

**CITY OF NEWCASTLE CRITICAL AREAS  
DELINEATION REPORT**

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**Puget Sound Energy – Energize  
Eastside Project**

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**May 2016**

**The Watershed Company  
Reference Number:  
111103**

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**Cite this document as:**  
The Watershed Company. May 2016. City of Newcastle Critical Areas  
Delineation Report: Puget Sound Energy – Energize Eastside Project.  
Prepared for PSE.



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# CITY OF NEWCASTLE DELINEATION REPORT

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## PUGET SOUND ENERGY – ENERGIZE EASTSIDE PROJECT

# 1 INTRODUCTION

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## 1.1 Background and Purpose

The purpose of this report is to identify and document potential critical areas associated with Puget Sound Energy's (PSE's) Energize Eastside project. The Energize Eastside project proposes to build a new electric substation and higher capacity transmission lines to serve homes and businesses on the Eastside. Current route options include 'Oak' and 'Willow' routes that will extend from Redmond to Renton (Figure 1). Each route option includes a set of PSE-labeled segments. The Oak route comprises Segments A, C, E, G2, I, K2, M, and N. The Willow route comprises Segments A, C, E, J, M, and N. This report addresses critical areas located along the proposed routes in the City of Newcastle, and includes a portion of PSE-labeled Segment M<sup>1</sup> (Figure 2).

The length of the study area corridor in the City of Newcastle is approximately 1.5 miles beginning at Newcastle Way and continuing south to SE 95<sup>th</sup> Way (Figure 2). The study area corridor includes two existing 115 kV transmission lines spaced approximately 50 feet apart on center. Each line is composed of three conductors (wires) connected to H-frame pole structures. The study area corridor is approximately 100 feet wide.

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<sup>1</sup> PSE Segments M and N comprise Phase 2 Draft Environmental Impact Statement (DEIS) Segment 3.

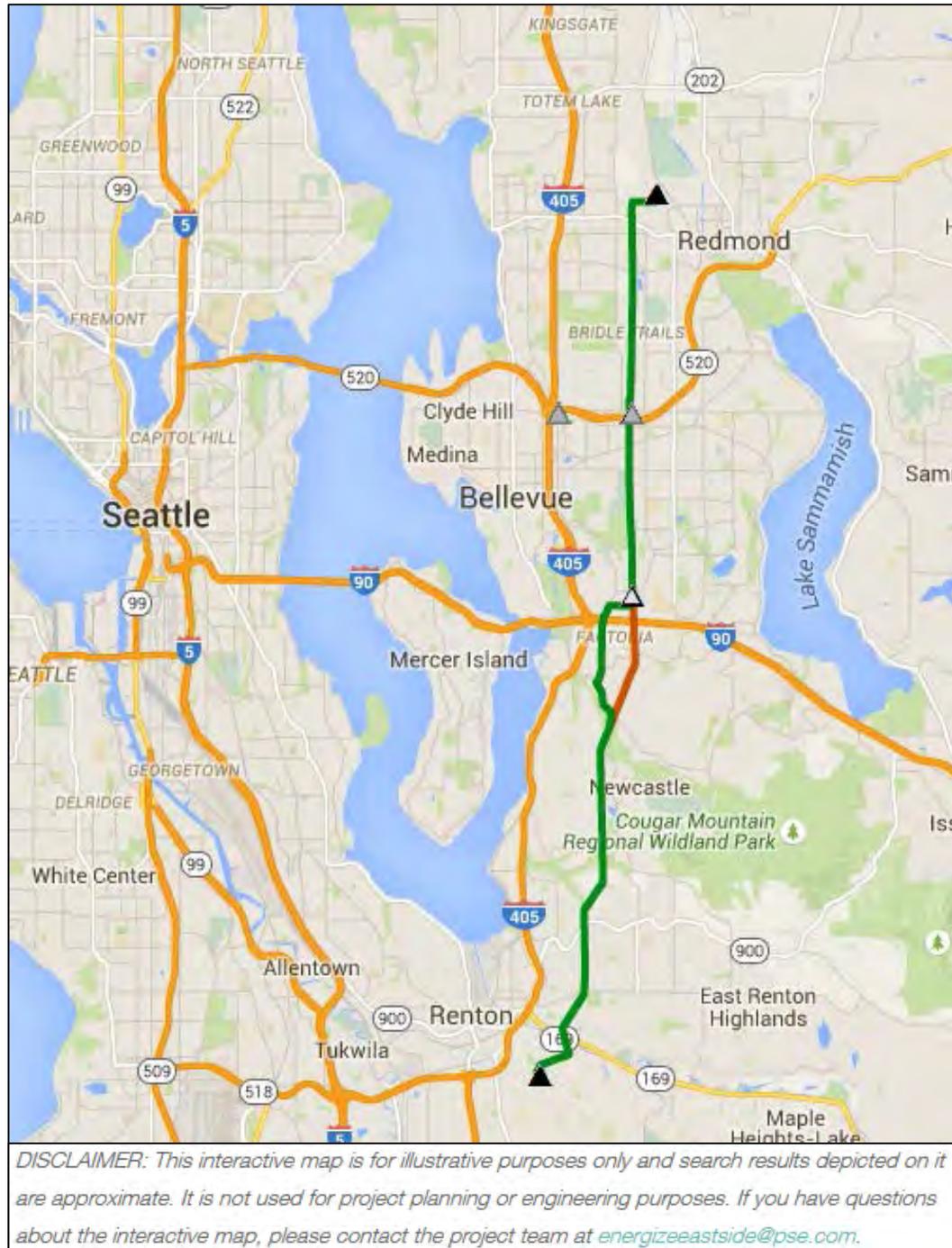


Figure 1. Map of proposed Oak and Willow routes from the Energize Eastside website. The Oak route is depicted in green while the Willow route variation is shown in orange.

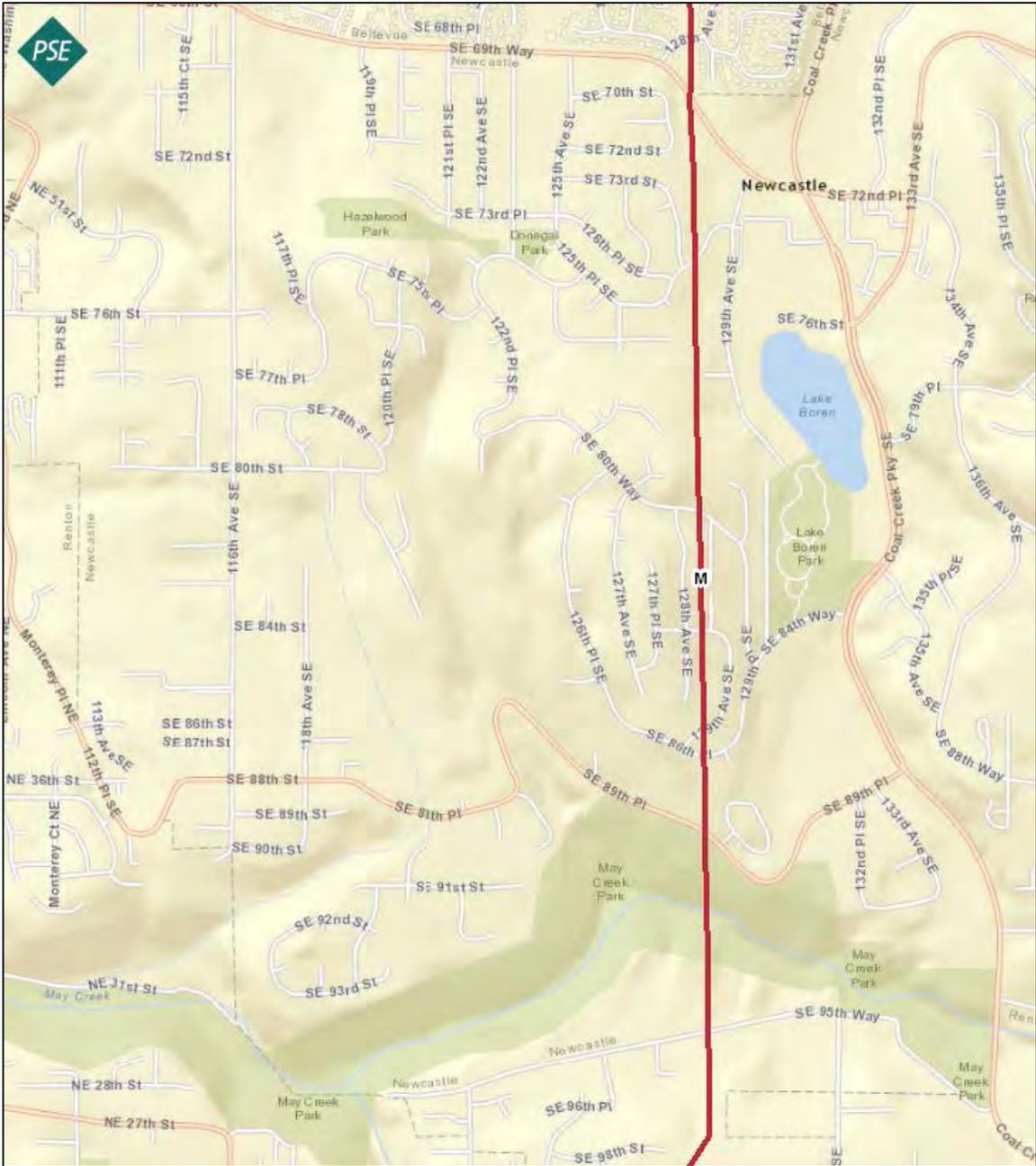


Figure 2. Overview of the study area corridor in the City of Newcastle which comprises a portion of Segment M.

## 1.2 Methods

Limits of the study area were determined in the field using aerial maps, GPS, and by measuring 25 feet out from the center of each pole set.

Public-domain information on the study area corridor was reviewed for this delineation study. These sources include USDA Natural Resources Conservation Service (NRCS) soil maps, U.S. Fish and Wildlife Service National Wetland Inventory maps, Washington Department of Fish and Wildlife interactive mapping programs (PHS on the Web and SalmonScape), and King County's GIS mapping website (iMAP).

The study area corridor was evaluated for wetlands using methodology from the Regional Supplement (Corps 2010). The wetland boundary was determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundary to make the determination. Data were recorded at four of these locations. Data sheets are included in Appendix B.

Delineated wetlands were classified using the Rating System (Hruby 2004). Wetland rating forms are included in Appendix C.

Watercourses were determined to be streams if they met the definition provided by the City of Newcastle. The centerlines of streams in the study area were recorded in the field. Streams were classified according to the City of Newcastle Zoning Code.

Wetland boundaries, stream centerlines, data points, and other features (such as culverts) were GPS-located using a hand-held Trimble Geo-XH unit. Following field location, the GPS data was differentially corrected using GPS Pathfinder Office and exported into ESRI ArcGIS software for mapping. Stream and wetland delineation maps are included in Appendix A.

Incidental wildlife observations and detections were recorded during field studies and summarized in Section 3.3 of this report.

Possible mitigation opportunities were noted during field studies. The approximate extent of these areas is shown on aerial photos included in Section 5 of this report.

## 2 SITE DESCRIPTION

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The study area in the City of Newcastle includes residential areas and May Creek Park, generally zoned Residential (R-6) and Limited Open Space (LOC), respectively. At the north end, the corridor passes through the Donegal and Olympus neighborhoods before crossing May Creek Park situated at the south end of the City. The study area is located in the May Creek drainage basin of the Cedar-Sammamish Watershed (WRIA 8) in Township 24N, Range 05E, Sections 28 and 33.

In residential areas, vegetation in the corridor is generally limited to landscaped beds and maintained yards. In undeveloped tracts of land generally located down the center of the study area corridor between private residential properties, vegetation is often weedy and dominated by Himalayan blackberry and various grasses; young trees and shrubs are present in some locations where they have presumably grown from seed. Similarly in May Creek Park, most of the native vegetation within the powerline corridor has been cleared for access and maintenance purposes. Forested patches are located adjacent to the study area in May Creek Park.

## 3 CRITICAL AREAS

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A total of two wetlands and two streams are located along the proposed Energize Eastside corridor in the City of Newcastle. Critical areas are described below. Sign or presence of any wildlife species or habitat areas that may be regulated by the City were also noted and are described in this section.

For the purposes of this study, the nomenclature used to identify critical areas has been based on the PSE segment in which a feature is located, and the local jurisdiction. Critical areas were then numbered sequentially, in the order in which they were inventoried, generally north to south. For example, the first wetland inventoried as a part of this study on Segment M in Newcastle is called "MN01."

### 3.1 Wetlands

#### **Wetland MN01**

Wetland MN01 is a small wetland located on a large undeveloped parcel (3987700145) west of 129<sup>th</sup> Avenue SE (Appendix A, Page No. 4). This wetland contains both depressional, slope, and riverine hydrogeomorphic classes and is therefore rated as depressional. Wetland MN01 is adjacent to Stream MN01.

Wetland MN01 contains a palustrine emergent Cowardin vegetation class. During site investigations, vegetation was dominated by seeded grasses that were just beginning to grow. Sampled soils (Appendix B; DP-1) did not exhibit multiple distinct layers; they appeared to have been recently disturbed. Hydric soils are presumed based on presence of redoximorphic features, observed hydrology, and geomorphic position. Soils were saturated at the time of sampling and groundwater seeps were visible nearby. Wetland MN01 is classified as a Category IV wetland.

### **Wetland MN02**

Wetland MN02 is a small slope wetland located north of SE 95<sup>th</sup> Way (Appendix A, Page No. 14). Vegetation is characterized as palustrine emergent and palustrine scrub-shrub Cowardin classes. Dominant vegetation includes Himalayan blackberry, soft rush, and various grasses. Sampled soils (Appendix B; DP-3) met the criteria for hydric soil indicator Loamy Gleyed Matrix (F2). Oxidized rhizospheres were observed along living roots, a primary wetland hydrology indicator. This wetland is supported by groundwater and surface water, and receives additional inputs from a small black corrugated drain pipe. Wetland MN02 is classified as a Category III wetland.

## **3.2 Streams**

### **Stream MN01**

Stream MN01 is a small seasonal stream located on a large undeveloped parcel (3987700145) west of 129<sup>th</sup> Avenue SE (Appendix A, Page No. 4). Wetland MN01 is located on the left/north bank of the channel. This stream flows above ground for approximately 50 feet in the study area corridor. It flows west to east, from culvert to culvert. The origin of this stream is unclear. It is presumed that water conveyed in this channel flows to Lake Boren, located nearby to the southeast however no above-ground channels appear to be located in the area.

The general vicinity likely experienced recent ground disturbance as evidenced by the condition of the stream channel and surrounding area. The stream channel is approximately three feet wide, and armored with medium-sized angular rock. The area adjacent to the channel had recently been seeded with grasses. The channel appeared to convey ground water flow at the time of field investigations although no evidence of an historic channel is present in the area. Salmonid fish are not expected to use this stream due the lack of above-ground channel connections to salmonid-bearing waters. Stream MN01 is considered a Class III stream based on its seasonal flow and lack of salmonid fish presence.

### **Stream MN02 (May Creek)**

Stream MN02, or May Creek, is located south of SE May Creek Park Drive, and north of SE 95<sup>th</sup> Way (Appendix A, Page No. 13). May Creek is a perennial

stream that originates southeast of the study area near Squak Mountain. Many tributaries flow into May Creek upstream of the study area corridor. In the study area, May Creek is approximately 15 feet wide on average. The stream bed is composed of large cobble, rock, and coarse gravel. The stream banks are well vegetated; red alder trees are dominant in the canopy with salmonberry, dogwood, and willow in the understory.

Salmonid fish use of May Creek is well documented. SalmonScape maps coho salmon, sockeye salmon, and Chinook salmon as spawning in this section of May Creek; steelhead trout presence is also documented. Washington State Priority Habitat and Species (PHS) maps generally agree with this SalmonScape data; PHS also documents the presence of resident cutthroat trout. May Creek is considered a Class II stream based on perennial stream flow and salmonid fish presence.

### **3.3 Wildlife and Habitat**

The City of Newcastle regulates critical habitat for federal- or state-listed endangered, threatened, sensitive, and candidate species. The City of Newcastle does not currently maintain or regulate a list of species of local importance (Planner Tim McHarg, personal communication, October 16, 2015).

Washington State Priority Habitat and Species (PHS) maps were reviewed for the project vicinity. Other than the salmonid fish use in May Creek discussed previously, no other PHS features are mapped in or near the powerline corridor in the City of Newcastle.

Significant incidental wildlife observations were recorded during field investigations. Near May Creek Park, a bald eagle was viewed flying overhead. Aside from this fly-over, no regulated wildlife species were observed during site visits.

Habitat located in the study area is limited to the bottom of the May Creek ravine where vegetation is not as severely managed as the rest of the study area corridor. This narrow strip of forest likely functions as a wildlife corridor, as it connects to larger forested areas located adjacent to the study area. Forested habitat patches adjacent to the study area corridor near Lake Boren and in May Creek Park may have the potential to support urban wildlife species regulated by the City, including but not limited to species like bald eagles and pileated woodpeckers.

### **3.4 Critical Area Classifications and Standard Buffers**

Critical areas in the City of Newcastle are regulated in the Newcastle Municipal Code (NMC), Title 18 Zoning, Chapter 18.24 Critical areas.

### 3.4.1 Wetlands

According to NMC 18.24.310, wetlands are classified based on the 2004 Rating System (Hruby). Wetland buffers are measured from the wetland edge and are based upon the wetland rating, associated habitat score, and impact of land use. The following table shows wetland ratings and associated standard buffer widths.

Table 1. Wetland ratings and associated buffer widths.

Wetland Name	2004 Ecology Wetland Rating				Category	Standard Buffer Width (ft)*
	Water Quality	Hydrology	Habitat	Total		
MN01	4	10	11	25	IV	40
MN02	10	10	10	30	III	60

\*Assumes moderate- to high-impact land use.

### 3.4.2 Streams

Streams are classified based on status as Shoreline of the State, permanence of flow, and salmonid fish use (NMC 18.24.340). Stream buffers are measured from the ordinary high water mark or from the top of bank. A summary of stream types and buffer widths is provided in Table 2, below.

Table 2. Summary of stream classification and associated standard buffer widths.

Stream Name	Stream Type	Standard Buffer Width (ft)
MN01	Class III	25
MN02 (May Creek)	Class II	100

## 4 MITIGATION OPPORTUNITIES

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Mitigation opportunities located in the study area were noted during field investigations. Sites discussed in this section are limited to parcels owned by public entities or PSE. These areas include degraded/disturbed wetland and stream critical areas and their buffers; they do not include degraded upland areas outside of critical area buffers. Vegetation at these locations is generally dominated by mowed herbaceous plants or invasive species (Himalayan blackberry and reed canarygrass). Any proposed revegetation would need to adhere to vegetation height limits prescribed by PSE standards. Noted mitigation opportunities are briefly summarized below.

## 4.1 May Creek Park

Within the City of Newcastle, the area that appears to provide the largest opportunity for mitigation is located in the study area corridor near May Creek, on City of Newcastle-owned parcels. The site includes May Creek, Wetland MN02 and associated critical area buffers (Figure 3).

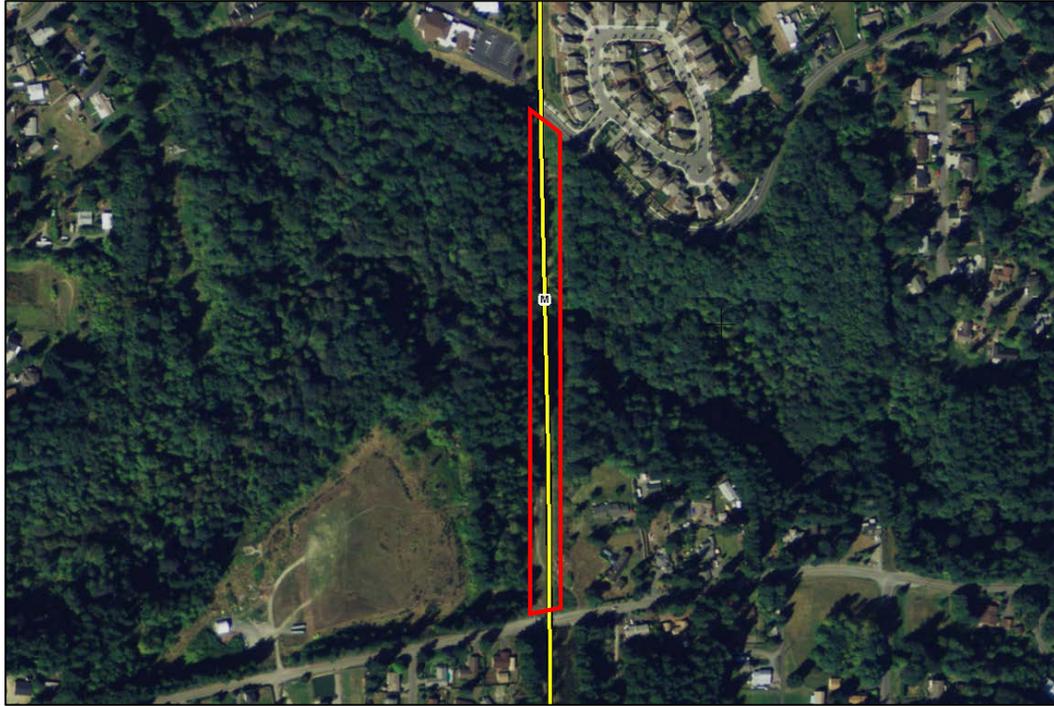


Figure 3. General area (red) where mitigation opportunities exist in the May Creek Park vicinity along Segment M in the City of Newcastle.

# REFERENCES

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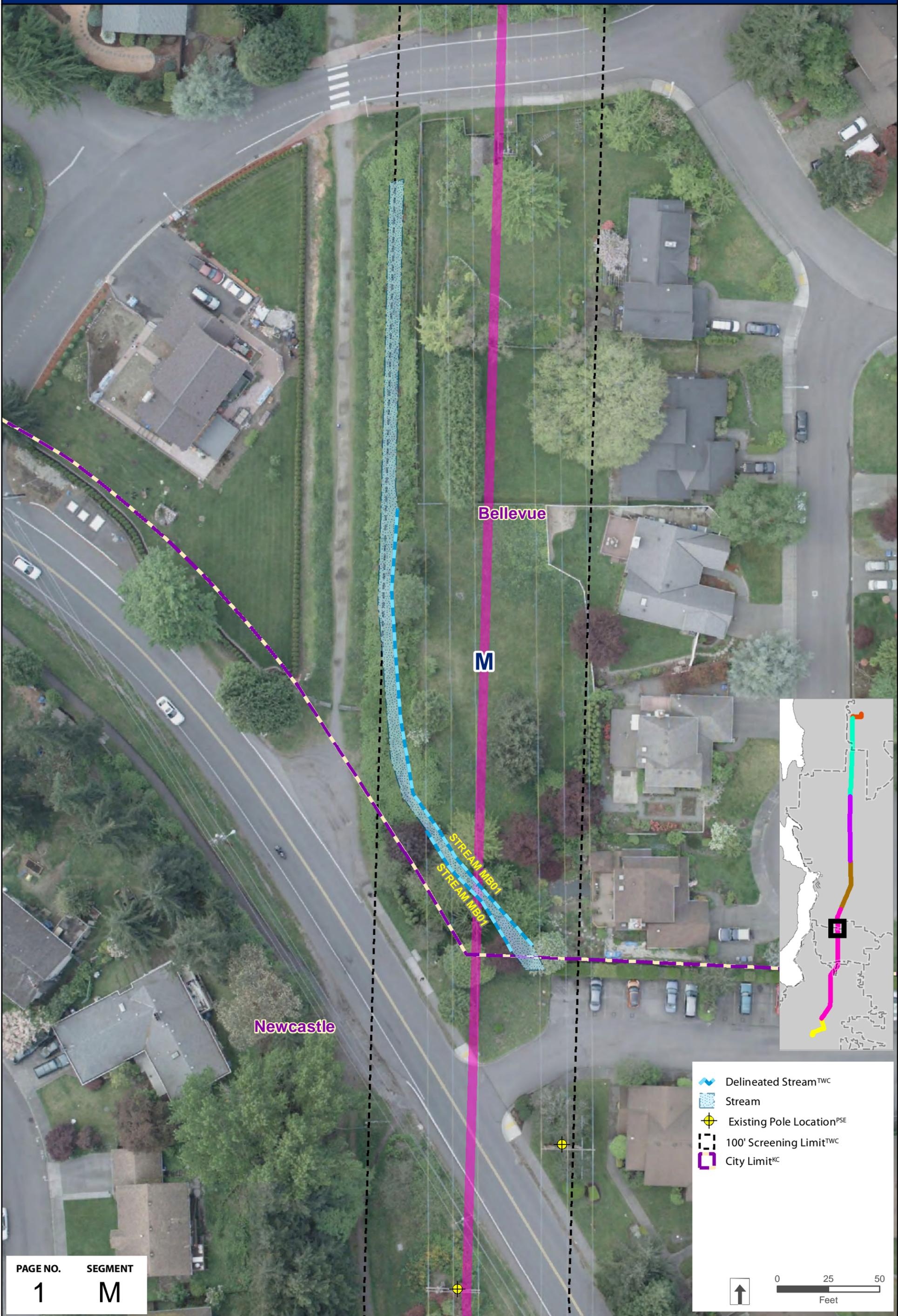
[WDFW] Washington Department of Fish & Wildlife. (2015). *SalmonScape* web application. Retrieved September 24, 2015, from WDFW:  
<http://apps.wdfw.wa.gov/salmonscape/>

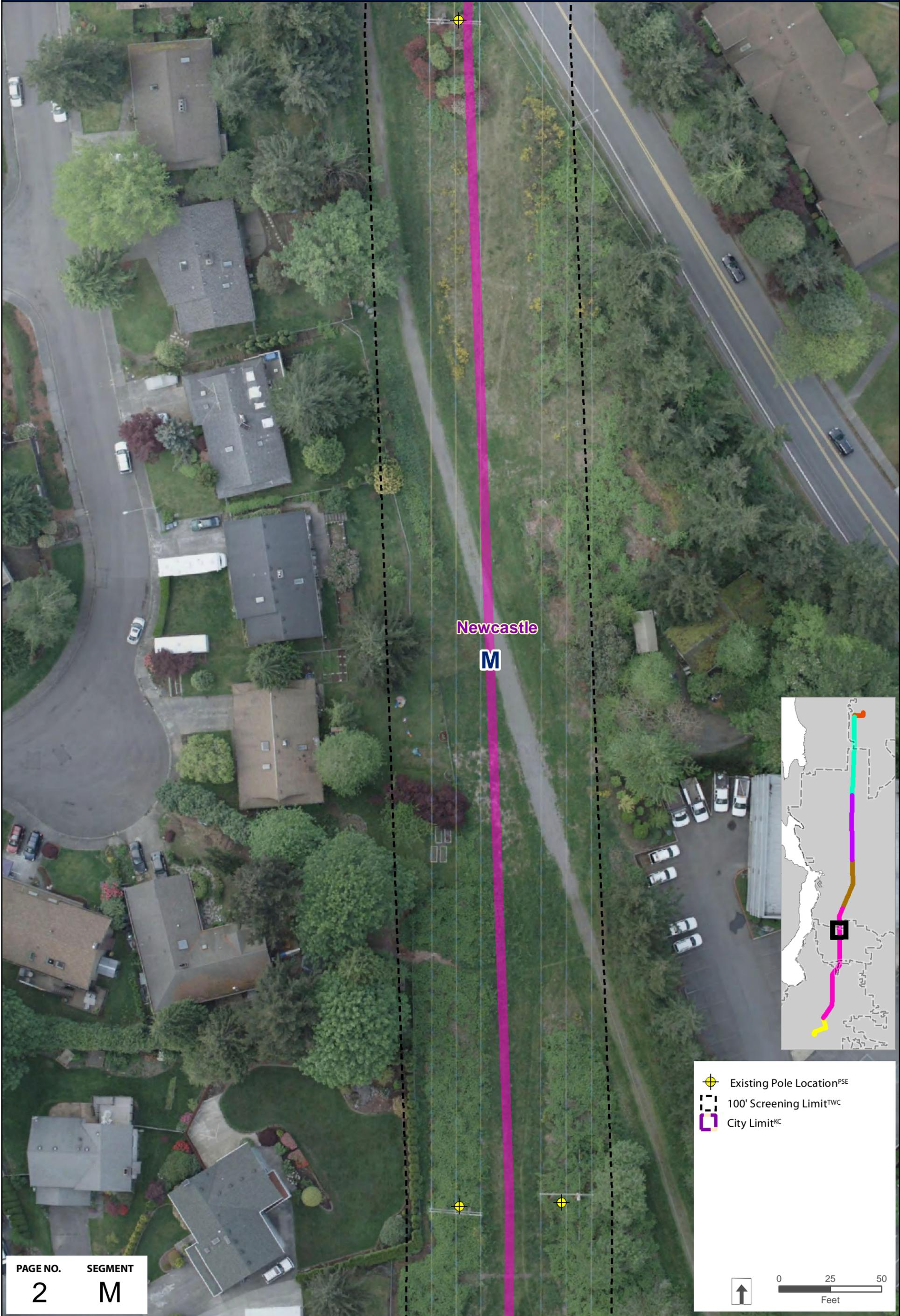
**APPENDIX A**

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Critical Area Delineation Maps







- Existing Pole Location<sup>PSE</sup>
- 100' Screening Limit<sup>TWC</sup>
- City Limit<sup>KC</sup>

0 25 50  
Feet

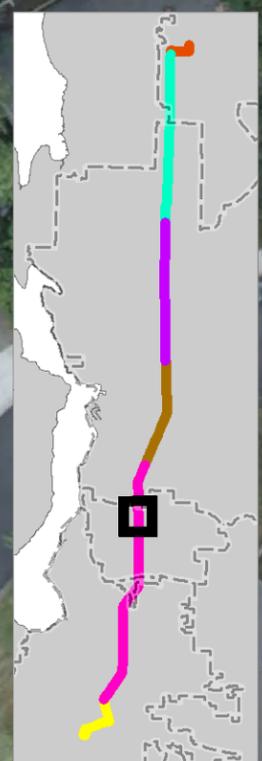
Data sources: Puget Sound Energy, The Watershed Company, and King County. Aerial imagery from PSE.

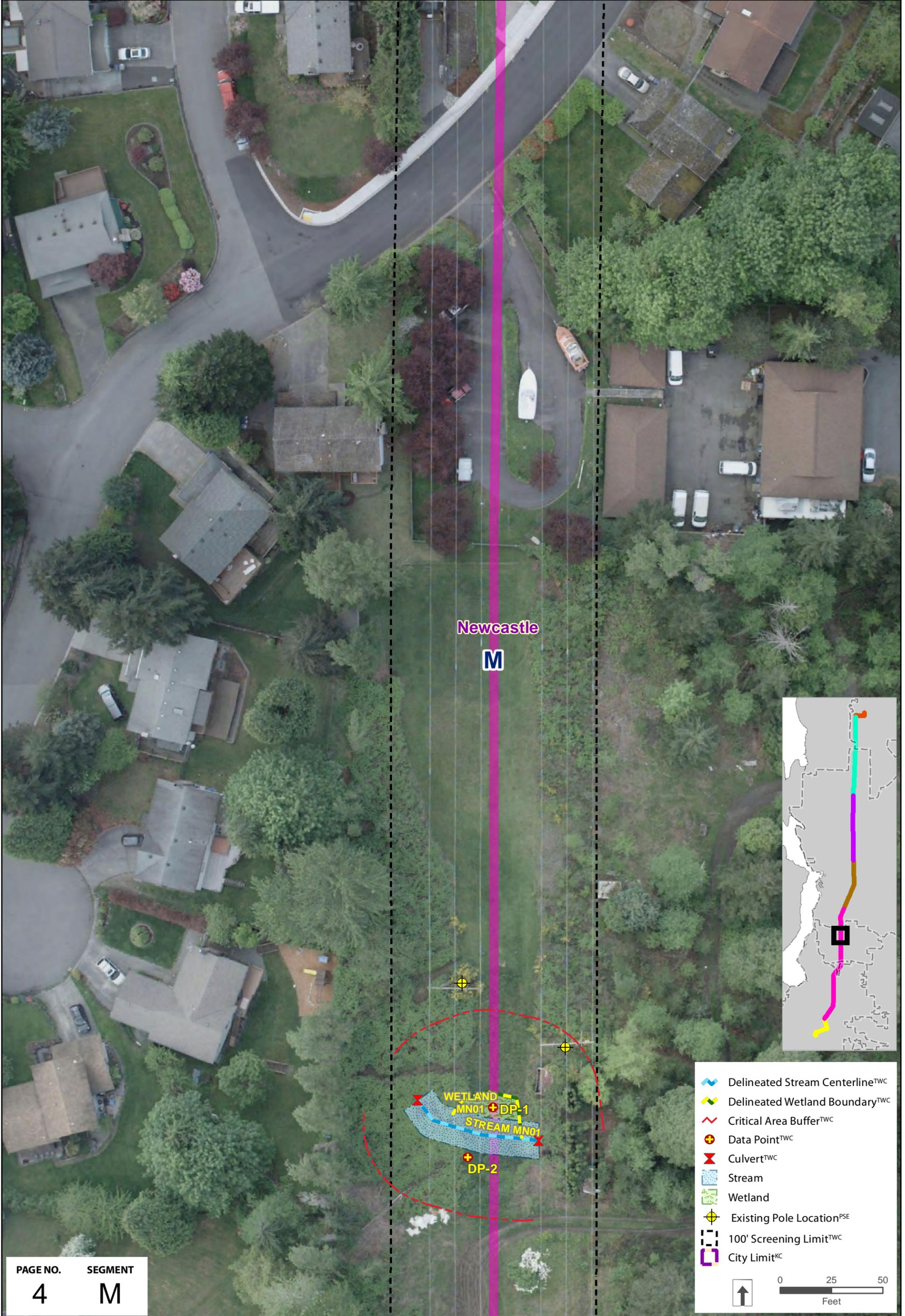


Newcastle

M

- Existing Pole Location<sup>PSE</sup>
- 100' Screening Limit<sup>TWC</sup>
- City Limit<sup>KC</sup>

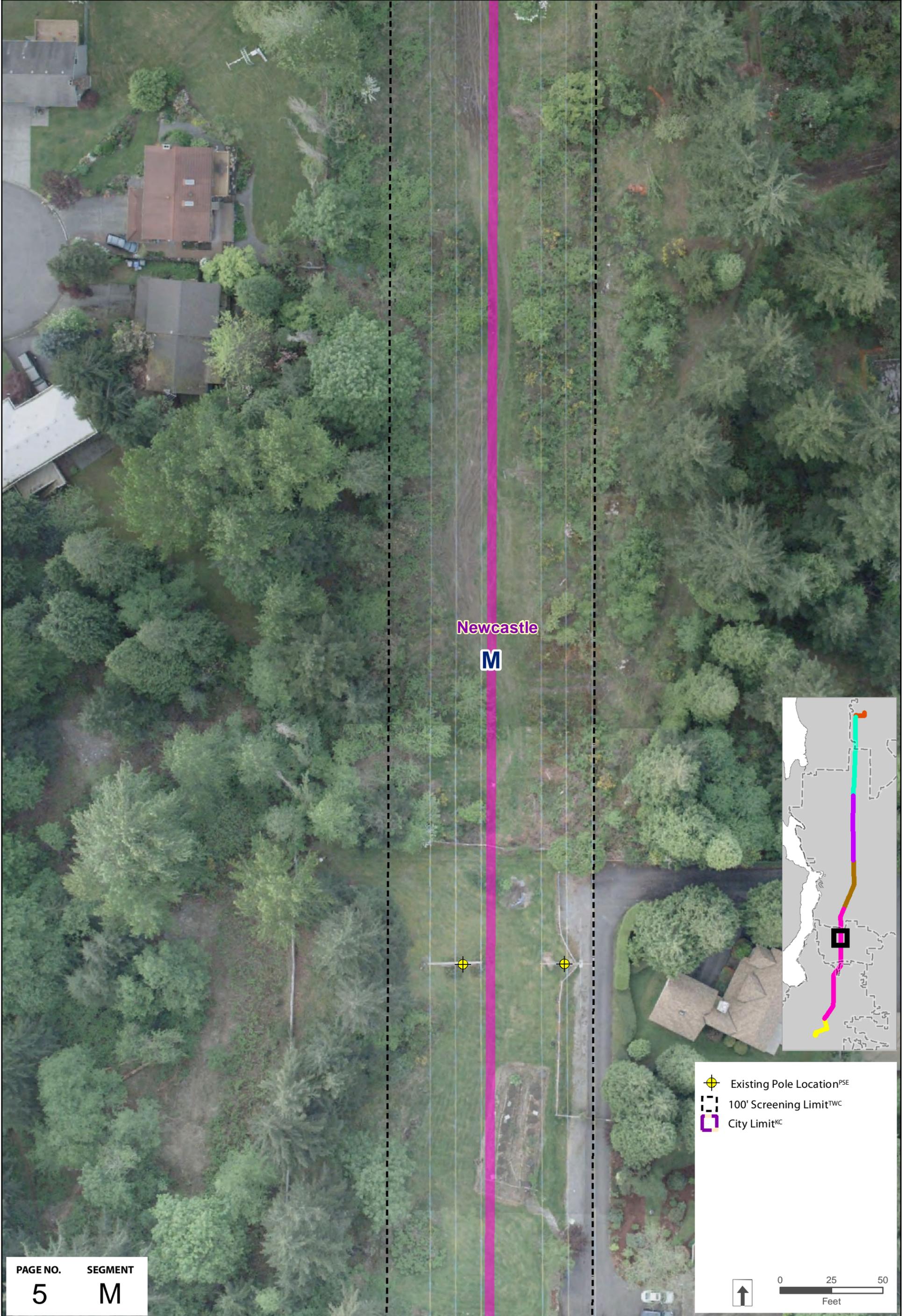




Newcastle  
M

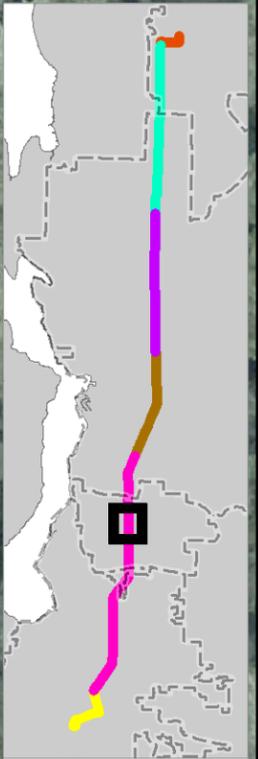
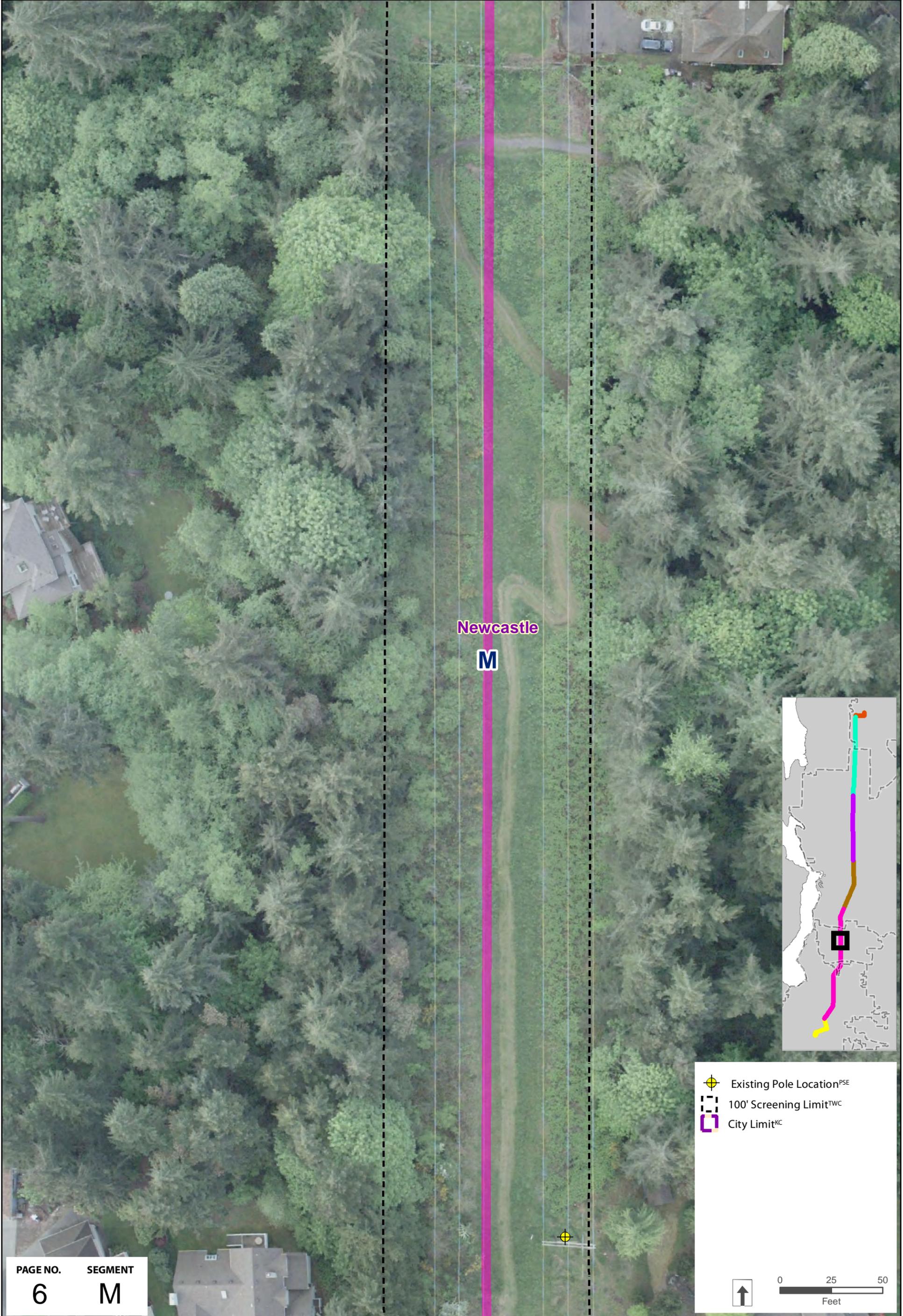
WETLAND  
MN01 + DP-1  
STREAM MN01  
DP-2

- Delineated Stream Centerline<sup>TWC</sup>
- Delineated Wetland Boundary<sup>TWC</sup>
- Critical Area Buffer<sup>TWC</sup>
- Data Point<sup>TWC</sup>
- Culvert<sup>TWC</sup>
- Stream
- Wetland
- Existing Pole Location<sup>PSE</sup>
- 100' Screening Limit<sup>TWC</sup>
- City Limit<sup>KC</sup>

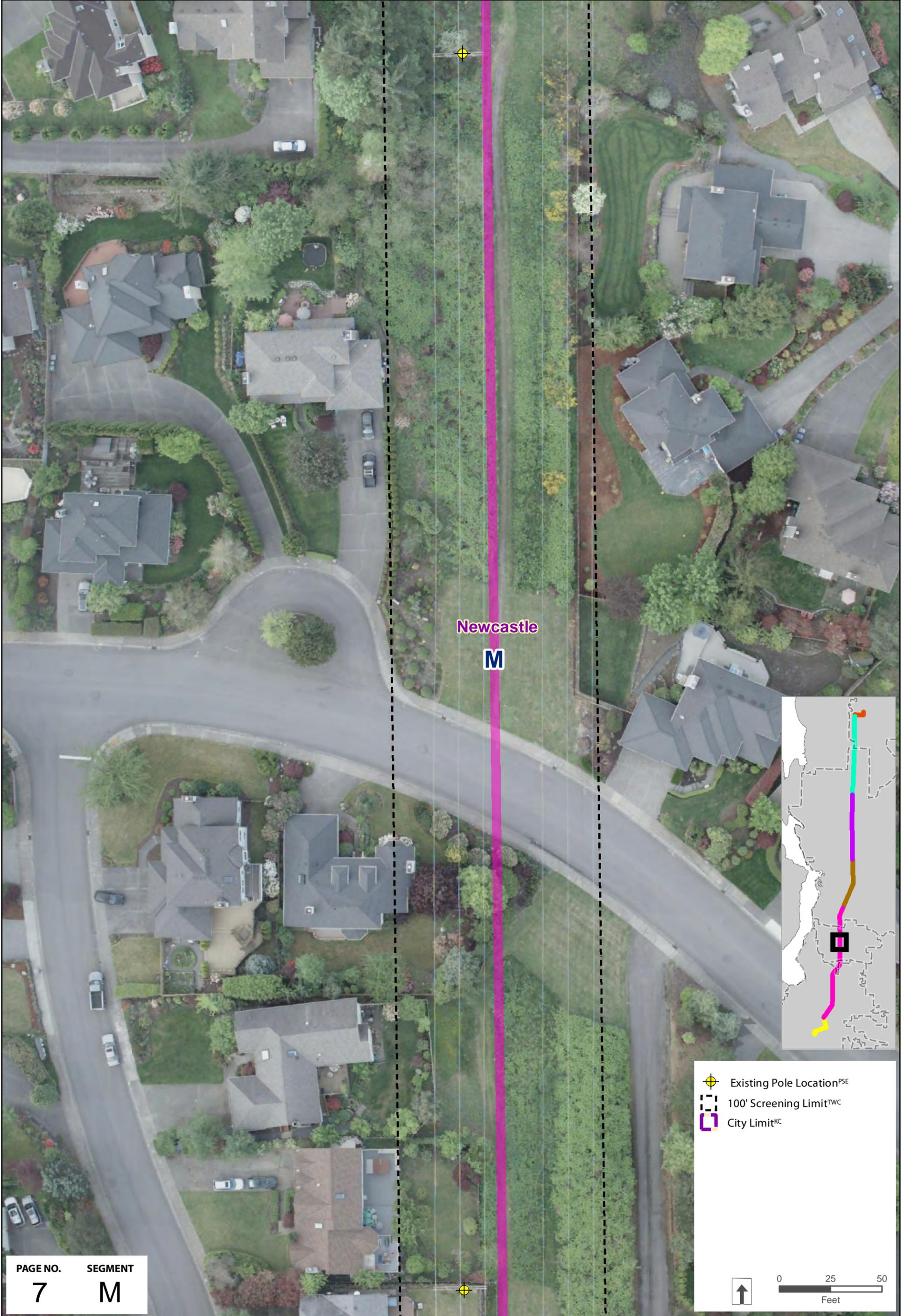


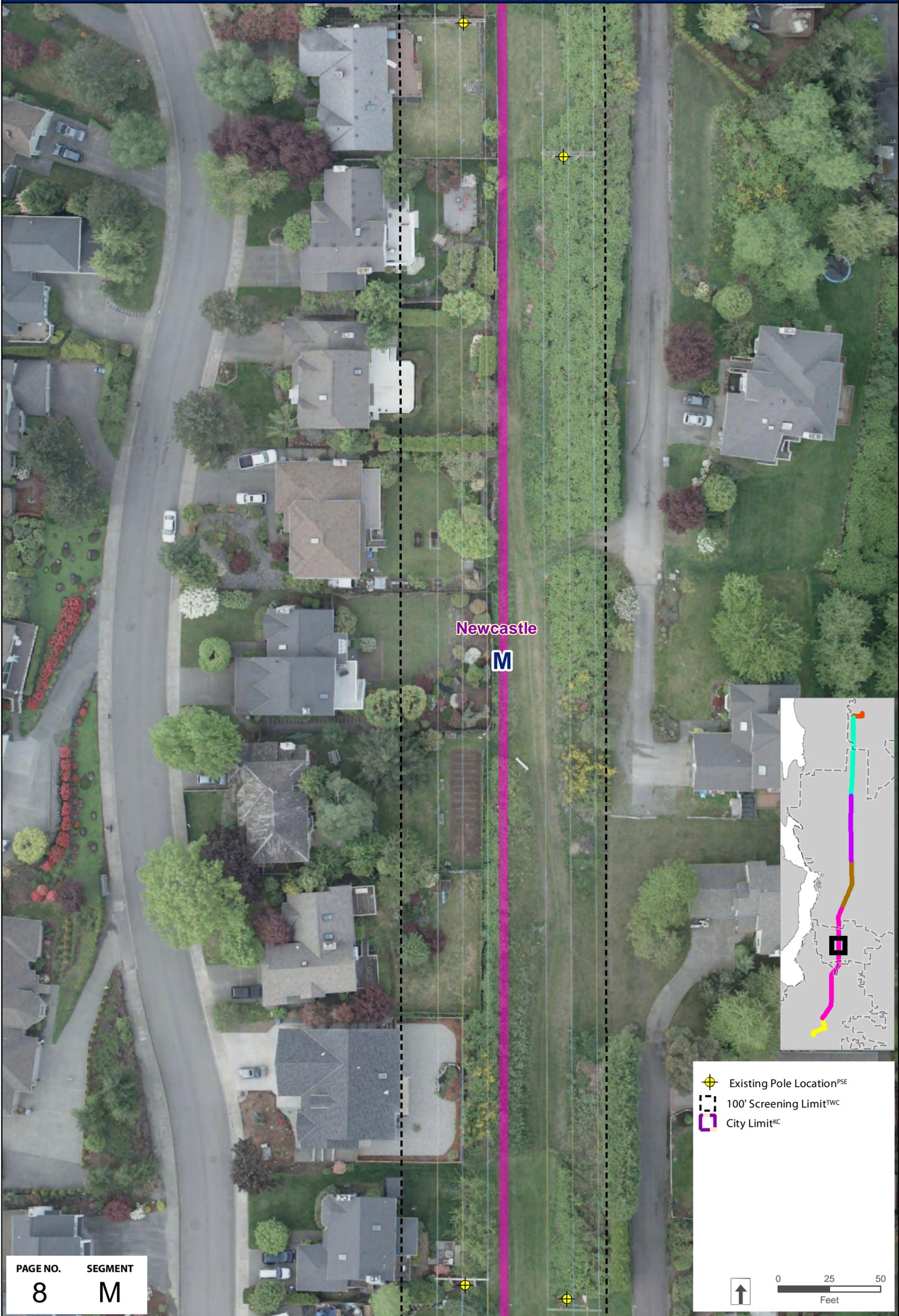
- Existing Pole Location<sup>PSE</sup>
- 100' Screening Limit<sup>TWC</sup>
- City Limit<sup>KC</sup>

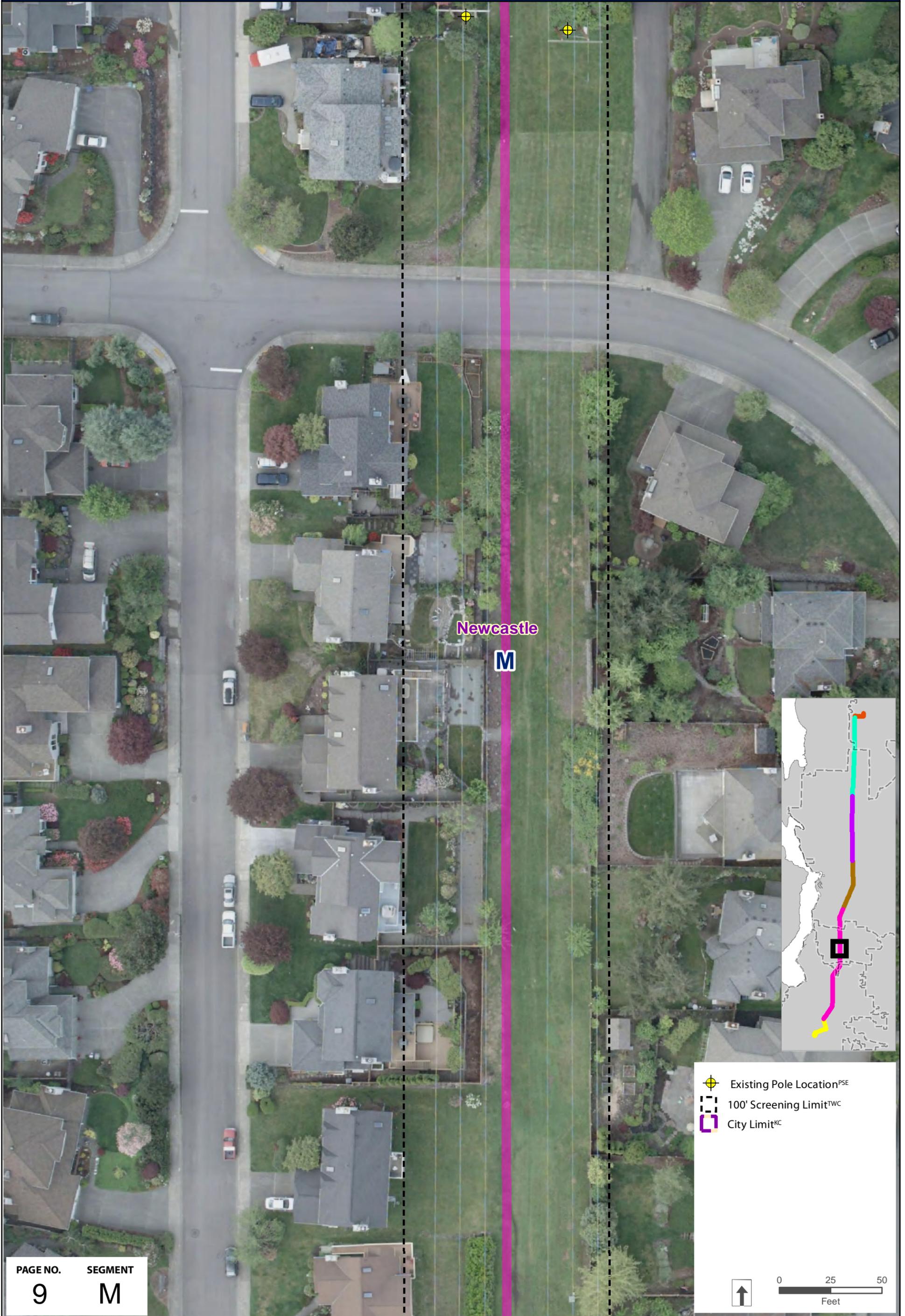
0 25 50  
Feet

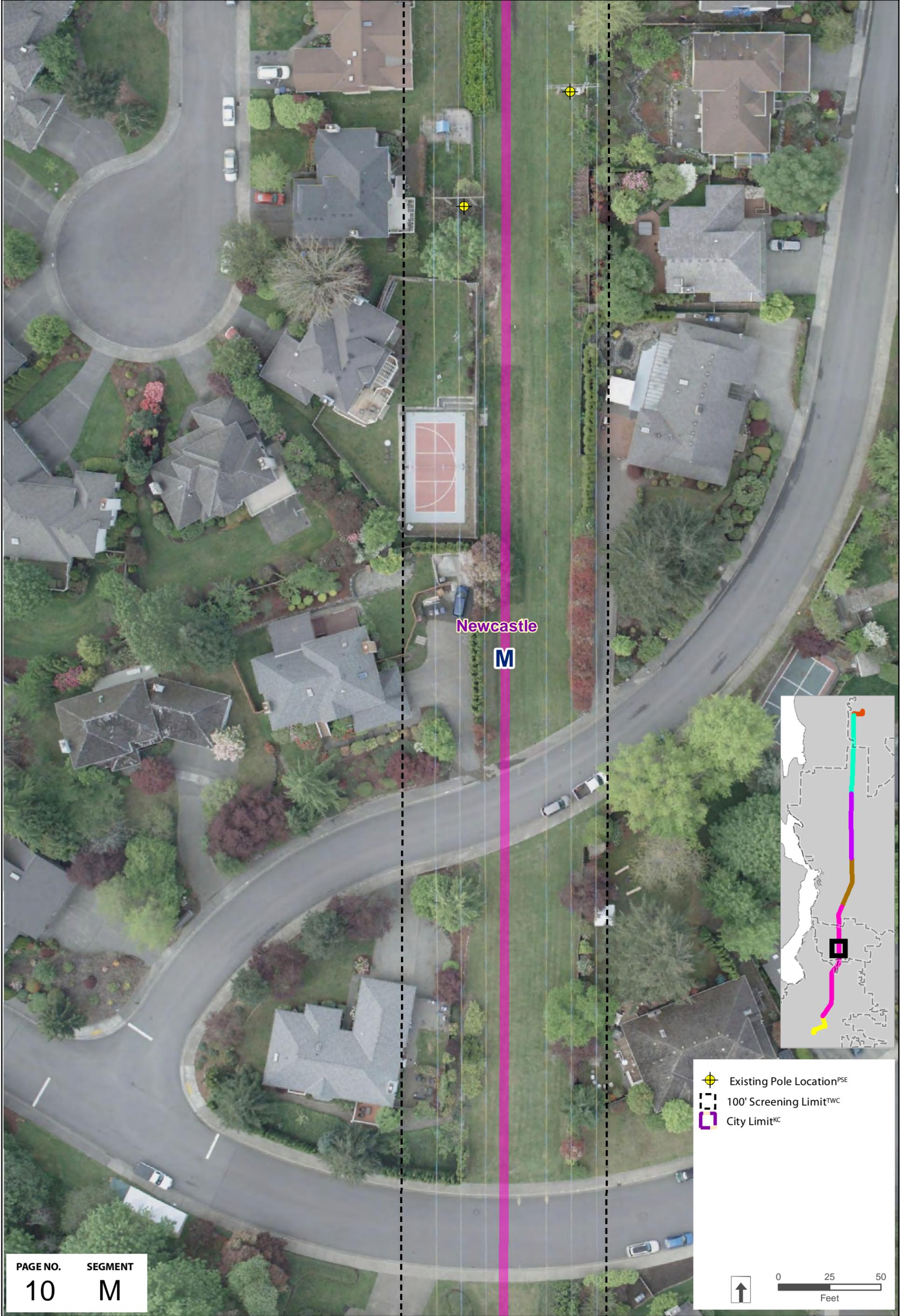


-  Existing Pole Location<sup>PSE</sup>
-  100' Screening Limit<sup>TWC</sup>
-  City Limit<sup>KC</sup>



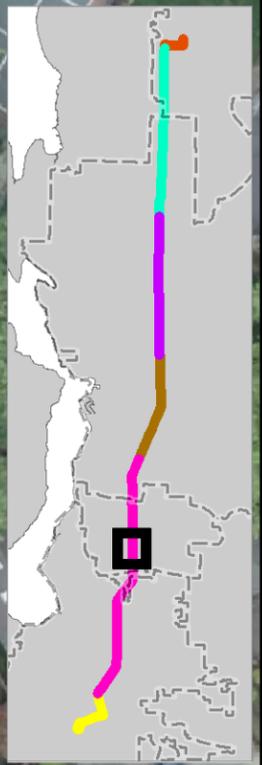




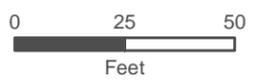


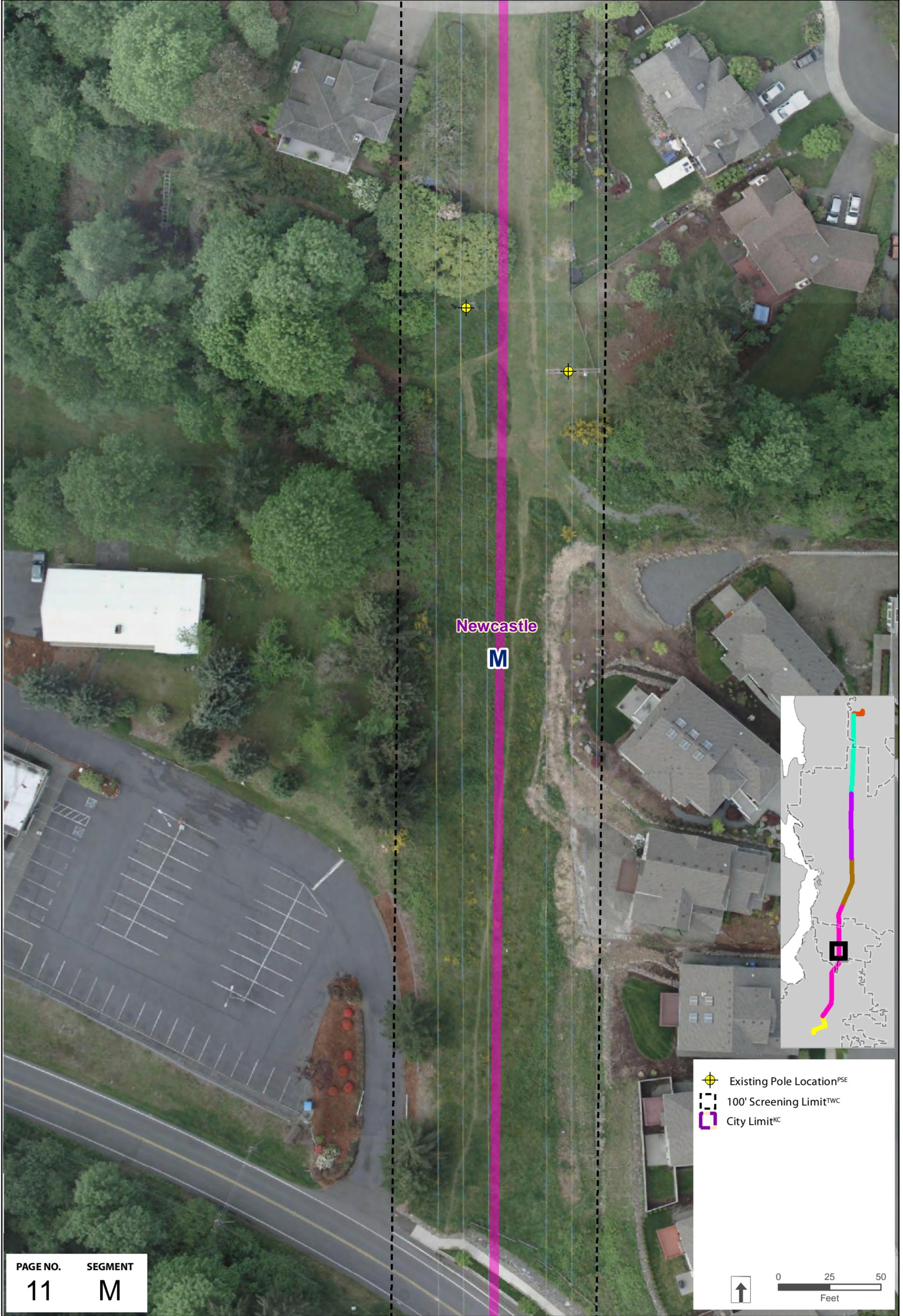
Newcastle

M



-  Existing Pole Location<sup>PSE</sup>
-  100' Screening Limit<sup>TWC</sup>
-  City Limit<sup>KC</sup>

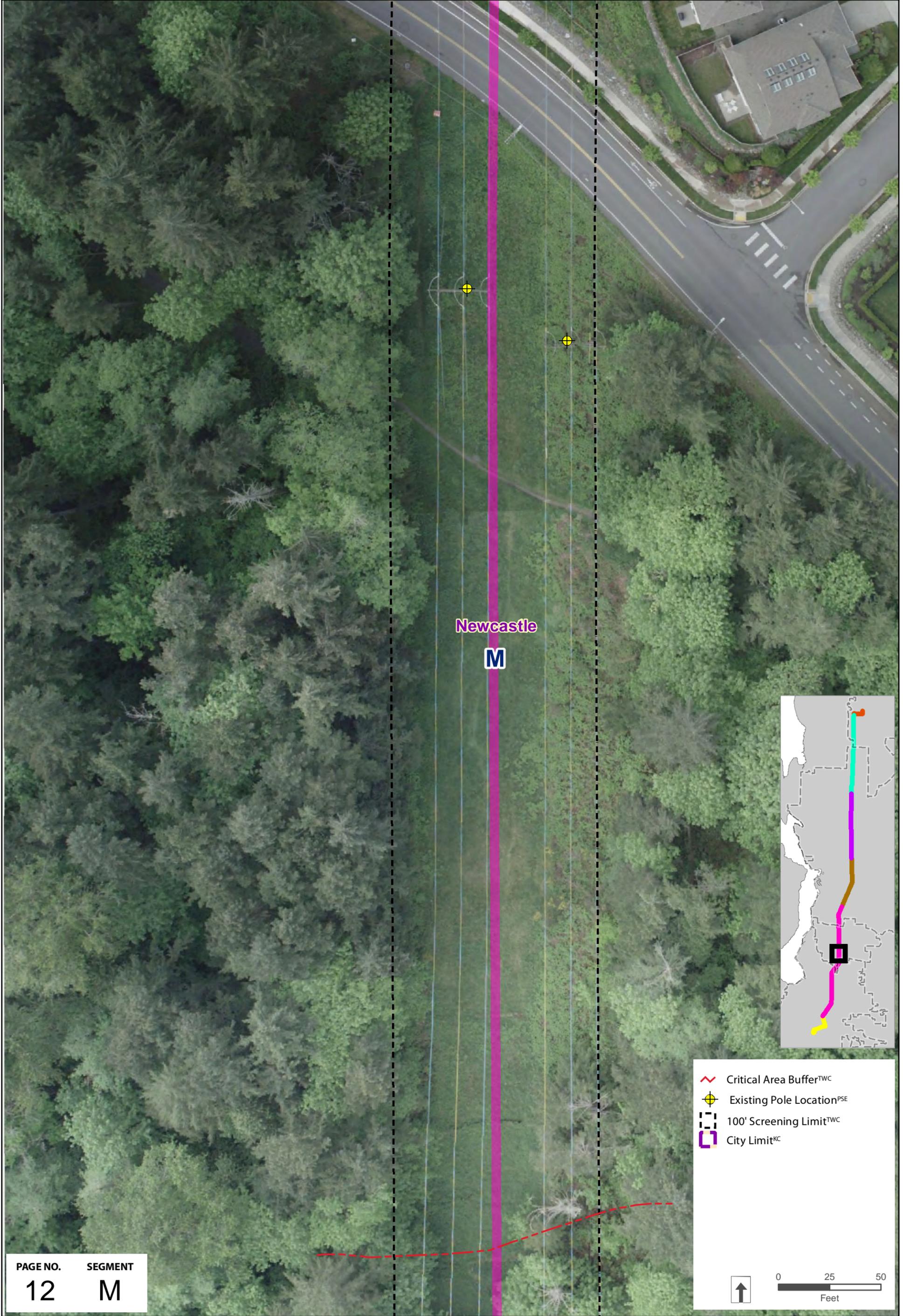




Newcastle  
M

-  Existing Pole Location<sup>PSE</sup>
-  100' Screening Limit<sup>TWC</sup>
-  City Limit<sup>KC</sup>

Data sources: Puget Sound Energy, The Watershed Company, and King County. Aerial imagery from PSE.

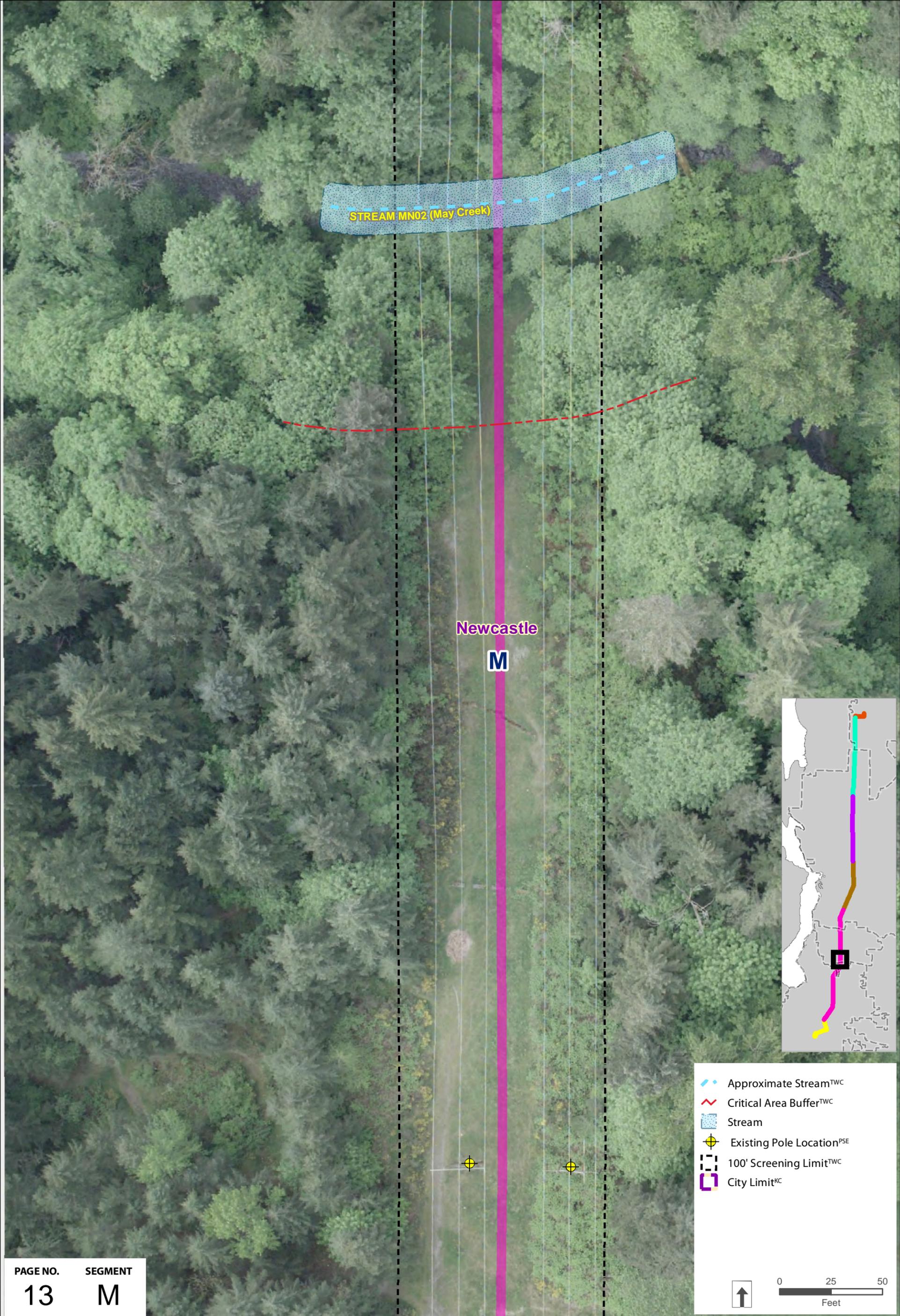


Legend:

- Critical Area Buffer<sup>TWC</sup>
- Existing Pole Location<sup>PSE</sup>
- 100' Screening Limit<sup>TWC</sup>
- City Limit<sup>KC</sup>

Scale: 0 25 50 Feet

North Arrow

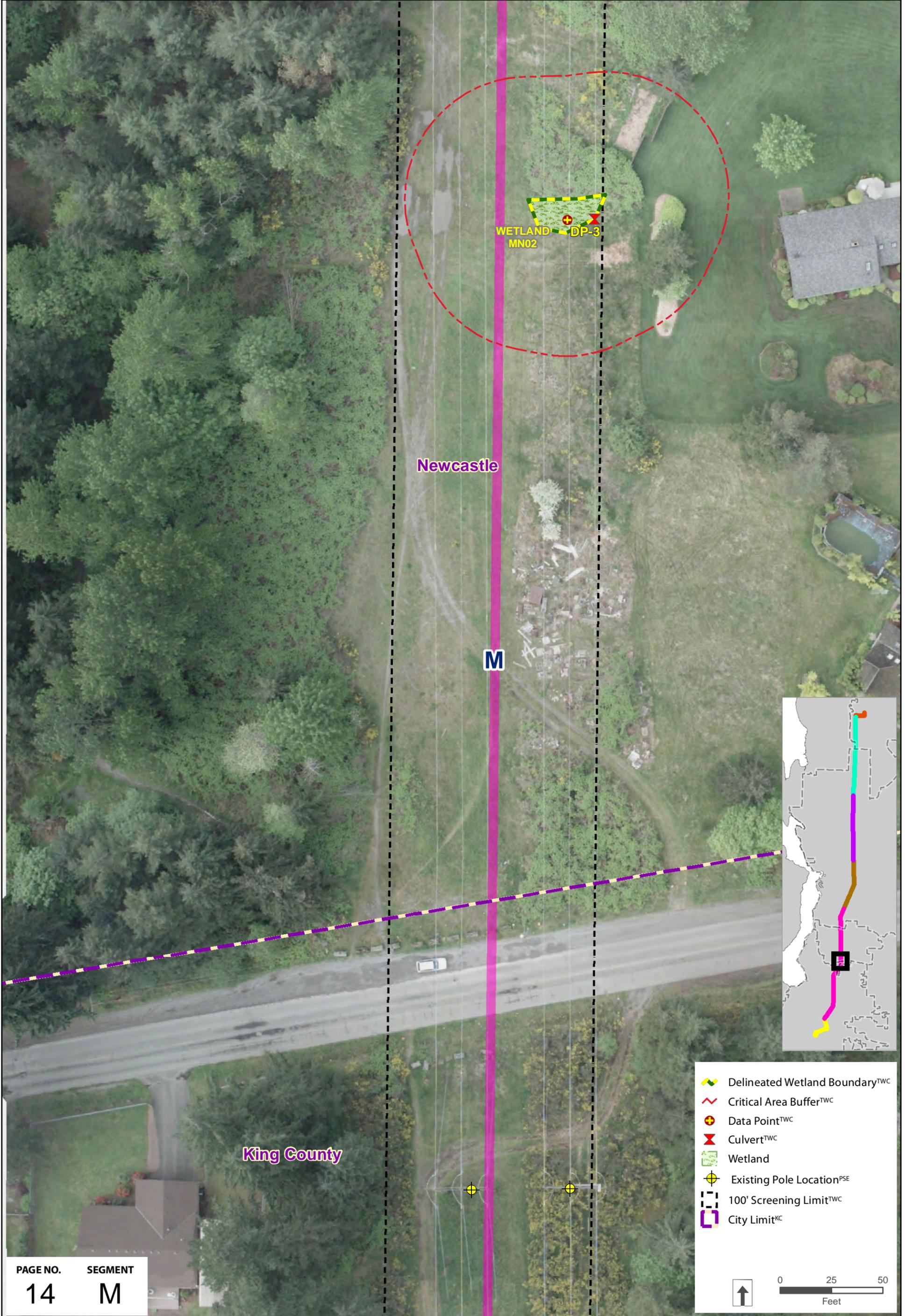


STREAM MN02 (May Creek)

Newcastle

M

- Approximate Stream<sup>TWC</sup>
- Critical Area Buffer<sup>TWC</sup>
- Stream
- Existing Pole Location<sup>PSE</sup>
- 100' Screening Limit<sup>TWC</sup>
- City Limit<sup>KC</sup>



- Delineated Wetland Boundary<sup>TWC</sup>
- Critical Area Buffer<sup>TWC</sup>
- Data Point<sup>TWC</sup>
- Culvert<sup>TWC</sup>
- Wetland
- Existing Pole Location<sup>PSE</sup>
- 100' Screening Limit<sup>TWC</sup>
- City Limit<sup>KC</sup>



Data sources: Puget Sound Energy, The Watershed Company, and King County. Aerial imagery from PSE.

**APPENDIX B**

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Wetland Determination Data Forms





**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

DP- 1

Project Site: <b>Segment M, parcel number 3987700145</b>		Sampling Date: <b>4/22/2015</b>
Applicant/Owner: <b>Puget Sound Energy</b>		Sampling Point: <b>DP- 1</b>
Investigator: <b>K. Crandall, M. Foster</b>		City/County: <b>Newcastle</b>
Sect., Township, Range: <b>S 28 T 24N R 05E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>Hillslope</b>	Slope (%): <b>5</b>	Local relief (concave, convex, none): <b>Concave</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>AgC – Alderwood gravelly sandy loam, 8-15% slopes</b>		NWI classification: <b>NA</b>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input checked="" type="checkbox"/> , Soil <input checked="" type="checkbox"/> , or Hydrology <input checked="" type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> 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"/>	<b>Is the Sampling Point within a Wetland?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: <b>Wetland MN01 – located in an area recently disturbed. Wetland and surrounding area re-seeded with grasses; stream in channel lined with coarse angular rock.</b>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)																					
_____ = Total Cover				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size: 3m diam.)				Prevalence Index Worksheet																					
1.				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	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)
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)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size: 1m diam.)	<b>100</b>	<b>Y</b>	<b>FAC</b>	Prevalence Index = B / A =																					
1. <b>Re-seeded grasses</b>																									
2.				<p><b>Hydrophytic Vegetation Indicators</b></p> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)  * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic  <p><b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>																					
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ = Total Cover																									
Woody Vine Stratum (Plot size: )																									
1.																									
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum:																									
Remarks: <b>Area re-seeded recently. Grass starting to grow, too small to identify, but presumed FAC. Reed canarygrass and common dandelion upslope.</b>																									

**SOIL**

**Sampling Point – DP-1**

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 <sup>1</sup>	Loc <sup>2</sup>		
<b>0-12</b>	<b>10YR 3/2 10YR 4/1</b>	<b>80 17</b>	<b>10YR 3/8</b>	<b>3</b>	<b>C</b>	<b>M</b>	<b>Gravelly sandy loam with cobbles</b>	<b>Mixed matrix</b>

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)*
<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)

**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> 2cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/>

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

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

**Remarks:**    **\*Area appears to have recently disturbed. Although % redox is below that required for F6, based on hydrology observations during the site visit, hydric soils are expected to (re-)form.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

<input type="checkbox"/> Surface water (A1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves <b>(except MLRA 1, 2, 4A &amp; 4B)</b> (B9)
<input checked="" 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 type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (explain in remarks)

*Secondary Indicators (2 or more required):*

<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A &amp; 4B)</b>
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Frost-Heave Hummocks

<p><b>Field Observations</b></p> <p>Surface Water Present?    Yes <input checked="" type="checkbox"/>    No <input type="checkbox"/>    Depth (in):    <b>Seeps visible</b></p> <p>Water Table Present?    Yes <input type="checkbox"/>    No <input checked="" type="checkbox"/>    Depth (in):</p> <p>Saturation Present?    Yes <input checked="" type="checkbox"/>    No <input type="checkbox"/>    Depth (in):    <b>throughout</b></p> <p>(includes capillary fringe)</p>	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

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

**Remarks:**    **BGS = below ground surface. Shallow water ponding in nearby depression.**



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 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

**DP- 2**

Project Site: <b>Segment M, parcel number 3987700145</b>		Sampling Date: <b>4/22/2015</b>
Applicant/Owner: <b>Puget Sound Energy</b>		Sampling Point: <b>DP- 2</b>
Investigator: <b>K. Crandall, M. Foster</b>		City/County: <b>Newcastle</b>
Sect., Township, Range: <b>S 28 T 24N R 05E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>Hillslope</b>	Slope (%): <b>5</b>	Local relief (concave, convex, none): <b>Concave</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>AgC – Alderwood gravelly sandy loam; 8-15% slopes</b>		NWI classification: <b>NA</b>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input checked="" type="checkbox"/> , Soil <input checked="" type="checkbox"/> , or Hydrology <input checked="" type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> 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 Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampling Point within a Wetland?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		
Remarks: <b>Wetland MN01 out-pit</b>				

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size: 3m diam.)				Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	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)
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)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size: 1m diam.)				Prevalence Index = B / A =																					
1. <b>Reseeded grasses</b>	<b>100</b>	<b>Y</b>	<b>FAC</b>																						
2.				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)  * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ = Total Cover																									
Woody Vine Stratum (Plot size: )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
1.																									
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum:																									
Remarks: <b>Area re-seeded recently. Grass starting to grow, too small to identify, but presumed FAC. Reed canarygrass and common dandelion upslope.</b>																									

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 <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/2 2.5Y 5/2	50 50					Gravelly sandy loam Sand	Mixed matrix with cobbles

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<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)
<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)

**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> 2cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/>

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

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

Remarks: **Soil mixed/jumbled**

HYDROLOGY

**Wetland Hydrology Indicators:**  
*Primary Indicators (minimum of one required: check all that apply):*

<input type="checkbox"/> Surface water (A1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves <b>(except MLRA 1, 2, 4A &amp; 4B)</b> (B9)
<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 type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (explain in remarks)

*Secondary Indicators (2 or more required):*

<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A &amp; 4B)</b>
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Frost-Heave Hummocks

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

Remarks: **Damp, not saturated.**



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**DP- 3**

Project Site: <b>Segment M, parcel number 3345100445</b>		Sampling Date: <b>5/6/3025</b>
Applicant/Owner: <b>Puget Sound Energy</b>		Sampling Point: <b>DP- 3</b>
Investigator: <b>M. Foster, R. Whitson</b>		City/County: <b>Newcastle</b>
Sect., Township, Range: <b>S 33 T 24N R 05E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>Swale</b>	Slope (%): <b>2</b>	Local relief (concave, convex, none): <b>None</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>PITS</b>	Datum:	
Soil Map Unit Name: <b>PITS</b>		NWI classification: <b>NA</b>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> 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 Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampling Point within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <b>Wetland MN02</b>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>2</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>3</b> (B)																					
_____ = Total Cover				Percent of Dominant Species that are OBL, FACW, or FAC: <b>67</b> (A/B)																					
Sapling/Shrub Stratum (Plot size: 3m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </tbody> </table>	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)
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)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size: 1m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <i>Juncus effusus</i>	<b>75</b>	<b>Y</b>	<b>FAC</b>	Prevalence Index = B / A =  <b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * <input type="checkbox"/> Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)																					
2. <i>Unknown grasses</i>	<b>30</b>	<b>Y</b>	<b>FAC*</b>																						
3. <i>Holcus lanatus</i>	<b>Trace</b>	<b>N</b>	<b>FAC</b>																						
4. <i>Carex stipata</i>	<b>Trace</b>	<b>N</b>	<b>OBL</b>																						
5. <i>Carex sp.</i>	<b>Trace</b>	<b>N</b>	<b>FAC*</b>																						
6. <i>Alopecurus sp.</i>	<b>Trace</b>	<b>N</b>	<b>FAC*</b>																						
7.																									
8.																									
9.																									
10.																									
11.																									
_____ = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
Woody Vine Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1. <i>Rubus armeniacus</i>	<b>5</b>	<b>Y</b>	<b>FACU</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum:																									
Remarks: <b>*Presumed FAC</b>																									

**SOIL**

**Sampling Point – DP-3**

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 <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/2	100					Gravelly sandy loam	
3-12	10GY 4/1	75	7.5 YR 4/6	25	C	PL	Gravelly sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> )
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)
<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)
<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)

**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> 2cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/>

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

<input type="checkbox"/> Surface water (A1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves ( <b>except MLRA 1, 2, 4A &amp; 4B</b> ) (B9)
<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 checked="" 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 type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (explain in remarks)

*Secondary Indicators (2 or more required):*

<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A &amp; 4B</b> )
<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )
<input type="checkbox"/> Frost-Heave Hummocks

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

Remarks:    **Drainage outlet into wetland, source unknown.**



**WETLAND DETERMINATION DATA FORM**  
 Western Mountains, Valleys, and Coast Supplement to the  
 1987 COE Wetlands Delineation Manual

750 Sixth Street South  
 Kirkland, Washington 98033  
 (425) 822-5242  
 watershedco.com

DP- 4

Project Site: <b>Segment M, parcel number 3345100445</b>		Sampling Date: <b>5/6/2015</b>
Applicant/Owner: <b>Puget Sound Energy</b>		Sampling Point: <b>DP- 4</b>
Investigator: <b>M. Foster, R. Whitson</b>		City/County: <b>Newcastle</b>
Sect., Township, Range: <b>S 33 T 24N R 05E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>Hillslope</b>	Slope (%): <b>3</b>	Local relief (concave, convex, none): <b>None</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>PITS</b>		Datum:
Soil NWI classification: <b>NA</b>		
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic		

**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 Soils Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Point within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland MN02 out-pit; south of wetland. See remarks in hydrology section.</b>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>2</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>50</b> (A/B)																					
Sapling/Shrub Stratum (Plot size: 3m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <b>Cytisus scoparius</b>	<b>65</b>	<b>Y</b>	<b>UPL</b>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </tbody> </table>	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)
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)																							
2.																									
3.																									
4.																									
5.																									
_____ <b>65</b> = Total Cover				Prevalence Index = B / A =																					
Herb Stratum (Plot size: 1m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators																					
1. <b>Alopecurus sp.</b>	<b>90</b>	<b>Y</b>	<b>FAC**</b>	<input type="checkbox"/> Dominance test is > 50% <input type="checkbox"/> Prevalence test is ≤ 3.0 * Morphological Adaptations * (provide supporting data in remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants * <input type="checkbox"/> Problematic Hydrophytic Vegetation * (explain)																					
2. <b>Equisetum telmateia</b>	<b>5</b>	<b>N</b>	<b>FACW</b>																						
3. <b>Unknown pea vine</b>	<b>1</b>	<b>N</b>																							
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ <b>96</b> = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
Woody Vine Stratum (Plot size: )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1.				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum:																									
Remarks: <b>*Presumed FAC.</b>																									

**SOIL**

**Sampling Point – DP-4**

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 <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/2	100					Loam	
6-16	2.5Y 5/1	75	10YR 4/6	25	C	PL, M	Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> )
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<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)

**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> 2cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/>

<sup>3</sup> Indicators 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:    **Soils generally compact and disturbed.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

<input type="checkbox"/> Surface water (A1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves ( <b>except MLRA 1, 2, 4A &amp; 4B</b> ) (B9)
<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 checked="" 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 type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (explain in remarks)

*Secondary Indicators (2 or more required):*

<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A &amp; 4B</b> )
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )
<input type="checkbox"/> Frost-Heave Hummocks

**Field Observations**

Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (in): _____
Water Table Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (in): _____
Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (in): _____

**Wetland Hydrology Present?**    Yes     No

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

Remarks:    **Technically, this area meets the criteria for wetland hydrology due to the presence of oxidized rhizospheres along living roots in the soil profile. However the soils are compact and disturbed, and there were no drainage patterns (present at in-pit location) or other indicators of wetland hydrology evident during sampling. This, in combination with the vegetation assemblage, leads to the conclusion that this area is not jurisdictional wetland.**

**APPENDIX C**

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Wetland Rating Forms



Wetland name or number: MN01

**WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland MN01 Date of site visit: 4/22/2015  
Katy Crandall,  
Rated by: Mike Foster Trained by Ecology? Yes  No  Date of Training 09/2014  
SEC: 28 TOWNSHIP: 24N RANGE: 05E Is S/T/R in Appendix D? Yes  No

**SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I  II  III  IV

Category I = Score ≥70  
Category II = Score 51-69  
Category III = Score 30-50  
Category IV = Score < 30

Score for Water Quality Functions	4
Score for Hydrologic Functions	10
Score for Habitat Functions	11
<b>TOTAL score for functions</b>	<b>25</b>

**Category based on SPECIAL CHARACTERISTICS of wetland**

I  II  Does not Apply

**Final Category (choose the “highest” category from above)**

**IV**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input checked="" type="checkbox"/>

Wetland name or number: MN01

**Does the wetland unit being rated meet any of the criteria below?**

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.		X*
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X*
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X*
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

**\*The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web (<http://wdfw.wa.gov/mapping/phs/>).**

*To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.*

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

## Classification of Wetland Units in Western Washington

**If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in Questions 1-7 apply, and go to Question 8.**

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?  
 NO – go to 2                       YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe** **NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. ).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit  
 NO – go to 3                       YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?  
 The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;  
 At least 30% of the open water area is deeper than 6.6 ft (2 m)?  
 NO – go to 4                       YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?  
 The wetland is on a slope (*slope can be very gradual*),  
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.  
 The water leaves the wetland **without being impounded**?  
NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*  
 NO – go to 5                       YES – The wetland class is **Slope**

Wetland name or number: MN01

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
- The overbank flooding occurs at least once every two years

*NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.*

NO - go to 6                       **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7                       **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8                       **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

<i>HGM classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D	Depressional and Flats Wetlands	Points
<b>WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality</b>		
<b>D</b>	<b>D 1. Does the wetland have the potential to improve water quality?</b>	<i>(see p. 38)</i>
<b>D</b>	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) .....points = 3 Unit has an intermittently flowing, or highly constricted permanently flowing outlet .....points = 2 Unit has an unconstricted, or slightly constricted, surface outlet ( <i>permanently flowing</i> )..points = 1 Unit is a “flat” depression (Q.7 on key), or in the Flats class, with permanent surface outflow <b>and no obvious natural outlet</b> , and/or outlet is a man-made ditch ..... points = 1 ( <i>If ditch is not permanently flowing treat unit as “intermittently flowing”</i> )	2
<b>D</b>	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic ( <i>use NRCS definitions</i> ). YES points = 4 NO points = 0	0
<b>D</b>	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area .....points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area .....points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area .....points = 0	0
<b>D</b>	D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.</i> Area seasonally ponded is > ½ total area of wetland .....points = 4 Area seasonally ponded is > ¼ total area of wetland .....points = 2 Area seasonally ponded is < ¼ total area of wetland .....points = 0 NOTE: See text for indicators of seasonal and permanent inundation.	0
<b>D</b>	<b>Total for D 1</b>	<i>Add the points in the boxes above</i> 2
<b>D</b>	<b>D 2. Does the wetland unit have the opportunity to improve water quality?</b> Answer YES if you know or believe there are pollutants in groundwater or surface <u>water coming into the wetland</u> that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other: <b>YES</b> multiply score in D 1. <b>by 2</b> <b>NO</b> multiply score in D 1. <b>by 1</b>	<i>(see p. 44)</i>  multiplier  2
<b>D</b>	<b>TOTAL - Water Quality Functions</b>	Multiply the score from D1 by D2 <i>Add score to table on p. 1</i> <b>4</b>

<b>D Depressional and Flats Wetlands</b>		
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation</b>		
<b>D</b>	<b>D 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?</b>	<i>(see p. 46)</i>
<b>D</b>	<p>D 3.1 Characteristics of surface water flows out of the wetland unit</p> <p>Unit is a depression with no surface water leaving it (no outlet) ..... points = 4</p> <p>Unit has an intermittently flowing, or highly constricted permanently flowing outlet ..... points = 2</p> <p>Unit is a “flat” depression (Q.7 on key), or in the Flats class, with permanent surface outflow <b>and no obvious natural outlet</b>, and/or outlet is a man-made ditch ..... points = 1</p> <p><i>(If ditch is not permanently flowing treat unit as “intermittently flowing”)</i></p> <p>Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>).. points = 0</p>	2
<b>D</b>	<p>D 3.2 Depth of storage during wet periods</p> <p><i>Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).</i></p> <p>Marks of ponding are at least 3 ft or more above the surface or bottom of outlet ..... points = 7</p> <p>The wetland is a “headwater” wetland” ..... points = 5</p> <p>Marks of ponding between 2 ft to &lt; 3 ft from surface or bottom of outlet ..... points = 5</p> <p>Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet ..... points = 3</p> <p>Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1</p> <p>Marks of ponding less than 0.5 ft ..... points = 0</p>	0
<b>D</b>	<p>D 3.3 Contribution of wetland unit to storage in the watershed</p> <p><i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i></p> <p>The area of the basin is less than 10 times the area of the unit ..... points = 5</p> <p>The area of the basin is 10 to 100 times the area of the unit ..... points = 3</p> <p>The area of the basin is more than 100 times the area of the unit ..... points = 0</p> <p>Entire unit is in the FLATS class ..... points = 5</p>	3*
<b>D</b>	<b>Total for D 3</b> <i>Add the points in the boxes above</i>	5
<b>D</b>	<p><b>D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?</b></p> <p>Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur.</p> <p><i>Note which of the following conditions apply.</i></p> <p><input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems</p> <p><input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems</p> <p><input type="checkbox"/> Other _____</p> <p><input checked="" type="checkbox"/> <b>YES</b> multiplier is 2      <input type="checkbox"/> <b>NO</b> multiplier is 1</p>	<i>(see p. 49)</i>  multiplier  2
<b>D</b>	<b>TOTAL - Hydrologic Functions</b> Multiply the score from D 3 by D 4 <i>Add score to table on p. 1</i>	<b>10</b>

\*D 3.3. The area of the basin is presumed to be 10 to 100 times the area of the unit. A stream flows into the wetland from a nearby culvert; source of water to culvert unknown.

<b>These questions apply to wetlands of all HGM classes.</b> <b>HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat</b>	
<b>H 1. Does the wetland have the potential to provide habitat for many species?</b>	
<p>H 1.1 <u>Vegetation structure</u> (see p. 72)                      Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)  <input type="checkbox"/> Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon                 </p> <p>Add the number of vegetation types that qualify. If you have:</p> <p style="text-align: right;">                     4 structures or more.....points = 4                      3 structures .....points = 2                      2 structures .....points = 1                      1 structure .....points = 0                 </p>	0
<p>H 1.2. <u>Hydroperiods</u> (see p. 73)                      Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> Permanently flooded or inundated 4 or more types present .....points = 3  <input type="checkbox"/> Seasonally flooded or inundated 3 types present.....points = 2  <input checked="" type="checkbox"/> Occasionally flooded or inundated 2 types present .....points = 1  <input checked="" type="checkbox"/> Saturated only 1 types present.....points = 0  <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland  <input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland  <input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>  <input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b> </p>	2
<p>H 1.3. <u>Richness of Plant Species</u> (see p. 75)                      Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be combined to meet the size threshold)                      You do not have to name the species.                      Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle                      If you counted: &gt; 19 species.....points = 2                      5 - 19 species.....points = 1                      &lt; 5 species .....points = 0</p> <p>List species below if you want to:</p> <p><b>Seeded grasses</b></p>	0

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b>                  Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>None = 0 points      Low = 1 point      Moderate = 2 points</p> <p>High = 3 points      [riparian braided channels]</p> <p>NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".</p>	<p>0</p>
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b>                  Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present</li> <li><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.(structures for egg-laying by amphibians)</li> <li><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p><i>Note: The 20% stated in early printings of the manual on page 78 is an error.</i></p>	<p>0</p>
<p><b>H 1. TOTAL Score</b> - potential for providing habitat                  Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<p>2</p>

<p><b>H 2. Does the wetland have the opportunity to provide habitat for many species?</b></p>		
<p><b>H 2.1 Buffers (see p. 80)</b>  <i>Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p>		
<p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No developed areas within undisturbed part of buffer. (relatively undisturbed also means no-grazing)..... Points = 5</p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference. .... Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. .... Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circumference ..... Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference..... Points = 3</p> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input checked="" type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer ..... Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland ..... Points = 0</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above.....Points = 1</p>	2	
<p><b>H 2.2 Corridors and Connections (see p. 81)</b></p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="text-align: center;">YES = <b>4 points</b> (go to H 2.3)      NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? <b>OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</b></p> <p style="text-align: center;">YES = <b>2 points</b> (go to H 2.3)      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 20px;">within 5 mi (8km) of a brackish or salt water estuary OR  within 3 mi of a large field or pasture (&gt;40 acres) OR  within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = <b>1 point</b>      NO = <b>0 points</b></p>		0

<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see new and complete descriptions of <b>WDFW priority habitats, and the counties in which they can be found, in the PHS report <a href="http://wdfw.wa.gov/hab/phslist.htm">http://wdfw.wa.gov/hab/phslist.htm</a></b>)</p> <p>Which of the following priority habitats are within 330ft (100m) of the wetland?          (NOTE: the connections do not have to be relatively undisturbed)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Aspen Stands:</b> Pure or mixed stands of aspen greater than 0.4 ha (1 acres).</li> <li><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to various species of native fish and wildlife (full description in WDFW PHS report p. 152)</li> <li><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over bedrock.</li> <li><input type="checkbox"/> <b>Old-growth/Mature forests:</b> (<u>Old-growth west of Cascade crest</u>) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) &gt; 81 cm (32 in) dbh or &gt; 200 years of age. (<u>Mature forests.</u>) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.</li> <li><input type="checkbox"/> <b>Oregon white Oak:</b> Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158.)</li> <li><input checked="" type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</li> <li><input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161)</li> <li><input checked="" type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</li> <li><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)</li> <li><input type="checkbox"/> <b>Caves:</b> A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.</li> <li><input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</li> <li><input checked="" type="checkbox"/> <b>Talus:</b> Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</li> <li><input type="checkbox"/> <b>Snags and Logs:</b> Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of &gt;51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30cm (12 in) in diameter at the largest end, and &gt; 6m (20 ft) long.              If wetland has <b>3 or more</b> priority habitats = <b>4 points</b>              If wetland has <b>2</b> priority habitats = <b>3 points</b>              If wetland has <b>1</b> priority habitat = <b>1 point</b>              No habitats = <b>0 points</b></li> </ul> <p>Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.</p>	<p>4</p>
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Wetland name or number: MN01

<p>H 2.4 <u>Wetland Landscape</u> (choose the <b>one</b> description of the landscape around the wetland that best fits) (see p. 84)</p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile.....points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed.....points = 3</p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile.....points = 3</p> <p>There is at least 1 wetland within ½ mile.....points = 2</p> <p>There are no wetlands within ½ mile.....points = 0</p>	3
<p><b>H 2. TOTAL Score</b> - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4</p>	9
<p>TOTAL for H1 from page 14</p>	2
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	11

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and circle the appropriate Category.*

<b>Wetland Type</b> <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	<b>Category</b>
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b></p> <p>Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,</p> <p><input type="checkbox"/> Vegetated, and</p> <p><input type="checkbox"/> With a salinity greater than 0.5 ppt.</p> <p>YES = Go to SC 1.1                      NO <input checked="" type="checkbox"/></p>	
<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = go to SC 1.2</p>	<p><b>Cat. I</b></p>
<p>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = Category II</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland.</p> <p><input type="checkbox"/> The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p> <p><b>Dual rating I/II</b></p>

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b></p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i>          S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>          YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?          YES = Category I      NO <input checked="" type="checkbox"/> Not a Heritage Wetland</p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0 Bogs (see p. 87)</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16” or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)              Yes - go to Q.3      NO - go to Q.2</li> <li>2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?              Yes - go to Q.3      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> <li>3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)?              Yes – Is a bog for purpose of rating      NO - go to Q.4  <i>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</i></li> <li>4. Is the wetland forested (&gt;30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of the total shrub/herbaceous cover)?              YES = Category I      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> </ol>	<p><b>Cat. I</b></p>



<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>                  Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?                  YES – go to SC 6.1                      NO <input checked="" type="checkbox"/> not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>                  In practical terms that means the following geographic areas:                  – Long Beach Peninsula – lands west of SR 103                  – Grayland-Westport – lands west of SR 105                  – Ocean Shores-Copalis – lands west of SR 115 and SR 109                  SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?                  YES = Category II                      NO – go to SC 6.2                  SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?                  YES = Category III</p>	<p><b>Cat. II</b></p> <p><b>Cat. III</b></p>
<p><b>Category of wetland based on Special Characteristics</b>                  Choose the “highest” rating if wetland falls into several categories, and record on p. 1.                  If you answered NO for all types enter “Not Applicable” on p.1.</p>	<p><b>NA</b></p>

Wetland name or number: MN02

### WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland MN02 Date of site visit: 5/6/2015  
Mike Foster,  
Rated by: Rose Whitson Trained by Ecology? Yes  No  Date of Training 09/2014  
SEC: 33 TOWNSHIP: 24N RANGE: 05E Is S/T/R in Appendix D? Yes  No

## SUMMARY OF RATING

### Category based on FUNCTIONS provided by wetland

I  II  III  IV

Category I = Score  $\geq 70$   
Category II = Score 51-69  
Category III = Score 30-50  
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	10
Score for Habitat Functions	10
<b>TOTAL score for functions</b>	<b>30</b>

### Category based on SPECIAL CHARACTERISTICS of wetland

I  II  Does not Apply

Final Category (choose the “highest” category from above)

**III**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input checked="" type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Wetland name or number: MN02

**Does the wetland unit being rated meet any of the criteria below?**

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.		X*
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X*
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X*
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

**\*The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web (<http://wdfw.wa.gov/mapping/phs/>).**

*To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.*

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

## Classification of Wetland Units in Western Washington

**If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in Questions 1-7 apply, and go to Question 8.**

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?  
 NO – go to 2                       YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe** **NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. ).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit  
 NO – go to 3                       YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?  
 The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;  
 At least 30% of the open water area is deeper than 6.6 ft (2 m)?  
 NO – go to 4                       YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?  
 The wetland is on a slope (*slope can be very gradual*),  
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.  
 The water leaves the wetland **without being impounded**?  
NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*  
 NO – go to 5                       YES – The wetland class is **Slope**

Wetland name or number: MN02

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
- The overbank flooding occurs at least once every two years

*NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.*

- NO - go to 6                       **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

- NO – go to 7                       **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

- NO – go to 8                       **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

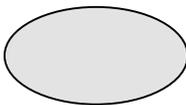
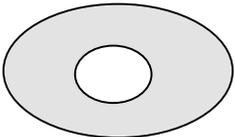
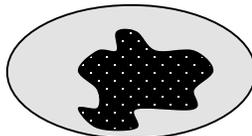
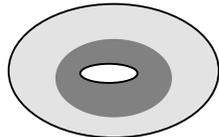
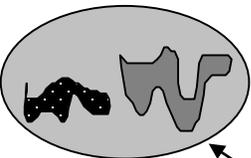
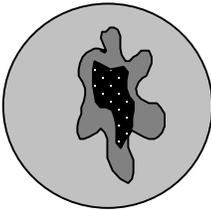
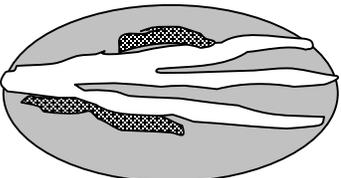
<i>HGM classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.





<b>These questions apply to wetlands of all HGM classes.</b>	
<b>HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat</b>	
<b>H 1. Does the wetland have the potential to provide habitat for many species?</b>	
<p><b>H 1.1 <u>Vegetation structure</u> (see p. 72)</b>                      Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)  <input type="checkbox"/> Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon                 </p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <p style="text-align: right;">                     4 structures or more.....points = 4                      3 structures .....points = 2                      2 structures .....points = 1                      1 structure.....points = 0                 </p>	1
<p><b>H 1.2. <u>Hydroperiods</u> (see p. 73)</b>                      Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> Permanently flooded or inundated                      4 or more types present .....points = 3  <input type="checkbox"/> Seasonally flooded or inundated                      3 types present.....points = 2  <input checked="" type="checkbox"/> Occasionally flooded or inundated                      2 types present .....points = 1  <input checked="" type="checkbox"/> Saturated only                      1 types present.....points = 0  <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland  <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland  <input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>  <input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b> </p>	1
<p><b>H 1.3. <u>Richness of Plant Species</u> (see p. 75)</b>                      Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be combined to meet the size threshold)                      You do not have to name the species.                      Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle                      If you counted:                      &gt; 19 species.....points = 2                      List species below if you want to:                      5 - 19 species.....points = 1  <span style="margin-left: 150px;">&lt; 5 species .....points = 0</span> </p>	1

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b>                  Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">                       None = 0 points                 </div> <div style="text-align: center;">                       Low = 1 point                 </div> <div style="text-align: center;">                       Moderate = 2 points                 </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">                       High = 3 points                 </div> <div style="text-align: center;">  </div> <div style="text-align: center;">                       [riparian braided channels]                 </div> </div> <p>NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".</p>	1
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b>                  Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present</li> <li><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.(structures for egg-laying by amphibians)</li> <li><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p style="text-align: center;"><i>Note: The 20% stated in early printings of the manual on page 78 is an error.</i></p>	0
<p><b>H 1. TOTAL Score</b> - potential for providing habitat                  Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	4

<p><b>H 2. Does the wetland have the opportunity to provide habitat for many species?</b></p>		
<p><b>H 2.1 Buffers (see p. 80)</b>  <i>Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p>		
<p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No developed areas within undisturbed part of buffer. (relatively undisturbed also means no-grazing)..... Points = 5</p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference. .... Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. .... Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circumference ..... Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference..... Points = 3</p> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <p><input checked="" type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer ..... Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland ..... Points = 0</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above.....Points = 1</p>	2	
<p><b>H 2.2 Corridors and Connections (see p. 81)</b></p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="padding-left: 40px;">YES = <b>4 points</b> (go to H 2.3)      NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? <b>OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</b></p> <p style="padding-left: 40px;">YES = <b>2 points</b> (go to H 2.3)      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 40px;">within 5 mi (8km) of a brackish or salt water estuary OR</p> <p style="padding-left: 40px;">within 3 mi of a large field or pasture (&gt;40 acres) OR</p> <p style="padding-left: 40px;">within 1 mi of a lake greater than 20 acres?</p> <p style="padding-left: 40px;">YES = <b>1 point</b>      NO = <b>0 points</b></p>		0

<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see new and complete descriptions of <b>WDFW priority habitats, and the counties in which they can be found, in the PHS report <a href="http://wdfw.wa.gov/hab/phslist.htm">http://wdfw.wa.gov/hab/phslist.htm</a></b>)</p> <p>Which of the following priority habitats are within 330ft (100m) of the wetland?          (NOTE: the connections do not have to be relatively undisturbed)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Aspen Stands:</b> Pure or mixed stands of aspen greater than 0.4 ha (1 acres).</li> <li><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to various species of native fish and wildlife (full description in WDFW PHS report p. 152)</li> <li><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over bedrock.</li> <li><input type="checkbox"/> <b>Old-growth/Mature forests:</b> (<u>Old-growth west of Cascade crest</u>) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) &gt; 81 cm (32 in) dbh or &gt; 200 years of age. (<u>Mature forests.</u>) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.</li> <li><input type="checkbox"/> <b>Oregon white Oak:</b> Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158.)</li> <li><input type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</li> <li><input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161)</li> <li><input type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</li> <li><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)</li> <li><input type="checkbox"/> <b>Caves:</b> A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.</li> <li><input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</li> <li><input type="checkbox"/> <b>Talus:</b> Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</li> <li><input checked="" type="checkbox"/> <b>Snags and Logs:</b> Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of &gt;51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30cm (12 in) in diameter at the largest end, and &gt; 6m (20 ft) long.              If wetland has <b>3 or more</b> priority habitats = <b>4 points</b>              If wetland has <b>2</b> priority habitats = <b>3 points</b>              If wetland has <b>1</b> priority habitat = <b>1 point</b>              No habitats = <b>0 points</b></li> </ul> <p><i>Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.</i></p>	<p>1</p>
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Wetland name or number: MN02

<p>H 2.4 <u>Wetland Landscape</u> (choose the <b>one</b> description of the landscape around the wetland that best fits) (see p. 84)</p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile.....points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed.....points = 3</p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile.....points = 3</p> <p>There is at least 1 wetland within ½ mile.....points = 2</p> <p>There are no wetlands within ½ mile.....points = 0</p>	3
<p><b>H 2. TOTAL Score</b> - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	6
<p>TOTAL for H1 from page 14</p>	4
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	10

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and circle the appropriate Category.*

<b>Wetland Type</b> <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	<b>Category</b>
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b>                      Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p> <input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.                      YES = Go to SC 1.1                      NO <input checked="" type="checkbox"/> </p>	
<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151?</p> <p> <input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = go to SC 1.2                 </p>	<p><b>Cat. I</b></p>
<p>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?</p> <p> <input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = Category II                 </p> <p> <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.                 </p> <p> <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland.                 </p> <p> <input type="checkbox"/> The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.                 </p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p> <p><b>Dual rating I/II</b></p>

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b></p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i>          S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>          YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?          YES = Category I      NO <input type="checkbox"/> Not a Heritage Wetland</p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0 Bogs (see p. 87)</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16” or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)              Yes - go to Q.3      NO - go to Q.2</li> <li>2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?              Yes - go to Q.3      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> <li>3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)?              Yes – Is a bog for purpose of rating      NO - go to Q.4  <i>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</i></li> <li>4. Is the wetland forested (&gt;30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of the total shrub/herbaceous cover)?              YES = Category I      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> </ol>	<p><b>Cat. I</b></p>



<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>                  Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?                  YES – go to SC 6.1                      NO <input checked="" type="checkbox"/> not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>                  In practical terms that means the following geographic areas:                  – Long Beach Peninsula – lands west of SR 103                  – Grayland-Westport – lands west of SR 105                  – Ocean Shores-Copalis – lands west of SR 115 and SR 109                  SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?                  YES = Category II                      NO – go to SC 6.2                  SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?                  YES = Category III</p>	<p><b>Cat. II</b></p> <p><b>Cat. III</b></p>
<p><b>Category of wetland based on Special Characteristics</b>                  Choose the “highest” rating if wetland falls into several categories, and record on p. 1.                  If you answered NO for all types enter “Not Applicable” on p.1.</p>	<p>NA</p>