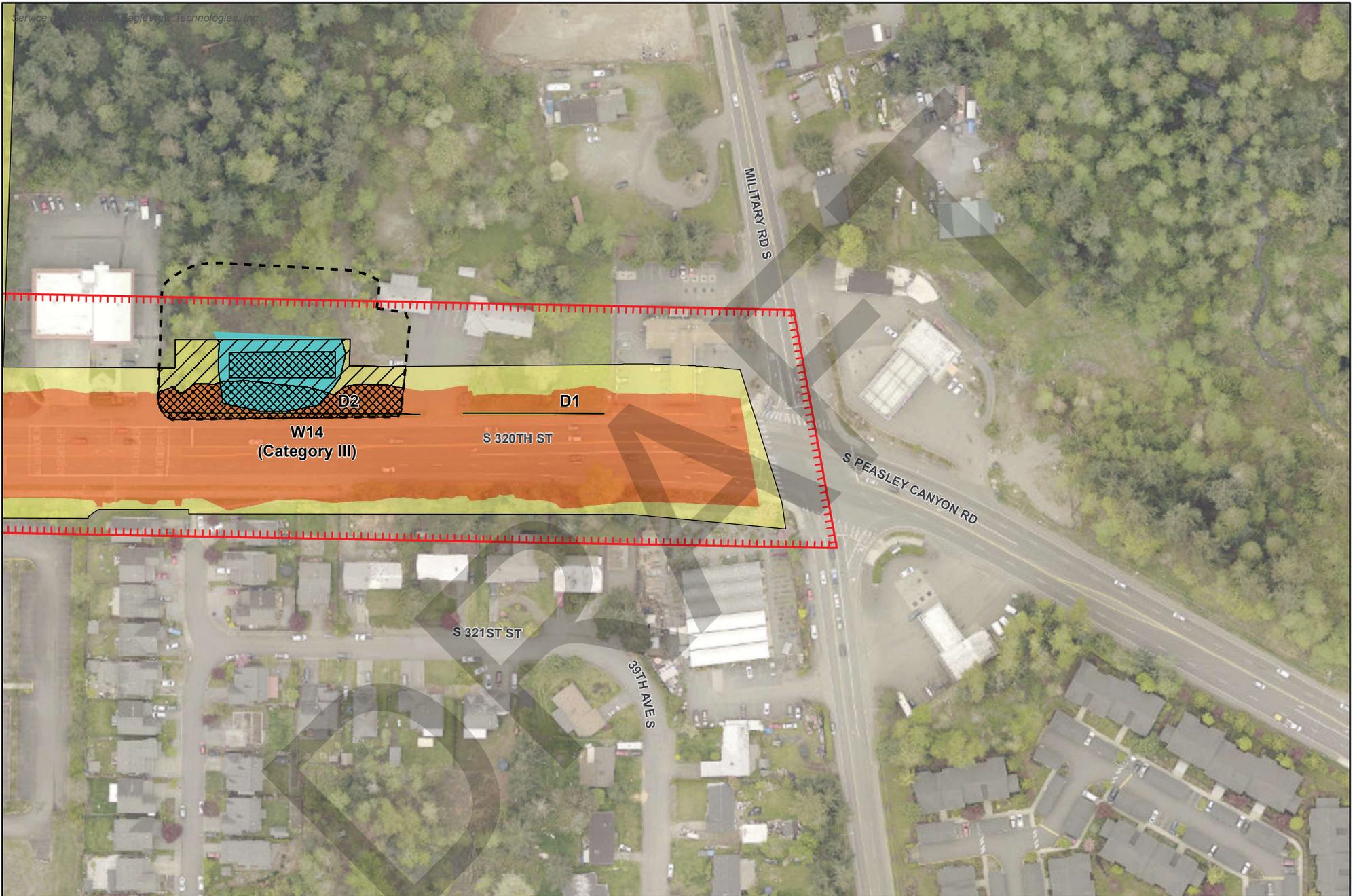
Wetland Buffer

Figure 5-5

Wetland and Stream Impacts
Federal Way City Center Access
Project: Wetland Report

(Page 5 of 15)

Federal Way, WA

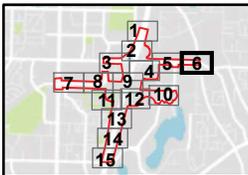


Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



Study Area

Project Footprint

Footprint Type

Permanent

Construction

Impact Type

Construction

Permanent

Ditch

Wetland

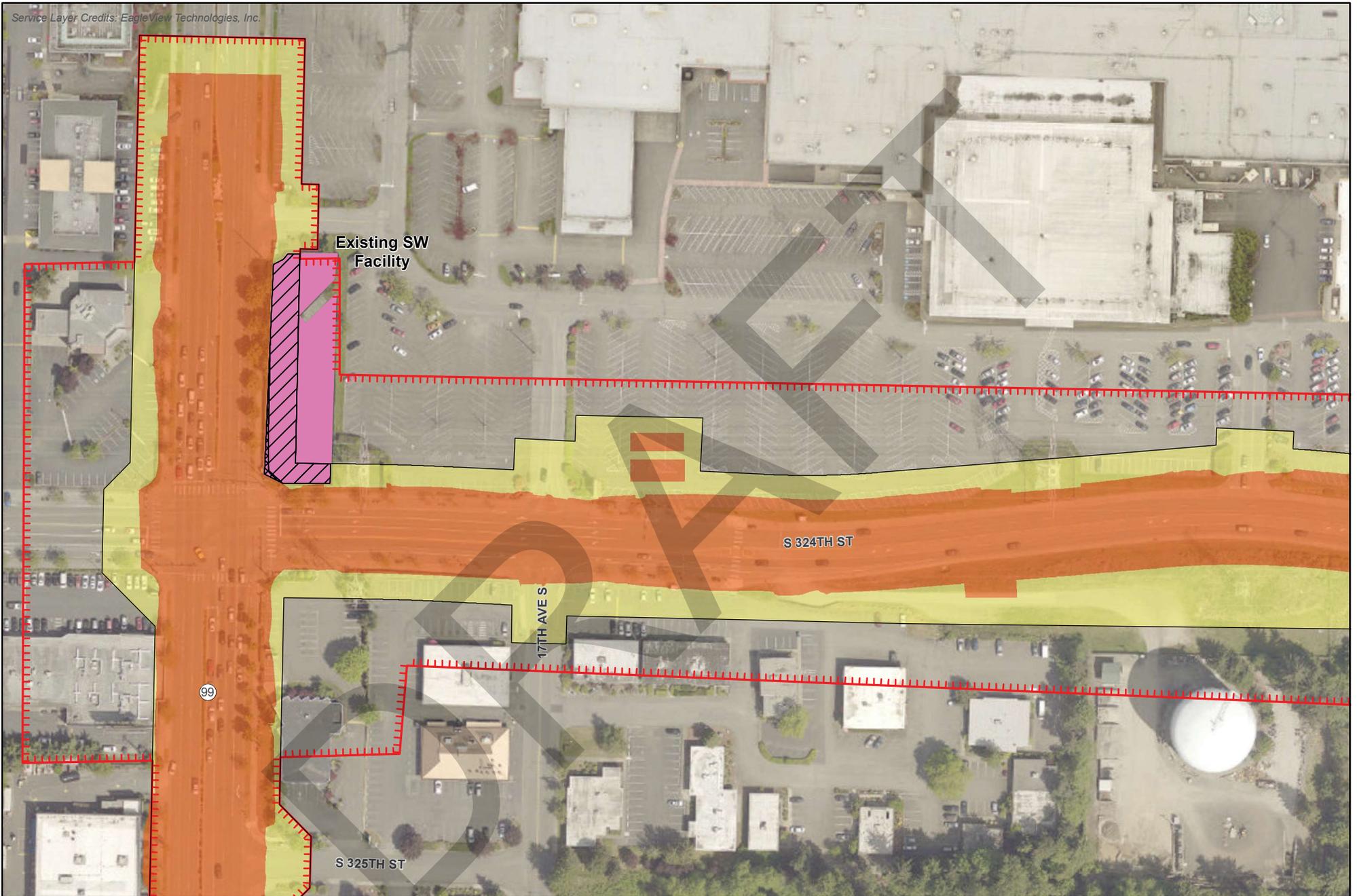
Wetland Buffer

Figure 5-6

Wetland and Stream Impacts
Federal Way City Center Access
Project: Wetland Report

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Federal Way, WA

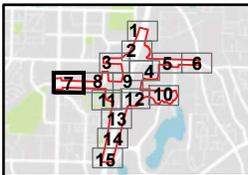


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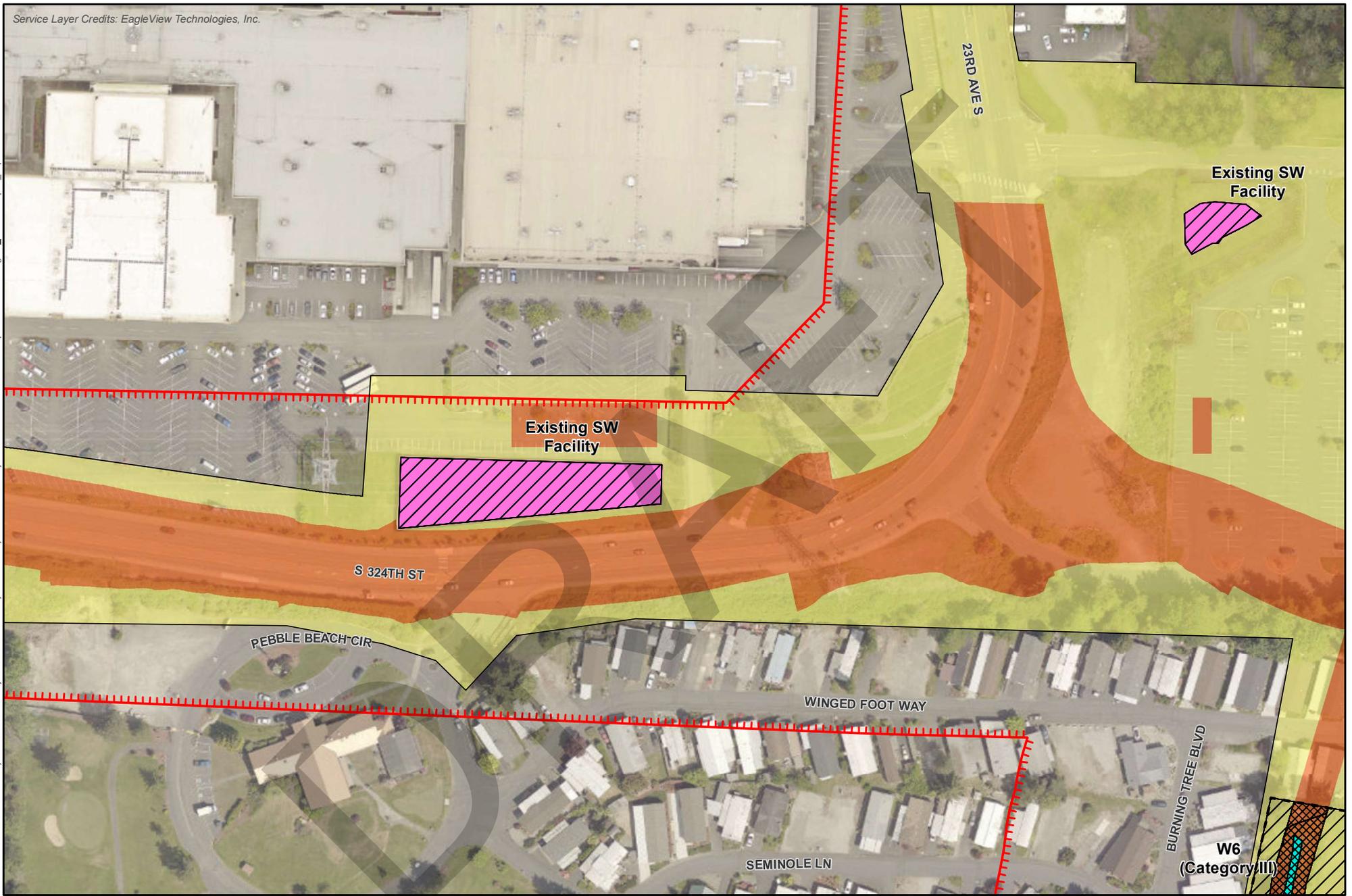


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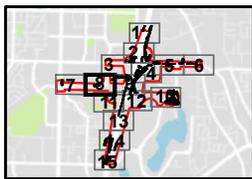
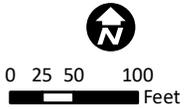
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|-----------------------|--------------------|
| Study Area | Stormwater Feature |
| Project Footprint | Construction |
| Footprint Type | Permanent |
| Permanent | |
| Construction | |

Figure 5-7
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA



Parametrix

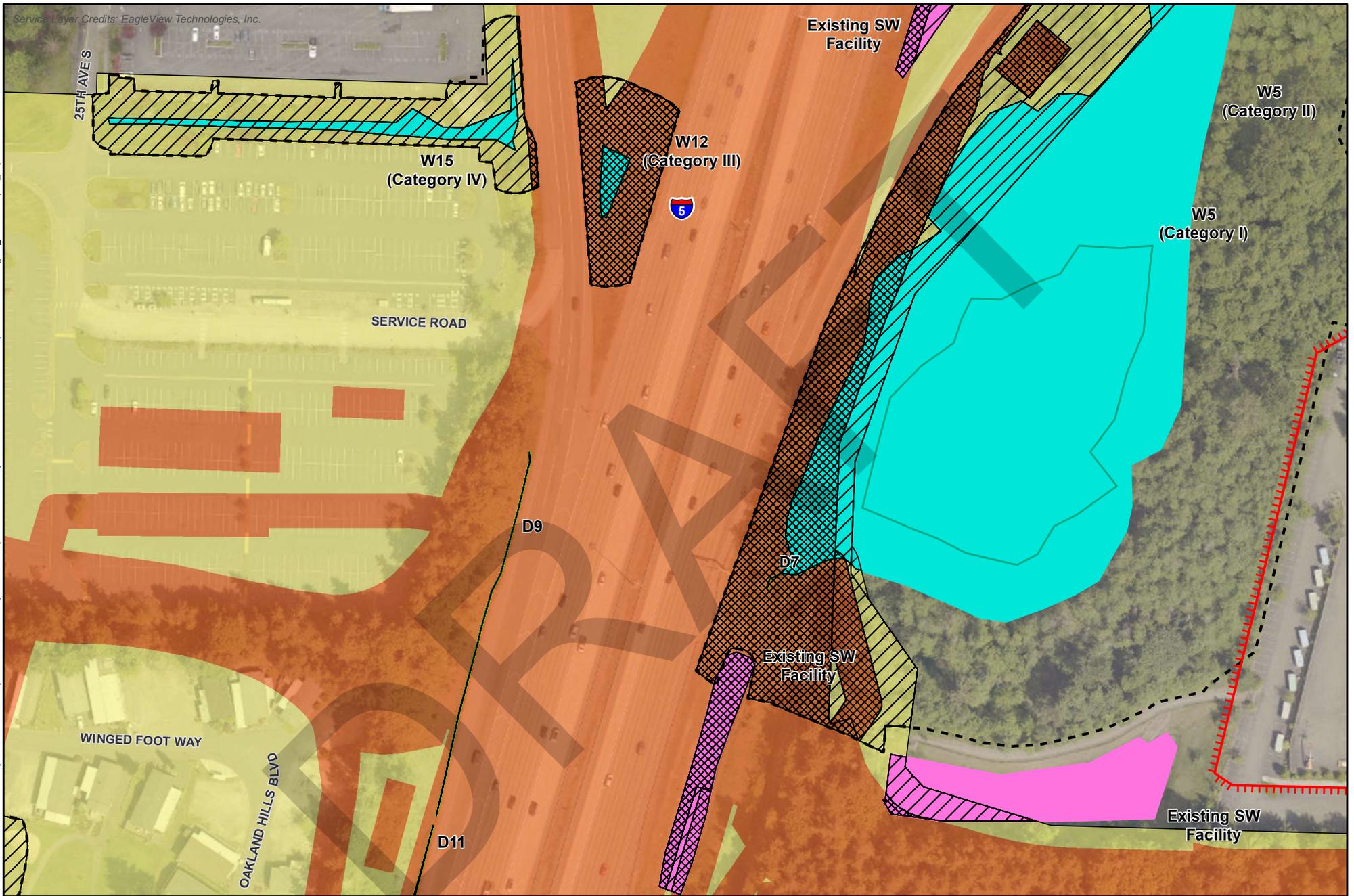
Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



Study Area	Impact Type	Stormwater Feature
Project Footprint	Construction	Wetland
Footprint Type	Permanent	Wetland Buffer
Permanent		
Construction		

Figure 5-8

Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

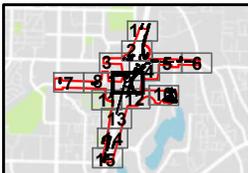


Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



Study Area

Project Footprint

Footprint Type

Permanent

Construction

Impact Type

Construction

Permanent

Stormwater Feature

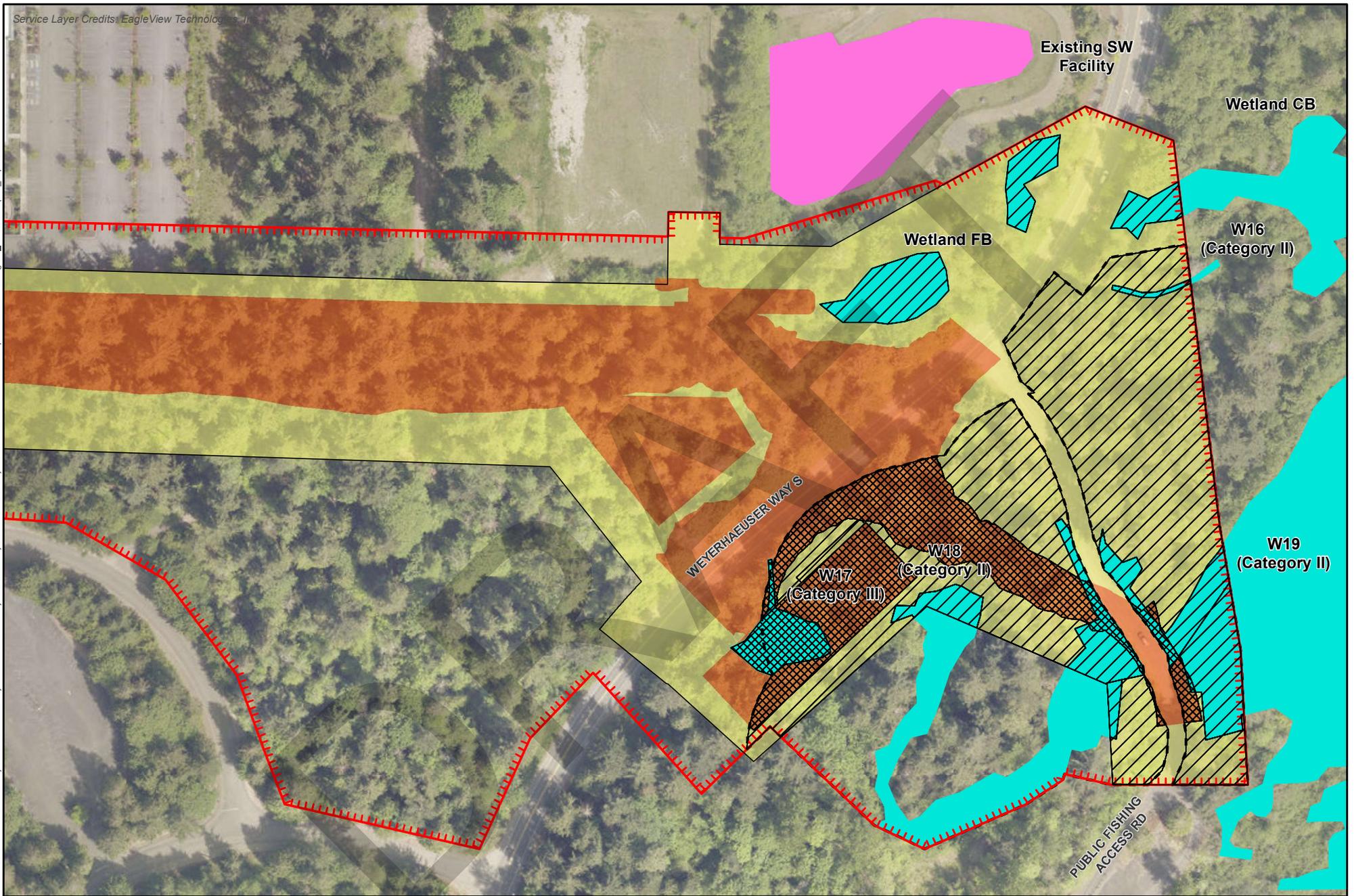
Ditch

Wetland

Bog Boundary

Wetland Buffer

Figure 5-9
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

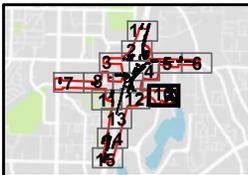


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Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



Study Area

Project Footprint

Footprint Type

Permanent

Construction

Impact Type

Construction

Permanent

Stormwater Feature

Wetland

Wetland Buffer

Figure 5-10
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
 (Page 10 of 15)
 Federal Way, WA

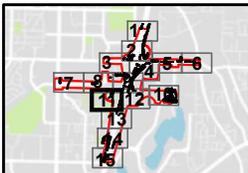


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Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



0 25 50 100 Feet



Study Area

Project Footprint

Footprint Type

Permanent

Construction

Impact Type

Construction

Permanent

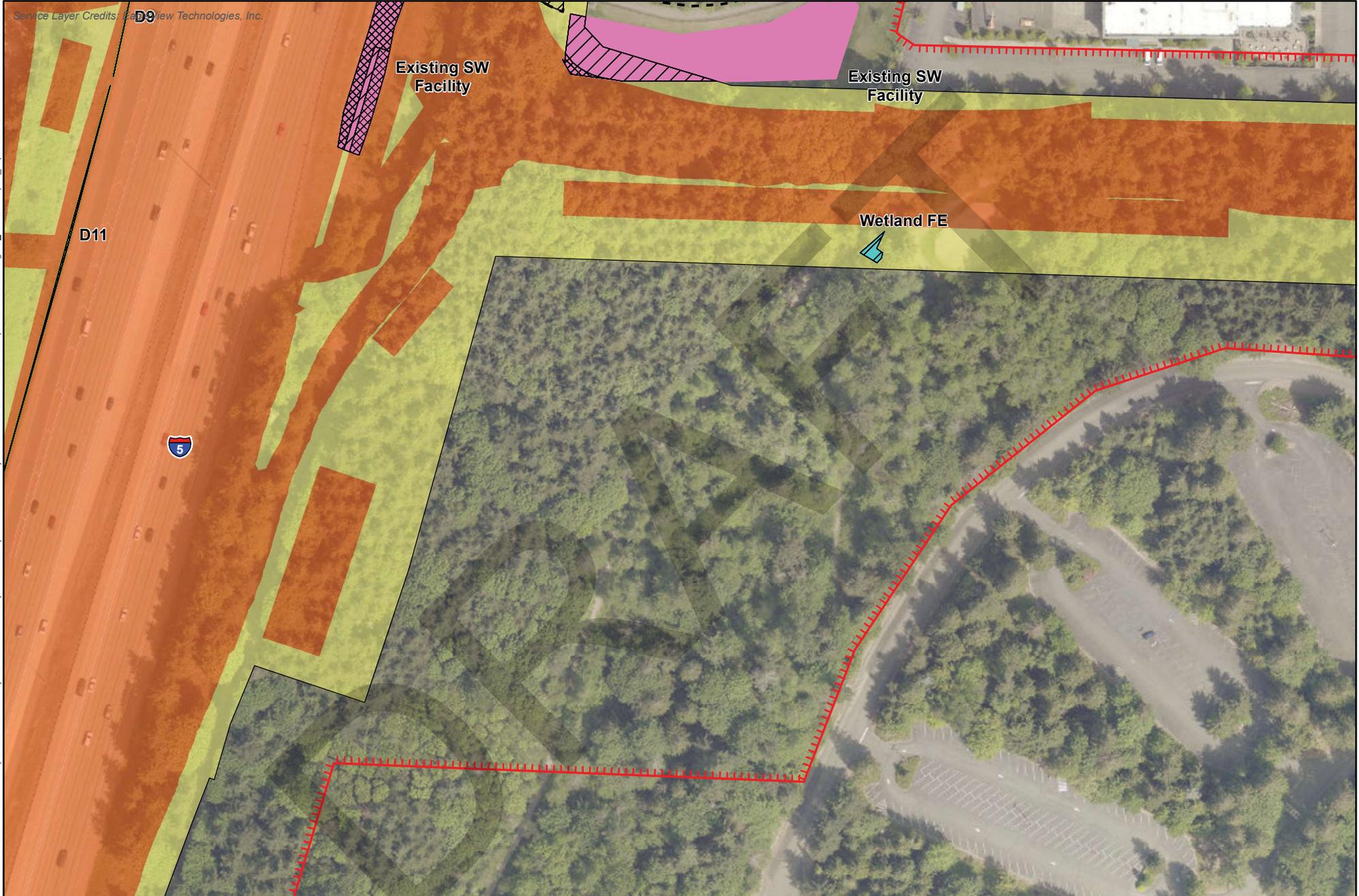
Ditch

Wetland

Wetland Buffer

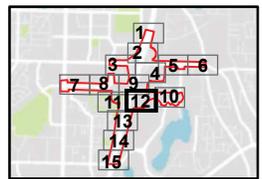
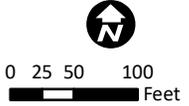
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 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

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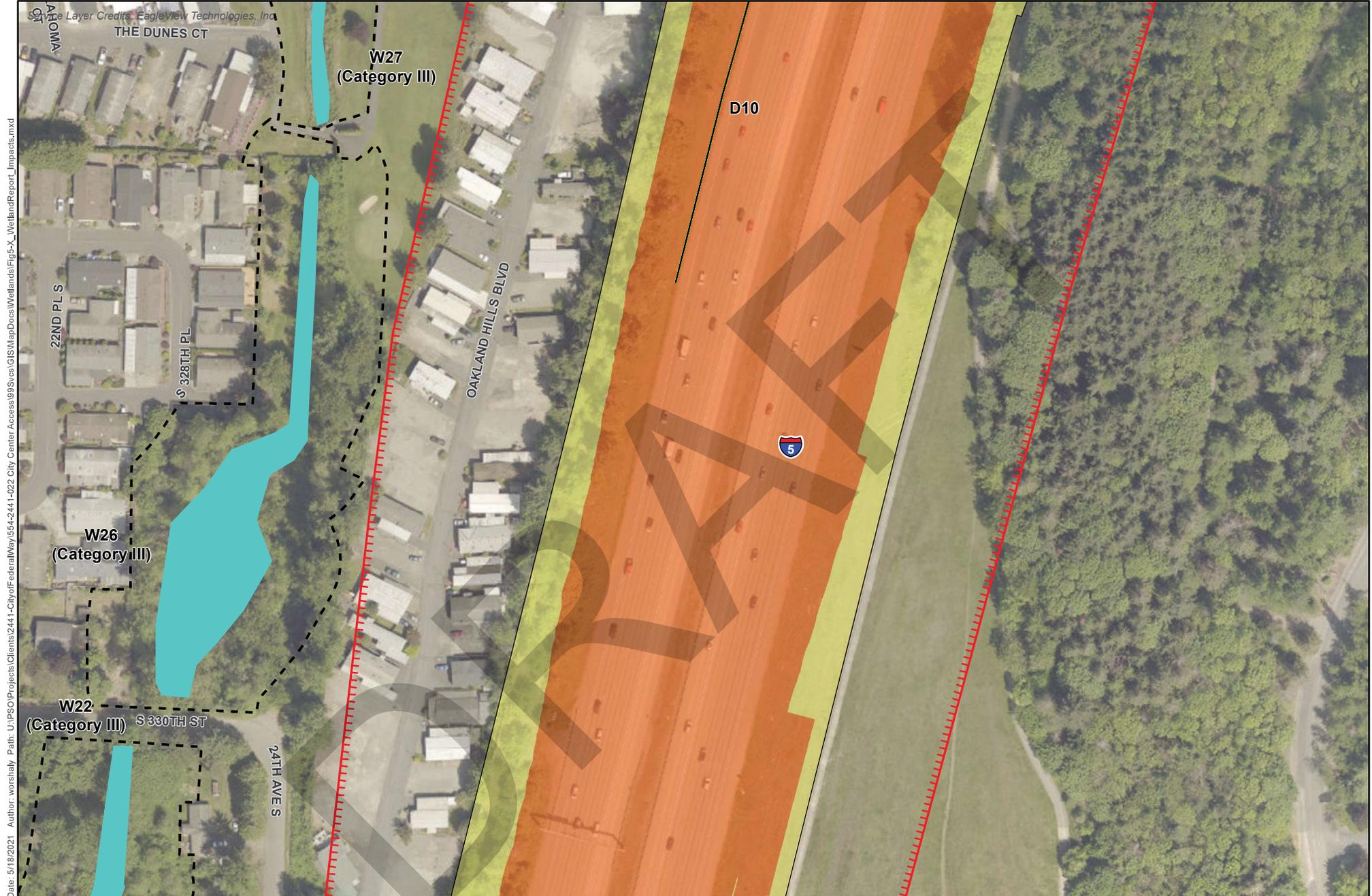
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Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



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|-----------------------|--------------|--------------------|
| Study Area | Construction | Stormwater Feature |
| Project Footprint | Permanent | Ditch |
| Footprint Type | Wetland | Wetland Buffer |
| Permanent | | |
| Construction | | |

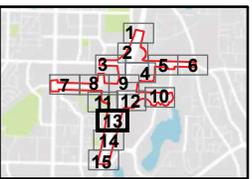
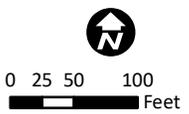
Figure 5-12
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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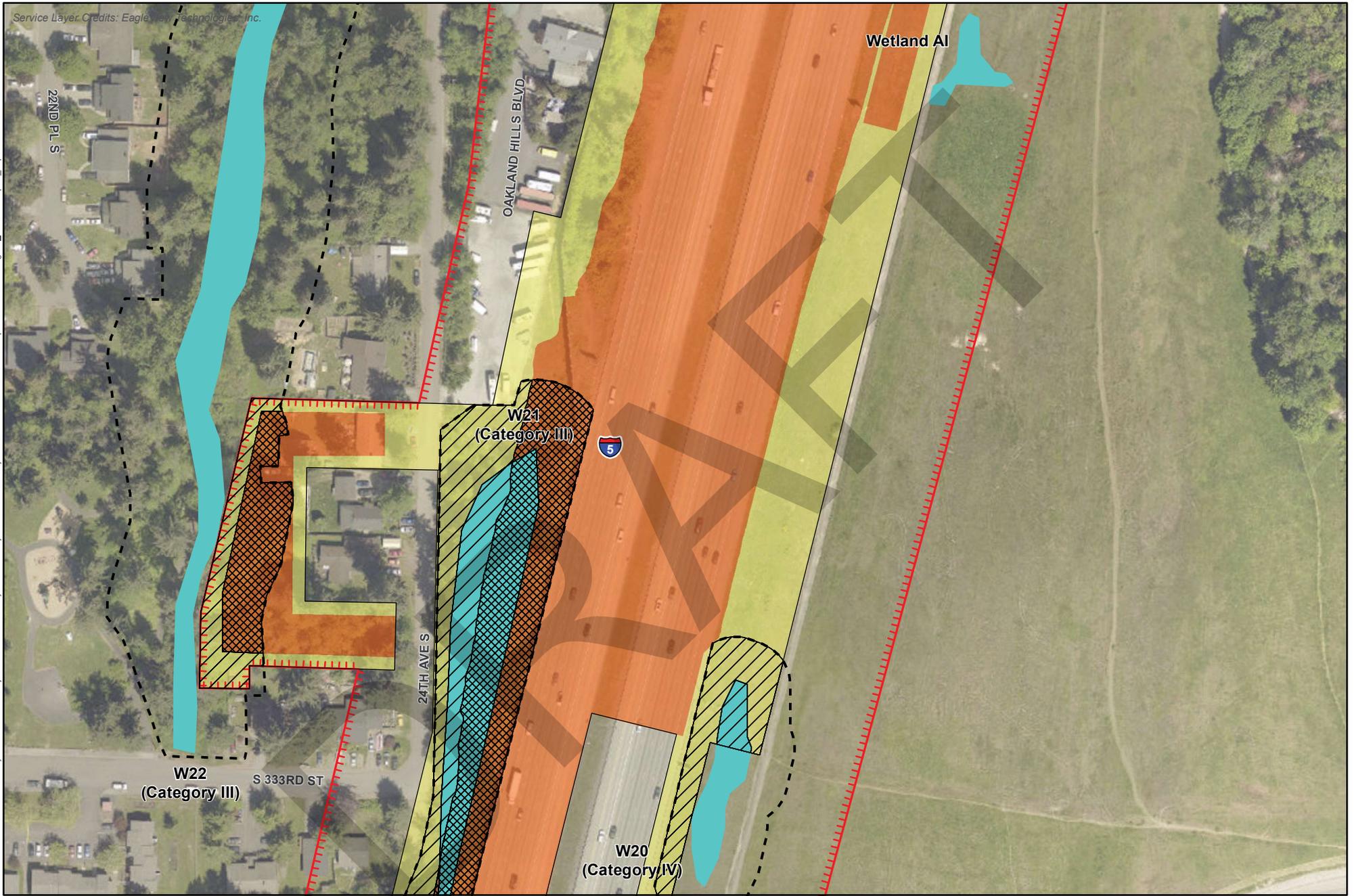
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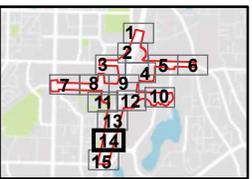
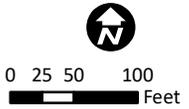
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|-----------------------|--------------------|----------------|
| Study Area | Impact Type | Ditch |
| Project Footprint | Permanent | Wetland |
| Footprint Type | Permanent | Wetland Buffer |
| Construction | | |

Figure 5-13
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA



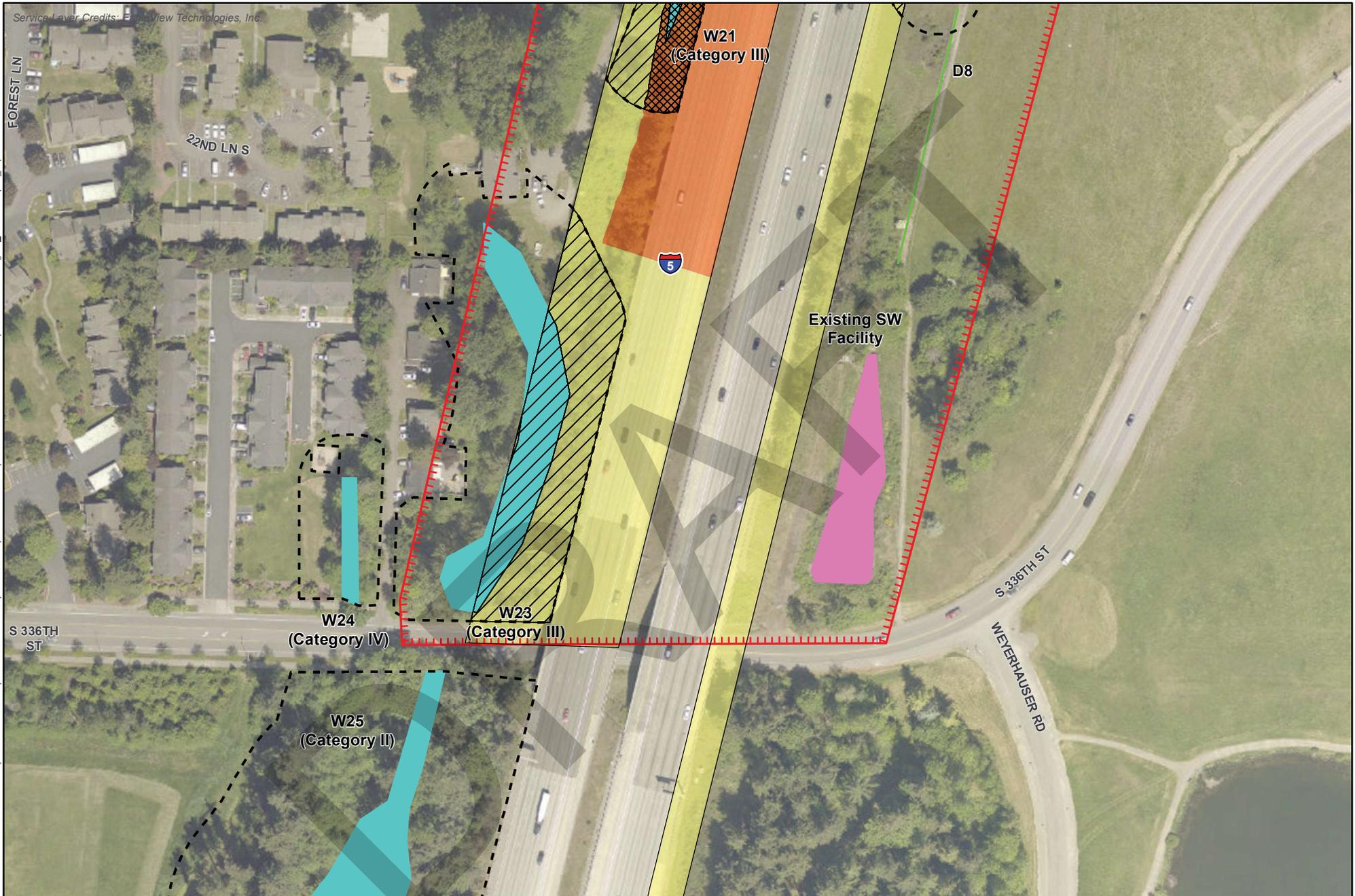
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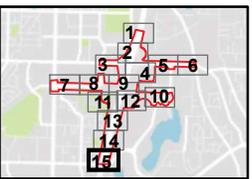
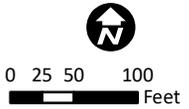
- Study Area
- Project Footprint
- Footprint Type**
- Permanent
- Construction
- Impact Type**
- Construction
- Permanent
- Wetland
- Wetland Buffer

Figure 5-14
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA



Parametrix

Source: King County, City of Federal Way, © Mapbox, © OpenStreetMap



Study Area	Impact Type	Stormwater Feature
Project Footprint	Construction	Ditch
Footprint Type	Permanent	Wetland
Permanent	Construction	Wetland Buffer

Figure 5-15
 Wetland and Stream Impacts
 Federal Way City Center Access
 Project: Wetland Report
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 Federal Way, WA

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6. MITIGATION

The project would comply with federal, state, and local requirements for mitigation of wetland, stream, and buffer impacts. To reduce impacts on streams and wetlands, the project design team worked through mitigation sequencing: avoidance, minimization, rectification, and compensation. The project design team avoided impacts on most wetlands and streams in the project areas by adjusting project elements and adding retaining walls and other features to limit the project footprint. The project minimized impacts where they were unavoidable. Ongoing design will further reduce those impacts. The impacts affect only small portions of the wetlands, and short sections of stream are affected, as needed, to improve stream crossing structures. Temporary impacts will be rectified during the project by restoring the original grades and replanting native vegetation in those areas. Finally, for those unavoidable impacts, the project will provide compensatory mitigation to offset the impacts. The small area of unavoidable impacts to the streams will be mitigated through the design and installation of a major new stream crossing structure under I5. The unavoidable impacts on wetlands will be mitigated by using guidance in FWCC 19.145.430 and joint guidance from Ecology, USACE, and EPA (2021). Ongoing restoration projects in the Hylebos watershed, the King County in-lieu fee program, and the development of a project-specific mitigation site are possible opportunities for mitigation that comply with federal, state, and local requirements. In general, this project reduces the overall linear feet of culverted stream and will also daylight significant portions of stream channel that would otherwise be culverted. Replacement of current fish passage barriers with fish passage culverts will also support overall salmon recovery goals in WRIA 10 specifically, but also in the overall Puget Sound region.

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7. LIMITATIONS

This wetland and stream assessment report documents the investigation, best professional judgment, and conclusions of Parametrix based on the site conditions encountered at the time of this study. The wetland and stream delineation were performed in compliance with accepted standards for professional wetland biologists and applicable federal, state, and local laws and ordinances. The information contained in this report is correct and complete to the best of our knowledge. It should be considered a preliminary jurisdictional determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities. The final determination of the wetland boundary, classification, and required setback and buffer will be made by local, state, and federal jurisdictions.

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Appendix A
Background Information

