

SENSITIVE AREA STUDY

FOR

HANSON – NE 163RD STREET

Wetland Resources, Inc. Project #15253

Prepared By
Wetland Resources, Inc.
9505 19th Avenue SE, Suite 106
Everett, WA 98208
(425) 337-3174

Prepared For
Richard Hanson
16970 65th Lane NE
Kenmore, WA 98028

August 4, 2016



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SENSITIVE AREA STUDY – EXISTING CONDITIONS MAP (SHEET 1/2)

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1.0 SITE DESCRIPTION

Wetland Resources, Inc. completed a site investigation on October 9, 2015 to delineate jurisdictional wetlands and streams on the property located at 3218 NE 163rd Street in Lake Forest Park, Washington. The King County tax parcel number for this property is 7979900115 and the site is further located as part of Section 16, Township 26, Range 4, W.M.

The subject site and its surrounding land use is primarily single-family residential development. Topography of the site is relatively flat in the southern end of the parcel, with a strong north/northwest aspect in the northern portion of the parcel. An existing house, driveway, and barn are located on the parcel. Vegetation surrounding the house is comprised of lawn and a few ornamental shrubs. The area north of the house is primarily forested. One wetland is present in the northern half of the site. A stream, known as Brookside Creek, is located within the ravine near the northwest corner of the property.

2.0 PROJECT DESCRIPTION

The property owner is proposing to subdivide the parcel into three parcels. The existing residence in the south end of the parcel will remain. The existing barn will be removed, and two new residences are proposed north of the existing house. A new access drive is proposed along the east side of the parcel. All proposed buildings and driveways will take place outside of all sensitive areas and associated buffers. The development proposal will respect the required 15-foot building setback from the wetland buffer and the steep slope buffer.

The proposed stormwater system includes new stormwater pipes and catch basins located near the residences, outside of the wetland buffer. From the northern catch basin, an above ground pipe will extend north into wetland buffer area, and terminating outside of the wetland. The end of the pipe will form a “T” with 2-foot perforated stubs on either side of the pipe. No grading is necessary for the above ground pipe or energy dissipater. The pipe will be 6 to 8 inches in diameter, requiring very minimal herbaceous plant disturbance in order to ensure the pipe is in contact with the ground. As there is no grading or removal of trees or shrubs within the wetland buffer, there are no buffer impacts associated with the proposed development.

3.0 REVIEW OF EXISTING INFORMATION

- National Wetlands Inventory: The USFWS National Wetland Inventory (NWI) does not show any wetland areas on or in the immediate vicinity of the subject site.
- USDA/NRCS Web Soil Survey: The Natural Resources Conservation Service (NRCS) does not provide any soil data for this area.

- WDFW SalmonScape Interactive Mapping System: SalmonScape shows a stream near the north edge of the subject property and shows several species of salmon present in McAleer Creek to the east.
- WDFW Priority Habitat and Species (PHS) Interactive Map: The WDFW PHS Interactive Map does not show any wetlands, streams, or priority habitat areas on or in the immediate vicinity of the subject site. This map does show Coho salmon presence downstream of the site, near the confluence of Brookside Creek and Sheridan Creek.
- King County iMap Interactive Mapping Tool: King County iMap indicates the northern portion of the property contains an erosion hazard area and a stream is shown to the northwest of the property. No other features are shown on the property, or within the immediate vicinity.
- Lake Forest Park Sensitive Areas Map: This map shows steep slopes on the property and Brookside Creek off-site to the north and west of the property.

4.0 WETLAND CLASSIFICATION - COWARDIN SYSTEM

According to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States, the on-site wetlands are classified as follows:

Wetland: Palustrine, Forested, Broad-leaved deciduous, Saturated.

Stream: Riverine, Lower Perennial, Unconsolidated bottom, mud.

5.0 WETLAND AND STREAM CLASSIFICATION – CITY OF LAKE FOREST PARK

Pursuant to LFPMC Chapter 16, the wetland and stream are classified as follows:

Wetland: The on-site wetland is a slope wetland that primarily receives hydrology from groundwater via seeps along the hillside. This wetland continues off-site to the west/northwest. Considering topography of the area to the west, it is presumed that this wetland extends west/northwest to Brookside Creek.

The wetland was categorized using the City of Lake Forest Park’s definitions for wetlands as stated in Lake Forest Park Municipal Code (LFPMC) section 16.16.040. Review of publicly available data, including the sources listed in Section 3.0 of this report, did not reveal any documented endangered or threatened species or critical habitat on the site. No rare plant species are known to be on the site. The wetland is estimated to be about three-quarters of an acre in size and does not contain permanent open water. Considering these characteristics, this wetland does not meet the definition of a “Category 1” wetland as stated in LFPMC 16.16.040.AA.

This wetland does contain a forested class and is estimated to be about three-quarters of an acre in size. According to LFPMC 16.16.040, wetlands with these characteristics are Category 2 wetlands. Category 2 wetlands receive a standard 100-foot protective buffer. This wetland is within 25 feet of the toe of a slope with greater than 30 percent grade. As required by LFPMC 16.16.320, the wetland buffer will extend 25 feet beyond the standard buffer, for a total wetland buffer width of 125 feet.

Brookside Creek: This stream flows north/northeast and joins Sheridan Creek, which continues flowing north to enter McAleer Creek just east of 37th Avenue NE, south of NE 178th Street. McAleer Creek is known to provide habitat for several species of salmon. Review of the Lake Forest Park drainage system map shows a short piped segment of this stream and a couple outfalls between the junction of Brookside Creek and Sheridan Creek and the point where this stream connects to McAleer Creek. These potential fish passage blockages are classified on Salmonscape as partial or “unknown” type blockages. Therefore, it is presumed fish have access to the segment of stream near the subject site. According to LFPMC section 16.16.040, this stream meets the definition of a Type 1 stream. Type 1 streams receive a standard 115-foot buffer. This buffer does extend on to the subject property.

6.0 WETLAND DETERMINATION REPORT

6.1 METHODOLOGY

Wetland conditions were evaluated using the on-site, routine methodology described in the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), (referred as 2010 Regional Supplement) as required by the City of Kirkland. In general, wetland delineation consisted of two tasks: (1) assessing vegetation, soil, and hydrologic characteristics to identify areas meeting the wetland identification criteria, and (2) mapping wetland boundaries using aerial photography and existing survey information.

The following criteria descriptions were used in the boundary determination:

6.2 VEGETATION CRITERIA

The 2010 Regional Supplement defines hydrophytic vegetation as “the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence of the plant species present.” Field indicators were used to determine whether the vegetation meets the definition for hydrophytic vegetation.

6.3 SOILS CRITERIA AND MAPPED DESCRIPTION

The National Technical Committee for Hydric Soils, as described in the 2010 Regional Supplement, defines hydric soils as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper

part.” Field indicators were used to determine whether a given soil meets the definition for hydric soils.

6.4 HYDROLOGY CRITERIA

As stated in the 2010 Regional Supplement, the “term wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season.” It also explains “areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively.”

Additionally, the US Army Corps of Engineers 1987 Wetland Delineation Manual states that “areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days \geq 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas inundated or saturated between 5 and 12.5 percent of the growing season in most years may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands.” Field indicators were used to determine whether wetland hydrology parameters were met on this site.

7.0 BOUNDARY DETERMINATION FINDINGS

7.1 WETLAND

The on-site wetland is located along a slope with a northwest aspect. The wetland continues off-site to the west/northwest. Vegetation within the wetland includes: red alder (*Alnus rubra*; FAC), salmonberry (*Rubus spectabilis*; FAC), lady fern (*Athyrium filix-femina*; FAC), and skunk cabbage (*Lysichiton americanus*; OBL). Soils within the wetland are generally a Munsell color of black (10YR 2/1) sandy clay loam within the top 12 inches of the profile. The sublayer is generally a very dark gray sandy loam with redoximorphic features of dark yellowish brown (10YR 3/6). Soils within the wetland area were saturated at the surface during the October 2015 investigation.

The dominance of species rated “Facultative” or wetter satisfies the criteria for hydrophytic vegetation in the area mapped as wetland. Based on field indicators of hydric soils, it appears that the area mapped as wetland is saturated to the surface for more than 12.5 percent of the growing season, thereby fulfilling wetland hydrology criteria in the absence of observed primary indicators of hydrology. This wetland meets all criteria for designation as a wetland.

7.2 NON-WETLAND AREAS

Vegetation within the areas mapped as non-wetlands includes: red alder (*Alnus rubra*; FAC), big leaf maple (*Acer macrophyllum*; FAC), red elderberry (*Sambucus racemosa*; FACU), dull Oregon grape (*Mahonia nervosa*; FACU), and sword fern (*Polystichum munitum*; FACU). Soils in these areas generally have a Munsell color of dark brown (10 YR 3/3) sandy loam within the top six inches of the profile. The sublayer was generally a dark yellowish brown (10 YR 4/4) sandy loam, with no redoximorphic features present. Soils within the non-wetland areas were not saturated at the time of the site investigation.

Based on the lack of field indicators, it appears that areas of the site mapped as non-wetland are not saturated to the surface for more than 12.5 percent of the growing season, thereby not fulfilling wetland hydrology criteria.

8.0 FUNCTIONS AND VALUES ASSESSMENT

8.1 METHODOLOGY

The methodology for this functions and values assessment is based on professional opinion developed through past field analyses and interpretation. This assessment pertains specifically to the wetlands and streams in the vicinity of the site, but is typical for assessments of similar systems common to Western Washington.

8.2 FUNCTIONAL COMPONENTS

Wetlands in Western Washington perform a variety of ecosystem functions. Included among the most important functions provided by wetlands are: storm water control, water quality improvement, fish and wildlife habitat, aesthetic value, recreational opportunities and education. The most commonly assessed functions and their descriptions are listed below. Assessments of these functions for the project site are provided in the “Existing Wetland Conditions” section of this report, which follows below.

Hydrologic Functions

Wetlands often function as natural water storage areas during periods of precipitation and flooding. By storing water that otherwise might be channeled into open flow systems, wetlands can attenuate or modify potentially damaging effects of storm events, reducing erosion and peak flows to downstream systems. Additionally, the soils underlying wetlands are often less permeable, providing long-term storage of storm water or flood flow and controlling base flows of downstream systems. Storm water storage capacity and flood flow attenuation are generally a function of the size of the wetland and their topographic characteristics.

Water Quality

Surface water quality improvement is another important wetland function. Surface runoff during periods of precipitation increases the potential for sediments and pollutants to enter surface water. Wetlands improve water quality by acting as filters as water passes through them, trapping sediments and pollutants from surface water. Pondered areas within depressional wetlands also allow sediments to drop out of suspension, thereby increasing water quality. As development increases, the potential for polluted water to reach wetlands and streams also increases.

Wildlife Habitat

Wetlands have potential to provide diverse habitat for aquatic, terrestrial, and avian species for nesting, rearing, resting, cover, and foraging. Wildlife species are commonly dependent upon a variety of intermingled habitat types, including wetlands, adjacent uplands, large bodies of water, and movement corridors between them. Human intrusion, including development within and

adjacent to wetlands, and impacts to movement corridors are the most limiting factors for wildlife habitat functions.

8.3 EXISTING WETLAND CONDITIONS

Hydrologic Function

The on-site wetland is a slope wetland that is contiguous with the stream to the northwest of the property. This wetland provides hydrologic functions primarily by slowing water as it moves toward the stream. This function is limited by the sloped nature of the wetland, which only allows for brief residence time of water within the wetland. This wetland provide a low level of hydrologic function.

Water Quality

The wetland is vegetated, which allows for the wetlands to serve as a filter and allows sediment in the water to settle. However, the residence time of storm water within this wetland is fairly short, which limits its ability to provide high value water quality functions. These wetlands provide a low level of water quality functions.

Wildlife Habitat

The vegetation within the wetland provides native food sources and an area for escape/refuge. Vegetation in this wetland also shades the stream, regulating the water temperature, which contributes to the overall quality of fish habitat of the off-site stream. Considering these characteristics, this wetland provides a low to moderate value for this function.

9.0 WILDLIFE

Species of birds that may use this site include: House Sparrow (*Passer domesticus*), Black-capped Chickadee (*Poecile atricapillus*), Red-breasted Nuthatch (*Sitta canadensis*), Brown Creeper (*Certhia americana*), Winter Wren (*Troglodytes hiemalis*), Golden-crowned Kinglet (*Regulus satrapa*), Wilson's Warbler (*Cardellina pusilla*), Dark-eyed Junco (*Junco hyemalis*), House Finch (*Carpodacus mexicanus*), Bushtit (*Psaltriparus minimus*), Steller's Jay (*Cyanocitta stellaris*), Pacific-slope Flycatcher (*Empidonax difficilis*), Pine Siskin (*Carduelis pinus*), Varied Thrush (*Ixoreus naevius*), Swainson's thrush (*Catharus ustulatus*), American Robin (*Turdus migratorius*), Spotted Towhee (*Pipilo maculatus*), Northern Flicker (*Colaptes auratus*), Hairy Woodpecker (*Picoides villosus*), Downy Woodpecker (*Dendrocopus villosus*), Red-breasted Sapsucker (*Sphyrapicus ruber*), American Crow (*Corvus brachyrhynchos*), Barred Owl (*Strix varia*), Cooper's Hawk (*Accipiter cooperii*), and Red-tailed Hawk (*Buteo jamaicensis*).

Mammalian species that may utilize this site include generalist species that easily adapt to residential developed environments, such as: eastern cottontail rabbits (*Sylvilagus floridanus*), moles (*Scapanus* spp.), raccoons (*Procyon lotor*), and squirrels (*Sciurus carolinensis*, *Tamiasciurus douglasii*).

Fish species that are known to occur in McAleer Creek, and therefore may be within the stream adjacent to the site, include: Sockeye salmon (*Oncorhynchus nerka*), Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), and Steelhead trout (*Oncorhynchus mykiss*).

This list is not meant to be all-inclusive and may omit species that may use or are currently utilizing the site.

10.0 USE OF THIS REPORT

This Sensitive Area Study is supplied to Richard Hanson as a means of identifying and characterizing wetland and stream conditions, as required by the City of Lake Forest Park during the permitting process. This report is based largely on readily observable conditions and to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions. Reports may be adversely affected due to the physical condition of the site and the difficulty of access, which may lead to observation or probing difficulties.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.

Meryl Kamowski
Senior Ecologist

11.0 REFERENCES

- City of Lake Forest Park. 2015. Lake Forest Park Municipal Code: Chapter 16.
<http://www.codepublishing.com/wa/lakeforestpark/>
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services-79/31.
- King County. 2015. King County iMap Interactive Mapping:
<http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx>.
- Lichvar, R.W. 2014. The National Wetland Plant List: 2013 wetland ratings. Phytoneuron 2014-41: 1–42. Published April 2, 2014.
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- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Department of Agriculture- Natural Resources Conservation Service (USDA-NRCS). 2015. Web Soil Survey: <http://websoilsurvey.nrcs.usda.gov/app/>.
- U.S. Fish and Wildlife Service. 2015. National Wetlands Inventory:
<http://www.fws.gov/wetlands/Data/mapper.html>.

APPENDIX A: WETLAND DETERMINATION DATA FORMS

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

Project/Site: Hanson- NE 163rd St City/County: Lake Forest Park Sampling Date: 10/9/15
 Applicant/Owner: Dick Hanson State: WA Sampling Point: S1
 Investigator(s): MK and JM Section, Township, Range: S16, T26N, R4E
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 30
 Subregion (LRR): A Lat: 47.747403 Long: -122.294626 Datum: _____
 Soil Map Unit Name: N/A NWI classification: none

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

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15' rad)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus rubra</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	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. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
<u>25</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 10' rad)				
1. <u>Rubus spectabilis</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>80</u> = Total Cover				
Herb Stratum (Plot size: 5' rad)				
1. <u>Tolmeia menziesii</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Athyrium filix-femina</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Lysichiton americanus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>75</u> = Total Cover				
Woody Vine Stratum (Plot size: 10' rad)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

SOIL

Sampling Point: S1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	10YR 2/1	100					sandy cl loam	saturated
12-16	10YR 3/1	95	10YR 3/6	5	C	M	sandy loam	saturated

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

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"/> 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)	<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)	<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 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0 (includes capillary fringe)		Wetland Hydrology Present? 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: Hanson- NE 163rd St City/County: Lake Forest Park Sampling Date: 10/9/15
 Applicant/Owner: Dick Hanson State: WA Sampling Point: S2
 Investigator(s): MK and JM Section, Township, Range: S16, T26N, R4E
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 30
 Subregion (LRR): A Lat: 47.747403 Long: -122.294626 Datum: _____
 Soil Map Unit Name: N/A NWI classification: none

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 15' rad)					
1. <u>Alnus rubra</u>	60	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>14%</u> (A/B)	
2. <u>Acer macrophyllum</u>	40	Y	FACU		
3. _____					
4. _____					
	100	= Total Cover		Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: 10' rad)					
1. <u>Sambucas racemosa</u>	15	Y	FACU		
2. <u>Vaccinium parviflorum</u>	10	Y	FACU		
3. _____					
4. _____					
5. _____					
	25	= Total Cover			
Herb Stratum (Plot size: 5' rad)					
1. <u>Mahonia nervosa</u>	55	Y	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u>Polystichum munitum</u>	60	Y	FACU		
3. <u>Rubus ursinus</u>	70	Y	FACU		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
	185	= Total Cover			
Woody Vine Stratum (Plot size: 10' rad)					
1. _____					
2. _____					
	0	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: _____					

SOIL

Sampling Point: S2

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

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

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils³:
<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 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)	

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

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	Secondary Indicators (2 or more required)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	
<input 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)		

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

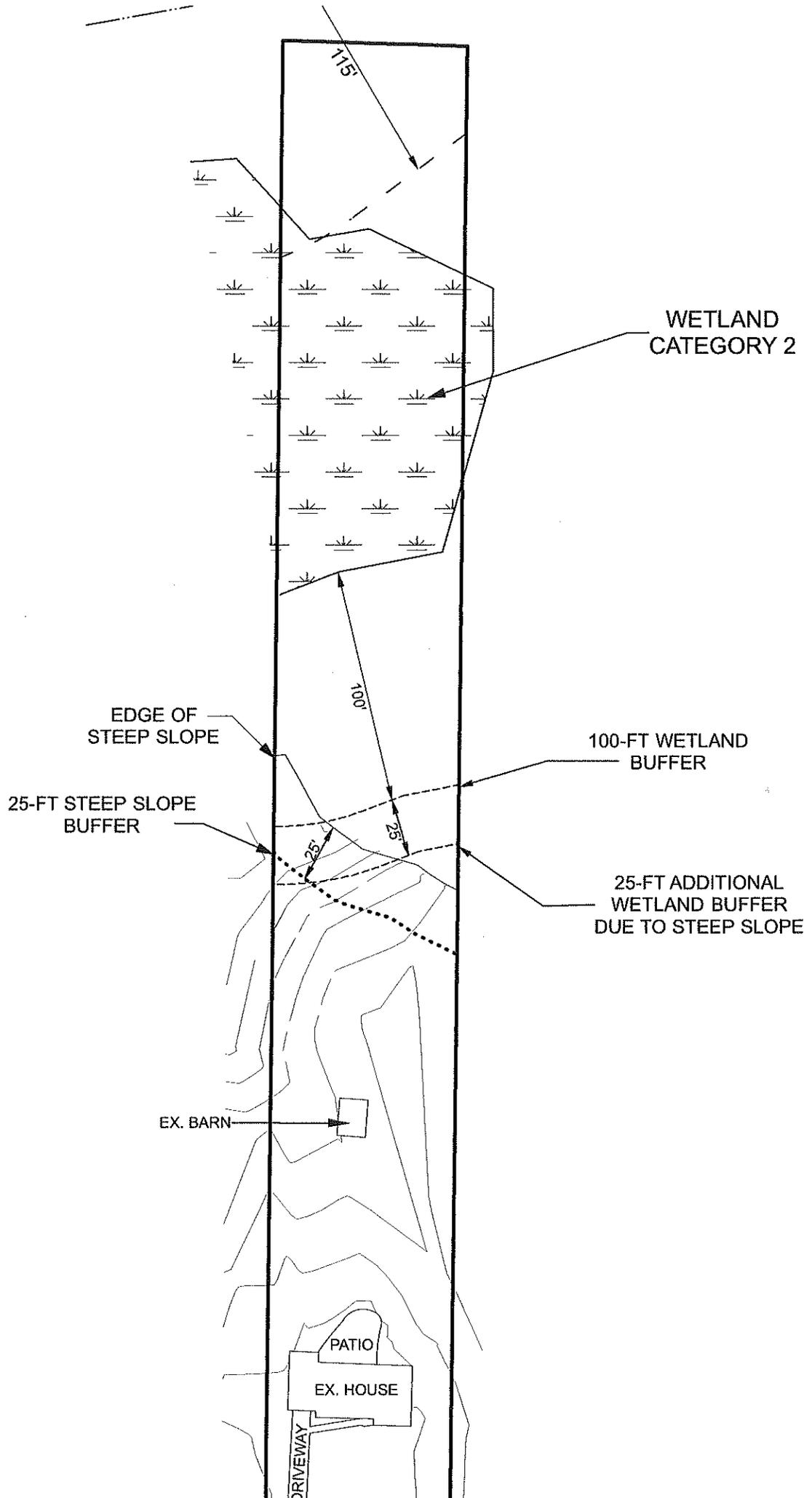
Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:



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