WETLAND & STREAM DETERMINATION AND PRELIMINARY BUFFER MITIGATION

RIVA TOWNHOMES

Site Development Permit
City of Issaquah, Washington

Prepared for:

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October 14, 2015

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Background

A wetland and stream determination was conducted on the Riva Townhomes Property (formerly Issaquah Farms) from July to October 2014 (Wetland and Stream Determination for Issaquah Farms Property (Parcel #042308-9029): City of Issaquah, Schulz 10/14/14). The Property is located along the north side of Newport Way NW at the intersection of NW Oakcrest Dr. and has a total area of 365,304 square feet (8.38 acres) (Figure 1). It appears a wetland boundary was delineated on the Property more than 5 years ago as shown on an older survey of the area (ALTA/ACSM Land Title Survey for Issaquah Farms Associates, LLC - Barghausen Engineers 10/24/08).

This wetland report is an update to the previous wetland and stream determination (Schulz 10/14/14) and includes revisions from City peer review, City engineering and planning departments, and a preliminary mitigation plan (conceptual mitigation) to support the proposed Riva Townhomes project. Wetland and stream boundaries were field-delineated and professionally surveyed by Core Design (Issaquah Farms Wetland Exhibit 2014). The Wetland Exhibit - survey drawing is included as Figure 2 to show the Property boundaries, detailed wetland and stream boundary flagging with standard buffers that was submitted with the initial determination report (Schulz 10/14/14).

This investigation identified one distinct wetland area (A) crossing onto the Property. Wetland data plots were installed on the site to confirm existing conditions. The City engaged ESA environmental consulting firm to peer review the wetland and stream determination (Appendix A 1/26/15 Letter). An ESA staff fisheries biologist and wetland biologist reviewed the Schulz 2014 report findings and data including a site visit on 1/7/15. ESA verified the Schulz report and concluded that only one significant revision was needed to identify Stream S1 from the Property to its connection with Tibbetts Creek as potential fish-bearing due to the observed continuous flow of water. As a result the tributary - Stream S1 is rated as Class 2S.

During the preliminary review period of the proposed project the City of Issaquah secured FEMA funding to relocate Anti-Aircraft Creek (Stream S2) and construct a new conveyance system under Newport Way NW for flood control. The City has initiated its own permitting requirements and plans as a separate project that will be constructed, in part, on the Riva Townhomes Property. The attached Preliminary Wetland & Stream Buffer Mitigation Plan (Figure 3) shows the site plan, the City project, and the resulting wetland and stream boundaries (Sheet L3.01 Core Design 10/16/15).

Site Description

The subject Property is undeveloped land with the majority being forest habitat. The Property gently slopes down from Newport Way NW towards Tibbetts Creek located east of the site. Most of the forest area is wetland habitat and is located on the lower northern and eastern portions. The upper upland area adjacent to Newport Way NW has been significantly disturbed and is dominated throughout with blackberry shrubs. Two streams, approximately mapped by the City, flow across the Property from west to east. The streams originate in the Cougar Mountain Regional Wildland Park located immediately west of Newport Way NW. Both streams are conveyed under the roadway by culverts. The northern stream is named Anti-aircraft Creek and has been disturbed and altered on the upstream side of Newport Way NW.

The Property includes flat and gentle sloping topography oriented north and northeast from Newport Way NW. The upper elevation of about 88 feet along Newport Way extends to down an elevation of 62 feet near the wetland boundary. The tree cover is scattered and primarily deciduous in upland areas. Trees are dominated by big leaf maple *(Acer macrophyllum)* on the southeast side and black cottonwood *(Populus balsamifera)* on the northwest side.

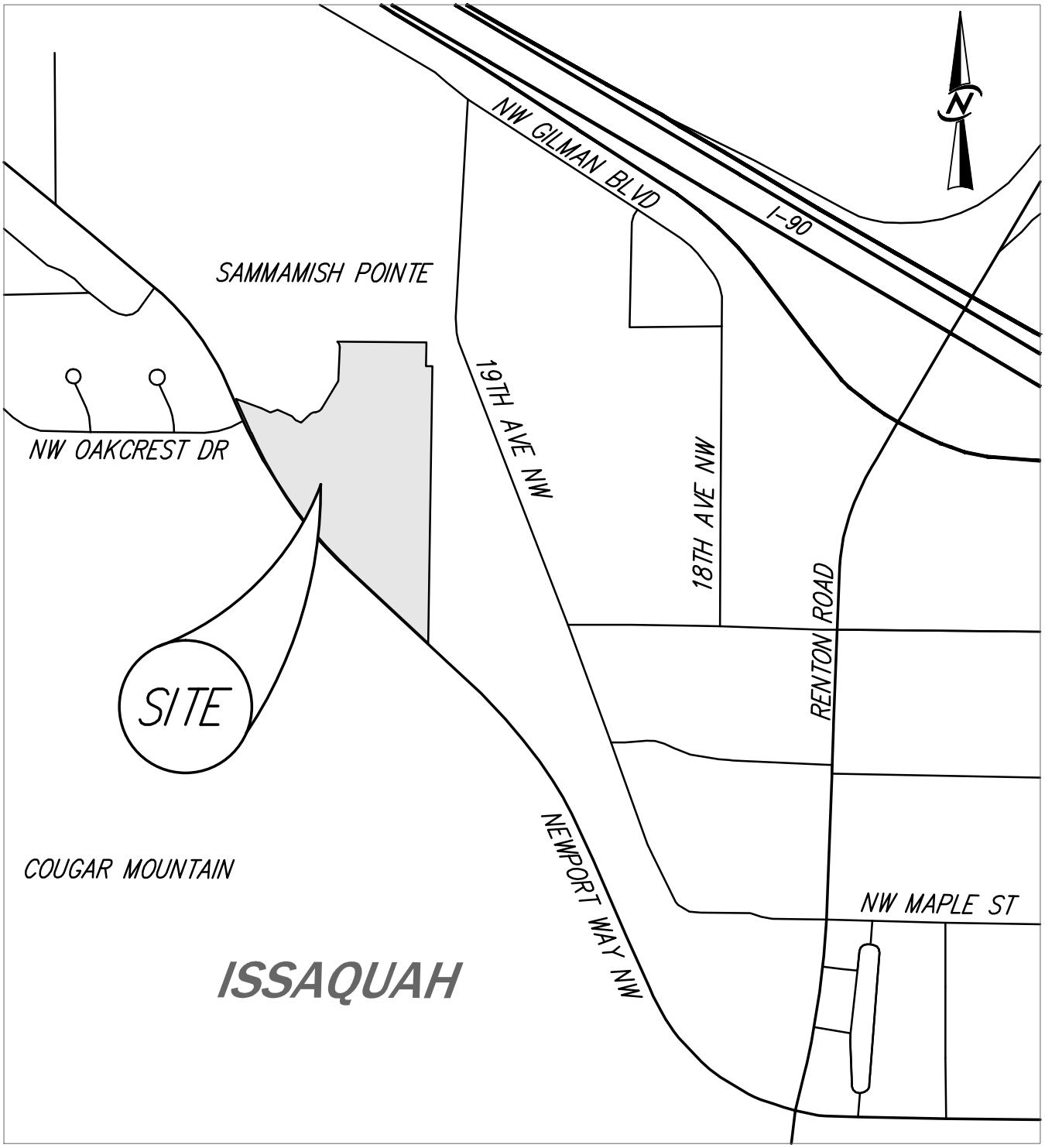
Shrub cover throughout the upland is dominated by Himalayan blackberry *(Rubus discolor)* but also includes some salmonberry *(Rubus spectabilis)*, red elderberry *(Sambucus racemosa)*, and Indian plum *(Oemleria cerasiformis)*. The groundcover includes sword fern *(Polystichum munitum)* but is limited due to the dense cover of blackberry shrubs.

Project Description

The Riva Townhomes project proposed as a site development permit to provide new residential housing that includes developing 36 townhomes. A critical areas tract or native growth easement will be established for the wetland, streams, and associated buffers.

The proposed roadway layout is designed to access the site from Newport Way NW, provide necessary traffic circulation, and avoid direct wetland and stream impacts. Surface water runoff will be collected for detention and water quality treatment in three underground stormwater detention vaults located on developed portions of the Property. Treated stormwater will be conveyed to the wetland buffer and controlled using storm drain dispersal / infiltration trenches.

RIVA TOWNHOMES



VICINITY MAP

SCALE: 1" = 500'

Figure 1 (Core Design)

Purpose

The purpose of this report is to provide a wetland and stream determination study for the proposed property development. In addition, this study includes wetland and stream buffer mitigation measures intended to meet or exceed City of Issaquah's critical area regulations included in their municipal code (IMC 18.10). A pre-application meeting was held with City planning and public works staff on 7/27/15.

Methodology

Typically defined, wetlands are ... *"those areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas"*. Through the State Environmental Policy Act (SEPA), the Growth Management Act (GMA), and local critical areas regulations, the City reviews proposals that potentially impact wetland and other critical areas. Because of observed site conditions, combined with jurisdictional wetland regulations, wetland presence and extent must be determined for site feasibility or the permitting process.

In accordance with current State requirements, the 1987 US Army Corps of Engineers Wetlands Delineation Manual (FICWD 1987) was used for wetland determination. The methodology is based on the presence of dominant hydrophytic vegetation (i.e. plant species adapted to, or tolerant of, growing in saturated soil conditions), hydric soils, and observed wetland hydrology as described in the Manual and consistent with the Regional Supplemental to the Corps of Engineers Wetland Delineation Manual (US Army Corps of Engineers 2010).

The Washington State Wetland Rating System for Western Washington (Ecology Pub. # 04-06-025) was used to rate wetlands per the City's critical areas code (IMC Chapter 18.10.640.C.). The Rating System forms are attached to this report. Data for the wetland determination was collected on the Property during the site investigation. A total of seven wetland data plots were installed to document upland and wetland conditions. Wetland data plot forms are attached to this report and reference their locations relative to surveyed flags. Orange plastic flagging was used to mark the wetland boundary. The on-site streams were delineated using Ordinary High Water Mark (OHWM) where visible. Pink plastic flagging was used to mark the edges of stream on right and left stream banks.

Figure 2 is an 11 x 17 inch drawing that depicts the surveyed wetland and stream areas and related buffers (Issaquah Farms Wetland Exhibit, Core Design 2014). Buffers are shown based on City critical areas code and the assessments in this report. The Preliminary Wetland & Stream Buffer Mitigation Plan is also being provided as a full-size, scaled drawing in the permit application submittal.

The Property was investigated during the period of July - October 2014. Based on the investigation of observed soils, hydrology, and dominant vegetation cover, one wetland (A) was delineated on the Property. The wetland and stream areas have been professionally surveyed as shown on Figure 3 (Preliminary Wetland & Stream Buffer Mitigation Plan - Sheet L3.01 Core Design 10/16/15). Wetland A's boundary extends onto the Property from the north and continues east towards Tibbetts Creek

Soils

According to the King County Area - Soil Survey (US Soil Conservation Service 1973), the property is mapped as having Mixed Alluvial Land (Ma). The Mixed Alluvial Land soil series consists of a variety alluvial soils that are individually too small to map as separate units. These soils are sand and gravely sand to silty clay loam. They are well drained to very poorly drained. Very poorly drained soils are typically hydric (wetland) soils.

Hydrology

Wetland A appears to be a seasonally flooded area supported by shallow groundwater. Surface water was observed in the wetland after recent rainfall. However, the soil excavations along the wetland boundary did not observed groundwater or saturation. The wetland appears to drain towards Tibbetts Creek but a distinct upland berm is present between the Creek's floodway channel and Wetland A. Tibbetts Creek runs along the eastern side of the Property and flows north towards Lake Sammamish.

Wetland Description

Wetland A

Wetland A is a sloped and depression area on the site that extends to the north near Tibbetts Creek. The off-site portion on the north is very disturbed and was cleared years ago probably for pasture. Wetland A's habitat functions are higher on the Property. Wetland hydrology is influenced by shallow groundwater and local rainfall.

The on-site portion of Wetland A is forested with the tree cover dominated by red alder (Alnus rubra) and some scattered Pacific willow *(Salix lasiandra).* The shrub cover is dense

salmonberry *(Rubus spectabilis)* and Himalayan blackberry *(Rubus discolor)*. Red osier dogwood (Cornus stolonifera) and red elderberry (Sambucus racemosa) shrubs are also present.

The groundcover vegetation is diverse with dominant cover of skunk cabbage *(Lysichiton americanum)*, lady fern *(Athyrium felix-femina)*, and giant horsetail *(Equisetum telmateia)*. There is significant cover of slough sedge *(Carex obnupta)*, tall mannagrass *(Glyceria elata)*, and hedge nettle *(Stachys ciliata)*.

Very dark brown, low chroma value (7.5YR 4/1) mineral soil was observed within the upper layer of soil in the wetland. Redoximorphic indicators (mottling) were also present in the wetland soil excavations.

In accordance with the Washington State Wetland Rating System, this wetland was rated as Category II having a total score of 61 points with 19 Habitat points. Based on the City's critical areas code, Category II wetlands with a Habitat score of less than 22 points have a standard buffer of 75 feet (Chapter 18.10.640.C.).

Stream Description

The stream assessments for the Property have been verified by the City and revised as needed (Appendix A). The preliminary assessment was focused on the potential for fish use in the upper segments of both on-site streams. A number of site visits were conducted to review the streams related to physical characteristics, hydrology, and potential fish use. Photographs of both streams (S1 and S2) were included in the initial wetland and stream determination report (10/14/14 Schulz).

Stream S1

Stream S1 enters the Property at the southern "triangular" corner. It is conveyed under the roadway by an old concrete box culvert. The stream flows north into Wetland A at Flag #S1-9. At this point the stream channel ends in a stand of mostly skunk cabbage. Approximately 20 feet below S1-9 the stream emerges as a narrow channel. Between these points there is no visible stream channel but surface flow observed during the peer review in January 2015. The lower channel continues to an outlet that is connected to the Tibbetts Creek floodway area. The Creek floodway is described as a wetland bench area that is elevated more than 1 foot above the main Creek channel.

The stream varies in width from several feet to less than 1 foot. Some portions of the channel are hard to see and overgrown by blackberry shrubs. The physical characteristics are described as a relatively flat channel with portions that are very narrow. Most of the upper channel segment above Flag #S1-9 does not have stream banks but gravels are visible from surface water flows. Typical stream habitats (pools, riffles, glides, rapids) are not present. Several portions are

described as gravel washouts. This stream has intermittent flows and was still dry during this month of October.

Based on the observed stream flow during the winter the City peer review determined the upper portion of this stream can support fish. The stream rating for the on-site segment was determined to be Class 2S used by salmonids (IMC 18.10.780.B.). Class 2S streams have a standard buffer of 100 feet (IMC 18.10.785.C.2.).

Stream S2

Stream S2 (Anti-aircraft Creek) flows onto the Property at the northern "triangular" corner adjacent to Newport Way NW. It is conveyed under the roadway by culvert connections that divert the drainage into a right-of-way ditch and then into a culvert under the roadway. The stream flows south and east into Wetland A. At the point Flag #S2-18 it enters the wetland. The stream channel ends in a stand of mostly reed canarygrass. Approximately 30 feet below S2-18 the stream emerges into a channel approximately 3 feet wide. Because there is no visible stream channel water appears to flow subsurface between these points (Stream Flags #S2-18/S-18A and #1L/1R).

The lower segment of stream channel continues to an outlet that is connected to the Tibbetts Creek floodway area. The Creek floodway is described as a wetland bench area that is elevated more than 1 foot above the main Creek channel. Surface water with low gradient flow was observed in the lower portion of Stream S2 after recent rainfall.

The description of Stream S2 is similar to Stream S1. This stream also varies in width from several feet to less than 1.5 feet. The uppermost portion near the roadway is a deeply incised channel. About 60 feet below the roadway the channel is hard to see and overgrown by blackberry shrubs. The upper portion of this stream has intermittent flows and was still dry during this month of October.

The physical characteristics are described as a deeply incised channel that changes to a flat and narrow channel within a short distance. Most of the upper channel segment above Flag #S2-18 does not have significant stream banks but gravels are visible from surface water flows. Typical stream habitats (pools, riffles, glides, rapids) are not present.

Based on the described observations Stream S2 has a fish barrier because there is no conveyance channel or flow that fish could move through to reach the upper portion. Stream S2 has intermittent or ephemeral water flow. The City peer review determined the upper segment of this stream does not support salmonid fish. Therefore, the stream rating for the upper segment is a Class 3 with a standard buffer of 50 feet (IMC 18.10.780.D. & 18.10.785.C.4.).

This section addresses wetland buffer impacts, reductions, and mitigation measures. The project has several locations where temporary wetland buffer impacts would occur adjacent to new construction activities. The majority of these locations are directly related to the construction and grading. A total of four stormwater dispersal trenches are planned in the wetland buffer. Due to past disturbances and lack of native vegetation cover in the wetland and stream buffers, reduced buffers with enhancements are proposed. Critical area buffer standards and mitigation measures are discussed as follows.

Wetland & Stream Buffer Impacts

Temporary Buffer Impacts

The project site exists several feet below the roadway grade of Newport Way NW. Proposed grading or filling of the project site is necessary for proper access to and from Newport Way NW. In order to reasonably develop the project site as planned the outer edge of the wetland buffer would be filled in several locations. A small area of fill is also planned in the buffer of Stream S1 related to roadway design. These areas are also part of the buffer areas that would be enhanced and replanted with native vegetation as mitigation for allowed buffer reduction. The dominant vegetation cover throughout is Himalayan blackberry shrubs.

There are four locations on the project site where temporary buffer impacts could occur for the installation of stormwater dispersal / infiltration trenches. Treated stormwater runoff would be discharged to Wetland A via the dispersal trenches. Due to the site sloping down to Wetland A the outlets of the stormwater detention vaults and related elevations require the dispersal trenches be installed in the wetland buffer. The dispersal trenches are typically designed to infiltrate and spread out the stormwater leaving the detention vaults. Typically impacts associated with installation are minimal grading and vegetation removal.

The wetland boundary and adjacent wetland buffer areas have low gradient slopes oriented to the north. These sloping areas have shallow groundwater discharging into the lower depressional portion of the wetland. The stormwater dispersal trenches will be located on sloping areas with gradients that range from 5 to 8 percent slopes. This detailed information is shown on the Onsite Utility Plan (Sheet SDP-06 Core Design 10/16/15). Due to sloping conditions and natural groundwater discharge there are no anticipated wetland impacts from hydrology related to the dispersal trenches. The site grading and stormwater dispersal trenches are also shown on Figure 3 (attached).

Wetland & Stream Buffer Reduction

The Riva Townhomes Property has nearly 75 percent of its area in critical areas. Due to the constraints wetland and stream buffers are proposed to be reduced as part of the City's code standards. The standards for wetland buffer reduction with enhancement are found in IMC 18.10.650. The similar standards for stream buffer reduction are found in IMC 18.10.790. Theses standards allow for a 25 percent reduction in buffer width with an approved enhancement – mitigation plan.

The criteria for buffer reduction includes more than 40 percent of the buffer area is covered by non-native and/or invasive plant species; or tree and/or shrub vegetation cover less than 25 percent of the buffer area; and the wetland / stream buffer has slopes of less than 25 percent (IMC 18.10.650.D.3. & 18.10.790.D.4.)

The buffer areas have slopes that are less than 25 percent. The buffers have a dominant and dense cover of non-native blackberry with tree cover estimated as less than 25 percent in the buffer areas. The project site has disturbed conditions that would allow for buffer reduction with mitigation improvements.

Wetland & Stream Buffer Mitigation

Potential impacts to buffer areas from grading and the installation of stormwater dispersal trenches are temporary and can be restored to natural conditions. Trees and shrubs with native groundcover or seeding can restore the areas that are graded. These areas will have complete blackberry shrub removal and then be replanted.

The stormwater dispersal trenches are linear and narrow areas. Required excavation is shallow and will be restored with the proposed buffer enhancement. The trenches areas can be replanted using willow live stakes

Wetland A

Wetland A's standard buffer of 75 feet can be reduced to 56.25 feet. The proposed area of buffer reduction (**12,875** square feet) would be mitigated with the enhancement of the entire buffer area (**40,800** square feet) proposed for buffer reduction. This provides an enhanced wetland buffer area that is greater than the reduction. Areas and a list of plant species are shown on Figure 3.

Stream S1

A relatively small portion of the stream buffer is proposed for reduction. The standard buffer of 100 feet can be reduced to 75 feet. The proposed area of buffer reduction (**3,769** square feet) would be mitigated with the enhanced buffer area (**15,113** square feet). This provides an enhanced stream buffer area that is greater than the reduction.

The Preliminary Buffer Mitigation Plan (Figure 3) depicts the areas proposed for enhancement and a list of native trees and shrubs appropriate to increase vegetative structure, add plant diversity, and increase overall buffer functions. Per the standards of IMC 18.10, the proposed buffer enhancement plan will remove all invasive, non-native vegetation; plant appropriate native tree and shrub species at a minimum planting density of ten feet on center for trees and five feet on center for shrubs; and provide a monitoring and maintenance plan for the buffer for a five year period. In addition, the final enhancement – mitigation plan will incorporate the King County Critical Areas Mitigation Guidelines (2012) for planting installation, maintenance, and monitoring.

REFERENCES

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APPENDIX A

ESA WETLAND and STREAM REVIEW

ESA

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January 26, 2015

Mr. Peter Rosen
Environmental Planner
City of Issaquah
Development Services Department
PO Box 1307
Issaquah, WA 98027-1307

Subject: Wetland and Stream Review for Issaquah Farms Property

Dear Peter:

This letter summarizes ESA's independent review of a wetland and stream determination on the Issaquah Farms Property (Parcel #042308-9029). The original determination was prepared by Gary Shulz, on behalf of the developer and permit applicant, Derek Doke. Our review is based upon our site reconnaissance conducted with you and Mr. Shulz on January 7, 2015.

Weather conditions during the site visit were dry, with the last reported rainfall of approximately 0.32 inches falling three days earlier on January 4, 2015 (NWS, 2015). Month-to-date rainfall in the area was reported approximately 0.78 inches. The following text summarizes the results of the field reconnaissance and provides a rationale for our findings.

Stream Determination

Three channelized features were observed on site, including two previously identified streams (Streams S1 and S2) and a small drainage feature, not previously identified. Available information on stream typing and fish use is presented in Table 1.

Table 1. Summary of Available Information on Drainage Features on Subject Parcel

Stream Identifier per Schulz (2014)	Stream Name	Stream WRIA Number	Issaquah Stream Classification (Parametrix, 2003)	WDNR Stream Typing[1]	PHS Mapped Fish Distribution[2]
Stream S1	Unnamed Tributary to Tibbetts Creek	0169H	Class 2S	Type Np	None
Stream S2	Anti-aircraft Creek	0169A	Class 2S	Type F	Coho (modeled presence)
N/A	Small Drainage Feature	N/A	N/A	N/A	N/A

[1] From WDNR, 2015
[2] From WDFW, 2015

Considering the lack of a large recent rainfall event, and the fact that the upstream contributing basins for these drainage features are generally forested, with little human development or impervious surfaces, the stream flow conditions observed during the site visit are assumed to generally represent winter base-flow conditions. We did

not observe signs of channel erosion or incision and there was little indication of flashy flows. These observations are consistent with largely undeveloped basin conditions, w. The following discussion summarizes observed stream flow and habitat conditions within each of the observed drainage features.

Stream S1

Based on conditions he observed in fall 2014, Gary Schulz identified the upper portion of Stream S1 as a Class 3 stream (intermittent or ephemeral during years of normal rainfall and not used by salmonids) requiring a 50-foot buffer (Issaquah Municipal Code [IMC] 18.10.780.D, 18.10.785.C).

At the time of our site visit, Stream S1 had substantial surface flow from Newport Way NW to its confluence with Tibbetts Creek. A continuous stream channel with bed and bank was present over the entire observed reach, although flow was also dispersed into multiple flow-paths near the boundary of Wetland A. The mouth of the stream had a slight drop into Tibbetts Creek (<1.5 feet total vertical drop over approximately 10 feet of channel length); however entry of fish (juvenile or adult) is not precluded based on slope (<16 percent) or drop height of individual steps (< 0.8 feet). A majority of the stream bed consisted of gravels and small cobbles, with the remainder of the bed consisting of silts and sands. Average stream width is approximately 2 to 3 feet over the observed reach. The applicant's flagging of the stream's ordinary high water mark (OHWM) appeared to be accurate.

Stream flow is likely intermittent, based on observed habitat and flow conditions, as well as information provided by the City (K. Ritland, 2015 *personal communication*). The stream is mapped by DNR as non-fish bearing (WDNR, 2015), although the location of the stream is mismapped, as it is shown confluencing with Stream S2, not Tibbetts Creek. However, based on the results of the site visit, the stream may support fish, including salmonids, between the fall and the spring. As no features were noted that would prevent fish access or upstream/downstream migration of salmonids (particularly juvenile salmonids) and suitable habitat is present within the subject parcel, it is our recommendation that the appropriate City Stream Type for the reach of Stream 1 downstream of Newport Way NW to the stream mouth at Tibbetts Creek should be Class 2S. The required buffer for Class 2S streams in Issaquah is 100 feet (IMC 18.10.785.C).

Stream S2

Gary Schulz identified the upper portion of Stream S2 as a Class 3 stream (intermittent or ephemeral during years of normal rainfall and not used by salmonids) requiring a 50-foot buffer (IMC 18.10.780.D, 18.10.785.C).

At the time of the site visit, Stream S2, also known as Anti-Aircraft Creek, demonstrated substantial surface flow from upstream of Newport Way NW to the stream confluence with Tibbetts Creek. Stream flow is likely intermittent based on recorded stream flow conditions from October and November and information provided by the City (K. Ritland, 2015 *personal communication*). It appears the hydrology of the stream is relatively natural fed by wintertime baseflow from Cougar Mountain, which is heavily forested. Although we saw no obvious signs of erosion at the project site, the stream reach above Newport Way acts as a sediment trap during large, infrequent storm events (K. Ritland, 2015 *personal communication*). These large storm events have resulted in flooding of Newport Way.

A continuous stream channel with bed and bank was present both upstream and downstream Wetland A; however within Wetland A there was no channelized stream flow, as flow was distributed between sub-surface flow and sheet flow through a reed canarygrass wetland. In this 20- to 30-foot-long reach of stream, approximately 75% of the flow was subsurface, re-forming a stream channel as flow outlets to the surface. The other flow source (approximately 25% of total streamflow) is dispersed into the wetland, over a reed canarygrass area approximately 20 to 25 feet wide. No channelized features or bare earth/rock was present within this area and flow depths were less than one inch. The flow from the wetland re-enters a channel at the same location where the sub-surface flow re-emerged. The sub-surface flow emerged at a slightly perched elevation above the stream channel bed (approximate perch of 1 foot).

The mouth of the stream had a slight drop into Tibbetts Creek; however entry of fish (juvenile or adult) is not precluded based on slope (<16 percent) or drop height of individual steps (< 0.8 feet). A majority of the stream bed consisted of gravels and small cobbles, with the remainder of the bed consisting of silts and sands. Average stream width is approximately 3 to 8 feet over the observed reach. The applicant's flagging of the OHWM of the stream appeared to be accurate.

From the mouth to Wetland A, there were no observed conditions that would prevent fish access or upstream/ downstream migration of salmonids (particularly juvenile salmonids). Within this reach, the stream could support fish, including salmonids, between the fall and the spring based on fish access and habitat conditions.

However, the sub-surface and dispersed flow through Wetland A almost certainly acts as a fish passage barrier, for all but the most extreme flood events. This feature, combined with the intermittent flow regime, would almost certainly preclude anadromous fish accessing the channelized reach above Wetland A, and would also likely preclude resident fish from occupying this reach. Based on the information presented above, we recommend that the appropriate City Stream Type for the channelized reach of Anti-Aircraft Creek (Stream S2) downstream of Wetland A is Class 2 with salmonids, requiring a standard buffer of 100 feet under IMC 18.10.785. A Class 3 stream type is recommended for the channelized reach of Anti-Aircraft Creek upstream of Wetland A, requiring a standard buffer of 50 feet under IMC 18.10.785.

Drainage Feature

We observed a small (16-inch-wide) gravel channel in the middle of the site, with flow originating from a culvert outlet on the east side of Newport Way. The flows that formed the channel appear to originate from a catch-basin on the west side of Newport Way, which in turn appears to be fed primarily from piped discharge from a constructed stormwater pond. The pond appears to detain stormwater from residential development along NW Oakcrest Drive. The pipe between the stormwater pond and the catch-basin appears to run under Anti-Aircraft Creek at the location of a box culvert conveying the stream under an access road for the pond.

The channel appears to have formed from stormwater released and piped to the edge of the wetland buffer for dispersion. Over time, the discharge formed a small channel downstream of the pipe outlet on the subject property. We believe this is not a regulated stream for the following reasons: 1) no evidence of a historical channel (prior to installation of stormwater features) is present, 2) the stormwater was rerouted from another drainage catchment, 3) the hydrology source appears to be only from collected stormwater, and 4) the channel drains into a wetland and does not appear have a surface water connection with a stream feature.

Wetland Determination

Gary Schulz identified one wetland, designated as Wetland A, on the northern portion of the property. The wetland is described as a slope/depressional, Category II wetland with a habitat score of 20 points using the Washington State wetland rating system. The City requires a standard buffer with of 75 feet (IMC 18.10.640.C).

ESA concurs with the wetland boundary, category, and buffer width for Wetland A. We discussed two revisions to the wetland rating form with Mr. Schulz during the site visit. First, because of the relatively simple vegetation structure we observed in much of the wetland, we would drop the "3 out of 5 strata" under question H1.1. Second, we observed numerous snags and logs in the wetland buffer and these should be added under question H2.3. These revisions do not affect the wetland category or buffer requirement.

Conclusions

Based on the above discussion, ESA has the following recommendations for the Issaquah Farms Property stream and wetland determination report:

- The reach of Stream S1 downstream of Newport Way NW to the stream mouth at Tibbetts Creek should be considered Class 2S. The required buffer for Class 2S streams in Issaquah is 100 feet.
- The channelized reach of Stream S2 downstream of Newport Way NW to Wetland A should be considered Class 3. The required buffer for Class 3 is 50 feet.
- The channelized reach of Stream S2 downstream of Wetland A to Tibbetts Creek should be considered Class 2S. The required buffer for Class 2S streams in Issaquah is 100 feet.
- A third drainage feature located in the central part of the site appears to be a result of stormwater runoff and would not be regulated as a stream under City code.
- We have no recommended changes to the Wetland A boundary, Category II rating, or 75-foot buffer requirement.

Thank you for the opportunity to provide this review. Please contact us if you have any questions at (206) 789-9658.

Sincerely,

Pete Lawson
Fisheries Biologist

Sara Noland
Wetland Biologist

Attachment: References

References

Ritland, Kerry. 2015. Personal communication from Kerry Ritland, Surface Water Manager for the City of Issaquah with Pete Lawson, Senior Fisheries Biologist with ESA. Email communication dated January 21, 2015.

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WETLAND DATA PLOT FORMS

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

Project Site: Issaquah Farms City/County: Issaquah/King Sampling Date: 7/27/14

Applicant/Owner: Derek Doke State: WA Sampling Point: 1

Investigator(s): Gary Schulz Section, Township, Range: 20,24N,6E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Mixed alluvial land (Ma) NWI classification: _____

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	☐	No	☒	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Plot is near stream flag S1-5.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 1/100 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Malus sp.*	10	no	UPL
2. *Salix scoulerana*	10	no	FAC
3. _____			
4. _____			
50% = _____, 20% = _____	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1/100 acre)			
1. *Rubus discolor*	90	yes	FACU
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____	90	= Total Cover	
Herb Stratum (Plot size: 1/100 acre)			
1. *Equisetum telmateia*	10	no	FACW
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = _____, 20% = _____	10	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Blackberry is dominant shrub cover in this portion of the site.

Project Site: Issaquah Farms

SOIL Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
15	10YR3/2	100					sandy loam	very loose, dry
17	10YR4/2	100					sandy loam	blocky, dry

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

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

- ☐ 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[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Assumed by non-hydric soil.

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

Project Site: Issaquah Farms City/County: Issaquah/King Sampling Date: 7/27/14

Applicant/Owner: Derek Doke State: WA Sampling Point: 2

Investigator(s): Gary Schulz Section, Township, Range: 20,24N,6E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Mixed alluvial land (Ma) NWI classification: _____

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	☐	No	☒	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Plot is upslope of wetland flag A-2.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 1/100 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	n/a*	-
2. *Salix lasiandra*	35	yes	FACW
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1/100 acre)			
1. *Rubus discolor*	50	yes	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	50	= Total Cover	
Herb Stratum (Plot size: 1/100 acre)			
1. *Equisetum telmateia*	T	no	FACW
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	T	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Blackberry is dominant shrub cover in this portion of the site.

Project Site: Issaquah Farms

SOIL Sampling Point: 2

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
11	10YR3/2	100					sandy loam	very gravelly, compacted at 11 inches, dry

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

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

- ☐ 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[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Assumed by non-hydric soil.

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

Project Site: Issaquah Farms City/County: Issaquah/King Sampling Date: 9/6/14

Applicant/Owner: Derek Doke State: WA Sampling Point: 3

Investigator(s): Gary Schulz Section, Township, Range: 20,24N,6E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Mixed alluvial land (Ma) NWI classification: _____

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	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks: Plot is near stream flag S1-9.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 1/100 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	n/a*	-
2. _____	_____	n/a*	-
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1/100 acre)			
1. *Rubus discolor*	20	yes	FACU
2. *Rubus specatabilis*	5	no	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	25	= Total Cover	
Herb Stratum (Plot size: 1/100 acre)			
1. *Equisetum telmateia*	T	no	FACW
2. *Athyrium felix-femina*	25	yes	FACW
3. *Lysichiton americanum*	25	yes	OBL
4. *Phalaris arundinacea*	10	no	FACW
5. *Tolmeia menzeisii*	5	no	FAC
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	65	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Plot is near edge of wetland at the end of stream flag # S1-9.

Project Site: Issaquah Farms

SOIL Sampling Point: 3

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
2	10YR4/2	100					fine sand	dry
18	7.5YR4/1	100	7.5YR4/6	15	C	M	sandy loam	moist

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

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

- ☐ 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[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Assumed by hydric soil.

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

Project Site: Issaquah Farms City/County: Issaquah/King Sampling Date: 9/22/14

Applicant/Owner: Derek Doke State: WA Sampling Point: 4

Investigator(s): Gary Schulz Section, Township, Range: 20,24N,6E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Mixed alluvial land (Ma) NWI classification: _____

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	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Plot is upslope of wetland flag A-6.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 1/100 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	n/a*	-
2. *Alnus rubra*	25	yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1/100 acre)			
1. *Rubus discolor*	50	yes	FACU
2. *Rubus spectabilis*	50	yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	100	= Total Cover	
Herb Stratum (Plot size: 1/100 acre)			
1. _____	_____	n/a*	-
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	T	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Blackberry is a dominant shrub cover in this portion of the site.

Project Site: Issaquah Farms

SOIL Sampling Point: 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
15	10YR3/2	50					sandy loam	dry
	10YR4/2	50						
17	10YR4/1		7.5YR4/4	5	C	M	sandy loam	dry

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

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

- ☐ 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[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Assumed by non-hydric soil.

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

Project Site: Issaquah Farms City/County: Issaquah/King Sampling Date: 9/22/14

Applicant/Owner: Derek Doke State: WA Sampling Point: 5

Investigator(s): Gary Schulz Section, Township, Range: 20,24N,6E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Mixed alluvial land (Ma) NWI classification: _____

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	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Plot is between wetland flags A-9 and A-10.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 1/100 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	n/a*	-
2. *Alnus rubra*	80	yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1/100 acre)			
1. _____	_____	n/a*	-
2. *Rubus spectabilis*	85	yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	85	= Total Cover	
Herb Stratum (Plot size: 1/100 acre)			
1. *Polystichum munitum*	5	no	FACU
2. *Maianthemum dilatatum*	5	no	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	10	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Upland lobe has native vegetation as dominant cover.

Project Site: Issaquah Farms

SOIL Sampling Point: 5

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
14	10YR3/2	60					sandy loam	+gravel, dry
	gravel							

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

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

- ☐ 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[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Very restrictive due to the amount of gravel mixed with loose soil.

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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Assumed by non-hydric soil.

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

Project Site: Issaquah Farms | City/County: Issaquah/King | Sampling Date: 9/22/14

Applicant/Owner: Derek Doke | State: WA | Sampling Point: 6

Investigator(s): Gary Schulz | Section, Township, Range: 20,24N,6E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 5

Subregion (LRR): _____ | Lat: _____ | Long: _____ | Datum: _____

Soil Map Unit Name: Mixed alluvial land (Ma) | NWI classification: _____

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 ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: Plot is outside of wetland flag A-16.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 1/100 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	n/a*	-
2. *Alnus rubra*	65	yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1/100 acre)			
1. *Ilex sp.*	5	no	NL (UPL)
2. *Rubus spectabilis*	75	yes	FAC
3. *Oemleria cerasiformis*	T	no	FACU
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	75	= Total Cover	
Herb Stratum (Plot size: 1/100 acre)			
1. *Polystichum munitum*	15	no	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	15	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Blackberry is a dominant shrub cover in this portion of the site.

Project Site: Issaquah Farms

SOIL Sampling Point: 6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
15	10YR3/2	100					sandy loam	gravelly, dry
17	10YR3/3	100					sandy loam	gravelly, dry

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

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

- ☐ 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[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Assumed by non-hydric soil.

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

Project Site: Issaquah Farms City/County: Issaquah/King Sampling Date: 9/22/14

Applicant/Owner: Derek Doke State: WA Sampling Point: 7

Investigator(s): Gary Schulz Section, Township, Range: 20,24N,6E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Mixed alluvial land (Ma) NWI classification: _____

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	☐	No	☒	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Plot is upslope of wetland flag A-27.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 1/100 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	n/a*	-
2. *Populus balsamifera*	25	yes	FAC
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1/100 acre)			
1. *Rubus discolor*	80	yes	FACU
2. *Rubus spectabilis*	T	no	FAC
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	80	= Total Cover	
Herb Stratum (Plot size: 1/100 acre)			
1. *Athyrium felix-femina*	5	no	FACW
2. *Geum macrophyllum*	5	no	FAC
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = _____, 20% = _____	10	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Blackberry is a dominant shrub cover in this portion of the site.

Project Site: Issaquah Farms

SOIL Sampling Point: 7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
10	10YR2/2	100					sandy loam	dry
18	10YR4/3	100					sandy loam	dry

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

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

- ☐ 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[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Assumed by non-hydric soil.

APPENDIX C

WETLAND RATING FORMS

Wetland name or number A

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Newport Way - A Date of site visit: 7/28/14

Rated by Gary Schultz Trained by Ecology? Yes__No___ Date of training 5/15

SEC: ___ TWNSHP: ____ RNGE: ____ Is S/T/R in Appendix D? Yes___ No___

Map of wetland unit: Figure ____ **Estimated size** 10+ acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II✓ III___ IV___

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

Score for Water Quality Functions	22
Score for Hydrologic Functions	20
Score for Habitat Functions	19
TOTAL score for Functions	61

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply✓

Final Category (choose the "highest" category from above) II

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number A

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

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

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

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

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

Wetland name or number A

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet both** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4 **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

____The wetland is on a slope (*slope can be very gradual*),

____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

NO - go to 5 **YES –** The wetland class is **Slope**

Wetland name or number A

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

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

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

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

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

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

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

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

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

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

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

Wetland name or number A

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 5
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 4
D	**Total for D 1** *Add the points in the boxes above*	11
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft ✓ Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland ✓ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ✓ Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	22

Wetland name or number A

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	5
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	10
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems ✓ Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	20

Wetland name or number A

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

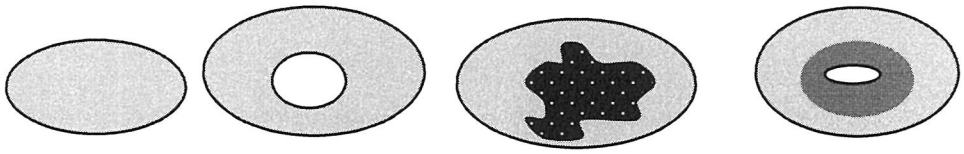
Total for page 5

Wetland name or number A

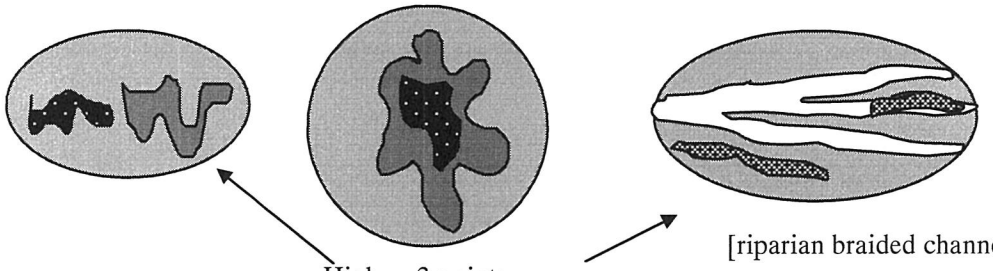
H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

2

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

✓ ___Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

✓ ___Standing snags (diameter at the bottom > 4 inches) in the wetland

___Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

___Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

✓ ___At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*

___ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

3

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

10

Comments

Wetland name or number A

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

Total for page 2

Wetland name or number A

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

___**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

___**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

___**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

___**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

✓ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

___**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

✓ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats **= 3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

4 4

Wetland name or number A

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 ✓ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	9
TOTAL for H 1 from page 14	10
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	19

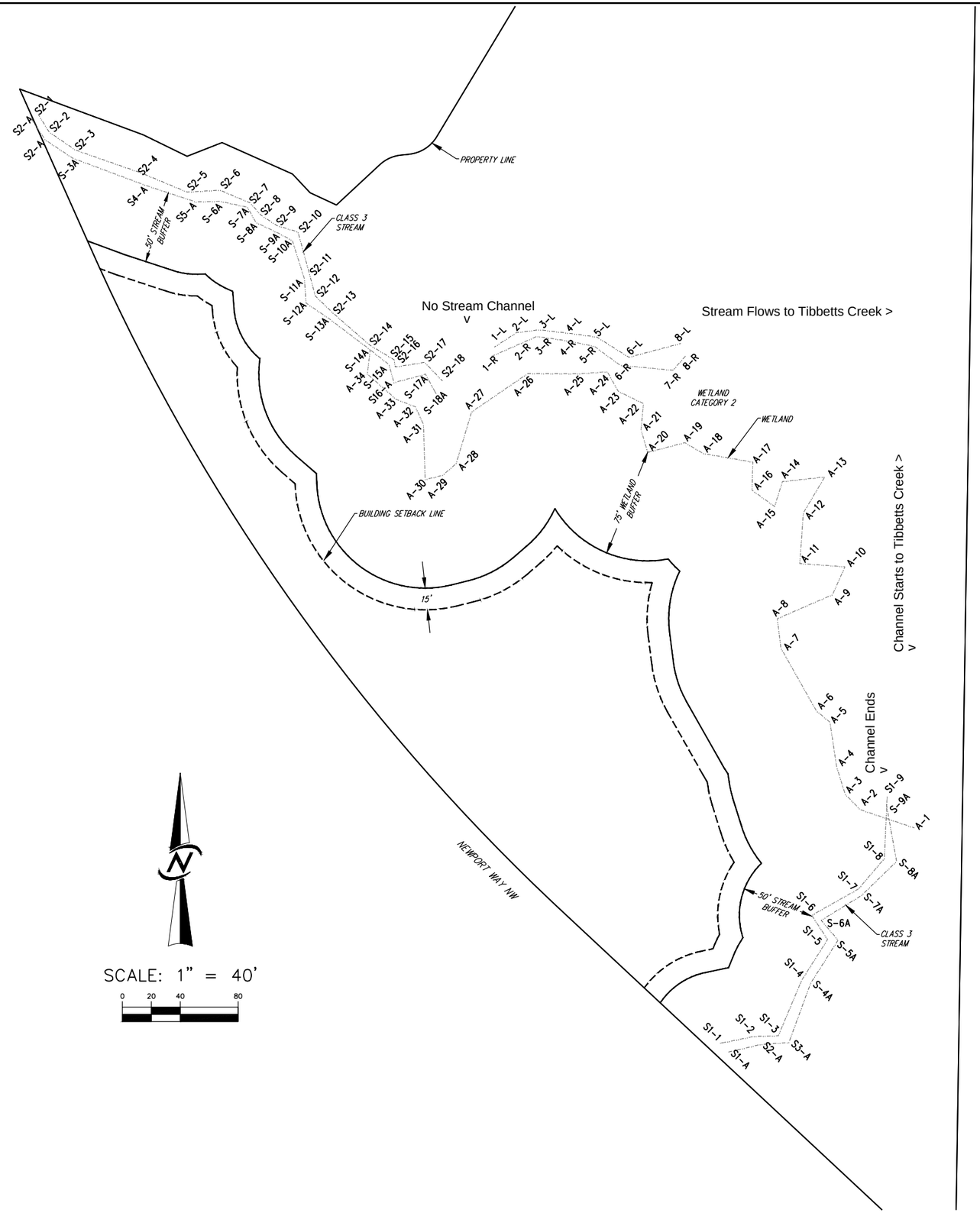
Wetland name or number A

N/A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands *(see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ___	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**



NOTES

TOTAL PROPERTY AREA = ±365,304

56.5' WETLAND & 37.5' STREAM BUFFER = ±86,570 SF USABLE SPACE
AREA CONTAINED WITHIN ADJACENT 15' BSBL = 14,910 SF

75' WETLAND & 50' STREAM BUFFER = 70,144 SF USABLE SPACE
AREA CONTAINED WITHIN ADJACENT 15' BSBL = 13,523 SF

Attachment for Wetland/Stream Report

C. Gary Schulz

Wetland / Forest Ecologist 206-772-6514

Figure 2

NO.	REVISIONS	DATE
1	REV. BUFFERS AND AREAS PER NEW FLAGS	10/21/2014
2	REV. FLAG AND BUFFERS PER G. SCHULZ	10/24/2014

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ENGINEERING • PLANNING • SURVEYING

ISSAQUAH FARMS

WETLAND AND STREAM EXHIBIT

NEWPORT WAY NW

DATE	9/15/2014
DESIGNED	
DRAWN	GCB
APPROVED	
PROJECT MANAGER	
SHEET	1
OF	1
PROJECT NUMBER	14088

PRELIMINARY PLANT SCHEDULE*

CONIFEROUS TREES	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	COMMENTS
	ABIES GRANDIS	GRAND FIR	4`-6` HT. MIN.	6`-9` O.C.	WELL-BRANCHED
	PICEA SITCHENSIS	SITKA SPRUCE	4`-6` HT. MIN.	6`-9` O.C.	FULL/WELL BRANCED
	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	4`-6` HT. MIN.	6`-9` O.C.	WELL-BRANCHED
	THUJA PLICATA	WESTERN RED CEDAR	4`-6` HT. MIN.	6`-9` O.C.	WELL-BRANCHED
DECIDUOUS TREES	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**	**COMMENTS**
	ACER MACROPHYLLUM	BIG LEAF MAPLE	4`-6` HT. MIN.	6`-9` O.C.	WELL-BRANCHED
	FRAXINUS LATIFOLIA	OREGON ASH	4`-6` HT. MIN.	6`-9` O.C.	WELL-BRANCHED
LIVE STAKES	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**	**COMMENTS**
	SALIX SITCHENSIS	SITKA WILLOW	4` LENGTH MIN.	4` O.C.	3 STAKES PER SYMBOL

SHRUB MIX

BOTANICAL NAME	COMMON NAME	SIZE	SPACING	COMMENTS
ACER CIRCINATUM CORNUS SERICEA PHYSOCARPUS CAPITATUS RUBUS SPECTABILIS ROSA NUTKANA SYMPHORICARPOS ALBUS	VINE MAPLE RED OSIER DOGWOOD PACIFIC NINEBARK SALMONBERRY NOOTKA ROSE SNOWBERRY	2 GAL./24" HT. MIN.	3`-6` O.C.	VINE MAPLE 15%, RED OSIER DOGWOOD 10%, PACIFIC NINEBARK 15%, SALMONBERRY 20%, NOOTKA ROSE 20%, SNOWBERRY 20%

* THE PLANT SYMBOLS AND HATCHES DEPICTED IN THE SCHEDULE WILL BE INDIVIDUALLY PLACED IN THE BUFFERS TO DEMONSTRATE A BUFFER PLANTING DESIGN IN THE CONSTRUCTION DOCUMENT PHASE

BUFFER IMPACT/MITIGATION LEGEND

SHRUB AREAS	BOTANICAL NAME
40,800 SF	BUFFER ENHANCEMENT: WETLAND
15,113 SF	BUFFER ENHANCEMENT: STREAM
3,769 SF	BUFFER REDUCTION: STREAM
12,875 SF	BUFFER REDUCTION:WETLAND

NOTES

PLANTING NOTES

1. PRIOR TO PLANT INSTALLATION, THE PROJECT BIOLOGIST SHALL APPROVE PLANT LAYOUT AND PROVIDE THE CITY WITH WRITTEN VERIFICATION OF APPROVAL.
2. FINAL LOCATIONS OF MITIGATION PLANTINGS TO BE SHOWN ON AS-BUILTS.

PUBLIC TRAIL NOTES

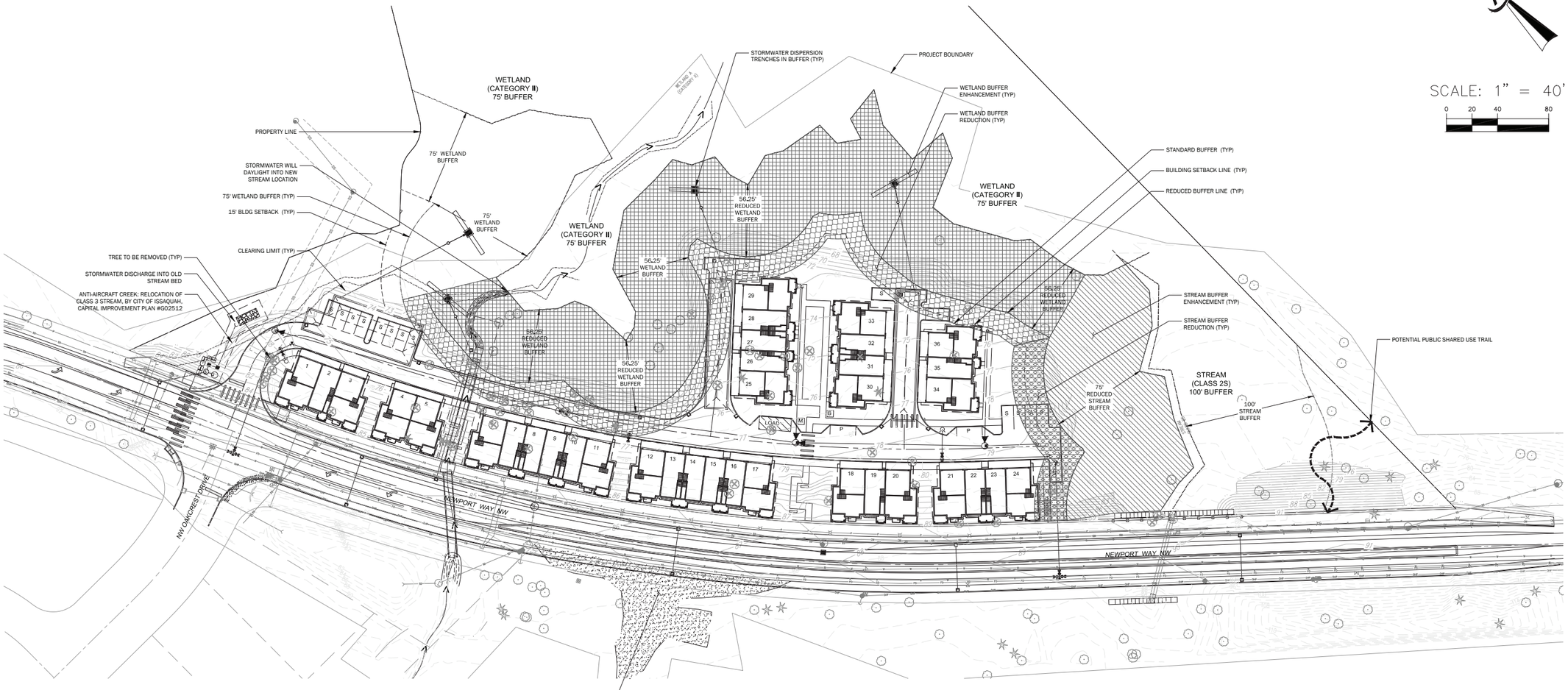
1. EXACT ROUTE AND LOCATION WILL BE DETERMINED BY THE FOLLOWING FACTORS:
   - COORDINATION WITH ADJACENT PROPERTY OWNERS
   - MINIMIZE IMPACTS ON SENSITIVE AREAS
2. SIZE/MATERIALS TO BE COORDINATED WITH THE CITY IN FUTURE DESIGN PHASES

TREE REMOVAL NOTES

1. SEE TREE PLAN SHEET FOR MORE INFORMATION.

ANTI-AIRCRAFT CREEK RELOCATION

1. THIS PROJECT IS NOT PART OF THIS APPLICATION. THIS PROJECT IS SHOWN FOR REFERENCE ONLY. THE PROJECT IS A FEDERALLY FUNDED/CITY OF ISSAQUAH SPONSORED PROJECT.



PRELIMINARY MITIGATION PLAN

SCALE 1 = 40'

SCALE: 1" = 40'

0 20 40 80

Figure 3

NO.	REVISIONS	DATE
1	PRE- APPLICATION SUBMITTAL	7/8/15
2	SITE DEVELOPMENT PERMIT SUBMITTAL	10/16/15

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CORE DESIGN
ENGINEERING • PLANNING • SURVEYING

PRELIMINARY WETLAND & STREAM BUFFER MITIGATION PLAN

CONNOR HOMES
RIVA TOWNHOMES

12600 SE 38TH, SUITE 250
BELLEVUE, WA 98006

DATE	2015-10-16
DESIGNED	KRISTI M. PARK
DRAWN	KRISTI M. PARK
APPROVED	JOSH P. BEARD
PROJECT MANAGER	KEVIN VANDERZANDEN

SHEET L3.01

PROJECT NUMBER 14088C