

TECHNICAL MEMORANDUM

Prepared for: Kevin Anderson – CEO October 3, 2023

Wesley Homes

815 South 216th Street

Des Moines, WA 98198-6332

Prepared by: Grette Associates^{LLC} File No.: 621.008

> 2709 Jahn Ave NW, Suite H-5 Gig Harbor, WA 98335

Re: Wesley Homes – Bradley Park Phase II

INTRODUCTION

Grette Associates is under contract with Wesley Homes to complete a wetland verification at the Bradley Park Phase II project in Puyallup, WA (Figure 1). This project primarily includes an addition to an existing retirement home. This wetland verification is meant to determine if the boundaries of a previously approved wetland delineation associated with Wetland C have changed significantly since 2013.

Figure 1. Map



2 PREVIOUS WETLAND DELINEATION

In support of the Wesley Homes retirement home (Phase I and II) project, Soundview Consultants LLC (Soundview) identified and delineated four wetlands within the project site during their assessment performed in 2013 (Wetlands A, B, C, and D; Soundview Consultants LLC 2017). This technical memorandum is intended to provide a wetland verification in support of the Phase II project. As such, this summary is limited to Wetland C that was provided in the 2017 report.

Wetland C was mapped in 2017 at approximately 3,075 square feet in size. The wetland was classified as palustrine scrub-shrub wetland with a saturated hydrological regime (Cowardin et al. 1979), and as a slope wetland using the hydrogeomorphic method (Brinson 1993). Dominant vegetation included salmonberry (*Rubus spectabilis*) and soft rush (*Juncus effusus*). Hydrological support came primarily from uphill seeps.

Initially rated Category IV using the 2004 Washington Department of Ecology rating system (Hruby 2004), the wetland was rated again in 2017, during which the 2014 Washington Department of Ecology rating system was applied (Hruby 2014). Using the 2014 method, Wetland C was rated Category III and was subject to a standard buffer width of 110 feet. This buffer was approved to be reduced to 50 feet with buffer enhancement (Soundview Consultants LLC 2017). Namely, protective fencing was installed and the buffer was enhanced with the removal of invasive species and planting of native vegetation.

3 METHODS

The portion of Wetland C near the Phase II project area was verified according to wetland delineation procedures described in the U.S. Army Corps of Engineers' (USACE) Federal Wetland Delineation Manual (1987), and the USACE's Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (2010). Paired data plots and soil test pits were excavated to evaluate wetland and upland conditions. Guidance from the USACE's Regional Supplement was used to evaluate the data at each data point.

The boundary of the wetland was established based on changes in vegetation, field indicators of hydric soils, water levels, topographic changes, and best professional judgment. GPS points were taken for each soil plot and those boundary flags placed during Grette Associates' verification.

The previous wetland rating conducted by Soundview was also reviewed to determine if it was still valid. The most recent Washington Department of Ecology rating system was used (Hruby and Yahnke 2023) to complete this task.

4 RESULTS

4.1 Wetland Boundary Determination

Three soil pits were investigated to verify the location of the wetland boundary: two paired data plots as required by the USACE *Federal Wetland Delineation Manual* (1987; SP1 and SP2), and one data plot (SP3) between the two that was explored in order to determine the wetland boundary. See Attachment A for the locations of these data plots, and Attachment B for the wetland determination datasheets.

The wetland boundary was determined to be between SP2 (wetland) and SP3 (upland) (Attachment A). This indicates a change of approximately 10 feet southward of the boundary delineated in 2013.

4.2 Wetland Categorization

A preliminary wetland categorization was completed using the most recent version of the Washington Department of Ecology 2014 wetland rating system (Hruby and Yahnke 2023). The wetland was rated Category III, suggesting that the current wetland buffer still applies.

5 CONCLUSION

Based on Grette Associates' 2023 verification, a portion of Wetland C's boundary has appeared to shift slightly southward (Attachment A). According to the project site plans, two stormwater dispersion trenches were installed during the construction of Phase I. These two stormwater features are located upslope of Wetland C and the area identified to exhibits wetland conditions (Attachment A). Grette Associates identified the southern dispersion trench that is located immediately upslope of the small area that exhibited wetland conditions and outside of the wetland area delineated in 2013.

In Grette Associates' professional opinion, this area is likely exhibiting wetland conditions because it is very likely that the existing stormwater discharge structure constructed during Phase I is providing artificial hydrological support to this location. While this stormwater feature is intended to allow stormwater discharge to sheet flow across the landscape, these types of features still provide a relatively concentrated discharge to an area which Grette believes is likely the result to why the questionable area exhibits wetland conditions rather than from a change that occurring naturally. This determination is also supported by the fact that Grette Associates only observed these changes near and downslope area of the stormwater outfall southeast of the wetland rather than throughout the entire wetland area evaluated.

Grette Associates' rating review determined that conditions have not significantly changed from the 2017 rating conducted by Soundview Consultants (2017) and that Wetland C is classified as a Category III wetland per Chapter 21.06 of the Puyallup Municipal Code (PMC).

In closing, while Grette Associates did identify a slight change in the boundary associated with Wetland C, it is Grette Associates' professional opinion that this change is a result of the placement of the stormwater dispersion trench that was constructed during Phase I and is not a result of a change in conditions that occurred naturally. Therefore, it is Grette Associates recommendation that the current modified buffer should continue to apply in support of the Phase II project.

Fx: 253.573.9321

If you have any questions on this wetland verification, please contact me at (253) 573-9300, or by email at chadw@gretteassociates.com.

Regards,

Terra Hauser

Biologist

Chad Wallin, PWS

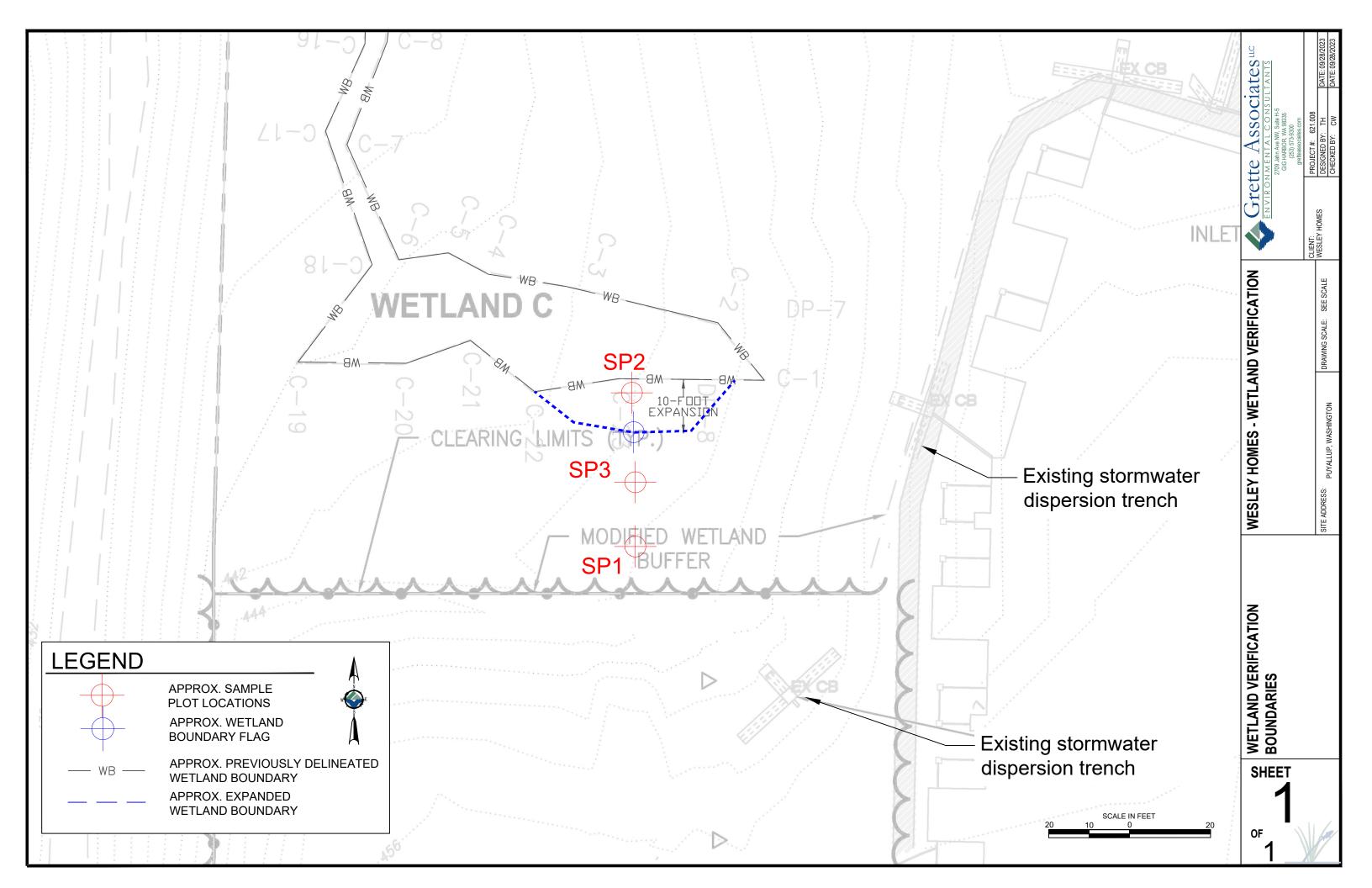
Biologist

References

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ATTACHMENT A

WETLAND VERIFICATION MAP



ATTACHMENT B

WETLAND DETERMINATION DATASHEETS

Ph: 253.573.9300

10				ntains, Valleys, and Coast Region
Section, Township, Range: No	Project/Site: Wesley Homes Pha	se 2	City/County: Plaud	Mup Pierce Sampling Date: 9/2/2
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WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region Project/Site: Wesley Homes Phase 2 City/County: Puyallyp/Pierce Sampling Date: State: WA Sampling Point: Applicant/Owner: Wesley Homes Section, Township, Range: Investigator(s): Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): Subregion (LRR): Lat: Long: Datum: NWI classification: Soil Map Unit Name: 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 Hydric Soil Present? No _____ Yes 1/ within a Wetland? Yes V Wetland Hydrology Present? Remarks: Drier than normal **VEGETATION – Use scientific names of plants.** Absolute Dominant Indicator **Dominance Test worksheet:** Tree Stratum (Plot size: % Cover Species? Status **Number of Dominant Species** 1. Red a lour That Are OBL, FACW, or FAC: 2. Daylas tic Total Number of Dominant . Species Across All Strata: Percent of Dominant Species = Total Cover (A/B) That Are OBL, FACW, or FAC: Sapling/Shrub Stratum (Plot size: ____15 FH) Prevalence Index worksheet: 1. Ired-object dogwood Total % Cover of: Multiply by: OBL species FACW species FAC species FACU species 220 = Total Cover Herb Stratum (Plot size: 5 ft UPL species 1. Sward fern 20 2. Lady fern 5 Column Totals: Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 1 3 - Prevalence Index is ≤3.01 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants¹ Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Woody Vine Stratum (Plot size: 5 Hydrophytic Vegetation Present? = Total Cover

Remarks:

L Constitution (Describe to the det	oth needed to document the indicator or con-	tirm the absence of indicators.)
	Redox Features	mill the absence of indicators,
epth Matrix nches) Color (moist) %	Colòr (moist) % Type¹ Loc²	Texture Remarks
n-7 MUR 2/1 100		Sitty clay
		sandy clay Mixed matrix
1-14 10 48 2/ 35		
7-14 10/24/16	104R3/4 4 C M	- 33rdy U34
14-18+ 104E 2/1 10		sandy losin Mixed matrix
14-18+ 1124R 4/1 85	048 314 5 C M	Sanhi lam
TO THE TI		Control Control
	- Control of the Cont	*
vne: C=Concentration, D=Depletion, RM	I=Reduced Matrix, CS=Covered or Coated Sand	d Grains. ² Location: PL=Pore Lining, M=Matrix.
dric Soil Indicators: (Applicable to al	I LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redox (S5)	2 cm Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (S6)	Red Parent Material (TF2)
Black Histic (A3)	Loamy Mucky Mineral (F1) (except MLR/	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)	✓ Depleted Matrix (F3)	
_ Thick Dark Surface (A12)	Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
_ Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	wetland hydrology must be present,
_ Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	unless disturbed or problematic.
estrictive Layer (if present):		2.43%
III a land		
Type: Hard pan	- I W	
Type: Hard pan Depth (inches): 15 emarks:		Hydric Soil Present? Yes No No
Depth (inches):		Hydric Soil Present? Yes No No
Depth (inches):		Hydric Soil Present? Yes No No
Depth (inches): emarks: /DROLOGY Wetland Hydrology Indicators:		
Depth (inches):		Secondary Indicators (2 or more required)
Depth (inches): emarks: /DROLOGY Wetland Hydrology Indicators:	ed; check all that apply) Water-Stained Leaves (B9) (except	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2
Depth (inches): emarks: /DROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one require		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)
Depth (inches):	Water-Stained Leaves (B9) (except	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) Drainage Patterns (B10)
Primary Indicators (minimum of one require Surface Water (A1) High Water Table (A2)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Depth (inches): POROLOGY Wetland Hydrology Indicators: Inimary Indicators (minimum of one requir Surface Water (A1) High Water Table (A2) Saturation (A3)	 Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) 	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 (C
Depth (inches): PDROLOGY Wetland Hydrology Indicators: Inimary Indicators (minimum of one requir Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	 Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) 	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 (C Roots (C3) — Geomorphic Position (D2)
Popth (inches): Comparison	 Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) 	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 (C3) Roots (C3) Geomorphic Position (D2) Shallow Aquitard (D3)
POROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one requir Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils	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 (C3) Roots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) s (C6) FAC-Neutral Test (D5)
Print Deposits (B2) Depth (inches): Proposits (B3) Algal Mat or Crust (B4)	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LF)	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 (C Geomorphic Position (D2) Shallow Aquitard (D3) S (C6) FAC-Neutral Test (D5) RR A) Raised Ant Mounds (D6) (LRR A)
Print Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Proposits (B5) Proposits (B5) Proposits (B5) Proposits (B5) Proposits (B5)	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LF)	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 (C3) Roots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) s (C6) FAC-Neutral Test (D5)
Popeth (inches): Popeth (inch	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LF 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 (C3) Geomorphic Position (D2) Shallow Aquitard (D3) S (C6) FAC-Neutral Test (D5) RR A) Raised Ant Mounds (D6) (LRR A)
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PROLOGY Vetland Hydrology Indicators: Inimary Indicators (minimum of one required 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 (Company)	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LF 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 (Castal Castal
Property (inches): Proper	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LF 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 (Castal Castal
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Property (inches): Property Property	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LF Other (Explain in Remarks) e (B8) Depth (inches): Depth (inches):	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 (C3) Geomorphic Position (D2) Shallow Aquitard (D3) S (C6) FAC-Neutral Test (D5) RR A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Wetland Hydrology Present? Yes No
Property (inches): Property Property	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soile Stunted or Stressed Plants (D1) (LF Other (Explain in Remarks) e (B8) No Depth (inches): No Depth (inches): No Depth (inches): No Depth (inches):	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 (C3) Geomorphic Position (D2) Shallow Aquitard (D3) S (C6) FAC-Neutral Test (D5) RR A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Wetland Hydrology Present? Yes No
Property (inches): Property Property Property	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soile Stunted or Stressed Plants (D1) (LF Other (Explain in Remarks) e (B8) No Depth (inches): No Depth (inches): No Depth (inches): No Depth (inches):	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 (C3) Geomorphic Position (D2) Shallow Aquitard (D3) S (C6) FAC-Neutral Test (D5) RR A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Wetland Hydrology Present? Yes No
Property (inches): Proper	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soile Stunted or Stressed Plants (D1) (LF Other (Explain in Remarks) e (B8) No Depth (inches): No Depth (inches): No Depth (inches): No Depth (inches):	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 (C3) Geomorphic Position (D2) Shallow Aquitard (D3) S (C6) FAC-Neutral Test (D5) RR A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Wetland Hydrology Present? Yes No

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

Project/Site: Wesley Homes Pha	se 2 c	ty/County: Puya	allup Pierce sampling Date: 9/21/23
Applicant/Owner: Wesley Homes			State: WA Sampling Point:
Investigator(s): Terra Houser			
Landform (hillslope, terrace, etc.): Slight Sk	pe L	ocal relief (concave, c	onvex, none): Slope (%):
Subregion (LRR):	Lat:		Long: Datum:
Soil Map Unit Name:			NWI classification:
Are climatic / hydrologic conditions on the site typical for			
		·	Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology			eded, explain any answers in Remarks.)
./		sampling point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes		Is the Sampled	Area
Hydric Soil Present? Yes Wetland Hydrology Present? Yes		within a Wetlan	
Remarks:	140		
Nomains.			
			and the second s
VEGETATION – Use scientific names of p	lants.		
20 [4		Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30 ft)		Species? Status	Number of Dominant Species
1 red alder	2047	FAC FAC	That Are OBL, FACW, or FAC: (A)
2. Pac willow		N FACW	Total Number of Dominant
3. dayays fir		y FACU	Species Across All Strata: (B)
4.	- 25		Percent of Dominant Species That Are OBL. FACW, or FAC: 83.3 (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft)		= Total Cover	
1. HB13	90	Y FAC	Prevalence Index worksheet:
2. I'ld orier dogwood	45	Y FACW	Total % Cover of: Multiply by:
3.		,	OBL species x1=
4.			FACW species x 2 =
5.			FAC species 160 x 3 = 480
er Cl		= Total Cover	FACU species(O x4 =
Herb Stratum (Plot size:		V Exc	UPL species $x5 = $ Column Totals: 220 (A) 620 (B)
1. Unidentified grass		TAC	
2			Prevalence Index = B/A = 2.82
3			Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			✓ 3 - Prevalence Index is ≤3.0¹
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation¹ (Explain)
10			¹Indicators of hydric soil and wetland hydrology must
11			be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5 11)		= Total Cover	=======================================
1. Pedly night shade	40	Y TAC	Hydrophytic
2.			Vegetation
90		= Total Cover	Present? Yes / No
% Bare Ground in Herb Stratum			
Remarks:			

Sampling Point: SP3

epth Matrix	Redo	x Feature	S		
nches) Color (moist) %	Color (moist)	%	Type	Loc2	Texture Remarks
D-9 1072 2/2 99	104R3/4	1	\mathcal{C}	M	Loamy clay
9-18+ 104R3/2 90	10 YR 3/4	4		M	Clay Mixed matrix
1-18+ 104R4/1 15	10 11				clay '
110+ 101/2 11 13	-				C. ray
	-	-			1
<u> </u>	2				
	,				
	£	-	-		7
					2
ype: C=Concentration, D=Depletion, RM ydric Soil Indicators: (Applicable to al				d Sand G	rains. ² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :
			eu.)		
_ Histosol (A1)	Sandy Redox (-			2 cm Muck (A10)
_ Histic Epipedon (A2) _ Black Histic (A3)	Stripped Matrix Loamy Mucky I		1) (avean	MI DA 4	Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	Loamy Gleyed			MILICAL I)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)	Depleted Matrix		-/		Outer (Explain in Itematics)
Thick Dark Surface (A12)	Redox Dark Su		1		³ Indicators of hydrophytic vegetation and
_ Sandy Mucky Mineral (S1)	Depleted Dark				wetland hydrology must be present,
_ Sandy Gleyed Matrix (S4)	Redox Depress		•		unless disturbed or problematic.
estrictive Layer (if present):					The state of the s
Type:					
Depth (inches):					Hydric Soil Present? Yes No
'DROLOGY					
/DROLOGY /etland Hydrology Indicators:			J.		
/etland Hydrology Indicators: rimary Indicators (minimum of one requin			A)		Secondary Indicators (2 or more required)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin Surface Water (A1)	Water-Sta	ined Leav		xcept	Water-Stained Leaves (B9) (MLRA 1, 2,
/etland Hydrology Indicators: rimary Indicators (minimum of one requin Surface Water (A1) High Water Table (A2)	Water-Sta	ined Leav 1, 2, 4A,		xcept	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin _ Surface Water (A1) _ High Water Table (A2) _ Saturation (A3)	Water-Sta MLRA Salt Crust	ined Leav 1, 2, 4A, (B11)	and 4B)	except	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Vetland Hydrology Indicators: rimary Indicators (minimum of one requin Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	Water-Sta MLRA Salt Crust Aquatic In	ined Leav 1, 2, 4A, (B11) vertebrat	and 4B) es (B13)	xcept	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Vetland Hydrology Indicators: nimary Indicators (minimum of one requin Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ined Leav 1, 2, 4A, (B11) vertebrate Sulfide C	and 4B) es (B13) dor (C1)		 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Vetland Hydrology Indicators: rimary Indicators (minimum of one require Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized	ined Leaven 1, 2, 4A, (B11) vertebrate Sulfide CRhizosphe	and 4B) es (B13) dor (C1) eres along	Living Ro	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2)
/etland Hydrology Indicators: nimary Indicators (minimum of one requin Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized	ined Leavent 1, 2, 4A, 1 (B11) evertebrate Sulfide Carlicosphe of Reduc	and 4B) es (B13) edor (C1) eres along ed Iron (C	Living Ro	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3)
Vetland Hydrology Indicators: nimary Indicators (minimum of one requin 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)	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent In	ined Leavente, 1, 2, 4A, 1 (B11) Invertebrate Sulfide Control Reduction Reduction	and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille	Living Ro 4) d Soils (C	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin 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)	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent In Stunted o	ined Leavent 1, 2, 4A, 1 (B11) Evertebrate Sulfide Control Reduction Reduction Stressee	and 4B) es (B13) dor (C1) eres along ed Iron (C tion in Tille d Plants (D	Living Ro 4) d Soils (C	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin 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 (Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized In Presence Recent In Stunted o	ined Leavent 1, 2, 4A, 1 (B11) Evertebrate Sulfide Control Reduction Reduction Stressee	and 4B) es (B13) dor (C1) eres along ed Iron (C tion in Tille d Plants (D	Living Ro 4) d Soils (C	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin 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 (I	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized In Presence Recent In Stunted o	ined Leavent 1, 2, 4A, 1 (B11) Evertebrate Sulfide Control Reduction Reduction Stressee	and 4B) es (B13) dor (C1) eres along ed Iron (C tion in Tille d Plants (D	Living Ro 4) d Soils (C	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin 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 (Inc.) Sparsely Vegetated Concave Surface Ield Observations:	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized In Presence Recent In Stunted o B7) Other (Ex	ined Leavent, 2, 4A, (B11) evertebrate Sulfide C Rhizosphe of Reduce on Reduce r Stressee plain in R	and 4B) es (B13) dor (C1) eres along ed Iron (C tion in Tille d Plants (D	Living Ro 4) d Soils (C	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
/etland Hydrology Indicators: nimary Indicators (minimum of one requin 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 (Inc. Sparsely Vegetated Concave Surface (Ield Observations: Surface Water Present? Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized In Presence Recent In Stunted o B7) Other (Ex	ined Leaven 1, 2, 4A, 1 (B11) evertebrate Sulfide Con Reduction Reductor Stressed plain in Reductor St	and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (D emarks)	Living Ro 4) d Soils (C 1) (LRR #	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin 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 (Sparsely Vegetated Concave Surface indicated Water Present? Vater Table Present? Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent In Stunted o Other (Ex (B8)	ined Leavent, 2, 4A, (B11) Invertebrate Sulfide Con Reduction Reduction Stresser plain in Reduction Reduct	and 4B) es (B13) dor (C1) eres along ed Iron (C tion in Tille d Plants (D emarks)	Living Ro	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin 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 (Sparsely Vegetated Concave Surface indicated Water Present? Vater Table Present? Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent In Stunted o Other (Ex (B8) No Depth (ir No Depth (ir	ined Leaven 1, 2, 4A, 1 (B11) overtebrate Sulfide Con Reduction Re	and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (D emarks)	Living Ro 4) d Soils (C 1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) 6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
/etland Hydrology Indicators: nmary Indicators (minimum of one requine 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 (Indicated Water Present? Vater Table Present Pres	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent In Stunted o Other (Ex (B8) No Depth (ir No Depth (ir	ined Leaven 1, 2, 4A, 1 (B11) overtebrate Sulfide Con Reduction Re	and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (D emarks)	Living Ro 4) d Soils (C 1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) 6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
/etland Hydrology Indicators: rimary Indicators (minimum of one requin 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 (Inc. Sparsely Vegetated Concave Surface (Inc. Surface Water Present? Vater Table Present? Vater Table Present? Ves Includes capillary fringe) Vescribe Recorded Data (stream gauge, researches)	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent In Stunted o Other (Ex (B8) No Depth (ir No Depth (ir nonitoring well, aerial	ined Leaven 1, 2, 4A, 1 (B11) overtebrate Sulfide Con Reduction Re	and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (D emarks)	Living Ro 4) d Soils (C 1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) 6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
/etland Hydrology Indicators: nmary Indicators (minimum of one requine 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 (Indicated Water Present? Vater Table Present Pres	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent In Stunted o Other (Ex (B8) No Depth (ir No Depth (ir nonitoring well, aerial	ined Leaven 1, 2, 4A, 1 (B11) overtebrate Sulfide Con Reduction Re	and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (D emarks)	Living Ro 4) d Soils (C 1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) 6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)