SWCA
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

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TECHNICAL MEMORANDUM

To: Steven A. Ward, PE
Ward Development, LLC.
503-931-3460
sward@westech-eng.com

From: C. Mirth Walker, SPWS, Senior Wetland Scientist

Date: May 25, 2021

Re: **Strong Heights Subdivision and Reed Road Wetland Determination / SWCA Project No. 304070.10**

INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a site visit on May 18, 2021, to the proposed Strong Heights Subdivision located south of Old Strong Road SE, north of Strong Road, and west of Reed Road SE, in Salem, Oregon. The site consists of Tax Lots 100, 200, and 300 on Marion County Tax Map 083W11A (Figures 1 and 2 in Appendix A). The proposed development has three phases: 1) the Strong Heights Subdivision, 2) widening of Reed Road SE 12 feet to the west for approximately 1,850 feet south of the subject site (the northern section), and then 3) widening of Reed Road SE 6 feet on both the west and east sides for approximately 850 feet (the southern section).

FINDINGS

Four sample plots (SP1–SP4) were documented on the site and along Reed Road SE. No wetlands or other waters were found within the site and road widening area.

1) Strong Heights Subdivision

Two sample plots (SP1 and SP2) were documented in the northeast corner of the subject site (Figures 2 and 4 in Appendix A) where Reed Road SE and the West Middle Fork Pringle Creek had previously crossed the site. Soils were disturbed by gravel fill and were compacted and very hard to dig; vegetation was dominated by tall fescue (*Schedonorus arundinaceus*). No indicators of wetland hydrology were observed.

2) Reed Road SE – Northern Widening

One sample plot (SP4) was placed along Reed Road SE on the west side south of Strong Road and north of Chapel Lane SE (Figure 3 in Appendix A). Vegetation was dominated by Oregon white oak (*Quercus garryana*), field meadow-foxtail (*Alopecurus pratensis*), tall fescue, and tall oat grass (*Arrhenatherum elatius*). Soils were again constrained by gravels but no hydric soil indicators were observed in the surface 6 inches. No indicators of wetland hydrology were observed.

A human-constructed roadside ditch is present starting immediately south of Chapel Lane SE, with culverts crossing Reed Road SE to the east into West Middle Fork Pringle Creek, which flows north along the east side of Reed Road SE. The ditch is approximately 3 to 4 feet wide and ranges from 3 feet deep in the north to 2 feet deep in the south. The ditch was dry, and appears to be intermittent rather than ephemeral. No vegetation was present below the ordinary high water mark and soils did not display any hydric soil indicators. The ditch does not provide food for game fish and, in SWCA's opinion, would not be considered jurisdictional by the Oregon Department of State Lands or the U.S. Army Corps of Engineers. The authority to determine jurisdictional status resides with the jurisdictional agencies. The ditch continues to the south along the entire road widening project, and is culverted under Lindburg Road and driveways or farm/pasture access roads.

3) Reed Road SE – Southern Widening

One sample plot (SP3) was placed along Reed Road SE on the east side where the West Middle Fork Pringle Creek swings away from the road (Figure 3 in Appendix A). Vegetation was dominated by tall fescue, field meadow-foxtail, and Kentucky blue grass (*Poa pratensis*). Soils were hard to dig and did not display any hydric soil indicators within the surface 4 inches. No indicators of wetland hydrology were observed. Wetlands may be present to the east, along the banks of the West Middle Fork Pringle Creek.

RESULTS AND CONCLUSION

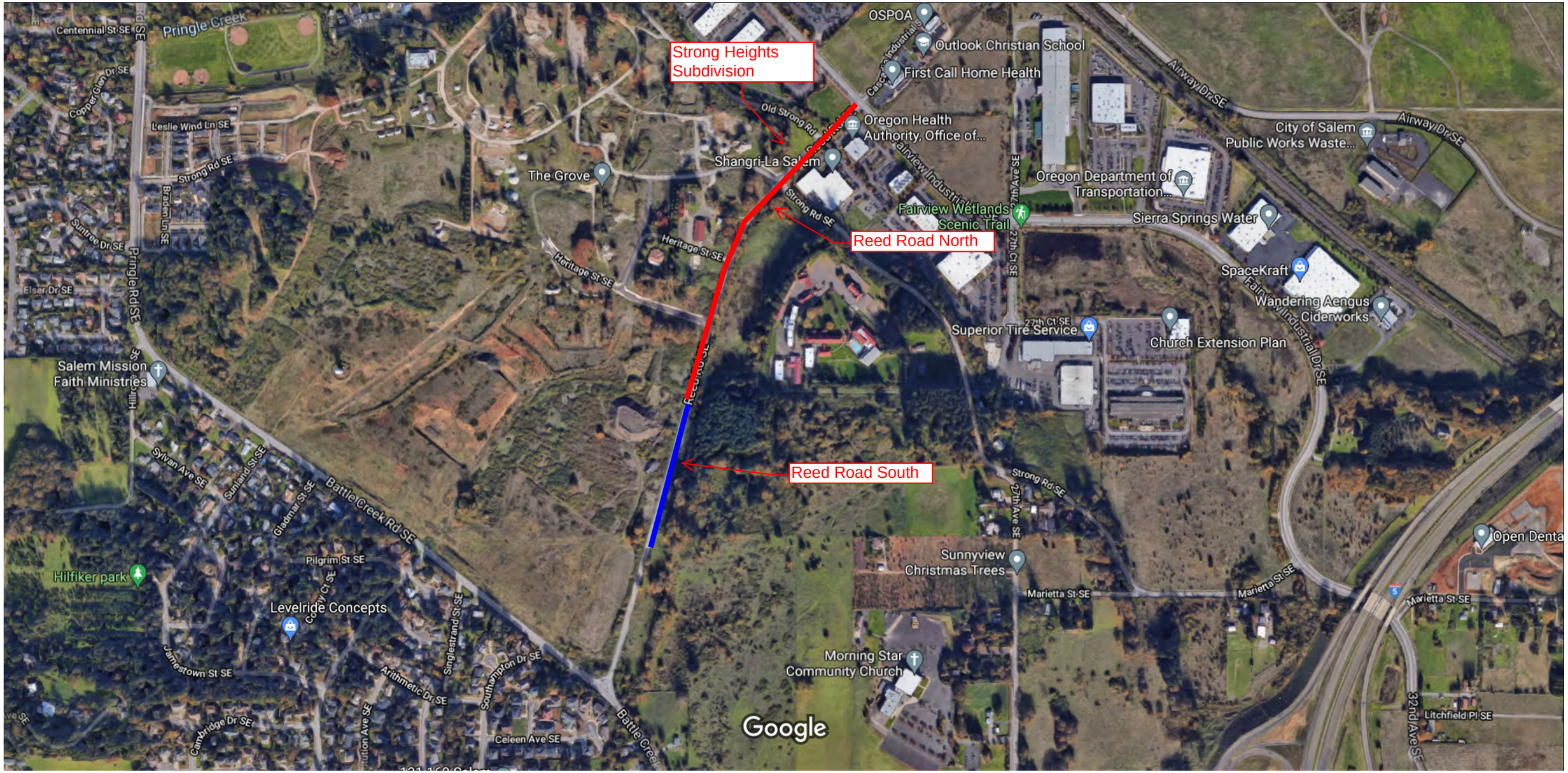
No wetlands were determined to be present within the proposed subdivision footprint or along Reed Road SE. One human-constructed ditch is present west of Reed Road SE to the south of Chapel Lane SE. Wetland determination data sheets are included in Appendix B, and a list of vegetation noted within the study area is included in Appendix C. Site photographs are available upon request.

APPENDICES

A. Figures
B. Wetland Determination Data Sheets
C. Vegetation List

APPENDIX A

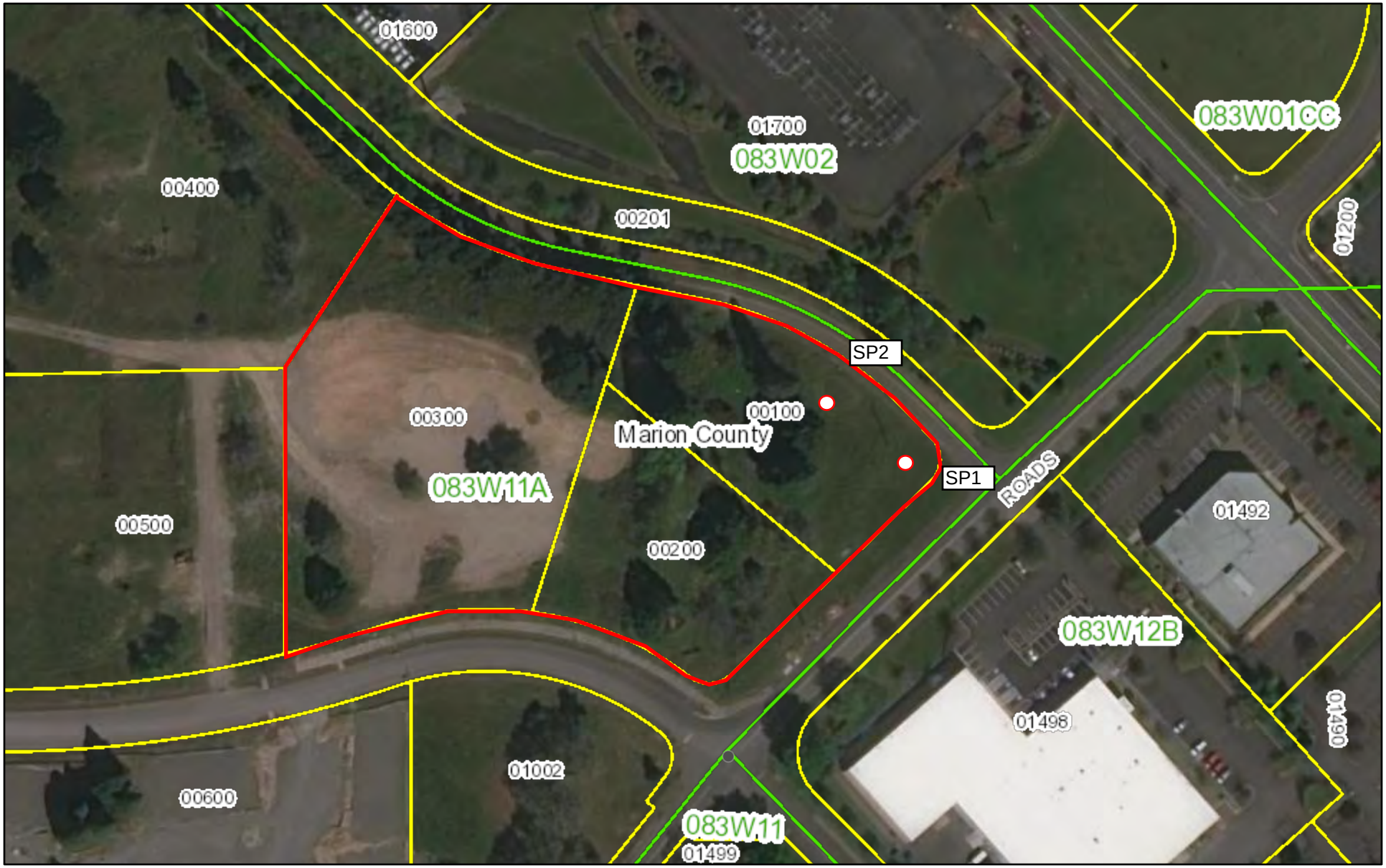
Figures



Imagery ©2021 Google, Imagery ©2021 Maxar Technologies, State of Oregon, U.S. Geological Survey, Map data ©2021 500 ft

Figure 1. Strong Heights Subdivision site location and Reed Road SE widening north and south sections.

Strong Heights Subdivision - TLs 100-200-300



5/13/2021, 11:58:59 AM

taxlot mapIndex CountyLines

1:2,257

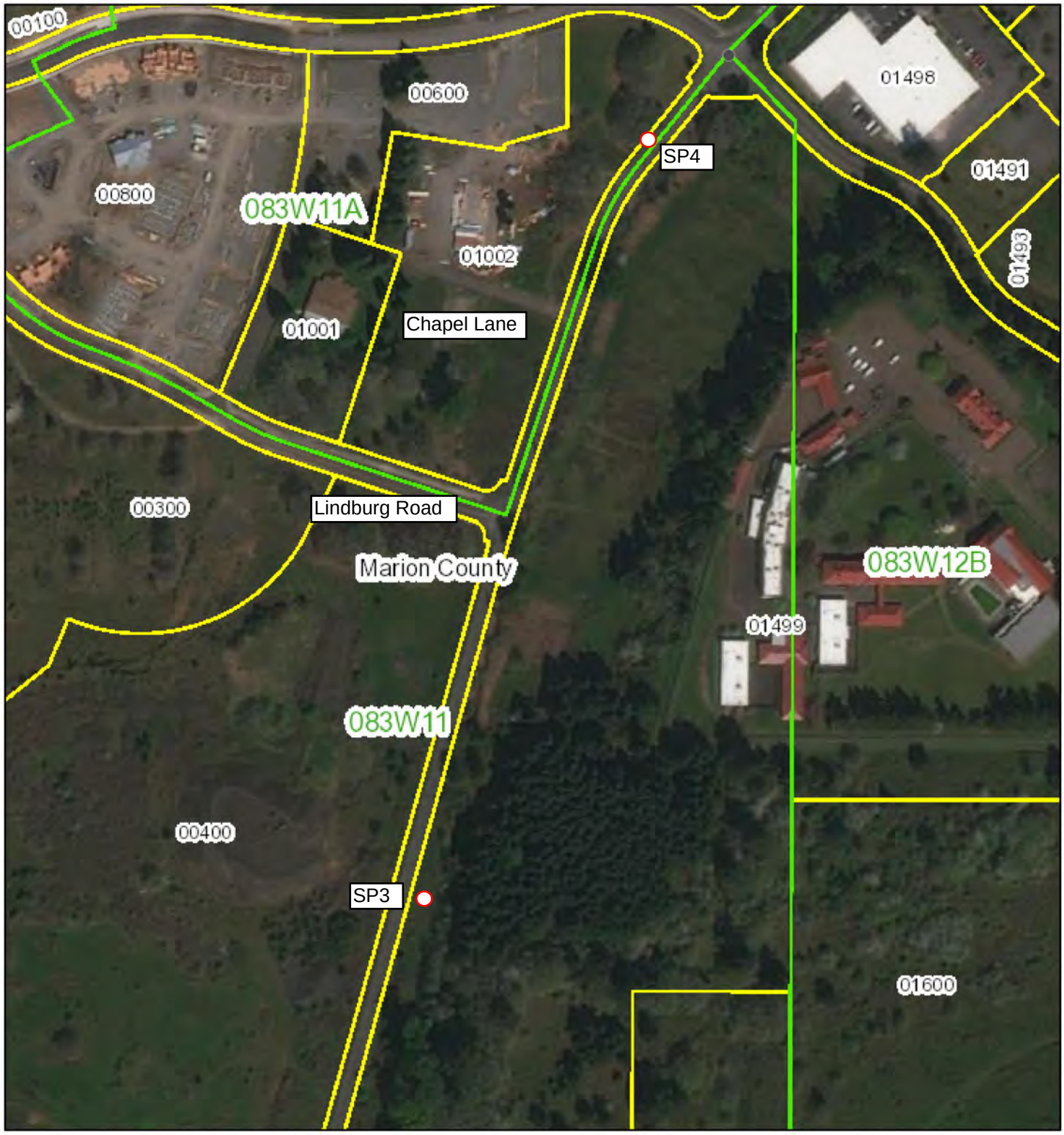
0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

Maxar, Microsoft, OREGON DOR, GEO

Figure 2. ORmap Aerial with Sample Plot (SP) Locations SP1 and SP2.

Strong Heights Subdivision - Reed Road



5/13/2021, 12:00:31 PM

taxlot

mapIndex

CountyLines

1:4,514

0 0.03 0.05 0.1 mi

0 0.04 0.09 0.17 km

OREGON DOR, GEO, Maxar

Figure 3. ORmap Aerial with SP3 and SP4.

Web AppBuilder for ArcGIS
Maxar | OREGON DOR, GEO |

X REMOVE TREE

0 15 30 60
(feet)

OLD STRONG RD SE

EXIST 50' ESMT TO COS

CRUSHED CONCRETE/GRAVEL

CRUSHED CONCRETE/GRAVEL

CRUSHED CONCRETE/GRAVEL

CONC

ASPHALT

ASPHALT

SP2

SP1

250.91
PVC 4" VERTICAL 2'

251.23
PVC 2" VERTICAL 2'

PIPED WTR

248.86
PVC 2" VERTICAL 3'

STRONG RD

235
SN THE GROVE
SN SHARP COR

REED RD (MR 25)

Figure 4. Approximate locations of SP1 and SP2.

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING 1"
IF NOT ONE INCH, ADJUST THIS SHEET, ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
STEVEN A. WARD
EXPIRES: 6/30/2022
REVIEW

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
Phone: (503) 585-2474 Fax: (503) 585-3986
E-mail: westech@westech-eng.com

WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

EXISTING CONDITIONS

DRAWING
C1.0

JOB NUMBER
2720.7000.0

5/19/2021 12:05:13 PM
R:\Dwg\WARD Property\Strong Heights Subdivision\Civil\Plots\C1.0 Existing Conditions.dwg, (Layout1 tab)

APPENDIX B

Wetland Determination Data Sheets

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

Project/Site: Old Strong Road / Strong Heights Subdivision City/County: Salem / Marion Sampling Date: 5/18/2021

Applicant/Owner: Steve Ward, Ward Development LLC State: OR Sampling Point: **SP1**

Investigator(s): C. Mirth Walker Section, Township, Range: 11A, 8S, 3W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A, Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: MaA McAlpin NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No X
Hydric Soil Present?	Yes	No X
Wetland Hydrology Present?	Yes	No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
40 feet SW of Stop Sign; 21 feet NW of TP-1 (28 feet NW of center of test pit).

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Schedonorus arundinaceus*	40%	Yes	FAC
2. *Bromus hordeaceus*	10%	Yes	FACU
3. *Plantago lanceolata*	10%	Yes	FACU
4. *Hypochaeris radicata*	10%	Yes	FACU
5. *Trifolium repens*	5%	No	FAC
6. *Dactylis glomerata*	5%	No	FACU
7. *Aira caryophyllea*	5%	No	FACU
8. *Trifolium pratense*	5%	No	FACU
9. *Daucus carota*	5%	No	FACU
10. *Lepidium campestre*	5%	No	NOL
11. *Cerastium glomeratum*	1%	No	FACU
	101% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	45	x 3 =	135
FACU species	51	x 4 =	204
UPL species	5	x 5 =	25
Column Totals:	101 (A)		364 (B)

Prevalence Index = B/A = 3.60

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.

Hydrophytic Vegetation Present? Yes No X

Remarks: Entered by: cmw QC by:

SOIL

Sampling Point: **SP1**

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
0-2	10YR 3/2	100					gr Si	

[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: fill

Depth (inches): 2

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Too compacted to dig; many utility lines present. Corner has been filled (road used to go through here).

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** **X**

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

Remarks:

Entered by: cmw QC by: ___

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

Project/Site: Old Strong Road / Strong Heights Subdivision City/County: Salem / Marion Sampling Date: 5/18/2021

Applicant/Owner: Steve Ward, Ward Development LLC State: OR Sampling Point: **SP2**

Investigator(s): C. Mirth Walker Section, Township, Range: 11A, 8S, 3W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A, Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: MaA McAlpin NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	**X**	No	
Hydric Soil Present?	Yes		No	**X**
Wetland Hydrology Present?	Yes		No	**X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Old stream channel location - filled. West Middle Fork Pringle Creek used to flow through this corner as shown on soils map but it has been culverted. 10 feet north of TP-2.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Rubus armeniacus*	5%	Yes	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Schedonorus arundinaceus*	50%	Yes	FAC
2. *Poa pratensis*	20%	Yes	FAC
3. *Holcus lanatus*	10%	No	FAC
4. *Dactylis glomerata*	5%	No	FACU
5. *Geranium dissectum*	5%	No	NOL
6. *Vicia disperma*	3%	No	NOL
7. *Plantago lanceolata*	3%	No	FACU
8. *Bellis perennis*	2%	No	NOL
9. *Trifolium pratense*	2%	No	FACU
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 85	x 3 =	255
FACU species 10	x 4 =	40
UPL species 10	x 5 =	50
Column Totals: 105 (A)		345 (B)

Prevalence Index = B/A = 3.29

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 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.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: Entered by: cmw QC by:

SOIL

Sampling Point: **SP2**

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
0-4+	10YR 3/2	98	7.5YR 3/2	2	C	M	SiL	faint

[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: gravel fill

Depth (inches): 4

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Need to dig deeper; all indicators point to site being upland.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** **X**

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

Remarks:

Entered by: cmw QC by: ___

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

Project/Site: Old Strong Road / Strong Heights Subdivision City/County: Salem / Marion Sampling Date: 5/18/2021

Applicant/Owner: Steve Ward, Ward Development LLC State: OR Sampling Point: **SP3**

Investigator(s): C. Mirth Walker Section, Township, Range: 11A, 8S, 3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A, Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: MaA McAlpin NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Approximately 8 feet east of road gravel.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Alopecurus pratensis*	40%	Yes	FAC
2. *Schedonorus arundinaceus*	35%	Yes	FAC
3. *Poa pratensis*	25%	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 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.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Myosotis discolor (FAC) rooted to the east); *Cytisus scoparius* (NOL) rooted to the south.

Entered by: cmw QC by:

SOIL

Sampling Point: **SP3**

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
0-4	10YR 2/2	100					SiL	

[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: Hardpan

Depth (inches): 4

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Should check earlier in season when soils are easier to dig. Wetland may be present to the east, but the first 6 feet of vegetation is fine.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** **X**

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

Remarks:

Entered by: cmw QC by: ___

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

Project/Site: Old Strong Road / Strong Heights Subdivision City/County: Salem / Marion Sampling Date: 5/18/2021

Applicant/Owner: Steve Ward, Ward Development LLC State: OR Sampling Point: **SP4**

Investigator(s): C. Mirth Walker Section, Township, Range: 11A, 8S, 3W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: MaA McAlpin NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
S of Strong Road, west side by 3 oaks that will be removed.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus garryana*	80%	Yes	FACU
2.			
3.			
4.			
	80% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Crataegus douglasii*	10%	Yes	FAC
2. *Crataegus monogyna*	1%	No	FAC
3.			
4.			
5.			
	11% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Alopecurus pratensis*	50%	Yes	FAC
2. *Schedonorus arundinaceus*	20%	Yes	FAC
3. *Arrhenatherum elatius*	20%	Yes	UPL
4. *Poa pratensis*	10%	No	FAC
5. *Quercus garryana*	1%	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	101% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	91	x 3 =	273
FACU species	81	x 4 =	324
UPL species	20	x 5 =	100
Column Totals:	192 (A)		697 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 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.

Hydrophytic Vegetation Present? Yes X No

Remarks: Entered by: cmw QC by:

SOIL

Sampling Point: **SP4**

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
0-6	10YR 3/2	99	10YR 4/6	1	C	M	SiL	w/ gravels

[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)
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- ___ Sandy Mucky Mineral (S1)
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- ___ 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: gravels

Depth (inches): 6

Hydric Soil Present? **Yes** ___ **No** X

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

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)
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- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
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- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:
Soils moister, easier to dig.

Entered by: cmw QC by: ___

APPENDIX C

Vegetation List

Strong Heights Subdivision
Vegetation List
May 18, 2021

Common Name	Scientific Name	Wetland Indicator Status	Native and Invasive, Noxious
common silver-hair grass	*Aira caryophyllea*	FACU	non-native
field meadow-foxtail	*Alopecurus pratensis*	FAC	non-native
tall oat grass	*Arrhenatherum elatius*	UPL	non-native
English daisy	*Bellis perennis*	NOL	non-native
soft brome	*Bromus hordeaceus*	FACU	non-native
sticky mouse-ear chickweed	*Cerastium glomeratum*	FACU	non-native
black hawthorn	*Crataegus douglasii*	FAC	native
English hawthorn	*Crataegus monogyna*	FAC	non-native
Scot's broom	*Cytisus scoparius*	NOL	noxious
orchard grass	*Dactylis glomerata*	FACU	non-native
Queen Anne's-lace	*Daucus carota*	FACU	non-native
cutleaf geranium	*Geranium dissectum*	NOL	non-native
common velvet grass	*Holcus lanatus*	FAC	non-native
hairy cat's-ear	*Hypochaeris radicata*	FACU	non-native
field pepperweed	*Lepidium campestre*	NOL	non-native
English plantain	*Plantago lanceolata*	FACU	non-native
Kentucky blue grass	*Poa pratensis*	FAC	non-native
Douglas-fir	*Pseudotsuga menziesii*	FACU	native
Oregon white oak	*Quercus garryana*	FACU	native
Himalayan blackberry	*Rubus armeniacus*	FAC	invasive, noxious
tall fescue	*Schedonorus arundinaceus*	FAC	non-native
red clover	*Trifolium pratense*	FACU	non-native
white clover	*Trifolium repens*	FAC	non-native
European vetch	*Vicia disperma*	NOL	non-native

Wetland Indicator Status and taxonomy for the Western Mountains, Valleys, and Coast Region per the National Wetland Plant List 2018 v3.4. Accessed May 18, 2020. http://wetland-plants.usace.army.mil/nwpl_static/v34/home/home.html

Native per Hitchcock & Cronquist 2018 and http://plants.usda.gov/
Invasive per Clean Water Services 2019: http://cleanwaterservices.org/permits-development/design-construction-standarc
Noxious per ODA 2020:
https://www.oregon.gov/ODA/programs/Weeds/OregonNoxiousWeeds/Pages/AboutOregonWeeds.aspx

WETLAND INDICATOR STATUS (WIS)	
OBL	**Obligate Wetland** Plant – Almost always occurs in wetlands (hydrophyte), rarely in uplands
FACW	**Facultative Wetland** Plant - Usually occur in wetlands (hydrophyte), but may occur found in non-wetlands
FAC	**Facultative** Plant – Occurs in wetlands (hydrophyte) and uplands (nonhydrophyte)
FACU	**Facultative Upland** Plant - Usually occur in non-wetlands (non-hydrophyte), but may occur in wetlands
UPL	**Upland** Plant - Almost always occurs in uplands (non-hydrophyte), almost never occurs in wetlands. UPL plants have a WIS in other regions
NOL	**Not Listed** - Plants that are not on the National Wetland Plant List are assumed to be UPL and have no WIS in any region