

# South Cooper Mountain Annexation Area

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## Local Wetland Inventory

*Prepared for*



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**September 2015**



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## 1. INTRODUCTION

This Local Wetland Inventory (LWI) has been conducted for the South Cooper Mountain Annexation Area (SCMAA), which was brought into the City of Beaverton urban growth boundary in 2011. This LWI was prepared in concert with the South Cooper Mountain Concept Plan. The Concept Plan project covers areas beyond the 2011 annexation area, including areas outside of City of Beaverton jurisdiction. This LWI only covers areas within the SCMAA. The SCMAA LWI study area is shown in Appendix A, Figure 1. Tax lots covered by the LWI are shown in Appendix A, Figure 2, including those tax lots in which site access was available and on-site wetland delineation methods were used.

This LWI should be considered an amendment to the City's existing LWI. It is intended to cover the new SCMAA. No work was performed to revise existing LWI mapping for other areas of the City.

The LWI is intended to support planning level decision making and is not intended to replace more detailed site level wetland delineation work that may be needed for compliance with local, state, or federal regulations governing the protection of wetlands and surface waters. The LWI purpose and applicability, as provided in the Oregon Administrative Rules, are provided verbatim in italics text below.

### **OAR 141-086-0180 Purpose**

*Pursuant to Oregon Revised Statute (ORS) 196.674 pertaining to the Statewide Wetlands Inventory (SWI), these rules establish a system for uniform wetland identification and comprehensive mapping. These rules also establish wetlands inventory standards for cities or counties developing a wetland conservation plan (WCP) pursuant to ORS 196.678. A Local Wetlands Inventory (LWI) is developed for all or a portion of a city or county according to the standards and guidelines contained in these rules (OAR 141-086-0180 through 141-086-0240).*

### **OAR 141-086-0185 Applicability**

*(1) Once approved by the Department of State Lands (Department), the LWI must be used in place of the National Wetlands Inventory (NWI) and is incorporated into the SWI.*

*(2) The approved LWI must be used by cities and counties in lieu of the NWI for notifying the Department of land use applications affecting mapped wetlands and other waters (ORS 215.418 and 227.350).*

*(3) An LWI fulfills the wetlands inventory requirements for Goal 5 and Goal 17 (OAR 660-015 and 660-023). An LWI that meets the additional WCP requirements specified in these rules must be used as the wetlands inventory basis for a WCP.*

*(4) A wetland function and condition assessment of mapped wetlands must be conducted as part of the LWI using the Oregon Freshwater Wetland Assessment Methodology (OFWAM) published by the Department in 1996. An equivalent functional assessment methodology may be used or adjustments may be made to OFWAM upon written approval by the Director. The assessment results are used to determine the relative quality (functions, values, and condition) of the mapped wetlands and to designate significant wetlands (OAR 141-086-0300 through 141-086-0350) as required for Goal 5, or to assess wetland functions and values for a WCP.*

*(5) An LWI is used by the Department, other agencies and the public to help determine if wetlands or other waters are present on particular land parcels.*

*(6) An LWI provides information for planning purposes on the location of potentially regulated wetlands and other waters such as lakes and streams, but is not of sufficient detail for permitting purposes under the state Removal-Fill Law (ORS 196.800 through 196.990). Smaller wetlands may not be mapped, and wetlands may be missed due to lack of onsite access, tree canopy cover and other constraints. A wetland delineation or determination report may be needed for parcels without LWI-mapped wetlands. A Department-approved wetland delineation report for wetlands identified in an LWI is usually needed prior to site development.*

(7) All wetlands inventory procedures and products are subject to review and approval by the Department before the products:

- (a) Are incorporated into the SWI;
- (b) Can be used in lieu of the NWI for Wetland Land Use Notification purposes; or
- (c) Can be used by a city or county for Goal 5, Goal 17 or WCP purposes.

## **2. METHODS**

### **2.1 GENERAL**

Methods included a review of project area background materials, and drive-by and on-site field reconnaissance visits. Field work was conducted during the week of March 18, 2013. Wetland delineation was conducted at a reconnaissance level of accuracy suitable for LWI documentation and City planning purposes.

This LWI follows the Oregon Department of State Lands (DSL) rules, specifically Oregon Administrative Rule (OAR) 141-086. All wetlands one-half acre in size or larger were mapped as wetlands, while smaller wetlands were mapped as “probable wetlands.” Although DSL only requires that probable wetlands be mapped as point features (meaning that a single point would represent the wetland), for this project, these wetlands were mapped as polygons. This was done to aid the City planning process, as these features will likely need to be avoided or encroachment minimized.

Where site access was available within the SCMAA LWI area, a single sample plot documenting typical conditions for the respective wetland was completed and boundaries mapped using global positioning system (GPS).

Data collection and wetland boundary delineation followed the Level 2 Routine Delineation Method described in the U.S. Army Corps of Engineers (Corps) Wetlands Delineation Manual (Environmental Laboratory 1987) and further supported by the Western Mountains, Valleys, and Coast Region (Corps 2010) regional supplement (Supplement). This method requires the simultaneous presence of hydrophytic vegetation, hydric soils, and positive wetland hydrology in wetland delineations.

### **2.2 PRELIMINARY RESOURCE REVIEW**

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

- Clean Water Services (CWS) GIS streams layer shapefile (2013).
- Environmental Systems Research Institute (ESRI) National Geographic World Map for ArcGIS (2013)
- ESRI ArcGIS OnlineWorld Imagery aerial photo imagery for ArcGIS (2009)
- Metro Regional Land Information System (RLIS) GIS wetlands layer, hydric soils layer, and GIS streams layer (2013).
- Metro Technical Report for Fish and Wildlife Habitat (April 2005)
- Metro Cooper Mountain Natural Resource Management Plan (November 2005)
- Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database for Washington County, Oregon (2010).

- Oregon Biodiversity Information Center (ORBIC) Oregon Wetlands Cover, version 20091030 (2009)
- Oregon Department of Fish and Wildlife (ODFW) Fish distribution GIS layers (2013)
- Shapiro & Associates, Inc. City of Beaverton Local Wetland Inventory and GIS data (2000)
- U.S. Fish and Wildlife Service. National Wetland Inventory Wetland Mapper (2013)
- U.S. Geological Survey (USGS) National Hydrographic Database National Hydrographic Database (NHD) GIS streams layer (2013)
- City of Beaverton January 2013 LIDAR derived contours (January 2013)
- City of Beaverton January 2013 high resolution aerial photography (January 2013)
- DSL wetland determination/delineation database search results for SCMAA study area (March 2013)

The following materials were provided and reviewed after DEA had completed all field work:

- Fox Hollow Wetland/Goal 5 Natural Resource Determination (18200 SW Horse Tale Drive Washington County, Oregon, Tax Map 1S131000, lot 1602) Technical Memorandum (ESA 2013)
- Oregon Goal 5 and Metro Title 13 Natural Resources Determination –Scholls Ferry Road Properties (Tax Map 2S10600, lots 301, 302, and 700) Technical Memorandum (ESA 2013)
- Pacific Habitat Services, Inc. Wetland Delineation for Beaverton School District in Beaverton, Washington County, Oregon (2014)
- AKS Engineering & Forestry, LLC. Dyches Property Wetland and Waters Delineation Report, Beaverton, Oregon (2014)
- Anchor QEA, LLC. Wetland Delineation Report, West Hills Development: Crescent Grove Property (2015)

### 2.3 MAPPING PROCEDURES AND ESTIMATED ACCURACY

Mapping of LWI features was supported through use of high resolution color aerial photography and LIDAR contour data provided by the City of Beaverton (2013). Ground truthing occurred on parcels where access was available and from publicly accessible viewing areas (i.e., roadway right of way). In office review of aerial and LIDAR contours was conducted using Geographic Information System (GIS) technology, which allowed for viewing information at various scales. This included the minimum photo scale of 1 inch = 200 feet required by OAR 141-086-0210(2)(g). Metadata for the aerial photography provides the following description:

*The dataset encompasses portions of Washington, Multnomah, and Clackamas Counties. These data are LiDAR orthorectified aerial photographs of the West Metro study area. The data are delineated into north and south halves of 1/100th of standard USGS 7.5 minute quadrangles to create manageable file sizes. Each 4 band color image tile has a pixel resolution of 3 in. [Note pixel size measured in data provided by City of Beaverton was measured at 0.25 ft] These data are projected in NAD 83 State Plane, Oregon North, and their units are in feet. WSI collected the LiDAR and created this data set for the Oregon LiDAR Consortium.*

The Metro-RLIS wetlands layer and existing LWI-DSL layer provided by the City were merged and used as a starting point for mapping wetland resources within the SCMAA LWI study area. Obvious wetland boundary adjustments were made based on review of the 2013 aerial photography and roadside reconnaissance. For example, wetland polygons that clearly overlapped with developed areas were reduced in size so that only the undeveloped portion of the polygon remained. All wetlands were assigned

a Cowardin class (i.e., vegetation type such as forested, emergent, etc.) and a hydrogeomorphic (HGM) class (i.e., slope, depression, etc.). Assigning of Cowardin and HGM classes was typically based on review of aerial photo and LIDAR contours, or field verification where possible.

For properties in which site access was available (see Appendix A, Figure 2), wetland and waterway mapping was supported through use of a Trimble Geo XH resource grade geographic positioning system (GPS) unit with typical accuracy of one meter or better. Representative boundary and sample plot locations were collected, differentially corrected, and then exported to geographic information system (GIS) format (i.e., ESRI shapefile format). Although typical GPS accuracy is considered one meter or better, the mapping accuracy of field verified wetlands should be considered to be five meters (16.4 feet) or better, as sample plots, particularly unrecorded supplementary sampling, were conducted at a reconnaissance level of accuracy. For properties in which other consultants conducted formal wetland delineations submitted to DSL for approval, DEA obtained the electronic wetland boundary linework (CAD and GIS formats) and incorporated them into the LWI mapping. The formal wetland delineation mapping is assumed to have a horizontal accuracy of 3 feet or better.

Streams and other waters were mapped in accordance with OAR 141-086-0210(19), which states that “Streams and other waters must be mapped, but no further documentation such as wetland summary sheets or OFWAM assessment is required. If an existing stream geospatial dataset is used, it may be necessary to adjust the layer to align with riparian or other linear wetlands.” Mapping of streams started with use of the Metro RLIS streams GIS layer. Stream lines were modified based on field observations where access was available. In other areas, stream lines were adjusted to match with topographic contours provided by the City LIDAR data (January 2013) and aerial photo interpretation based on the City’s January 2013 high resolution aerial imagery.

GIS data produced by DEA was originally created using the state plane, Oregon north coordinate system, North American Datum of 1983 (NAD83) horizontal datum, international feet to maintain consistency with other South Cooper Mountain Concept Plan mapping efforts. This data was then re-projected into the Lambert system to comply with Oregon statewide wetland mapping standards required by DSL.

## **2.4 OFWAM FUNCTIONAL ASSESSMENT**

Wetland functions were evaluated for wetlands greater than one half acre using the Oregon Freshwater Wetland Assessment Method (OFWAM). OFWAM results were used to determine if any of the SCMAA wetlands qualify as “locally significant wetlands” in accordance with criteria set forth in OAR 141-086-0350. Following DSL guidance, probable wetlands were not included in the evaluation of locally significant wetlands.

## 2.5 PUBLIC INVOLVEMENT PROCESS

All landowners within the SCMMA LWI study area were contacted by the City to inform them of the LWI project, which would be conducted as part of the greater South Cooper Mountain Planning project. The City requested property access to allow City's consultant, David Evans and Associates, Inc. (DEA), to perform on-site wetland delineation work. As shown on Figure 2 of Appendix A, access was granted to seven tax lots. Two property owners elected to have their own consultants perform wetland delineation reconnaissance work and submit their findings to the City in the form of wetland determination memorandums. An additional three property owners also had their own consultants perform wetland delineation work and submitted their findings to DSL for formal review and concurrence. These are also displayed on Figure 2. All of the above information has been incorporated into this LWI report and mapping.

A formal public involvement process specific only to the SCMAA LWI has not been conducted. However, the LWI was conducted in concert with the South Cooper Mountain Planning project, which has had an extensive public involvement process. Public involvement has included meetings with a technical advisory committee, citizen's advisory committee, multiple open house and community engagement sessions, and dissemination of information through the creation of a project website. LWI mapping results were presented throughout these various meetings and engagements, and information made available to the public via the project website. As of November 2013, LWI results have not been presented as a stand-alone product for public review, but have instead been a part of combined natural resource reporting and mapping (DEA 2013), including wetlands, streams, buffers, and upland habitat resource mapping for the greater planning project study area. The City will be coordinating with DSL regarding additional LWI public review, if the above process was deemed insufficient.

## 3. RESULTS

LWI results documentation has been prepared in accordance with OAR 141-086-0220 LWI Reports and is provided herein.

### 3.1 STUDY AREA DESCRIPTION

*OAR 141-086-0220(2)(a) A general description of the study area including a description of the landscape setting;*

The project study area primarily consists of rural lands that are bordered to the east by suburban development and to the north, south, and west by rural land. Slopes range from gently rolling in the south half to moderately steep in the north half of the study area. The majority of the land drains to the south, with a portion of the area draining to the southeast with all drainage eventually flowing off-site to the Tualatin River and its tributaries (See Appendix A, Figure 1), Table 1 and Figure 5 (Appendix A) show Clean Water Services streamsheds and associated drainages that occur within the LWI study area. All drainages in the study area are unnamed, but were assigned an ID as part of the South Cooper Mountain Concept Plan project.

**Table 1: Drainage Basins and Streams in LWI Study Area**

Clean Water Services Stream Shed <sup>1</sup>	Clean Water Services Basin ID <sup>2</sup>	Water Bodies <sup>3</sup>	Water Body ID <sup>3</sup>
Jackson/Lindow	LW	none	none
Summer Creek	SMC	Unnamed tributary	SMC
	SMC	Unnamed tributary to SMC	SMC-1
Unnamed Tributary to Tualatin River	TR06.5	Unnamed trib to Tualatin River	TR-1
	TR06.5	Unnamed trib to TR-1	TR-1a
	TR06.5	Unnamed trib to TR-1	TR-1b

<sup>1</sup> Data from "CWS\_SmallSubBasins" GIS shapefile, "STREAMSHED" data field  
<sup>2</sup> Data from "CWS\_SmallSubBasins" GIS shapefile, "IDALL" data field  
<sup>3</sup> Water body IDs assigned by South Cooper Mountain Concept Plan project

Land use is predominantly agricultural, with a mix of annual crop production, pasture, orchards, and viticulture. Several small remnant patches of native forest habitat occur within the area, including mixed upland fir-deciduous forest, Oregon ash dominated wetland forest, and patches of Oregon oak forest. Several fir dominated lots were being logged or had recently been logged as observed during the March 2013 site visits.

### 3.2 WETLAND INVENTORY PROCESS

*OAR 141-086-0220(2)(b) A description of the wetland inventory process including the public involvement process; the inventory methods including the date(s) and scale(s) of source maps and aerial photos used; the offsite and onsite wetland determination procedures including procedures used for visual confirmation and probable wetland identification; and all mapping and map transfer procedures used;*

See methods discussion above.

### 3.3 SUMMARY OF INVENTORY RESULTS

*OAR 141-086-0220(2)(c) A summary of the inventory results including the total acreage of the study area and the total number and acreage of wetlands identified within the study area, excluding the acreage of deepwater habitat and artificially created wetlands such as detention ponds or aggregate extraction ponds;*

The SCMAA study area occupies approximately 544 acres. The study area contains an estimated 19.37 acres of wetlands and probable wetlands. Table 2 provides a listing of individual wetlands, their size and HGM and Cowardin classifications. Study area wetlands are displayed in Appendix A Figure 3. Representative sample plots for each wetland are provided in Appendix B and summary sheets describing each wetland are provided in Appendix C.

The following discussion summarizes the range of wetland resources identified in the SCMAA LWI study area. Wetland A was the largest wetland identified within the SCMAA LWI study area and contained a large portion of intact forested wetland as well as emergent wetland dominated by pasture grasses. Probable wetland PW-G is situated in an agricultural field growing annual crops. This feature was mapped based on aerial photo reconnaissance and soil survey mapping that shows hydric soils in the field. This wetland was considered probable because it was very difficult to determine if wetland conditions actually exist and if they do, how wide an area they cover. All wetlands were considered to be slope wetlands as the dominant source of hydrology is likely to be hillside seepage or shallow subsurface flow.

**Table 2: LWI Wetland Summary Results**

Wetland ID <sup>1</sup>	Acres	Cowardin Class <sup>2, 3</sup>	HGM Class
W-A	11.80	PFO1Y, PEM1Y	Slope
PW-B	0.12	PEM1Yd	Slope
W-C	1.42	PFO1Y	Slope
PW-D	0.39	PEM1Y	Slope
PW-E	0.22	PEM1Y	Slope
PW-F	0.18	PEM1Yfd	Slope
W-G	21.29	PEM1Yf	Slope
W-H	10.79	PSS1Y	Slope
PW-I	0.40	PFO1Y	Slope
PW-J	0.26	PEM1Y	Slope
PW-K	0.09	PEM1Y	Slope
PW-L	0.09	PEM1Y	Slope
PW-M	0.02	PEM1Y	Slope
PW-N	0.21	PEM1Y	Slope
DP-1	0.25	PUB	Depression
<b>Total</b>	<b>47.53</b>		

<sup>1</sup> "W" = wetland, "PW" = probable wetland, "DP" = constructed detention pond (not a jurisdictional wetland)

<sup>2</sup> PFO = palustrine forested, PSS = palustrine scrub-shrub, PEM = palustrine emergent, PUB = palustrine unconsolidated bottom

<sup>3</sup> Cowardin modifiers "1" = broad-leaved deciduous for PFO and PSS, and persistent for PEM wetlands. "Y" = saturated/semipermanent/seasonal. "f" = farmed. "d" = partially drained/ditched.

### 3.4 OFWAM PROCESS AND RESULTS

*OAR 141-086-0220(2)(d) A discussion of the OFWAM assessment process (e.g. how assessment units were defined) and the results;*

Table 3 provides a summary of wetland functional assessment results for wetlands that are one-half acre or greater in size. Of the four wetlands evaluated, three met locally significant wetland criteria – Wetlands W-A, W-C, and W-H. This means at least one of the four functions evaluated rated highly. The remaining wetland did not meet locally significant wetland criteria due to its highly degraded conditions (i.e., plowed field).

**Table 3: Wetland Functional Assessment Results**

Wetland ID	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Meets Locally Significant Criteria
W-A	Diverse	Intact	Degraded	Intact	Yes
W-C	Diverse	Intact	Degraded	Degraded	Yes
W-G	Some Habitat	Degraded	Degraded	Degraded	No
W-H	Diverse	Intact	Degraded	Degraded	Yes

### 3.5 SUMMARY OF LOCALLY SIGNIFICANT WETLANDS

*OAR 141-086-0220(2)(e) A summary of Locally Significant Wetlands, if identified (may be in table format);*

Wetlands W-A, W-C, and W-H were determined to meet locally significant wetlands criteria. Wetland functions for these wetlands are summarized in Table 3. Wetland characteristics for these wetlands are summarized in the individual wetland summary sheets provided in Appendix C.

## 4. PREPARERS AND CONTRIBUTORS

Ethan Rosenthal, DEA Ecologist, authored this report. Phil Rickus, DEA Ecologist, provided the quality review. Dawn Afman, DEA Project Assistant, prepared the report drafts. Sara Gilbert, DEA GIS Specialist, conducted GIS analysis and prepared report figures.

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- U.S. Fish and Wildlife Service. 2013. National Wetland Inventory Wetland Mapper GIS data.
- U.S. Geological Survey (USGS). 2013. National Hydrographic Database National Hydrographic Database (NHD) GIS streams layer.

Date printed 8/31/15

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## **6. APPENDICES**

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## **Appendix A: Figures**

**OAR 141-086-0220(2)(f)** All figures, with the study area clearly outlined.

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**Figure 1  
Vicinity Map**

**City of Beaverton  
South Cooper Mountain  
Annexation Area**

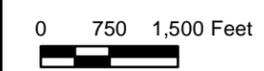
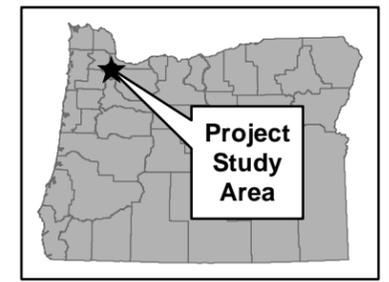
**LOCAL WETLAND INVENTORY**

**Legend**

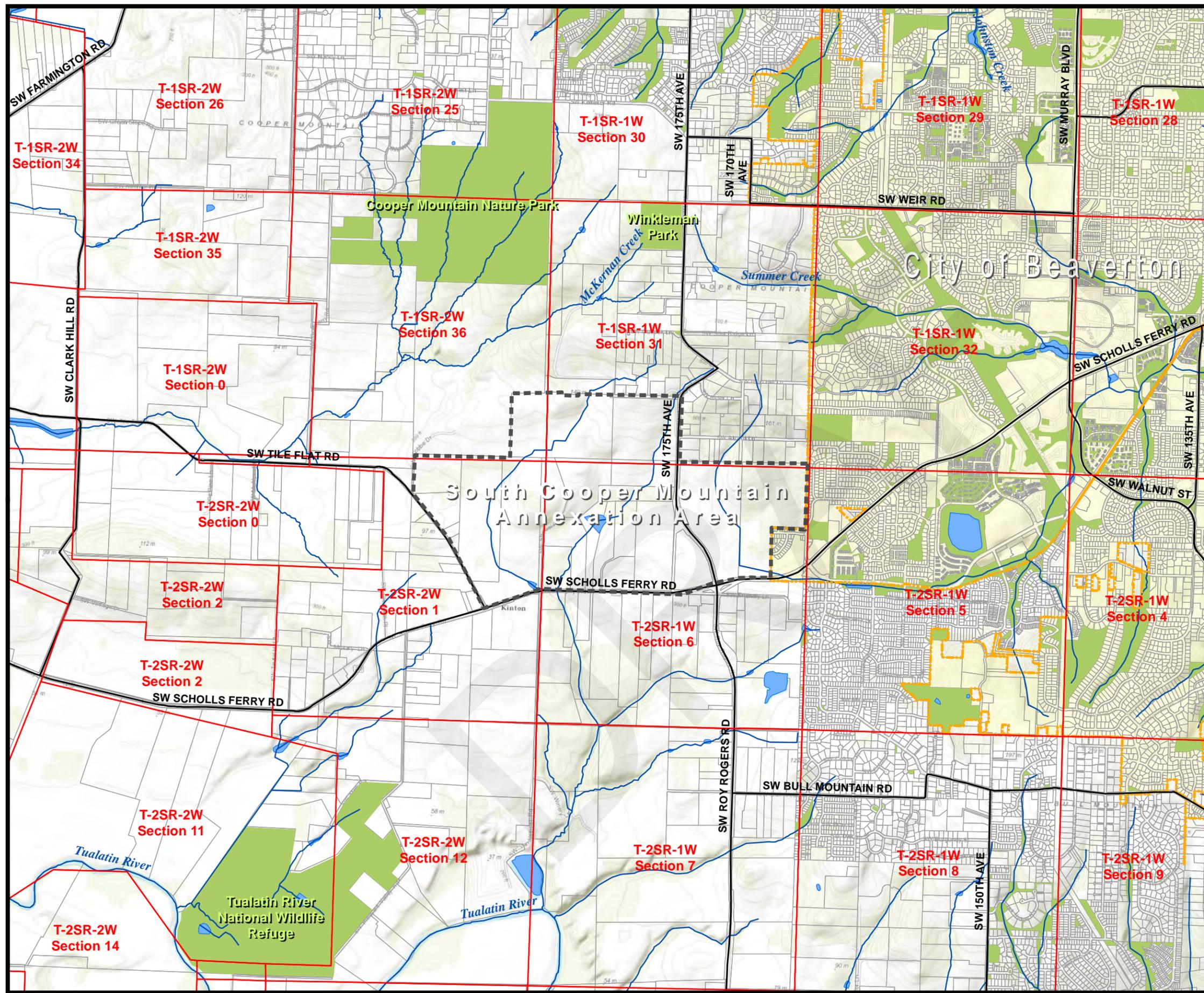
-  LWI Study Area
-  Section
-  Beaverton City Limits
-  Washington County Tax Lot
-  Park/Greenspace
-  Stream/River
-  Waterbody
-  Arterial

Data Sources:  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Tax Lots, Parks/Greenspaces, Arterials:  
 Metro RLIS, 2012  
 Hydrology: USGS NHD  
 Service Layer: ESRI World Topo Map

Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change.



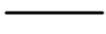
Information Current as of:  
**August 2015**  
 Printed on and Corrections as of:  
**August 31, 2015**



**Figure 2**  
**Tax Lots and Property Access Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

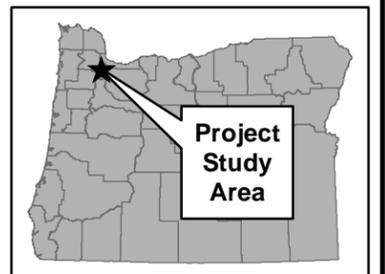
**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  LWI Data Provided by Landowner
-  Property with Site Access
-  Arterial
-  Street

Data Sources:  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Tax Lots, Arterials, Streets: Metro RLIS, 2012

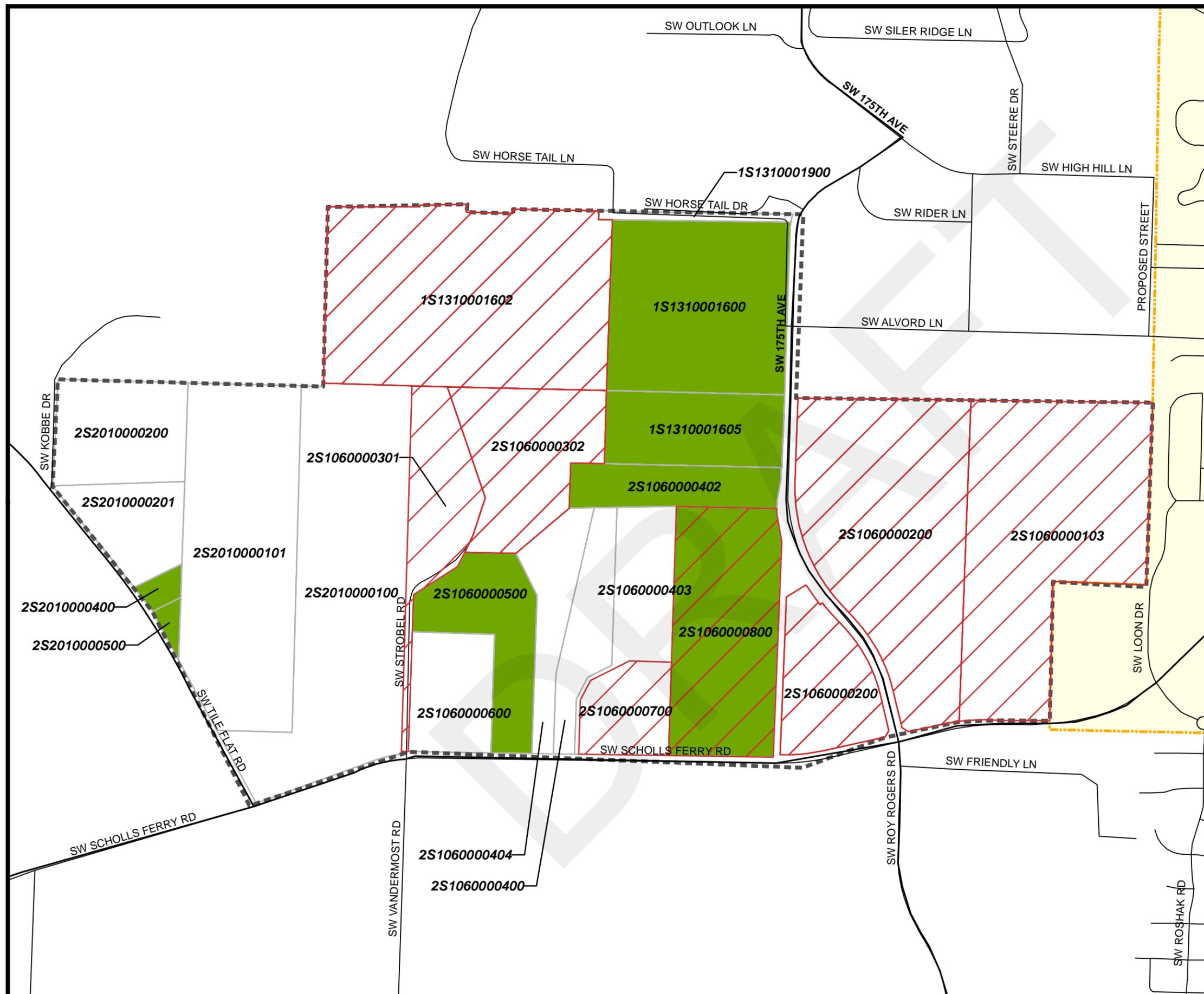
Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change.



0 250 500 Feet



Information Current as of:  
**August 2015**  
 Printed on and Corrections as of:  
**August 31, 2015**



**Figure 3  
National Wetland Inventory Map  
City of Beaverton  
South Cooper Mountain  
Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
-  NWI Wetland
-  Section
-  Washington County Tax Lot
-  Arterial
-  Street



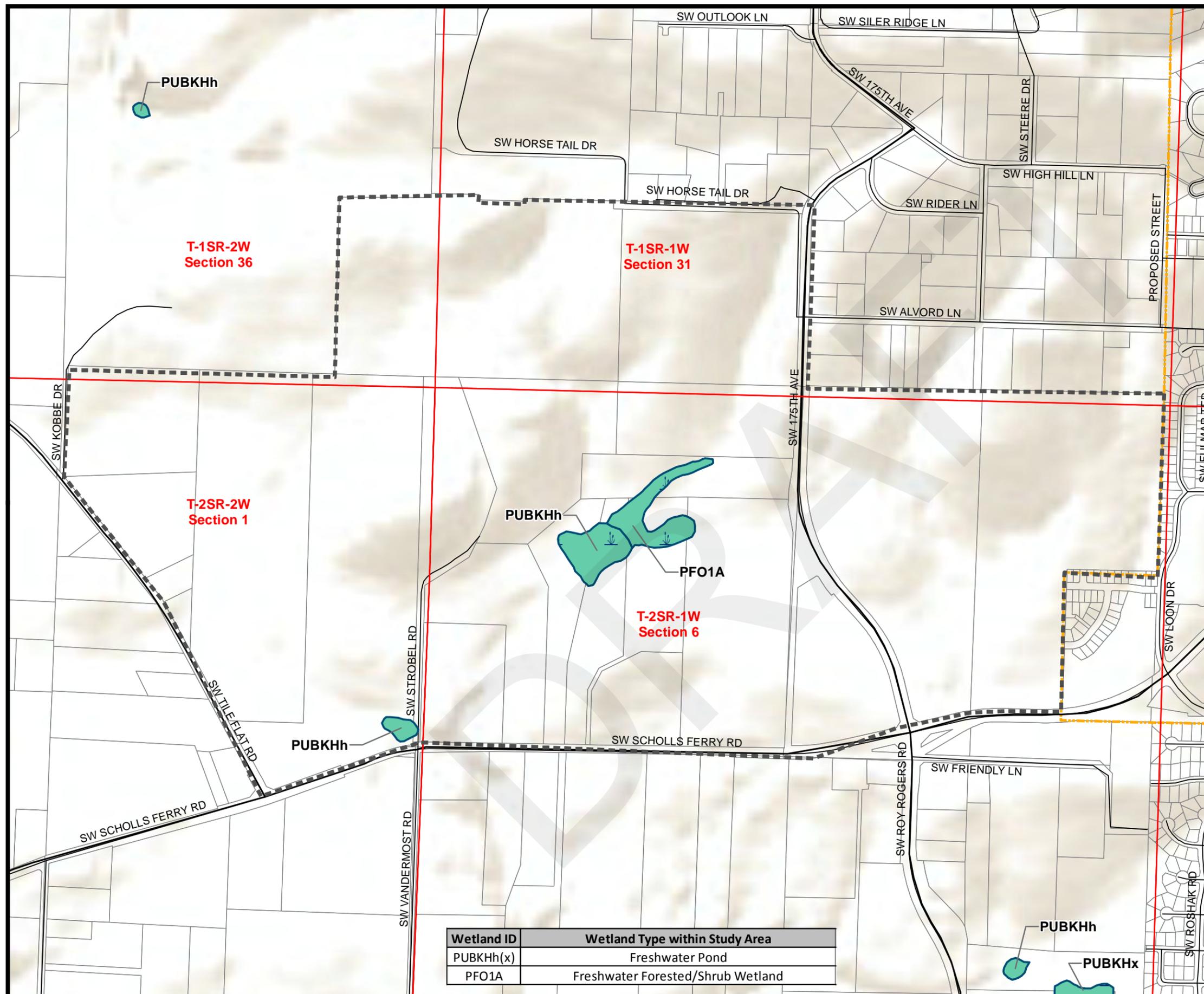
Data Sources:  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Arterials, Streets: Metro RLIS, 2012  
 Wetlands: USFWS NWI  
 Sample Points: DEA.  
 Streams: Metro RLIS, 2012. Modified by DEA.  
 Service Layers: ESRI

Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



Information Current as of:  
**August 2015**  
Printed on and Corrections as of:  
**August 31, 2015**

Wetland ID	Wetland Type within Study Area
PUBKHh(x)	Freshwater Pond
PFO1A	Freshwater Forested/Shrub Wetland



**Figure 4  
NRCS Soils Map**

**City of Beaverton  
South Cooper Mountain  
Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
-  NRCS Soil Type
-  Arterial
-  Street
-  Beaverton City Limits

0 250 500 Feet  


Data Sources:  
LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
City Limits, Arterials, Streets: Metro RLIS, 2012  
Wetlands: City of Beaverton, Metro RLIS, 2012.  
Modified by DEA. Sample Points: DEA.  
Streams: Metro RLIS, 2012. Modified by DEA.  
Soils: USDA NRCS  
Service Layers: ESRI

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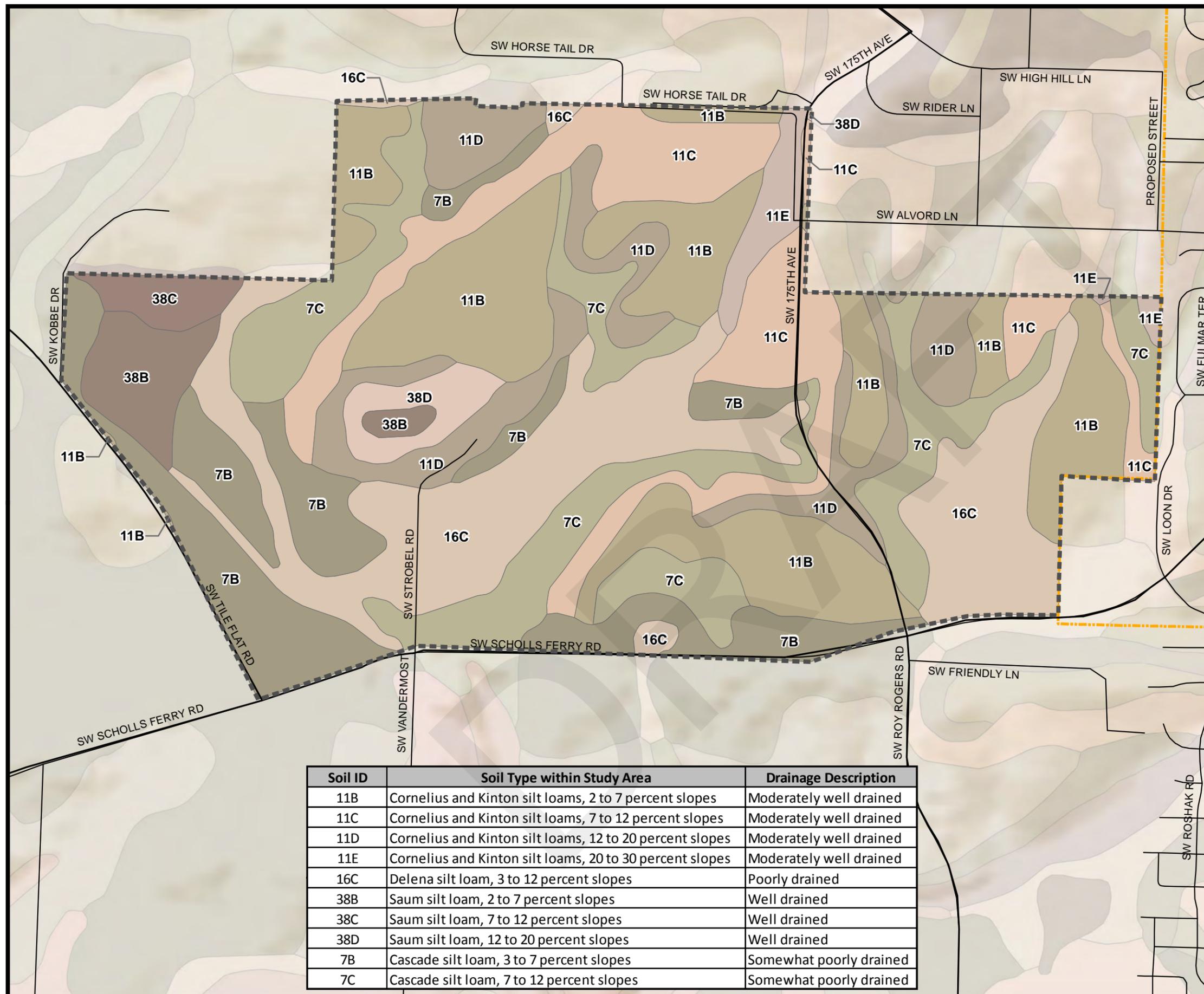


North

Information Current as of:  
**August 2015**

Printed on and Corrections as of:  
**August 31, 2015**

Soil ID	Soil Type within Study Area	Drainage Description
11B	Cornelius and Kinton silt loams, 2 to 7 percent slopes	Moderately well drained
11C	Cornelius and Kinton silt loams, 7 to 12 percent slopes	Moderately well drained
11D	Cornelius and Kinton silt loams, 12 to 20 percent slopes	Moderately well drained
11E	Cornelius and Kinton silt loams, 20 to 30 percent slopes	Moderately well drained
16C	Delena silt loam, 3 to 12 percent slopes	Poorly drained
38B	Saum silt loam, 2 to 7 percent slopes	Well drained
38C	Saum silt loam, 7 to 12 percent slopes	Well drained
38D	Saum silt loam, 12 to 20 percent slopes	Well drained
7B	Cascade silt loam, 3 to 7 percent slopes	Somewhat poorly drained
7C	Cascade silt loam, 7 to 12 percent slopes	Somewhat poorly drained



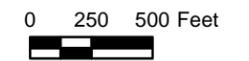
**Figure 5, Sheet 1 of 10  
Local Wetland Inventory Map**

**City of Beaverton  
South Cooper Mountain  
Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  Sheet Extent
-  LWI Study Area
-  Arterial
-  Street
-  LWI Stream
-  NHD Stream
-  Emergent (PEM)
-  Forested (PFO)
-  Pond/Open Water (PUB)
-  Scrub/Shrub (PSS)
-  Detention Pond
-  Section
-  Beaverton City Limits
-  Washington County Tax Lot
-  CWS Small Streamsheds Boundary

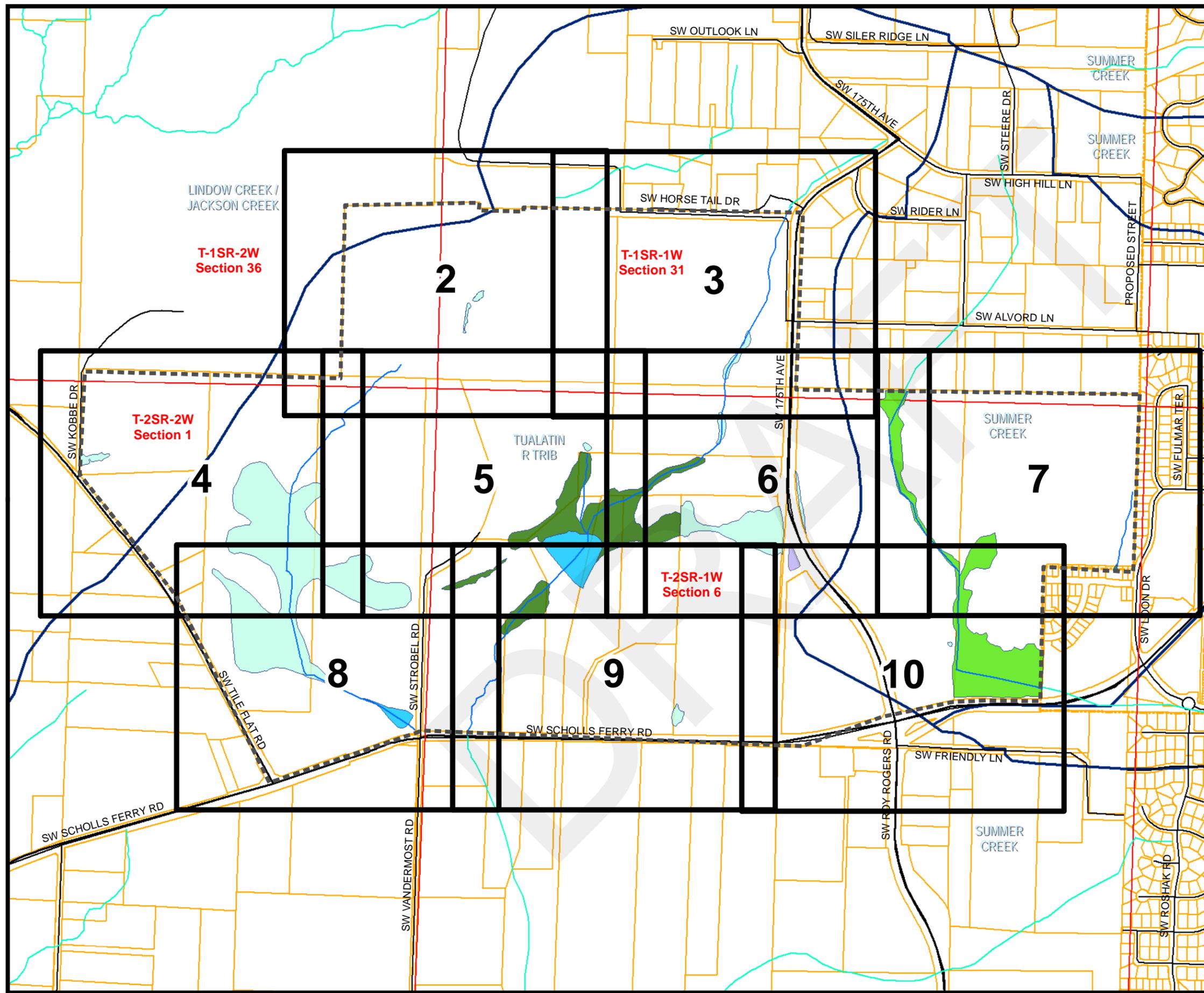


**Data Sources:**  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 Tax Lots, PLSS, City Limits, Arterials, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: Anchor QEA, DKS Engineering, PHS, DEA, 2015; City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
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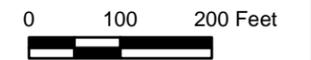
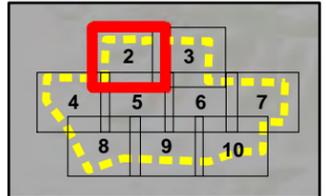


**Figure 5, Sheet 2**  
**Local Wetland Inventory Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
  -  Washington County Tax Lot
  -  Section
  -  Street
  -  CWS Small Streamsheds Boundary
  -  Data Plot
  -  LWI Stream
  -  NHD Stream
  -  Emergent (PEM)
- \* W = Wetlands  
PW = Probable Wetlands

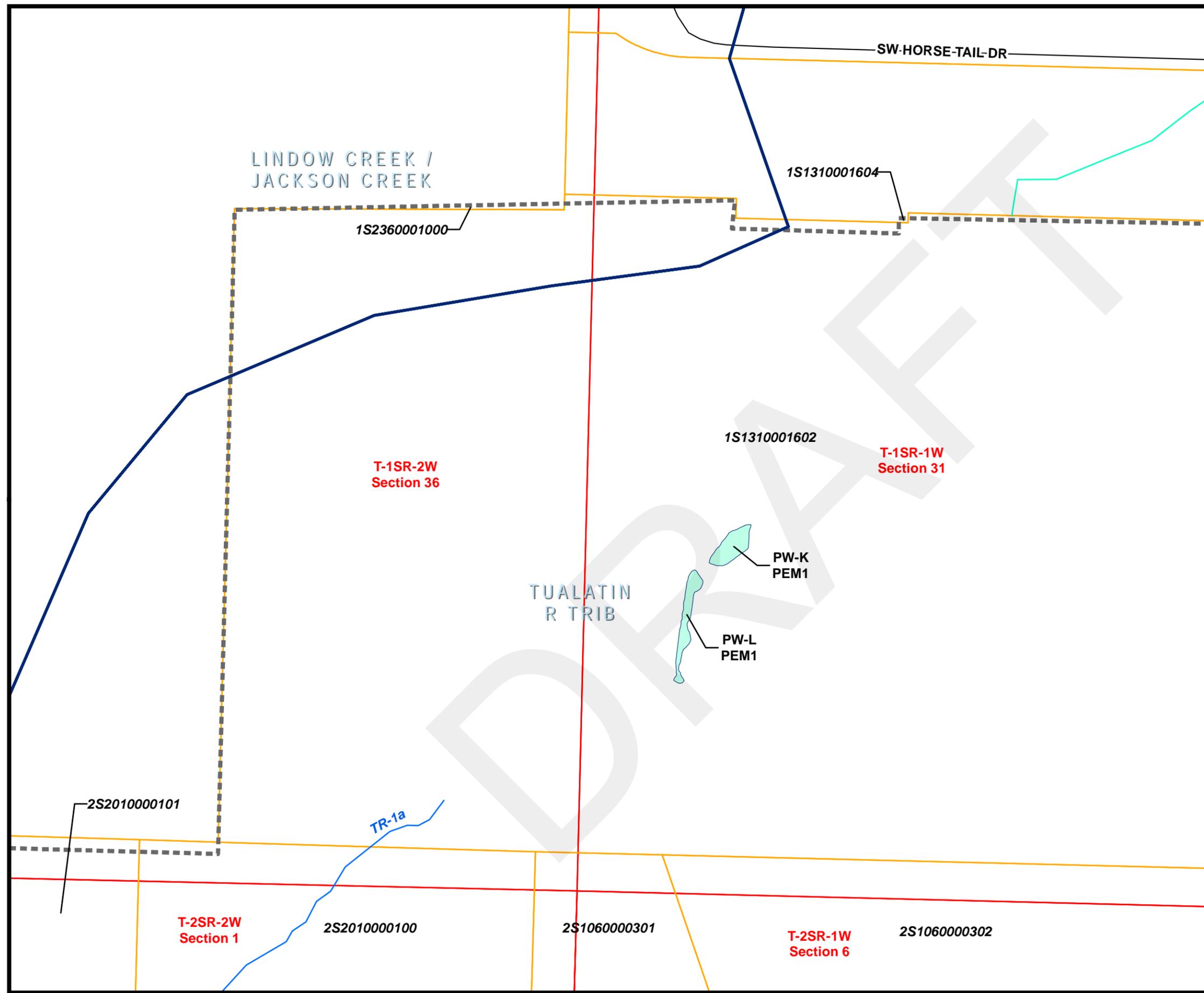


**Data Sources:**  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
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 Streams: Metro RLIS, 2012 and USGS NHD, 2015. Modified by DEA.

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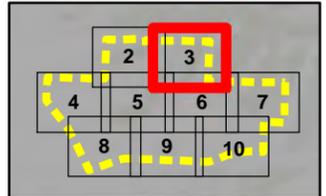


**Figure 5, Sheet 3**  
**Local Wetland Inventory Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
  -  Washington County Tax Lot
  -  Section
  -  Street
  -  CWS Small Streamsheds Boundary
  -  Data Plot
  -  LWI Stream
  -  NHD Stream
  - Wetlands\***
  -  Emergent (PEM)
  -  Scrub-Shrub (PSS)
- \* W = Wetlands  
PW = Probable Wetlands

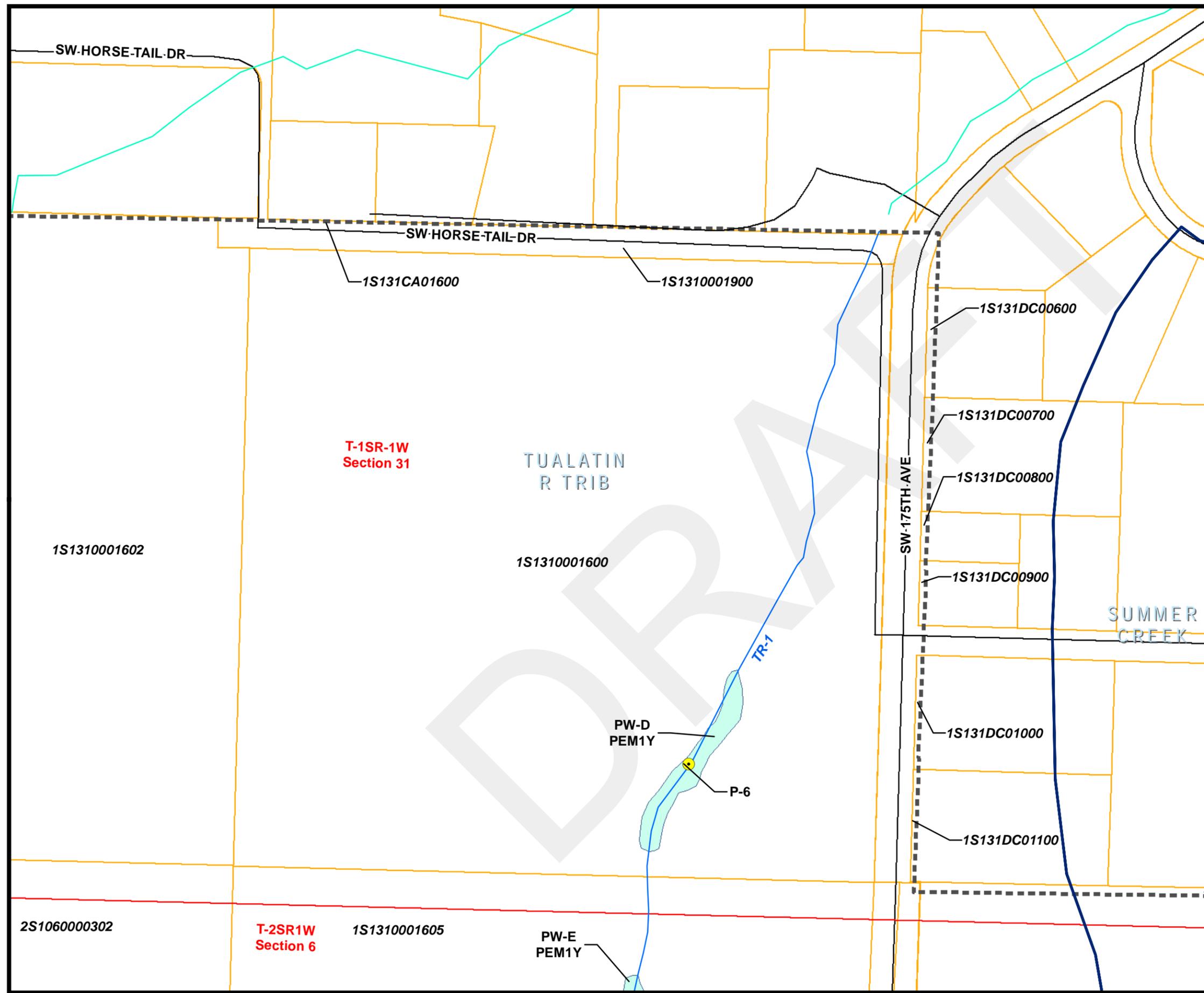


Data Sources:  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
 Data Plots: DEA, 2015.  
 Streams: Metro RLIS, 2012 and USGS NHD, 2015. Modified by DEA.

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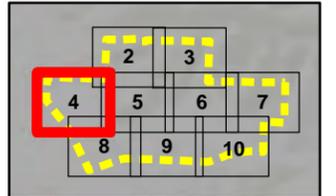


**Figure 5, Sheet 4**  
**Local Wetland Inventory Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
-  Washington County Tax Lot
-  Section
-  Street
-  CWS Small Streamsheds Boundary
-  Data Plot
-  Stream



Wetlands\*

-  Emergent (PEM)

\* W = Wetlands  
 PW = Probable Wetlands

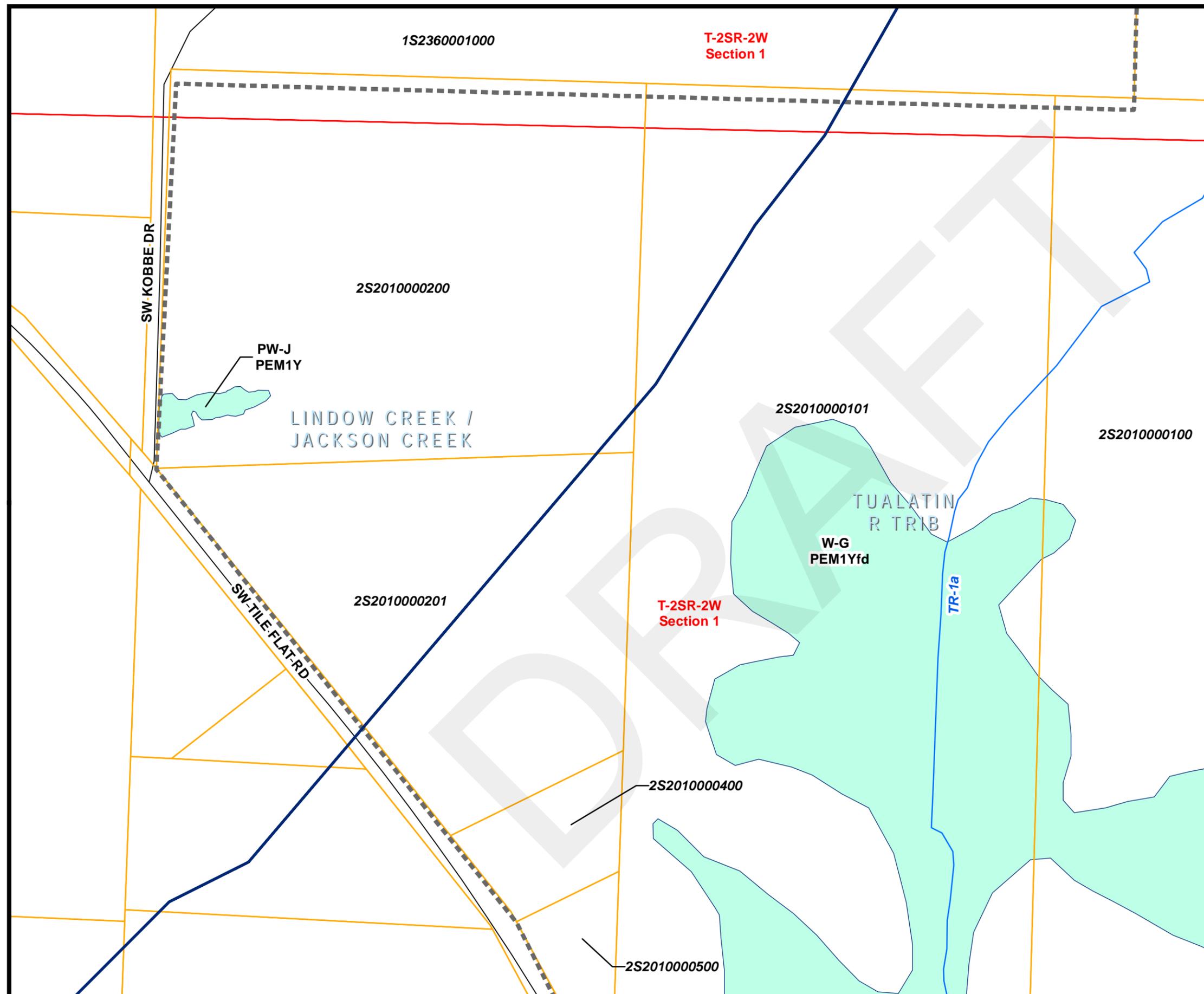


Data Sources:  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
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 Streams: Metro RLIS, 2012 and USGS NHD, 2015. Modified by DEA.

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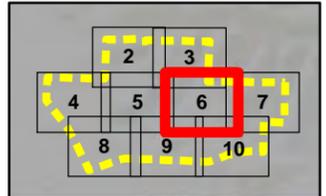


**Figure 5, Sheet 6**  
**Local Wetland Inventory Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
-  Washington County Tax Lot
-  Section
-  Street
-  CWS Small Streamsheds Boundary
-  Data Plot
-  LWI Stream
-  NHD Stream



**Wetlands\***

-  Emergent (PEM)
-  Forested (PFO)
-  Scrub-Shrub (PSS)
-  Detention Pond

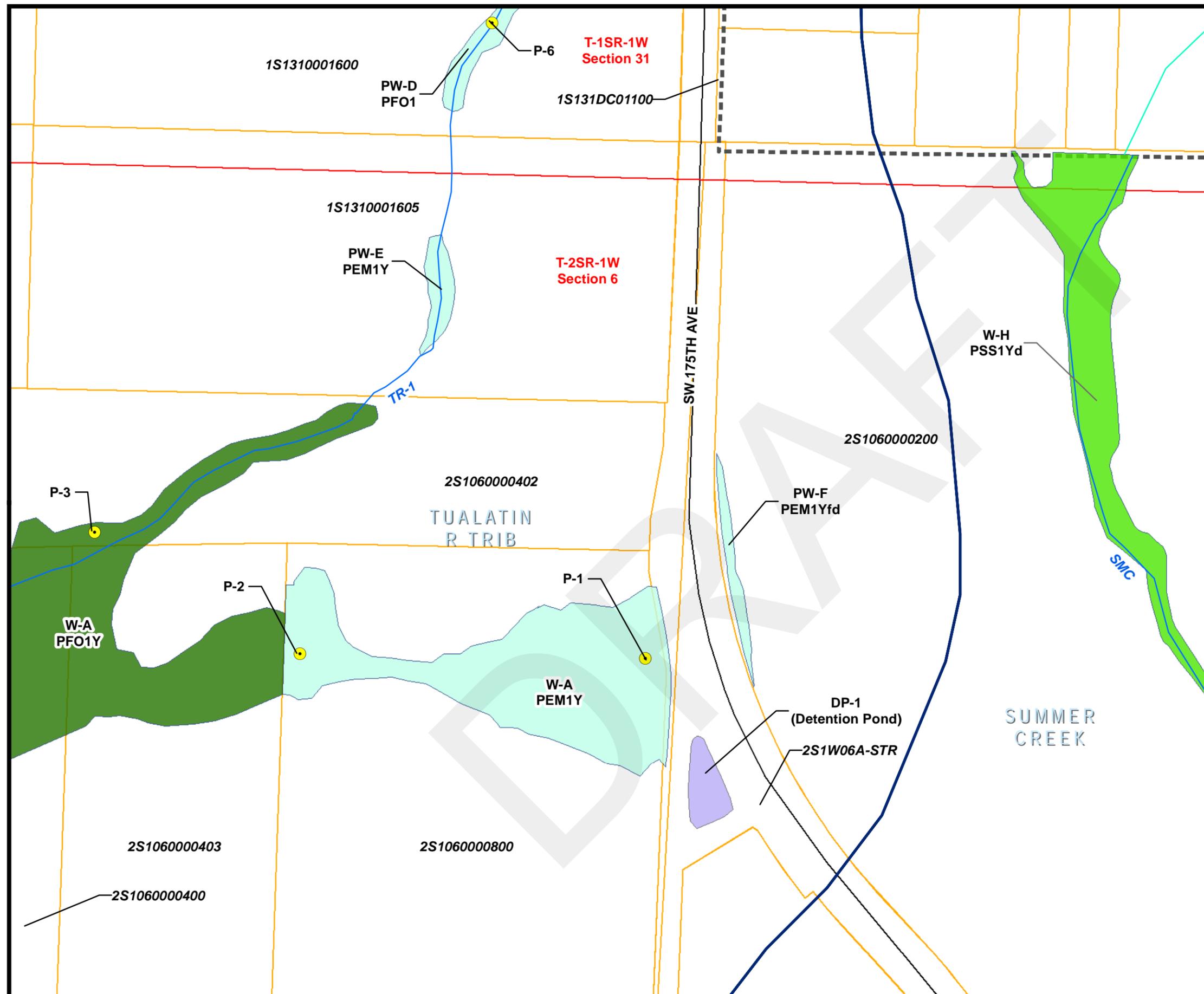


**Data Sources:**  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
 Data Plots: DEA, 2015.  
 Streams: Metro RLIS, 2012 and USGS NHD, 2015. Modified by DEA.

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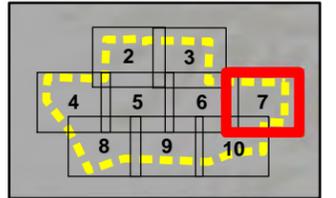
**Figure 5, Sheet 7  
Local Wetland Inventory Map**

**City of Beaverton  
South Cooper Mountain  
Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
  -  Washington County Tax Lot
  -  Section
  -  Street
  -  CWS Small Streamsheds Boundary
  -  Data Plot
  -  LWI Stream
  -  NHD Stream
  -  Forested (PFO)
  -  Scrub-Shrub (PSS)
- \* W = Wetlands  
PW = Probable Wetlands

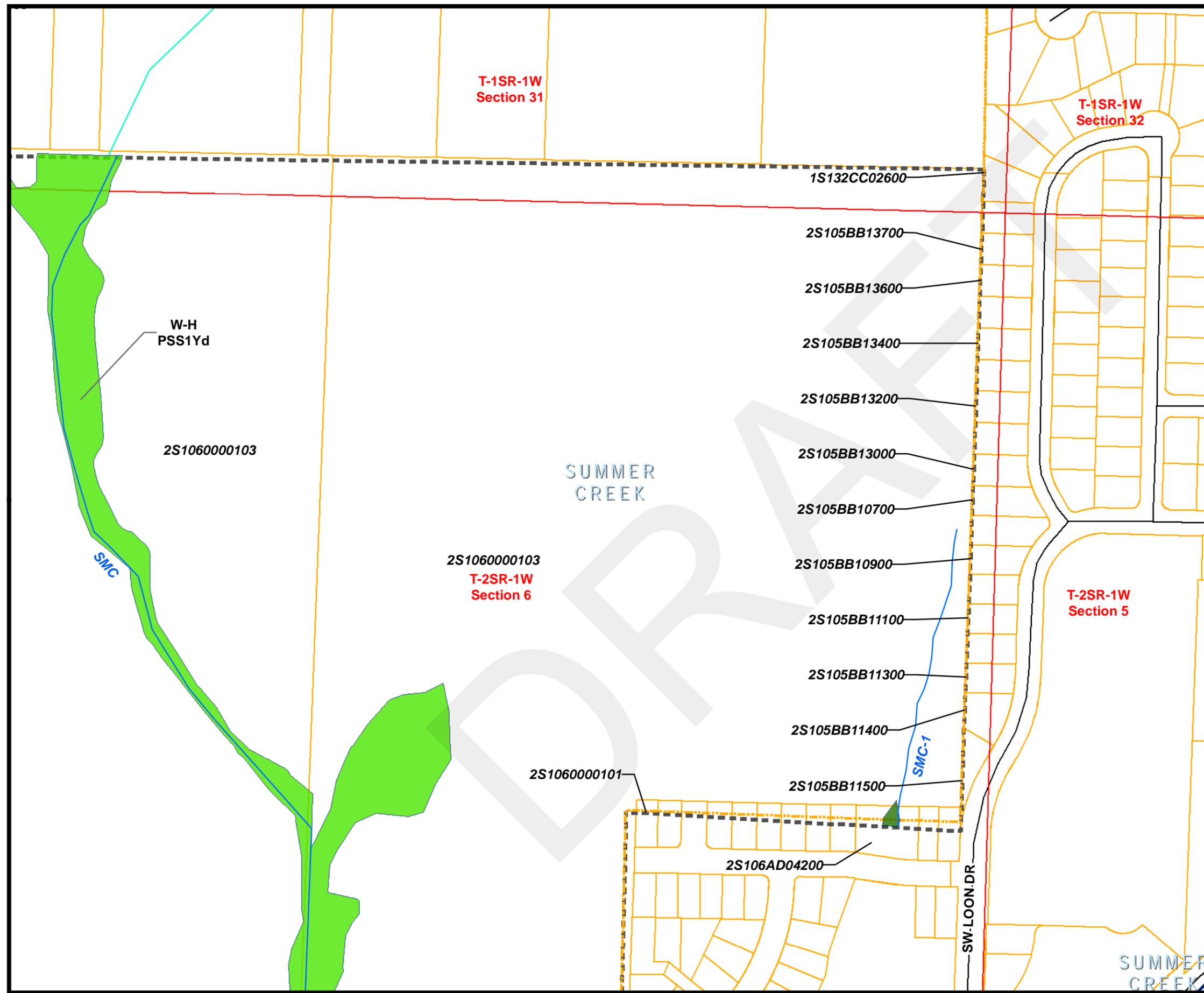


Data Sources:  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
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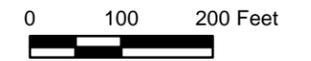
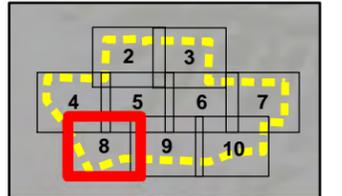


**Figure 5, Sheet 8**  
**Local Wetland Inventory Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
  -  Washington County Tax Lot
  -  Section
  -  Street
  -  CWS Small Streamsheds Boundary
  -  Data Plot
  -  LWI Stream
  -  NHD Stream
  -  Emergent (PEM)
  -  Forested (PFO)
  -  Pond/Open Water (PUB)
- \* W = Wetlands  
PW = Probable Wetlands

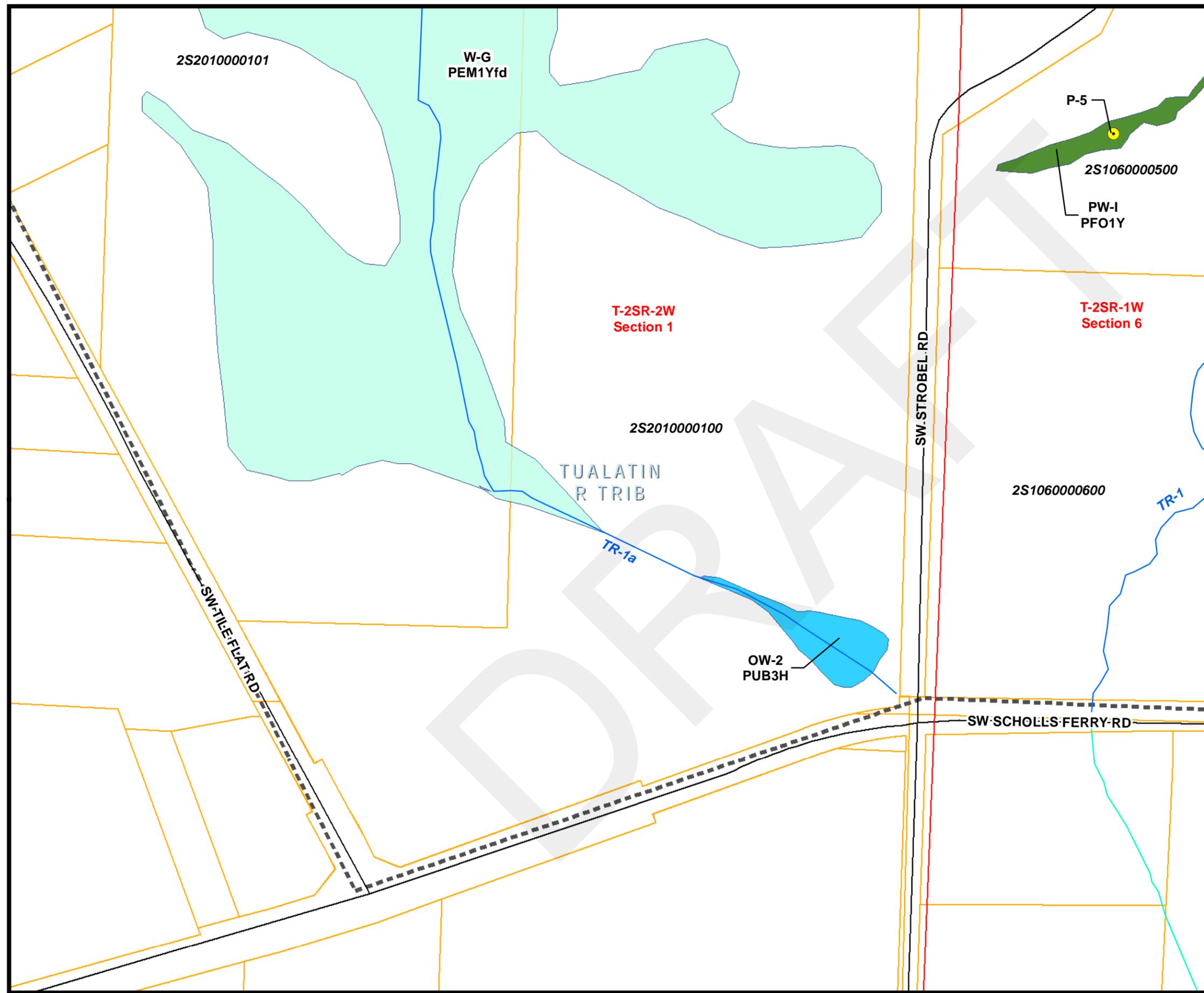


Data Sources:  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
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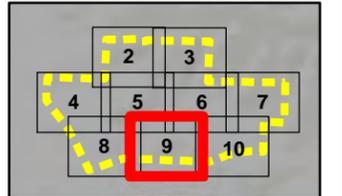


**Figure 5, Sheet 9**  
**Local Wetland Inventory Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

**LOCAL WETLAND INVENTORY**

**Legend**

-  LWI Study Area
  -  Washington County Tax Lot
  -  Section
  -  Street
  -  CWS Small Streamsheds Boundary
  -  Data Plot
  -  LWI Stream
  -  NHD Stream
- \* W = Wetlands  
PW = Probable Wetlands



**Wetlands\***

-  Emergent (PEM)
-  Forested (PFO)
-  Pond/Open Water (PUB)

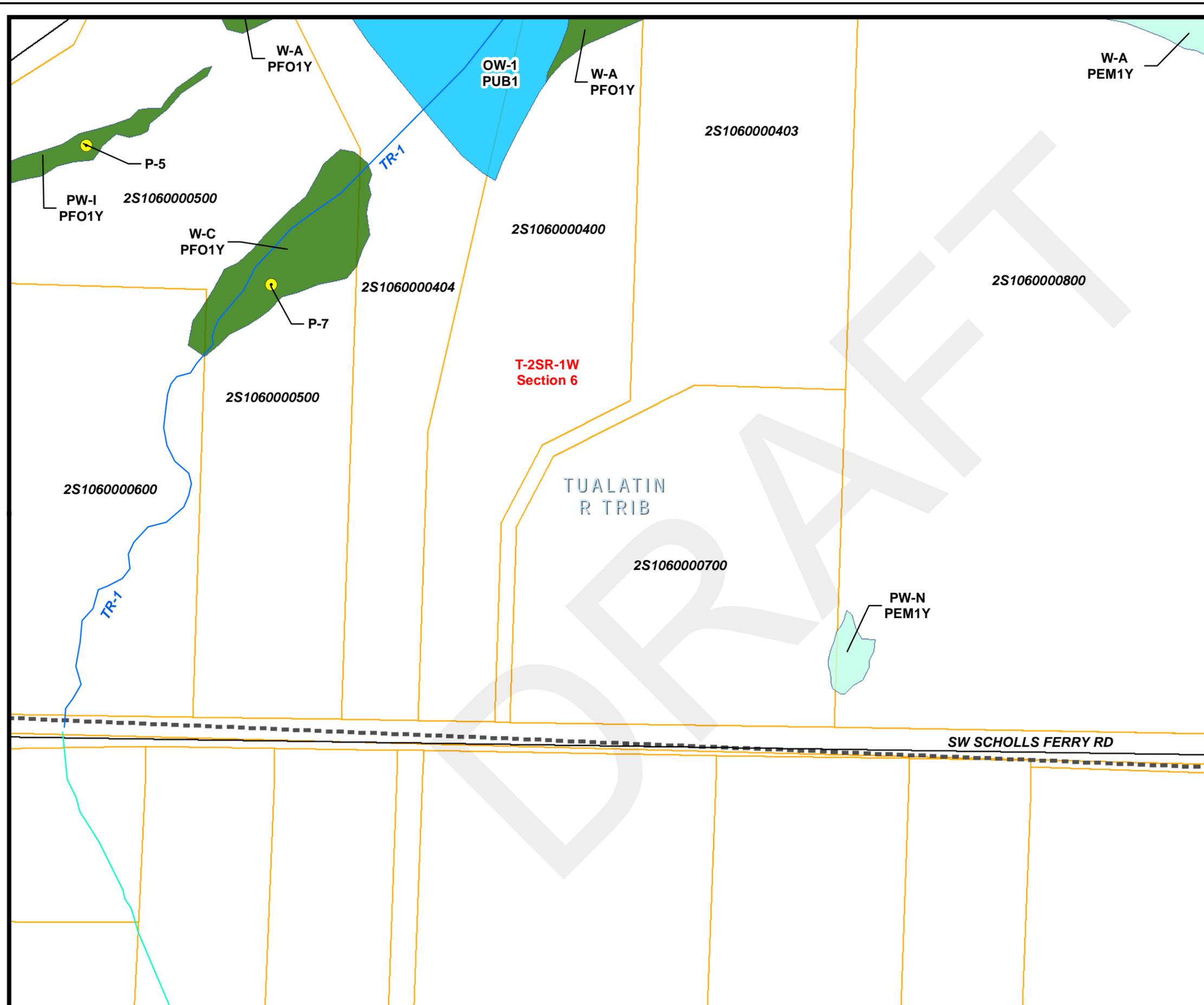


**Data Sources:**  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
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 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
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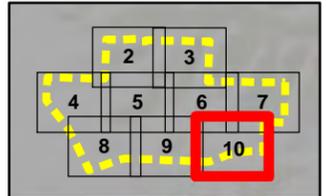


**Figure 5, Sheet 10**  
**Local Wetland Inventory Map**  
**City of Beaverton**  
**South Cooper Mountain**  
**Annexation Area**

**LOCAL WETLAND INVENTORY**

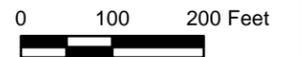
**Legend**

-  LWI Study Area
  -  Washington County Tax Lot
  -  Section
  -  Street
  -  CWS Small Streamsheds Boundary
  -  Data Plot
  -  LWI Stream
  -  NHD Stream
- \* W = Wetlands  
 PW = Probable Wetlands



**Wetlands\***

-  Emergent (PEM)
-  Scrub-Shrub (PSS)
-  Detention Pond

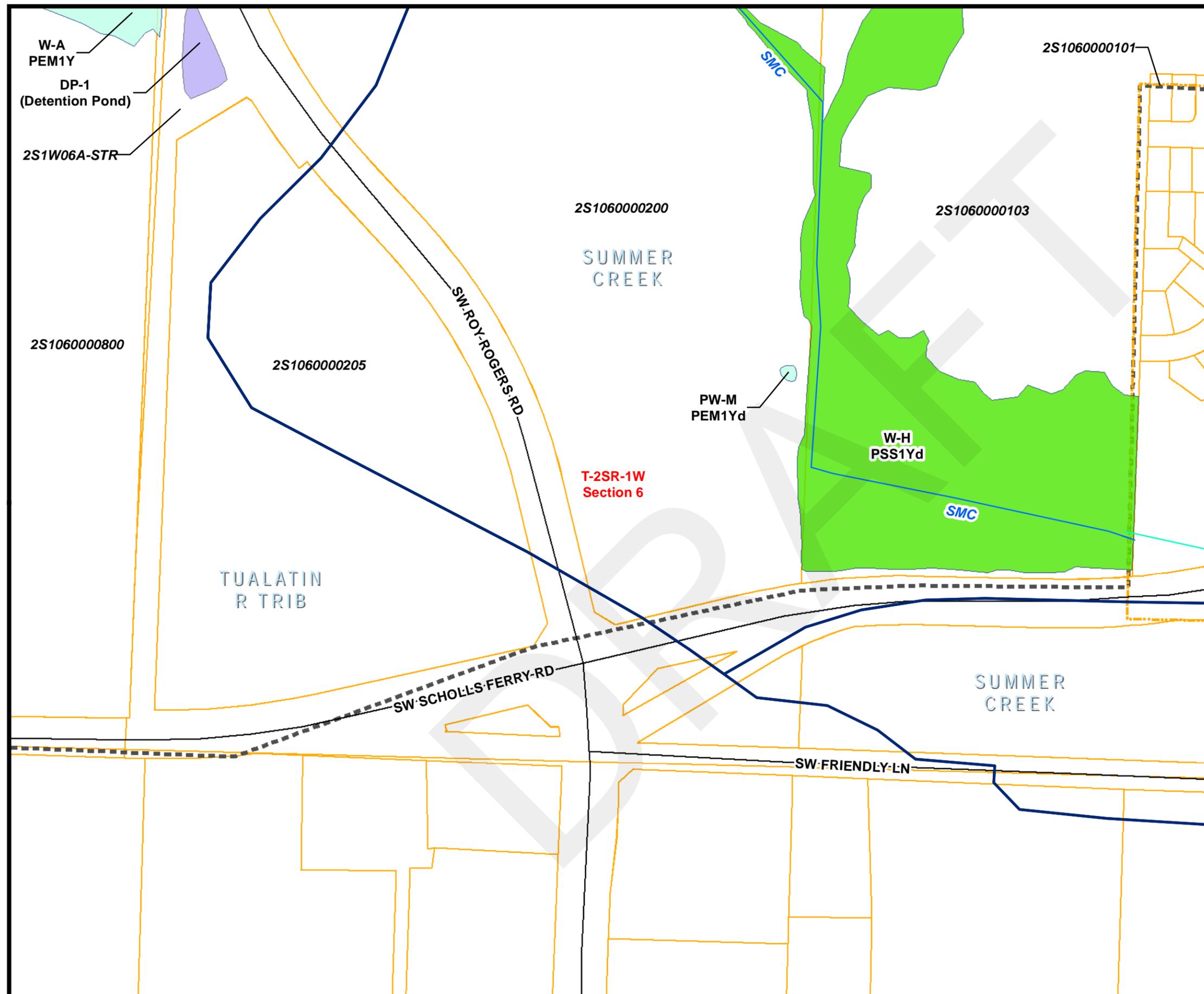


**Data Sources:**  
 LWI Study Area: Metro RLIS, 2012. Modified by DEA.  
 PLSS, City Limits, Streets: Metro RLIS, 2012  
 Wetlands, Streamsheds: AKS Engineering, Anchor QEA, DEA, PHS 2015. Also City of Beaverton, Metro RLIS, 2012. Modified by DEA.  
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## ***Appendix B: Data Sheets***

**OAR 141-086-0220(3)(a)** Sample plot data on standard field data forms per OAR 141-090 et seq.

DRAFT



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

Project/Site: South Cooper Mountain LWI City/County: Washington Sampling Date: March 19, 2013  
 Applicant/Owner: City of Beaverton State: Oregon Sampling Point: 1  
 Investigator(s): PRR, EJRO Section, Township, Range: T2SR1WS6  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): A Lat: 45.430359 Long: -122.85713 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Delena silt loam, 3 to 12 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <b>Plot lies in a swale draining west. Wetland extends east and west out of study area.</b>	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</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)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u> radius)</b>				
1. <u>Phalaris arundinacea</u>	<u>5</u>	<u>n</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Schedonorus phoenix</u>	<u>70</u>	<u>y</u>	<u>FAC</u>	
3. <u>Alepocurus pratensis</u>	<u>40</u>	<u>y</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>115</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				

Remarks:

**SOIL**

Sampling Point: 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>		
0 - 20	10YR 3/1	90	5YR 4/4	10	C	M	silty clay	

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

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

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

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

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<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:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 9"  
 Saturation Present? Yes  No  Depth (inches): 2"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks:

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

Project/Site: South Cooper Mountain LWI City/County: Washington Sampling Date: March 19, 2013  
 Applicant/Owner: City of Beaverton State: Oregon Sampling Point: 2  
 Investigator(s): PRR, EJRO Section, Township, Range: T2SR1WS6  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): A Lat: 45.430327 Long: -122.859846 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Delena silt loam, 3 to 12 percent slopes NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: Plot lies in a pasture swale draining west toward forested Oregon ash wetland on adjacent property.	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</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)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u> radius)</b>				
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Agrostis capillaris</u>	<u>40</u>	<u>y</u>	<u>FAC</u>	
3. <u>Ranunculus repens</u>	<u>5</u>	<u>n</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>105</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: 2

**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>		
0-16	10YR 3/2	90	7.5YR 3/4	10	C	M	silty clay loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<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) (except MLRA 1) <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)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)

<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:

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input 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) (LRR A) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <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) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): 9

(includes capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks:

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

Project/Site: South Cooper Mountain LWI City/County: Washington Sampling Date: March 19, 2013  
 Applicant/Owner: City of Beaverton State: Oregon Sampling Point: 3  
 Investigator(s): PRR, EJRO Section, Township, Range: T2SR1WS6  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 45.430964 Long: -122.861488 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Delena silt loam, 3 to 12 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: Plot lies in a swale draining southwest fed by small creek, which lies approx 15' to the east, and is approx 1' wide.	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Fraxinus latifolia</u>	90	y	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
90 = Total Cover				<b>Prevalence Index worksheet:</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)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>30'</u> radius)</b>				
1. <u>Rosa pisocarpa</u>	10	n	FAC	
2. <u>Oemleria cerasiformis</u>	35	y	FACU	
3. <u>Holodiscus discolor</u>	5	n	UPL	
4. <u>Symphoricarpos albus</u>	5	n	FACU	
5. _____				
55 = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u> radius)</b>				
1. <u>Veratrum californicum</u>	10	n	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Tolmeia menziesii</u>	5	n	FAC	
3. <u>Carex obnupta</u>	80	y	OBL	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
95 = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				

Remarks:

**SOIL**

Sampling Point: 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 - 20	10YR 3/1	90	5YR 4/4	10	C	M	silty clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<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) (except MLRA 1)
<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)
	<input type="checkbox"/> 2 cm Muck (A10)
	<input type="checkbox"/> Red Parent Material (TF2)
	<input type="checkbox"/> Other (Explain in Remarks)

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

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

**HYDROLOGY**

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

<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 6" Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 2" (includes capillary fringe)	<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:

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

Project/Site: South Cooper Mountain LWI City/County: Washington Sampling Date: March 19, 2013  
 Applicant/Owner: City of Beaverton State: Oregon Sampling Point: 4  
 Investigator(s): PRR, EJRO Section, Township, Range: T2SR1WS6  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 45.43121 Long: -122.862747 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cascade silt loam, 7 to 12 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: Plot lies in a swale draining southwest fed by small creek, which is approx 8" wide.	

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

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Fraxinus latifolia</u>	<u>80</u>	<u>y</u>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>80</u> = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30'</u> radius)				<b>Prevalence Index worksheet:</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)  Prevalence Index = B/A = _____
1. <u>Rosa pisocarpa</u>	<u>20</u>	<u>y</u>	<u>FAC</u>	
2. <u>Oemleria cerasiformis</u>	<u>40</u>	<u>y</u>	<u>FACU</u>	
3. <u>Physocarpus capitatus</u>	<u>20</u>	<u>y</u>	<u>FACW</u>	
4. <u>Rubus armeniacus</u>	<u>5</u>	<u>n</u>	<u>FACU</u>	
<u>85</u> = Total Cover				
<b>Herb Stratum</b> (Plot size: <u>5'</u> radius)				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Equisetum telmateia</u>	<u>10</u>	<u>n</u>	<u>FACW</u>	
2. <u>Tolmeia menziesii</u>	<u>T</u>	<u>n</u>	<u>FAC</u>	
3. <u>Carex obnupta</u>	<u>65</u>	<u>y</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>75</u> = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: <u>30'</u> radius)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>25</u>				

Remarks:

**SOIL**

Sampling Point: 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 - 20	10YR 3/1	90	5YR 4/4	10	C	M	silty clay	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<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)	

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

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

**HYDROLOGY**

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

<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 6" Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 2" (includes capillary fringe)	<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:

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

Project/Site: South Cooper Mountain LWI City/County: Washington Sampling Date: March 19, 2013  
 Applicant/Owner: City of Beaverton State: Oregon Sampling Point: 5  
 Investigator(s): PRR, EJRO Section, Township, Range: T2SR1WS6  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 45.429057 Long: -122.866015 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Delena silt loam, 3 to 12 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: Plot lies near the base of slope in a wetland which extends into a wheat field to the southeast. Drain tiles present in field.	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
4. _____	_____	_____	_____	= Total Cover
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</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)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u> radius)</b>				
1. <u>Phalaris arundinacea</u>	<u>5</u>	<u>n</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Schedonorus phoenix</u>	<u>15</u>	<u>y</u>	<u>FAC</u>	
3. <u>Alepocurus pratensis</u>	<u>10</u>	<u>y</u>	<u>FACW</u>	
4. <u>Triticum aestivum</u>	<u>15</u>	<u>y</u>	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				

Remarks:

**SOIL**

Sampling Point: 5

**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 - 20	10YR 3/1	40	5YR 4/4	10	C	M	silty clay	
0-20	10YR 3/2	40	5YR 4/4	10	C	M	Silty clay	

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

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

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

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

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<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:

Soil matrix was comprised of a mix of 10YR 3/1 and 3/2 colors, together covering 80% of the soil profile. Redox features comprised the remaining 20 percent of the soil profile and were evenly distributed between the two matrix colors.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 9"  
 Saturation Present? Yes  No  Depth (inches): 2"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks:

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

Project/Site: South Cooper Mountain LWI City/County: Washington Sampling Date: March 19, 2013  
 Applicant/Owner: City of Beaverton State: Oregon Sampling Point: 6  
 Investigator(s): PRR, EJRO Section, Township, Range: T1SR1WS31  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 4  
 Subregion (LRR): A Lat: 45.433845 Long: -122.858479 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cornelius and Kinton silt loams, 20 to 30 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: Plot lies in a swale draining south that was fenced off, contained aggressive goats, and was impassible, so vegetation was assessed from 20' visually, and hydrology assumed.	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. <u>Fraxinus latifolia</u>	5	y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____					
<u>5</u> = Total Cover				<b>Prevalence Index worksheet:</b>	
Sapling/Shrub Stratum (Plot size: <u>30'</u> radius)				Total % Cover of: _____ Multiply by: _____	
1. _____				OBL species _____ x 1 = _____	
2. _____				FACW species _____ x 2 = _____	
3. _____				FAC species _____ x 3 = _____	
4. _____				FACU species _____ x 4 = _____	
5. _____				UPL species _____ x 5 = _____	
_____ = Total Cover				Column Totals:	_____ (A) _____ (B)
Herb Stratum (Plot size: <u>5'</u> radius)				Prevalence Index = B/A = _____	
1. <u>Poa pratensis</u>	90	y	FAC	<b>Hydrophytic Vegetation Indicators:</b>	
2. <u>Juncus effusus</u>	20	n	FACW	<input checked="" type="checkbox"/> Dominance Test is >50%	
3. _____				<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
4. _____				<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. _____				<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>	
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. _____					
9. _____					
10. _____					
11. _____					
<u>110</u> = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
Woody Vine Stratum (Plot size: <u>30'</u> radius)					
1. _____					
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Grazing by goats.



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

Project/Site: South Cooper Mountain LWI City/County: Washington Sampling Date: March 19, 2013  
 Applicant/Owner: City of Beaverton State: Oregon Sampling Point: 7  
 Investigator(s): PRR, EJRO Section, Township, Range: T2SR1WS6  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): A Lat: 45.42832 Long: -122.864528 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Delena silt loam, 3 to 12 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: Plot lies in a riparian wetland adjacent to a 1.5' wide drainage. The area has been recently mowed to remove Himalayan blackberry.	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Fraxinus latifolia</u>	85	y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
85 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>30'</u> radius)</b>				
1. <u>Rosa pisocarpa</u>	10	y	FAC	<b>Prevalence Index worksheet:</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)  Prevalence Index = B/A = _____
2. <u>Cornus sericea</u>	15	y	FACW	
3. <u>Rubus armeniacus</u>	5	n	FACU	
4. _____				
5. _____				
30 = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u> radius)</b>				
1. <u>Poa pratensis</u>	40	y	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <small><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small>
2. <u>Tolmeia menziesii</u>	10	n	FAC	
3. <u>Carex obnupta</u>	10	n	OBL	
4. <u>moss</u>	40			
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
60 = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30'</u> radius)</b>				
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				

Remarks:

**SOIL**

Sampling Point: 7

**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 - 20	10YR 3/1	90	5YR 4/4	10	C	M	silty clay	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<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)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes  No

Remarks:

**HYDROLOGY**

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): 8"

Saturation Present? Yes  No  Depth (inches): 4"  
 (includes capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks:

## **Appendix C: Wetland Summary Sheets (Wetlands less than 0.5 acres Not Included)**

**OAR 141-086-0220(3)(b)** A summary sheet for each wetland that must at a minimum include:

- (A) The unique wetland code;
- (B) Street address or equivalent location description;
- (C) Township, Range, Section, Quarter Quarter Section and tax lot(s) that contain the mapped wetland;
- (D) Approximate wetland size (in acres);
- (E) Cowardin classification(s);
- (F) HGM classification(s);
- (G) Mapped soil unit(s);
- (H) Watershed boundaries at the 6th field Hydrologic Unit Code scale as defined by the US Geological Survey or finer;
- (I) Sample plot numbers, if any;
- (J) Department wetland determination or delineation file numbers, where applicable;
- (K) Scientific and common names of dominant plant species;
- (L) Primary hydrology sources;
- (M) Sampling or visual confirmation date(s) and method;
- (N) Locally Significant Wetland determination, if made; and
- (O) Comments that describe the wetland, including topographic position, land uses and significant alterations (including agricultural).





**LOCAL WETLAND INVENTORY**  
Wetland Characterization Sheet

<b>GENERAL INFORMATION</b>			
Wetland Code:	W-A (Locally Significant)	Method:	Onsite and Offsite
Wetland Size:	11.80 acres (+2.64 acres of open water)	Field Date(s):	March 19, 2013
Cowardin Class:	PFO1Y, PEM1Y (PUB)	Data Plot #s:	1, 2, 3, 4
HGM Class:	Slope, RFT	Investigators:	PRR, EJRO
<b>LOCATION</b>			
Street/landmark	North of Scholls Ferry Road, west of SW 175 <sup>th</sup> Ave		
Legal/tax map:	2S1W06000 TL0400, 0402, 0403, 0404, 0800		
Sub-basin code:	CWS Streamshed –TR06.5 (Tualatin River Trib.)		
<b>WETLAND CHARACTERISTICS</b>			
<p>Note that portions of this wetland were formally delineated by Pacific Habitat Services (October 13, 2014), which occurred after DEA's site visit. The delineation was approved by DSL and assigned DSL WD #2014-0497.</p> <p>Description: This rather large wetland is fed by groundwater and two small, unnamed tributaries to the Tualatin River (TR-1, TR-1b). The eastern portion has been converted to pasture, and is dominated by non-native grasses Tall fescue (<i>Schedonorus phoenix</i>) and Meadow foxtail (<i>Alopecurus pratensis</i>), while the remainder consists of forested wetland. Site access was granted for only TL0402 and 0800 and representative plots were taken on those lots. The rest was viewed from adjacent lots and appeared to be similar in nature. Forested wetland dominant species are provided below. Vegetative diversity and wildlife use in the wetland was fairly high.</p> <p>Soils: 16C – Delena silt loam, 3 to 12 percent slopes</p> <p>Hydrologic Source: Groundwater/subsurface flow</p>			
<b>Dominant Vegetation</b>			
<b>Trees</b>	<b>Shrubs</b>		<b>Vines/Herbs</b>
Oregon ash <i>Fraxinus latifolia</i>	Pacific ninebark <i>Physocarpus capitatus</i>	cluster rose <i>Rosa pisocarpa</i>	slough sedge <i>Carex obnupta</i>
	Douglas' hawthorn <i>Crataegus douglasii</i>		Reed canarygrass <i>Phalaris arundinacea</i>
	Indian plum <i>Oemleria cerasiformis</i>		
<b>Potential Enhancement Opportunities:</b>			
<ul style="list-style-type: none"> <li>-Weed removal and native plantings, especially in the pasture area.</li> <li>-Drain tile removal in pasture area.</li> <li>-Limiting herbicide/fertilizer application on adjacent farm fields to protect water quality</li> <li>-Potential to remove dam for fish passage, but this should be weighed against providing open water habitat for wildlife and other opportunities and constraints.</li> </ul>			



**LOCAL WETLAND INVENTORY**  
Wetland Characterization Sheet

<b>GENERAL INFORMATION</b>			
Wetland Code:	W-C (Locally Significant)	Method:	Onsite and Offsite
Wetland Size:	1.42 acres	Field Date(s):	March 19, 2013
Cowardin Class:	PFO1Y	Data Plot #s:	7
HGM Class:	Slope, RFT	Investigators:	PRR, EJRO
<b>LOCATION</b>			
Street/landmark	North of Scholls Ferry Road, west of SW 175 <sup>th</sup> Ave		
Legal/tax map:	2S1W06000 TL0404, 0500, and 0600		
Sub-basin code:	CWS Streamshed –TR06.5 (Tualatin River Trib.)		
<b>WETLAND CHARACTERISTICS</b>			
<p>Description: This wetland is fed by groundwater and an unnamed tributary to the Tualatin River (TR-1), and lies downslope of a small dam. The dam may have reduced historic extent of the wetland based on hydric soils mapping, and the fact that Himalayan blackberry (<i>Rubus armeniacus</i>) was present in the wetland, indicating drying during the summer months. Blackberry in the wetland was recently cut as a part of the adjacent residential construction. Dominant wetland species are provided below.</p> <p>Soils: 16C – Delena silt loam, 3 to 12 percent slopes</p> <p>Hydrologic Source: Unnamed tributary to the Tualatin River; groundwater discharge</p>			
<b>Dominant Vegetation</b>			
<b>Trees</b>		<b>Shrubs</b>	
Oregon ash	<i>Fraxinus latifolia</i>	Red-osier dogwood	<i>Cornus sericea</i>
		cluster rose	<i>Rosa pisocarpa</i>
		<b>Vines/Herbs</b>	
		Kentucky bluegrass	<i>Poa pratensis</i>
<b>Potential Enhancement Opportunities:</b>			
<ul style="list-style-type: none"> <li>-Weed removal and native plantings, especially in the pasture area.</li> <li>-Limiting herbicide/fertilizer application on adjacent farm fields to protect water quality</li> </ul>			



## LOCAL WETLAND INVENTORY

### Wetland Characterization Sheet

GENERAL INFORMATION		
Wetland Code:	W-G	Method: Offsite
Wetland Size:	21.29 acres	Field Date(s): March 19, 2013
Cowardin Class:	PEM1Yf	Data Plot #s: N/A
HGM Class:	Slope	Investigators: PRR, EJRO
LOCATION		
Street/landmark	North of Scholls Ferry Road, east of SW Tile Flat Road	
Legal/tax map:	2S2W01000 TL0101	
Sub-basin code:	CWS Streamshed –TR06.5 (Tualatin River Trib.)	
WETLAND CHARACTERISTICS		
<p>Description: This wetland lies in a swale and what is likely a broad and shallow depressional area within a recently plowed field. Aerial photo signatures show potential wetland hydrology conditions over a broad area; however, actual wetland extent could vary considerably. It is unknown if the site has tile drains. The wetland contained no vegetation at the time of the site visit (viewed from Tile Flat Road) and based on aerial photography it appears to plowed annually. It is connected to tributary TR-1a, which is impounded somewhat by a dam near Scholls Ferry Road.</p> <p>Soils: 7B – Cascade silt loam, 3 to 7 percent slopes 16C – Delena silt loam, 3 to 12 percent slopes</p> <p>Hydrologic Source: groundwater/subsurface flow</p>		
Dominant Vegetation		
Trees	Shrubs	Vines/Herbs
None –plowed field	None – plowed field	None – plowed field
Potential Enhancement Opportunities:		
<ul style="list-style-type: none"><li>-Weed removal and native plantings.</li><li>-Limiting herbicide/fertilizer application on adjacent orchards to protect water quality</li></ul>		



**LOCAL WETLAND INVENTORY**  
Wetland Characterization Sheet

GENERAL INFORMATION	
Wetland Code:	W-H (Locally Significant) Method: Offsite (delin by others)
Wetland Size:	10.79 acres Field Date(s): March 19, 2013
Cowardin Class:	PSS1Y Data Plot #: N/A
HGM Class:	Slope, RFT Investigators: PRR, EJRO
LOCATION	
Street/landmark	Just north of Scholls Ferry Road, east of SW 175 <sup>th</sup> Ave
Legal/tax map:	2S1W06000 TL0103 and 0200
Sub-basin code:	CWS Streamshed --SMC (Summer Creek)
WETLAND CHARACTERISTICS	
<p>Wetland areas in tax lot 0103 were formally delineated by AKS Engineering &amp; Forestry, LLC (November 26, 2014) and areas in tax lot 0200 were delineated by Anchor QEA, LLC (2015). Both delineations were concurred with and assigned DSL WD#2015-0063 and #2015-0105, respectively. Both delineations occurred after DEA's off-site reconnaissance visit. The wetland continues off-site to the east, which was previously delineated and assigned DSL WD#2006-0732.</p> <p>Description: This wetland is fed by both groundwater and a small, unnamed tributary to Summer Creek. Although the wetland was only visible from Scholls Ferry Road, it appeared to be a mixture of pasture grasses and shrubs, with scattered Oregon ash in the overstory (approximately 50%). The wetland follows along unnamed tributary (SMC) up the hillslope where recent logging activities had removed much of the vegetation but is likely to quickly grown back into a scrub-shrub community and eventually forested wetland if there is no future disturbance.</p> <p>Soils: 16C – Delena silt loam, 3 to 12 percent slopes</p> <p>Hydrologic Source: Tributary to Summer Creek; groundwater/subsurface flow discharge</p>	
Dominant Vegetation	
Trees	Shrubs
Oregon ash <i>Fraxinus latifolia</i>	Willow <i>Salix sp.</i>
Vines/Herbs	
Tall fescue <i>Schedonorus phoenix</i>	
Velvetgrass <i>Holcus lanatus</i>	
Colonial bentgrass <i>Agrostis capillaris</i>	
Meadow foxtail <i>Alopecurus pratensis</i>	
Potential Enhancement Opportunities:	
<p>It appears that riparian vegetation could be increased and enhanced by weed removal and native plantings, especially in the herbaceous layer.</p> <p>The wetland extends upslope to the west a short distance into plowed pasture, where the tributary has been channelized along the eastern boundary of the field. Riparian restoration would be especially valuable in this area. Other opportunities:</p> <ul style="list-style-type: none"> <li>- Limiting herbicide/fertilizer application on adjacent farm fields to protect water quality</li> </ul>	

## **Appendix D: Wetland Functional Assessment Results**

**OAR 141-086-0220(3)(c)** OFWAM assessment results for each wetland assessment unit that must include:

- (A) Wetlands of Special Interest for Protection (OFWAM, Chapter Five);
  - (B) Wetland Characterization results (OFWAM, Appendix B);
  - (C) Assessment results represented in table format;
  - (D) Answer sheets for all wetland assessment questions (OFWAM, Appendix C);
  - (E) Function and condition summary sheets for fish habitat, wildlife habitat, water quality, hydrologic control and, if applicable, education and recreation (OFWAM, Appendix C); and
  - (F) Watershed summary sheet (OFWAM, Appendix C).
- (d) Technical staff members and qualifications.



## Watershed summary sheet for the Oregon Method

Watershed or community identification: **Lower Willamette Drainage Basin**

Characteristic	Description
<p><b>Physical characteristics of the watershed</b></p>	<p>Gentle to fairly steep slope south facing watershed. Drains to Tualatin River or tributaries of the Tualatin River. Drainages are typically headwater drainages, with much of the stream length likely only flowing intermittently, drying out in the late summer. Small irrigation dams/water control structures occur on two of the drainages.</p> <p>The watershed draining to the LWI study area covers an area of approximately 770 acres. The average slope of the watershed is approximately 7 percent, with lower gradient slopes occurring in the southern/lower portion and steeper slopes occurring in the northern/upper portion. All streams in the watershed have been modified to varying degrees. For the most part, water is not being taken out of the streams through diking, drainage or irrigation districts in the watershed upstream of the assessment area.</p>
<p><b>Land uses within the watershed</b></p>	<p>The dominant land use in the watershed upstream from the assessment area is agriculture; however, forested areas and rural residential dwellings are also prevalent. The area within the assessment area is clearly dominated by agricultural land uses, including a mix of annual crops, pasture, orchards, and viticulture.</p>
<p><b>Water quality</b></p>	<p>No streams within the study area are listed as water quality limited according to DEQ 303(d) databases. A recent Oregon Statewide Assessment of Nonpoint Sources of Water Pollution was not available. It is assumed that project stream reaches would be classified as "no data available" since they are intermittent headwater streams. However, riparian areas are lacking substantial native vegetation, especially trees and shrubs, along most streams reaches. This results in a lack of stream shading and affective water quality buffers to capture sediment from agricultural fields. These factors likely lead to reduced water quality.</p>
<p><b>Biological characteristics of the watershed</b></p>	<p>Assessment area streams are intermittent streams and contain fish passage barriers at the downstream end of the assessment area. They drain to stream reaches that support an anadromous fishery.</p> <p>Native plant communities have largely been replaced by agricultural lands. Therefore sensitive wildlife species are presumed absent. Wildlife that persist or thrive in agricultural settings, such as deer, coyote, raccoon, etc. are present within the watershed. High quality native habitat exists to the north of the watershed within Cooper Mountain Nature Park and are generally accessible to wildlife that may occur within the LWI study area.</p>
<p align="center"><b>Narrative summary of watershed description</b></p>	
<p>The project study area primarily consists of rural lands that are bordered to the east by suburban development and to the north, south, and west by rural land. Slopes range from gently rolling in the south half to moderately steep in the north half of the study area. The majority of the land drains to the south, with a portion of the area draining to the southeast. Land use is predominantly agricultural, with a mix of annual crop production, pasture, orchards, and viticulture. Several small remnant patches of native forest habitat occur within the area, including mixed upland fir-deciduous forest, Oregon ash dominated wetland forest, and patches of Oregon oak forest. Several fir dominated lots were being logged or had recently been logged as observed during the March 2013 site visits.</p>	

### Wetland Characterization Questions: Answer Sheet

Wetland Identifier	W-A (11.80 acres)	W-C (1.42 acres)	W-G (21.29 acres)	W-H (10.79 acres)
<b>Question #</b>				
1	Lower Willamette	Lower Willamette	Lower Willamette	Lower Willamette
2	0.35 sq miles	0.43 sq miles	0.16 sq miles	0.22 sq miles
3	8 percent	8 percent	4 percent	7 percent
4	A	A,B	A,B	A,B
5	B	B	B	B
6	B	B	B	B
7	B	B	B	B
8	A (no data)	A (no data)	A (no data)	A (no data)
9	F	F	F	F
10	B	B	B	B
11	C	C	--	C
12	B	B	B	B
13	A	A	A	A
14	B	B	B	B
15	(1-b),(2-c),(4-a)	(1-b),(2-c),(4-a)	(1-b),(2-c),(4-a)	(1-b),(2-b),(4-a)
16	(1-b),(2-c),(4-a)	(1-b),(2-c),(4-a)	(1-b),(2-c),(4-a)	(1-b),(2-a),(4-b)
17	A	B	A	A
18	A	A	A	A
19	B	B	B	B
20	(4) developed at 100%	(4) developed at 100%	(4) developed at 100%	(4) developed at 100%
21	d, c, --, b	--, --, --, a	--, c, --, --	--, c, --, --
22	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural
23	A	A	C	A
24	B	C	C	C
25	B	C	C	B
26	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural
27	A	A	A	A
28	B	D	D	D
29	C	B	C	C
30	NA, connection impeded	B	C	C
31	NA, connection impeded	A	D	D
32	NA, connection impeded	C	C	C
33	A	NA, no lake	C	NA, no lake
34	A	NA, no lake	C	NA, no lake
35	C	NA, no lake	C	NA, no lake
36	C	A	C	C
37	C	A, sediment deposits	C	C
38	A	C	C	C
39	A	B	A	A
40	A	A	A	A
41	C	C	C	C
42	B, busy road/no sidewalk	A	B, busy road/no sidewalk	B, busy road/no sidewalk
43	A	A	A	A
44	B	B	B	B
45	B	B	B	B
46	C	C	C	C
47	C	C	C	C

### Wetland Assessment Questions: Answer Sheet

Wetland Identifier	W-A (11.80 acres)	W-C (1.42 acres)	W-G (21.29 acres)
<b>Wildlife habitat</b>			
Question 1	A	B	C
Question 2	A	A	C
Question 3	B	C	C
Question 4	A	-	-
Question 5	A	A	A
Question 6	A	A	A
Question 7	A	A	A
Question 8	B	B	B
Question 9	A	A	C
Assessment Descriptor	Diverse	Diverse	Some habitat

<b>Fish habitat</b>			
<i>Streams and rivers</i>			
Question 1	A	A	C
Question 2	A	A	B
Question 3	B	C	C
Question 4	A	A	A
Question 5	B	B	B
Question 6	B	B	C
<i>Lakes and ponds</i>			
Question 1	B	-	-
Question 2	C	-	-
Question 3	B	-	-
Question 4	A	-	-
Question 5	B	-	-
Question 6	B	-	-
Assessment Descriptor	Intact	Intact	Degraded

<b>Water quality</b>			
Question 1	C	C	C
Question 2	C	A	C
Question 3	A	A	A
Question 4	A	B	A
Question 5	B	B	B
Question 6	C	C	C
Assessment Descriptor	Degraded	Degraded	Degraded

<b>Hydrologic control</b>			
Question 1	B	B	B
Question 2	C	C	C
Question 3	A	B	A
Question 4	A	B	A
Question 5	A	C	C
Question 6	B	B	B
Question 7	A	A	A
Assessment Descriptor	Intact	Degraded	Degraded

**Wetlands of Special Interest for Protection Questions: Answer Sheet**

Wetland Identifier	W-A (11.80 acres)	W-C (1.42 acres)	W-G (21.29 acres)	W-H (10.79 acres)
Question 1	b	b	b	b
Question 2	b	b	b	b
Question 3	b	b	b	b
Question 4	b	b	b	b
Question 5	a (portion of wetland)	a	b	a (portion of wetland)
Question 6	b	b	b	b
Question 7	b	b	b	b
Question 8	b	b	b	b
Question 9	b	b	b	b
Question 10	b	b	b	b
<i>Meets WISP criteria*</i>	yes (portion of wetland)	yes	no	yes (portion of wetland)

\*Only one question out of the ten needs to be answered as "a" in order to meet WISP criteria.

DRAFT