



Department of Land Conservation and Development 635 Capitol Street, Suite 150 Salem, OR 97301-2540 (503) 373-0050 Fax (503) 378-5518 www.lcd.state.or.us



NOTICE OF ADOPTED AMENDMENT

03/01/2011

- TO: Subscribers to Notice of Adopted Plan or Land Use Regulation Amendments
- FROM: Plan Amendment Program Specialist
- SUBJECT: City of Springfield Plan Amendment DLCD File Number 003-10

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A Copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Thursday, March 17, 2011

This amendment was submitted to DLCD for review prior to adoption pursuant to ORS 197.830(2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

- *<u>NOTE:</u> The Acknowledgment or Appeal Deadline is based upon the date the decision was mailed by local government. A decision may have been mailed to you on a different date than it was mailed to DLCD. As a result, your appeal deadline may be earlier than the above date specified. <u>NO LUBA</u> Notification to the jurisdiction of an appeal by the deadline, this Plan Amendment is acknowledged.
- Cc: Mark Metzger, City of Springfield Gloria Gardiner, DLCD Urban Planning Specialist Ed Moore, DLCD Regional Representative Amanda Punton, DLCD Regional Representative

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Notice of Adopt	on	s F	FROF	
Notice of Adopti		A LAND	-0 2 5 21	011
This Form 2 must be mailed to DLCD within <u>5-Working Days af</u> Ordinance is signed by the public Official Designated by the j	ter the Final urisdiction	M AND D	DEVELOPM	TION
and all other requirements of ORS 197.615 and OAR 660-0	18-000	For	r Office Use On	H9/ F
Jurisdiction: City of Springfield	Local file nun	nber: LRP201	0-00002	
Date of Adoption: 2/22/2011	Date Mailed:	2/24/2011		
Was a Notice of Proposed Amendment (Form 1) mailed	I to DLCD?	Yes No	Date: 11	/19/2010
Comprehensive Plan Text Amendment	Compreh	ensive Plan Ma	ap Ameno	dment
Land Use Regulation Amendment	Zoning M	ap Amendmer	nt	
New Land Use Regulation	Other: G	oal 5 docume	nt update	es.
Summarize the adopted amendment. Do not use ter	chnical terms.	Do not write "S	See Attac	hed".
Resources Sites (Riparian Inventory) and the Springfield I Recommended Protections) to include newly identified we amendments are replacement pages and inserts for each of	Natural Resource etland and ripari f the three docur	es Study (ESEE an sites in the G nents.	Analysis a lenwood a	and area. The
Does the Adoption differ from proposal? No, no exp	lanation nece	ssary		
Plan Map Changed from:	to:			
Zone Map Changed from:	to:			t na tran
Location:		Acres I	nvolved:	
Specify Density: Previous:	New:			
Applicable statewide planning goals:				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	12 13 14	15 16 17	18 19	
Was an Exception Adopted? YES NO				
Did DLCD receive a Notice of Proposed Amendment				
45-days prior to first evidentiary hearing?			🛛 Yes	No
If no, do the statewide planning goals apply?			Yes	No
If no, did Emergency Circumstances require immedia	te adoption?		Yes	No
DLCD file No. 003-10 (18616) [16536]				

Please list all affected State or Federal Agencies, Local Governments or Special Districts: City of Springfield, Lane County

Local Contact: Mark Metzger		Phone: (541) 726-3775	Extension:
Address: 225 Fifth Street		Fax Number: 541-726-377	5
City: Springfield	Zip: 97477	E-mail Address: mrmetzge	er@ci.springfield.or.us

ADOPTION SUBMITTAL REQUIREMENTS

This Form 2 must be received by DLCD no later than 5 days after the ordinance has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s)

per ORS 197.615 and OAR Chapter 660, Division 18

- 1. This Form 2 must be submitted by local jurisdictions only (not by applicant).
- 2. When submitting the adopted amendment, please print a completed copy of Form 2 on light green paper if available.
- 3. <u>Send this Form 2 and one complete paper copy (documents and maps) of the adopted amendment to the address below.</u>
- 4. Submittal of this Notice of Adoption must include the final signed ordinance(s), all supporting finding(s), exhibit(s) and any other supplementary information (ORS 197.615).
- 5. Deadline to appeals to LUBA is calculated twenty-one (21) days from the receipt (postmark date) of adoption. (ORS 197.830 to 197.845).
- 6. In addition to sending the Form 2 Notice of Adoption to DLCD, please also remember to notify persons who participated in the local hearing and requested notice of the final decision. (ORS 197.615).
- 7. Submit one complete paper copy via United States Postal Service, Common Carrier or Hand Carried to the DLCD Salem Office and stamped with the incoming date stamp.
- 8. Please mail the adopted amendment packet to:

ATTENTION: PLAN AMENDMENT SPECIALIST DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT 635 CAPITOL STREET NE, SUITE 150 SALEM, OREGON 97301-2540

Need More Copies? Please print forms on 8½ -1/2x11 green paper only if available. If you have any
questions or would like assistance, please contact your DLCD regional representative or contact the DLCD
Salem Office at (503) 373-0050 x238 or e-mail plan.amendments@state.or.us.

http://www.oregon.gov/LCD/forms.shtml

Updated December 16, 2010

Glenwood Update of the Springfield Natural Resources Study and Related Inventory Documents

City of Springfield February 24, 2011

Contents:

DLCD Notice of Adoption

Adopting Ordinance #6265 with Exhibits

- Exhibit A: Amendments to the Springfield Local Wetland Inventory
- Exhibit B: Amendments to the Springfield Inventory of Natural Resources Sites
- Exhibit C: Amendments to the Springfield Natural Resources Study

Supporting Documents

- Staff Report
- Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield
- Glenwood Natural Resource Wildlife Habitat Assessment 2010

ORDINANCE

ORDINANCE NO. 6265 (General)

AN ORDINANCE AMENDING THE *EUGENE-SPRINGFIELD METROPOLITAN PLAN* TO UPDATE THE SPRINGFIELD LOCAL WETLAND INVENTORY, THE SPRINGFIELD INVENTORY OF NATURAL RESOURCE SITES AND THE SPRINGFIELD NATURAL RESOURCES STUDY TO INCLUDE NEWLY IDENTIFIED WETLAND AND RIPARIAN SITES IN THE GLENWOOD AREA; TO ADOPT PROTECTION MEASURES FOR THE NEW GLENWOOD SITES AND TO UPDATE THE BOUNDARIES OF KNOWN SITES; AND ADOPTING A SEVERABILITY CLAUSE.

THE CITY COUNCIL OF THE CITY OF SPRINGFIELD FINDS THAT:

WHEREAS, the Springfield Local Wetland Inventory (Wetland Inventory) was adopted by the City Council in 1998 and identifies wetlands within the Springfield Urban Growth Boundary; and

WHEREAS, the Springfield Inventory of Natural Resource Sites (NR Inventory) was adopted by the City Council in 2004, and identifies riparian corridors within the Springfield Urban Growth Boundary; and

WHEREAS, the Springfield Natural Resources Study (NR Study) was adopted by the City Council in 2005 and prescribes protection measures for the resource sites identified in the Wetland and NR Inventories; and

WHEREAS, a new inventory of wetland and riparian resources in the Glenwood area has identified additional resource sites and refined the boundaries of known sites, and has prompted the need to amend the NR Study, the NR Inventory, and the Wetland Inventory; and

WHEREAS, amendments to the NR Study, which was adopted as a functional plan of the Eugene-Springfield Metropolitan General Plan, are processed as amendments to the Metro Plan; and

WHEREAS, Section 5.14-100 of the Springfield Development Code (SDC) sets forth procedures for amendments to the Metro Plan; and

WHEREAS, a public open house was held on January 11, 2011 to explain the proposed Glenwood amendments to NR Study, the NR Inventory and the Wetland Inventory and to receive public comment; and

WHEREAS, the Springfield Planning Commission conducted a public hearing on the Glenwood amendments to the Springfield Natural Resources Study (NR Study), the Springfield Inventory of Natural Resource Sites (NR Inventory) and the Springfield Local Wetland Inventory (Wetland Inventory) on January 19, 2011 and voted unanimously to recommend approval of the amendments to the City Council based upon findings in support of adoption of these amendments as set forth in the Staff Report and the Recommendation to the Council incorporated herein by reference (Case Number LRP2010-00002); and based on the evidence

and testimony in the record demonstrating that the proposed amendments comply with the criteria for approving Metro Plan amendments; and

WHEREAS, the Joint Elected Officials of the City of Springfield and Lane County held a public hearing on the proposed Glenwood amendments to the NR Study, the NR Inventory and the Wetland Inventory on February 7, 2010 and the Springfield City Council is now ready to take action on this matter based upon the above recommendation and the evidence and testimony already in the record as well as the evidence and testimony presented at this public hearing held in the matter of hearing this Ordinance adopting the Glenwood amendments to the NR Study, the NR Inventory and the Wetland Inventory.

NOW THEREFORE, THE CITY OF SPRINGFIELD ORDAINS AS FOLLOWS:

Section 1: The proposed Glenwood amendments to the Springfield Local Wetland Inventory, attached as Exhibit A, are adopted.

Section 2: The proposed Glenwood amendments to the Springfield Inventory of Natural Resource Sites, attached as Exhibit B, are adopted;

Section 3: The proposed Glenwood amendments to the Springfield Natural Resources Study, attached as Exhibit C, are adopted;

Section 4: If any section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid or unconstitutional by a court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portion thereof.

Section 5: Notwithstanding the effective date of Ordinances as provided in Section 2.110 of the Springfield Municipal Code, this Ordinance shall become effective upon the date that all of the following have occurred: (a) the Ordinance has been acknowledged, and/or at least 30 days have passed since the date the Ordinance was approved.

ADOPTED by the Common Council of the City of Springfield by a vote of <u>5</u> for and <u>0</u> against, this <u>22n</u>dlay of <u>February</u>, 2011.

APPROVED by the Mayor of the City of Springfield, this <u>22nd</u> day of February , 2011.

ATTEST:

City Recorder

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REVIEWED & APPROVED AS TO FOR DATE: OFFICE OF CITY ATTORNEY

Attachment 1-2

ORDINANCE NO. 6265

[Insert at pg. "Local Wetland Inventory Summary-9"]

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<u>Wetland W19</u> is 41.65 acres and is classified as POW/PFO. The wetlands were determined through on- and off-site methods. The wetlands are adjacent to the Springfield sheriff's pistol range and the portion of the Mill Race that has been widened to create a log pond for a mill. Soils were dark in color with mottles. Hydrology was indicated by the dominance of hydrophytic vegetation and presence of surface water in depressions. The wetland limits were determined where the vegetation changed and there were no longer indicators of hydrology and through use of black and white and infrared aerial photo interpretation and are limited to TOB.

[W19 was inadvertently left off of the original Local Wetland Inventory descriptions]

Wetland W20 is 3.39 acres and classified as PSS/PAB. The wetland is adjacent to Glenwood Slough and the railroad tracks. Overstory dominant species include Oregon ash, Oregon white oak (Quercus garryana) and big leaf maple. Understory dominant was willow (Salix sp.). Herbaceous dominants were yellow flag iris (Iris pseudoacorus), spreading rush (Juncus patens) and marsh horsetail (Equisetum arvense). Soils were dark in color with mottles. Seasonal hydrology was indicated by the dominance of hydrophytic vegetation and presence of surface water in depressions. The wetland limits were determined where the vegetation changed and there were no longer indicators of hydrology.

<u>Wetland W20 is 3.73 acres and is classified a Palustrine Shrub-Scrub wetland.</u> The wetland is adjacent to Glenwood Slough and the railroad tracks. It is part of the Glenwood Slough. It flows northwest into W-21 prior to being culverted and flowing into the Willamette River. W-20 is bisected by Glenwood Blvd, but is still hydrologically connected by a culvert. The Slough is a topographic bowl. Hydrologic sources include stormwater from adjacent impervious surfaces, in addition to groundwater and upslope surface water. A portion of W-20 was previously delineated (WD96-0375).

The dominant wetland vegetation includes Oregon Ash, Sitka Willow, Red-Osier Dogwood, Field Mint, Begger's Tick, Soft Rush and Short Scale Sedge.

Soil types include: Chehalis silty clay loam.

Wetland W21 Wetland W-21 is .47 acres and is classified as a Palustrine Shrub-Scrub (PSS) wetland. The wetland is located under and east of the Interstate 5 Bridge just south of Franklin Blvd. W-21 was delineated in 2003 (WD2003-0273) as part of the ODOT's I-5 bridge project and Willamette River trail. The west portion was impacted by construction of the I-5 temporary detour bridge. W-21 is bounded to the south by railroad tracks. Glenwood Slough flows through the wetland as do several ditches used to convey stormwater. The wetland is less than one-half acre and is a judged locally significant wetland because of its hydrologic connection to the Willamette River. It is also connected to W22 and W23.

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The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red-Osier Dogwood, Slough Sedge, and Creeping Buttercup.

Soil types include: Chehalis silty clay loam, Pengra-Urban land complex.

<u>Wetland W22</u> is 2.53 acres and is classified as a Palustrine Forested wetlands (PFO). W-22 is a PFO system located with a drainage that flows through the southern portion. Portions of the wetland have been previously delineated (WD's 03-0273, 00-0102, 98-0051). PHS did not have access to the easternmost and southern portions of W-22 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red Alder, Clustered Wild Rose, Red-Osier Dogwood, Slough Sedge, Nipplewort and Soft Rush.

Soil types include Chehalis silty clay loam.

<u>Wetland W23</u> is .87 acres and is classified as Palustrine Emergent (PEM) wetland. W-23 is a series of small PEM wetlands located within the ODOT ROW and on private property. The wetlands were delineated in 2007 for the I-5 bridge project (WD08-0140). The wetlands are located at the bottom of a steep slope. Hydrology from the wetlands flows into a channel that drains to the northwest into the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

The dominant wetland vegetation includes Black Cottonwood, Wild Mint, Begger's Tick, Soft Rush, Sawbeak Sedge, Soft Brome, Common Velvet Grass, English Plantain, Tall Fescue, and Bluegrass species.

Soils types include: Dixonville-Philomath-Hazelair Complex

<u>Wetland 24</u> is .51 acres and is classified as a Palustrine Forested wetland (PFO). W-24 is located at the bottom of surrounding steep slopes. There is a narrow intermittent drainage channel that flows through the middle of the wetland. This drainage continues east through a long culvert under McVay Hwy. and the railroad and out to the Willamette River. W-24 is located between I-5 and McVay Hwy. with residential land uses to the north and south.

The dominant wetland vegetation includes Black Cottonwood, Pacific Willow, Red-Osier Dogwood, Reed Canary Grass, Water-Parsley, Stinging Nettles, Slough Sedge and Field Horsetail.

Soil types include: Dixonville-Philomath-Hazelair Complex.

<u>Wetland W25</u> is 4.31 acres in size and is a Palustrine Forested wetland (PFO) area bounded on all sides by railroad tracks. PHS was able to view the wetland from adjacent road ROWs and the Franz bakery property to the east. It is surrounded by adjacent commercial properties. There is a drainage located along the southern portion of the wetland. It flows northwest into a large culvert located within the ROW of Glenwood Boulevard that is believed to flow into GS-3/Glenwood Slough.

Adjacent upland species: Acer macrophyllum, Psedotsuga mensiezii, Rubus discolor, Corylus cornuta, Carex leptopoda, Convolvulus sp., Hedera helix, Agrostis stolonifera, Symphoricarpos albus

Soil types include: Chehalis silty clay loam

Wetland 26 is .86 acres in size and is a mosiac of 50% wetland and 50% upland located on undeveloped land north of I-5 at the top of a steep slope. It is relatively flat and appears to have been significantly disturbed in the past by scraping. Plant species include a mixture of upland and wetland species. Several areas had mottling and oxidized rhizospheres, despite the general lack of dark chroma soils. Deep tire ruts bare evidence of seasonally wet conditions.

Adjacent upland species: Rhus diversilobum, Crataegus monogyna, Rubus discolor, Festuca arundinacea, Daucus carota, Hypericum perforatum, Cirsium vulgare, Chrysanthemum leucanthum, Centaurea pratensis

Soil types include: Urban land-Hazelair-Dixonville complex

The tables below summarize the size and classification of the wetland areas within Springfield's Urban Growth Boundary.

Site Number	**OFWAM Significance	Acres	USFWS Classification(s)	"Other" Created Waters (Acres)
M1		4.94	RLP	· ·
M2		3.12	PEM	10.50
M3		2.73	PEM/PFO	
M4	Locally Significant Wetlands Special Interest for Protection	5.02	PEM	
M5	Locally Significant Wetlands	9.13	PFO/PSS/PEM	
M6		4.05	PEM/PSS	
M7		0.2	PEM .	
M8*		0.2	PSS	
M10*		2.72	RIN	
M11*		1.01	POW	
M12		1.22	PEM	
M14	Locally Significant Wetlands	33.45	PEM/PFO	
M15		6.41	PEM	

Table 1. City of Springfield Wetlands—McKenzie River Basin Wetlands

Site Number	**OFWAM Significance	Acres	USFWS Classification(s)	"Other" Created Waters (Acres)
M16	Locally Significant Wetlands	8.44	PFO/POW/RLP/PEM	
M17		3.15	PEM	
M18*		40.72	POW/PSS	16.75
M19		0.37	PFO	
M20	Locally Significant Wetlands	0.52	RLP	
M21		0.39	PEM	
M22		0.1	PEM	
M23		0.19	PEM	
M24		0.51	PEM	
M25		24.0	PEM	
M26	Locally Significant Wetlands	1.85	PFO/PEM/PSS	
M27		8.28	PEM/PFO	
M28 .	Special Interest for Protection- Mitigation Site	1.51	PEM	
M29	Locally Significant Wetlands Special Interest for Protection	1.08	PFO/PEM	
M30		6.49	PFO/PEM/POW	
M31		0	POW	8.06
M32		3.39	PEM	
M33		13.75	POW/PSS/RLP	116.17
M34		0.8	PFO	
M35		4.91	PEM	
M36		0.75	PEM	
M37		0.4	PEM	
M38		0.08	PEM/PFO	
M39*		1.88	PEM	
M40		16.51	RLP	
	Total	214.27		151.48

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*denotes off-site wetland determination and mapping

** Subsequent to the adoption of the Springfield Local Wetland Inventory, a state mandated analysis was completed to determine which wetlands were "locally significant" under state law. The results of the analysis are added to the summary information found in Tables 1 and 2. The term **OFWAM** stands for the Oregon Freshwater Wetland Assessment Methodology which by state mandate, is the analytical tool that is used to determine if a wetland is "significant."

Site Number	OFWAM Significance	Acres	USFWS Classification(s)	"Other" Created Waters (Acres)
W1*		4.14	RLP	
W2	Locally Significant Wetlands, Special Interest for Protection	0.90	PEM	
W3		1.27	PFO/PEM/POW	
W4	Locally Significant Wetlands	0.97	PFO/PEM	
W5		5.6	POW/PFO/PEM	
W6	, the second	5.63	PFO	
W7 <u>*</u>		0	POW	36.02
W8*		1.22	POW	
W9		0.22	PEM	
W11		0.67	PSS	
W12	Locally Significant Wetlands	1.42	PFO	
W10		2.25	PSS	
W13		2.24	PFO	
W14		0.97	PEM	
W15		0.79	PFO	
W16	Locally Significant Wetlands	1.46	PFO	
W17		17.21	RLP	
W18 A-C	Locally Significant Wetlands	131.99	PEM/PFO	
**W-19	Locally Significant Wetlands	41.65	POW, PFO	
W-20	Locally Significant Wetlands	3.73	PSS/PUB	
W-21	Locally Significant Wetlands		PSS	
W-22	Locally Significant Wetlands	2.53	PFO	
W-23	Locally Significant Wetlands	.87	PEM	
W-24	Locally Significant Wetlands	.51	PFO	
W-25		4.31	PFO	
W-26		.86	PEM	
	Total	188.99 233.88		36.02

	Table. 2			
City of Springfield	Wetlands—Willamette	River	Basin	Wetlands

*denotes off-site wetland determination and mapping **W-19 was inadvertently left off of this table in the original Springfield Local Wetland Inventory report. Wetlands W-20 through W-26 are the revised resource sites in the Glenwood area.

	Jurisdictional Wetlands	"Other" Created Water's
McKenzie Basin		151.48
	214.2	27
Willamette Basin	189.1	36.02
	269.9	
Total Acres	404.	13 187.50
	484	[7]

 Table 3

 City of Springfield Wetlands—Total Acreage

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[Insert 11"x17" inch map]

Exhibit B: Springfield Inventory of Natural Resource Sites Strikeout text is removed. Shaded text is added.

[Insert at pg. 18]

Site: E39 (Glenwood Slough)

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Type: Riparian

Acres: 23.8

WIIA-seore: 46-47

WHA source: Ester Lev, 1990

Area map(s): 5

Description: Site E39 consists of several sloughs, wetlands, and riparian strips near or adjacent to Interstate 5 and the Southern Pacific Railroad tracks in the Glenwood area. Vegetation includes willows (Salix spp.), black cottonwood (Populus trichocarpa), sedge (Carex spp.), rush (Juncus spp.), cattails (Typha latifolia), and reed canarygrass (Phalaris arundinacea). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but the site's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that a portion of this site is a regulated wetland.

Site: S25 (Formerly E39)

Type:RiparianAcres:12.3

WHA score: 46-47

WHA source: Ester Lev, 1990

Area map(s): 6

Description: Site S-25 (formerly E-39) consists of segments of the Glenwood Slough near or adjacent to Interstate 5, Franklin Boulevard, Glenwood Boulevard and the Union Pacific Railroad tracks in the Glenwood area; S-25 is generally surrounded by industrial uses, railroad tracks and a highway.

The western portion of S-25 wraps around the Glenwood solid waste transfer station. At its west end, the slough passes under the Willamette River I-5 overpass. This western portion has been channelized with cement sides.

The portions of S-25 on either side of Glenwood Boulevard are more natural and contain significant riparian vegetation including willows (*Salix* spp.), black cottonwood (*Populus trichocarpa*), sedge (*Carex* spp.), rush (*Juncus* spp.), cattails (*Typha latifolia*), and reed canarygrass (*Phalaris arundinacea*). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but S-25's proximity to the Willamette River may increase the number of

Attachment 4-1

wildlife species in the area. The Division of State Lands has determined that portions of this site are regulated wetlands (W-20, W-21, and W-22).

The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust and Oregon Maple.

No fish survey was conducted for S-25 and it is not shown on ODFW maps of fish-bearing streams. The proximity and open connectivity to the Willamette River also suggests that fish are present in the Slough.

Site: S26

Type: Riparian

Acres: 1.56

WHA score: 17-57

WHA source: Washburn

Area map(s): 6

Description: Site S-26 is a perennial stream that varies in width between 2-5 feet. It is bordered to the west by I-5. Much of the stream and the defined impact area are located within ODOT right-of-way adjacent to I-5 and beneath the Willamette I-5 Bridge. S-26 is segmented, with a 462-foot culvert dividing the northern and southern segments of the stream. The northern segment of S-26 daylights under the Willamette I-5 Bridge before continuing north to the Willamette River.

The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust, Oregon Maple, and Pacific Willow.

No known fish survey was been conducted for S-26. The stream is not shown on ODFW maps of fish-bearing streams. There is an unnamed perennial drainage that begins on the west side of I-5 (in Eugene) and is culverted under the freeway where it converges with the culverted portion of S-26. The Eugene drainage that connects to S-26 has been documented by ODFW as having cutthroat trout. The presence of cutthroat in the Eugene drainage suggests that S-26 is also fishbearing. The proximity and connectivity to the Willamette River also suggests that fish are present in S-26.

Site:	S27
Туре:	Riparian
Acres:	.33
WHA score:	45
Acres: WHA score:	.33 45

WHA source: Washburn

Area map(s): 6

Description: Site S-27 is a perennial stream segment that conveys water from the Moon Mt. area south of I-5. The stream is largely culverted from I-5 to the Glenwood slough, with

occasional daylighting along the watercourse. S-27 is one of those daylighted segments which opens into a 40 foot wide riparian feature. The stream segment is about 274 feet in length and is bounded to the north and west by industrial and residential development. Some land to the south and east is undeveloped, but the stream is culverted as it passes beneath that area.

S-27 is a dense thicket, dominated by Pacific Willow, Black Cottonwood, Maple species, Alder species, and Hazelnut trees. At the time the stream was assessed (July 2009) the feature was sufficiently shrouded by vegetation that the consultants noted that they "could not see the bottom of the drainage due to a steep slope and Salix sp. thicket."

No known fish survey was been conducted for S-27. It is not shown on ODFW maps of fishbearing streams. The distance and lack of open connection to the Glenwood Slough and the Willamette River argue against this being classified as a fish-bearing stream.

Site:	S28
Туре:	Riparian
Acres:	.73
WHA score:	6 1
WHA source:	Washburn

Area map(s): 6

Description: S-28 is a narrow stream that meanders through a wetland area that is vegetated by willow thickets and Reed Canary grass. It is sandwiched between the ODOT right-of-ways for the I-5 and McVay Hwy. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.

The dominant riparian tree species include Oregon Ash, Douglas Fir, Red-Osier Dogwood, Black Cottonwood, Indian Plum, White Oak, and Oregon Maple.



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[Insert 11"x 17" map]

Attachment 4-4

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Exhibit C: Page Inserts for the Springfield Natural Resources Study

105 33		Tier 1	Tier 2	Quality	
	業者	Significance	WHA Score	Ranking	
Site #	Acres	Criteria Met			Site Name
S03 ¹	29.7	1,2,3,4	61-62	High	Mill Race A (Rural)
S04	42.9	2,3,4,6	40-41	Moderate	Mill Race B (Urban)
S07	23.9	1,2	34	Moderate	Brand S/Natron
S09	71.9	1,2,4	50	High	Weyerhaeuser B
S10 ¹	195.0	1,4,6	70	High	Weyerhaeuser A
S12/13	39.1	2,4	45 (Trees)	High	Q Street Ditch
			36 (No	Moderate	a
			Trees)		
S14	2.4	2,4	35	Moderate	Guy Lee
$S17^{1}$	347.2	1,2,4,6	67	High	Maple Island Slough/
					McKenzie River
S18	13.4	2,4	22-23	Moderate	SCS Channel #6
S20	19.6	1,2,4	67	High	Irving Slough North
S21	13.7	1,2,4	47	High	South Irvine Slough and Pond
S22 ¹	44.9	1,2,4	67	High	Jasper Road Slough
S24	8.0	2,3,4	55	High	Gray Creek
WA/WB	628.2	1,2,3,4,6	72-74	High	Willamette River
			(Natural)		
			64-66		
			(Urban)		
E39	23.8	1,4,5	46-47	High	Glenwood Slough
S25	12.30	1,4,5	46-47	High	Glenwood Slough
S26	1.56	1,4	17-57	High	Riverview/Augusta Channel
S27	.33	4	45	High	Petersen Equipment
					Daylighted Culvert
S28	.73	1,4	61	High	S. McVay Hwy. Channel
Total	1518.62				

Table 5-1. Opinignett inventory of Natural Nesource ones [insert at pg. 22	Table 3-1.	Springfield Inventory	of Natural Resource	Sites [Insert at pg. 22
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4.4 Springfield's Locally Significant Wetlands [Insert at pg. 26]

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Site	OFWAM Significance Rationale	Acres	USFWS
Number			Classification(s)
M4	Special Interest for Protection: Wetland inhabited by a	5.02	PEM
	species listed federally as threatened or endangered, or		
	state listed as sensitive, threatened or endangered.		
M5	Provides diverse wildlife habitat and hydrologic control	9.00	PFO/PSS/PEM
	function is intact.		
M14	Provides diverse wildlife habitat.	33.45	PEM/PFO
M16a-c	M16a: Water quality and hydrologic functions are	13.96	PFO/POW/RLP/PEM
	intact.		
	M16b: Hydrologic function is intact.		
	M16c: Hydrologic Function is intact		
M20	Provides diverse wildlife habitat and water quality is	0.52	RLP
<u> </u>	intact		
M26	Provides diverse wildlife habitat; provides recreational	1.85	PFO/PEM/PSS
	and educational opportunities;		
M28	Special Interest for Protection- Mitigation Site	1.51	PEM
M29	Special Interest for Protection- Wetland inhabited by a	1.08	PFO/PEM
	species listed federally as threatened or endangered, or		
	state listed as sensitive, threatened or endangered.		
M30	Water quality function is intact	6.49	PFO/PEM/POW
M33a	Hydrologic control function is intact	3.39	PEM
	McKenzie Basin Acres	76.27	

McKenzie River Basin Wetlands

Willamette River Basin Wetlands

Site	OFWAM Significance	Acres	USFWS
Number			Classification(s)
W2	Special Interest for Protection -Wetland inhabited by a	0.90	PEM
	species listed federally as threatened or endangered, or		
	state listed as sensitive, threatened or endangered.		
W3a	Water quality function is intact	15.30	RLP
W4a	Water quality function is intact	.67	PFO
W12	Water quality and hydrologic functions are intact	1.42	PFO
W16	Water quality and hydrologic functions are intact	1.46	PFO/PEM
W18a	Water quality and hydrologic functions are intact	128.80	PEM/PFO
W19	Hydrologic control function is intact	41.65	POW/PFO
W20	Water quality and hydrologic functions are intact	3.39	PSS/PAB
W20	Water quality and hydrologic functions are degraded	3.73	PSS/PUB
W21	Water quality and hydrologic functions are degraded	.47	PSS
W22	Water quality and hydrologic functions are degraded	2.53	PFO
W23	Water quality and hydrologic functions are degraded	.87	PEM
W24	Water quality and hydrologic functions are degraded	.51	PFO
	Willamette Basin Acres	201.7	
	Total acreage for all Locally Significant Wetlands	277.97	

[Insert W-20 through W-24 at pg. 190]

Site: W-20	Acres: 3.73	OFWAM: Locally Significant	Associated Inventoried Riparian Resource?
(GS-3)	Cowardin Class: Palustrine Scrub-Shrub	Wetland is within ¼ mile of DEQ 303	Yes: S-25
	(PSS), Wetland with <30% canopy cover of shrubs or	(d) listed water body	WHA Score: 46-47
	Palustrine Unconsolidated Bottom (PUB) Wetland with <30% vegetation cover and a surface with >25% of the particles smaller than stones.	Wetland has a direct surface water' connection to a salmonid stream	High Quality Resource
		Moderate Quality Wetlands	

Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-20 is associated with the Glenwood Slough (S-25, formerly E-39). The Slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the Slough also protects W-20. Any portion of W-20 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.



Description:

W-20 is a Palustrine Shrub-Scrub wetland. It is part of a system known as the Glenwood Slough. It flows northwest into W-21 prior to being culverted and flowing into the Willamette River. W-20 is bisected by Glenwood Blvd, but is still hydrologically connected by a culvert. The Slough is a topographic bowl. Hydrologic sources include stormwater from adjacent impervious surfaces, in addition to groundwater and upslope surface water. A portion of W-20 was previously delineated (WD96-0375).

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Dominant Wetland Vegetation				
Trees/ Shrubs Vines/ Herbs				
Fraxinus latifolia	Oregon Ash	Mentha arvensis	Field mint	
Salix sitchenius	Sitka Willow	Biden sp.	Begger's tick.	
Cornus stolonifera	Red-Osier Dogwood	Juncus effusus	Soft Rush	
		Carex leptopoda	Short-Scale Sedge	

Adjacent upland species: Symphoricarpos albus, Rubus discolor, Cornus stolonifera, Rubus ursinus, Corylus cornuta, Fraxinus latifolia, Carex leptopoda, Dipsacus sylverstris, Tolmiea menziesii

Soils—Mapped Series	Chehalis silty clay loam
Hydrologic Source	Groundwater

Wetland and Impact Area Summary

Wetland Acreage	3	.73
Impact Area Acreage	11	.74
Combined Wetland and Impact Area	15	.50
Vacant Acres within the Combined Area	. 3	.73
Number of Parcels Affected		14
Combined Parcel Acreage	51	.26

Conflicting Uses by Acre and Zoning District

SITE ID	LDR	PLO	LMI	TOTAL ACRES
W-20	.11	0	2.88	*2.99
W-20	1.07	.89	9.78	11.74
Impact Area				
Total	1.18	.92	12.66	14.73

*This number varies from the total wetland acreage since portions of the wetland and its impact area are within railroad and street right-of-way which have no zoning.

Conflicting Uses by Vacant Acre and Zoning District

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SITE ID	LDR	PLO	LMI	TOTAL ACRES
W-20	0	0	.13	.13
W-20	0	.89	2.71	3.60
Impact Area				
Total	0	.89	2.84	3.73

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? Yes.

W-20 is associated with the Glenwood Slough (S-25, formerly E-39). The Slough is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and a site plan review requirement.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25 (formerly E-39). The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

Site Specific ESEE Analysis for W-20

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

W-20 is rated as a "Moderate Quality Wetland." The wetland overlaps with a riparian resource site, S-25. S-25 is rated as a "High Quality Resource" site with a WHA score of 46-47. The OFWAM analysis concluded that the wetland's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-20 does provide.

Social Consequences

The OFWAM analysis indicates that W-20 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has moderate potential for enhancement which may make it more of a community amenity.

Economic Consequences

The OFWAM analysis indicates that the water quality and hydrologic control functions of the resource are already degraded. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 3.73 acres of vacant industrial land within the combined wetland and impact area boundaries.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-20 is associated with the Glenwood Slough (S-25, formerly E39). The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-20. Any portion of W-20 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under provisions of SDC Section 4.3-117.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

SITE ID	PLO	LMI	TOTAL ACRES
W-20	. 0	.13	.13
W-20 50-ft. Setback	.03	.67	.70
Total	.03	.80	.83

Impact on Vacant Acreage by Zoning District

About .13 acres of W-20 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 1 lot. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced. A 50-foot development setback is already required for the wetland under Section 4.3-115 of the Springfield Development Code. No additional setback is proposed.

A 50-foot setback would affect .67 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC 4.3-115.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC 4.3-115.

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Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting W-20 and its 50-foot setback area from future development effectively reduces the CIBL inventory by a total of .73 acres and the RLS by a total of .44 acres, for a total of 1.17 acres.

Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories

Site W-20		Redevelopable	-	Vacant		Total Acres	
Zoning							
LDR			.44		0		.44
LMI			.71		.02		.73
	Total Acres		1.15		.02		1.17

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is required under stormwater provisions of the Springfield Development Code, and thus the 1.17 impact of protecting W-20 with the setback is not attributed to this report.

Site: W-21 (GS-1)	Acres: .47 Cowardin Class: Palustrine Scrub Shrub (PSS) Wetland with <30% canopy cover of shrubs or small	OFWAM: Locally Significant Wetland is within ¼ mile of DEQ 303 (d) listed water body Wetland has a direct surface water connection to a	Associated Inventoried Riparian Resource? Yes: S-25 WHA Score: 46-47
	shrubs or small trees.	salmonid stream	High Quality Resource
		Moderate Quality Wetlands	

Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-21 is associated with the Glenwood Slough (S-25). The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.



Description:

Wetland W-21 is .47 acres and classified as a Palustrine Shrub-Scrub (PSS) wetland. The wetland is located under and east of the Interstate 5 Bridge just south of Franklin Blvd. W-21 was delineated in 2003 (WD2003-0273) as part of the ODOT's I-5 bridge project and Willamette River trail. The west portion was impacted by construction of the I-5 temporary detour bridge. W-21 is bounded to the south by railroad tracks. Glenwood Slough flows through the wetland as do several channels used to convey stormwater. The wetland is less than one-half acre and is a judged locally significant wetland because of its hydrologic connection to the Willamette River. It is also connected to W22 and W23.

Dominant Wetland Vegetation				
Trees/ Shrubs Vines/ Herbs				
Fraxinus latifolia	Oregon Ash	Carex obnupta	Slough Sedge	
Populus trichocarpa	Black Cottonwood	Ranunculus repens	Creeping Butter-Cup	
Cornus stolonifera	Red-Osier Dogwood			
Salix lasiandra	Pacific Willow			

Adjacent upland species: Populus trichocarpa, Alnus rubra, Fraxinus latifolia, Cornus stolonifera, Robinia pseudoacacia, Rubus discolor, Cytisus scoparius, Festuca arundinacae, Plantago lancelata, Lathyrus latifolius, Daucus carota, Cirsium arvense, Dipsacus sylvestris, unidentified mixed grasses

Soils—Mapped Series	Chehalis silty clay loam, Pengra-Urban land complex
Hydrologic Source	Groundwater

Wetland and Impact Area Summary

Wetland Acreage	.47
Impact Area Acreage	4.54
Combined Wetland and Impact Area	5.01
Vacant Acres within the Combined Area	0
Parcels Affected (Including Impact Area)	2
Combined Parcel Acreage	43.54

Conflicting Uses by Acre and Zoning District

SITE ID		LMI	TOTAL ACRES
W-21		.31	*.31
W-21		. 4.54	4.54
Impact Area			
	Total	4.85	4.85

*Portions of the wetland fall within right-of-way which has no zoning designation; thus this figure is less than that shown above for wetland acreage.

Conflicting Uses by Vacant Acre and Zoning District

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SITE ID			LM	TOTAL ACRES	
W-21	-		0		0*
W-21			. 0		0*
Impact Area		 			
	Total		0		0*

*W-21 lies within County owned land that has been developed as a Solid Waste Transfer Site. The wetland is located within ODOT and Union Pacific right-of-way that bisects the County property. What appears to be vacant resource land within the County parcel is in fact committed for transportation uses.

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? Yes.

W-21 is associated with the Glenwood Slough. The Slough is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and a site plan review requirement. This 50-foot setback also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under provisions of SDC Section 4.3-117.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25 (formerly E-39). The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

Site Specific ESEE Analysis for W-21

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

W-21 is rated as a "Medium Quality Wetlands." The wetland overlaps with a riparian resource site, E-39. E-39 is rated as a "High Quality Resource" site with a WHA score of 46-47. The OFWAM analysis indicates that the wetland's water quality and hydrologic control functions are degraded. The resource provides habitat for some species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-21 does provide.

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Social Consequences

The OFWAM analysis concluded that W-21 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has high potential for enhancement which may make it more of a community amenity.

Economic Consequences

The OFWAM analysis indicates that the water quality and hydrologic control functions of the resource are already degraded. These functions could be mimicked using engineered facilities, but at a significant cost. Portions of the affected tax lot have been developed as Lane County's Glenwood Solid Waste Transfer Site. The wetland itself is located beneath the Willamette River I-5 Bridge and adjacent to the Union Pacific Railway right-of-way. Fully protecting the resource site would mean no loss to the remaining vacant industrial land within the combined wetland and impact area boundaries.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-21 is associated with the Glenwood Slough. The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under provisions of SDC Section 4.3-117.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

Impact on Vacant Acreage by Zoning District

SITE ID	LMI		TOTAL ACRES
W-21		0	0
W-21 50-ft. Setback		0	0
	Total	0	0

The land containing W-21 is not classified as vacant by the Lane County Assessor's Office. Limiting conflicting uses would allow some re-development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced. A 50-foot development setback is already required for the wetland under SDC Section 4.3-115. This 50-foot setback protecting the slough also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback.

A 50-foot setback would not affect any vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Neither the CIBL nor the RLS showed W-21 or its setbacks as inventoried land. Protecting W-21 will not cause a reduction in those inventories.

Site: W-22 (GS-2) Acres: 2.53 Cowardin Class: Palustrine Forested (PFO) Wetland with trees growing in standing water or saturated soils, or small wetlands entirely beneath an overhanging forest canopy.	OFWAM: Locally Significant Wetland is within ¹ / ₄ mile of DEQ 303 (d) listed water body Wetland has a direct surface water connection to a salmonid stream Moderate Quality Wetlands	Inventoried Riparian Resource? Yes: S-25 WHA Score: 46- 47 High Quality Resource
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Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-22 is associated with the Glenwood Slough (S-25). The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-22. Any portion of W-22 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.



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Description:

Wetland W-22 is 2.53 acres and is classified as a Palustrine Forested wetlands (PFO). W-22 is a PFO system located with a drainage that flows through the southern portion. Portions of the wetland have been previously delineated (WD's 03-0273, 00-0102, 98-0051). PHS did not have access to the easternmost and southern portions of W-22 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

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Dominant Wetland Vegetation					
Trees/ Shrubs Vines/ Herbs					
Fraxinus latifolia	Oregon Ash	Carex obnupta	Slough Sedge		
Populus trichocarpa	Black Cottonwood	Biden sp.	Begger's tick.		
Cornus stolonifera	Red-Osier Dogwood	Juncus effusus	Soft Rush		
Salix lasiandra	Pacific Willow	Lapsana communis	Nipplewort		
Alnus Ruba	Red Alder				
Rosa piscocarpa	Clustered Wild Rose				

Adjacent upland species: Acer macrophyllum, Fraxinus latifolia, Populus trichocarpa, Rubus discolor, Symphoricarpos alba, Corylus cornuta, Cytisus scoparium, Holodiscus discolor, Hypericum perforatum, Festuca arundinacea, mowed unidentified grasses

Soils-Mapped Series	Chehalis silty clay loam
Hydrologic Source	Groundwater

Wetland and Impact Area Summary

Wetland Acreage	2.53
Impact Area Acreage	12.22
Combined Wetland and Impact Area	14.75
Vacant Acres within the Combined Area	2.84
Parcels Affected (Including Impact Area)	12
Combined Parcel Acreage	67.43

Conflicting Uses by Acre and Zoning District

SITE ID	LMI	TOTAL ACRES
W-22	2.53	2.53
W-22	12.22	12.22
Impact Area		
Tota	1	14.75

Conflicting Uses by Vacant Acre and Zoning District

SITE ID		LM	TOTAL ACRES
W-22		.56	.56
W-22		2.28	2.28
Impact Area			
	Total	2.84	2.84

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? Yes.

W-22 is associated with the Glenwood Slough-North Channel (S-25). The channel is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and a site plan review requirement.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25 (formerly E-39). The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

Site Specific ESEE Analysis for W-22

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

W-22 is rated as a "Moderate Quality Wetland." The wetland overlaps with a riparian resource site, S-25. S-25 is rated as a "High Quality Resource" site with a WHA score of 46-47. The OFWAM analysis concluded that W-22's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some wildlife species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-22 provides.

Social Consequences

The OFWAM analysis indicates that W-22 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has moderate potential for enhancement which may make it more of a community amenity.

Economic Consequences

The OFWAM analysis indicates that the water quality and hydrologic control functions of the resource are already degraded. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 2.84 acres of vacant industrial land within the combined wetland and impact area boundaries.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-22 is associated with the Glenwood Slough-North Channel (S-25, formerly E39). The channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects W-22.

A small portion of W-22 (about .06 acres) is not protected by the 50-ft setback provided by the stormwater WQLW standards found in SDC Section 4.3-115. This unprotected segment of W-22 should be covered by a 25-foot development setback and the protections afforded by SDC Section 4.3-117. Any portion of W-22 not protected by the Glenwood Slough-North Channel 50-foot setback should be protected by a 25-foot setback.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

SITE ID	LMI	TOTAL ACRES
W-22	.56	.56
W-22 25 to 50-ft. Setback	.79	.79
Total	1.35	1.35

Impact on Vacant Acreage by Zoning District

About .56 acres of W-22 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 3 lots. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced. A 50-foot development setback is already required for the wetland under SDC Section 4.3-115. A small portion of W-22 (about .05 vacant acres) is not protected by the 50-ft setback, but is protected by a 25-foot setback under the provisions of SDC Section 4.3-117. A 25-foot setback applied to the unprotected wetland area affects about .09 acres of the total setback acres shown for W-22.

A 25 to 50-foot setback would affect .79 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other

open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

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Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting W-22 and its 25-50 foot setback area from future development effectively reduces the CIBL inventory by a total of 2.26 acres.

Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories

Site W-22 Zoning	Redevelopable	Vacant	Total Acres
LMI	.91	1.35	2.26
Total Acres	.91	1.35	2.26

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is already required under stormwater provisions of the Springfield Development Code, and thus the 2.26 acre impact of protecting W-22, including its setback, is not attributed to this report.

Site: W-23 (GS-4)	Acres: .87 Cowardin Class: Palustrine Emergent (PEM) Herbaceous plants growing in standing water or saturated soils.	OFWAM: Locally Significant Wetland is within ¹ / ₄ mile of DEQ 303 (d) listed water body Moderate Quality Wetlands	Associated Inventoried Riparian Resource? Yes: S-26 WHA Score: 17-57 High Quality Resource Site
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Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. Maintain an average 25-foot development setback from the wetland. The adjacent Riverview/Augusta Channel (S-26) is protected by a 50-foot development setback and site plan review standards described in Section 4.3-115 of the Springfield Development Code. Portions of this setback overlap with the recommended 25-foot setback for W-23. Any portion of W-23 not protected by the Riverview/Augusta Channel's 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.



Description:

Wetland W-23 is .87 acres and classified as Palustrine Emergent (PEM) wetland. W-23 is a series of small PEM wetlands located within the ODOT ROW and on private property. The wetlands were delineated in 2007 for the I-5 bridge project (WD08-0140). The wetlands are located at the bottom of a steep slope. Hydrology from the wetlands flows into a channel that drains to the northwest into the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

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By state mandate, the Oregon Freshwater Wetland Assessment Methodology (OFWAM) is used to determine if a wetland is "locally significant" under Oregon law. W-23 fails all criteria for the significance test with the exception that portions of the wetland are within ¼ mile of a water body listed by DEQ as a water-quality limited water body, and the wetland has an impacted or degraded water quality function.

Trees/	Shrubs	Vines	/ Herbs
Populus trichocarpa	Black Cottonwood	Mentha arvensis	Wild mint
		Biden sp.	Begger's tick.
		Juncus effusus	Soft Rush
		Carex stipata	Sawbeak Sedge
· · · · · · · · · · · · · · · · · · ·		Bromus hordeaceus	Soft Brome
		Holcus Lanatus	Common Velvet
			Grass
		Plantago Lanceolata	English Plantain
		Festuca arundinacea	Tall Fescue
		Poa sp.	Bluegrass species

Dominant Wetland Vegetation

Adjacent upland species: Populus alba, Rubus discolor, Daucus carota, Cytisus scoparium, Vicia sp., Festuca arundinacea, Taraxacum officinale, Trifolium pretense

Soils

Soils—Mapped Series	Dixonville-Philomath-Hazelair Complex
Hydrologic Source	Groundwater

Wetiand and Impact Area Summary

Wetland Acreage	,	.87
Impact Area Acreage		5.34
Combined Wetland and Impact Area		6.21
Vacant Acres within the Combined Area		2.05
Parcels Affected (Including Impact Area)		5
Combined Parcel Acreage		12.67

Conflicting Uses by Acre and Zoning District

SITE ID	LMI	TOTAL ACRES	
W-23		.53	*.53
W-23		5.34	5.34
Impact Area			
	Total	5,87	5.87

*Portions of the wetland fall within right-of-way which has no zoning designation; thus this figure is less than that shown above for wetland acreage.

Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LMI	TOTAL ACRES
W-23	.49	.49
W-23	1.56	1.56
Impact Area		
Total	2.05	2.05

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? Yes, in part. Portions of W-23 are not currently protected.

W-23 is adjacent to, but a part of the Riverview/Augusta Channel (S-26). The Channel is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and by a site plan review requirement.

The Glenwood Refinement Plan includes policies that give direction for environmental design. The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

Site Specific ESEE Analysis for W-23

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

W-23 is rated as a "Moderate Quality Wetlands." The wetland's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, but the OFWAM analysis concludes that it does not provide a diverse wildlife habitat. Fully
allowing conflicting uses would mean the loss of what little function and habitat that W-23 provides.

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Social Consequences

W-23 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The OFWAM analysis noted that the site is not appropriate for recreational use. The wetland does not have any point of access. The site has some potential for enhancement which may make improve its wetland function.

Economic Consequences

Fully allowing conflicting uses would mean the loss of the water quality and hydrologic control functions of the resource. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 1.56 acres of vacant industrial land within the combined wetland and impact area boundaries.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. Maintain an average 25-foot development setback from the wetland. The adjacent Riverview/Augusta Channel is protected by a 50-foot development setback and site plan review standards described in Section 4.3-115 of the Springfield Development Code. Portions of this setback overlap the recommended 25-foot setback for W-23. Any portion of W-23 not protected by the Riverview/Augusta Channel 50-foot setback should be protected by a 25-foot setback.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

SITE ID	LMI		TOTAL ACRES	
W-23		.49	-	.49
W-23 25-ft. Setback		.68		.68
	Total	· 1.17		1.17

Impact on Vacant Acreage by Zoning District

About .49 acres of W-23 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 2 lots. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced.

A 25-foot setback would affect .68 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under Section 4.3-115 of the Springfield Development Code.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in Section 4.3-115.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting W-23 and its 50-foot setback area from future development effectively reduces the CIBL inventory by a total of 1.02 acres.

Commercial, Industrial and Residential Land Inventories									
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Impact of Recommended Protection on

Site W-23	Redevelopable	Vacant	Total Acres
Zoning			
LMI	.49	.53	1.02
Total Acres	.49	.53	1.02

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is required under stormwater provisions of the Springfield Development Code, and thus the 1.02 impact of protecting W-23 with the setback is not attributed to this report.

Site: W-24 (W-R7)	Acres: .51 Cowardin Class: Palustrine Forested (PFO); Wetland with trees growing in standing water or saturated soils, or small wetlands entirely beneath an overhanging forest canopy.	OFWAM: Locally Significant Wetland is within ¼ mile of DEQ 303 (d) listed water body Medium Quality Wetlands	Associated Inventoried Riparian Resource? Yes: S-28 WHA Score: 61 High Quality Resource Site
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Goal 5 Recommendation: Limit conflicting uses that may impact the wetland. Maintain an average 25-foot development setback from the wetland. Allow development within the 150-foot impact area using low impact development practices that are appropriate for the soil, water table and other site characteristics.



Description:

W-24 is located at the bottom of surrounding steep slopes. There is a narrow intermittent drainage channel that flows through the middle of the wetland. This drainage continues east through a long culvert under McVay Hwy. and the railroad and out to the Willamette River. W-24 is located between I-5 and McVay Hwy. with residential land uses to the north and south.

Dominant Wetland Vegetation						
Trees	/ Shrubs	Vines/ Herbs				
Populus trichocarpa	Black Cottonwood	Phalaris arundinacea	Reed Canary Grass			
Salix lasiandra	Pacific Willow	Oenanthe sarmentosa	Water-Parsley			
Cornus stolonifera	Red-Osier Dogwood	Urtica dioica	Stinging Nettles			
		Carex obnupta	Slough Sedge			
		Equisetum arvense	Field Horsetail			

Adjacent upland species: Acer macrophyllum, Rubus discolor, Festuca arundinacea, Daucus carota, Polystichum munitum, Dactylis glomerata

Soils—Mapped Series	Dixonville-Philomath-Hazelair Complex
Hydrologic Source	Groundwater

Wetland and Impact Area Summary

Wetland Acreage	.51
Impact Area Acreage	1.69
Combined Wetland and Impact Area	2.20
Vacant Acres within the Combined Area	.86
Parcels Affected (Including Impact Area)	4
Combined Parcel Acreage	22.03

Conflicting Uses by Acre and Zoning District

SITE ID	LD	PL	TOTAL ACRES
W-24	.35	0	*.35
W-24	1.28	.41	1.69
Impact Area			
Total	1.63	.41	2.04

*Portions of the wetland fall within right-of-way which has no zoning designation; thus this figure is less than that shown above for wetland acreage.

Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LD		PL		TOTAL ACRES	
W-24		0		0		0
W-24		.53		.33		.86
Impact Area						

SITE ID	LD	PL	TOTAL ACRES
Tota	.53	.33	.86

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Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? No.

The Glenwood Refinement Plan includes policies that give direction for environmental design. The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

Site Specific ESEE Analysis for W-24

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

W-24 is rated as a "Moderate Quality Wetlands." The wetland's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, but the OFWAM analysis concludes that it does not provide a diverse wildlife habitat. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-24 provides.

Social Consequences

W-24 is isolated and not easily accessible to the public. It is not appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has moderate potential for enhancement which may make it more of a community amenity.

Economic Consequences

Fully allowing conflicting uses would mean the loss of the water quality and hydrologic control functions of the resource. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site and its impact area would mean the loss of .86 acres of vacant residential land within the combined wetland and impact area boundaries.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses that may impact the wetland. Maintain an average 25-foot development setback from the wetland. Allow development within the 150-foot impact area using low impact development practices that are appropriate for the soil, water table and other site characteristics.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

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Impact on Vacant Acreage by Zoning District

SITE ID	LD		PI		TOTAL ACRES	
W-24		0		0		0
W-24 25-ft. Setback		.02		0	·-	.02
Total		.02		0		.02

About .02 acres of W-24 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 3 lots. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced.

A 25-foot setback would affect .02 acres of vacant residential land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-117.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Neither the CIBL nor the RLS showed W-24 or its setbacks as inventoried land. Protecting W-24 will not cause a reduction in those inventories.

[Insert S-25 through S-28 at pg. 253]

Site:	Associated Wetlands:	Acres:	WHA Score:
S-25	W-20, W-21, W-22	12.30	46-47
(Formerly E39)	Moderate Quality		High Quality Resource Site
(RGS-1,3,4,5, and 7)	Wetlands		- -

Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-25 is associated with the Glenwood Slough, the Glenwood North Channel and a section of the Moon Mt. System. The Slough and North Cannel are protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects S-25. A 339 ft. segment of S-25 is not protected by the 50-ft setback provided by the stormwater WQLW standards found in SDC Section 4.3-115. This unprotected segment of S-25 should be covered by a 25-foot development setback and the protections afforded by SDC Section 4.3-117.



Description:

Site S-25 (formerly E-39) consists of segments of the Glenwood Slough—North Channel and a section of the Moon Mt. system near or adjacent to Interstate 5, Franklin Boulevard, Glenwood Boulevard and the Union Pacific Railroad tracks in the Glenwood area. S-25 is generally surrounded by industrial uses, railroad tracks and a highway.

The western portion of S-25 wraps around the Glenwood solid waste transfer station. At its west end, the slough passes under the Willamette River I-5 overpass. This western portion has been channelized with cement sides.

The portions of S-25 on either side of Glenwood Boulevard are more natural and contain significant riparian vegetation including willows (*Salix* spp.), black cottonwood (*Populus trichocarpa*), sedge (*Carex* spp.), rush (*Juncus* spp.), cattails (*Typha latifolia*), and reed canarygrass (*Phalaris arundinacea*). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but S-25's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that portions of this site are regulated wetlands (W-20, W-21, and W-22).

No fish survey was conducted for S-25 and it is not shown on ODFW maps of fish-bearing streams. The proximity and open connectivity to the Willamette River also suggests that fish are present in the Slough.

Woody Vegetation		Herbaceous Vegetation		
Fraxinus latifolia	Oregon Ash	Festuca arundinacea	Tall Fescue	
Salix sitchenius	Sitka Willow	Plantago lanceolata	English Plantain	
Cornus stolonifera	Red-Osier Dogwood	Daucus carota	Queen Anne's Lace	
Rubus discolor	Himalayan blackberry	Aira caryophyllea	Silver Hairgrass	
Populus trichocarpa	Black Cottonwood	Lathyrus sp.	Wild Pea	
Robinia pseudoacacia	Black Locust	Cirsium arvense	Canada Thistle	
Rubus armeniacus	Armenian Blackberry	mixed grasses (unidentified)		
Acer macrophyllum	Oregon Maple			

Observed Vegetation

Wetland Vegetation

Trees/ Shrubs		Vines/ Herbs		
Fraxinus latifolia	Oregon Ash	Mentha arvensis	Field mint	
Salix sitchenius	Sitka Willow	Biden sp.	Begger's tick.	
Cornus stolonifera	Red-Osier Dogwood	Juncus effusus	Soft Rush	
		Carex leptopoda	Short-Scale Sedge	

Soils

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Soils—Mapped Series	Chehalis silty clay loam
Hydrologic Source	Groundwater

Summary of Riparian Functional Assessment

Riparian ID	Reach Length	Stream/ Pond Width	Riparian Width	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
RGS-1	1,681 ft.	120 ft.	50 ft.	·H	H	Н	М
RGS-3	2,706 ft.	50-75 ft.	100 ft.	H	L-M	Н	М-Н
RGS-4	780 ft.	50-75 ft.	50-75 ft.	Н	М	Н	Н
RGS-5	339 ft.	2-6 ft.	75 ft.	М	M	Н	М
RGS-7	1,669 ft.	8-10 ft.	120 ft.	H	L	Н	М
Total Leng	gth: 7185	ft.	Modal Average	H	Μ	H	M

Resource and Impact Area Summary

Resource Acreage:	12.30
Impact Area Acreage:	45.01
Combined Resource and Impact Area:	55.02
Vacant Acres within the Combined Area:	8.57
Parcels Affected (Including Impact Area):	32
Combined Parcel Acreage:	308.09

Conflicting Uses by Acre and Zoning District

SITE ID	LDR	LMI	PLO	*Right-of- Way	TOTAL ACRES
S-25	.17	7.71		4.42	7.88
S-25	1.09	28.23	1.01	14.68	30.33
Impact Area					
Total	1.26	35.94	1.01	16.81	38.21

*Right-of-way does not typically have a zoning designation. As such, the right-of-way acreage shown for the conflicting use acreage is not counted towards the total. The right-of-way acreage is shown here because a large portion of the resource and its impact area are within ODOT and railroad right-of-ways.

Conflicting Uses by Vacant Acre and Zoning District

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SITE ID	LDR	LMI	PLO	TOTAL ACRES
S-25	0	.67	0	.67
S-25	0	6.89	1.01	7.90
Impact Area				
Total	0	7.56	1.01	8.57

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? Yes.

S-25 includes the Glenwood Slough, the Glenwood North Channel and a section of the Moon Mt. system. The Glenwood Slough and the North Channel are tributaries to a water quality limited watercourse (Willamette River) and are protected by a 50-foot setback and a site plan review requirement.

S-25 overlaps protected wetlands W-20, W-21, and W-22. The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25. The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

Site Specific ESEE Analysis for S-25

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

With WHA scores ranging from 22 to 61 for five individual reaches of the stream, S-25 is rated as a high quality resource site. The Riparian Functional Assessment prepared by Pacific Habitat Services rated S-25's various reaches as well. The mode average of the assessment scores for S-25's Water Quality and Thermal Regulation Functions was "High." S-25's Flood Management and Wildlife Habitat functions average was "Medium."

Much of S-25 includes inventoried locally significant wetlands (W-20, W-21, and W-22). The water quality and hydrologic control functions of these wetland sites are impacted or degraded. The resource provides habitat for some wildlife species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of the riparian and wetland functions that S-25 provides.

Social Consequences

S-25 is located in an area that is heavily impacted by existing industrial and residential development. The stream is not easily accessible to the public and it is not located near a school. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. For these reasons it is not appropriate for educational or recreational uses.

Economic Consequences

Fully allowing conflicting uses would mean the loss of the riparian and wetland functions of the resource. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 7.56 acres of vacant industrial land within the combined resource and impact area boundaries.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-25 includes the Glenwood Slough, the Glenwood North Channel and a section of the Moon Mt. system. The Slough and the North Channel are protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects S-25. A 339 ft. segment of S-25 is not protected by the 50-ft setback. This unprotected segment of S-25 should be covered by a 25-foot development setback and the protections afforded by SDC Section 4.3-117.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

Impact on Vacant Acreage by Zoning District

SITE ID	PLO	LMI	TOTAL ACRES
S-25		.67	.67
*S-25 25/50-ft. Setback	.04	2.45	2.49
To	.04	. 3.12	3.16

*A 339-ft segment of S-25 falls outside of the 50-ft protection of the stormwater WQLW program. This segment is protected by a 25-ft. setback.

About .67 acres of S-25 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 5 lots. Limiting conflicting uses would allow some development to occur within the riparian resource area where the developer could show how the

essential functions of the riparian corridor could be preserved or enhanced. A 50-foot development setback is already required for the riparian area under SDC 4.3-115. No additional setback is proposed.

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A 25-to-50-foot setback would affect 3.12 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the riparian area could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC 4.3-115.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-25 and its 25-50 foot setback area from future development effectively reduces the CIBL inventory by a total of 3.26 acres and the RLS by a total of 1.11 acres, for a total of 3.75 acres.

Site S-25 Zoning	Redevelopable	Vacant	Total Acres
LDR	.49		.49
LMI	2.15	1.11	3.26
Total Acres	2.64	1.11	3.75

Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is already required under stormwater provisions of the Springfield Development Code, and thus 2.39 acres of the 3.75 acre impact of the setback is not attributed to this report.

Site:	Associated Wetlands:	Acres:	WHA Score:
S-26	W-23	1.56	17-57
(RGS-2)	Moderate Quality Wetlands		High Quality Resource Site
Riverview/Augusta Channel			

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Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-26 is associated with the Riverview-Augusta Channel. The channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects S-26. Any portion of S-26 not protected by the Riverview-Augusta Channel 50-foot setback should be protected by a 25-foot setback under the standards and protections found in SDC 4.3-117. S-26 is adjacent to but not directly connected to a locally significant wetland (W-23).



Description:

Site S-26 is a perennial stream that varies in width between 2-5 feet. It is bordered to the west by I-5. Much of the stream and the defined impact area are located within ODOT right-of-way adjacent to I-5 and beneath the Willamette I-5 Bridge.

S-26 is segmented, with a 462-foot culvert dividing the northern and southern segments of the stream. The northern segment of S-26 daylights under the Willamette I-5 Bridge before continuing north to the Willamette River. The left & right banks are similar but the average slope of the right bank is 10% and the impervious surface is between 10-25%. About 75% of both banks of S-26 are affected by development.

No known fish survey was been conducted for S-26. The stream is not shown on ODFW maps of fish-bearing streams. There is an unnamed perennial drainage that begins on the west side of I-5 (in Eugene) and is culverted under the freeway where it converges with the culverted portion of S-26. Oregon Department of Fish and Wildlife representative, Jeff Ziller, said this Eugene drainage that connects to S-26 has cutthroat trout. The presence of cutthroat in the Eugene drainage suggests that S-26 is also fish-bearing. The proximity and connectivity to the Willamette River also suggests that fish are present in S-26.

Woody Vegetation		Herbaceous Vegetation		
Fraxinus latifolia	Oregon Ash	Festuca arundinacea	Tall Fescue	
Salix sitchenius	Sitka Willow	Plantago lanceolata	English Plantain	
Cornus stolonifera	Red-Osier Dogwood	Daucus carota	Queen Anne's Lace	
Rubus discolor	Himalayan blackberry	Aira caryophyllea	Silver Hairgrass	
Populus trichocarpa	Black Cottonwood	Lathyrus sp.	Wild Pea	
Robinia pseudoacacia	Black Locust	Cirsium arvense	Canada Thistle	
Rubus armeniacus	Armenian Blackberry	mixed grasses (unidentified)		
Acer macrophyllum	Oregon Maple	Dipsacus sylvestris	Common Teasel	
Salix lasiandra	Pacific Willow	Hypericum perforatum	St. John's Wort	
Cytisus scoparius	Scotch Broom	Juncus effusus	Common Rush	
Symphoricarpos albus	Snowberry			

Observed Vegetation

Wetland Vegetation

Trees/ Shrubs		Vines/ Herbs		
Fraxinus latifolia	Oregon Ash	Mentha arvensis	Field mint	
Salix sitchenius	Sitka Willow	Biden sp.	Begger's tick.	
Cornus stolonifera	Red-Osier Dogwood	Juncus effusus	Soft Rush	
		Carex leptopoda	Short-Scale Sedge	

Soils

Soils-Mapped Series	Chehalis silty clay loam
Hydrologic Source	Groundwater

Summary of Riparian Functional Assessment

Riparian	Reach	Stream	Riparian	Water	Flood	Thermal	Wildlife
ID	Length	Width	Width	Quality	Management	Regulation	Habitat
RGS-2	1,740	2-5 feet	40-75 ft.	М	М	Н	М

Resource and Impact Area Summary

	Resource Acreage:	1,56
	Impact Area Acreage:	14.73
	Combined Resource and Impact Area:	16.29
	Vacant Acres within the Combined Area:	1.99
_	Parcels Affected (Including Impact Area):	8
	Combined Parcel Acreage:	57.07

Conflicting Uses by Acre and Zoning District

SITE ID	LMI		*Right-of-Way	TOTAL ACRES
S-26		.57	.99	.57
S-26		5.12	9.61	5.12
Impact Area				
Total		5.69	10.60	5.69

*Right-of-way does not typically have a zoning designation. As such, the right-of-way acreage shown for the conflicting use acreage is not counted towards the total. The right-of-way acreage is shown here because a large portion of the resource and its impact area are within ODOT and right-of-ways.

Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LMI		TOTAL ACRES
S-26		.52	.52
S-26		1.47	1.47
Impact Area		•	
Total		1.99	1.99

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in SDC Sections 4.3-115 and 5.17-100? Yes.

S-26 is associated with the Riverview-Augusta Channel. The channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects S-26.

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Site Specific ESEE Analysis for S-26

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

Although S-26 is highly disturbed, it achieved a WHA score that ranged between 17 for the northern segment to 57 for the southern segment. S-26 is rated overall as a high quality resource site, despite the low score for the northern segment. The northern segment has restoration potential and will likely receive attention as part of a larger riparian restoration project for the area disturbed by construction of the new Willamette I-5 Bridges.

The Riparian Functional Assessment conducted by Pacific Habitat Services indicated that the Water Quality, Flood Management and Wildlife Habitat functions were rated "Medium." The Thermal Regulation function was rated "High." Fully allowing additional conflicting uses would cause the loss of these functions.

Social Consequences

S-26 is located in an area that is heavily impacted by existing industrial development. The stream is not easily accessible to the public nor is it near a school. For these reasons it is not appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site.

Economic Consequences

Fully allowing conflicting uses would mean the loss of the water quality, flood management, thermal regulation and wildlife habitat functions of S-26. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 1.99 acres of vacant industrial land within the combined resource and impact area boundaries.

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of industrial lands. The majority of small sized commercial and industrial parcels needed for future growth shall be met within the existing UGB on small vacant and or redeveloped parcels. Protecting S-26 would reduce the available vacant industrial land within the UGB to meet these needs. The cumulative effect of fully protecting all commercial and industrial land within that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-26 is associated with the Riverview-Augusta Channel. The Riverview-Augusta Channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects S-26. Any portion of S-26 not protected by the Riverview-Augusta Channel's 50-foot setback should be protected by a 25-foot setback under the standards and protections found in SDC 4.3-117.

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If the setback afforded to S-26 by the existing Riverview-Augusta Channel protections is removed, a 25-foot setback should be applied to the stream under the standards and protections found in SDC 4.3-117.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

Impact on Vacant Acreage by Zoning District

SITEID	LMI	TOTAL ACRES
S-26	.52	.52
S-26 50-ft. Setback	1.26	1.26
Total	1.78	1.78

About .52 acres of S-26 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 3 lots. Limiting conflicting uses would allow some development to occur within the riparian resource area where the developer could show how the essential functions of the riparian corridor could be preserved or enhanced. A 50-foot development setback is already required for the riparian area under SDC Section 4.3-115. No additional setback is proposed by this study.

A 50-foot setback would affect 1.26 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that side yards, stormwater swales and other required open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the riparian area could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-26 and its 50 foot setback area from future development effectively reduces the CIBL inventory by a total of 1.3 acres.

Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories

Site S-26 Zoning	Redevelopable	Vacant	Total Acres
LMI	0	1.3	1.3
Total Acres	0	1.3	1.3

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is required under stormwater provisions of the Springfield Development Code, and thus the 1.3 acre impact of protecting the resource and its setback is not attributed to this report.

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Site: Associated Wetlands: .33 (RGS-9) Acres	 WHA Score: 45 High Quality Resource Site
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Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback and apply standards and protections found in SDC section 4.3-117. S-27 is not covered by any other existing riparian or wetland protection.



Description:

Site S-27 is a perennial stream segment that conveys water from the Moon Mt. area south of I-5. The stream is largely culverted from I-5 to the Glenwood slough, with occasional daylighting

along the watercourse. S-27 is one of those daylighted segments which opens into a 40 foot wide riparian feature. The stream segment is about 274 feet in length and is bounded to the north and west by industrial and residential development. Some land to the south and east is undeveloped, but the stream is culverted as it passes beneath that area.

S-27 is a dense thicket, dominated by willow species. At the time the stream was assessed (July 2009) the feature was sufficiently shrouded by vegetation that the consultants noted that they "could not see the bottom of the drainage due to a steep slope and Salix sp. thicket."

No known fish survey was been conducted for S-27. It is not shown on ODFW maps of fishbearing streams. The distance and lack of open connection to the Glenwood Slough and the Willamette River argue against this being classified as a fish-bearing stream.

Woody Ve	getation	Herbaceous Vegetation		
Populus trichocarpa	Black	Dispsacus species	Teasel	
	Cottonwood			
Acer species	Maple	Fallopia japonica	Knotweed	
Alnus species	Alder			
Calocedrus decurrens	Cedar			
Corylus species	Hazelnut			
Salix lasiandra	Pacific Willow			
Rubus	Blackberry			
armeniacus/discolor				
Hedera helix	English Ivy			

Observed Vegetation

Soils

Soils—Mapped Series | Bellpine silty clay loam

Summary of Riparian Functional Assessment

Riparian	Reach	Stream	Riparian	Water	Flood	Thermal	Wildlife
ID	Length	Width	Width	Quality	Management	Regulation	Habitat
RGS-9	274 ft.	40 feet	35 ft.	M	Μ	Н	М

Resource and Impact Area Summary

Resource Acreage:	.33
Impact Area Acreage:	. 3.57
Combined Resource and Impact Area:	3.90
Vacant Acres within the Combined Area:	2.24
Parcels Affected (Including Impact Area):	9
Combined Parcel Acreage:	8.16

Conflicting Uses by Acre and Zoning District

SITE ID	LDR		LMI	TOTAL ACRES
S-27		.26	.07	.33
S-27				3.57
Impact Area		•		
Total				3.90

Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LDR	LMI .	TOTAL ACRES
S-27	.31	.06	.37
S-27	.21	2.03	2.24
Impact Area			
Total	.52	2.09	2.61

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in SDC Sections 4.3-115 and 5.17-100? No.

Site Specific ESEE Analysis for S-27

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

With a WHA score of 45, S-27 is rated as a high quality resource site. The Riparian Functional Assessment prepared by Pacific Habitat Services rated the Water Quality, Flood Management, and Wildlife Habitat as Medium. The Thermal Regulation function was rated as High. Fully allowing additional conflicting uses would cause the loss of these functions.

Social Consequences

S-27 is located in an area that is heavily impacted by existing industrial development. The stream is not easily accessible to the public nor is it near a school. For these reasons it is not appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site.

Economic Consequences

Fully allowing conflicting uses would mean the loss of the Water Quality, Flood Management, Thermal Regulation and Wildlife Habitat functions of S-27. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 2.61 acres of vacant land within the combined resource and impact area boundaries. It would cause the loss of about 2.09 acres of industrial land and about .52 acres of low density residential land.

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of industrial lands. The majority of small sized commercial and industrial parcels needed for future growth shall be met within the existing UGB on small vacant and or redeveloped parcels. Protecting S-27 would reduce the available vacant industrial land within the UGB to meet these needs. The cumulative effect of fully protecting all commercial and industrial land that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

The recently completed Springfield Residential Land and Housing Needs Study (2009) did not show the affected residential properties on its inventory of vacant residential lands that will be needed to accommodate future residential growth.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback from the resource and apply the standards and protections found in SDC Section 4.3-117.

The disturbed nature of the site and lack of open connectivity to the Glenwood Slough and the Willamette River reduces the likelihood that this is vital fish habitat. The site has other habitat values and the existing vegetation provides a valued thermal regulation function. The 25-foot development setback would not substantially reduce those functions and would allow some nearby development to meet industrial and residential needs.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

SITE ID	LDR	LMI	TOTAL ACRES
S-27	.25	.06	.31
S-27 25-ft. Setback	.38	· .22	.60
Total	.63	.28	.91

Impact on Vacant Acreage by Zoning District

About .31 acres of S-27 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 6 lots. Limiting conflicting uses would allow some development to occur within the riparian resource area where the developer could show how the essential functions of the riparian corridor could be preserved or enhanced.

A 25-foot setback would affect .22 acres of vacant industrial land and .38 acres of low density residential land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the riparian area could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-27 and its 25 foot setback area from future development effectively reduces the CIBL inventory by a total of .19 acres and the RLS by a total of .38 acres, for a total of .57 acres.

Site S-27 Zoning	Redevelopable	Vacant	Total Acres
LDR	.38	3 0	.38
LMI	.13	.06	.19
Total Acres	.5	.06	.57

Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

Site:	Associated Wetlands:	Acres:	WHA Score:
S_28	W-24	.73	61
(R-WR-6)	Moderate Quality Wetlands		High Quality Resource Site

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Goal 5 Recommendation: Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback and apply standards and protections found in SDC section 4.3-117. S-28 is not covered by any other existing riparian or wetland protection.



Description:

S-28 is a narrow stream that meanders through a wetland area that is vegetated by willow thickets and Reed Canary grass. It is sandwiched between the ODOT right-of-ways for the I-5 and McVay Hwy. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.

Woody V	egetation	Herbaceous Vegetation		
Fraxinus latifolia	Oregon Ash	Festuca arundinacea	Tall Fescue	
Pseudotsuga mensiesii	Douglas Fir	Equisetum arvense	Field Horsetail	
Cornus stolonifera	Red-Osier Dogwood	Phalaris arundinacea	Reed Canary Grass	
Rubus discolor	Himalayan			
	Blackberry			
Populus trichocarpa	Black Cottonwood		· · · ·	
Acer macrophyllum	Oregon Maple			
Oemleria cerasiformis	Indian Plum			
Quercus Garryana	White Oak		_	
Hedera helix	English Ivy			

Observed Vegetation

Native and non-native vegetation were distributed throughout the reach and wetland. Reed Canary grass is starting to overtake the wetland area. There is a thick canopy with cottonwoods, maples and willows. Lots of Oak trees and Ash were visible just outside the area with a scattering in the site.

Wetland Vegetation

Dominant Wetland Vegetation					
Trees/ Shrubs Vines/ Herbs					
Populus trichocarpa Black Cottonwood		Phalaris arundinacea	Reed Canary Grass		
Salix lasiandra	Pacific Willow	Oenanthe sarmentosa	Water-Parsley		
Cornus stolonifera Red-Osier Dogwood		Urtica dioica	Stinging Nettles		
		Carex obnupta	Slough Sedge		
		Equisetum arvense	Field Horsetail		

Soils

Soils—Mapped Series	Dixonville-Philomath-Hazelair complex	•
Hydrologic Source	Groundwater	

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Summary of Riparian Functional Assessment

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Riparian	Reach	Stream	Riparian	Water	Flood	Thermal	Wildlife
ID	Length	Width	Width	Quality	Management	Regulation	Habitat
R-WR-6	331 feet	2-3 feet	120 feet	Η	Н	Н	М

Resource and Impact Area Summary

Resource Acreage:	.73
Impact Area Acreage:	5.04
Combined Resource and Impact Area:	5.77
Vacant Acres within the Combined Area:	
Parcels Affected (Including Impact Area):	. 5
Combined Parcel Acreage:	36.35

Conflicting Uses by Acre and Zoning District

SITE ID	LDR	PLO	*Right-of-Way	TOTAL ACRES
S-28	.41	0	.32	.41
S-28	1.24	.6	3.20	1.84
Impact Area				•
Total	1:65	.6	3.52	2.25

*Right-of-way does not typically have a zoning designation. As such, the right-of-way acreage shown for the conflicting use acreage is not counted towards the total. The right-of-way acreage is shown here because a large portion of the resource and its impact area are within ODOT and railroad right-of-ways.

Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LDR	PLO	*Right-of-Way	TOTAL ACRES
S-28	0	0	0	0
S-28	0	.39	0	.39
Impact Area			· · · ·	
Total	0	.39	0	.39

*Right-of-Way does not typically have a zoning designation. As such, the Right-of-Way acreage shown for the conflicting use acreage is not counted towards the total.

Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in SDC Sections 4.3-115 and 5.17-100? No.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-28. The Refinement Plan states, "Significant wetland areas in Glenwood shall be

protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

Site Specific ESEE Analysis for S-28

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

Environmental Consequences

With a WHA score of 61, S-28 is rated as a high quality resource site. Much of S-28 includes inventoried a locally significant wetland (W24). The Riparian Functional Assessment prepared by Pacific Habitat Services rated the Water Quality, Flood Management, and Thermal Regulation functions as High. The Wildlife Habitat function was rated Medium.

The wetland's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, but the OFWAM analysis concludes that it does not provide a diverse wildlife habitat.

Fully allowing additional conflicting uses would cause the loss of these riparian and wetland functions.

Social Consequences

S-28 is isolated and not easily accessible to the public. It is not near a school. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. For these reasons it is not appropriate for educational or recreational uses.

Economic Consequences

Fully allowing conflicting uses would mean the loss of the water quality, flood management, and thermal regulation and wildlife habitat functions that are provided by S-28. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of .39 acres of vacant Public Land and Open Space within the combined resource and impact area boundaries.

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 did not identify S-28 as providing needed commercial or industrial land. The Springfield Residential Land and Housing Needs Study (2009) did not show the affected residential properties on its inventory of vacant residential lands that will be needed to accommodate future residential growth.

Energy Consequences

None of note.

Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback from the resource and apply the standards and protections found in SDC Section 4.3-117.

The small stream width lack of open connectivity to the Willamette River reduces the likelihood that this is vital fish habitat. The site has other habitat values and the existing vegetation provides a valued thermal regulation function. The 25-foot development setback would not substantially reduce those functions and would allow some future redevelopment to meet residential needs.

Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

Impact on Vacant Acreage by Zoning District

SITE ID	LDR	PLO	TOTAL ACRES
S-28	0	0	0
S-28 25-ft. Setback	0	0	0
Total	0	0	0

None of the zoned acreage within the resource site or the 25-foot setback for S-28 is classified as vacant by the Lane County Assessor's Office. Fully protecting the resource would restrict the redevelopment of about .35 acres of low density residential land for additional housing on the site.

Reduction in the Buildable Land Inventory:

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-28 and its 25-foot setback area from future development effectively reduces the CIBL inventory by a total of .29 acres and the RLS by a total of .38 acres, for a total of .67 acres.

Site S-28 Zoning	Redevelopable	Vacant	Total Acres
LDR	.38	0	.38
LMI	.13	.16	.29
Total Acres	.51	.16	.67

Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

Proposed Amendments to the Springfield Inventory of Natural Resource Sites [Insert at pg. 284]

Site	Listed LWI	Acres	WHA-Score	WHA Source	Area Map#
E-39	Yes	23.8	46-47	Ester Lev,	6, 7
Glenwood Slough					

Description:

Site E39 consists of several sloughs, wetlands, and riparian strips near or adjacent to Interstate 5 and the Southern Pacific Railroad tracks in the Glenwood area. Vegetation includes willows (Salix spp.), black cottonwood (Populus trichocarpa), sedge (Carex spp.), rush (Juncus spp.), cattails (Typha latifolia), and reed canary grass (Phalaris arundinacea). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but the site's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that a portion of this site is a regulated wetland.

Site	Listed LWI	, Acres	WHA Score	WHA Source	Area Map#
S-25 (Formerly E39)	Yes	12.30	46-47	Ester Lev,	6, 7
(R-GS-1, 3, 4, 5, 7)					

Description:

Site S-25 (formerly E-39) consists of segments of the Glenwood Slough near or adjacent to Interstate 5, Franklin Boulevard, Glenwood Boulevard and the Union Pacific Railroad tracks in the Glenwood area. S-25 is generally surrounded by industrial uses, railroad tracks and a highway.

The western portion of S-25 wraps around the Glenwood solid waste transfer station. At its west end, the slough passes under the Willamette River I-5 overpass. This western portion has been channelized with cement sides.

The portions of S-25 on either side of Glenwood Boulevard are more natural and contain significant riparian vegetation including willows (Salix spp.), black cottonwood (Populus trichocarpa), sedge (Carex spp.), rush (Juncus spp.), cattails (Typha latifolia), and reed canarygrass (Phalaris arundinacea). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but S-25's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that portions of this site are regulated wetlands (W-20, W-21, and W-22).

The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust and Oregon Maple.

No fish survey was conducted for S-25 and it is not shown on ODFW maps of fish-bearing streams. The proximity and open connectivity to the Willamette River also suggests that fish are present in the Slough.

Site	Listed LWI	Acres	WHA Score	WHA Source	Area Map#
S-26	Yes	1.56	17-57	Washburn	6, 7
(R-GS-2)					

Description:

Site S-26 is a perennial stream that varies in width between 2-5 feet. It is bordered to the west by I-5. Much of the stream and the defined impact area are located within ODOT right-of-way adjacent to I-5 and beneath the Willamette I-5 Bridge. S-26 is segmented, with a 462-foot culvert dividing the northern and southern segments of the stream. The northern segment of S-26 daylights under the Willamette I-5 Bridge before continuing north to the Willamette River.

The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust, Oregon Maple, and Pacific Willow.

No known fish survey was been conducted for S-26. The stream is not shown on ODFW maps of fish-bearing streams. There is an unnamed perennial drainage that begins on the west side of I-5 (in Eugene) and is culverted under the freeway where it converges with the culverted portion of S-26. The Eugene drainage that connects to S-26 has been documented by ODFW as having cutthroat trout. The presence of cutthroat in the Eugene drainage suggests that S-26 is also fish-bearing. The proximity and connectivity to the Willamette River also suggests that fish are present in S-26.

Site		Listed LWI	Acres	WHA Score	WHA Source	Area Map#
S-27		Yes	.33	45	Washburn	6,7
(R-GS-9)	. • . . • .					

Description:

Site S-27 is a perennial stream segment that conveys water from the Moon Mt. area south of I-5. The stream is largely culverted from I-5 to the Glenwood slough, with occasional daylighting along the watercourse. S-27 is one of those daylighted segments which opens into a 40 foot wide riparian feature. The stream segment is about 274 feet in length and is bounded to the north and west by industrial and residential development. Some land to the south and east is undeveloped, but the stream is culverted as it passes beneath that area.

S-27 is a dense thicket, dominated by Pacific Willow, Black Cottonwood, Maple species, Alder species, and Hazelnut trees. At the time the stream was assessed (July 2009) the feature was sufficiently shrouded by vegetation that the consultants noted that they "could not see the bottom of the drainage due to a steep slope and Salix sp. thicket."

No known fish survey was been conducted for S-27. It is not shown on ODFW maps of fishbearing streams. The distance and lack of open connection to the Glenwood Slough and the Willamette River argue against this being classified as a fish-bearing stream.

Site	Listed LWI	Acres	WHA Score	WHA Source	Area Map#
S-28	Yes	.73	61	Washburn	6,7
(R-WR-6)			•		

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Description:

S-28 is a narrow stream that meanders through a wetland area that is vegetated by willow thickets and Reed Canary grass. It is sandwiched between the ODOT right-of-ways for the I-5 and McVay Hwy. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.

The dominant riparian tree species include Oregon Ash, Douglas Fir, Red-Osier Dogwood, Black Cottonwood, Indian Plum, White Oak, and Oregon Maple.

Amendments to the Springfield Local Wetland Inventory Site Descriptions [Insert at pg. 303]

Site: W20	Type:	Acres:	OFWAM:	
	PSS, PAB	3.39	Locally	
· .			Significant	
i.			Wetland	

Description:

Wetland W20 is 3.39 acres and classified as PSS/PAB. The wetland is adjacent to Glenwood Slough and the railroad tracks. Overstory dominant species include Oregon ash, Oregon white oak (Quercus garryana) and big leaf maple. Understory dominant was willow (Salix sp.). Herbaceous dominants were yellow flag iris (Iris pseudoacorus), spreading rush (Juncus patens) and marsh horsetail (Equisetum arvense). Soils were dark in color with mottles. Seasonal hydrology was indicated by the dominance of hydrophytic vegetation and presence of surface water in depressions. The wetland limits were determined where the vegetation ehanged and there were no longer indicators of hydrology.

Site: W20 Type:	Acres: OFWAM:	
PSS PLIB	373	
105,102	Significant	
主要対応など情報機関ない	Diginicant	
옷을 하는 것이 물질을 다섯 명도 말했다.	Wetland	

Description:

W-20 is 3.73 acres and is classified a Palustrine Shrub-Scrub wetland. The wetland is adjacent to Glenwood Slough and the railroad tracks. It is part of the Glenwood Slough. It flows northwest into W-21 prior to being culverted and flowing into the Willamette River. W-20 is bisected by Glenwood Blvd, but is still hydrologically connected by a culvert. The Slough is a topographic bowl. Hydrologic sources include stormwater from adjacent impervious surfaces, in addition to groundwater and upslope surface water. A portion of W-20 was previously delineated (WD96-0375).

The dominant wetland vegetation includes Oregon Ash, Sitka Willow, Red-Osier Dogwood, Field Mint, Begger's Tick, Soft Rush and Short Scale Sedge.

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Soil types include: Chehalis silty clay loam.

) •10 mint		 	
Site: W21 Type:	Acres:	OFWAM:		
PSS	.47	Locally		
		Significant		
		Wetland		

Description:

Wetland W-21 is .47 acres and is classified as a Palustrine Shrub-Scrub (PSS) wetland. The wetland is located under and east of the Interstate 5 Bridge just south of Franklin Blvd. W-21

was delineated in 2003 (WD2003-0273) as part of the ODOT's I-5 bridge project and Willamette River trail. The west portion was impacted by construction of the I-5 temporary detour bridge. W-21 is bounded to the south by railroad tracks. Glenwood Slough flows through the wetland as do several ditches used to convey stormwater. The wetland is less than one-half acre and is a judged locally significant wetland because of its hydrologic connection to the Willamette River. It is also connected to W22 and W23.

The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red-Osier Dogwood, Slough Sedge, and Creeping Buttercup.

Soil types include: Chehalis silty clay loam, Pengra-Urban land complex.

Site: W22	Туре:	Acres:	OFWAM:	
	PFO	2.53	Locally Significant Wetland	
			:	

Déscription:

Wetland W-22 is 2.53 acres and is classified as a Palustrine Forested wetlands (PFO). W-22 is a PFO system located with a drainage that flows through the southern portion. Portions of the wetland have been previously delineated (WD's 03-0273, 00-0102, 98-0051). PHS did not have access to the easternmost and southern portions of W-22 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red Alder, Clustered Wild Rose, Red-Osier Dogwood, Slough Sedge, Nipplewort and Soft Rush.

Soil types include Chehalis silty clay loam.

Site: W23	Туре:	Acres:	OFWAM:	· · · · · · · · · · · · · · · · · · ·
-	PEM	.87	Locally Significant Wetland	

Description:

Wetland W-23 is .87 acres and is classified as Palustrine Emergent (PEM) wetland. W-23 is a series of small PEM wetlands located within the ODOT ROW and on private property. The wetlands were delineated in 2007 for the I-5 bridge project (WD08-0140). The wetlands are located at the bottom of a steep slope. Hydrology from the wetlands flows into a channel that drains to the northwest into the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

The dominant wetland vegetation includes Black Cottonwood, Wild Mint, Begger's Tick, Soft Rush, Sawbeak Sedge, Soft Brome, Common Velvet Grass, English Plantain, Tall Fescue, and Bluegrass species.

	Type:	Acres:	OFWAM:	
	PFO	.51	Locally	
			Significant	
			Wetland	
Description:		· · · ·	· · · · · · · · · · · · · · · · · · ·	
W-24 .51 acre the bottom of flows through under McVay I-5 and McVa The dominant	s and is classi surrounding s the middle of Hwy. and the y Hwy. with r wetland vege ed Canary Gra	fied as a Palusti teep slopes. The the wetland. The railroad and ou esidential land tation includes ass. Water-Pars	ine Forested wetland (PFO). re is a narrow intermittent dra is drainage continues east thr t to the Willamette River. W- uses to the north and south. Black Cottonwood, Pacific W ey Stinging Nettles Slough S	W-24 is located at ainage channel that ough a long culvert 24 is located betwee illow, Red-Osier Sedge and Field
Horsetail.	ou Canary Or	135, Water-1 arsi	cy, Sunging Netries, Slough c	Seuge and Pield
Soil types incl	ude Dixonvil	lle-Philomath-H	azelair Complex	
$\frac{1}{2}$	Type	Acres		
Site: W25	Type.	Acres.	Doer Not Meet	an a
	PFO	4.31	Significance Criteria	
Description:				
W-25 is a depu	ressional PFO	area bounded of	n all sides by railroad tracks.	PHS was able to
W-25 is a depuview the wetla surrounded by portion of the Glenwood Bot	ressional PFO and from adjac adjacent com wetland. It flo ulevard that is	area bounded of cent road ROWs imercial properto ws northwest in believed to flo	n all sides by railroad tracks. and the Franz bakery proper ies. There is a drainage locate to a large culvert located with v into the Glenwood Slough (PHS was able to ty to the east. It is a along the southern hin the ROW of (W-20),
W-25 is a depuview the wetla surrounded by portion of the Glenwood Bou The dominant Red-Osier Dog Parsley, Deadl Soil Types inc	ressional PFO adjacent com wetland. It flo ulevard that is wetland vege gwood, Slend y Nightshade lude: Chehal	area bounded of cent road ROWs umercial propert ows northwest in believed to flo tation includes er Rush, Slough , Creeping Butt is silty clay loar	n all sides by railroad tracks. and the Franz bakery proper- les. There is a drainage locate to a large culvert located with winto the Glenwood Slough (Black Cottonwood, Nootka R Sedge, Wild Mint, Reed Can ercup, and Field Horsetail.	PHS was able to ty to the east. It is d along the southern hin the ROW of (W-20), ose, Pacific Willow, ary Grass, Water-
W-25 is a depuview the wetla surrounded by portion of the Glenwood Bou The dominant Red-Osier Dou Parsley, Dead Soil Types inc	ressional PFO adjacent com wetland. It flo ulevard that is wetland vege gwood, Slende y Nightshade lude: Chehal	area bounded of cent road ROWs imercial propert ows northwest in believed to flo tation includes er Rush, Slough , Creeping Butt is silty clay loar	n all sides by railroad tracks. and the Franz bakery proper- ies. There is a drainage locate to a large culvert located with v into the Glenwood Slough (Black Cottonwood, Nootka Ro Sedge, Wild Mint, Reed Can ercup, and Field Horsetail.	PHS was able to ty to the east. It is a along the southern hin the ROW of (W-20). ose, Pacific Willow, ary Grass, Water-
W-25 is a depuview the wetlasurrounded by portion of the Glenwood Bor The dominant Red-Osier Dog Parsley, Deadl Soil Types inc	ressional PFO adjacent com wetland. It flo ulevard that is wetland vege gwood, Slend y Nightshade lude: Chehal Type: PEM	area bounded of cent road ROWs imercial propert ows northwest in s believed to flow tation includes er Rush, Slough , Creeping Butt is silty clay loar Acres: .86	n all sides by railroad tracks. and the Franz bakery proper- ies. There is a drainage locate to a large culvert located with winto the Glenwood Slough (Black Cottonwood, Nootka R Sedge, Wild Mint, Reed Can ercup, and Field Horsetail. n.	PHS was able to ty to the east. It is d along the southern hin the ROW of (W-20). ose, Pacific Willow, ary Grass, Water-
W-25 is a depuview the wetla surrounded by portion of the Glenwood Bot The dominant Red-Osier Dog Parsley, Deadl Soil Types inc Site: W26	ressional PFO adjacent com wetland. It flo ulevard that is wetland vege gwood, Slendo y Nightshade lude: Chehal Type: PEM	area bounded of cent road ROWs imercial propert ows northwest in believed to flo tation includes er Rush, Slough , Creeping Butt is silty clay loar Acres: .86	n all sides by railroad tracks. and the Franz bakery proper- ies. There is a drainage locate to a large culvert located with winto the Glenwood Slough (Black Cottonwood, Nootka Re Sedge, Wild Mint, Reed Can ercup, and Field Horsetail. h. OFWAM: Does Not Meet Significance Criteria	PHS was able to ty to the east. It is ad along the southern hin the ROW of (W-20), ose, Pacific Willow, ary Grass, Water-

Attachment 5-55

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Deep tire ruts bare evidence of seasonally wet conditions.

The dominant wetland vegetation includes Black Cottonwood, Nootka Rose, Willow species, Slender Rush, Colonial Bentgrass, Coast Tarweed, Tall Fescue, Hedgehog Grass, Common Velvet Grass, Meadow Foxtail, Lowland Cudweed, Hyssop Loosestrife, and Narrow-leafed Flax.

Soil types include Urban land-Hazelair-Dixonville complex.

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The tables below summarize the size and classification of the wetland areas within Springfield's Urban Growth Boundary.

Site Number	OFWAM Significance	Acres	USFWS Classification(s)
M1		4.94	RLP
M2		3.12	PEM
M3		2.73	PEM/PFO
M4	Locally Significant Wetlands	5.02	PEM
	Special Interest for Protection		
M5	Locally Significant Wetlands	9.13	PFO/PSS/PEM
M6		4.05	PEM/PSS
M7		0.2	PEM
M8*_		0.2	PSS
M10*		2.72	RIN
M11*		1.01	POW
M12		1.22	PEM
M14	Locally Significant Wetlands	33.45	PEM/PFO
M15		6.41	PEM
M16	Locally Significant Wetlands	8.44	PFO/POW/RLP/PEM
M17		3.15	PEM
M18*		40.72	POW/PSS
M19		0.37	PFO
M20	Locally Significant Wetlands	0.52	RLP
M21		0.39	PEM
M22		0.1	PEM
M23		0.19	PEM
M24		0.51	PEM
M25		24.0	РЕМ
M26	Locally Significant Wetlands	1.85	PFO/PEM/PSS
M27		8.28	PEM/PFO
M28	Special Interest for Protection-	1.51	PEM
	Mitigation Site		
M29	Locally Significant Wetlands	1.08	PFO/PEM
	Special Interest for Protection		
M30		6.49	PFO/PEM/POW

McKenzie River Basin Wetlands
Site Number	OFWAM Significance	Acres	USFWS Classification(s)
M31		8.06	POW
M32		3.39	PEM
M33		13.75	POW/PSS/RLP
M34		0.8	PFO
M35		4.91	PEM
M36		0.75	PEM
M37		0.4	PEM
M38		0.08	PEM/PFO
M39*		1.88	PEM
M40		16.51	RLP
		222.33	

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Willamette River Basin Wetlands

Site Number	OFWAM Significance	Acres	USFWS Classification(s)
• W1*		4.14	RLP
W2	Locally Significant Wetlands, Special Interest for Protection	0.90	PEM
W3		1.27	PFO/PEM/POW
W4	Locally Significant Wetlands	0.97	PFO/PEM
W5		5.6	POW/PFO/PEM
W6		5.63	PFO
W7*		36.02	POW
W8*		1.22	POW
W9		0.22	PEM
W11		0.67	PSS
W12	Locally Significant Wetlands	1.42	PFO
W10		2.25	PSS
W13		2.24	PFO
W14		0.97	PEM
W15		0.79	PFO
W16	Locally Significant Wetlands	1.46	PFO
W17		17.21	RLP
W18 A-C	Locally Significant Wetlands	131.99	PEM/PFO
**W-19	Locally Significant Wetlands	41.65	POW, PFO
W-20	Locally Significant Wetlands	3.73	PSS/PUB
W-2 1	Locally Significant Wetlands	.47	PSS
W-22	Locally Significant Wetlands	. 2.53	PFO
W-23	Locally Significant Wetlands	.87	PEM
W-24	Locally Significant Wetlands	.51	PFO
W-25		4.31	PFO
W-26		.86	PEM
_		214.97	
		269.90	

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**W-19 was inadvertently left off of this table in the original Springfield Local Wetland Inventory report. Wetlands W-20 through W-26 are the revised resource sites in the Glenwood area.

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Springfield Natural Resources Study Glenwood Update--Staff Report

Project Name: Springfield Natural Resources Study: Glenwood Update

Project Proposal: To amend the "Springfield Local Wetland Inventory," the "Springfield Inventory of Natural Resource Sites," and the "Springfield Natural Resources Study" to add newly identified sites and to update the boundaries for previously inventoried Glenwood sites. In most cases the newly identified wetland and riparian sites are already protected under existing provisions of the Springfield Natural Resources Study, the Springfield Stormwater Management Program or the Glenwood Refinement Plan. The proposed protective setbacks for the newly identified sites are the same as those applied to wetland and riparian sites within the city's jurisdiction.

Case Number: LRP2010-00002

Attachments:

Exhibit A: Proposed Amendments to the Springfield Local Wetland Inventory Exhibit B: Proposed Amendments to the Springfield Inventory of Natural Resource Sites Exhibit C: Proposed Amendments to the Springfield Natural Resources Study Exhibit D: Local Wetlands and Riparian Corridor Assessment for the Glenwood Area of Springfield, Pacific Habitat Services, December 2009

Exhibit E: *Glenwood Natural Resource Wildlife Habitat Assessment 2010,* Springfield Environmental Services Division

I. Executive Summary

In 2005, the Springfield Natural Resources Study (**NR Study**) was adopted by the City Council to comply with the mandate of Statewide Planning Goal 5. The NR Study addresses the protection of locally significant wetland and riparian resources that were adopted as part of the Springfield Local Wetland Inventory (**Wetland Inventory**) in 1998 and the Springfield Inventory of Natural Resources (**NR Inventory**) that was adopted by in 2004. The NR Study, Wetland Inventory and the NR Inventory are Springfield-specific refinement plans that supplement the Metro Plan (Metro Plan pg. I-5).



In 2009, Lane Council of Governments (LCOG) was contracted to coordinate the completion a new wetland and riparian inventory for the Glenwood area in preparation for an update to the Glenwood Refinement Plan. LCOG and the consulting firm, Pacific Habitat Services have completed the inventory work. Through this work, three new riparian sites were identified in Glenwood and are proposed for addition to the NR Inventory. Four new wetland sites were also identified and are proposed for addition to the Wetland Inventory.

The three riparian sites were determined to be locally significant using criteria adopted by the City and County in 2004. The four wetland sites were determined to be "locally significant" by application of the Oregon Freshwater Wetland Assessment Methodology (OFWAM), a state mandated assessment tool. This new riparian and wetland information is the basis for the proposed amendments to update the NR Study.

The focus of the NR Study and the recommended protections for riparian and wetland areas is on "locally significant" sites. There were two additional wetland sites (W-25 and W-26) identified in Glenwood that failed the significance test. The final authority for allowing development of wetland and riparian areas rests with the US Army Corps of Engineers and the Oregon Department of State Lands. These agencies are more likely to allow non-significant wetlands to be filled and developed than those which pass the OFWAM significance test.

Adding the new Glenwood wetland and riparian information to the NR Inventory, Wetland Inventory and the NR Study requires the city to follow a refinement plan amendment procedure as described in Chapter IV of the Metro Plan and in Section 5.6-100 of the Springfield Development Code (SDC). This report addresses the criteria for approving refinement plan amendments found in SDC Section 5.6-115.

The tables and maps below show the new Glenwood riparian and wetland sites as well as updated information for the existing sites. This information and additional data for each site is proposed for insertion into the Wetland and NR Inventories and into the NR Study. The tables provide summary information and the existing or recommended protection (setback) for each one.

The approach recommended by staff is to assign the same protections to the new Glenwood sites as those used recommended by the 2005 NR Study for similar sites. Many of the Glenwood sites are already protected by 50-foot setbacks provided by the City's stormwater management program that was adopted in 2002. Sites not protected by the stormwater program tend to be smaller and are recommended for 25-foot setbacks. This is consistent with the protections applied to Springfield's wetlands and riparian sites in 2005.

The amendments proposed by this action include the following:

• Amendment of the Springfield Local Wetland Inventory (Wetland Inventory) to include the new Glenwood wetland sites and to add updated information concerning the existing Glenwood wetland site that is identified as W-20.

- Amendment of the Springfield Inventory of Natural Resources (NR Inventory) to include the new Glenwood riparian sites and to add updated information about the existing Glenwood sites identified as E-39 (Glenwood Slough). The designation E-39 is proposed to be changed to S-25. The E-39 designation is a hold over from Eugene's jurisdiction over Glenwood.
- Amendment of the Springfield Natural Resources Study (NR Study) to include "insert sheets" that provide an ESEE analysis and a recommendation for protection for each of the Glenwood sites, new and existing. The inserts add new information developed by Pacific Habitat Services (PHS) as part of their contracted work. The ESEE analysis is a comparison of the Economic, Social, Environmental and Energy impacts of allowing development to impact each wetland or riparian site.

Table 1 shows the acreage of the wetland and riparian sites that are the focus of this these amendments. The sites cover a total of 23.03 acres. The acreage totals 58.54 acres when the existing and recommended new setbacks are added.

Site ID	Site Acres	Existing and	Site Acres Including
		Recommended New	Setbacks
	\frown	Setbacks	
S-25	(12.30	Existing 50-ft.	28.38
S-26 (New)	1.56	Existing 50-ft.	5.79
S-27 (New)	.33	Recommended 25-ft.	.76
S-28 (New)	.73	Recommended 25-ft.	1.35
W-20	3.73	Existing 50-ft.	8.66
W-21 (New)	.47	Existing 50-ft.	1.71
W-22 (New)	2.53	Existing 50-ft.	6.30
W-23 (New)	.87	Existing 50-ft.	4.62
W-24 (New)	.51	Recommended 25-ft.	.97
Total Acres	23.03	Total Acres	58.54
Unduplicated Acres	<mark>- 14.92</mark>	Unduplicated Acres	36.28

Table 1. Acreage Affected by Glenwood Wetland and Riparian Amendments

Many of the resource sites are located within or adjacent to right-of-ways for Franklin Blvd., I-5 and the Union Pacific Railroad in Glenwood. These right-of-ways (ROWs) are not buildable lands and protection of these areas does not affect the supply of buildable land in Glenwood.

Table 2 shows that 24.47 acres of the land affected by these amendments are within ROWs and 34.07 acres of affected land are outside of ROWs. **Table 2 also shows that only about 10.87 acres of affected land outside of ROWs is vacant or redevelopable.** Redevelopable in this case is land classified by the Lane County Assessor as "Tract Land."

Site ID	Site Acres Including Setbacks	Acres within ROWs	Acres Outside of ROW	Affected Developed Parcel Acres	Affected Vacant or Redevelopable Parcel Acres
S-25	28.38	11.78	16.60	12.85	3.75
S-26 (New)	5.79	4.1	1.69	.39	1.30
S-27 (New)	.76	.02	.74	.07	.67
S-28 (New)	1.35	.71	.64	0	.64
W-20	8.66	2.18	6.48	5.31	1.17
W-21 (New)	1.71	.84	.87	.87	0
W-22 (New)	6.30	.37	5.93	3.67	2.26
W-23 (New)	4.62	4.09	.53	.04	.49
W-24 (New)	.97	.38	.59	0	59
Total Acres	58.54	24.47	(34.07)	23.20	(10.87
Unduplicated	36.28	16.61	19.67) 13.31	6.36
Acres				r	

Table 2. Affected Acreage Outside of Right-of-Ways

Most of the affected acreage in Glenwood is already protected by the City's stormwater management standards (SDC Section 4.3-115) that were adopted in 2002. Table 3 shows that only about 3.30 acres of vacant and redevelopable land are proposed for protection by setbacks that are not already enforced by the stormwater management standards. The setback protections are not retroactive and do not require the removal of existing development that may be located within the proposed setbacks. Future development will be governed by the setbacks if they are approved.

Table 3. Impact on Vacant and Redevelopable Acreage Not Protected By Existing Stormwater Management Setbacks

Site ID	Site Acres Including	Recommended and Existing	Vacant and Redevelopable Acres Affected by Recommended Setbacks			ted by
	Setbacks	Setback s	Residential	Commercial	Industrial	Total Acros
S-25	28.38	*Existing 50-ft.	0	0	1.36	1.36
S-26 (New)	5.79	Existing 50-ft.	. 0	0	0	0
S-27 (New)	.76	Recommended	.38	0	.19	.57
		25-ft.				
S-28 (New)	1.35	Recommended	.38	0	.29	.67
		25-ft.				
W-20	8.66	Existing 50-ft.	0	0	0	0
W-21 (New)	1.71	Existing 50-ft.	0	0	0	0
W-22 (New)	6.30	Existing 50-ft.	0	0	0	0

Site ID	Site Acres Including	Recommended and Existing	Vacant and Redevelopable Acres Affected by Recommended Setbacks			ted by
	Setbacks	Setback s	Residential	Commercial	Industrial	Total
						Acres
W-23	4.62	*Existing 50-ft.	0	0	.68	.68
(New)		•				
W-24	.97	Recommended	.02	0	0	.02
(New)		25-ft.				
Total Acres	58.54	Total Acres	(0.78)	0	(2.52)	3.30
Unduplicated	36.28	Unduplicated	.76	0	1.84	(2.60)
Acres		Acres				

* A small portion of this site is outside of the 50-foot setback and is recommended for protection by a 25-foot setback.

The proposed amendments as well as the report developed by PHS are attached to this report. The numbering system used by PHS to identify the Glenwood wetland and riparian sites in their report is different than the city numbering system. The maps presented as part of the amendment show the PHS identifiers in parenthesis on the maps to allow the reader to reference the PHS report.

Based on the findings presented in this report, staff believes there is an adequate factual basis for the Planning Commissions, the Springfield City Council and the Lane County Board of Commissioners to conclude that the proposed Glenwood additions to the Wetland Inventory, the NR Inventory and to the NR Study meet the criteria for approving refinement plan amendments found in Section 5.6-110 of the Springfield Development Code.

The diagrams below show the location of the Glenwood riparian and wetland sites that are proposed for inclusion in the NR Inventory, Wetland Inventory and the NR Study by these amendments.

Glenwood Riparian Sites



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Glenwood Wetland Sites







II. Background

In 1998, Council approved the Springfield Local Wetland Inventory (Wetland Inventory). The inventory lists all known Springfield wetlands and uses <u>state criteria</u> to identify which ones are "locally significant."

In 2004, Council adopted the Springfield Inventory of Natural Resource Sites (NR Inventory) which listed riparian areas and applied <u>local criteria</u> for identifying locally significant riparian sites. In the adopting ordinance for the NR Inventory, the Wetland Inventory was incorporated into the NR Inventory.

In 2005, the Council adopted the Springfield Natural Resources Study (NR Study) which created a plan for protecting wetlands and riparian areas. Council chose to use the "standard process" for determining how best to protect Springfield's resources as described in OAR 660-23-090 and 100. The standard process allows cities to exercise more flexibility in protecting resource sites, but requires site by site analysis of the impacts that might exist on each site. The standard process leads to a decision about how to protect resource sites in a way that weighs the Economic, Social, Environmental, and Energy (ESEE) consequences of the protection measures.

The NR Study is a 300-page document that contains the ESEE analysis required by OAR 660-23-090 for the "standard process" and recommends a program for protecting sites on the NR and Wetland Inventories. The NR Study has served to protect the city's wetland and riparian resources to date.

Under the standard process, cities are required to make a decision to 1) prohibit conflicting uses (development); 2) limit conflicting uses; or 3) allow conflicting uses. A decision to prohibit conflicting uses would fully protect resource sites, in many cases not even allowing passive recreational trails or paths. Limiting conflicting uses allows some development, but seeks to protect the most important functions and values of each resource site. A decision to allow conflicting uses would provide no protection for resource site.

Based on the ESEE analysis conducted for each site on the Wetland Inventory and the NR Inventory, this NR Study proposed a protection program based on a decision to "limit conflicting uses." Keep in mind that this study only addressed "locally significant" wetlands and riparian corridors that are listed on the NR and Wetland Inventories. The focus on significant wetlands and riparian sites is mandated by state planning rules. There are several lower quality wetlands and watercourses which were not protected by the policies adopted in the NR Study. These sites that were not protected by the study are still under the jurisdiction of the Oregon Department of State Lands and or the Corps of Engineers. These agencies continue to be the sole authority for issuing permits to impact wetlands and streams. The City's natural resource protections are supplemental to the authority of these agencies.

To implement a "limited" protection program, the NR Study took the following approach:

- It supported the existing protections implemented through Springfield's Stormwater Quality Management Program. The adopted Goal 5 limited protection program deferred to existing stormwater management policies detailed in Section 4.3-115 of the Springfield Development Code (SDC) and in particular those provisions which support the City's response to state and federal regulations concerning surface and subsurface discharging stormwater management systems. Sites protected by the Stormwater Management Program were not recommended for additional protection.
- 2. It established 25-foot development setbacks from inventoried wetlands and riparian resource sites that are not already protected by stormwater policies. The 50 and 75 foot setbacks established by the Stormwater Quality Management Program would be retained.
- Protection policies were applied to new development. Developed properties were not required to retroactively comply with the adopted policies. The provisions of SDC Section 5.8-100—Non-Conforming Uses, provide "grandfather" protections to existing development. Expansion of existing development is allowed where such expansion is outside of the resource area.
- 4. Site plan review was required for all commercial, industrial and multi-family residential development within 150-feet of resource sites. SDC Sections 4.3-115 and 4.3-117 describe wetland and riparian protections that are applied in the site plan review process to help reduce the impact of development. This requirement coincides with the defined 150-foot impact area recommended by this study and the 150-foot site plan review area already required for many of Springfield's resource areas by the Stormwater Quality Management

Program. Construction of a single-family home within an existing subdivision would not require site plan review.

- 5. The adopted protection program primarily affects vacant land and future development. Existing uses and structures within the proposed 25-foot setbacks are allowed to continue. Expansion of such uses is permitted outside the setback. Development within the 50 and 75-foot setbacks established under Springfield's Stormwater Quality Management Program would be subject to the policies of that program.
- 6. Where the proposed 25-foot setback renders a property unbuildable for the purposes for which it was zoned, a hardship variance may be requested to assist the owner to achieve a viable development design. Such a hardship variance is required under state administrative rules (OAR 660-023-0090 (8) (d) and 660-023-0100(4) (b) (d)).

The proposed amendments are designed to insert the new Glenwood wetland and riparian information into the existing Wetland and NR Inventories and to add the required conflicting use and ESEE analysis to the NR Study to support the recommended protection for the sites.

III. Procedural Requirements

The Wetland Inventory, the NR Inventory and the NR Study were products of the state mandated periodic review process that Eugene, Springfield and Lane County jointly undertook in the 1990's. Periodic review was concluded in 2005. The Wetland and NR Inventories and the NR Study were Springfield-specific products that were adopted as "refinement plans" to the Metro Plan.

Procedural requirements for refinement plan and Metro Plan amendments are described in Chapter IV of the Plan. The amendment procedures for refinement plans and the Metro Plan are also described in Sections 5.2-115, 5.4-135 and 5.4-140 of the Springfield Development Code (SDC).

Finding #1. Metro Plan Chapter IV, Policy 3 and SDC Section 5.14-115 include definitions for two types of amendments to the Metro Plan. Section 5.14-115 (C.) describes a Type II amendment as one "which is not otherwise a Type I plan amendment and which changes the Plan Diagram; or is a site specific Plan Text amendment."

Finding #2. The proposed amendments are restricted to specific sites within the Glenwood area. The amendments do not change the Urban Growth Boundary and do not require a Goal exception. Each site is within Springfield's planning jurisdiction. The proposed amendments fit the definition of a Type II amendment as described in the Metro Plan Chapter IV and the Springfield Code.

Finding #3. This amendment was initiated by the Director as allowed by SDC Section 5.6-105 on November 9, 2010.

Finding #4. The substance of the proposed Glenwood amendments was presented in an Open House held on January 11, 2010. Property owners and residents within 300 feet of the Glenwood riparian and wetland sites were sent mailed notice of the Open House. Maps showing the identified Glenwood wetland and riparian sites were presented and potential protections were discussed.

Finding #5. Prior to formal initiation of the amendment process, on February 25, 2010, owners and residents within 300 feet of the newly identified riparian and wetland sites in Glenwood were invited to an Open House to hear the findings of the Glenwood Wetland and Riparian Corridor Study that was completed by Lane Council of Governments. The study identified the wetlands and riparian areas that are the subject of the proposed amendments. The discussion included potential protection measures that might be applied to the new sites and their impact on property owners.

Finding #6. A Landowner Wetland Notification letter was mailed to affected Glenwood property owners and residents alerting them to the presence of wetlands on their properties on August 17, 2010 (as per instructions provided by the Oregon Department of State Lands). The letter informed owners and residents that hearings would be held in the future concerning the protections to be applied to the identified wetlands in the area.

Finding #7. A Notice of Proposed Amendment was filed with the Oregon Department of Land Conservation and Development on November 19, 2010, more than 45 days in advance of the first evidentiary hearing concerning the amendments as required by state planning rules.

Finding #8. SDC 5.14-135 (1) states that to become effective, "Metro Plan Type II amendment inside the city limits shall be approved by the Home City [Springfield]."

Finding #9. SDC 5.14-135 (2) states that to become effective, "a Metro Plan Type II amendment between the city limits and the Plan Boundary shall be approved by the Home City and Lane County."

Finding #10. The wetland and riparian sites that are the subject of the proposed amendments are located both inside and outside of the Springfield city limits. All of the subject sites are located within the Metro Plan Boundary. The proposed Type II amendments shall require the approval of both the City of Springfield and Lane County for all of the amendments to be approved.

Finding #11. Mailed notice of public hearings associated with a Metro Plan amendment must be sent to property owners and residents within 300 feet of the subject sites (SDC Section 5.2-115 (A), and Section 5.14-140).

Finding #12. Mailed notice of public hearings was sent out on December 30, 2010 to property owners and residents within 300 feet of the Glenwood wetland and riparian sites. The mailing

allowed more than 20 days notice before the first public hearing as required by Section 5.2-115 A of the SDC.

Finding #13. SDC Section 5.2-115 (B) requires that proposed land use actions be advertised in a newspaper of general circulation, providing information about the legislative action and the time, place and location of the hearing.

Finding #14. Notice of the public hearings concerning the proposed amendments was published on January 2, 2011 in the Register Guard, advertising both the hearing before the Springfield Commission on January 19, 2011 and the Joint Elected Officials of Springfield and Lane County on February 7, 2011. The content of the notice followed the direction given in SDC Section 5.2-115 B.

IV. Decision Criteria and Findings

SDC Section 5.6-110 describes the criteria to be used in approving a refinement plan amendment. It states that in reaching a decision, the Planning Commission and the City Council must adopt findings which demonstrate conformance with "1) the Metro Plan; 2) applicable State statutes; and to 3) applicable State-wide Planning Goals and Administrative Rules."

Criterion #1 "Conformance with the Metro Plan"

Findings

Finding #15. Metro Plan Chapter III—Environmental Resources Element, Policy C.8 states, "Local governments shall develop plans and programs which carefully manage development on hillsides and in water bodies, and restrict development in wetlands in order to prevent erosion and protect the scenic quality, surface water and groundwater quality, forest values, vegetation, and wildlife values of those areas."

Finding #16. The NR Study that was approved in 2005 is a plan developed for the purpose identifying and protecting locally significant wetlands and riparian corridors. The NR Study was acknowledged by the Oregon Department of Land Conservation and Development in 2006. The inventories and protection plan adopted by the NR Study were based on those recommended by the model ordinances found in the Oregon Department of State Lands' publications: *The Oregon Wetlands Planning Guidebook* and *The Urban Riparian Inventory and Assessment Guide*.

Finding #17. The proposed amendments are intended to add protected resources sites in the Glenwood area to the existing Wetland Inventory, NR Inventory and NR Study. The recommended protections for the Glenwood sites conform to the protections offered other sites in Springfield by the NR Study.

Finding #18. Metro Plan Chapter III—Environmental Resources Element, Policy C.9 states, "Each city shall complete a separate study to meet its requirements under the Goal 5 Rule for wetlands, riparian corridors, and wildlife habitat within the UGB. Lane County and the respective city jointly will adopt the inventory and protection measures for the area outside the city limits and inside the UGB."

Finding #19. The NR Study is a Springfield-specific study that was approved in 2005 and acknowledged by DLCD as meeting the requirements of Statewide Planning Goal 5. The proposed amendments are intended to add new Glenwood wetland and riparian sites to the NR Study and to provide the required ESEE analysis on which to base a program for protecting those sites.

Finding #20. Metro Plan Chapter III—Environmental Resources Element, Policy C.10 states, "Local governments shall encourage further study (by specialists) of endangered and threatened plant and wildlife species in the metropolitan area."

Finding #21. Pacific Habitat Services conducted the Glenwood wetland and riparian inventories and analysis. PHS inventoried wetland and riparian plants near the Glenwood sites and consulted with the Oregon Department of Fish and Wildlife (ODFW) concerning fish habitat and which streams might be fish-bearing, in preparing their report.

Finding #22. The NR Study consulted with the Oregon Natural Heritage Program and with the ODFW to identify threatened and endangered plant and wildlife species in Springfield and in Glenwood. This information was used to help craft protection measures for wetland and riparian sites.

Finding #23. Metro Plan Chapter III—Environmental Resources Element, Policy C.11 states, "Local governments shall protect endangered and threatened plant and wildlife species, as recognized on a legally adopted statewide list, after notice and opportunity for public input."

Finding #24. The proposed amendments provide protections for those streams and wetland areas in Glenwood that are consistent with the safe-harbor protections applied by the state to fish-bearing streams. Public comment was solicited through the course of the Glenwood wetland and riparian study. This public input included written notice that was sent on December 30, 2010 to property owners and residents living within 300-feet of the Glenwood resource sites. The notice identified the Glenwood wetlands and riparian sites that were being considered for inclusion on the Wetland Inventory and the NR Inventory.

Finding #25. On February 25, 2010, owners and residents within 300 feet of the newly identified riparian and wetland sites in Glenwood were invited to an Open House to hear the findings of the Glenwood Wetland and Riparian Corridor Study that was completed by Lane Council of Governments. The study identified the wetlands and riparian areas that are the subject of the proposed amendments. The discussion included potential protection measures that might be applied to the new sites and their impact on property owners.

Finding #26. An Open House was held at the Springfield City Hall on January 11, 2011 to discuss the Glenwood natural resource update project. Invitations to the Open House were included in the mailed notice that was sent to property owners and residents living within 300-feet of identified wetland and riparian sites in Glenwood.

Finding #27. Public hearings concerning the proposed amendments were scheduled before the Springfield Planning Commission and the joint hearing before the Springfield City Council and Lane County Board of Commissioners on January 19, 2011, and February 7, 2011 respectively. Mailed and published notice of the hearings was provided to solicit public input.

Finding #28. Metro Plan Chapter III—Environmental Resources Element, Policy C12 states, "Property owners may pursue efforts to protect natural vegetation and wildlife habitat areas on their land to conserve these areas, e.g., through conservation easements, public acquisition, donation, land trusts, etc.; and local governments are encouraged to assist in these efforts."

Finding #29. The notice provided to property owners and the Open House presentation was intended to raise the awareness of the Glenwood wetland and riparian resources. No city policy known to staff prevents property owners from protecting wetland or riparian sites on their land.

Finding #30. Metro Plan Chapter III—Environmental Resources Element, Policy C.13 states, "Wetland, riparian corridor, or wildlife habitat sites inside the UGB identified after adoption of the applicable Goal 5 inventory of significant sites, that have not been previously considered for inclusion in the inventory, shall be addressed in the following manner:

a. The jurisdiction within which the natural resource is located shall study the site according to the requirements in the Goal 5 administrative rule.

b. Upon the completion of the study, the affected jurisdiction shall determine whether the identified natural resource is significant according to the adopted significance criteria of the affected jurisdiction.

c. If the newly identified site is determined significant, the affected jurisdiction shall complete the Goal 5 requirements for the site, which includes adoption of protection measures for sites identified for protection.

d. The affected jurisdiction will notify affected property owners and interested parties throughout the process."

Finding #31. The Wildlife Habitat Assessment (WHA) criteria for riparian significance were applied to the proposed new riparian sites. This is the same criteria were approved by the Springfield City Council (Ordinance 6085) and used for all other Springfield riparian sites that are included in the original 2005 NR Study.

Finding #32. The criteria for wetland significance are determined by the Oregon Department of State Lands. These criteria were applied by PHS to each of the Glenwood wetland sites as part of their report. Locally significant, non-significant and probable wetlands were all inventoried. The proposed amendments include the same ESEE analysis and program for protection that was applied to each of Springfield's other wetland resource sites.

Finding #33. Springfield Ordinance 6150 adopted the NR Study and the program for protection prescribed for each of Springfield's inventoried wetland and riparian sites. The proposed amendments include the same ESEE analysis and program for protection that was applied to each of Springfield's other riparian resource sites.

Finding #34. Findings #24 through #27 document the citizen outreach and public notice that was part of preparing the proposed amendments.

Conclusion

The proposed amendments are consistent with the Metro Plan in that they are an addition to the same inventory and analysis as the existing NR Study that was adopted in 2005 and approved by the Oregon Department of Land Conservation and Development as meeting Goal 5 requirements.

"Conformance with Applicable State Statutes"

Findings

Finding #35. ORS 197.175(2)(a) states that, " each city and county in this state shall: (a) Prepare, adopt, amend and revise comprehensive plans in compliance with [Statewide Planning] goals approved by the commission; (b) Enact land use regulations to implement their comprehensive plans"

Finding #36. The NR Study was prepared in response to Statewide Planning Goal 5. The Study contains analysis that supports a program decision for protecting riparian and wetland resource sites as well as specific protection measures that will be adopted to implement that decision. The proposed amendments include an ESEE analysis and a recommended program for protecting each of the Glenwood wetland and riparian sites.

Conclusion

The NR Study conforms to applicable state statutes.

"Conformance with Statewide Planning Goals and Rules and Administrative Rules"

Findings

Goal 1 – **Citizen Involvement**. Goal 1 calls for "the opportunity for citizens to be involved in all phases of the planning process."

Finding #37. Findings #24 through #27 document the citizen outreach and public notice that was part of preparing the proposed amendments.

Goal 2 – Land Use Planning. Goal 2 outlines the basic procedures of Oregon's statewide planning program. It says that land use decisions are to be made in accordance with a comprehensive plan, and that suitable "implementation ordinances" to put the plan's policies into effect must be adopted.

Finding #38. The Eugene-Springfield Metropolitan Area General Plan (Metro Plan) is the acknowledged comprehensive plan that guides land use planning in Springfield. Findings #15-#24 document the consistency of the proposed amendments with the Metro Plan. The amendments, if adopted will afford the identified Glenwood wetland and riparian sites the protection approved by Ordinance #6150 which implements the City's program for protecting wetland and riparian sites.

Goal 3 – **Agricultural Land.** Goal 3 defines "agricultural lands." It then requires counties to inventory such lands and to "preserve and maintain" them through farm zoning.

Finding #39. This goal does not apply within adopted, acknowledged urban growth boundaries. The City of Springfield does not have any agricultural zoning districts. These amendments do not apply outside the urban growth boundary and, because of limitations on commercial and industrial development without full urban services, generally do not apply outside the city limits. All land in the City's urban transition area carries City zoning. An exception to this goal was taken in 1982 when the comprehensive plan was acknowledged.

Goal 4 – Forest Land. This goal defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

Finding #40. This goal does not apply within adopted, acknowledged urban growth boundaries. The City of Springfield does not have any forest zoning districts. These amendments do not apply outside the urban growth boundary and, because of limitations on commercial and industrial development without full urban services, generally do not apply outside the city limits. All land in the City's urban transition area carries City zoning. An exception to this goal was taken in 1982 when the comprehensive plan was acknowledged.

Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources. Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated.

Finding #41. In 1998, the City of Springfield adopted, and the Oregon Division of State Lands (DSL) acknowledged, the Springfield Local Wetland Inventory (Wetland Inventory). DSL funded the application of the Oregon Freshwater Wetlands Methodology (OFWAM) to the Wetland Inventory and identified those wetland sites that qualified as "locally significant wetlands. Identifying the locally significant wetlands completed the first step in the Goal 5 planning process for wetlands.

Finding #42. In 2004 the City of Springfield adopted the Springfield Inventory of Natural Resource Sites (NR Inventory). The NR Inventory used the Wildlife Habitat Assessment (WHA) methodology to identify "locally significant" riparian areas. This methodology was developed in conjunction with technical staff from the City of Beaverton, Portland Audubon Society, EPA, Corps of Engineers, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife and the Wetlands Conservancy. It has been used in Washington County, Gresham and in the entire Portland metropolitan area, including the Willamette Greenway.

The adoption of the NR Inventory completed the first step in the Goal 5 planning process for riparian areas.

Finding #43. In 2005 the Springfield Natural Resources Study (NR Study) was adopted. The Study concluded the Goal 5 planning process for both riparian and wetland areas by conducting the required ESEE analysis and adopting a program for protecting the identified sites on the NR Inventory and the Wetland Inventory. Many of the riparian and wetland sites overlapped and were listed on both inventories. The ESEE analysis and the development of a program for protecting both resource types were combined in the NR Study. The combined approach allowed coordination of the protections recommended for those resources that overlap. In many places statistical information for wetlands and riparian areas are broken out separately to provide the reader with information specific to each resource type.

Finding #44. Pacific Habitat Services (PHS) was hired in 2009 to conduct a new inventory of wetland and riparian areas within the boundary of the Glenwood Refinement Plan in preparation of the update of that plan.

Finding #45. PHS completed its inventory work and submitted a report, *"Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield,"* that identified three new riparian sites and four new wetland sites in the Glenwood area that were not part of the Wetland Inventory or the NR Inventory.

Finding #46. The PHS report was approved by the Oregon Department of State Lands (DSL) in April 2010. The report identified "locally significant" wetlands in Glenwood using state mandated criteria.

Finding #47. The PHS report provided information that allowed the Springfield Environmental Services staff to administer the WHA tool to identify which of the new riparian met the criteria to be classified locally significant riparian sites.

Finding #48. The proposed amendments add newly identified sites to the NR and Wetland Inventories and to the NR Study. The amendments include the inventory descriptions and ESEE analysis to complete the "standard process" for determining appropriate resource protections for locally significant sites under OAR 660-023-040.

OAR 660-023-0040 describes the ESEE analysis and decision making process. The NR Study includes the analysis and conclusions required by the process prescribed in the administrative rule. The rule states:

"(1) Local governments shall develop a program to achieve Goal 5 for all significant resource sites based on an analysis of the economic, social, environmental, and energy (ESEE) consequences that could result from a decision to allow, limit, or prohibit a conflicting use. This rule describes four steps to be followed in conducting an ESEE analysis, as set out in detail in sections (2) through (5) of this rule. Local governments are not required to follow these steps sequentially, and some steps anticipate a return to a previous step. However, findings shall demonstrate that requirements under each of the steps have been met, regardless of the sequence followed by the local government. The ESEE analysis need not be lengthy or complex, but should enable reviewers to gain a clear understanding of the conflicts and the consequences to be expected. The steps in the standard ESEE process are as follows:

- (a) Identify conflicting uses;
- (b) Determine the impact area;
- (c) Analyze the ESEE consequences; and
- (d) Develop a program to achieve Goal 5."

Identify Conflicting Uses

Finding #49. The existing NR Study includes chapters that document the steps listed above and provides sufficient information to support a program decision for each resource site on the NR Inventory and Wetland Inventory. The "Conflicting Use Analysis" assesses the potential development conflicts that exist with each of the resource sites. A generic conflicting use analysis describes the common conflicts that residential, commercial and industrial land uses may have with wetland and riparian resources. The Study also provides a specific breakdown of the potential conflicting land uses that affect each specific site.

Finding #50. The proposed amendments include a conflicting use analysis for each of the Glenwood wetland and riparian sites that follows the format of the existing NR Study. The amendments will become "insert sheets" that will add to the list of site specific analysis already found in the NR Study.

Determine the Impact Area

Finding #51. The NR Study establishes a scientific foundation for recommending a 150-foot impact area that was used in the conflicting use analysis.

Finding #52. The proposed amendments to the NR Study utilize a 150-foot impact area for use in conducting the required conflicting use analysis.

Analyze the ESEE Consequences

Finding #53. The ESEE analysis, like the conflicting use analysis includes both a generic component and a site-specific component. The analysis considered the economic, social, environmental and energy consequences of prohibiting, limiting and allowing conflicting land uses to impact wetland and riparian resource sites.

Finding #54. The proposed amendments to the NR Study include a site specific analysis of the ESEE consequences of prohibiting, limiting and allowing conflicting land uses to impact wetland and riparian resource sites identified in Glenwood.

Develop a program to achieve Goal 5

Finding #55. The NR Study concludes each site-specific analysis with a recommendation for protection. In each case, a recommendation to limit conflicting uses was chosen, based on the information developed by the ESEE analysis. A specific set of protection policies were adopted (Ordinance 6150) with the NR Study. The policies were based on the model ordinance that is included in the Wetland Planning Handbook published by the Department of State Lands.

Finding #56. The proposed amendments to the NR Study include a site-specific analysis with a recommendation for protection of each Glenwood wetland and riparian resource. In each case, a recommendation to "limit conflicting uses" was chosen, based on the information developed by the ESEE analysis. A specific set of protection policies are also recommended for each Glenwood site that are similar to those applied by the NR Study for other Springfield sites. The protective setbacks range between 25 and 75 feet, depending upon the rate of flow and presence of fish in the streams. These protections parallel the safe harbor setbacks established by the state.

Finding #57. In its report, Pacific Habitat Services used the "Urban Riparian Inventory Assessment and Assessment Guide" (URIAG) for analyzing the Glenwood riparian sites. This approach recommends riparian widths based on the "site potential tree height" which would have established riparian widths ranging between 25 and 120 feet for the Glenwood sites. Setbacks are often suggested to match the riparian widths.

Finding #58. Pacific Habitat concluded in its report: "Based on our review of potential riparian widths within Glenwood's more urbanized center, the majority of the riparian areas are already developed: houses, industrial development, and impervious surfaces encompass much of the riparian corridors. It is likely that designating up to 120-foot wide riparian corridors (i.e. using the URIAG widths) within already developed areas <u>will not</u> result in additional riparian protection [emphasis added]" (*Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield*; Pacific Habitat Services, December 2009, pg. 23)

Goal 6 – Air, Water and Land Resources Quality. This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

Finding #59. Compliance with Statewide Planning Goal 5 processes for wetlands, riparian corridors unavoidably involves state and federal regulations for addressing clean air, clean water, safe drinking water, endangered species and other environmental policies.

The ESEE analysis and recommended protections support and enhance provisions of the Springfield Development Code that address the requirements of state and federal regulations including the Clean Water Act, Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Oregon Forest Practices Act, Oregon Endangered Species Rules, and the Oregon Wetlands Regulatory Program.

These established state and federal policies for environmental protection provided the regulatory framework within which the NR Study was developed, but the Goal 5 process was not intended to create detailed protective policy that specifically addresses Goal 6 issues.

Finding #60. The City of Springfield has already taken action to revise its Development Code to respond to National Pollutant Discharge Elimination System (NPDES) Phase II, the Clean Water Act, the Drinking Water Protection Act, and is in the process of devising a response to the Endangered Species Act for listed species in our area. The proposed amendments to not change this response to these federal regulations.

Goal 7 – Areas Subject to Natural Disasters and Hazards. Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

Finding #61. All sites within Springfield that are subject to these hazards (floodplain, erosion, landslides, earthquakes, weak foundation soils) are inventoried through a variety of sources. The proposed amendments do not remove or exempt compliance with other Code standards that may apply to development.

Goal 8 – **Recreational Needs.** This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them.

Finding #62. Willamalane Park and Recreation District is the entity responsible for park planning, development and maintenance in the urban transition area as well as the city limits. The NR Study used Willamalane's Park and Recreation Plan (March 2004) to inform the ESEE process and in particular the analysis of the social impacts of allowing conflicting uses to impact wetlands and riparian areas that were identified by the comprehensive plan as future park facilities. Some decisions to limit conflicting uses were based on the desire to preserve the ability of Willamalane to establish low impact recreational facilities near protected resource sites that were part of the Study.

Finding #63. The proposed amendments take into account the Willamalane Park and Recreation Plan in assessing the social element of the ESEE analysis for the Glenwood sites. None of the proposed new wetland or riparian sites are included in Willamalane's Park and Recreation Plan.

Goal 9 – Economic Development. Goal 9 calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and plan and zone enough land to meet those needs.

OAR 660-23-070 requires communities to conduct a buildable lands inventory that assesses the impact of protective policies applied to sites on the inventory of buildable land. Where there is a demonstrable impact, the rule requires the City to make adjustments to recover the buildable land that is lost.

Finding #64. The recommended protection measures in the original 2005 NR Study affected the combined Eugene-Springfield inventory of commercial and industrial lands. At the conclusion of each site-specific ESEE analysis, GIS was used to estimate the amount of land that would be removed from these inventories. The amount of acreage protected from development was subtracted from the surplus of buildable land cited in the Springfield Commercial Lands Study (2000) and the Metropolitan Industrial Lands Special Study (March 1991).

1. The Study indicated that about 11.56 acres would be removed from the commercial land supply. That supply is already estimated to be 158 acres short of the estimated demand for commercial land through 2015.

2. The Study estimated that about 71.40 acres would be removed from the industrial land supply by the proposed protection program. There would be a remaining surplus of between 1583 and 2105 acres of industrial land in the Eugene-Springfield area if the protections were implemented.

Finding #65. HB 3337 mandated the establishment of separate inventories of available residential land for Eugene and Springfield. The cities of Eugene and Springfield have since prepared separate inventories of residential, commercial and industrial buildable lands. The Springfield Commercial Industrial Buildable Land Study (CIBL) was adopted in 2009. The Springfield Residential Lands Study (RLS) was also adopted in 2009.

Finding #66. The proposed amendments include recommended protection measures for the Glenwood sites that will have a minor affect on the CIBL and RLS inventories. At the conclusion of each site-specific ESEE analysis, GIS was used to estimate the amount of land that would be removed from the commercial and industrial lands inventories. The estimate was based on vacant residential, commercial and industrially zoned lands.

Table 1 shows the acreage of the wetland and riparian sites that are the focus of this these amendments. The sites cover a total of 23.03 acres. The acreage totals 58.54 acres when the existing and recommended new setbacks are added.

Site ID	Site Acres	Existing and Recommended New Setbacks	Site Acres Including Setbacks
S-25	12.30	Existing 50-ft.	28.38
S-26 (New)	1.56	Existing 50-ft.	5.79
S-27 (New)	.33	25-ft.	.76
S-28 (New)	.73	25-ft.	1.35
W-20	3.73	Existing 50-ft.	8.66
W-21 (New)	.47	Existing 50-ft.	1.71
W-22 (New)	2.53	Existing 50-ft.	6.30
W-23 (New)	.87	Existing 50-ft.	4.62
W-24 (New)	.51	25-ft.	.97
Total Acres	23.03	Total Acres	58.54

Table 1. Acreage Affected by Glenwood Wetland and Riparian Amendments

Many of the resource sites are located within or adjacent to right-of-ways for Franklin Blvd., I-5 or the Union Pacific Railroad in Glenwood. These right-of-ways (ROWs) are not buildable lands and protection of these areas does not affect the supply of buildable land in Glenwood.

Table 2 shows that 24.47 acres of the land affected by these amendments are within ROWs and 34.07 acres of affected land are outside of ROWs. **Table 2 also shows that only about 10.87**

acres of affected land outside of ROWs is vacant or redevelopable. Redevelopable in this case is land classified by the Lane County Assessor as "Tract Land."

Site ID	Site Acres Including Setbacks	Acres within ROWs	Acres Outside of ROW	Affected Developed Parcel Acres	Affected Vacant or Redevelopable Parcel Acres
S-25	28.38	11.78	16.60	12.85	3.75
S-26 (New)	5.79	4.1	1.69	.39	1.30
S-27 (New)	.76	.02	.74	.07	.67
S-28 (New)	1.35	.71	.64	0	.64
W-20	8.66	2.18	6.48	5.31	1.17
W-21 [.] (New)	1.71	.84	.87	.87	0
W-22 (New)	6.30	.37	5.93	3.67	2.26
W-23 (New)	4.62	4.09	.53	.04	.49
Ŵ-24 (New)	.97	.38	.59	0	.59
	58.54	24.47	34.07	23.20	10.87

Fable 2. Affected Acreage	e Outside of	f Right-of-Ways
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Most of the affected acreage in Glenwood is already protected by the City's stormwater management standards (SDC Section 4.3-115) that were adopted in 2002. **Table 3 shows that only about 3.30 acres of vacant and redevelopable land are proposed for protection by setbacks that are not already enforced by the stormwater management standards.** The setback protections are not retroactive and do not require the removal of existing development that may be located within the proposed setbacks. Future development will be governed by the setbacks if they are approved.

Table 3. Impact on Vacant and Redevelopable AcreageNot ProtectedBy Existing Stormwater Management Setbacks

Site ID	Site Acres Including	Recommended and Existing	Vacant and Redevelopable Acres Affected by Recommended Setbacks			ted by
	Setbacks	Setback s	Residential	Commercial	Industrial	Total
						Acres
S-25	28.38	*Existing 50-ft.	0	0	1.36	1.36
S-26	5.79	Existing 50-ft.	0	0	0	0
(New)						
S-27	.76	Recommended	.38	0	.19	.57
(New)		25-ft.				
S-28	1.35	Recommended	.38	0	.29	.67
(New)		25-ft.				

Site ID	Site Acres	Recommended and Existing	Vacant and Redevelopable Acres Affected by Recommended Setbacks			ted by
	Setbacks	Setback s	Residential	Commercial	Industrial	Total
						Acres
W-20	8.66	Existing 50-ft.	0	0	0	0
W-21	1.71	Existing 50-ft.	0	. 0	0	0
(New)						, ,
W-22	6.30	Existing 50-ft.	0	0	0	0
(New)						
W-23	4.62	*Existing 50-ft.	0	0	.68	.68
(New)						
W-24	.97	Recommended	.02	0	0	.02
(New)		25-ft.				
Total	58.54	Total Acres	0.78	0	2.52	3.30
Acres						

* A small portion of this site is outside of the 50-foot setback and is recommended for protection by a 25-foot setback.

Goal 10 – Housing. This goal specifies that each city must plan for and accommodate needed housing types, such as multifamily and manufactured housing.

OAR 660-23-070 requires communities to conduct a buildable lands inventory that assesses the impact of protective policies applied to sites on the inventory of buildable land. Where there is a demonstrable impact, the rule requires the City to make adjustments to recover the buildable land that is lost.

Finding #67. The recommended protections for the Glenwood sites will have a negligible affect the inventory of residential lands. Table 3 shows the recommended protections will affect about 1.04 acres of vacant residential land that is not already protected by stormwater setbacks adopted in 2002.

Goal 11 – Public Facilities and Services. Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection.

Finding #68. The Eugene-Springfield Metropolitan Public Services and Facilities Plan (PFSP) is a refinement plan of the Metro Plan that guides the provision of public infrastructure, including water, sewer, storm water management, and electricity. Some of the inventoried Glenwood riparian and wetland resource sites are also public stormwater facilities. The Glenwood Slough and 19th Street Channel, and the Riverview/Augusta Channel (S-26) are important stormwater facilities that are listed in the PFSP. The recommended protection policies will preserve and support existing stormwater protection policies that are applied to riparian and wetland sites that are on the Water Quality Limited Watercourse list. In addition, wetlands and riparian areas that are not protected under the stormwater policies will receive protection.

Finding #69. The proposed Glenwood protection measures allow for the development and maintenance of public infrastructure. As such the protection policies will not have a negative effect on Goal 11 public facilities and services. Other public services such as police and fire protection are not likely to be impacted by the approval of the protection policies.

Goal 12 – Transportation. The goal aims to provide "a safe, convenient and economic transportation system."

Finding #70. The protection policies recommended by the 2005 NR Study did not directly impact the approved transportation system plan for the Springfield area, TransPlan. Development standards that may be approved in the future as part of a Low Impact Development Design Handbook recommended by the NR Study may have an impact on street design standards. Some communities have chosen to allow narrower streets in hillside residential areas to reduce the amount of impervious surface areas. Those same narrow street designs are being championed as an effective measure for traffic calming.

Finding #71. The proposed amendments add to and update the wetland and riparian inventories to include newly identified Glenwood sites. No new protection policy initiatives are recommended that are not already part of the 2005 NR Study.

Goal 13 – Energy Conservation. Goal 13 declares that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."

Finding #72. The ESEE analysis considered the likely energy consequences of allowing conflicting uses to impact resource areas for the Glenwood sites. Approval of the recommended protection measures is not likely to have a direct impact on efforts to conserve energy. As such this goal is not applicable to evaluation of proposed Glenwood amendments.

Goal 14 – Urbanization. This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs.

OAR 660-23-070 requires communities to conduct a buildable lands inventory that assesses the impact of the natural resource inventory and the protective policies applied to sites on the inventory of buildable land. Where there is a demonstrable impact, the rule requires the City to make adjustments to recover the buildable land that is lost.

Finding #73. The proposed new amendments will have a negligible affect on the inventory of buildable lands. Table 3 shows that about 3.30 acres of vacant land will be affected by the Glenwood amendments and the proposed protection for the identified new wetland and riparian sites. Keep in mind that many of the Glenwood sites are already protected by existing stormwater management policies. The estimated impact in terms of acres lost from the residential, commercial and industrial inventories is discussed above under Goals 9 and 10. The findings of the Study indicate that the impact on residential lands would not exceed the

available surplus. The supply of industrial lands is already insufficient to meet projected demands, and the findings of this study indicate that the protections may further exacerbate the shortage, but to a negligible degree.

Goal 15 – Willamette River Greenway. Goal 15 sets forth procedures for administering the 300 miles of greenway that protects the Willamette River.

Finding #74. That portion of the Willamette River that flows through the Springfield/Glenwood area is an inventoried resource site (site WA/WB). The Willamette is already protected with under provisions of Springfield's Stormwater Quality Management Program and as such is not recommended for further protection by the proposed Glenwood amendments. Adoption of the proposed Glenwood amendments and protection measures do not change the City's existing standards for protection with respect to the Willamette River Greenway.

Goals 16 through 19 – Estuarine Resources, Coastal Shorelands, Beaches and Dunes, and Ocean Resources.

Finding #75. There are no coastal, ocean, estuarine, or beach and dune resources within the City's jurisdiction. These goals do not apply in Springfield.

Conclusion

The findings shown above demonstrate that the proposed Glenwood amendments to the Springfield Local Wetland Inventory, the Springfield Inventory of Natural Resources Sites, and the Springfield Natural Resources Study and the recommended protection policies to achieve Goal 5 are in substantial conformance with Oregon's Statewide Planning Goals.

V. Conclusion and Recommendation of Staff

Based on the findings of this report, the proposed Glenwood amendments to the Springfield Local Wetland Inventory, the Springfield Inventory of Natural Resources Sites, and the Springfield Natural Resources Study and the recommended protection policies for the Glenwood Sites meet the criteria for approving refinement plan amendments that is found in SDC Section 5.6-110.

VI. Attachments

Exhibit A:	Proposed Amendments to the Springfield Local Wetland Inventory
Exhibit B:	Proposed Amendments to the Springfield Inventory of Natural Resource Sites
Exhibit C:	Proposed Amendments to the Springfield Natural Resources Study
Exhibit D:	Local Wetlands and Riparian Corridor Assessment for the Glenwood Area of
	Springfield, Pacific Habitat Services, December 2009
Exhibit E:	Glenwood Natural Resource Wildlife Habitat Assessment 2010, Springfield
	Environmental Services Division



Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield, Oregon

Prepared for

City of Springfield Springfield, Oregon 97477

Prepared by

Pacific Habitat Services, Inc. Wilsonville, Oregon

February 10, 2010



EXHIBIT E-2

Local Wetlands Inventory and Riparian Corridor Assessment for the

Glenwood Area of Springfield, Oregon

Prepared for

City of Springfield 225 5th Street Springfield, Oregon 97477

Prepared by

John van Staveren Michele Eccleston Shawn Eisner Pacific Habitat Services, Inc. 9450 SW Commerce Circle, Suite 180 Wilsonville, Oregon 97070 (503) 570-0855 FAX PHS Project Number: 4495

February 2010

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1.0 INTRODUCTION

The Lane Council of Governments (LCOG) hired Pacific Habitat Services, Inc. (PHS) to conduct a Local Wetlands Inventory (LWI) and Riparian Corridor Assessment within the 677 acre Glenwood area of Springfield, located east of I-5, south and west of the Willamette River (Township 17 South, Range 3 West, Sections 33 and 34, and Township 18 South, Range 3 West, Sections 02 and 03 Willamette Meridian). The approximate study area is shown on Figure 1. All figures are in Appendix A.

The goal of the study was to address the wetland and riparian requirements of Statewide Planning Goal 5 (*Natural Resources, Scenic and Historic Areas, and Open Spaces*) Oregon Administrative Rule (OAR) Section 660, Division 23. The objective of Goal 5 is to "protect natural resources and conserve scenic, historic and open space resources for present and future generations."

PHS determined the general location, approximate size, and quality/condition of wetlands throughout the study area. The quality/condition of wetlands was determined by applying the Oregon Freshwater Wetland Assessment Methodology (OFWAM) where appropriate, and then determining whether wetlands are locally significant by applying the criteria contained in State administrative rules (OAR 141-86-300-350). This report presents the results of the wetland inventory and riparian assessment.

1.1 Report Format

This report begins with definitions used in the report and inventory (Section 2). Section 3 includes a discussion of the methodology used to conduct the field work for the LWI; the wetland assessment methodology; and the methodology used to produce the maps for the inventory. Section 4 is a brief discussion of project cartography. Section 5 describes general conditions within the study area, addressing climate, topography, soils and vegetation. Section 6 is a more detailed discussion of wetlands within the study area and addresses wetland distribution, acreage, and Cowardin classification. Section 7 discusses the results of the *Oregon Freshwater Wetland Assessment Methodology* and Section 8 lists Locally Significant Wetlands in the study area. Section 10 presents staff qualifications. Section 11 provides a list of the references used in the report.

There are eight appendices to the report. Appendix A contains figures illustrating general location, soils, the National Wetlands Inventory maps of the study area. It also includes maps identifying the wetlands and riparian areas within the study area.

Appendix B contains the wetland characterization forms for each wetland, organized by wetland code. The characterization sheets note wetland location, tax lots, acreage, Cowardin classification, Hydrogeomorphic (HGM) classification, soil series, wetland and adjacent upland vegetation, and other unique or clarifying notes related to the wetland. This form was completed for each wetland unit of greater than one-half acre in size. If it was an on-site determination, sample point numbers are noted and included in Appendix C. Locally significant wetlands are also noted on the characterization form.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 1-156 Appendix C contains the wetland determination data forms. These forms document wetland and upland conditions where access was granted. Hydrology, soils, and dominant vegetation are recorded for each sample point where wetland or upland data was collected.

Appendix D is the Oregon Freshwater Wetland Assessment Methodology (OFWAM) data and summary for each wetland unit. Each wetland's functions and conditions are assessed according to an established state methodology. The results and rationale are also summarized for each wetland unit.

Appendix E contains the determination of significance for each wetland unit.

Appendix F includes OFWAM field forms and watershed summary tables that aided in answering many of the questions in OFWAM.

Appendix G includes the riparian data forms.

2.0 DEFINITIONS

These terms helped define the methodology used for the Glenwood Local Wetlands Inventory and may be referred to in this report.

1987 Manual

The primary source documents for wetland delineations within Oregon is the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (Environmental Laboratory 1987) and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, which are recognized by both DSL and COE (Regional Supplement; U.S Army Corps, 2008).

These manuals are used by the Army Corps of Engineers ("Corps") and the Oregon Department of State Lands ("DSL") to document the location of wetlands within the State of Oregon. The 1987 manual, along with regional supplement, provide technical criteria, field indicators, and recommended procedures to be used in determining whether an area is a jurisdictional wetland. Undisturbed areas require three criteria for them to be classified as wetland. These criteria are hydric soils, a dominance of hydrophytic vegetation, and wetland hydrology.

Cowardin Wetland Classification

The classification of wetlands as defined by plants, soils and the frequency of flooding is described in "*Classification of wetlands and deepwater habitats of the United States.*" (Cowardin, et. al. 1979) See also "Palustrine Wetlands".

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 1-157

Field verify

To walk over and/or visually check an area to make a wetland determination and map wetlands. This may or may not include on-site access or the collection of sample plot data. (OAR 141-086)

Goal 5

Goal 5 (OAR 660, Division 23) is intended "to protect natural resources, and conserve scenic and historic areas and open spaces." (Land Conservation and Development Commission [LCDC], 1996)

Growing Season

The growing season has begun and is ongoing when either of the two following conditions is met:

- 1) Two or more non-evergreen vascular plant species growing in the wetland or surrounding areas exhibit one or more of a specific list of indicators of biological activity (such as leaf emergence; appearance of new growth; emergence or opening of flowers; etc.)
- 2) When soil temperature measured at a depth of 12 inches is 41°F (5°C) or higher

Hydric Soils

"Soils which are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions." (USDA, SCS, 1985)

Periodic saturation of soils causes alternation of reduced and oxidized conditions which leads to the formation of redoximorphic features (gleying and mottling). Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include: organic content of greater than 50% by volume, sulfidic material or "rotten egg" smell, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soils usually have a matrix chroma of 2 or less in mottled soils, or a matrix chroma of 1 or less in unmottled soils.

Hydrogeomorphic (HGM) Wetland Classification

A method of assessing wetlands using the physical, chemical, and biological functions of wetlands. It is based on the relationship of geomorphic setting, water source, and hydrodynamics. (Brinson, 1993)

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachments 1-158

Hydrophytic Vegetation

"Plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content." (National Resource Council, 1995)

The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status," are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL).

Local Wetlands Inventory (LWI)

An inventory of all wetlands greater than 0.5 acres in size within a local jurisdiction using the standards and procedures of OAR 141-86-110 through 141-86-240.

In 1989, the Oregon State legislature authorized DSL to develop a statewide wetlands inventory for planning and regulatory purposes. Accordingly, DSL established Local Wetlands Inventory (LWI) standards and guidelines under ORS 196.674. An approved LWI replaces the National Wetlands Inventory maps and is incorporated into the statewide wetlands inventory.

An LWI is conducted using color or color infrared aerial photographs taken within 5 years of the inventory initiation and at a minimum scale of 1 inch = 400 feet (1" = 400'). Wetlands are located using the on-site option where access to property is allowed or offsite where access is denied. Wetlands can be mapped off-site by using information such as topographic and National Wetlands Inventory maps, aerial photographs, and soils surveys.

The approximate location of wetlands is placed on a parcel-based map. The parcelbased map allows the property owner, the local jurisdiction, and DSL, to know which tax lots may contain wetlands.

The maps and documents produced for the LWI are intended for planning purposes only. Mapped wetland boundaries are accurate to within 25 feet; however, there may be unmapped wetlands that are subject to regulation. In all cases, actual field conditions determine wetland boundaries.

Palustrine Wetlands (e.g. PEM)

"All nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens and all such wetlands that occur in tidal areas where salinity is less than 0.5%. This includes areas traditionally called swamps, marshes, fens, as well as shallow, permanent or intermittent water bodies called ponds." (Cowardin et. al. 1979)

• Palustrine Unconsolidated Bottom (PUB)

A wetland or deepwater habitat with at least 25% cover of particles smaller than stones, and a vegetative cover less than 30%.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 41-159

• Palustrine Emergent Wetland (PEM)

These wetlands have rooted herbaceous vegetation that stand erect above the water or ground surface.

• Palustrine Scrub-shrub Wetland (PSS)

Wetlands dominated by shrubs and tree saplings that are less than 20 feet high.

• Palustrine Forested Wetland (PFO)

Wetlands dominated by trees that are greater than 20 feet high.

Probable Wetland (PW)

An area noted during the course of LWI field work that appears to meet, or does meet, wetland criteria but is less than one half acre in size; or is small and of undetermined size, and is mapped as a point rather than a polygon on the LWI maps

Riparian Area

A "riparian area" is defined as the area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem. A "riparian corridor" is a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian boundary.

Riverine System

"The riverine system includes all wetlands and deepwater habitats contained within a channel." (Cowardin, et. al. 1979)

Waters of the State

Natural waterways including all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and nonnavigable. Natural waterways are defined as: waterways created naturally by geological and hydrological processes, and waterways that would be natural but for human-caused disturbances (e.g. channelized or culverted streams, impounded waters, partially drained wetlands or ponds created in wetlands). (ORS 196.800-196.990, 1995)

Water Resource

"An intermittent or perennial stream, pond, river, lake including their adjacent wetlands." (PHS, 1998)

Wetland

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient 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." (Federal Register 1982).

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachpents1-160

Wetland Assessment

Determining the relative quality of a wetland by assessing its functions and conditions. The methodology generally used to determine the relative quality of wetlands for purposes of an LWI is the *Oregon Freshwater Wetland Assessment Methodology*. (Roth, et. al. 1996)

Wetland Function

"A characteristic action or behavior associated with a wetland that contributes to a larger ecological condition such as wildlife habitat, water quality and/or flood control." (Roth, et. al. 1996)

Wetland Hydrology

"Permanent or periodic inundation or prolonged soil saturation sufficient to create anaerobic conditions in the upper soil profile." (COE, 1987)

Wetland hydrology is related to duration of saturation, frequency of saturation, and critical depth of saturation. The Regional Supplement defines wetland hydrology as 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10.

Wetland Mosaic

A complex of several wetlands that are interspersed between areas of non-wetland each less than one half acre in size, making them difficult to map.

Wetlands Regulation

Wetlands in Oregon are regulated by the Department of State Lands (DSL) under the Removal-Fill Law (ORS 196.800-196.990) and by the U.S. Army Corps of Engineers (Corps) through Section 404 of the Clean Water Act.

3.0 PROJECT METHODOLOGY

3.1 Public Involvement

Prior to beginning the inventory field work, selected landowners (i.e. those suspected of having wetlands or stream on their property) were mailed notices describing the project and asking permission to enter their property. Right of access was granted to PHS by landowner permission only. The properties of those not responding were not accessed. Access information was collected in a database and then transferred to a base map for use in the field.

The City of Springfield held one open house on July 8, 2009, for citizens to discuss the inventory.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 61

3.2 Local Wetlands Inventory Methodology

3.2.1 Routine Off-site Determination

Prior to beginning field work, off-site mapping was conducted to determine the approximate location of wetland boundaries based on available information. This information included the USGS Eugene East topographic quadrangles (USGS, 1986), Natural Resources Conservation Service (NRCS) Soil Survey for Lane County (SCS, 1981), the *National Wetlands Inventory* maps (USFWS, July 1994), and true color aerial photographs (1"=400"). If access was allowed, the wetland boundaries were verified in the field (see Section 3.2.2). If access was not granted, the boundaries were based on the mapping conducted in the office (non-field verified), or on the observation of wetland boundaries from adjacent roads, right-of-ways, or properties, if possible (field verified). Some of the larger wetlands were only partially field verified, denoting access to a portion, but not all, of the wetland.

3.2.2 Routine On-site Determination

Where property access permission was granted, on-site observation and inspection of soils, vegetation, and hydrology were made using the required methodology outlined in the Regional Supplement. Soil pits were excavated up to a depth of approximately 20-inches in selected locations. The soil profiles were examined for hydric soils and wetland hydrology field indicators.

A visual percent-cover estimate of the dominant species of the plant community for a maximum 30-foot radius was conducted at each sampling location. Sampling locations were chosen to document a change in the wetland boundary and a particular plant community. Data was recorded in the field and transferred to computer-generated wetland delineation data sheets (Appendix C).

Field work for the inventory was conducted between July and October 2009. No wetland boundaries were staked or flagged in the field as part of this LWI.

3.3 Wetland Quality Assessment

3.3.1 The Oregon Freshwater Wetland Assessment Methodology

The quality of wetlands in the study area was assessed using the Oregon Freshwater Wetland Assessment Methodology (OFWAM) (Roth et al. 1996). OFWAM was developed by an interagency committee to assess the relative quality of wetlands primarily for planning and educational purposes. OFWAM does not assign a numeric ranking to the wetlands, but does determine the relative quality of six functions for each of the wetlands. A description of each of the functions to be assessed by DSL is included below. The three conditions; Sensitivity to Impact, Enhancement Potential, and Aesthetic Quality, are part of the OFWAM but are not required as part of the inventory process for DSL. Though these conditions are not discussed in this report, results can be found in the OFWAM appendices.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment/1-162

Wetland Functions

Wildlife habitat: Evaluates the habitat diversity for species usually associated with wetlands, without emphasizing one particular species. Wetlands assessed by OFWAM can provide diverse habitat for wildlife, habitat for some wildlife species, or does not provide habitat.

Fish habitat: Evaluates how a wetland contributes to fish habitat in streams, ponds or lakes associated with a wetland. The questions are suitable for both warmwater and coldwater fish, and no particular species is emphasized. Wetlands assessed by OFWAM can have fish habitat function intact, impacted or degraded, or lost or not present. Only wetlands with water bodies with the potential for fish habitat were assessed for this function; ponds used solely for irrigation purposes were not assessed for fish habitat.

Water Quality: Evaluates the potential of a wetland to reduce the impacts of excess nutrients in storm water runoff on downstream waters. A wetland's water quality function can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Hydrologic control: Evaluates the effectiveness of a wetland to reduce downstream flood peaks and store floodwaters. A wetland's hydrologic control functions can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Education: Evaluates the suitability of a wetland to provide educational opportunity and act as an "outdoor classroom." A wetland assessed by OFWAM can have educational uses, have the potential to provide, or not be appropriate for educational uses.

Recreation: Evaluates the suitability of a wetland and associated watercourses for non-powered boating, fishing, and similar recreational activities. A wetland assessed by OFWAM can provide, have the potential to provide, or not provide recreational opportunities

3.3.2 Wetlands of Special Interest for Protection

The first filter in OFWAM is to determine whether the wetland is in a management plan, is protected by regulatory rules or statutes, or is uncommon in Oregon. Ten questions are answered for each wetland and a "yes" answer to any of the questions puts the wetland into the "special interest for protection" category. If the wetland falls into this category, it is noted on the wetland characterization sheet.

3.3.3 Field Methodology

During the process of determining the boundaries for the LWI, data were also collected for the process of determining its relative quality. Data collected for this purpose are explained in the *Wetland Characterization* section of OFWAM. Data collected in the field included the Cowardin classes, the types of disturbance (if any) in the wetland area, the hydrology of the wetland area (e.g. the location of constrictions), the presence of fish, large woody debris, the degree of vegetative cover, and other information necessary to complete the assessment of the wetland in the office.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachments 1-163 If the wetland determination was off-site, the OFWAM section and wetland characterization was based on review of the aerial photographs and knowledge of other similar or adjacent wetlands.

3.3.4 Office Assessment

Subsequent to the field work, the data collected for each wetland were used to answer questions for each function and condition. Additional information on the wetlands, the landscape and the general area were gathered in the office. The answers within each function and condition section of the methodology were entered into a computer spreadsheet, which automatically displays the results of the assessment methodology.

4.0 CARTOGRAPHY

Color aerial photographs were obtained for use in the field. These photos dated March 2008 are true color, with a scale of approximately 1 inch = 400 feet. Preliminary wetland boundaries and data point locations were drawn directly onto field maps at the time of assessment. A second map of the study area containing tax lots within the project area where permission to enter was granted or denied was also used. The wetland boundaries were transferred into a digital format and inserted into a computer-based map derived from the County's GIS base.

Additional layers added to the GIS base map included streams and stream names, wetland codes, and sample point locations.

Each wetland was assigned a code beginning with the three letter hydrologic basin designation followed by a unique number between 1 and 7 (the total number of wetland polygons mapped in the inventory. Wetland sub-units that were hydrologically connected and/or in close proximity were assessed as a single wetland unit if they were similar in character. Small potential wetlands that could not be accurately assessed, or known wetlands of less than one-half acre in size, are labeled on the maps with a designation of "PW" ("probable wetland"). No data was collected for the PWs. The final digital maps include the location of all streams and wetlands (those assessed with OFWAM and PW's). They also include the location of sample points, legend, north arrow, scale, and a DSL required disclaimer.

5.0 STUDY AREA CHARACTERISTICS AND EXISTING INVENTORY INFORMATION

5.1 Topography

Regional topography in the Glenwood area slopes to the north and east towards the Willamette River and south towards Interstate 5. The topography ranges from 420 to 440 feet National Geodetic Vertical Datum (NGVD) along the Willamette River, up to 500 and 600 feet in the forested hills east of I-5 in the southern portion of the study area.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 1-164

5.2 Hydrology

5.2.1 Hydrologic Features of the Glenwood Study Area

Major hydrologic features of the project area include the Willamette River and the Glenwood Slough. The Willamette River defines the eastern and northern limits of the study area; however, the riparian area along the west and south side of the river within the study area was evaluated.

The Willamette River is ODFW-designated essential salmonid habitat. The river flows in a northerly direction. The riparian corridor along the Willamette River is relatively narrow throughout the Glenwood area. The riparian area is either developed close to the edge of the river, includes a narrow fringe of forested area, or is mowed grasses and forbs.

The Glenwood Slough is located within the west-central portion of the study area. It meanders through the study area as it flows west, converging with the Willamette River just north and west of the inventory boundary. Glenwood Slough is not ODFW-designated essential salmonid habitat. The slough has been altered over the decades due to development and several culverts connect this system together.

5.2.2 Hydrologic Basin Designation

As mapped watershed boundaries are not available at the scale necessary for the LWI, the study area was subdivided into two hydrologic basins: Glenwood Slough (GS) and the Willamette River (WR). The determination of boundaries for the two hydrologic basins was based in large part upon topographic maps, field observations, and aerial photographs. The basins and their sizes are listed in Table 1.

Table 1:	Hydrologic E	Basins and	Acreage for the	Glenwood LWI
			0	

Hydrologic Basin	Basin Area (acres)
Glenwood Slough (GS)	432
Willamette River (WR)	245
Total Project Acreage	677

5.3 Soils

Table 2 lists the soils that have been mapped by the Natural Resources Conservation Service (NRCS; formerly the Soil Conservation Service) within the study area. Figure 2 shows the mapped location of these soils.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 01-165

Soil Series	Soil Name	Slopes	Classification	Drainage Class	Hydric?
11C, 11D	Bellpine silty clay loam	3-12%, 12-20%	Xeric Haplohumults	Well drained	No
22	Camas gravelly sandy loam	-	Fluventic Haploxerolls	Excessively drained	Yes
23	Camas-Urban land complex	-	Fluventic Haploxerolls	Excessively drained	No
26	Chehalis silty clay loam	-	Ultic Haploxerolls	Well drained	No
27	Chehalis-Urban land complex	• -	Ultic Haploxerolls	Well drained	No
30	Cloquato-Urban land complex	-	Ultic Haploxerolls	Well drained	No
43C, 43E	Dixonville-Philomath- Hazelair complex	3-35%	mixed	Well drained	Yes
95	Newberg fine sandy loam	-	Fluventic Haploxerolls	Somewhat excessively drained	No
97	Newberg-Urban land complex	-	Fluventic Haploxerolls	Somewhat excessively drained	No
99H	Ochrepts and Umbrepts	-	N/A	Well drained	No
102C	Panther silty clay loam	2-12%	Typic Haplaquolls	Poorly drained	Yes
105A	Pengra silt loam	1-4%	Typic Haploxerolls	Somewhat poorly drained	Yes
106A	Pengra-Urban land complex	-	Typic Haploxerolls	Somewhat poorly drained	Yes
108F	Philomath cobbly silty clay	12-45%	Vertic Haploxerolls	Well Drained	No
114	Riverwash	-	N/A	Excessively drained to poorly drained	Yes
127C	Urban land-Hazelair- Dixonville complex	3-12%	mixed	Moderately well drained	Yes

Table 2. Soils Mapped Within the Glenwood LWI Study Area

5.4 Vegetation

5.4.1 Vegetation Overview

Many portions of the Glenwood area have been developed. Existing land use includes residential, industrial, and commercial. The undeveloped areas include some relatively native forested areas south of Newman Street and north of I-5, and west of Franklin Boulevard.

The forested areas are typically dominated by black cottonwood (*Populus trichocarpa*), big leaf maple (*Acer macrophyllum*), Oregon ash (*Fraxinus latifolia*), and Douglas fir (*Pseudotsuga menziesii*).

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 1-166

5.4.2 Local Vegetation Communities

Generalized plant communities encountered within the Glenwood area include upland mixed coniferous/deciduous forest; developed-urban; wetland; and riparian. Each of these communities is described below. Wetland communities are further distinguished as freshwater (palustrine emergent, palustrine scrub-shrub, palustrine forested, and unconsolidated bottom) following the Cowardin classification system developed for the US Fish and Wildlife Service (Cowardin, et. al., 1979).

Upland Mixed Coniferous-Deciduous Forest

The conifer species include Douglas fir and western red cedar (*Thuja plicata*). These species may be codominant with deciduous hardwoods such as red alder (*Alnus rubra*), bigleaf maple, and Oregon ash. The understory is comprised of Himalayan blackberry (*Rubus discolor*), Pacific madrone (*Arbutus menziesii*), white alder (*Alnus rhombifolia*), red elderberry (*Sambucus racemosa*), tall Oregon grape (*Mahonia aquifolium*), vine maple (*Acer circinatum*), salal (*Gaultheria shallon*), cascara (*Rhamnus purshiana*), and sword fern (*Polystichum munitum*).

Developed-Urban

In general, plant communities in the Glenwood study area have been influenced by human activities for much of the last century. Land use within the study area includes single-family residential homes, industrial, and commercial.

Residences, parking areas, and roadways all represent unvegetated or landscaped areas. Vegetation is often of horticultural origin or weedy in these areas. The fringes of these developed areas may have been subject to disturbance as well as they often regenerate as Himalayan blackberry thickets.

Wetlands

Wetland areas are generally transitional between upland or riparian areas and truly aquatic sites with permanently open water. Open water may or may not be present, in which case the wetland can occupy a position where the groundwater table comes close to the surface for an extended period at some time during the growing season.

Palustrine forested wetlands (PFO) in the area are dominated primarily by an overstory of black cottonwood and Oregon ash. Palustrine scrub/shrub (PSS) wetlands typically include several species of willows (*Salix* spp.), black cottonwood, red osier dogwood (*Cornus stolonifera*), nootka rose (*Rosa nutkana*), clustered rose (*Rosa pisocarpa*), and Douglas spirea (*Spiraea douglasii*). Palustrine emergent wetlands (PEM) are dominated by herbaceous species such as soft rush (*Juncus effusus*), slough sedge (*Carex obnupta*), tall fescue (*Festuca arundinacea*), water parsley (*Oenanthe sarmentosa*), reed canarygrass (*Phalaris arundinacea*), meadow foxtail (*Alopecurus pratensis*), and creeping buttercup (*Ranunculus repens*).

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment₂1-167

Riparian

Riparian forests are similar to the upland mixed coniferous/deciduous forest, though species preferring wetter sites may be more common. Black cottonwood and Oregon ash dominate in the wetter areas, with Douglas fir, western red cedar, and bigleaf maple more common in the drier riparian zones.

5.4.3 Wetland and Upland Indicator Species

Species lists of commonly encountered plants, along with their status as indicators of wetland conditions, have been prepared for all regions of the country by the USFWS (1988). The status of a particular plant, as identified on Table 3, is the probability of that plant occurring in a wetland.

Indicator	
Code	Status
OBL	Obligate wetland. Estimated to occur almost exclusively in wetlands (>99%)
FACW	Facultative wetland. Estimated to occur 67-99% of the time in wetlands.
FAC	Facultative. Occur equally in wetlands and non-wetlands (34-66%).
FACU	Facultative upland. Usually occur in non-wetlands (67-99%).
UPL	Obligate upland. Estimated to occur almost exclusively in non-wetlands (>99%). If a species is not assigned to one of the four groups described above it is assumed to be obligate upland.
NI	Has not yet received a wetland indicator status, but is probably not obligate upland.

Table 3.Wetland Indicator Codes and Status

Many plants are found in transitional areas between wetlands and uplands. These areas are usually characterized by flat to gradually sloping terrain where the species composition may not reflect true wetland boundaries. In such areas, a species with a status of FACU may extend into the wetland areas, just as FACW species may also be present in upland areas.

6.0 LWI DISCUSSION AND CONCLUSIONS

6.1 U.S. Fish & Wildlife Service National Wetland Inventory

The U.S. Fish and Wildlife Service, as part of the National Wetlands Inventory (NWI) program, have mapped wetland in the study area (Figure 3). The NWI maps are generated primarily on the basis of interpretation of relatively small-scale color infrared aerial photographs (e.g., scale of 1:58,000) with limited "ground truthing" conducted to confirm the interpretations.

In general, wetlands as shown on the NWI are represented by wetlands mapped in the inventory. There are however, some differences between the mapped size and shape; in most cases the NWI shows the major stream systems and some smaller wetlands located along sections of rivers and streams within the study area.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachments 31-168 The NWI map only identified the Willamette River and the Glenwood Slough (GS-3). The remaining wetlands identified during the inventory were not identified on the NWI. Though development since the time of NWI mapping has no doubt contributed to differences between NWI designated wetlands and those identified for the LWI, the primary reason for differences can be attributed to the opportunity for ground truthing provided by the LWI.

6.2 Local Wetlands Inventory Results

6.2.1 Wetland Acreage and Distribution

A total of seven wetland resource areas were identified during the LWI, with a total area of approximately 13.27 acres. Some are small, isolated features, while others are larger and composed of several hydrologically connected, yet separate polygons. There was a wetland fringe along portions of the Willamette River; however, it was not mapped because it was discontinuous and typically located below the ordinary high water line of the river.

The project area was divided into two hydrologic basins, which includes the Glenwood Slough and the Willamette River. The hydrologic basins are identified on Sheet 2 in Appendix A.

Typically, wetlands less than 0.50 acre in size are identified as probable wetlands. However, GS-1 (0.47 acre) was previously delineated and was greater than 0.50 acre. Some portions, however, were filled as a result of an I-5 bridge and trail project. GS-1 is considered a "Locally Significant Wetland" because it is hydrologically connected to the Willamette River, a water quality limited resource. Therefore, GS-1 was included in the inventory as a wetland and an OFWAM was completed for this system. GS-1 was not combined with GS-2 or GS-3 because it is functionally different than these systems.

Table 4 summarizes wetland acreage by hydrologic basin. It should be noted that only a small portion of each basin is located within the limits of the inventory boundary. Table 4 is useful in identifying where wetlands are concentrated within the study area.

Watershed	Area (acres)	Wetland (acres)	Percent of study area that is wetland
Glenwood Slough	432	12.76	. 3
Willamette River	245	0.51	<1
Total Project Acreage	677	13.27	0.2

Table 7. Welland Aleas Whilin Bach Dasin Vi the Olenwood Livit Study Al	Cable 4.	Wetland Areas	Within Each	Basin of the	Glenwood	LWI Stud	v Are
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6.2.2 Wetland Classification

Each wetland was classified according to the Cowardin system. At 55%, palustrine forested wetlands (PFO) is the dominant type within the study area, totaling 7.35 acres. Unconsolidated bottom (PUB) wetlands, were the next most common at 25%: totaling only 3.24 acres within the study area. The Palustrine emergent (PEM) wetlands were the third most common at 13%, totaling 1.73 acres. Scrub shrub (PSS) wetlands were the least common at 7% with a total of 0.95 acres.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 41-169 Tables 5 and 6 summarize the wetland classifications for the LWI study area. Table 5 is a break down of wetland type by wetland class. Table 6 includes the acreage of Cowardin classification for each wetland.

Wetland Classification	Area (acres)	Percent of Wetlands
Palustrine forested (PFO)	7.35	55%
Palustrine scrub-shrub (PSS)	0.95	7%
Palustrine emergent (PEM)	1.73	13%
Palustrine Unconsolidated bottom (PUB)	3.24	25%
Total	13.27	100%

 Table 5.
 Types of Wetlands within the Glenwood LWI Study Area

Wetland Code	4300 4000	USFWS Wetland Classification				
	PFO	PSS	PEM	PUB	Acreage	
GS-1		0.47			0.47	
GS-2	2.53				2.53	
GS-3		0.48	· · ·	3.24	3.72	
GS-4		2 ¹⁰	0.87		0.87	
GS-5	4.31				4.31	
GS-6		1	0.86		0.86	
WR-6	0.51				0.51	
TOTAL	7.35	0.95	1.73	3.24	13.27	

Table 6	Comundia	Classification	of all Watland	de Identifi	ad in Al	ha Clammon	J T XX/T

7.0 Oregon Freshwater Wetland Assessment Methodology Results

7.1 Wetland Quality Assessment

An assessment of the quality for each of the Goal 5 wetlands identified through the inventory was conducted using the *Oregon Freshwater Assessment Methodology* (OFWAM) (Roth et al, April 1996). OFWAM assesses 6 functions and 2 conditions, as described in Section 3.3.1. Appendix D contains OFWAM data and results for the seven wetlands assessed by the methodology. As wetlands of less than one-half acre in size can be designated as a probable wetland (PW), only those wetlands greater than one-half acre in size were assessed using OFWAM.

Although OFWAM provides qualitative information on the relative value of wetlands and does not have a numerical ranking, numbers were assigned to the assessment criteria to easily compare the results. A number 1 was assigned to wetlands receiving the highest function or condition result (e.g. intact, diverse), a number 3 was assigned to the wetlands receiving the lowest result (lost or not present, not appropriate), and a number 2 was assigned to the results which do not fit the other criteria (potential, impacted or degraded). This system is summarized in Table 7.

> Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attach购会的51-170

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Table 7. Key to the Oregon Freshwater Wetland Assessment Methodology Numerical Ranking

Wildlife Habitat	 Wetland provides diverse wildlife habitat Wetland provides habitat for some wildlife species Wetland does not provide wildlife habitat
Fish Habitat	 Wetland's fish habitat function is intact Wetland's fish habitat function is impacted or degraded Wetland's fish habitat function is lost or not present
Water Quality	 Wetland's water-quality function is intact Wetland's water-quality function is impacted or degraded Wetland's water-quality function is lost or not present
Hydrologic Control	 Wetland's hydrologic control function is intact Wetland's hydrologic control function is impacted or degraded Wetland's hydrologic control function is lost or not present
Education	 Wetland has educational uses Wetland has potential for educational use Wetland is not appropriate for educational use
Recreation	 Wetland provides recreational opportunities Wetland has the potential to provide recreational activities Wetland is not appropriate for or does not provide recreational opportunities

Table 8 shows the results of the quality assessment conducted on each wetland greater than one-half acre in size. Some functions or conditions were not applicable to certain wetlands. For instance, wetlands GS-4, GS-5, GS-6 and WR-7 were not evaluated for fish habitat, because it is not present in these systems. Wetlands that may qualify as a Locally Significant Wetland due to education or recreation use must also be evaluated for those social functions (values). These conditions only apply if the site is publicly owned and use by a school or organization is documented. None of the wetland meet these criteria.

Table 8.Oregon Freshwater Wetland Assessment Methodology Numerical Ranking
Results for the Glenwood LWI

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Size (acres)
GS-1	2	2	2	2	0.47
GS-2	2	2	2	2	2.53
GS-3	2	2	2	2	3.72
GS-4	2	NA	2	2	0.87
GS-5	2	NA	2	3	4.31
GS-6	2	NA	2	2	0.86
WR-7	2	NA	2	2	0.51

All of the assessed wetlands provided some wildlife habitat. None of the wetlands have intact fish habitat; though three of them have impacted or degraded fish habitat (due to lack of shade, instream structures, or channel modifications), while four of them were not assessed for habitat.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 61-171 The water quality function for all wetlands is impacted or degraded. There are no wetlands with intact water quality function due in part to the natural, groundwater sources of hydrology within assessed wetlands, and the fact that there are no upstream or adjacent water quality limited waterbodies. Groundwater (or precipitation) fed wetlands typically do not require water quality enhancement.

Hydrologic control was assessed as impacted or degraded for all wetlands except, GS-5, which is lost or not present. Conditions that affect this function include the lack of natural floodplain, unrestricted outflow, or downstream open space. Though these features may be natural and or desirable, they decrease the ability of a wetland to perform this function.

7.2 Wetlands of Special Interest for Protection

Each wetland was assessed according to the ten questions in this section of OFWAM. These questions are regarding the presence of Federal or State listed threatened, endangered or sensitive species, existing management plans, conservation plans, protected mitigation areas, critical habitat, wetland reserve areas and the presence of uncommon wetland plant communities in Oregon. This can determine if the wetland is protected by regulatory rules or statutes, or is uncommon in Oregon.

A review of the Oregon Natural Heritage Program data base by the Lane Council of Governments identified the following species may occur in the study area: 1) Chinook salmon (Federal: Listed Threatened) & its critical habitat - the Willamette River; 2) Painted Turtle (State: sensitive/critical); 3) Tall bugbane (State: critical); 4) Cusick's mallow (Heritage: not rare, apparently secure). Other than the presence of listed fish species in the Willamette River, there was no evidence of the painted turtle, tall bugbane, or Cusick's mallow found in the inventoried wetlands.

Since the ten questions were answered "no" for all of the wetlands identified in the inventory; there are no wetlands of special interest for protection in the City of Glenwood.

8.0 SIGNIFICANT WETLANDS DETERMINATION

8.1 Goal 5 Locally Significant Wetlands Criteria

On September 1, 1996, the LCDC adopted a revised Statewide Planning Goal 5. The goal requires local jurisdictions to inventory the natural resources covered under the goal, determine the significance of these resources, and develop plans to achieve the goal. In other words, local jurisdictions must adopt land use ordinances regulating development in and around significant areas.

Local jurisdictions determining significant wetlands must use the criteria adopted by the Oregon Department of State Lands (ORS 197.279(3)(b)). These criteria identify *Locally Significant Wetlands*. The significance criteria are divided into three sections, as shown in Table 9.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment 71-172

Table 9. Criteria for Determining Goal 5 Locally Significant Wetlands

Exclusions:	A wetland cannot be designated as significant if the answer to any of the
1 Is this wet	and artificially created entirely from unland and:
a created for	the purpose of controlling storing or maintaining storm water
b is used for	active surface mining or as a log nond
c is a ditch w	vithout a free and open connection to natural waters of the state
d is less than	1 acre and created unintentionally from irrigation or construction
e. created for	the purpose of wastewater treatment, crapherry production
farm water	ing sediment settling cooling industrial water or a golf hazard
2 Is the wetla	and or portion of the wetland contaminated by hazardous
substances	materials or wastes as per the conditions of ORS 141-86-350 1(b)
Mandatory Loc	cally Significant Wetland Criteria:
A wetland is lo	cally significant if "Yes" is the answer to any of the criteria below.
1 Does the w	vetland provide diverse wildlife habitat?
2 Is the wetla	and's fish habitat function intact?
3 Is the wetla	and's water quality function intact?
4 Is the wetla	and's hydrologic control function intact?
5 Is the wetla	and less than 1/4 mile from a water body listed by DEQ as a
water qual	ity limited water body (303(d) list) and
is the wetla	and's water quality function intact, or impacted or degraded?
6 Does the w	vetland contain a rare plant community?
[•] 7 Is the wetla	and inhabited by any species listed federally as threatened or
endangered	d, or state listed as sensitive, threatened or endangered?
8 Does the w	vetland have a direct surface water connection to a stream segment
mapped by	ODFW as habitat for indigenous anadromous salmonids and
is the wetla	and's fish habitat function intact, or impacted or degraded?
Ontional Local	Iv Significant Wetland Criteria:
Local governm	ients may identify a wetland as significant if "Yes" is the answer to the
criteria below	
1 Does the w	retland represent a locally unique native plant community and
provides d	iverse wildlife habitat or habitat for some species <u>or</u>
has a intac	t, or impacted or degraded fish habitat function <u>or</u>
has a intac	t, or impacted or degraded water quality function <u>or</u>
has a <i>intac</i>	t, or impacted or degraded hydrologic control function.
2 Is the wetl	and publicly owned and used by a school or organization and
does the w	etland provide educational uses?

The committee that created the Goal 5 significance criteria determined that even relatively small wetlands might provide an important (or major) function in their particular landscape position. For example, a small wetland in an urban area may provide habitat for a rare, threatened, or endangered species. However, as stated above, only wetlands greater than one-half acre were assessed in OFWAM.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachments/1-173

8.2 Applying Significant Wetland Criteria to the LWI Study Area

8.2.1 Goal 5 Significant Wetlands

The Locally Significant Wetlands criteria were applied to all wetlands. Based on the criteria, 6 of the 7 wetlands (86%) were determined to be locally significant. These wetlands met the criteria for significance because they meet one or more of the mandatory criteria such as containing fish habitat and having a direct hydrologic connection to the Willamette River. Although it is relatively valuable for some functions, Wetland GS-6 did not satisfy the significant wetlands criteria because it does not contain fish habitat or have a direct connection to the river. The specific criteria of significance associated with each of these six wetlands can be found in Appendix E.

9.0 **RIPARIAN CORRIDORS**

A "riparian area" is defined as the area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem. A "riparian corridor" is a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian boundary.

Glenwood has several perennial and intermittent streams, as well as the Willamette River that flows around the north and eastern portions of Glenwood. Each riparian reach has a right (R) and left (L) side, looking downstream. If the riparian information is different for the left and right sides, there are two forms, respectively. All the riparian data forms can be found in Appendix G.

The Goal 5 Administrative Rules require local governments to inventory and determine significant riparian corridors by following either the safe harbor process or the standard methodology. In the safe harbor approach, only fish-bearing water bodies must be inventoried whereas in the standard process, all water areas may be included and assessed for significance.

Using the safe harbor method, PHS applied the required Goal 5 setbacks of 50 feet for waterbodies less than 1,000 cubic feet per second (cfs) and 75 feet for waterbodies greater than 1,000 cfs to all fish bearing streams. The setbacks are required to be applied to the top of bank of the waterway resource or, when the riparian corridor includes all or portions of a significant wetland, the setback is to be applied to the upland edge of the wetland. However, since top of bank has not been surveyed for any of the streams or the Willamette River, the setback was applied to and measured from the City of Springfield's digitized storm drainage lines representing the approximate location of the resource.

As a standard method, PHS included all perennial streams in the riparian inventory within Glenwood using a methodology called the Urban Riparian Inventory and Assessment Guide (URIAG) (DSL 1998). This riparian assessment methodology was developed by PHS for DSL. A description of the methodology and the results of applying this methodology are included in the sections below.

> Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachment of -174

The results of the methods are summarized below:

- <u>Safe Harbor</u> Seventy-five (75) feet setback from the Willamette River and 50 feet from all other fish bearing waterbodies
- <u>URIAG</u> Setback determined by the dominant tree species within the existing riparian area. One hundred and twenty (120) feet maximum setback for black cottonwood and Douglas fir, 75 feet for Oregon ash, and 20 feet for Sitka willow

9.1 Fish-Bearing Streams, Rivers and Lakes

Goal 5 also requires that fish habitat be included in the inventory. The definition of fish bearing includes waterbodies with both native and introduced species. As such, the determination of riparian corridors under Goal 5 was based on all fish-bearing waterbodies within Glenwood. Information on fish presence came from <u>http://www.streamnet.org/</u> which is a database of the latest sampling conducted by the ODFW and other data sources.

A conversation on October 20, 2009, with Jeff Ziller in the Springfield office of ODFW, identified the Glenwood Slough likely had some fish species such as carp and mosquito fish since it is a perennial feature. An unnamed tributary to the Willamette River, located southwest of the project area, west of Augusta Street, flows under the I-5 bridge where it converges with R-GS-2. This unnamed tributary has been sampled for fish and identified the presence of cutthroat trout. Mr. Ziller said it was likely that these fish could enter any of the other hydrologically connected perennial stream systems such as R-GS-1 and the Glenwood Slough. According to maps provided by the City, it appears the unnamed tributary is culverted under the I-5 bridge where it converges with an existing culverted section of R-GS-2.

The Willamette River and Glenwood Slough are the water features assessed for riparian protection under Goal 5. Some headwater drainages to Glenwood Slough were not included as there are several long culverts separating short sections of remaining stream habitat. The following summarizes the fish species sampled or known to occur in the Willamette River; therefore, potentially occurring in other stream systems within the UGB.

Nativ	ve Fish	Introduced Fish		
Chinook salmon	Peamouth	Black Bullhead	Pumpkinseed	
Coho salmon	Redside shiner	Black Crappie	Smallmouth bass	
Chiselmouth	Speckled dace	Bluegill	Yellow bullhead	
Cutthroat trout	Sandroller	Brown Bullhead	Yellow perch	
Dace species	Sculpin species	Carp	Mosquitofish	
Lamprey species	Steelhead	Largemouth bass	-	
Largescale sucker	Sucker species		·	
Mountain whitefish	Threespine stickleback	*		
Northern pike minnow				

Table 10.	Fish S	Species	Known	to Inhab	it One o	r More of	Glenwood	's Rivers	and Streams

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachmgg101-175

9.2 Safe Harbor Method

Goal 5 contains a "safe harbor" option for local jurisdictions allowing them to replace portions of the standard Goal 5 process with processes set forth in the rules for each of the listed Goal 5 resources. The safe harbor process for riparian corridors allows jurisdictions to impose a 50-foot setback from all fish-bearing lakes and streams and a 75-foot setback from all streams with average annual stream flow greater than 1,000 cubic feet per second (cfs) [OAR 660-023-0090(5)].

In the Glenwood area, only the Willamette River was determined to have an average annual flow of greater than 1,000 cfs. As such, this riparian area is 75 feet and all of the remaining fish-bearing streams are 50 feet.

9.3 Standard Method - Urban Riparian Inventory and Assessment Guide

9.3.1 Methodology

The Urban Riparian Inventory and Assessment Guide (URIAG) was one method used to determine the riparian width on all fish-bearing streams and waterways. With URIAG, riparian corridors are broken into "reaches" with similar characteristics, such as vegetation patterns or land use. It relies on a combination of available knowledge, field observations, and best professional judgment.

The methodology is comprised of a riparian inventory and a riparian assessment. The riparian inventory involves gathering and assimilating information pertinent to the project site, developing a base map, and completing the riparian characterization form.

The riparian characterization form includes a determination of the riparian width. The riparian width is measured from the edge of the water resource, typically either the top of a streambank or the outer edge of a wetland, lake, or pond. Riparian areas on both sides of a stream channel are assigned separate widths. The potential width of the riparian area is based on the dominant riparian tree species within 100 feet of the water resource. The height of the dominant tree species at maturity is used as a distance to define the outer riparian boundary. The height of the tree species at maturity is called the site potential tree height (SPTH).

SPTH is used as the potential riparian width because it represents a distance in which a tree can still affect the water resource (e.g. provide shade, provide organic material). Where riparian area trees have been eliminated by land-use activities, such as development, farming, or by natural causes, such as land slides, it may be necessary to extrapolate tree heights from a reference site. Although the riparian widths never exceed the PTH, they can be less than the PTH if impervious surfaces or permanent structures (e.g. buildings or roads) are inventoried within the SPTH.

As with the LWI, a part of the riparian inventory process is determining the quality of the riparian area. In URIAG this is accomplished by reviewing functions including water quality, flood management, thermal regulation, and wildlife habitat. The riparian assessment was completed by answering a series of questions for each function. Because certain elements or characteristics of a riparian area are more critical to its function, the answers are "weighted".

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachments/1-176 The points are then totaled for each reach and for each function. The results indicate whether the functional integrity of each riparian area is high, medium, or low. Fifteen riparian reaches were assessed.

9.3.2 Results

Goal 5 does not establish specific criteria for determining significant riparian areas. Instead, local jurisdictions establish their own criteria based on the quantity and quality of the resource. Using URIAG, six tree species were determined to be the dominant native trees within riparian areas of the UGB. The majority of riparian vegetation was dominated by Oregon ash, with black cottonwood predominantly along the Willamette River and black cottonwood, Douglas fir, and Sitka willow being equally dominant in sections along Glenwood Slough. The trees have the following potential tree heights.

Common Name	Botanical Name	Potential Tree Height/ Riparian Corridor Widths (feet)
Oregon ash	Fraxinus latifolia	75
Black cottonwood	Populus trichocarpa	120
Douglas fir	Pseudotsuga menziesii	120
Big leaf maple	Acer macrophyllum	90
Pacific Willow	Salix lasiandra	35
Sitka Willow	Salix sitchensis	20

Table 11.Potential tree heights of the four tree species determining riparian widths in the
Glenwood Area UGB.

The quality of the riparian corridors using URIAG indicate that most (60%) of inventoried riparian areas rate "high" for water quality functioning, because they filter the runoff from nearby land. In the flood management category, three (15%) of the riparian areas rated "high," nine (45%) rated "medium" and eight (40%) rated low. All but one of the riparian areas are rated "high" for thermal regulation due to good vegetation cover. High quality wildlife is characterized by multi-layered vegetation near the streams, and only four (20%) of Glenwood's riparian areas are vegetated to this extent. The remaining sixteen (80%) rated moderate for wildlife providing multi-layered vegetation; however, their proximity to development precluded them from rating "high". Table 12 summarizes the results of the riparian functional assessment. A copy of the riparian datasheets can be found in Appendix G.

Table 12.	Summary of	Glenwood's	Riparian]	Functional.	Assessments
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Riparian Code	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
R-GS-1	Η	Н	Н	М
R-GS-2 Left bank	М	М	H a	M
R-GS-2 Right bank	M	M	H	М
R-GS-3 Left bank	Н	Ē	Ĥ	M
R-GS-3 Right bank	Н	L	Н	Н
R-GS-4 Left bank	Н	M	Н	Н
R-GS-4 Right bank	Н	M	· H	Н

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachmenty 1-177

Riparian Code	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
R-GS-5 Left bank	М	M	H	М
R-GS-5 Right bank	Н	M	Н	М
R-GS-6	H	L	H	M
R-GS-7 Left bank	Η	L	H .	М
R-GS-7 Right bank	H	L	H	M
R-GS-8	Μ	L	H	M
R-GS-9	Μ	M	H	М
R-WR-1 Left bank	Н	L	Н	М
R-WR-2 Left bank	М	L	М	М
R-WR-3 Left bank	H	M	H	М
R-WR-4 Left bank	Н	Н	Н	М
R-WR-5 Left bank	М	Н	H	М
R-WR-6 Left bank	Μ	M	H	Н

H = High M = Medium L = Low

9.4 Conclusions

PHS used two methods to determine riparian widths. Table 13 includes the range of widths available to Glenwood for Goal 5 protection.

Table 13.The ranges of widths available from the two methods applied to all fish
bearing waterbodies in Glenwood

Method	Range of riparian corridor widths
Safe Harbor	75 feet (Willamette River) - 50 feet (all other fish bearing waterbodies)
Urban Riparian Inventory and Assessment Guide (URIAG)	20 feet (Sitka willow) - 120 feet (cottonwoods and Douglas fir)

Based on our review of potential riparian widths within Glenwood's more urbanized center, the majority of the riparian areas are already developed: houses, industrial development, and impervious surfaces encompass much of the riparian corridors. It is likely that designating up to 120-foot wide riparian corridors (i.e. using the URIAG widths) within already developed areas will not result in additional riparian protection. The riparian areas were mapped using GIS; however, a more accurate method of identifying the actual limits of the riparian areas is by delineating the ordinary high water mark of each water body. Delineating ordinary high water is a method required by DSL and the Corps of Engineers whenever a delineation report is submitted by a property owner or developer seeking a jurisdictional determination from each agency.

Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachments 31-178

10.0 STAFF QUALIFICATIONS

John van Staveren:	President; Senior Scientist; Professional Wetland Scientist
Project Role: Project Responsibility:	Project Manager Contract negotiations, monthly billing Public presentations Quality control Regulatory agency coordination

As President, Mr. van Staveren directs Pacific Habitat Services' environmental projects throughout the Pacific Northwest. He has conducted over 1,000 wetland delineations, 30 Local Wetland Inventories and riparian inventories, designed and implemented dozens of freshwater and estuarine wetland mitigation plans, provided expert witness testimony, and testified at numerous public hearings. John served on three state-appointed Technical Advisory

Committees concerning wetland policy in the State of Oregon. He is principal author of the Urban Riparian Inventory and Assessment Guide prepared for the Oregon Department of State Lands and Freshwater Wetland Restoration a chapter in The Art and Science of Ecological Restoration in Cascadia. The Science and Practice of Ecological Restoration (Island Press, 2006).

Shawn Eisner

Project Role:	Wetland Scientist
Project Responsibility:	Wetland and riparian inventory field work and assessment
-	Quality control and editing
•	Report writing
	Data input

Shawn provides specialized support pertaining to wetland delineations, determinations, and monitoring; stream and natural resource assessments and environmental permit processing. He conducts field work and data collection for Local Wetland Inventories and is involved in report preparation and wetland/riparian assessments. He has played an integral role in the Molalla, Bandon, North Plains, Corvallis, Depoe Bay, and Eugene LWIs.

Michele Eccleston

Project Role:Wetland ScientistProject Responsibility:Wetland and riparian inventory field work and assessment
Report writing

Michele has delineated numerous wetlands and prepared wetland mitigation plans. She has conducted several LWI and riparian inventories throughout Oregon in cities such as Bandon, Depoe Bay, Corvallis, and Eugene. She conducts field work and data collection for Local Wetland Inventories and is involved in report preparation.

> Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachments4-179

Jane Le Blanc

Project Role:	
Project Responsibility:	

Technical Editor Graphics Report editing, formatting and layout Data input

Jane is a technical editor and provides permitting support for PHS. Her duties include formatting and editing wetland reports, proposals, and letters as well as data input.

Jill Ory

Project Role:	GIS analyst and Cartographer
Project Responsibility:	Mapping
· · · ·	GIS database preparation

Jill's experience is in Geographic Information Systems (GIS) analysis and Water Resources Analysis. Her specialties include Geodatabase development and management, mobile GIS, and data presentation. Her roles in this project include the creation of GIS data from field collected and attribute data, and mapping of results.

> Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachmggng51-180

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Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield Pacific Habitat Services, Inc. Attachmens61-181

EXHIBIT E-32

Appendix A

Figures and Sheets











ÉXHIBIT E-37

Glenwood LWI Map (A-1)



EXHIBIT E-38 Glenwood LWI Map (A-2) ROAD PRIVATE VATE ROOK NBS THAVE B E INTHAVE EROAD PRIVA PW EISTH 5 Legend streets - Railro Surface Drainages Туре Ditch Stream Sample Points Sixth Field HUC RW able Wetlands * Prob •10 Probable Weta Storm Wetlands Cowardin Classification GS-6 📖 PEM: Marsh PFO: Forested PSS: Shrub Scrub 📖 PUB: Pond Drainage Basins Name C3 cs Ż taxlots Study A able wetland appears to meet riteria but is <0.5 acre in size; Auro or it Date of Final Map preparation: 2/4/10 Sheet 3 - Glenwood Area of Springfield Local Wetlands Inventory 1 inch = 400 feet Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of state Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions. Ã Г 1,000 Feet 250 500

EXHIBIT E-39

Glenwood LWI Map (B-2)



ÉXHIBIT E-40



Glenwood Riparian Corridors

EXHIBIT E-41

Appendix B

Wetland Characterization Sheets


Wetland Characterization Sheet



Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-1
Date(s) of field work:	10/7/2009	Size (acres):	0.47
Data Sheet Numbers:	Previously delineated, no additional data collected	Cowardin Class(es):	PSS
Investigator(s):	ME/SE	HGM Class(es):	S/F
Location Legal:	T 176 D 2W 6 22		

1 1/5, K 3W, S 33
Under and east of the Interstate 5 Bridge just S of Franklin Blvd.
300
Glenwood Slough
Chehalis silty clay loam, Pengra-Urban land complex
Groundwater

TREES / SHRUBS		VI	NES / HERBS
Fraxinus latifolia	Oregon Ash	Carex obnupta	Slough Sedge
Populus trichocarpa	Black Cottonwood	Ranunculus repens	Creeping Butter-Cup
Cornus stolonifera	Red-Osier Dogwood		
Salix lasiandra	Pacific Willow	Υ.	

Comments:

Dominant Wetland Vegetation

Locally Significant Wetland

GS-1 was delineated in 2003 (WD2003-0273) as part of the ODOT's I-5 bridge project and Willamette River trail. The west portion was impacted by construction of the I-5 temporary detour bridge. GS-1 is bounded to the south by railroad tracks. Glenwood Slough flows through the wetland as do several ditches used to convey stormwater. The wetland is less than one-half acre; however, it was not identified as a PW because it is a significant wetland, hydrologically connected to the Willamette River, GS-2 and GS-3, and has received DSL wetland concurrence.

Adjacent upland species: Populus trichocarpa, Alnus rubra, Fraxinus latifolia, Cornus stolonifera, Robinia pseudoacacia, Rubus discolor, Cytisus scoparius, Festuca arundinacae, Plantago lancelata, Lathyrus latifolius, Daucus carota, Cirsium arvense, Dipsacus sylvestris, unidentified mixed grasses

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent	F
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water	<
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through	
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog	
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent	
	s = slope Attachn	nentrias192		

Wetland Characterization Sheet



Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-2	E De
Date(s) of field work:	7/27/2009	Size (acres):	2.53	
Data Sheet Numbers:	1	Cowardin Class(es):	PFO	
Investigator(s):	ME/SE	HGM Class(es):	S/F	
Location Legal: T	175 D 3 W 5 33. 34			

T 1/S, R 3 W, S 33; 34
East of the Interstate 5 Bridge, south of Franklin Blvd.
100, 200, 300; 700
Glenwood Slough
Chehalis silty clay loam
Groundwater

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Fraxinus latifolia	Oregon Ash	Lapsana communis	Nipplewort
Populus trichocarpa	Black Cottonwood	Carex obnupta	Slough Sedge
Cornus stolonifera	Red-Osier Dogwood	Juncus effusus	Soft Rush
Salix lasiandra	Pacific Willow	Biden sp.	Beggar's tick
Alnus rubra	Red Alder		
Rosa pisocarpa	Clustered Wild Rose		

Comments:

Locally Significant Wetland

GS-2 is a PFO system located with a drainage that flows through the southern portion. Portions of the wetland have been previously delineated (WD's 03-0273, 00-0102, 98-0051). PHS did not have access to the easternmost and southern portions of GS-2 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

Adjacent upland species: Acer macrophyllum, Fraxinus latifolia, Populus trichocarpa, Rubus discolor, Symphoricarpos alba, Corylus cornuta, Cytisus scoparium, Holodiscus discolor, Hypericum perforatum, Festuca arundinacea, mowed unidentified grasses

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	s = slope Attachm	nentrias193	

Wetland Characterization Sheet



Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-3	
Date(s) of field work:	8/12/2009	Size (acres):	3.72	
Data Sheet Numbers:	2, 3, 4, 5	Cowardin Class(es):	PSS/PUB	
Investigator(s):	ME/SE	HGM Class(es):	RI	
Location Legal:	T 17S, R 3 W, S 34; T 18	8S, R 3W, S 3		
Other:	East and west of Glenwo	ood Boulevard, north of the ra	ailroad tracks	
Tax Lots:	100, 101, 400, 2600, 2800); 300, 500		
Hydrologic basin:	Glenwood Slough			
Soil Mapped series:	Chehalis silty clay loam			
Hydrologic Source:	Groundwater	· · · · ·		

Dominant Wetland Vegetation				
TREI	ES / SHRUBS		NES / HERBS	
Salix sitchensis	Sitka Willow	Mentha arvensis	Field Mint	
Fraxinus latifolia	Oregon Ash	Juncus effusus	Soft Rush	
Cornus stolonifera	Red-Osier Dogwood	Carex leptopoda	Short-Scale Sedge	
		Bidens sp.	Beggar's tick	
		3		

Comments:

Locally Significant Wetland

GS-3 is an open water slough system surrounded by a narrow PSS fringe. This system is known as the Glenwood Slough and it flows west into GS-1 prior to being culverted and flowing into the Willamette River. GS-3 is bissected by Glenwood Blvd, but is still hydrologically connected by a culvert. The slough is a topographic bowl. Hydrologic sources include stormwater from adjacent impervious surfaces, in addition to groundwater and upslope surface water. A portion of GS-3 was previously delineated (WD96-0375).

Adjacent upland species: Symphoricarpos albus, Rubus discolor, Cornus stolonifera, Rubus ursinus, Corylus cornuta, Fraxinus latifolia, Carex leptopoda, Dipsacus sylverstris, Tolmiea menziesii

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent	F
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water	
HGM CODES:	 EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through	
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog	
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent	
	S = Slope Attach	mentstan 194		

Wetland Characterization Sheet



Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-4
Date(s) of field work:	7/28/2009	Size (acres):	0.87
Data Sheet Numbers:	Previously delineated, no additional data collected	Cowardin Class(es):	PEM
Investigator(s):	ME/SE	HGM Class(es):	Slope
•			
Location Legal:	T 17S, R 3W, S 33; T 18S	, R 3W, S 3; 4	
Other:	East and west of Judkins	Dedicated Road, East of Inte	rstate 5.
Tax Lots:	2001, 2003		
Hydrologic basin:	Glenwood Slough		
Soil Mapped series:	Dixonville-Philomath-Ha	zelair complex	

Hydrologic Source: Groundwater

Dominant Wetland Vegetation

TREE	S / SHRUBS	VIN	ES / HERBS
Populus trichocarpa	Black Cottonwood	Juncus effusus	Soft Rush
		Carex stipata	Sawbeak sedge
		Mentha arvensis	Wild mint
		Bromus hordeaceus	Soft brome
		Holcus lanatus	Common Velvet Grass
		Plantago lanceolata	English Plantain
		Festuca arundinacea	Tall Fescue
		Poa sp.	Bluegrass species
		· · · · · · · · · · · · · · · · · · ·	

Comments:

Locally Significant Wetland

GS-4 is a series of small PEM wetlands located within the ODOT ROW and on private property. The wetlands were delineated in 2007 for the I-5 bridge project (WD08-0140). The wetlands are located at the bottom of a steep slope. Hydrology from the wetlands flow into a channel that drains to the northwest to the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

Adjacent upland species: Populus alba, Rubus discolor, Daucus carota, Cytisus scoparium, Vicia sp., Festuca arundinacea, Taraxacum officinale, Trifolium pratense

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA-Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	s = Slope Attachn	n ent flats195	

Field Horsetail

Wetland Characterization Sheet



Project Name: Glenwood Area of Springfield LWI

a	<u>.</u>	Wetland Code:	GS-5
Date(s) of field work:	8/12/2009	Size (acres):	4.31
Data Sheet Numbers:	Offsite - No data collected	Cowardin Class(es):	PFO
Investigator(s):	ME/SE	HGM Class(es):	Slope
Location Legal:	T 185 D 3W S 3		
Other:	South of E 19th Avenue,	bounded by Union Pacific R	R tracks
Tax Lots:	600		
TT 1 1 1 1	~		

Hydrologic basin:	Glenwood Slough	
Soil Mapped series:	Chehalis silty clay loam	
Hydrologic Source:	Groundwater	

Dominant Wetland Vegetation TREES / SHRUBS VINES / HERBS Populus trichocarpa **Black Cottonwood** Juncus effusus Soft Rush Salix lasiandra **Pacific Willow** Carex obnupta Slough Sedge Salix sitchensis Sitka Willow Mentha arvense Wild mint Cornus stolonifera **Red-Osier Dogwood** Phalaris arundinacea **Reed Canary Grass** Oenanthe sarmentosa Water-Parsley Solanum dolcamara **Deadly nightshade Creeping Butter-Cup** Ranunculus repens

Comments:

GS-5 is a PFO area bounded on all sides by railroad tracks. PHS was able to view the wetland from adjacent road ROWs and the Franz bakery property to the east. It is surrounded by adjacent commercial properties. There is a drainage located along the southern portion of the wetland. It flows northwest into a large culvert located within the ROW of Glenwood Boulevard that is believed to flow into GS-3/Glenwood Slough.

Equisetum arvense

Adjacent upland species: Acer macrophyllum, Psedotsuga mensiezii, Rubus discolor, Corylus cornuta, Carex leptopoda, Convolvulus sp., Hedera helix, Agrostis stolonifera, Symphoricarpos albus

				100
COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent	(
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water	
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through	
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog	
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent	
	s = Slope Attachn	nent _{Flus} 196		

Wetland Characterization Sheet



Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-6
Date(s) of field work:	7/28/2009	Size (acres):	0.86
Data Sheet Numbers:	6, 7, 8, 9, 10, 11	Cowardin Class(es):	PEM
Investigator(s):	ME/SE	HGM Class(es):	Flat
Location Legal:	T18S, R3W, S3		
Other:	Other: South of E 22nd Avenue, north of Interstate 5		
Tax Lots:	101		• 3
Hydrologic basin:	Glenwood Slough		

Soil Mapped series:	Urban land-Hazelair-Dixonville complex
Hydrologic Source:	Precipitation

Dominant Wetland Vegetation

TREE	CS / SHRUBS	VINES	/ HERBS
Populus trichocarpa	Black Cottonwood	Juncus tenuis	Slender Rush
Rosa nutkana	Nootka rose	Agrostis tenuis	Colonial Bentgrass
Salix sp.	Willow species	Madia sativa	Coast Tarweed
		Festuca arundinacea	Tall Fescue
		Cynosurus echinatus	Hedgehog grass
		Holcus lanatus	Common Velvet Grass
		Alopecurus pratensis	Meadow Foxtail
		Gnaphalium palustre	Lowland Cudweed
		Lythrum hyssopifolia	Hyssop Loosestrife
		Linum bienne	Narrow leafed flax

Comments:

GS-6 is a mosiac of 50% wetland and 50% upland located on undeveloped land north of I-5 at the top of a steep slope. It is relatively flat and appears to have been significantly disturbed in the past by scraping. Plant species include a mixture of upland and wetland species. Several areas had mottling and oxidized rhizospheres, despite the general lack of dark chroma soils. Deep tire ruts bare evidence of seasonally wet conditions.

Adjacent upland species: Rhus diversilobum, Crataegus monogyna, Rubus discolor, Festuca arundinacea, Daucus carota, Hypericum perforatum, Cirsium vulgare, Chrysanthemum leucanthum, Centaurea pratensis

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	s = slope Attachn	n ent flats197	

Wetland Characterization Sheet

000 000



Project Name: Glenwood Area of Springfield LWI

	e	Wetland Code:	WR-7	10-d
Date(s) of field work:	9/15/2009	Size (acres):	0.51	
Data Sheet Numbers:	12	Cowardin Class(es):	PFO	
Investigator(s):	ME/SE	HGM Class(es):	Slope	
Location Legal:	T18S, R3W, S3		<u> </u>	
Other:	Bewteen Interstate 5 &	Franklin Boulevard		
T	800 000			

Tax Lois:	800, 900
Hydrologic basin:	Willamette River
Soil Mapped series:	Dixonville-Philomath-Hazelair complex
Hydrologic Source:	Groundwater

Dominant Wetland Ve	egetation			
TREF	ES / SHRUBS	VIN	ES / HERBS	_(
Populus trichocarpa	Black Cottonwood	Phalaris arundinacea	Reed Canary Grass	Ì
Salix lasiandra	Pacific Willow	Oenanthe sarmentosa	Water-Parsley	
Cornus stolonifera	Red-Osier Dogwood	Urtica dioica	Stinging nettles	
		Carex obnupta	Slough Sedge	
-		Equisetum arvense	Field Horsetail	
	A 1			
· · · · · · · · · · · · · · · · · · ·				
2		5 S		

Comments:

Locally Significant Wetland

WR-7 is located at the bottom of surrounding steep slopes. There is a narrow intermittent drainage channel that flows through the middle of the wetland. This drainage continues east through a long culvert under Franklin Boulevard and the railroad. WR-7 is located between I-5 and Franklin Boulevard with residential land uses to the north and south.

Adjacent upland species: Acer macrophyllum, Rubus discolor, Festuca arundinacea, Daucus carota, Polystichum munitum, Dactylis glomerata

			·	
COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent	6
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water	\sim
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through	_
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog	
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent	
	S = Slope AllaCim	I GEL HFIRTS I 90		

Appendix C

Wetland Determination Data Forms



roject/Site: Glenwood L	MI	City/County:	Spri	ngfield / Lane	Sampling Date:	7/27/2009
pplicant/Owner: Lane Council of	Governments	j		State:	DR	Sampling Point:
vestigator(s): ME/SE		Section, To	wnship, Range:		Sec 34, T17S, R	3W
ndform (hillslope, terrace, etc.:)			Local relief (co	ncave, convex, none):		Slope (%):
bregion (LRR):	RA	Lat	44.044	35 Long:	-123.04743	Datum:
il Map Unit Name:	Chehalis	silty clay loar	n	NWI Classifi	cation:	
e climatic/hydrologic conditions on the si	ite typical for this	time of year?	Yes	<u>X</u> No	(if no, expla	ain in Remarks)
e vegetation Soil or H	Hydrology	_significantly dist	turbed?	Are "Normal Circumstances"	present? (Y/N)	<u> </u>
e vegetation Soil or H	lydrology	naturally proble	matic? If needed	l, explain any answers in Remai	ks.)	
			-			
JMMARY OF FINDINGS - AT	tach site ma	o snowing sa	impling poin	t locations, transects,	mportant fea	tures, etc.
urophytic vegetation Present? Tes	NO		Is Sampled Ar	rea within	v .	Ma
	× NO		a Wetlar	nd? Yes	<u>^</u>	
mand Hydrology Present? Yes	No	·				
marks:					,	
EGETATION - Use scientific n	ames of pla	nts.				
	absolute	Dominant	Indicator	Dominance Test worksh	eet:	
	% cover	Species?	Status			
ee Stratum (plot size: 30)		·	Number of Dominant Species		
Fraxinus latifolia	40	<u> </u>	FACW	That are OBL, FACW, or FAC		3 (A)
Populus trichocarpa		<u> </u>	FAC	Total Number of Decise at		
				Species Armes All State:		A (B)
<u></u>	65	= Total Cover		Species Across Air Suata.		<u> </u>
La Ohach Ohachan () ()						
ping/Shrub Stratum (plot size:	_)			Percent of Dominant Species		750/ (A/D)
				That are OBL, FACW, OF FAC		<u>13%</u> (NB)
		<u> </u>		Prevalence Index Works	heet:	
,				Total % Cover of	Multiply by:	
				OBL Species	x 1 =	0
	0	= Total Cover		FACW species	x 2 =	0
.	· · · ·			FAC Species	x 3 =	0
erb Stratum (plot size: 5) .			FACU Species	×4=	
Fraxinus latifolia	<u> </u>	<u> </u>		UPL Species	x5=	(m)
		<u> </u>	- FAGW		• (A)	(B)
				Prevalence index =B/A =	. #r	DIV/0!
·						
				Hydrophytic Vegetation	Indicators:	
				Dom	inance Test is >50	%
				Preva	alence Index is ≤ 3	.0 ¹
	7	= Total Cover		Могр	hological Adaptatio	ons ¹ (provide supporting
	,			data	in Remarks or on a	a separate sheet) Ploata ¹
				Weta	and Non-Vascular	riants
ody Vine Stratum (plot size:	_,			Prob	emane nyoropnyti	cvegetation (Explain)
ody Vine Stratum (plot size:	_,					
<u>oody Vine Stratum</u> (plot size:		= Total Cours		¹ Indicators of bydric soil and w	etland hydrology o	ust he present unless
ody <u>Vine Stratum</u> (plot size:) 	= Total Cover		¹ Indicators of hydric soil and w disturbed or problematic.	etiand hydrology n	nust be present, unless
<u>pody Viņe Stratum</u> (plot size:		= Total Cover		¹ Indicators of hydric soil and w disturbed or problematic. Hydrophytic	etiand hydrology n	nust be present, unless

Profile Decarption: (Parache lo the depth needed to document the inflatour or confirm the abance of indicators.) Profile Decarption: Profile Decar						+23			EXHIBIT E-51
Oppin Matrix Reduce Features Texture Remarks 0-17 10YR 3/1 95 7.6YR 3/4 6 C M Sill Loarn medium 0-17 10YR 3/1 95 7.6YR 3/4 6 C M Sill Loarn medium 0 </th <th>Profile Descr</th> <th>iption: (Describe to t</th> <th>he depth</th> <th>needed to docume</th> <th>ent the inc</th> <th>licator or con</th> <th>firm the abs</th> <th>ence of indicators.)</th> <th></th>	Profile Descr	iption: (Describe to t	he depth	needed to docume	ent the inc	licator or con	firm the abs	ence of indicators.)	
concrementy % Concrementy % Concrementy % Concrementy % Concrementy % Concrements Mail Learn medium 0-17 10YR 3/1 95 7.9YR 3/4 5 C M Silt Learn medium 0 0 0 0 Silt Learn medium medium 0 <	Depth	Matrix			Redo	x Features	2		
0-17 10YR 3/1 95 7.5YR 3/4 5 C M Silk Learn medlum	(Inches)	Color (moist)	%	Color (moist)	%	lype'		Texture	Remarks
Type: C=Concentration, D=Daptelion, RM=Reduced Matrix, CS=Covered or Costed Sand Grains. *Location; PL=Pore Lining, M=Matrix. Type: C=Concentration, D=Daptelion, RM=Reduced Matrix, CS=Covered or Costed Sand Grains. *Location; PL=Pore Lining, M=Matrix. Type: C=Concentration, D=Daptelion, RM=Reduced Matrix, CS=Covered or Costed Sand Grains. *Location; PL=Pore Lining, M=Matrix. Type: C=Concentration, D=Daptelion, RM=Reduced Matrix, (SS) 2 cm Muck (A10) Histic Epipedon (A2) Skipped Matrix (SS) 2 cm Muck (A11) Depieded Blow Dark Surface (A11) Depieded Matrix (F3) Other (explain in Remarks) Type:	0-17	<u>10YR 3/1</u>	95	7.5YR 3/4	5	<u> </u>	<u> </u>	Silt Loam	medium
Type: C=Concentration, D=Depterion, RM=Reduced Matrix, CS=Covend or Coated Sand Grains. Type: C=Concentration, D=Depterion, RM=Reduced Matrix, CS=Covend or Coated Sand Grains. Type: C=Concentration, D=Depterion, RM=Reduced Matrix, CS=Covend or Coated Sand Grains. Type: C=Concentration, D=Depterion, RM=Reduced Matrix, CS=Covend or Coated Sand Grains. Type: C=Concentration, D=Depterion, RM=Reduced Matrix, CS=Covend or Coated Sand Grains. Type: C=Concentration, D=Depterion, RM=Reduced Matrix, (SS) Histic Epipedon (A2) Stripped Matrix, (SS) C= 2 cm Mucky (https:// CS=Covend or Coated Sand Grains. Type: C=Concentration, D=Depterion, RM=Reduced Transmitty Depterion Particle Stripped Matrix, (SS) C= 2 cm Mucky (https:// CS=Covend or Coated Sand Grains. Type: C=Concentration, D=Depterion, RM=Reduced Dark Surface (R) C= 2 cm Mucky (https:// CS=Covend Matrix, (SS) C= 2 cm Mucky (https:// CS=Covend Matrix, (SA) C= 2 cm Mucky (https:// CS=Covend Matrix,									
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"Type: C::Concentration, D::Depletion, RM-Reduced Matrix, CS=Creved or Casted Sand Grains. *Location: PL=Pore Lining, M=Matrix, Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histics Epletion (A2) Surped Matrix, (S8) Red Parent Material (TF2) Black Histic (A3) Loany Mucky Mineral (F1) Other (explain in Remarks) Hydrog Suffic (A4) Leany Gleyd Matrix (F2) Other (explain in Remarks) Depleted Bokor Dark Surface (A11) Depleted Dark Surface (F6) *Indicators of rytrophytic septation and wetand hydrology must be present, Unless disturbed or problematic. Sandy Gleyd Matrix (S4) Redox Dark Surface (F6) *Indicators (F8) Secondary Indicators: None problematic. Explicit Meter Table (A2) 1, 2, 44, and 4B) Water stained Leaves (B9) (Except MLRA 1, 44, and 4B) Surface Weter (A1) Saturation (A3) Sati Crust (B11) X Daniage Paterns (B10) Surface Sulface (S2) Hydrogen Suffice (C1) Saturation (A3) Sati Crust (B11) X Daniage Patterns (B10) Water Matrix (B1) Aquatic Interdistrate (B15) Dy-Season Meter Table (C2) Staticator (B10) Staticator (B10) Staticator (B10) Statined A(Mounds (D5) (RRA A) Frest									
"Type: Cr-Concentration, D=Deptetion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix. "Type: Cr-Concentration, D=Deptetion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix. Hidbool (A1)									
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coasted Sand Grains. "Location: PL=Pore Lining, M=Matrix. "type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coasted Sand Grains. "Location: PL=Pore Lining, M=Matrix. "Hatosol (A1) Sandy Redox (CS) 2 or Muck (A10) Hatosol (A2) Shipped Matrix (S8) Red Parent Material (TF2) Black Histic (A3) Loamy Muchy Mineral (F1)(seccept MLRA 1) Other (explain in Remarks) Hydrogen Suffice (A4) Loamy Glayed Matrix (F2) Other (explain in Remarks) Depleted Berky Dark Surface (A11) Depleted Matrix (F2) * Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) * Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) * Type: None Depleted Matrix (S4) Redox Dark Surface (F7) * None Depleted Matrix (S4) Redox Dark Surface (F7) * None Depleted Matrix (S4) Redox Dark Surface (F7) * Worlcand Hydrology Indicators: Primary Indicators (Minimum of one required; check all that apply)						'			
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Histic Expection (A2)	Hyaric Soli	Indicators: (Appli	cable to	all LKKS, unles	s otnerw	/ise noted.)	(0.0)	Indica	tors for Problematic Hydric Solis :
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		Depleted Below Dark	Surface (/	A11)		Depleted Mat	rix (F3)		
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		Sandy Mucky Mineral	(S1)			Depleted Dar	k Surface (F7	7)	³ Indicators of hydrophytic vegetation and wetland
Restrictive Layer (If present): Type: None Depth (inches): Hydric Soil Present? Yes X No Remarks: Hydroclogy Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required); Surface Water (A1) Water stained Leaves (B9) (Except MLRA (MLRA1, 2, 4A, and 4B) High Water Table (A2) 1, 2, 4A, and 4B) Saturation (A3) Sati Crust (B11) X Drainage Patterns (B10) Water Marks (B1) Aquatic Invertebrates (B13) Divide Present (2) Hydrogen sulfide Odor (C11) Sediment Deposits (B2) Hydrogen sulfide Odor (C11) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Inundetion Visible on Aerial Imagery (B7) Other (Explain in Remarks) Field Observations: Surface Soil Cracks (B6) Surface Water Present? Yes No X Depth (inches): Wetiand Hydrology Present? Yes	· · · · · · · · · · · · · · · · · · ·	Sandy Gleyed Matrix	(S4)			- Redox Depre	ssions (F8)		problematic.
Restance Layer (In present): Type: None Hydric Soil Present? Yes X No Depth (inches): Hydric Soil Present? Yes X No Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required); Surface Water (A1) Water stained Leaves (B9) (Except MLRA Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Saturation (A3) Sait Crust (B11) X Drainage Patterns (B10) Water Marks (B1) Aquatic Invertebrates (B13) Dry-Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sutifie Odor (C1) Saturation Visible on Aerial Imagery Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) X Geomorphic Position (D2) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) X Sparsely Vegetated Concave Surface (B8) Frost-Heave Hummocks (D7) X Sparsely Vegetated Concave Surface (B8)	Dept-leth-	1 0007 /15 2222-2				-		1	
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(includes capillary fringe)	Remarks: HYDROLC Wetland Hy Primary Indi Primary Indi Striary Indi Surface Wate Water Table F Saturation Pre	DGY rdrology Indicators icators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B Inundation Visible on A Sparsely Vegetated C rvations: r Present? Yes Present? Yes	s: fone req) 2) 36) Aerial Ima Soncave S	uired; check all ti gery (B7) urface (B8) No X No X	Deptt Dept) Water stainee 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or SI Other (Explai	d Leaves (B9) 4B) 11) tebrates (B13 tfide Odor (C zospheres ald Reduced Iron Reduction in R ressed Plants n in Remarks) (Except MLRA 3) 1) ong Living Roots (C3) (C4) Plowed Soils (C6) s (D1) (LRR A) s) Wetland Hydr	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) X Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Saturation Present? Yes No X Depth (inches): Yes X No (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Yes X No	Remarks: HYDROLC Wetland Hy Primary Indi Primary Indi Striate Vate	DGY drology Indicators icators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B Inundation Visible on J Sparsely Vegetated C rvations: r Present? Yes	s: fone req) 2) 36) Aerial Ima Soncave S	uired; check all th gery (87) urface (88)	nat apply) Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or St Other (Explai	d Leaves (B9) 4B) 11) tebrates (B13) tfide Odor (C zospheres ald Reduced Iron Reduction in F ressed Plants n in Remarks) (Except MLRA 3) 1) ong Living Roots (C3) (C4) Plowed Soils (C6) s (D1) (LRR A) 3)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) X Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutrai Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
	Remarks: HYDROLC Wetland Hy Primary Indi Primary Indi Surface Vate Water Table F Saturation Pre (includes capilla Describe Reco None	DGY rdrology Indicators icators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B Inundation Visible on A Sparsely Vegetated C rvations: r Present? Yes Present? Yes esent? Yes pringe) orded Data (stream ga	s: one req) 2) 36) Aerial Ima concave S	uired; check all the second se	Deptr Deptr Deptr) Water stained 1, 2, 4A, and Salt Crust (B' Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or SI Other (Explai	I Leaves (B9) 4B) 11) tebrates (B13 tfide Odor (C zospheres ald Reduced Iron Reduction in F ressed Plants n in Remarks) (Except MLRA 3) 1) 2) 3) 1) 2) 3) 2) 3) 4 4 5) 4 5) 4 5) 4 5) 4 5) 5 5 5 5 5 5 5 5 5 5 5 5 5	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) X Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hurnmocks (D7)
	Remarks: HYDROLC Wetland Hy Primary Indi Primary Indi Saturation Hy Saturation Pre (includes capilla Describe Reco None emarks:	OGY rdrology Indicators icators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B3) Surface Soil Cracks (B Inundation Visible on A Sparsely Vegetated C rvations: r Present? Yes esent? Yes esent? Yes orded Data (stream ga	s: fone req) 2) 36) Aerial Ima Soncave S	uired; check all ti igery (B7) urface (B8) No X No X No X itoring well, aerial p	Deptr Deptr Deptr) Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or St Other (Explai (inches): (inches): (inches):	d Leaves (B9) 4B) 11) tebrates (B13) tfide Odor (C zospheres ald Reduced Iron Reduction in F ressed Plants n in Remarks n in Remarks) (Except MLRA 3) 1) ong Living Roots (C3) (C4) Plowed Soils (C6) s (D1) (LRR A) s) Wetland Hydr ble:	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) X Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Nieutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Attachment 1 201	Remarks: HYDROLC Wetland Hy Primary Indi Primary Indi Surface Wate Water Table F Saturation Pra (includes capilla Describe Reco None emarks:	DGY rdrology Indicators icators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B Inundation Visible on A Sparsely Vegetated C rvations: r Present? Yes esent? Yes esent? Yes orded Data (stream ga	s: fone req) 2) 2) 4) 36) Aerial Ima Soncave S	uired; check all ti gery (B7) urface (B8) No X No X No X itoring well, aerial p	Depth Depth Depth) Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or St Other (Explai	d Leaves (B9) 4B) 11) tebrates (B13) tfide Odor (C cospheres alo Reduced Iron Reduction in F ressed Plants n in Remarks min Remarks min Remarks) (Except MLRA 3) 1) ong Living Roots (C3) (C4) Plowed Soils (C6) s (D1) (LRR A) s) Wetland Hydr ble: 1	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) X Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

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roject/Site: Gienwood LW	<u>.</u>	City/County:	Spr	ingrielo / Lane	Sampling Date:	8/12/20	09
pplicant/Owner: Lane Council of G	overnments	<u> </u>		State:	<u>UR</u>	Sampling Point	2
vestigator(s): MEDE			ownsnip, Range:		Sec 34, 11/5, 1	X3W	
andform (nillislope, terrace, etc.:)	· · ·	1-6	Local relief (co	oncave, convex, none):	400 04040	Slope (%):	
ubregion (LRR):	Chabalia	– Lat Lat			-123.04243	Datum;	שש
ni map Unit Name;	Crienans	fine street	Naa			lais is Demodel	
	droloau	une or year?	turbed?		(ii no, exp	v	
re vegetation Soil of Hy		significantly dis	auideu?	Are Normal Circumstant	ces present? (T/N)	<u> </u>	
le vegetation Soil Of Hy		naturally proble	mauc? In needer	u, explain any answers in Ro	emarks.)		
UMMARY OF FINDINGS - Atta	ch site ma	p showing sa	ampling poir	nt locations, transec	ts, important fea	itures, etc.	
vdrophytic Vegetation Present? Yes	Nc	<u> </u>	L 0				
ydric Soil Present? Yes	No	<u> </u>	is Sampied A a Wetla	nd? Yes		No	
vetiand Hydrology Present? Yes	No	X					
emarks:					<u> </u>		
			•				
EGE IA HUN - USE SCIENTIFIC NA	absolute	nts.	Indicator	Dominance Toot we	-		
	% cover	Species?	Status	Dominance Test Wor	njiice[:		
ee Stratum (plot size: 30)				Number of Dominant Spe	cies		
Corylus cornuta	15	x	FACU	That are OBL, FACW, or	FAC:	3 (A)	
3				Total Number of Dominar	nt		
۱ <u></u>				Species Across All Strata	:	6 (B)	
	15	= Total Cover					
apling/Shrub Stratum (plot size: 5)			Percent of Dominant Spe	cies		
Symphoricarpos albus	10		FACU	That are OBL, FACW, or	FAC:	50% (A/B)
Rubus discolor	15	X	FACU				,
Cornus stolonifera	25	<u> </u>	FACW	Prevalence Index Wo	orksheet:		
Rubus ursinus	5		FACU	Total % Cover of	Multiply by	<u></u>	
5 <u></u>				OBL Species	x 1 =	0	
	55	= Total Cover		FACW species	x2=		
erb Stratum (plot size: 5)				FACU Species	x4=	0	
Echinocystis lobata	5	x	FACU	UPL Species	x5=	0	
Tolmiea menziesii	2		FAC	Column Totals	0 (A)	0 (B)	
Dipsacus sylvestris	5	X	FAC	-			
Fraxinus latifolia	5	X	FACW	Prevalence index =	B/A = #	DIV/0!	
						•	
			-	Hydrophytic Vegetati	ion Indicators:		
				'	Dominance Test is >50	0%	
				<u> </u>	Prevalence Index is ≤ :	3.0' · 1	
	17	= Total Cover			viorphological Adaptat	ons' (provide supporti	ng
pody Vine Stratum (plot size:)				Wetland Non-Vascular	Plants ¹	
······································					Problematic Hydrophy	tic Vegetation ¹ (Explain)
					•		
	0	= Total Cover		¹ Indicators of hydric soil an	nd wetland hydrology	must be present, unles	s
				disturbed or problematic.			
	5			Hydrophytic	Ver	No	x
Bara Cround in Harb Stratum				I V EUCLOLIUII	163	NO	~

Profile Description: (Describe to the depth needed to doc	ument the indicator or confirm the absence	of indicators.)	
Depth Matrix	Redox Features		• • • • •
(Inches) Color (moist) % Color (moist	t) % Type ¹ Loc ²	Texture	Remarks /
0-18 10YR 3/2 100		Silt Loam	
			<u> </u>
¹ Type: C=Concentration_D≈Depletion_RM=Reduced Matrix	CS=Covered or Coated Sand Grains	2	ocation: PI =Pore Lining M=Matrix
Hydric Soil Indicators: (Applicable to all I RRs. un	less otherwise noted)	Indicat	ors for Problematic Hydric Soils ³
	Condy Rodey (SE)	maicar	
			2 Cm Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (S6)		Red Parent Material (TF2)
Black Histic (A3)	Loamy Mucky Mineral (F1)(exce	ept MLRA 1)	Other (explain in Remarks)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)		
Depleted Below Dark Surface (A11)	Depleted Matrix (F3)		
Thick Dark Surface (A12)	Redox Dark Surface (F6)		
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	3	Indicators of hydrophytic vegetation and wetland
Sandy Gleved Matrix (S4)	Redox Depressions (F8)		nydrology must be present, unless disturbed or problematic.
			=
Restrictive Layer (if present):			
Type: None			
Depth (inches):		vdric Soil Prese	nt? Yes No X
HYDROLOGY Wetland Hydrology Indicators:			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required: check a	ali that apply)		Secondary Indicators (2 or more required)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a Surface Water (A1)	all that apply) Water stained Leaves (B9) (Exc	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B)	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a Surface Water (A1) High Water Table (A2) Saturation (A3)	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Salt Crust (B11)	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a Surface Water (A1) High Water Table (A2) Saturation (A3)	all that apply) ———— Water stained Leaves (B9) (Exc ————— 1, 2, 4A, and 4B) ———— Sait Crust (B11)	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Satimate Departing (P2)	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13)	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	All that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	all that apply) Water stained Leaves (B9) (Exe 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4)	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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)	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plowe	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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)	All that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plower Stunted or Stressed Plants (D1)	cept MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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)	all that apply) Water stained Leaves (B9) (Exc. 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plower Stunted or Stressed Plants (D1) Other (Explain in Remarks)	cept MLRA iving Roots (C3) ed Soils (C6)) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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)	all that apply) Water stained Leaves (B9) (Exe 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plowe Stunted or Stressed Plants (D1) Other (Explain in Remarks)	iving Roots (C3) ed Soils (C6)) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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)	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plowe Stunted or Stressed Plants (D1 Other (Explain in Remarks)	cept MLRA iving Roots (C3) ed Soils (C6)) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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) Field Observations: Surface Water Present? Yes	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plowe Stunted or Stressed Plants (D1 Other (Explain in Remarks) Depth (inches):	cept MLRA iving Roots (C3) ed Soils (C6)) (LRR A)	Secondary Indicators (2 or more required) Vater stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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) Field Observations: Surface Water Present? Yes No X Water Table Present? Yes No	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plowe Stunted or Stressed Plants (D1 Other (Explain in Remarks) Depth (inches): Depth (inches):	eept MLRA iving Roots (C3) ed Soils (C6)) (LRR A) Wetland Hydro	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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) Field Observations: Surface Water Present? Yes No X Water Table Present? Yes No	all that apply) Water stained Leaves (B9) (Exc. 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plower Stunted or Stressed Plants (D1) Other (Explain in Remarks) Depth (inches): Depth (inches):	cept MLRA iving Roots (C3) ed Soils (C6)) (LRR A) Wetland Hydro	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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) Field Observations: Surface Water Present? Yes No X Water Table Present? Yes No Xaturation Present? Yes No Saturation Present? Yes No Mater Table Present? Yes No Xaturation Present? Yes No	all that apply) Water stained Leaves (B9) (Exc 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed Stunted or Stressed Plants (D1) Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches):	cept MLRA iving Roots (C3) ed Soils (C6)) (LRR A) Wetland Hydro	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 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) blogy Present? Yes No
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HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check a 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) Field Observations: Surface Water Present? Yes No Saturation Present? Yes No Mone X marks: Emarks:	all that apply)	cept MLRA iving Roots (C3) ed Soils (C9)) (LRR A) Wetland Hydro	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 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)
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roject/Site: _ Glenwood	I LWI	City/County:	Spr	ngfield / Lane	Sampling Date:	8/12/20	09
pplicant/Owner. Lane Counci	of Governments			State:	OR	Sampling Point:	3
vestigator(s): ME	/SE	Section, To	wnship, Range:		Sec 34, T17S,	R3W	
ndform (hillslope, terrace, etc.:)		-	Local relief (cc	ncave, convex, none):		Slope (%):	
ubregion (LRR):	RRA	Lat	44.040	75 Long:	-123.04243	Datum:	DD
Map Unit Name:	Chehalis	- silty clay loan	n	NWI Cla	assification:		
climatic/hydrologic conditions on the	e site typical for this	time of year?	Yes	X No	(if no, ex	plain in Remarks)	
vegetation Soil	or Hydrology	significantly dist	urbed?	Are "Normal Circumstan	ces" present? (Y/N)	<u> </u>	
vegetation Soil	or Hydrology	naturally problem	matic? If neede	l, explain any answers in R	emarks.)		
IMMARY OF FINDINGS -	Attach site map	showing sa	mpling poir	it locations, transec	ts, important fe	atures, etc.	
drophytic Vegetation Present?	s <u>X</u> No		is Sampled A	rea within	~		
dric Soil Present?	\$ <u>X</u> NO		a Wetla	nd? Yes	X	NO	
land Hydrology Present? Ye	s <u>X</u> No						
narks:							
EGETATION - Use scientifi	c names of plai	nts.					
	absolute	Dominant	Indicator	Dominance Test wo	rksheet:		
	% cover	Species?	Status				
<u>e Stratum</u> (plot size: 30	_)	v	ELON	Number of Dominant Spe	icies	n /11	
Janx SIICNENSIS		<u> </u>	FACW	I I nat are OBL, FACW, or	FAC:	(A)	
	10		FAGW	Total Number of Dominar	nt		
				Species Across All Strata		3 (B)	
	100	= Total Cover				(5)	
ling/Shrub Stratum (nlot size:	5)			Percent of Dominant Spe	cies		
Cornus stolonifera	<u>-</u> , 25	X	FACW	That are OBL FACW or	FAC:	67% (A/	3)
					·· ,		
· · ·				Prevalence Index Wo	orksheet:		
				Total % Cover of	Multiply b	<u>y:</u>	
				OBL Species	x1=	0	
	25	= Total Cover		FACW species	x2=	0	
rb Stratum (plot size: 5)			FAC Species	×3=	<u> </u>	
Unidentified forb	' 10	X	NL	UPL Species	X4= x5=	0	
		<u> </u>		Column Totals	0 (A)	0 (B)	
				-	· /		
				Prevalence Index =	B/A =	#DIV/0!	
				ļ	· · ·		
			<u> </u>	Hydrophytic Vegetat	ion Indicators:	2	
				<u> </u>	Dominance Test is >:	50%	
		- T-4 10		· · · · ·	Prevalence Index is ≤	3.0'	kn-
	10	= Iotal Cover	-		Morphological Adapta	auons (provide suppor n a separate sheet)	ur1 g
ody Vine Stratum (plot size:)				Wetland Non-Vascula	ar Plants ¹	
					Problematic Hydrophy	ytic Vegetation ¹ (Explai	п)
				,			
	0	= Total Cover		¹ Indicators of hydric soil a	nd wetland hydrology	must be present, unle	5 5
				disturbed or problematic.			
	-			Vegetation	Voe X	No	
are Ground in Herb Stratum	9 0			* egetation	163 A	110	

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Drafia Daard	Intion: (Describe 4- 4	bo dante	noodod in dealers			onfirm the -be-	noo of indiactors '	EXHIBI - E-55
Denth	Iption: (Describe to t Matrix	ne aeptn	needed to docume	ent the India Reday	Eestures	onnim the abse	nce of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0.16	10VP 3/2	85	10VP 3/4	- 15		. <u> </u>	Silt Loam	modium
0-10	TUTK J/Z		101 K 3/4	15	<u> </u>		SILLOAN	meatum
			·					
	<u> </u>							
								•
17					Control Co			
Type: C=Con	centration, D=Depletic	on, RM=R	educed Matrix, CS=	Covered or	Coated Sa	and Grains.		*Location: PL=Pore Lining, M=Matnx.
Hydric Soll	Indicators: (Appli	cable to	all LRRs, unles	s otherwi	se noted	.)	Indica	ators for Problematic Hydric Solls":
	Histosol (A1)				Sandy Red	ox (S5)		2 cm Muck (A10)
	Histic Epipedon (A2))	s	Stripped M	atrix (S6)		Red Parent Material (TF2)
	Black Histic (A3)			L	_oamy Mud	ky Mineral (F1)	except MLRA 1)	Other (explain in Remarks)
	Hydrogen Sulfide (A4)		L	oamy Gle	yed Matrix (F2)		
	Depleted Below Dark	Surface (/	A11)		Depleted N	latrix (F3)		
	Thick Dark Surface (A	12)	-	X F	Redox Dar	k Surface (F6)		
	Sandy Mucky Mineral	(\$1)		'		ank Surface (E7)	1	³ Indicators of hydrophytic vegetation and wetland
				'				hydrology must be present, unless disturbed or
<u> </u>	Sandy Gleyed Matrix	(54)		r	Redox Dep	ressions (F8)		problematic.
Restrictive	Layer (if present):	1						
Type:		N	one					
Denth (inches					-			
Remarks:	s):				-		Hydric Soil Pres	sent? Yes <u>X</u> No
Remarks:	s): 		· · · · · · · · · · · · · · · · · · ·		<u></u>		Hydric Soil Pres	sent? Yes <u>X</u> No
Remarks: HYDROLO Wetland Hy	95: 9GY drology Indicator	s:					Hydric Soil Pres	Sent? Yes X No
Remarks: HYDROLO Wetland Hy Primary India	9GY drology Indicators cators (minimum of	s: f one req	uired; check all th	hat apply)			Hydric Soil Pres	Secondary Indicators (2 or more required)
Remarks: HYDROLO Wetland Hy Primary Indi	S): DGY drology Indicators cators (minimum of Surface Water (A1)	s: f one req	uired; check all th	hat apply)	Water stair	ied Leaves (B9)	Hydric Soil Pres	Secondary Indicators (2 or more required)Water stained Leaves (B9)Water 3 4 A and 4B)
Remarks: HYDROLC Wetland Hy Primary Indi	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2	s: fone req	uired; check all th	hat apply)	- Water stair 1, 2, 4A, au	ned Leaves (B9) n d 4B)	Hydric Soil Pres	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
Remarks: HYDROLO Wetland Hy Primary Indi	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3)	s: f one req	uired; check all th	hat apply)	- Nater stair 1, 2, 4A, ar Salt Crust (ned Leaves (B9) n d 4B) (B11)	Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10)
Remarks: HYDROLO Wetland Hy Primary Indi	S): GY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	s: f one req	uired; check all th	hat apply)	- Water stair 1, 2, 4A, ar Salt Crust (Aquatic Inv	ned Leaves (B9) n d 4B) (B11) rentebrates (B13)	Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2)
Remarks: HYDROLO Wetland Hy Primary Indi	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B	s: f one req	uired; check all th	hat apply)	- Nater stair 1, 2, 4A, ar Salt Crust (Aquatic Inv Hydrogen S	ned Leaves (B9) n d 4B) (B11) rertebrates (B13) Sulfide Odor (C1)	Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3)
Remarks: HYDROLO Wetland Hy Primary Indi	S): GGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3)	s: f one req 2) 32)	uired; check all th	hat apply)	- Water stair 1, 2, 4A, ai Salt Crust (Aquatic Inv Hydrogen S Dxidized R	ned Leaves (B9) n d 4B) (B11) rertebrates (B13) Sulfide Odor (C1) hizospheres alor	(Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2)
Remarks: HYDROLC Wetland Hy Primary Indi	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B4	s: f one req ?) 32)	uired; check all th	hat apply) 1 6 6 6	Water stair 1, 2, 4A, au Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence c	ned Leaves (B9) n d 4B) (B11) rertebrates (B13) Sulfide Odor (C1) hizospheres alor of Reduced Iron ((Except MLRA (Except MLRA) ng Living Roots (C3) (C4)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3 X Geomorphic Position (D2) Shallow Aquitard (D3)
Remarks: HYDROLCO Wetland Hy Primary India	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5)	s: <u>f one req</u> !) 32)	uired; check all t	hat apply)	- Water stair 1, 2, 4A, au Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence o Recent Iron	ned Leaves (B9) n d 4B) (B11) rertebrates (B13) Sulfide Odor (C1 hizospheres alor of Reduced Iron (n Reduced Iron (n Reduction in Pi	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3 X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5)
Remarks: HYDROLO Wetland Hy Primary India	S): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I	s: fone req !) 32) 4) B6)	uired; check all t	hat apply)	- Water stair 1, 2, 4A, ar Salt Crust (Aquatic Inv Hydrogen 1 Oxidized R Dxidized R Presence o Recent Iron Stunted or	ned Leaves (B9) n d 4B) (B11) sulfide Odor (C1 hizospheres alor of Reduced Iron (n Reduced Iron (n Reduced Plants	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Remarks: HYDROLO Wetland Hy Primary India	S): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on	s: f one req 2) 32) 4) B6) Aerial Ima	uired; check all th	hat apply)	- Nater stair 1, 2, 4A, ar Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence o Recent Iron Stunted or Other (Exp	ned Leaves (B9) nd 4B) (B11) sulfide Odor (C1) hizospheres alor of Reduced Iron (n Reduction in PI Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3 X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLO Wetland Hy Primary India	S): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C	s: fone req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all th gery (87) urface (88)	hat apply)	Water stain 1, 2, 4A, au Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence of Recent Iron Stunted or Other (Exp	ned Leaves (B9) nd 4B) (B11) Sulfide Odor (C1) hizospheres alor of Reduced Iron (n Reduced Iron (n Reduction in PI Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3) X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLC Wetland Hy Primary Indi X X X Field Observ	S): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations:	s: fone req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all th ugery (B7) urface (B8)	hat apply)	Water stair 1, 2, 4A, au Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence of Recent Iron Stunted or Dther (Exp	ned Leaves (B9) nd 4B) (B11) sulfide Odor (C1) hizospheres alor of Reduced Iron (n Reduced Iron (n Reduction in PI Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3 X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLC Wetland Hy Primary Indi X X X X Field Obser	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B3) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations:	s: fone req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all th gery (B7) unface (B8)	hat apply)	Water stair 1, 2, 4A, au Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence c Recent Iron Stunted or Dther (Exp	ed Leaves (B9) ad 4B) (B11) rertebrates (B13) Sulfide Odor (C1 hizospheres alor of Reduced Iron (n Reduced Iron (n Reduced Iron Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLO Wetland Hy Primary Indi Primary Indi X X X Field Obser Surface Water	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations:	s: fone req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all th ugery (B7) urface (B8)	hat apply)	- Water stair 1, 2, 4A, at Salt Crust (Aquatic Inv Hydrogen 1 Oxidized R Presence o Recent Iron Stunted or Other (Exp	ned Leaves (B9) nd 4B) (B11) retebrates (B13) Sulfide Odor (C1 hizospheres alor of Reduced Iron (n Reduced Iron (n Reduced Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLO Wetland Hy Primary India Primary India X X X Field Obser Surface Water Water Table P	S): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes Present? Yes	s: fone req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all th gery (B7) urface (B8) No <u>X</u> No <u>X</u>	hat apply)	Vater stair 1, 2, 4A, at Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence of Recent Iron Stunted or Other (Exp (inches): (inches):	ned Leaves (B9) nd 4B) (B11) sulfide Odor (C1) hizospheres alor of Reduced Iron (n Reduction in Pl Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) iowed Soils (C6) (D1) (LRR A) Wetland Hyd	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3 X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLO Wetland Hy Primary India Primary India X X X Field Obser Surface Water Water Table P Saturation Pre (inducts canita	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes Present? Yes Present? Yes Present? Yes	s: f one req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all th gery (B7) urface (B8) No <u>X</u> No <u>X</u>	hat apply)	Vater stair 1, 2, 4A, ar Salt Crust (Aquatic Inv Hydrogen S Dividized R Presence of Recent Iron Stunted or Dither (Exp (inches): (inches):	Inter Leaves (B9) ind 4B) (B11) (B11) Sulfide Odor (C1) hizospheres alor of Reduced Iron (n Reduction in PI Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A) Wetland Hyd	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLO Wetland Hy Primary India Primary India X X X Field Obser Surface Water Water Table P Saturation Pre (includes capillar	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated O vations: Present? Yes present? Yes	s: fone req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all th ogery (B7) urface (B8) No <u>X</u> No <u>X</u>	hat apply)	Water stair 1, 2, 4A, au Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence C Recent Iron Stunted or Dther (Exp (inches): (inches): (inches):	ed Leaves (B9) nd 4B) (B11) sulfide Odor (C1) hizospheres alor of Reduced Iron (n Reduction in PI Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A) Wetland Hyd	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C3 X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Irology Present? Yes X
Remarks: HYDROLCO Wetland Hy Primary India Primary India X X X Field Obser Surface Water Water Table P Saturation Pre (includes capillar Describe Reco None	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B3) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes resent? Yes resent? Yes resent? Yes resent? Yes resent? Yes resent? Yes resent? Yes	s: fone req 2) 32) 4) B6) Aerial Ima Concave S Concave S	uired; check all th gery (87) urface (88) No X No X No X No X	hat apply)	Water stair 1, 2, 4A, at Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence c Recent Iron Stunted or Dther (Exp (inches): (inches): (inches): ous inspec	ed Leaves (B9) ad 4B) (B11) rertebrates (B13) Sulfide Odor (C1 hizospheres alor of Reduced iron (n Reduced iron (n Reduction in Pl Stressed Plants lain in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A) Wetland Hyd e:	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLC Wetland Hy Primary India Primary India X X X Surface Water Water Table P Saturation Pre (includes capillar Describe Record None	S): Cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes sent? Yes sent? Yes sent? Yes y fringe) orded Data (stream gates)	s: fone req 2) 32) 4) B6) Aerial Ima Concave S	uired; check all the second se	hat apply)	Water stair 1, 2, 4A, au Salt Crust (Aquatic Inv Hydrogen 1 Dxidized R Presence of Recent Iron Stunted or Other (Exp (inches): (inches): (inches): ous inspect	tions), if availabl	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) iowed Soils (C6) (D1) (LRR A) Wetland Hyd e:	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLO Wetland Hy Primary India Primary India X X X Field Obser Surface Water Water Table P Saturation Pre (includes capillar Describe Recc None	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes Present? Yes Sent? Yes	s: fone req () 32) 4) B6) Aerial Ima Concave S Concave S	uired; check all th gery (B7) urface (B8) No X No X No X No A No A No A No A No A No A No A No A	hat apply)	Water stair 1, 2, 4A, ar Salt Crust (Aquatic Inv Hydrogen 1 Oxidized R Presence of Recent Iron Stunted or Other (Exp (inches): (inches): (inches): ous inspect	ted Leaves (B9) nd 4B) (B11) retebrates (B13) Sulfide Odor (C1 hizospheres alor of Reduced iron (reduction in Pl Stressed Plants lain in Remarks) 15 15 tions), if available	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) (C4) (D1) (LRR A) Wetland Hyd e:	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) X Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (CS X Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: HYDROLO Wetland Hy Primary India Primary India X X X Field Obser Surface Water Water Table P Saturation Pre (includes capillar Describe Reco None Remarks:	BGY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated O vations: Present? Yes Present? Yes	s: fone req 2) 32) 4) B6) Aerial Ima Concave S Concave S	uired; check all th gery (B7) urface (B8) No <u>X</u> No <u>X</u> No <u>X</u>	hat apply)	Vater stair 1, 2, 4A, ar Salt Crust (Aquatic Inv Hydrogen S Dxidized R Presence C Recent Iron Stunted or Other (Exp (inches): (inches): (inches): ous inspec	tions), if availabl	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) iowed Soils (C6) (D1) (LRR A) Wetland Hyd	Secondary Indicators (2 or more required)

oject/Site:	Glenwood LW	<u>^</u>	City/County:	Spri	ingfield / Lane	Sampling Da	te:7/2	27/2009
pplicant/Owner. La	ne Council of	Government	<u>s</u>		State:	OR	Sampling Point	c4
vestigator(s):	ME/SE		Section, To	ownship, Range:		Sec 3, T18S	, R3W	
andform (hillslope, terrac	e, etc.:)			Local relief (co	ncave, convex, none):		Slope (%)	: <u></u>
ubregion (LRR):	LRR	A	Lat	44.040	175 Long:	-123.04243	B Datum	: DD
oil Map Unit Name:		Chehalis	silty clay loan	n	NW Clas	ssification:		
re climatic/hydrologic cor	nditions on the site	e typical for this	time of year?	Yes	No	(if no, e	explain in Remarks)	I
re vegetation S	oil or H	ydrology	significantly dist	turbed?	Are "Normal Circumstance	es" present? (Y/N)) <u>Y</u>	_
re vegetation S	oil or Hy	ydrology		matic? If needed	l, explain any answers in Re	marks.)		
		aah aita ma		moling poir	t locations transact	o important i	footuroo oto	
	esent? Yes		p showing se		it locations, transect	s, important	eatures, etc.	
vdio Soil Present?	Yes		, <u> </u>	is Sampled A	rea within	v	No	
/etland Hydrology Preser		<u> </u>		a Wetla	nd? 103_		NU	-
	-	<u> </u>	<u> </u>		<u> </u>		<u> </u>	
emarks:								
EGETATION - Use	scientific na	ames of pla	nts.					
		absolute	Dominant	Indicator	Dominance Test work	ksheet:		
		% cover	Species?	Status				
<u>ee Stratum</u> (plot size:)				Number of Dominant Spec	cies		(4)
					That are OBL, FACW, or F	AC:	1	_(A)
					Total Number of Dominant			
					Species Across All Strata	•	1	(B)
		0	= Total Cover	····			•	_(=)
nling/Shrub Stratum //	nlot size:	<u> </u>			Percent of Dominant Speci	ion		
		_'		• .	That are OBL FACW or F		100%	(A/R)
· · ·							10070	
					Prevalence Index Wo	rksheet:		
					Total % Cover of	Multiply	by:	
					OBL Species		= 0	
		0	= Total Cover		FACW species	x 2	=	_
	F)				FAC Species	×3	=	-
Mentha arvensis)	27	v	EACW	FACU Species	X4	= 0	-
Juncus effusus				FACW	Column Totals	0 (4)		- (B)
Carex leptopoda		5		FAC		(v)		.(0)
Bidens sp.		5	°	(FAC)	Prevalence index =B	/A =	#DIV/0!	
						· · ·	·	•
					Hydrophytic Vegetation	on Indicators:		
					XD	ominance Test is	>50%	
					P.	revalence Index is	i≤ 3.0 ¹	• •
		40	= Total Cover		MM	lorphological Adap	otations ¹ (provide su	ipporting
oody Vine Stratum /nlr	nt size:)				etiand Non-Marks or	on a separate shee	л ц)
Jost And Onamin (Pic		_′			P	roblematic Hydron	hytic Vegetation ¹ (F	Explain)
		0	= Total Cover		¹ Indicators of hydric soil and	d wetland hydrolo	gy must be present.	, unless
					disturbed or problematic.	-		
Bara Cround in Link Ch	atum	en.			Hydrophytic	Van V		
Date Ground at Deb.St					Present?	162 V	NO	
amarke:					• • • • • • • • • • • • • • • • • • •			

			PHS # _	44	95			Sam		
Profile Descri	ption: (Describe to t	he depth	needed to docume	nt the ind	icator or co	nfirm the abser	ce of indicators.)		EARIBH E-2/	
Depth	Matrix			Redo	x Features					
(Inches)	Color (moist)		Color (moist)		Туре'	Loc ²	Texture		Remarks	
0-9	2.5Y 3/1	95	10YR 4/6			M	Silt	medium		
9-15	2.5Y 3/1	100			<u> </u>		Silt			
	·							 ,		
_										
	·									
1= 0.0					<u> </u>	10-1-1		2	.	
'Type: C≠Cono	centration, D=Depletic	on, RM=Re	educed Matrix, CS=	Covered o	r Coated Sar	id Grains.	India	*Location: PL=	Pore Lining, M=Matrix.	_
nyaric Soll	maicators: (Appli	cable to	all LKKS, UNIES	s otnerw	Sandy Ded-	v (95)	indica	NOTS TOF PTO		
	Histic Enineden (A2)				Stripped Med	x (30) riv (S6)		2	: on Muck (A10) Red Barent Material (TE2)	
	Risck Histic (A2)				Loamy Much	v Mineral (F1)	except MI RA 1)	r	ther (evolution in Remarks)	
	Hydrogen Sulfide (A4	۱			Loamy Gleve	ed Matrix (F2)		`	zaior (explain in riciliairo)	
	Depleted Below Dark	' Surface (A	(11)		Depleted Ma	trix (F3)				
	Thick Dark Surface (A	\12)			Redox Dark	Surface (F6)				
	Sandy Mucky Mineral	, (S1)			Depleted Da	rk Surface (F7)		³ Indicators of I	ydrophytic vegetation and wetland	
	Sandy Gleved Matrix	(S4)			Redox Depr	essions (F8)		hydrology mu	st be present, unless disturbed or problematic.	
Depth (inches	s):		. <u>.</u>	-			Hydric Soil Pres	ent? Yes _	<u>X</u> No	_
Depth (inches Remarks:	s):		•	_			Hydric Soil Pres	ent? Yes _	<u>X</u> No	
Depth (inches Remarks: HYDROLO	96Y				<u> </u>		Hydric Soil Pres	ent? Yes _	<u>X</u> No	
Depth (inches Remarks: <u>HYDROLO</u> Wetland Hy	GY drology Indicator	s:			<u> </u>		Hydric Soil Pres	ent? Yes _	<u>X</u> No	
Depth (inches Remarks: HYDROLO Wetland Hy Primary India	GY drology Indicator cators (minimum of	s: f one requ	uired; check all th	nat apply)			Hydric Soil Pres	Secondary	X No	
Depth (inches Remarks: HYDROLO Wetland Hy Primary Indio	GY drology Indicator cators (minimum of Surface Water (A1)	s: fone requ	uired; check all th	nat apply)		d Leaves (B9) (1 4B)	Hydric Soil Pres		X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1. 2. 4A. and 4B)	
Depth (inches Remarks: HYDROLO Wetland Hy Primary India	GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2)	s: fone requ	uired; check all th	nat apply)	Water staine 1, 2, 4A, and Salt Court /F	d Leaves (B9) (1 4B)	Hydric Soil Pres	Secondary	X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	,
Depth (inches Remarks: HYDROLO Wetland Hy Primary India	GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	s: f one requ	uired; check all th	iat apply)	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve	d Leaves (B9) (1 4B) 111) riebrates (B13)	Hydric Soil Pres	Secondary	X No Indicators (2 or more required) Nater stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)	
Depth (inches Remarks: HYDROLO Wetland Hy Primary Indio	GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B	s: fone requ	uired; check all th	nat apply)		d Leaves (B9) (1 4B) ;11) rtebrates (B13) utfide Odor (C1)	Hydric Soil Pres		X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India X	B): GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3)	s: fone requ)))2)	uired; check all th	nat apply)	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh	d Leaves (B9) (1 4B) 11) rtebrates (B13) ulfide Odor (C1) izospheres alon	Hydric Soil Pres		X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India	B: GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4	s: f one requ))))))	uired; check all th	nat apply)	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of	d Leaves (B9) (1 4B) 111) rtebrates (B13) Jifide Odor (C1) izospheres alon Reduced iron (6	Hydric Soil Pres	Yes	X No Indicators (2 or more required) Nater stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary Indio	GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	s: f one req)))2) 4)	uired; check all th	x	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen So Oxidized Rh Presence of Recent Iron	d Leaves (B9) (1 4B) 111) rtebrates (B13) ulfide Odor (C1) izospheres alon Reduced Iron (Reduction in Plo	Hydric Soil Pres		X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Orainage Patterns (B10) Ory-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India X	B): drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (s: f one requ !) 12) 4) B6)	uired; check all th	x	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen So Oxidized Rh Presence of Recent Iron Stunted or S	d Leaves (B9) (1 4B) (11) Intebrates (B13) Iffide Odor (C1) izospheres alon Reduced Iron ((Reduction in Plo tressed Plants (Hydric Soil Pres	Yes	X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Orainage Patterns (B10) Ory-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India X X	B): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on	s: fone requ () () () () () () () () () () () () ()	uired; check all tr	X	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen So Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	d Leaves (B9) (1 4B) 111) rtebrates (B13) 11fide Odor (C1) izospheres alon Reduced iron (0 Reduction in Plo tressed Plants (in in Remarks)	Hydric Soil Pres	Yes	X No Indicators (2 or more required) Nater stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Orainage Patterns (B10) Ory-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary Indio	B): GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C	s: fone requ 2) 22) 4) B6) Aerial Ima Concave St	uired; check all tr gery (B7) urface (B8)	X	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	d Leaves (B9) (1 4B) 111) If de Odor (C1) Izospheres alon Reduced Iron (Reduction in Plo tressed Plants (in in Remarks)	Hydric Soil Pres	Secondary	X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India X X X Field Obser	B): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations:	s: f one requ))2) 4) B6) Aerial Ima Concave St	uired; check all th gery (B7) urface (B8)	x	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	d Leaves (B9) (1 4B) 11) rtebrates (B13) utfide Odor (C1) izospheres alon Reduced iron ((Reduced iron (i Reduction in Plo itressed Plants (in in Remarks)	Hydric Soil Pres	Yes	X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Orainage Patterns (B10) Ory-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary Indio X X X Surface Water	B): GY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated O vations: Present? Yes	s: fone requ 2) 22) 4) B6) Aerial Ima Concave St	uired; check all tr gery (B7) urface (B8) No X	x	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Explain (inches):	d Leaves (B9) (1 4B) 111) If de Odor (C1) izospheres alon Reduced íron (Reduced íron (Reduction in Plo tressed Plants (in in Remarks)	Hydric Soil Pres	Secondary	X No Indicators (2 or more required) Nater stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India X X X Field Obser Surface Water Water Table P	B): GY drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B3) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes resent? Yes	s: fone requ))2) 4) B6) Aerial Ima concave Si Concave Si	uired; check all th gery (B7) urface (B8) No <u>X</u>	X Depth	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Explain (inches): (inches):	d Leaves (B9) (1 4B) 111) rtebrates (B13) ulfide Odor (C1) izospheres alon Reduced iron ((Reduction in Plo tressed Plants (in in Remarks)	Hydric Soil Pres	Secondary Secondary X X X Secondary X Secondary X Secondary X Secondary Secondary Secondary Secondary Secondary Second	X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Orainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India X X X Field Obser Surface Water Water Table P Saturation Pre (includes capillar	B): GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B3) Surface Soil Cracks (I Inurdation Visible on Sparsely Vegetated C vations: Present? Yes resent? Yes sent? Yes yfinge)	s: fone requ () () () () () () () () () () () () ()	uired; check all tr gery (B7) urface (B8) No <u>X</u> No <u>X</u>	X Depth Depth	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Explain (inches): (inches): (inches):	d Leaves (B9) (1 4B) 111) rtebrates (B13) ulfide Odor (C1) izospheres alon Reduced iron ((Reduction in Plo itressed Plants (in in Remarks) <u>4</u> 0	Hydric Soil Pres	Secondary Secondary X X Secondary X Secondary X Secondary X Secondary X Secondary Secondary Secondary Secondary Second	X No Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Orainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary India X X X Field Obser Surface Water Water Table P Saturation Pre (includes capillar Describe Reco	B): drology Indicators cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes resent?	s: fone requ () (2) (4) B6) Aerial Ima Concave Su Concave Su (X) (X) (X) (X) (X) (X) (X) (X) (X) (X)	uired; check all th gery (B7) urface (B8) No X No No No arring well, aerial pl	x Depth Depth Depth	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Explain (inches): (inches): (inches): (inches):	d Leaves (B9) (1 4B) 111) rtebrates (B13) 11fide Odor (C1) izospheres alon Reduced iron (C Reduction in Plo tressed Plants (in in Remarks) 4 0 ons), if available	Hydric Soil Pres	Secondary	X No Indicators (2 or more required) Nater stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) ent? X No	C9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary Indic X X X Field Obser Surface Water Vater Table P Saturation Pre (includes capillar Describe Reco None	B): Cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (I Inurdation Visible on Sparsely Vegetated O vations: Present? Yes resent? Yes sent? Yes sent? Yes y fringe) orded Data (stream ga	s: fone requ () () () () () () () () () () () () ()	uired; check all th gery (B7) urface (B8) No X No No No toring well, aerial pl	At apply)	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla (inches): (inches): (inches): (inches):	d Leaves (B9) (1 4B) 111) If the brates (B13) If the Odor (C1) izospheres alon Reduced fron (C Reduction in Plo tressed Plants (in in Remarks) 4 0 0	Except MLRA g Living Roots (C3) C4) wed Soils (C6) (D1) (LRR A) Wetland Hyd	Secondary Secondary X X Yes X Yes Yes	X No Indicators (2 or more required) Nater stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	(9)
Depth (inches Remarks: HYDROLO Wetland Hy Primary Indic X X X Field Obser Surface Water Water Table P Saturation Pre (includes capillar Describe Reco None	B): Cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B3) Surface Soil Cracks (I Inundation Visible on Sparsely Vegetated C vations: Present? Yes sent? Yes sent? Yes sent? Yes y fringe) orded Data (stream ga	s: fone required () () () () () () () () () () () () ()	uired; check all the second se	X Depth Depth Depth	Water staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Explain (inches): (inches): (inches): (inches):	d Leaves (B9) (1 4B) 111) rtebrates (B13) uffide Odor (C1) izospheres alon Reduced iron ((Reduction in Plo tressed Plants (in in Remarks) 4 0 ons), if available	Hydric Soil Pres	Secondary Secondary X X X X X Yes Yes Yes	X No	C9)

roject/Site:	Glenwood	LWI	City/County:	Spri	ngfield / Lane		Samplin	g Date:	9/1	5/2009
pplicant/Owner:	Lane Council	of Government	5			State:	OR	:	Sampling Point:	5
vestigator(s):	ME/	SE	Section, To	wnship, Range:			Sec 3, T	18 S, R 3	w	
andform (hillslope, te	rrace, etc.:)			Local relief (cor	ncave, convex, none	e):			Slope (%):	
ubregion (LRR):	L	RRA	Lat	44.040	75	Long:	-123.0	4243	Datum:	DD
oil Map Unit Name:		Chehalis	s silty clay loar	n	N	WI Class	sification:	_		· · · ·
e climatic/hydrologic	conditions on the	e site typical for this	time of year?	Yes	<u> </u>	No_	(if	no, expla	in in Remarks)	
e vegetation	Soil	or Hydrology	significantly dis	turbed?	Are "Normal Circu	mstance	s" present?	(Y/N)	Y	
e vegetation	Soil	or Hydrology	naturally proble	matic? If needed	, explain any answei	rs in Ren	narks.)	-		
UMMARY OF F	INDINGS - J	Attach site ma	n showing sa	mpling poin	t locations, tra	nsects	. importa	unt feat	ures, etc.	
drophytic Vegetatio	n Present? Yes	s X No))	7 7	<u> </u>		,			
/dric Soil Present?	Yes	s X No	,	Is Sampled Ar	rea within nd?	Yes	x	N	lo	
etiand Hydrology Pro	esent? Yes	s X No	,			_				
emarks:					•					
							•			
EGETATION - L	use scientific	c names of pla	Dominant	Indicator	Dominance Tor	stwork	sheet.			
		% cover	Species?	Status	Dominiance res	St WORK	91156L			
<u>ee Stratum</u> (plot s	ize: <u>30</u>	_)			Number of Domina	ant Speci	es			
Populus tricho	carpa	25	<u> </u>	FAC	That are OBL, FAC	CW, or F/	AC:		2	(A)
				· ·						
					Total Number of Do	ominant				
					Species Across All	Strata:			3	(B)
		25	= Total Cover							
apling/Shrub Stratum	(plot size:	<u>5</u>)	~		Percent of Domina	int Specie	es	_		(4(D)
Rubus disc <u>olo</u>	r.		<u> </u>	FACU	That are OBL, FAC	SVV, OFF.	AC:	E	7%	(AVB)
					Prevalence Inde	ex Wor	ksheet:			
·					Total % Cover of		Mi	litiply by:		
;					OBL Species	;		x1=	0	
		30	= Total Cover		FACW species	s _		x 2 =	0	
	. .				- FAC Species	i . <u>.</u>		x 3 =		
Phalaris arund	ize: 5)	· · ·		FACU Species	s —		x4=		
Artemisia sp.		5		(FACW-UPL)	Column Totals	' <u> </u>	0 (A	x5-		(B)
Cirsium arvens	e			FACU		-	<u> </u>	,		(0)
·					Prevalence Ir	ndex =B//	A =	#D	IV/0!	
		,	· · ·		-					
					Hydrophytic Ve	getatio	n Indicato	rs:		
					<u> </u>	Do	ominance Te	st is >50%	6	
	_			<u> </u>		Pr	evalence inc	lex is ≤ 3.	0' 1 (
		75	= Total Cover	-		Mo da	ta in Remark	hoaptatio	separate sheef	epotung I
oody Vine Stratum	(plot size:)				W	etland Non-	/ascular F	lants ¹	,
						Pr	oblematic H	ydrophytic	: Vegetation ¹ (E)	(plain)
		0	= Total Cover		¹ Indicators of hydro	c soil and	i wetland hy	irology m	ust be present,	unless
					Hvdrophytic	matiC.				
	Stratum	0			Vegetation		Yes	<u>x</u>	No_	
Bare Ground in Hert										

.

			PHS #	44	95			Sampling Point: 5
Profile Descr	iption: (Describe to	the depth	needed to docume	ent the indi	cator or cor	nfirm the abse	nce of indicators.)	<u>EYHIRH-E-9</u> 8
Depth	Matrix	•		Redox	Features			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	7.5 2.5/2	100					Silt Loam	<u> </u>
8-13	7.5 2.5/2		10YR 5/8	30	<u> </u>	M	Silt Loam	medium
13-17	7.5 2.5/2	70	10YR 5/8	20	C	<u> </u>	Clay	medium
	10YR 5/4	10						
-,								
	·							
¹ Type: C=Con	centration, D=Deplet	ion, RM=R	educed Matrix, CS≈	Covered or	Coated San	nd Grains.		² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appl	licable to	all LRRS, unles	s otherwi	se noted.)		Indica	ators for Problematic Hydric Soils":
	Histosol (A1)				Sandy Redo	IX (55)		2 cm Muck (A10)
	nistic ⊨pipedon (A2)				Supped Mat	uix (56) or Mineral (E4)4	aveant MI BA 41	Keq Parent Material (TF2)
	Hydrogen Sulfde (A3)	4)				y Milleral (F 1)(ad Matrix (F3)	ercen wera 1)	Other (explain in Remarks)
	Depleted Relow Dod	T) (Surfson ()	Q11)			eu Mallix (F2)		
	Thick Dark Surface (A12)	лц) -	'	Redox Dark	Surface (FR)		
	Sandy Mucky Minera	al (S1)			Depleted Da	ounade (FO)		³ Indicators of hydrophytic vegetation and we
	Sandy Gleved Matrix	(S4)			Redox Depre	essions (F8)		hydrology must be present, unless disturbe problematic
Destriction							T	•
Type: Depth (inche Remarks: Recently so	s): craped- apparentl	y young :	soils.		-		Hydric Soil Pres	sent? Yes <u>X</u> No
Type: Depth (inche Remarks: Recently so	s): craped- apparentI	y young :	solls.		-		Hydric Soil Pres	sent? Yes <u>X</u> No
Type: Depth (inche Remarks: Recently so	s): craped- apparentI DGY	N y young	solls.		- 		Hydric Soil Pres	sent? Yes <u>X</u> No
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy	s): craped- apparentl DGY drology Indicator	y young : rs:	one		- 		Hydric Soil Pres	sent? Yes <u>X</u> No
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy Primary Indi	s): craped- apparentl DGY rdrology Indicator cators (minimum c	y young : rs: of one req	soils. uired; check all th	nat apply)	- 		Hydric Soil Pres	sent? Yes X No Secondary Indicators (2 or more requ
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy Primary Indi	s): craped- apparentl OGY rdrology Indicator cators (minimum c Surface Water (A1)	y young : rs: of one req	one solls. uired; check all th	nat apply)		ed Leaves (B9) (Hydric Soil Pres	sent? Yes X No Secondary Indicators (2 or more requ Water stained Leaves (B9)
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy Primary Indi	s): craped- apparentl OGY rdrology Indicator cators (minimum c Surface Water (A1) High Water Table (A	Ny young s	one solls. uired; check all th	nat apply)		ed Leaves (B9) (d 48)	Hydric Soil Pres	sent? Yes X No Secondary Indicators (2 or more requ Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy Primary Indi	s): craped- apparenti OGY drology Indicator cators (minimum c Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1)	y young : rs: of one req 2)	one soils. uired; check all th	nat apply)	Water staine	ed Leaves (B9) (d 4B) 311)	Hydric Soil Pres	Secondary Indicators (2 or more requesting the stained Leaves (B9) (MLRA1, 2, 4A, and 4B) (
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy Primary Indi	s): craped- apparenti DGY rdrology Indicator cators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (N y young : rs: of one req 2) B2)	one solls. uired; check all th	nat apply)	Water staine 1, 2, 4A, and Salt Crust (B Aquatic Inve Hydrogen Su	ed Leaves (B9) (d 4B) 311) artebrates (B13) ulfide Odor (C1)	Hydric Soil Pres	Secondary Indicators (2 or more requesting water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Im
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy Primary Indi	s): craped- apparentl DGY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (D Drift Deposits (B3)	N y young rs: of one req 2) B2)	one solls. uired; check all th	nat apply)	- - - Water staine 1, 2, 4A, and Salt Crust (B Aquatic Inve Hydrogen St Oxidized Rhi	ed Leaves (B9) (d 48) 311) intebrates (B13) ulfide Odor (C1) izospheres alor	Hydric Soil Pres	sent? Yes X No Secondary Indicators (2 or more requession of the second
Type: Depth (inche Remarks: Recently so HYDROLC Wetland Hy Primary Indi	s): craped- apparenti DGY drology indicator cators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B) Algal Mat or Crust (B)	N y young rs: of one req 2) B2) B2)	one solls. uired; check all th	nat apply)	Water staine 1, 2, 4A, and Salt Crust (B Aquatic Inve Hydrogen St Oxidized Rhi Presence of	ed Leaves (B9) (d 4B) 311) artebrates (B13) ulfide Odor (C1) izospheres alor Reduced Iron (Hydric Soil Pres	Secondary Indicators (2 or more requestion of the second ary Indicators (2 or more requestion) (MLRA1, 2, 4A, and 4B) (MLRA1, 2, 4A, and
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Prevalence Index is ≤ 3.0'				F	Prevalence Index is ≤ 3.()'
			-		lata in Remarks or on a	separate sheet)
bdy Vine Stratum (plot size:)	Vine Stratum (plot size:	_)	· · · · · · · · · · · · · · · · · · ·	·	Netland Non-Vascular P	lants ¹
Problematic Hydrophytic Vegetation ¹ (Explain)			an	F	Problematic Hydrophytic	Vegetation ¹ (Explain)
			,			
• Total Cover ¹ Indicators of hydric soil and wetland hydrology must be present, unless		0 = Total Cover	•	¹ Indicators of hydric soil ar	nd wetland hydrology mu	ust be present, unless
aisturbed of problematic. Hydrophytic				Inisturged of Droolematic		
are Ground in Herb Stratum NoX				Hydrophytic		

							<u> </u>	IBIT E-61	
Profile Descript	tion: (Describe to	the depth ne	eded to docum	ent the indicator o	r confirm the absend	ce of indicators.)			
(Inches)	Color (moist)	%	Color (moist)	% Tvp		Texture		Remarks	
0_6	10VR 3/3	100	Color (molary			Silt Loam	-		_
<u> </u>	10YR 3/3	100				Silt			
10-16	2 57 4/3	100				 Silt			-
	2.01 4/0								-
				·					-
									-
									-
									_
		on PM-Ped	uced Matrix CS				² Location: PL -Pore L	ning M-Matrix	_
Hydric Soil In	dicators: (Appl	icable to al		s otherwise not	ed.)	Indic	ators for Problema	tic Hydric Soils ³ :	
Hi	stosol (A1)			Sandy F	Redox (S5)	indio	2 cm M	ick (A10)	
Hi	stic Enipedon (A2)			Stripper	Matrix (S6)		2 only in	rent Material (TF2)	
	ack Histic (A3)			Loamv	Mucky Mineral (F1) (er	cept MLRA 1)	Other /r	explain in Remarks)	
	/drogen Sulfide (A4	b)		loamy (Gleved Matrix (F2)	,			
	epleted Below Dark	, Surface (A1)	1)	Deolete	d Matrix (F3)				
	nick Dark Surface (A12)	•	Redox I	ark Surface (F6)				
Sa	andy Mucky Minera	l (S1)		Deplete	d Dark Surface (F7)		³ Indicators of hydropi	nytic vegetation and wetlar	nd
Sa	andy Gleved Matrix	(S4)		Redox 1	Depressions (F8)		hydrology must be p	resent, unless disturbed o blematic.	r
Poetrietivo I a	wor (if procont)	-							
Remarks:						Hydric Soil Pre:		NU	
Remarks: HYDROLOG	ŝΥ					Hydric Soil Pre			
Remarks: HYDROLOG Wetland Hydr	iY rology Indicator	<u> </u>				Hydric Soil Pre		NU	
Remarks: HYDROLOG Wetland Hydr Primary Indica	SY rology Indicator itors (minimum o	s: f one requir	ed; check all t	hat apply)		Hydric Soil Pre	Secondary Indica	tors (2 or more require	
Remarks: HYDROLOG Wetland Hydr Primary Indica	iY rology Indicator itors (minimum o urface Water (A1)	s: f one requir	ed; check all t	hat apply) Water s	tained Leaves (B9) (E	Hydric Soil Pre	Secondary Indica	tors (2 or more require	
Remarks: HYDROLOG Wetland Hydr Primary Indica Su 	Tology Indicator tors (minimum o urface Water (A1) gh Water Table (A)	s: f one requir 2)	ed; check all t	hat apply) Water s 1, 2, 4A	tained Leaves (B9) (E , and 4B)	Hydric Soil Pre:	Secondary Indica	tors (2 or more require tained Leaves (B9) 1, 2, 4A, and 4B)	
Remarks: HYDROLOG Wetland Hydr Primary Indica Su Hit Sa	SY rology Indicator tors (minimum o urface Water (A1) gh Water Table (A3 aturation (A3)	s: f one requir 2)	ed; check all t	hat apply) 	tained Leaves (B9) (E , and 4B) ist (B11)	Hydric Soil Pre	Secondary Indica	tors (2 or more require tained Leaves (B9) 1, 2, 4A, and 4B) ie Pattems (B10)	
Remarks: HYDROLOG Wetland Hydr Primary Indica Sa Sa Sa With Sa	Tology Indicator tors (minimum ourface Water (A1) gh Water Table (A2 aturation (A3) ater Marks (B1)	s: f one requir 2)	red; check all t	hat apply) Water s Sat Cru Sat Cru	tained Leaves (B9) (F , and 4B) Inst (B11) Invertebrates (B13)	Hydric Soil Pre	Secondary Indica	tors (2 or more require tained Leaves (B9) 1, 2, 4A, and 4B) re Patterns (B10) ason Water Table (C2)	a)
Remarks: HYDROLOG Wetland Hydr Primary Indica Su Hi Sa Wi Sa Sa Sa	Tology Indicator tors (minimum o urface Water (A1) gh Water Table (A2) aturation (A3) ater Marks (B1) adiment Deposits (B2)	s: f one requir 2) 32)	ed; check all t	hat apply) Water s Sat Cn Aquatic Hydrog	tained Leaves (B9) (E , and 4B) Ist (B11) Invertebrates (B13) en Sulfide Odor (C1)	Hydric Soil Pre	Secondary Indica Secondary Indica Water s (MLRA Drainag Dry-Sea Saturat	tors (2 or more require tained Leaves (B9) 1, 2, 4A, and 4B) re Pattems (B10) ason Water Table (C2) ion Visible on Aerial Image	d)
Remarks: HYDROLOG Wetland Hydr Primary Indica Standing Hill Sa Sa Dr Se Dr	Tology Indicator tors (minimum o urface Water (A1) gh Water Table (A2 aturation (A3) fater Marks (B1) ediment Deposits (B3) and Mart or Court (B3)	s: f one requir 2) 32)	ed; check all t	hat apply) Water s 1, 2, 4A Salt Cru Aquatic Hydrog Oxidize	tained Leaves (B9) (E , and 4B) Ist (B11) Invertebrates (B13) en Sulfide Odor (C1) d Rhizospheres along	Except MLRA	Secondary Indica Secondary Indica Water s (MLRA Drainag Dry-Sea Saturat Geomo	tors (2 or more require tained Leaves (B9) 1, 2, 4A, and 4B) te Pattems (B10) ason Water Table (C2) ton Visible on Aerial Image rphic Position (D2)	d) ery (C9)
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WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region E-62

PHS #

4495

Project/Site: Gle	nwood LWI		City/County:	Spri	ingfield / Lane	•	Sampl	ing Date:		. 10/	7/200	9	
Applicant/Owner: Lane C	ouncil of Gove	ernments				State:	OR		Sampli	ng Point:		7	- (
Investigator(s):	ME/SE		Section, To	wnship, Range:		-	Sec 3,	T18S, F	R3W				- 1
Landform (hillslope, terrace, et	c.:)		-	Local relief (co	ncave, convex, r	ione):			s	lope (%):			-
Subregion (LRR):	LRRA		Lat:	44.037	/15	Long:	-123.	03744		Datum:		סס	
Soil Map Unit Name:		Bellpine	- silty clay loam	n		- NWI Clas	sification:						-
Are climatic/hydrologic conditio	ns on the site typi	cal for this t	time of year?	Yes	X	No		(if no, exp	ain in R	emarks)			-
Are vegetation Soil	or Hydrold	ogy	significantly dist	urbed?	Are "Normal (es" present	? (Y/N)		Y			
Are vegetation Soil	or Hydrold		- _ naturally problem	matic? If needed	l, explain any an	swers in Rei	marks.)						
			-			•	_						
SUMMARY OF FINDIN	GS – Attach	site map	showing sa	mpling poin	nt locations,	transect	s, impor	tant fea	atures	, etc.			
Hydrophytic Vegetation Presen	t? Yes	No	<u> </u>	Is Sampled A	rea within								
Hydric Soil Present?	Yes	No	<u> </u>	a Wetla	nd?	Yes_			No	X			
Wetland Hydrology Present?	Yes	No	<u> </u>										
Remarks:													
VEGETATION - Use sc	ientific name	s of plar	nts.										
	at	osolute	Dominant	Indicator	Dominance	Test work	sheet:						
	_%	cover	Species?	Status									
Tree Stratum (plot size:)				Number of Do	minant Spec	ies						
1					That are OBL,	FACW, or F	AC:		1		(A)		
2													
3			<u> </u>		Total Number	of Dominant			-				
4					Species Acros	s All Strata:	-		5		(6)		
		<u> </u>											ſ
Sapling/Shrub Stratum (plot s	size: <u>5</u>)	_			Percent of Dor	ninant Speci	es						
1 Crataegus monogyna		5	<u> </u>	FACU	That are OBL,	FACW, or F	AC:		20%		(A/B)		
2 Rhus diversilopa		3	<u> </u>		Prevalence	Index Wor	kehoot:						
4		<u> </u>			Total % Cover	of	Kaneet.	Multiply by	r				
5					OBL Spe	cies	-	x1=		0			
		13	= Total Cover		FACW sp	ecies —		x 2 =	-	0			
			,		FAC Spe	cies		x3≡	_	0			
Herb Stratum (plot size:	5)				FACU Sp	ecies		x 4 =		0			
	,	30	<u> </u>		UPL Spe	cies —		x 5 =		0			
2 Juncus tenuis	·	10	v		Column I	otals	<u> </u>	A)		U	(B)		
A Centaurium umbellatu		5		FAC	Prevalen	ce Index =B	/A =	4	เกเบเกเ				
5 Agrostis tenuis	·	5		FAC	, iovaion				<u>Bitio</u>				
6					Hydrophytic	Vegetatio	on Indica	tors:					
7						D	ominance ⁻	Test is >5	0%				
8						P	revalence i	ndex is ≤	3.0 ¹				
		100	= Total Cover			м	orphologic	al Adapta	tions ¹ (pr	rovide sup	oportin	g	
March 1 / 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	<u>م</u> ۱					da	ata in Rema	arks or on	a separ	ate sheet)		
vvoody vine Stratum (piot siz 1	······································				—	°.	revang NOf	rvascula Hvdrochv	tic Vere	tation ¹ (Ex	رماءام		
2						FI	COGINAUC	, yaropny			spiairi)		
		0	= Total Cover		¹ Indicators of h	ydric soil and	d wetland h	ydroloav	must be	present	unless	i.	
		<u> </u>			disturbed or pro	blematic.							ſ
					Hydrophytic	:	¥.			N7 -		v	ľ
% Bare Ground in Herb Stratum	U				vegetation Present?		Yes_			NO_		*	-
Remarks:					1								\neg
				ula _ I 4	4 040								
			A		1-212								

			4495		
Profile Description: (Describe to	the depth ne	eded to docume	ent the indicator or confirm the absen	ce of indicators.)	
Depth Matrix			Redox Features		
(Inches) Color (moist)		Color (moist)	<u>% Type¹ Loc²</u>	Texture	Remarks
0-10 10YR 3/2				Silt	
10-16 10YR 3/3	100		_	Silt	
· · · · · · · · · · · · · · · · · · ·					
Type: C=Concentration, D=Deplet	tion, RM≈Redu	uced Matrix, CS=	Covered or Coated Sand Grains.		² Location: PL=Pore Lining, M=Matrix.
ydric Soil Indicators: (App	licable to al	l LRRs, unles:	s otherwise noted.)	Indica	ators 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)(e	xcept MLRA 1)	Other (explain in Remarks)
Hvdrogen Sulfide (A	4)		Loamy Gleved Matrix (F2)	- •	
Nategori Gamue (re	···	n	Depleted Matrix (F2)		
		'/			
	(n 12)				³ Indicators of hydrophytic vegetation and wetlan
Sandy Mucky Minera	al (S1)		Depleted Dark Surface (F7)		hydrology must be present, unless disturbed or
Sandy Gleyed Matro	k (S4)		Redox Depressions (F8)		problematic.
HYDROLOGY Wetland Hydrology Indicato	 rs:				
HYDROLOGY Wetland Hydrology Indicato	rs:	adi abask all th			Secondary Indicators (2 or more required
TYDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum o	rs: of one requir	ed; check all th	nat apply)		Secondary Indicators (2 or more required
HYDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum o Surface Water (A1)	rs: of one requir	ed; check all th	nat apply) Water stained Leaves (B9) (I	Except MLRA	Secondary Indicators (2 or more required Water stained Leaves (B9)
HYDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum of Surface Water (A1) High Water Table (A	rs: of one requir	ed; check all th	nat apply) Water stained Leaves (B9) (I 1, 2, 4A, and 4B)	Except MLRA	Secondary Indicators (2 or more required Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
HYDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum of Surface Water (A1) High Water Table (A Saturation (A3)	rs: of one requir 2)	ed; check all th	nat apply) Water stained Leaves (B9) (I 1, 2, 4A, and 4B) Salt Crust (B11)	Except MLRA	Secondary Indicators (2 or more required Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (B10)
HYDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1)	rs: of one requir 2)	ed; check all th	Mater stained Leaves (B9) (I Water stained Leaves (B9) (I 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13)	Except MLRA	Secondary Indicators (2 or more required Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
HYDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (rs: of one requir 2) (B2)	ed; check all th	Mater stained Leaves (B9) (I Water stained Leaves (B9) (I 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Except MLRA	Secondary Indicators (2 or more required Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image
HYDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (Drift Deposits (B3)	rs: of one requir 2) B2)	ed; check all th	hat apply) Water stained Leaves (B9) (I 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along	Except MLRA	Secondary Indicators (2 or more required Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2)
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HYDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks Inundation Visible or Sparsely Vegetated Field Observations: Surface Water Present? Yes Nater Table Present? Yes Nater Table Present? Yes Saturation Present? Yes Saturation Present? Yes Social Chara (stream of None	rs: of one require (2) (B2) 34) (B6) n Aerial Image Concave Surfa	ed; check all the second secon	Mater apply) Water stained Leaves (B9) (I 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C Recent Iron Reduction in Plo Stunted or Stressed Plants (I Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Depth (inches):	Except MLRA g Living Roots (C3) (4) wed Soils (C6) D1) (LRR A) Wetland Hyd	Secondary Indicators (2 or more required Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
HYDROLOGY Wetland Hydrology Indicator Primary Indicators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (E Iron Deposits (B5) Surface Soil Cracks Inundation Visible or Sparsely Vegetated Field Observations: Surface Water Present? Yes Vater Table Present? Yes Vater Table Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes Mater Table Present? Yes Saturation Present? Yes Mater Table Present? Yes	rs: of one require 2) B2) 34) (B6) n Aerial Image Concave Surfa	ed; check all the second secon	Mater apply) Water stained Leaves (B9) (I 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C Recent Iron Reduction in Plo Stunted or Stressed Plants (I Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Mater Stresset Inspections), if available	Except MLRA g Living Roots (C3) (24) wed Soils (C6) D1) (LRR A) Wetland Hyd	Secondary Indicators (2 or more required Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

	Glenwood	LWI	City/County:	Sp	ringfield / Lane Sampling Date: 8/12/2009
	Lane Council	of Governments	;	· · · · ·	State: OR Sampling Point: 8
vestigator(s):		SE	Section, To	wnship, Range	Sec 3, T18S, R3W
andform (hillslope, te	ептасе, etc.:)		-	Local relief (c	oncave, convex, none): Slope (%):
ubregion (LRR):	L	RRA	Lat	44.03	716 Long: -123.03245 Datum: DD
oil Map Unit Name:		Bellpine	- silty clay loan	1	NWI Classification:
re climatic/hydrologi	c conditions on th	e site typical for this	time of year?	Yes	X No (if no, explain in Remarks)
e vegetation	Soil X	or Hydrology	significantly dist	urbed?	Are "Normal Circumstances" present? (Y/N)
re vegetation	Soil X	or Hydrology	naturally proble	matic? If needs	d, explain any answers in Remarks.)
	FINDINGS -	Attach site ma	o showing sa	Impling poi	nt locations, transects, important features, etc.
ydrophytic Vegetatic	on Present? Yes	sNo	X		
ydric Soil Present?	Ye	3 No	x	is Sampled / a Wetk	and? Yes NoX
/etland Hydrology Pr	resent? Yes	s X No			· · · · · · · · · · · · · · · · · · ·
his area has bee retland has been EGETATION -	en scraped in t identified as a Use scientifi	he past and it ap mosaic area. c names of pla	pears to have	disturbed th	e soil profile. There is bedrock around 9" from the surface. This
		absolute	Dominant	Indicator	Dominance Test worksheet:
		<u> </u>	Species?	Status	
r <u>ee Stratum</u> (plot : 1	size:	_ '			Number of Dominant Species
>					
					Total Number of Dominant
4	ş.				Species Across All Strata: 5 (B)
2					That are OBL, FACW, or FAC:(A/B)
3					Prevalence Index Worksheet:
£				<u> </u>	Total % Cover of Multiply by:
					OBL Species x1 =
			= Total Cover		FAC W species $x_2 = 0$
erb Stratum (plot s	size: 5	_)			FACU Species x4 = 0
Linum bienne	1	15	<u> </u>	UPL	UPL Species x 5 = 0
Madia sativa		15	X	UPL	Column Totals 0 (A) 0 (B)
3 Juncus tenuis	hingdere	20	<u> </u>	FACW	
	ninatus s	15	<u> </u>		Prevalence index =B/A = #DIV/01
Cynosurus ech	3	15	<u> </u>	FAC	
Cynosurus ech Agrostis tenuis	inacea	40		FAG	
Cynosurus ecl Agrostis tenuis Festuca arund Aira carvophyl	linacea Ila	10		10	Dominance Test is >50%
Cynosurus ech Agrostis tenuis Festuca arund Aira caryophyl	linacea Ila	<u>10</u> 10		NI	Dominance Test is >50% Prevalence Index is ≤ 3.0 ¹
4 Cynosurus ecl 5 Agrostís tenuis 6 Festuca arund 7 Aira caryophyl 8	linacea Ila	<u>10</u> <u>10</u> 	= Total Cover	NI	Dominance Test is >50% Prevalence Index is ≤ 3.0 ¹ Morphological Adaptations ¹ (provide supporting
Cynosurus ecl Agrostís tenuis Festuca arund Aira caryophyl	inacea Ila	<u>10</u>	= Total Cover	<u>NI</u>	Dominance Test is >50% Prevalence Index is ≤ 3.0 ¹ Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)
Cynosurus eci Agrostis tenuis Festuca arund Aira caryophyl Mody Vine Stratum	(plot size:	<u>10</u> <u>10</u>)	= Total Cover	<u>NI</u>	Dominance Test is >50% Prevalence Index is ≤ 3.0 ¹ Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants ¹
Cynosurus ecl Agrostís tenuis Festuca arund Aira caryophyl doody Vine Stratum	linacea	10 10 100))	= Total Cover	<u>NI</u> .	Dominance Test is >50% Prevalence Index is ≤ 3.0 ¹ Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
Cynosurus ecl Agrostís tenuis Festuca arund Aira caryophyl	finacea	10 10 100) 	= Total Cover		
Cynosurus ecl Agrostis tenuis Festuca arund Aira caryophyl	linacea	10 10 	= Total Cover		Dominance Test is >50% Prevalence Index is < 3.0 ¹ Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) 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.

SOIL			PHS # _	44	95			
Profile Descri	ption: (Describe to	the depth	needed to docume	ent the indi	cator or con	firm the abse	nce of indicators.)	
Depth	Matrix			Redox	Features	. 2	_	
(Inches)	Color (moist)	<u>%</u>	Color (moist)		Туре	Loc		Remarks
0-1	10YR 5/3		7.5YR 5/8	10	<u> </u>	M	Silt Loam	
1-9	10YR 5/3	100					Silt Loam	rocks in profile
¹ Type: C=Cond	entration, D=Depleti	ion, RM=R	educed Matrix, CS≈	Covered or	Coated San	d Grains.		² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appl	icable to	all LRRs, unles	s otherwi	se noted.)		Indica	ators for Problematic Hydric Soils ³ :
	Histosol (A1)				Sandy Redox	c (S5)		2 cm Muck (A10)
	Histic Epipedon (A2)				Stripped Mat	rix (S6)		Red Parent Material (TF2)
I	Black Histic (A3)			I	Loamy Mucky	y Mineral (F1) (except MLRA 1)	Other (explain in Remarks)
	Hydrogen Sulfide (A4	4)		I	Loamy Gleye	d Matrix (F2)		
	Depleted Below Dark	c Surface (/	A11)	I	Depleted Mat	trix (F3)		
	Thick Dark Surface (A	A12)			Redox Dark S	Surface (F6)		3
	Sandy Mucky Minera	il (S1)			Depleted Dar	k Surface (F7)		Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or
	Sandy Gleyed Matrix	(S4)			Redox Depre	ssions (F8)		problematic.
Remarks: The soil is s areas ORs.	hallow likely as a	a result c	of being scraped	l. The par	- ent materia	al of the soil	is a bright color	and contained mottling and in some
Remarks: The soil is s areas ORs. HYDROLO	hallow likely as a	a result o	of being scraped	l. The par	- ent materia	al of the soil	l is a bright color	and contained mottling and in some
Remarks: The soil is s areas ORs. <u>HYDROLO</u> Wetland Hyd	,, hallow likely as a GY drology Indicator	a result o	of being scraped	l. The par	- ent materia	al of the soil	is a bright color	and contained mottling and in some
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	GY GY drology Indicator cators (minimum o	a result o rs: of one req	of being scraped	I. The par	- ent materia	al of the soil	l is a bright color	and contained mottling and in some Secondary Indicators (2 or more required)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	hallow likely as a GY drology Indicator ators (minimum o Surface Water (A1)	a result o rs: of one req	of being scraped	hat apply)	- ent materia Water stained	al of the soil d Leaves (B9) (4B)	is a bright color	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	hallow likely as a GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A3)	a result of rs: f one req 2)	of being scraped	hat apply)	- ent materia Water stained 1, 2, 4A, and Salt Crust (B	al of the soil d Leaves (B9) (4B)	l is a bright color	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	Anallow likely as a GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	a result o rs: If one req 2)	of being scraped	hat apply)	- ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver	al of the soil d Leaves (B9) (4B) 11) tebrates (B13)	is a bright color	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	Anallow likely as a GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A: Saturation (A3) Water Marks (B1) Sediment Deposits ()	a result o rs: f one req 2) 32)	of being scraped	hat apply)	- ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) Ifide Odor (C1)	l is a bright color (Except MLRA	and contained mottling and in some Secondary Indicators (2 or more required)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A3 Saturation (A3) Water Marks (B1) Sediment Deposits (I Drift Deposits (B3)	a result of rs: 1f one req 2) 32)	of being scraped	hat apply)	- ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lfide Odor (C1) zospheres alor	(Except MLRA	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B	a result of rs: f one req 2) B2)	of being scraped	hat apply)	- ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron ((Except MLRA) ng Living Roots (C3) C4)	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary India	Anallow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B ron Deposits (B5)	a result o rs: of one req 2) 32) 4)	of being scraped	hat apply)	ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lfide Odor (C1) zospheres alor Reduced Iron (Reduced Iron ((Except MLRA (Except MLRA) ng Living Roots (C3) C4) owed Soils (C6)	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	Anallow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B ron Deposits (B5) Surface Soil Cracks (a result o rs: if one req 2) 32) 4) (B6)	of being scraped	A The par	Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of Recent Iron F Stunted or St	al of the soil d Leaves (B9) 4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron (Reduction in Pl tressed Plants	(Except MLRA (Except MLRA) ng Living Roots (C3) C4) owed Soils (C6) (D1) (LRR A)	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic	Anallow likely as a GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Drift Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (nundation Visible on Sparsely Vegetated (a result o rs: f one req 2) 32) 4) (B6) Aerial Ima Concave S	of being scraped uired; check all th uired; check all th agery (B7) urface (B8)	I. The par nat apply)	- ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or SI Other (Explai	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron (Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) owed Soils (C6) (D1) (LRR A)	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary India	Anallow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A3) Water Marks (B1) Sediment Deposits (I Drift Deposits (B3) Algal Mat or Crust (B ron Deposits (B5) Surface Soil Cracks (nundation Visible on Sparsely Vegetated (vations	a result of rs: of one req 2) 32) 4) (B6) Aerial Ima Concave S	of being scraped uired; check all th uired; check all th agery (B7) urface (B8)	hat apply)	- ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or St Other (Explai	al of the soil d Leaves (B9) 4B) 11) tebrates (B13) Ifide Odor (C1) zospheres alor Reduced Iron (Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	i is a bright color (Except MLRA (Except MLRA) ng Living Roots (C3) (C4) owed Soils (C6) (D1) (LRR A)	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic Surface Water	Allow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B ron Deposits (B3) Surface Soil Cracks (nundation Visible on Sparsely Vegetated (vations: Present? Yes	a result o rs: f one req 2) 32) 4) (B6) Aerial Ima Concave S	of being scraped uired; check all th uired; check all th agery (B7) unface (B8)	hat apply)	Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or St Other (Explai (inches):	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) C4) owed Soils (C6) (D1) (LRR A)	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic X X X Field Obser Surface Water	Anallow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B ron Deposits (B5) Surface Soil Cracks (inundation Visible on Sparsely Vegetated (vations: Present? Yes resent? Yes	a result of rs: f one req 2) 82) 4) (B6) Aerial Ima Concave S	of being scraped uired; check all th uired; check all th agery (B7) urface (B8) No X	hat apply)	Water stained Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or Si Other (Explai (inches): (inches):	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) owed Soils (C6) (D1) (LRR A)	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary India Primary India Staturation Press	Anallow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) Sediment Deposits (B) Algal Mat or Crust (B) ron Deposits (B5) Surface Soil Cracks (inundation Visible on Sparsely Vegetated (vations: Present? Yes resent? Yes	a result of rs: f one req 2) 32) 4) (B6) Aerial Ima Concave S	of being scraped uired; check all th uired; check all th agery (B7) urface (B8) No X No X No X	La The part	ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or St Other (Explai (inches): (inches):	al of the soil d Leaves (B9) 4B) 11) tebrates (B13) Ifide Odor (C1) zospheres alor Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) owed Soils (C6) (D1) (LRR A) Wetland Hyd	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic Primary Indic Sturface Vater Water Table P Saturation Pre (includes capillar	Anallow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B ron Deposits (B5) Surface Soil Cracks (nundation Visible on Sparsely Vegetated (vations: Present? Yes resent? Yes sent? Yes sent? Yes	a result of one req f one req 2) 32) (B6) Aerial Ima Concave S	agery (B7) No X No X No X No X	La The part	ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or SI Other (Explai (inches): (inches): (inches):	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron (Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) owed Soils (C6) (D1) (LRR A) Wetland Hyd	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Irology Present? Yes X
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary India Primary India X Stimary India Stimary India St	GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B fron Deposits (B5) Surface Soil Cracks (nundation Visible on Sparsely Vegetated (vations: Present? Yes resent? Yes sent? Yes sent? Yes y fringe) rded Data (stream g	a result of rs: of one req 2) 32) 4) (B6) Aerial Ima Concave S	of being scraped uired; check all th uired; check all th urface (B8) No X No X No X No X No X	La The part	ent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of I Recent Iron F Stunted or St Other (Explai (inches):	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) owed Soils (C6) (D1) (LRR A) Wetland Hyd	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Irology Present? Yes X
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic Sufface Vater Water Table Pr Saturation Pre (includes capillar Describe Recco None emarks: There is evi	Anallow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B ron Deposits (B5) Surface Soil Cracks (nundation Visible on Sparsely Vegetated (vations: Present? Yes resent? Yes	a result of rs: if one req 2) 32) 4) (B6) Aerial Ima Concave S Concave S auge, mon	of being scraped uired; check all th uired; check all th surface (B8) No X No X No X itoring well, aerial ph ng.	La The part	ent materia	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lifide Odor (C1) zospheres alor Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) C4) owed Soils (C6) (D1) (LRR A) Wetland Hyd	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) Irology Present? Yes X No
Remarks: The soil is s areas ORs. HYDROLO Wetland Hyd Primary Indic Statuation Pre Saturation Pre Saturation Pre Saturation Pre Saturation Pre Includes capillar Describe Reco None emarks: There is evi	Allow likely as a GY drology Indicator cators (minimum of Surface Water (A1) High Water Table (A: Saturation (A3) Water Marks (B1) Sediment Deposits (I Drift Deposits (B3) Algal Mat or Crust (B ron Deposits (B5) Surface Soil Cracks (inundation Visible on Sparsely Vegetated (vations: Present? Yes resent? Yes resent? Yes sent? Yes resent? Yes resent? Yes sent? Yes resent? Yes resent? Yes sent? Yes resent? Yes resent? Yes sent? Yes resent? Yes resent? Yes	a result of one req rs: . of one req 2) 32) 4) (B6) Aerial Ima Concave S 	agery (B7) Iurface (B8) No X No X No X Itoring well, aerial pl	A the part	ent materia	al of the soil d Leaves (B9) (4B) 11) tebrates (B13) lfide Odor (C1) zospheres alor Reduced Iron (Reduced Iron (Reduction in Pl tressed Plants in in Remarks)	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4) owed Soils (C6) (D1) (LRR A) Wetland Hyd e:	and contained mottling and in some Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) X Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

WETLAND DE			ORM - West	tern Mountains, Va	lleys, and Co as	рнs# X Region E	4495 -66
oject/Site: Glenwood	LWI	City/County:	Spr	ingfield / Lane	Sampling Date:	10/	7/2009
oplicant/Owner: Lane Council	of Governme	nts		State:	OR 5	Sampling Point:	9
vestigator(s): ME/	SE	Section, T	ownship. Range:		 Sec 3. T18S. R3 ¹	w	
andform (hillslope, terrace, etc.;)			Local relief (co	ncave, convex, none);		Slope (%):	
ubregion (LRR):	RRA	lat	44 03	716 Long	-123 03245	- Datum	
nil Man Unit Name:	Belloi	ne silty clay loar	m	N\\\// Clay		—	
a climatic/hydrologic conditions on th	e site tunical for f	this time of year?	Vor	Nin	/if no overiei	in in Bomorke)	
e canadomy choigic conditions on an		electrocativ die	turbod?	Are "Normal Circumstance		N	
re vegetation Soil X	-	significantly dis	matical If poode	d cyplain any answer in Re			•
					marks.)		
UMMARY OF FINDINGS -	Attach site n	nap showing s	ampling poir	nt locations, transect	s, important feat	ures, etc.	
drophytic Vegetation Present? Yes	× <u> </u>	No		· · · · · · · · ·			
/dric Soil Present? Yes	× <u> </u>	No	is Sampled A a Wetla	rea within nd? ^{Yes} _	<u>X</u> N	o	
etiand Hydrology Present? Yes	x	No		_			
marks: nis area has been scraped in the erefore, we are assuming the	ne past and it soil is hydric.	appears to have This wetland ha	disturbed the s been identif	e soil profile. There is b ied as a mosaic area.	edrock around 9 in	ches from th	e surface;
EGETATION - Use scientific	c names of p	plants.	l - dt - et - e		- L _ 4		
	absolute	Dominant	Status	Jominance fest work	(SNEET:		
ee Stratum (plot size:)	opecies:	JIAIUS	Number of Dominant Sper	lies		
	_ ′			That are OBL, FACW, or F	AC:	3	(A)
			,				
				Total Number of Dominant			
				Species Across All Strata:		4	(B)
	0	= Total Cover					
pling/Shrub Stratum (plot size:)			Percent of Dominant Spec	ies		
· · · ·				That are OBL, FACW, or I	FAC: 7	5%	(A/B)
				Prevalence Index Wo	rksheet:		
				Total % Cover of	Multiply by:	_	
				OBL Species	x 1 =	0	
	0	= Total Cover		FACW species	x2=	0	
nh Stratum (plot size: 5	N			FAC Species	X3≡		
Agrostis alba	′ 20	x	FAC	UPL Species	×5=		
Juncus effusus		- <u>x</u>	FACW	Column Totais	0 (A)	0	(B)
Cynosurus echinatus			UPL		``		
Linum bienne	15		UPL	Prevalence Index =B	/A = #D	IV/0!	
Agrostis tenuis	2		FAC		·····		
Geranium molle	3		UPL	Hydrophytic Vegetation	on Indicators:		
moss	30	X	NL	D	ominance Test is >50%	ò	
Holcus lanatus	20	<u> </u>	FAC	P	revalence Index is ≤ 3.() ¹	
	120	= Total Cover		N	lorphological Adaptation	ns ¹ (provide sur	porting
(al-t-ino)	,			d	ata in Remarks or on a	separate sheet)
ooy vine Stratum (plot size:	/				weudhu Non-Vascular P Imblematic Hydrophytia	Vegetation ¹ (E)	volain)
				P		veyetation (E)	(piairt)
	0	= Total Cover		¹ Indicators of hydric soil an disturbed or problematic.	d wetland hydrology mi	ust be present, v	unless
				Hydrophytic	Voc X	No	

rofile Desci	ription: (Describe to	the depth	needed to docume	nt the ind	licator or con	firm the absenc	e of indicators.)			
Depth	Matrix	•		Redo	x Features		•			
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-2	10YR 3/4	100					Silt			
2-5	2.5Y 4/3	90	10YR 4/6	10	. <u></u>		Silt	•		
5-17	10YR 4/3						Silt	stone be	edrock	
• 17					·			<u>otone b</u>		
	·				·					
	·				· <u> </u>					
								•		
Type: C=Cor	centration, D=Deplet	tion, RM=R	educed Matrix, CS=	Covered o	or Coated San	d Grains.		² Location: F	PL=Pore Lining, M=Matrix.	
ydric Soil	Indicators: (App	licable to	all LRRs, unless	s otherw	vise noted.)		Indica	itors for P	roblematic Hydric Soils ³ :	
	Histosol (A1)				Sandy Redox	c (S5)			2 cm Muck (A10)	
	Histic Epipedon (A2))			Stripped Mat	rix (S6)			Red Parent Material (TF2)	
	Black Histic (A3)				Loamy Muck	y Mineral (F1) (ex	cept MLRA 1)		Other (explain in Remarks)	
	- Hydrogen Sulfide (A	4)			Loamv Gleve	d Matrix (F2)				
	Depleted Below Dar	k Surface (A11)		Depleted Mat	trix (F3)			-	
	Thick Dark Surface	(A12)	·····		Redox Dark	Surface (FR)				
	Sendy Muchar Minare	e v = /			Depleted D	dr Surface (E7)		³ Indicators	of hydrophytic vegetation and wetland	
	Sandy Mucky Winen	- (C1) - (C1)			Bodoy Dorm			hydrology	must be present, unless disturbed or	
		~ (0+)			Redox Deble				problematic.	
Restrictive	Layer (if present):								
ype:		<u> </u>	one							
)epth (inche	s):						Hydric Soil Pres	ent? Yes	s X No	
he soil is reas Ors.	shallow likely as	a result c	of being scraped	. The pa	rent materia	al of the soil i	s a brìght color i	and conta	ined mottling and in some	
ireas Ors.	shallow likely as	a result c	of being scraped	. The pa	rent materia	al of the soil is	s a bright color i	and conta	ined mottling and in some	
The soil is areas Ors. TYDROLO Wetland Hy	shallow likely as DGY /drology Indicato	a result c	of being scraped	. The pa	rent materia	al of the soil i	s a bright color i	and conta	ined mottling and in some	
Areas Ors. HYDROLC Wetland Hy Primary Ind	shallow likely as DGY /drology Indicato icators (minimum d	a result o rs: of one req	of being scraped	. The pa	rent materia	al of the soil is	s a brìght color i	and conta	ined mottling and in some	
Ine soil is areas Ors. IYDROLC Wetland Hy Primary Ind	Shallow likely as OGY ydrology Indicato icators (minimum o Surface Water (A1)	a result o	of being scraped	. The pa	rent materia	al of the soil is d Leaves (B9) (E	s a brìght color i	and conta	and in some	
Ine soil is areas Ors. HYDROLC Wetland Hy Primary Ind	Shallow likely as OGY (drology Indicato icators (minimum of Surface Water (A1) High Water Table (A	a result of rs: of one req 2)	of being scraped. uired; check all th	. The pa	rent materia	al of the soil is d Leaves (B9) (E i 4B)	s a bright color	and conta	and in some any indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
he soil is ireas Ors. IYDROL(Vetland Hy Primary Ind	Shallow likely as OGY ydrology Indicato icators (minimum (Surface Water (A1) High Water Table (A Saturation (A3)	a result of rs: of one req 2)	of being scraped	. The pa	rent materia) Water stained 1, 2, 4A, and Salt Crust (B	al of the soil is d Leaves (B9) (E 1 4B) 11)	s a bright color a	Seconda	ined mottling and in some ry Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (B10)	
Ine soil is areas Ors. IYDROL(Vetland Hy Primary Ind	Shallow likely as OGY rdrology Indicato icators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1)	a result o rs: of one req 2)	of being scraped	at apply	rent materia) Water stainee 1, 2, 4A, and Salt Crust (B Aquatic Inver	al of the soil is d Leaves (B9) (E 4 B) 11) tebrates (B13)	s a brìght color : 	Seconda	try Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)	
rine soil is Ireas Ors. IYDROL(Vetland Hy Primary Ind	Shallow likely as OGY Adrology Indicato icators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (a result o rs: of one req 2) B2)	of being scraped	at apply	vater stained Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su	al of the soil is d Leaves (B9) (E 14B) 11) tebrates (B13) iffide Odor (C1)	s a brìght color i	Seconda	ined mottling and in some try Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery	(C9)
ne soil is ireas Ors. IYDROLC Vetland Hy Primary Ind	Shallow likely as OGY (drology Indicato icators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (Drift Deposits (B3)	a result of rs: of one req 2) B2)	of being scraped. uired; check all th	. The pa	rent materia) Water stainee 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi	al of the soil is d Leaves (B9) (E 4 B) 11) tebrates (B13) lifide Odor (C1) zospheres along	s a bright color a	Seconda	ined mottling and in some ry indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Geomorphic Position (D2)	(C9)
Ine soil is areas Ors. IYDROL(Wetland Hy Primary Ind	Shallow likely as OGY (drology Indicato icators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B	a result of rs: of one req 2) B2) B4)	of being scraped. uired; check all th	. The pa	rent materia Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of	al of the soil is d Leaves (B9) (E 4 B) 11) tebrates (B13) lifide Odor (C1) zospheres along Reduced Iron (C-	s a bright color a	Seconda	Ined mottling and in some try Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Pattems (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Geomorphic Position (D2) Shallow Aquitard (D3)	(C9)
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Areas Ors. HYDROL(Wetland Hy Primary Ind	Shallow likely as OGY (drology Indicato icators (minimum of Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (E Iron Deposits (B5) Surface Soil Cracks	a result of rs: of one req 2) B2) 34) (B6)	of being scraped	. The pa	Vater stained Water stained 1, 2, 4A, and Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhi Presence of Recent Iron F Stunted or Si	al of the soil is d Leaves (B9) (E 4 B) 11) tebrates (B13) lifide Odor (C1) zospheres along Reduced Iron (C- Reduction in Plov tressed Plants (D	s a bright color xcept MLRA Living Roots (C3) 4) wed Soils (C6) 01) (LRR A)	Seconda	Ined mottling and in some Ing Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Geomorphic Position (D2) Shallow Aquitard (D3) Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)	(C9)
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PHS # 4495 WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region E-68 Springfield / Lane 10/7/2009 Glenwood LWI City/County: Sampling Date: Project/Site: OR Lane Council of Governments Applicant/Owner: State: Sampling Point: 10 Investigator(s): ME/SE Sec 3, T18S, R3W Section, Township, Range; Landform (hillslope, terrace, etc.:) Local relief (concave, convex, none): Slope (%): LRRA Subregion (LRR): Lat 44.03716 Long: -123.03245 DD Datum: Bellpine silty clay loam Soil Map Unit Name: NWI Classification: Are climatic/hydrologic conditions on the site typical for this time of year? х (if no, explain in Remarks) Yes No Are vegetation _____ Soil _____ or Hydrology _____significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y 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 Х No Is Sampled Area within No X Hydric Soil Present? Yes No Х Yes a Wetland? Wetland Hydrology Present? Yes No х Remarks: VEGETATION - Use scientific names of plants. absolute Dominant Indicator Dominance Test worksheet: % cover Species? Status Tree Stratum (plot size: Number of Dominant Species That are OBL, FACW, or FAC: 1 (A) 1 2 3 Total Number of Dominant (B) Species Across All Strata: 1 0 = Total Cover Sapling/Shrub Stratum (plot size: 5 Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B) 1 2 3 Prevalence Index Worksheet: Total % Cover of Multiply by: **OBL** Species 5 0 x 1 = 0 = Total Cover FACW species x 2 = 0 FAC Species x 3 = 0 Herb Stratum (plot size: 5 FACU Species 0 x4= 1 Lactuca serriola FACU UPL Species 0 x 5 = 3 2 Holcus lanatus FAC Column Totals 0 2 0 (A) (B) 3 Alopecurus pratensis 2 FACW Juncus tenuis 4 FACW #DIV/0! 100 Х Prevalence Index =B/A = Festuca arundinacea 5 3 FAC Hydrophytic Vegetation Indicators: 6 х Dominance Test is >50% 7 Prevalence Index is ≤ 3.0¹ 8 110 Morphological Adaptations¹ (provide supporting = Total Cover data in Remarks or on a separate sheet) Wetland Non-Vascular Plants¹ Woody Vine Stratum (plot size: Problematic Hydrophytic Vegetation¹ (Explain) 1 2 ¹Indicators of hydric soil and wetland hydrology must be present, unless 0 = Total Cover disturbed or problematic. Hydrophytic Vegetation 0 Х % Bare Ground in Herb Stratum Yes No 🕚 Present? Remarks: Other vegetation adjacent: Rosa nutkana, Fraxinus latifolia sapling, Dipsaucus sylvestris, Cytisus scoparius, Galium aparine, Crataegus Attachment 1-218 monoqvna.

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PHS # 4495 WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Neglon E-70 Glenwood LWI Project/Site: City/County: Springfield / Lane Sampling Date: 8/12/2009 Lane Council of Governments State: OR 11 Applicant/Owner: Sampling Point Section, Township, Range: Investigator(s): ME/SE Sec 3, T18S, R3W Landform (hillslope, terrace, etc.:) Local relief (concave, convex, none): Slope (%): LRRA 44.03716 -123.03245 Subregion (LRR): Lat Long: Datum: DD Bellpine silty clay loam NWI Classification: Soil Map Unit Name: No_____(if no, explain in Remarks) Are climatic/hydrologic conditions on the site typical for this time of year? Yes Х Are "Normal Circumstances" present? (Y/N) Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Y 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 is Sampled Area within Hydric Soil Present? Yes No X Х Yes No a Wetland? Х Wetland Hydrology Present? Yes No Remarks: VEGETATION - Use scientific names of plants. absolute Dominant Indicator Dominance Test worksheet: Status % cover Species? Tree Stratum (plot size: Number of Dominant Species That are OBL. FACW. or FAC: 1 1 (A) 2 3 Total Number of Dominant Species Across All Strata: (B) 4 1 = Total Cover 0 Sapling/Shrub Stratum (plot size: Percent of Dominant Species 1 That are OBL, FACW, or FAC: 100% (A/B) 2 3 Prevalence Index Worksheet: Total % Cover of 4 Multiply by: 5 **OBL** Species x1= 0 0 = Total Cover FACW species x 2 = 0 FAC Species x 3 = 0 Herb Stratum (plot size: 5 FACU Species x4= 0 1 Juncus tenuis 40 FACW UPL Species x 5 0 Х 2 Hypericum perforatum 2 UPL Column Totals 0 0 (A) (B) Chrysanthemum 3 5 UPL Cirsium vulgare Prevalence index =B/A = 4 5 FACU #DIV/0! Galium aparine 5 3 FACU 6 Hydrophytic Vegetation Indicators: 7 Х Dominance Test is >50% 8 Prevalence Index is ≤ 3.0¹ 55 Morphological Adaptations¹ (provide supporting = Total Cover data in Remarks or on a separate sheet) Wetland Non-Vascular Plants¹ Woody Vine Stratum (plot size: Problematic Hydrophytic Vegetation¹ (Explain) 1 2 ¹Indicators of hydric soil and wetland hydrology must be present, unless O = Total Cover disturbed or problematic. Hydrophytic 0 Vegetation Yes___ X % Bare Ground in Herb Stratum No Present? Remarks: Attachment 1-220

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Profile Descri	ption: (Describe to	the depth	needed to docume	ent the indic	ator or confirm the	e absence of indicators.)	
Depth	Matrix			Redox	Features	-2	
(incnes)		<u>%</u>	Color (moist)	<u>%</u>			Remarks
0-6	10YR 3/2	100				Silt Loam	
6-12	<u> 10YR 4/4 </u>	_100				Silt	
							·
Type: C=Cond	centration, D=Depleti	on, RM=Re	educed Matrix, CS=	Covered or (Coated Sand Grains	i.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appl	icable to	all LRRs, unles	s otherwis	e noted.)	Indica	ators for Problematic Hydric Soils ³ :
-	Histosol (A1)		-	Si	andv Redox (S5)		2 cm Muck (A10)
	Histic Epipedon (A2)			s	tripped Matrix (S6)		Red Parent Material (TE2)
	Black Histic (A3)				oamy Mucky Minera	(F1)(except MI RA 1)	Other (evaluation in Remarks)
	Hydronen Sulfide (A4	I)		ī	namy Glavad Matrix	(F2)	
'	Depleted Below Dod	'/ Surface (*	A11)		enlated Matrix (E2)	SV 47	
l	Depieted Below Dark	. Juriace (/		P		(50)	
	ninck Dark Sunace (/			R	euox Dark Surface		³ Indicators of hydrophytic vegetation and wetland
	Sandy Mucky Minera	i (51)		P	epieted Dark Surfac	28 (F7)	hydrology must be present, unless disturbed or
;	Sandy Gleyed Matrix	: (54)		R	edox Depressions (F8)	problematic.
Restrictive l	ayer (if present)						
Туре:		N	one				
Depth (inches):					Hydric Soil Pres	ent? Yes No X
Remarks: Recently sc	raped- apparently	y young :	soils.				
Remarks: Recently sc HYDROLO	raped- apparently GY	y young :	soils.				
Remarks: Recently sc HYDROLO Wetland Hyd	raped- apparently GY drology Indicator	y young : s:	soils.		· .		
Remarks: Recently sc HYDROLO Wetland Hyd Primary Indic	raped- apparently GY drology Indicator cators (minimum o	y young : s:	soils.	nat apply)			Secondary Indicators (2 or more required)
Remarks: Recently sc HYDROLO Wetland Hyd Primary India	raped- apparently GY drology Indicator ators (minimum o Surface Water (A1)	y young : s: f one req	soils. uired; check all th	nat apply)	vater stained Leave	s (B9) (Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9)
Remarks: Recently sci HYDROLO Wetland Hyd Primary Indic	raped- apparently GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2	y young s rs: f one req 2)	soils. uired; check all th	nat apply) W 1,	/ater stained Leaves , 2, 4A, and 4B)	s (B9) (Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
Remarks: Recently sc HYDROLO Wetland Hyd Primary Indic	raped- apparently GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3)	y young s rs: f one req 2)	soils. uired; check all th	nat apply) W 1, Si	/ater stained Leaves , 2, 4A, and 4B) alt Crust (B11)	s (B9) (Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10)
Remarks: Recently sci HYDROLO Wetland Hyd Primary Indic	GY drology Indicator ators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	y young : s: fone req 2)	soils. uired; check all th	nat apply) Y, 1, S; A	/ater stained Leaver , 2, 4A, and 4B) alt Crust (B11) quatic Invertebrates	s (B9) (Except MLRA	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Remarks: Recently sc HYDROLO Wetland Hyd Primary Indic	GY drology Indicator ators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B	y young s s: f one req 2) 32)	soils. uired; check all th	nat apply) S А 	Vater stained Leaves , 2, 4A, and 4B) alt Crust (B11) quatic Invertebrates ydrogen Sulfide Od	s (B9) (Except MLRA s (B13) or (C1)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Remarks: Recently sc HYDROLO Wetland Hyd Primary Indic Primary Indic	raped- apparently GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3)	y young s rs: f one req 2) 32)	soils. uired; check all th	nat apply) N S A H	/ater stained Leaves , 2, 4A, and 4B) alt Crust (B11) quatic Invertebrates ydrogen Sulfide Od xidized Rhizospher	s (B9) (Except MLRA s (B13) or (C1) es along Living Roots (C3)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorohic Position (D2)
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Remarks: Recently sc HYDROLO Wetland Hyd Primary Indic S S S S S S S S S S S S S	raped- apparently GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B ron Deposits (B5)	y young : rs: <u>f one req</u> 2) 32) 4)	soils. uired; check all th	nat apply) N	Vater stained Leaves , 2, 4A, and 4B) alt Crust (B11) quatic Invertebrates ydrogen Sulfide Od xidized Rhizosphen resence of Reduced ecent Iron Reductio	s (B9) (Except MLRA (B13) or (C1) es along Living Roots (C3) d Iron (C4) on in Plowed Soils (C6)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5)
Remarks: Recently sc HYDROLO Wetland Hyd Primary Indic	raped- apparently GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B ron Deposits (B5) Surface Soil Cracks (y young ; s: f one req 2) 32) 4)	soils. uired; check all th	nat apply) N _N	Vater stained Leaves , 2, 4A, and 4B) alt Crust (B11) quatic Invertebrates ydrogen Sulfide Od ixidized Rhizosphen resence of Reduced ecent Iron Reductio tunted or Stressed I	s (B9) (Except MLRA i (B13) or (C1) es along Living Roots (C3) d Iron (C4) in in Plowed Soils (C6) Plants (D1) (LRR A)	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
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Remarks: Recently sc HYDROLO Wetland Hyd Primary Indic Primary Indic S Field Obsen Surface Water Water Table Pression Saturation Pression	raped- apparently GY drology Indicator cators (minimum o Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B on Deposits (B5) Surface Soil Cracks (nundation Visible on Sparsely Vegetated (C vations: Present? Yes resent? Yes sent? Yes	y young s rs: f one req 2) 32) 4) (B6) Aerial Ima Concave Si	soils. uired; check all th uired; check all th (B7) urface (B8) No X No X No X	nat apply) 	/ater stained Leaves , 2, 4A, and 4B) alt Crust (B11) quatic Invertebrates ydrogen Sulfide Od ixidized Rhizosphen resence of Reduced ecent Iron Reductio tunted or Stressed I ther (Explain in Rer 	s (B9) (Except MLRA s (B13) or (C1) es along Living Roots (C3) d Iron (C4) in in Plowed Soils (C6) Plants (D1) (LRR A) narks) Wetland Hyd	Secondary Indicators (2 or more required) Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) X Fac-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
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PHS # 4 WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region E-72

4495

Project/Site: Glenwood L	NI	City/County:	Spr	ingfield / Lane	Sampling Date:	9/15/2009	
Applicant/Owner: Lane Council of	Governments	5		State:	OR	Sampling Point 12	-
Investigator(s): ME/SE		Section, To	ownship, Range:		Sec 1, T18S, R3	3W	
Landform (hillslope, terrace, etc.:)			Local relief (co	ncave, convex, none):		Slope (%):	_
Subregion (LRR):	7A	Lat	44.02	995 Long:	-123.02745	Datum: DD	_
Soil Map Unit Name:	Philomath	– cobbly silty c	lay	NWI Clas	sification:		—
Are climatic/hydrologic conditions on the si	te typical for this	time of year?	Yes	X No	(if no, expla	ain in Remarks)	_
Are vegetation Soil or H	lydrology	significantly dist	turbed?	Are "Normal Circumstance	es" present? (Y/N)	Y	
Are vegetation Soil or H	lydrology		matic? If neede	d, explain any answers in Rer	narks.)		
		-			• • • • •		
SUMMART OF FINDINGS - AT	tach site ma	p snowing sa		it locations, transects	s, important rea	tures, etc.	
Hydrophytic Vegetation Present? Tes)	Is Sampled A	rea within	v .		
Hydric Soil Present? Tes	<u> </u>		a Wetla	nd? ^{Yes} _	_ X	No	
Wetland Hydrology Present? Tes	<u> </u>						
Remarks:						2	
VEGETATION - Use scientific n	ames of pla	nts.					
	absolute	Dominant	Indicator	Dominance Test work	sheet:		
	% cover	Species?	Status				
Tree Stratum (plot size: 30)			Number of Dominant Spec	es		
1 <u>Fraxinus latifolia</u>	60	<u> </u>	FACW	That are OBL, FACW, or F	AC:	<u>3</u> (A)	
2							
3				Species Across All Strate:		2 (P)	
*	60	= Total Cover		Species Across All Strata.		<u> </u>	
Sapling/Shrub Stratum (plot size:	_)			Percent of Dominant Specie	es	009/ (A/D)	
2				I hat are UBL, FACW, or F	AC: <u>1</u>	00% (AVB)	
3				Prevalence Index Wor	ksheet:		
4				Total % Cover of	Multiply by:		
5				OBL Species	x1=	0	
	0	= Total Cover		FACW species	x 2 =	0	
· · ·				FAC Species	x 3 =		
Herb Stratum (plot size: 5)			FACU Species	x 4 =	0	
1 Filalaris arunumacea	<u> </u>	<u> </u>	FACW	UPL Species	x5=	<u> </u>	
2 Melíssa officinalis				Column Lotais	(A)	<u> </u>	
4				Prevalence Index	Δ= # Γ	ומעונ	
5							
6			<u></u>	Hydrophytic Vegetatio	n Indicators:		
7				<u> </u>	ominance Test is >50°	%	
8				Pr	revalence Index is ≤ 3.	.0 ¹	
	93	= Total Cover		M	orphological Adaptatio	ons ¹ (provide supporting	
14/ / Mar Olation /alst -t	۰ ۱			da	ta in Remarks or on a	a separate sheet)	
voody vine Stratum (plot size:	_/ .				euano Non-Vascular oblematic Hudropheti	riants • Vegetation ¹ (Evaluin)	
2				P		с кейегалон (стрян)	
-	0	= Total Cover	· · · ·	¹ Indicators of hydric soil and	wettand hydrology m	ust be present, unless	
				disturbed or problematic.	· · · · · ·		
				Hydrophytic			
% Bare Ground in Herb Stratum	0			Vegetation Present?	Yes <u>X</u>	No	- '
Remarks:						<u></u>	
		_		4 000			
		A.	ttachment	1-222	······································	\$	

									EXHIBIT	E-73
Profile Descrip	otion: (Describe to t	he depth	needed to doc	ument the ind	icator or co	onfirm the abse	ence of indicators.)			
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture		Remarks	
0-12	7 5YR 3/1	90		<u>/</u>			Silfy Clay Loam	10% grav		
<u>v-1</u>								rofueal b	ow 12"	
								Teruşar bi	EIUM-12	
-	·									
	<u> </u>									
	<u> </u>									
¹ Type: C=Conc	entration, D=Depletic	on, RM=R	educed Matrix, (CS=Covered o	r Coated Sa	nd Grains.		² Location: PL	.≃Pore Lining, M	=Matrix.
Hydric Soil I	ndicators: (Appli	cable to	all LRRs, un	less otherw	ise noted.	.)	Indica	ators for Pro	oblematic Hyd	Iric Soils ³ :
ŀ	listosol (A1)				Sandy Red	ox (S5)			2 cm Muck (A10)
ł	listic Epipedon (A2)				Stripped Ma	atrix (S6)			Red Parent Mate	erial (TF2)
E	Black Histic (A3)				Loamy Muc	ky Mineral (F1)	(except MLRA 1)	<u> </u>	Other (explain in	n Remarks)
ł	lydrogen Sulfide (A4)			Loamy Gley	/ed Matrix (F2)				
	Depleted Below Dark	Surface (A	A11)		Depleted M	atrix (F3)				
T	Thick Dark Surface (A	\12)			Redox Dark	Surface (F6)		_		
	Sandy Mucky Mineral	(S1)			Depleted D	ark Surface (F7))	³ Indicators of	f hydrophytic veg	etation and wetland
s	Sandy Gleyed Matrix	(S4)			Redox Dep	ressions (F8)		nyarology n	problematic	aniess disturbed or 3.
Poetrictivo I	aver (if present)-								•	
	ayer (n present).									
Type:		N	one		-					
Deptri (inches)):				-		Hydric Soil Pres	sent? Yes	<u> </u>	No
Recently scr scraped app	raped soils, which ears to cause se	h appare asonal p	ently are too oonding.	young to ha	ve not for	med hydric s	oil conditions. Th	ne compact	ion of the soil	from being
Recently scr scraped app <u>HYDROLO</u>	raped soils, which ears to cause se GY frology Indicators	h appare asonal p s:	ently are too bonding.	young to ha	ve not for	med hydric s	oil conditions. Th	ne compact	ion of the soil	from being
Recently scr scraped app <u>HYDROLO0</u> Wetland Hyc	raped soils, whic ears to cause se GY frology Indicators	h appare asonal p s:	ently are too bonding.	young to ha	ve not for	med hydric s	oil conditions. Th	ne compacti	ion of the soil	from being
HYDROLOO Wetland Hyc	raped soils, which ears to cause se GY frology Indicators ators (minimum of	h appare asonal p s: f one req	ently are too ponding. uired; check a	young to ha	ve not for	med hydric s	Soil conditions. Th	ne compacti	y Indicators (2 d	from being
HYDROLOG Wetland Hyc	GY GY ators (minimum of Surface Water (A1)	h appare asonal p s: f one req	ently are too bonding. uired; check a	young to ha	ve not for Water stain 1. 2. 4A. an	med hydric s ed Leaves (B9)	Conditions. Th	Secondary	y Indicators (2 c Water stained La	from being or more required) eaves (B9) . and 4B)
HYDROLOO Wetland Hyc Primary Indic	raped soils, whic ears to cause se GY Irology Indicators ators (minimum of Surface Water (A1) High Water Table (A2	h appare asonal p s: f one req	ently are too bonding. uired; check a	young to ha	ve not for Water stain 1, 2, 4A, an	ed Leaves (B9)	Except MLRA	Secondary	y Indicators (2 of Water stained Lo (MLRA1, 2, 4A	from being or more required) eaves (B9) , and 4B)
HYDROLOO Wetland Hyc Primary Indic	raped soils, which ears to cause set GY frology Indicators ators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3)	h appare asonal p s: f one req	ently are too bonding. uired; check a	young to ha	ve not for Water stain 1, 2, 4A, an Salt Crust (ed Leaves (B9) d 4B) B11)	Except MLRA	Secondary	y Indicators (2 d Water stained Ld (MLRA1, 2, 4A, Drainage Patter	from being or more required) eaves (B9) , and 4B) ns (B10)
HYDROLOO Wetland Hyc Primary Indic	GY GY Irology Indicators ators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	h appare asonal p s: f one req	ently are too bonding. uired; check a	young to ha	Water stain 1, 2, 4A, an Salt Crust (Aquatic Inv	ed Leaves (B9) d 4B) B11) ertebrates (B13)	Except MLRA	Secondary	y Indicators (2 d Water stained La (MLRA1, 2, 4A) Drainage Pattern Dry-Season Wat	from being or more required) eaves (B9) , and 4B) ns (B10) ter Table (C2)
Recently scr scraped app HYDROLOO Wetland Hyc Primary Indic \$	GY GY Irology Indicators ators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B 2017 Deposits (B2)	h appara asonal p s: f one req	ently are too bonding. uired; check a	young to ha	Water stain 1, 2, 4A, an Salt Crust (Aquatic Inve Hydrogen S	ed Leaves (B9) ed Leaves (B9) ed 4B) B11) ertebrates (B13) Sulfide Odor (C1	(Except MLRA	Secondary	y Indicators (2 o Water stained Lo (MLRA1, 2, 4A) Drainage Pattern Dry-Season Wa Saturation Visibl	from being or more required) eaves (B9) , and 4B) ns (B10) ter Table (C2) le on Aerial Imagery (C2 sition (D2)
HYDROLOO Wetland Hyc Primary Indic	apped soils, which ears to cause set GY frology Indicators ators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Maal Mat or Caust (P2)	h appara asonal p s: f one req 2) 32)	ently are too bonding. uired; check a	young to ha	Water stain 1, 2, 4A, an Salt Crust (Aquatic Inv Hydrogen S Oxidized Ri	ed Leaves (B9) ed Leaves (B9) ed 4B) B11) ertebrates (B13) Sulfide Odor (C1 hizospheres alo	Except MLRA	Secondary	y Indicators (2 of Water stained Lo (MLRA1, 2, 4A, Drainage Pattern Dry-Season Water Saturation Visibil Geomorphic Por Shallow Acuitors	from being or more required) eaves (B9) , and 4B) ns (B10) ter Table (C2) le on Aerial Imagery (CS sition (D2) d (D3)
HYDROLOG Wetland Hyc Primary Indic	Araped soils, which ears to cause set GY frology Indicators ators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Wigal Mat or Crust (B4 ron Deposits (B5)	h appare asonal p s: f one req 2) 32)	ently are too bonding. uired; check a	young to ha	Water stain 1, 2, 4A, an Salt Crust (Aquatic Inv Hydrogen S Oxidized Ri Presence o Recent Inv	ed Leaves (B9) ed 4B) B11) ertebrates (B13) Sulfide Odor (C1 hizospheres alo f Reduced Iron a Reduction in P	(Except MLRA (Except MLRA) ng Living Roots (C3) (C4)	Secondary	y Indicators (2 of Water stained Li (MLRA1, 2, 4A, Drainage Patter Dry-Season Wa Saturation Visibl Geomorphic Poo Shallow Aquitar Fao-Neutral Teo	from being or more required) eaves (B9) , and 4B) ns (B10) ter Table (C2) le on Aerial Imagery (CS sition (D2) d (D3) et (D5)
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Recently scr Recently scr scraped app HYDROLOO Wetland Hyc Primary Indic S S Primary Indic S Primary Indic S S S S Primary Indic S S S S S <	Araped soils, which evers to cause set GY Irology Indicators ators (minimum of Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Water Marks (B1) Sediment Deposits (B3) Ngal Mat or Crust (B4) Forn Deposits (B3) Ngal Mat or Crust (B4) Forn Deposits (B5) Surface Soil Cracks (In nundation Visible on Sparsely Vegetated C Vations: Present? Yes esent? Yes esent? Yes finge) Forded Data (stream gates of	h appare asonal p s: f one req 2) (2) (4) (2) (4) (2) (4) (2) (4) (2) (4) (2) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	ently are too ponding. uired; check a uired; check a segery (B7) urface (B8) No X No X No X No X itoring well, aeri	Voung to ha	Ve not for Water stain 1, 2, 4A, an Salt Crust (Aquatic Inve Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl (inches): (inches): (inches):	ed Leaves (B9) ad 4B) B11) ertebrates (B13) Sulfide Odor (C1 hizospheres alo f Reduced Iron Reduction in P Stressed Plants ain in Remarks)	(Except MLRA (Except MLRA)) ng Living Roots (C3) (C4) lowed Soils (C6) (D1) (LRR A) Wetland Hyd	Secondan Secondan X X X rology Pres Yes	y Indicators (2 of Water stained Lo (MLRA1, 2, 4A, Drainage Pattern Dry-Season War Saturation Visible Geomorphic Poo Shallow Aquitarn Fac-Neutral Tes Raised Ant Mou Frost-Heave Hu	from being or more required) eaves (B9) , and 4B) ns (B10) ter Table (C2) le on Aerial imagery (CS sition (D2) d (D3) st (D5) inds (D6) (LRR A) mmocks (D7) No

Appendix D

OFWAM Data and Results



Oregon Freshwater Wetland Assessment Methodology (Revised Edition, April 1996)

Wetland Assessment Summary Sheet



Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Sp	ringfield LWI	Wetland:	GS-1
Project Location:	Glenwood, Oregon	Wetland Typ	be(s):	PSS
Date(s) of field work:	10/7/2009	Approx. Are	a (acres):	0.47
Onsite Assessment?:	Yes	Investigator	r(s):	ME/SE
Wetland Location:	Under and east of the	e Interstate 5 Br	idge just S of	Franklin Blvd.

Function and Condition Assessment Answers

Wildli Habit	fe at	Fish Habita		Wat	er itv	Hydrol Cont	ogic rol	Sensiti to Im	ivity pact
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	В	Q-1	A	Q-1	C	Q-1	B	Q-1	A
Q-2	Α	Q-2	C	Q-2	C	Q-2	C	Q-2	В
Q-3	С	Q-3	C	Q-3	A	Q-3	B	Q-3	С
Q-4	С	Q-4	A	Q-4	B	Q-4	B	Q-4	Α
Q-5	A	Q-5	C	Q-5	A	Q-5	A	Q-5	Α
Q-6	A	Q-6	C	Q-6	C	Q-6	C	Q-6	Α
Q-7	A					Q-7	A		
Q-8	С				-				
Q-9A									

Q-9B **Results:**

B

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Wetland's fish habitat function is impacted or degraded
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancen Potentia	Enhancemen Potential		tion	Recrea	tion	Aesthetic Quality	
Q	A	Q	A	Q	A	Q	Α
Q-1	A	Q-1	B	Q-1	Α	Q-1	С
Q-2	В	Q-2	B	Q-2	C -	Q-2	В
Q-3		Q-3	B	Q-3	Α	Q-3	С
Q-4	В	Q-4	С	Q-4	В	Q-4	В
Q-5B	В	Q-5	Α	Q-5	B	Q-5	A
Q-6	В	Q-6	B	Q-6	В	Q-6	В

Results:

Enhancement Potential	Wetland has high enhancement potential
Education	Wetland has potential for educational use
Recreation	Wetland provides recreational opportunities
Aesthetic Quality	Wetland is not aesthetically pleasing

Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



Project:	Glenwood Area of Springfield I.WI	Wetland:	GS-1					
Location:	Glenwood, Oregon	Approx. Area (acres):	0.47					
Date:	10/7/2009	Wetland Types(s):	PSS					
Result:	Wetland provides habita	t for some wildlife species						
	One Cowardin class with > 5 species	No adjacent Water Quality limited streams						
Rationale:	Dominated by woody vegetation	Adjacent land is mostly developed						
	Less than 0.5 acres of open water Wetland buffer is between 10% and 4							
Result:	Wetland's fish habitat function is impacted or degraded							
1222400	More than 75% of the stream is shaded	No adjacent Water Quality Limited streams						
Rationale:	Stream banks are extensively modified	Adjacent land is mostly developed						
Esta Star	<10% of stream has instream structures	Stream does not o	contain fish					
Result:	Wetland's water-quality fund	ction is impacted or degrad	led					
新始出版性出版	Primary water source is groundwater	Wetland is between	0.5 and 5 acres					
Rationale:	Wetland does not flood or pond	Adjacent land is mo	stly developed					
"学校、生活"	High wetland vegetation cover	No adjacent Water Quali	ity Limited streams					
Result:	Wetland's hydrologic conti	rol is impacted or degraded	1					
	Wetland is not within 100 year floodplain	Dominated by woo	dy vegetation					
Rationale:	Wetland does not flood or pond	Open space downslope	e of development					
	Minor restrictions slow down the water Development upslope of wetland							
Result:	wetland is potentially sensitive to future impacts							
	Stream modified or isolated wetland	Adjacent land is mos	tly developed					
Rationale:	Water not taken out	Adjacent zoning is prima	rily development					
	No adjacent Water Quality Limited streams	ly vegetation						
Result:	Wetland has high en	hancement potential						
	Wetland functions are impacted or degraded	Wetland is between 0	en 0.5 and 5 acres					
Rationale:	Primary water source is groundwater	Wetland buffer is betwee	en 10% and 40%					
10%的变形的第三		Potentially sensitive to	future impacts					
Result:	Wetland has potentia	al for educational use						
「「日本」の	Wetland access by landowner permission	Maintained public acce	ss within 250 feet					
Rationale:	1 or 2 visible safety hazards	Wetland is not limited mobility accessible						
CHERON AND	No access or observation of other habitats							
Result:	Wetland provides recr	eational opportunities	時間に見るという					
	Maintained public access within 250 feet	Wetland provides habitat for some wildlife						
Rationale:	No boat launching can be developed	No fishing is allowed						
计学校 公司任主义	Maintained trails, viewing areas exist	No hunting is	allowed					
Result:	Wetland is not aest	hetically pleasing						
(新事業)	One Cowardin class is visible	Wetland surrounded by 1	andscaped areas					
Rationale:	25 - 50% of wetland can be seen	Natural odors present at wetland						
	Visual detractors present, can't be removed	Continuous traffic and natural noises occur						

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet



Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Sp	GS-2		
Project Location:	Glenwood, Oregon Wetland Type(s):		PFO	
Date(s) of field work:	7/27/2009	Approx. Area (acres):	2.53	
Onsite Assessment?:	Partial	Investigator(s):	ME/SE	
Wetland Location:	East of the Inter	rstate 5 Bridge, south of Fran	klin Blvd.	

Function and Condition Assessment Answers

Wildl Habit	ife at	Fish Habita	1	Wat Qual	er ity	Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	B	Q-1	B	Q-1	C	Q-1	B	Q-1	A
Q-2	Α	Q-2	B	Q-2	B	Q-2	В	Q-2	В
Q-3	С	Q-3	C	Q-3	B	Q-3	B	Q-3	С
Q-4	C	Q-4	A	Q-4	B	Q-4	C	Q-4	Α
Q-5	Α	Q-5	C	Q-5	A	Q-5	A	Q-5	A
Q-6	Α	Q-6	C	Q-6	C	Q-6	A	Q-6	Α
Q-7	Α				_	Q-7	A		
O-8	C								

Q-9B Results:

Q-9A

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Wetland's fish habitat function is impacted or degraded
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancemen Potential		Educa	tion	Recrea	tion	Aesthetic Quality	
Q	Α	Q	A	Q	A	Q	A
Q-1	A	Q-1	С	Q-1	Α	Q-1	С
Q-2	В	Q-2	Α	Q-2	С	Q-2	С
Q-3		Q-3	B	Q-3	Α	Q-3	Α
Q-4	В	Q-4	С	Q-4	В	Q-4	В
Q-5B	Α	Q-5	Α	Q-5	В	Q-5	Α
Q-6	В	Q-6	В	Q-6	В	Q-6	С

Results:

Enhancement Potential Wetland has high enhancement potential				
Education	Wetland site is not appropriate for educational use			
Recreation	Wetland provides recreational opportunities			
Aesthetic Quality	Wetland is not aesthetically pleasing			
Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



Project:	Glenwood Area of Springfield LWI	Wetland:	GS-2				
Location:	Glenwood, Oregon	Approx. Area (acres):	2.53				
Date:	7/27/2009	Wetland Types(s):	PFO				
Result:	Wetland provides habita	t for some wildlife species					
Sent seif	One Cowardin class with > 5 species	No adjacent Water Quali	ty limited streams				
Rationale:	Dominated by woody vegetation	Adjacent land is mos	tly developed				
	Less than 0.5 acres of open water	Wetland buffer is gre	ater than 40%				
Result:	Wetland's fish habitat func	tion is impacted or degrade	d				
	50-75% of stream is shaded	No adjacent Water Qualit	ty Limited streams				
Rationale:	Only portions of stream are modified	Adjacent land is mos	tly developed				
	<10% of stream has instream structures	Stream does not c	ontain fish				
Result:	Wetland's water-quality fun	ction is impacted or degrad	ed				
	Primary water source is groundwater Wetland is between 0.5 and 5 a						
Rationale:	Can't determine if wetland floods or ponds	Adjacent land is mos	tly developed				
	Moderate vegetation cover No adjacent Water Quality Limited s						
Result:	Wetland's hydrologic control is impacted or degraded						
	Wetland is not within 100 year floodplain	Dominated by woody vegetation					
Rationale:	Can't determine if wetland floods or ponds	Development downslope of wetland					
	Water has unrestricted flow out of wetland	of wetland Development upslope of wetland					
Result:	Wetland is potentially se	ensitive to future impacts					
	Stream modified or isolated wetland Adjacent land is mostly developed						
Rationale:	Water not taken out	Adjacent zoning is primar	ily development				
"我们得得我"	No adjacent Water Quality Limited streams	Dominated by wood	vegetation				
Result:	Wetland has high en	hancement potential	NATARANA SERAANA KATANA AMIN'NA AMIN'N				
A DE TRANSFER	Wetland functions are impacted or degraded	Wetland is between 0.	5 and 5 acres				
Rationale:	Primary water source is groundwater	Wetland buffer is grea	ter than 40%				
Ster and Little		Potentially sensitive to future impacts					
Result:	Wetland site is not appro	priate for educational use	20-00-00-00-00-00-00-00-00-00-00-00-00-0				
	No access allowed to wetland	Maintained public acces	s within 250 feet				
Rationale:	No visible hazards to public	Wetland is not limited m	obility accessible				
	No access or observation of other habitats						
Result:	Wetland provides rec	reational opportunities					
	Maintained public access within 250 feet	Wetland provides habitat	for some wildlife				
Rationale:	No boat launching can be developed	No fishing is allowed					
	Maintained trails, viewing areas exist No hunting is allowed						
Result:	Wetland is not aes	thetically pleasing	Although the				
	One Cowardin class is visible	Wetland surrounded by la	indscaped areas				
Rationale:	Less than 25% of wetland can be seen	Natural odors present	at wetland				
	No visual detractors are present	Traffic noise and no natural noises					

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet



Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Sp	ringfield LWI Wetland:	GS-3		
Project Location:	Glenwood, Oregon Wetland Type(s):		PSS/PUB		
Date(s) of field work:	8/12/2009	Approx. Area (acres):	(acres): 3.72		
Onsite Assessment?:	Yes	Investigator(s):	ME/SE		
Wetland Location:	East and west of Glenwood Boulevard, north of the railroad tracks				

Function and Condition Assessment Answers

Wildli	ife	Fish		Water		Hydrologic		Sensitivity	
Habit	at	Habita	t	Quality		Control		to Impact	
Q	A	Q	A	Q	A	Q.	A	Q	Α
Q-1	Α	Q-1	A	Q-1	С	Q-1	B	Q- 1	Α
Q-2	В	Q-2	C	Q-2	Α	Q-2	Α	Q-2	B
Q-3	В	Q-3	B	Q-3	С	Q-3	В	Q-3	С
Q-4	В	Q-4	A	Q-4	В	Q-4	С	Q-4	Α
Q-5	Α	Q-5	C	Q-5	Α	Q-5	В	Q-5	Α
Q-6	С	Q-6	C	Q-6	С	Q-6	Α	Q-6	В
Q-7	Α					Q-7	A		
Q-8	С								
Q-9A									
Q-9B	B								

Results:

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Wetland's fish habitat function is impacted or degraded
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancemen Potential		Education		Recreation		Aesthetic Quality		
Q	A	Q	A	Q	A	Q	A	
Q-1	Α	Q-1	C	Q-1	С	Q-1	B	
Q-2	В	Q-2	A	Q-2	С	Q-2	С	
Q-3		Q-3	B	Q-3	\mathbf{C}^{\dagger}	Q-3	Α	
Q-4	В	Q-4	C	Q-4	В	Q-4	С	
Q-5B	B	Q-5	C	Q-5	B	Q-5	A	
Q-6	B	Q-6	B	Q-6	B	Q-6	B	

Results:

Enhancement Potential	Wetland has high enhancement potential
Education	Wetland site is not appropriate for educational use
Recreation	Wetland is not appropriate or does not provide rec. opportunities
Aesthetic Quality	Wetland is not aesthetically pleasing

Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



Project:	Glenwood Area of Springfield LWI	Wetland:	GS-3				
Location:	Glenwood, Oregon	Approx. Area (acres):	3.72				
Date:	8/12/2009	Wetland Types(s):	PSS/PUB				
Result:	Wetland provides habita	t for some wildlife species					
Market (More than one Cowardin class	No adjacent Water Qua	lity limited streams				
Rationale:	Herbaceous vegetation & ponding	Adjacent land is mo	ostly developed				
The second part of	Between 0.5 - 1 acre of open water	Wetland buffer is betw	een 10% and 40%				
Result:	Wetland's fish habitat func	tion is impacted or degrad	ed				
Do ya Ki	More than 75% of the stream is shaded	No adjacent Water Qual	ity Limited streams				
Rationale:	Stream banks are extensively modified	Adjacent land is mo	stly developed				
and an advantage	10-25% of stream has instream structures	Stream does not	contain fish				
Result:	Wetland's water-quality fun	ction is impacted or degrad	ded				
Statut Cha	Primary water source is groundwater	Wetland is between	0.5 and 5 acres				
Rationale:	Wetland floods/ponds in growing season	Adjacent land is mo	stly developed				
ALC: ALC:	Low vegetation cover	Low vegetation cover No adjacent Water Quality Limited st					
Result:	Wetland's hydrologic control is impacted or degraded						
13.1.5m (E)	Wetland is not within 100 year floodplain	ion & ponding					
Rationale:	Wetland floods/ponds in growing season	Development downs	lope of wetland				
	ope of wetland						
Result:	Result: Wetland is potentially sensitive to future impacts						
	Stream modified or isolated wetland	Adjacent land is mos	stly developed				
Rationale:	Water not taken out	Adjacent zoning is prima	nt zoning is primarily development				
	No adjacent Water Quality Limited streams	Herbaceous vegetati	on & ponding				
Result:	Wetland has high er	nhancement potential	TRANSFER A SEC				
	Wetland functions are impacted or degraded	Wetland is between ().5 and 5 acres				
Rationale:	Primary water source is groundwater	Wetland buffer is betwee	en 10% and 40%				
		Potentially sensitive to	o future impacts				
Result:	Wetland site is not appro	priate for educational use					
	No access allowed to wetland	No access point to	wetland exists				
Rationale:	No visible hazards to public	Wetland is not limited	mobility accessible				
	No access or observation of other habitats						
Result:	Wetland is not appropriate or does not provide rec. opportunities						
and an and a set	No access point to wetland exists	Wetland provides habita	at for some wildlife				
Rationale:	No boat launching can be developed	No fishing is allowed					
	No trails or viewing areas exist	No hunting is allowed					
Result:	Wetland is not aes	thetically pleasing					
	Two Cowardin classes visible	Wetland surrounded b	oy development				
Rationale:	Less than 25% of wetland can be seen	Natural odors prese	nt at wetland				
《建築的目出生》	No visual detractors are present	Continuous traffic and na	tural noises occur				

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet



Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Sp	ringfield LWI	Wetland:	GS-4
Project Location:	Glenwood, Oregon	Wetland Type(s):		PEM
Date(s) of field work:	7/28/2009	Approx. Are:	a (acres):	0.87
Onsite Assessment?:	Offsite Investigator(s):		·(s):	ME/SE
Wetland Location:	East and west of Judkins Dedicated Road, East of Interstate			

Function and Condition Assessment Answers

Wildli	fe	Fish		Water		Hydrologic		Sensitivity	
Habit	at	Habita	1	Quality		Conti	rol	to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	С	Q-1		Q-1	C	Q-1	B	Q-1	Α
Q-2	C	Q-2		Q-2	A	Q-2	A	Q-2	В
Q-3	С	Q-3		Q-3	A	Q-3	B	Q-3	С
Q-4	C	Q-4		Q-4	B	Q-4	C	Q-4	Α
Q-5	A	Q-5	¥	Q-5	A	Q-5	C	Q-5	Α
Q-6	A	Q-6		Q-6	C	Q-6	Α	Q-6	С
Q-7	A					, Q-7	A		
Q-8	С				-				
Q-9A									

Q-9B **Results:**

С

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Fish habitat was not assessed for this wetland
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancement Potential		Education		acation Recreation Ac		Aesth Qual	etic ity
Q	A	Q	A	Q	A	Q	Α
Q-1	A	Q-1	B	Q-1	С	Q-1	С
Q-2	B	Q-2	A	Q-2	С	Q-2	Α
Q-3		Q-3	B	Q-3	С	Q-3	Α
Q-4	·B	Q-4	C	Q-4	B	Q-4	С
Q-5B	С	Q-5	C	Q-5	В	Q-5	С
Q-6	В	Q-6	B	Q-6	В	Q-6	С

Results:

Enhancement Potential	Wetland has high enhancement potential
Education	Wetland has potential for educational use
Recreation	Wetland is not appropriate or does not provide rec. opportunities
Aesthetic Quality	Wetland is not aesthetically pleasing

Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



Project:	Glenwood Area of Springfield LW	Wetland:	GS-4					
Location:	Glenwood, Oregon	Approx. Area (acres):	0.87					
Date:	7/28/2009	Wetland Types(s):	PEM					
Result:	Wetland provides habit	at for some wildlife species						
111112	One Class with less than 5 species	No adjacent Water Qualit	y limited streams					
Rationale:	Herbaceous vegetation, no ponding	Adjacent land is mostly developed						
STERNING STR	Less than 0.5 acres of open water	Ater Wetland buffer is less than 10%						
Result:	Fish habitat was not a	assessed for this wetland	の名前国の思い					
AL STREET								
Rationale:								
Result:	Wetland's water-quality fur	iction is impacted or degrade	xd					
調理に対応に	Primary water source is groundwater	Wetland is between 0.	.5 and 5 acres					
Rationale:	Wetland floods/ponds in growing season	Adjacent land is mos	tly developed					
ALC: NO.	High wetland vegetation cover No adjacent Water Quality Limited							
Result:	Wetland's hydrologic control is impacted or degraded							
APRIL 2	Wetland is not within 100 year floodplain	Herbaceous vegetation, no ponding						
Rationale:	Wetland floods/ponds in growing season	Development downslo	pe of wetland					
	Water has unrestricted flow out of wetland	ted flow out of wetland Development upslope of wetla						
Result:	Wetland is potentially s	ensitive to future impacts						
DE LE SUST	Stream modified or isolated wetland	Adjacent land is mostl	y developed					
Rationale:	Water not taken out	Adjacent zoning is primari	ly development					
1185 - 228 -	No adjacent Water Quality Limited streams	Herbaceous vegetation	, no ponding					
Result:	Wetland has high e	nhancement potential	(1) 法 你可能知道的					
A CONTRACTOR	Wetland functions are impacted or degraded	Wetland is between 0.5	between 0.5 and 5 acres					
Rationale:	Primary water source is groundwater	Wetland buffer is less than 10%						
		Potentially sensitive to f	uture impacts					
Result:	Wetland has potent	ial for educational use						
	Wetland access by landowner permission	No access point to we	etland exists					
Rationale:	No visible hazards to public	Wetland is not limited m	obility accessible					
	No access or observation of other habitats							
Result:	Wetland is not appropriate or d	oes not provide rec. opportu	nities					
	No access point to wetland exists Wetland provides habitat for							
Rationale:	No boat launching can be developed	No fishing is allowed						
	No trails or viewing areas exist No hunting is allowed							
Result:	Wetland is not ae.	sthetically pleasing	***************************************					
	One Cowardin class is visible	Wetland surrounded by	development					
Rationale:	>50% of wetland can be seen	Unpleasent odors are al	ways present					
	No visual detractors are present	Traffic noise and no na	ic noise and no natural noises					

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet



Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Sp	ringfield LWI Wetland:	GS-5			
Project Location:	Glenwood, Oregon	Glenwood, Oregon Wetland Type(s):				
Date(s) of field work:	8/12/2009	Approx. Area (acres):	4.31			
Onsite Assessment?:	Offsite	Investigator(s):	ME/SE			
Wetland Location:	South of E 19th Avenue, bounded by Union Pacific RR tracks					

Function and Condition Assessment Answers

Wildli Habit	ifc at	Fish Habita	1	Wat Qual	er ity	Hydrol Conti	ogic rol	Sensiti to Imp	ivity bact
Q	A	Q	A	Q	A	Q	Α	Q	A
Q-1	В	Q-1		Q-1	C	Q-1	B	Q-1	В
Q-2	A	Q-2		Q-2	B	Q-2	B	Q-2	• B
Q-3	С	Q-3		Q-3	A	Q-3	С	Q-3	С
Q-4	С	Q-4		Q-4	B	Q-4	C	Q-4	Α
Q-5	C	Q-5		Q-5	A	Q-5	Α	Q-5	A
Q-6	С	Q-6		Q-6	C	Q-6	C	Q-6	Α
Q-7	A		2			Q-7	Α		
Q-8	С				-				
Q-9A									

Q-9B **Results:**

С

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Fish habitat was not assessed for this wetland
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancement Potential		Education		Recrea	Recreation		etic ity
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	C	Q-1	С	Q-1	С
Q-2	В	Q-2	B	Q-2	С	Q-2	С
Q-3		Q-3	B	Q-3	С	Q-3	С
Q-4	С	Q-4	C	Q-4	В	Q-4	B
Q-5B	С	Q-5	C	Q-5	В	Q-5	C
Q-6	В	Q-6	B	Q-6	В	Q-6	В

Results:

Enhancement Potential	Wetland has moderate potential for enhancement
Education	Wetland site is not appropriate for educational use
Recreation	Wetland is not appropriate or does not provide rec. opportunities
Aesthetic Quality	Wetland is not aesthetically pleasing

Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



Project:	Glenwood Area of Springfield LWI Wetland: GS					
Location:	Glenwood, Oregon	Approx. Area (acres):	4.31			
Date:	8/12/2009	Wetland Types(s):	PFO			
Result:	Wetland provides habit	at for some wildlife species				
隆州四国羽	One Cowardin class with > 5 species	No adjacent Water Qualit	y limited streams			
Rationale:	Dominated by woody vegetation	Adjacent land is mostly develop				
	Less than 0.5 acres of open water	Wetland buffer is le	ss than 10%			
Result:	Fish habitat was not a	ssessed for this wetland				
等于在同						
Rationale:						
Result:	Wetland's water-quality fun	iction is impacted or degrade	d			
	Primary water source is groundwater	Wetland is between 0	5 and 5 acres			
Rationale:	Can't determine if wetland floods or ponds	Adjacent land is mos	tly developed			
a the second second	High wetland vegetation cover	No adjacent Water Qualit	y Limited stream			
Result:	Wetland's hydrologic con	trol is impacted or degraded				
	Wetland is not within 100 year floodplain	Dominated by woody vegetation				
Rationale:	Can't determine if wetland floods or ponds	Open space downslope	of development			
	Water has unrestricted flow out of wetland Development upslope of wetland					
Result:	Wetland is potentially s	ensitive to future impacts				
		Adjacent land is mostl	y developed			
Rationale:	Water not taken out	Adjacent zoning is primar	ly development			
	No adjacent Water Quality Limited streams	Dominated by woody	vegetation			
Result:	Wetland has moderate p	potential for enhancement	E-AF (FEL-TAL)			
	Wetland functions are impacted or degraded	Wetland is less than 0.5 acres				
Rationale:	Primary water source is groundwater	Wetland buffer is less	Wetland buffer is less than 10%			
		Potentially sensitive to future impacts				
Result:	Wetland site is not appre	opriate for educational use	HER PORTES			
	No access allowed to wetland	No access point to wetland exists				
Rationale:	1 or 2 visible safety hazards	Wetland is not limited m	obility accessible			
If Banks	No access or observation of other habitats					
Result:	Wetland is not appropriate or d	oes not provide rec. opportu	nities			
	No access point to wetland exists	Wetland provides habitat	for some wildlife			
Rationale:	No boat launching can be developed	No fishing is allowed				
	No trails or viewing areas exist	llowed				
Result:	Wetland is not ae.	sthetically pleasing	부산[민준] 수상			
- TOTAL	One Cowardin class is visible	Wetland surrounded by la	ndscaped areas			
Rationale:	Less than 25% of wetland can be seen	Unpleasent odors are al	ways present			
ALL PARTY	Visual detractors present, can't be removed	Continuous traffic and natu	ral noises occur			

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet



Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Sp	Wetland:	GS-6		
Project Location:	Glenwood, Oregon	Wetland Typ	e(s):	PEM	
Date(s) of field work:	7/28/2009 Approx. Area		a (acres):	0.86	
Onsite Assessment?:	Yes Investigator(s):			ME/SE	
Wetland Location:	South of E 22nd Avenue, north of Interstate 5				

Function and Condition Assessment Answers

Wildli Habit	ife at	Fish Habita		Wat Qual	er ity	Hydrol Cont	ogic rol	Sensiti to Imp	wity bact
Q	Α	Q	Α	Q	A	Q	Α	Q	Α
Q-1	B	Q-1		Q-1	B	Q-1	B	Q-1	В
Q-2	С	Q-2		Q-2	B	Q-2	B	Q-2	В
Q-3	Α	Q-3		Q-3	Α	Q-3	B	Q-3	С
Q-4	С	Q-4		Q-4	В	Q-4	C	Q-4	Α
Q-5	В	Q-5		Q-5	A	Q-5	C	Q-5	Α
Q-6	В	Q-6		Q-6	C	Q-6	A	Q-6	С
Q-7	Α					Q-7	Α		
Q-8	С				,				
Q-9A									

Q-9B **Results:**

B

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Fish habitat was not assessed for this wetland
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality		
Q	Α	Q	A	Q	A	Q	A	
Q-1	Α	Q-1	C	Q-1	В	Q-1	С	
Q-2	С	Q-2	A	Q-2	С	Q-2	Α	
Q-3		Q-3	B	Q-3	С	Q-3	Α	
Q-4	В	Q-4	C	Q-4	В	Q-4	Α	
Q-5B	В	Q-5	B	Q-5	В	Q-5	Α	
Q-6	В	Q-6	B	Q-6	В	Q-6	В	

Results:

Enhancement Potential	Wetland has high enhancement potential
Education	Wetland site is not appropriate for educational use
Recreation	Wetland has the potential to provide recreational activities
Aesthetic Quality	Wetland is considered to be pleasing

Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



Project:	Glenwood Area of Springfield LWI	Wetland:	GS-6			
Location:	Glenwood, Oregon	Approx. Area (acres): 0.86				
Date:	7/28/2009	Wetland Types(s):	PEM			
Result:	Wetland provides habita	at for some wildlife species				
The States	One Cowardin class with > 5 species	No adjacent Water Qualit	ty limited streams			
Rationale:	Herbaceous vegetation, no ponding	Adjacent land is mos	tly developed			
	Less than 0.5 acres of open water	Wetland buffer is between 10% and 40%				
Result:	Fish habitat was not as	ssessed for this wetland				
Rationale:	· · · · ·	т.				
		e -				
Result:	Wetland's water-quality fund	ction is impacted or degraded				
	Primary water source is precipitation	Wetland is between 0.5 and 5 acres				
Rationale:	Can't determine if wetland floods or ponds	Adjacent land is mos	tly developed			
	High wetland vegetation cover	No adjacent Water Qualit	y Limited streams			
Result:	Wetland's hydrologic contr	rol is impacted or degraded				
	Wetland is not within 100 year floodplain	Herbaceous vegetation	n, no ponding			
Rationale:	Can't determine if wetland floods or ponds	Development downslo	pe of wetland			
	Water has unrestricted flow out of wetland	Development upslop	e of wetland			
Result:	Wetland is potentially se	nsitive to future impacts				
A Triller		Adjacent land is mostl	y developed			
Rationale:	Water not taken out	Adjacent zoning is primari	ily development			
(四)的制度"	No adjacent Water Quality Limited streams	Herbaceous vegetation	, no ponding			
Result:	Wetland has high en	enhancement potential				
A BRIDE	Wetland functions are impacted or degraded	Wetland is between 0.5	and 5 acres			
Rationale:	Primary water source is precipitation	Wetland buffer is between	n 10% and 40%			
當任自治的發展		Potentially sensitive to future impacts				
Result:	Wetland site is not appro	priate for educational use	日本の			
And Harden	No access allowed to wetland	Unmaintained public acce	ss within 250 feet			
Rationale:	No visible hazards to public	Wetland is not limited m	obility accessible			
MARTHE STATE	No access or observation of other habitats					
Result:	Wetland has the potential to	provide recreational activiti	es			
a state of the	Unmaintained public access within 250 feet	Wetland provides habitat	for some wildlife			
Rationale:	No boat launching can be developed	No fishing is a	llowed			
	No trails or viewing areas exist	No hunting is a	llowed			
Result:	Wetland is conside	red to be pleasing				
	One Cowardin class is visible	Wetland surrounded by	natural areas			
Rationale:	>50% of wetland can be seen	Natural odors present	at wetland			
	No visual detractors are present	Continuous traffic and natu	ral noises occur			

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet



Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Sp	ringfield LWI Wetland:	WR-7
Project Location:	Glenwood, Oregon	Wetland Type(s):	PFO
Date(s) of field work:	9/15/2009	Approx. Area (acres):	0.51
Onsite Assessment?:	Yes	Investigator(s):	ME/SE
Wetland Location:	Bewteen	Interstate 5 & Franklin Boulev	vard

Function and Condition Assessment Answers

Wildli Habit	ife at	Fish Habita	t	Wat Qual	er ity	Hydrol Conti	ogic rol	Sensiti to Imp	ivity pact
Q	Α	Q	A	Q	A	Q	A	Q	Α
Q-1	B	Q-1		Q-1	C	Q-1	B	Q-1	B
Q-2	A	Q-2		Q-2	C	Q-2	C	Q-2	В
Q-3	С	Q-3		Q-3	A	Q-3	В	Q-3	С
Q-4	С	Q-4		Q-4	B	Q-4	C	Q-4	Α
Q-5	A	Q-5		Q-5	A	Q-5	A	Q-5	С
Q-6	A	Q-6		Q-6	C	Q-6	С	Q-6	A
Q-7	A	e.				Q-7	A		
Q-8	С								
Q-9A	5								

Q-9B **Results:**

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Fish habitat was not assessed for this wetland
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control is impacted or degraded
Sensitivity to Impact	Wetland is potentially sensitive to future impacts

Function and Condition Assessment Answers

Enhancement Potential		Educa	tion	Recreation		Aesthetic Quality	
Q	A	Q	A	Q	Α	Q	A
Q-1	A	Q-1	С	Q-1	С	Q-1	С
Q-2	В	Q-2	B	Q-2	С	Q-2	С
Q-3		Q-3	B	Q-3	С	Q-3	С
Q-4	В	Q-4	C	Q-4	В	Q-4	B
Q-5B	Α	Q-5	C	Q-5	В	Q-5	Α
Q-6	В	Q-6	B	Q-6	В	Q-6	Α

Results:

Enhancement Potential	Wetland has high enhancement potential
Education	Wetland site is not appropriate for educational use
Recreation	Wetland is not appropriate or does not provide rec. opportunities
Aesthetic Quality	Wetland is not aesthetically pleasing

Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



Project:	Glenwood Area of Springfield LWI	Wetland:	WR-7		
Location:	Glenwood, Oregon	Approx. Area (acres):	0.51		
Date:	9/15/2009	Wetland Types(s):	PFO		
Result:	Wetland provides habita	t for some wildlife species			
	One Cowardin class with > 5 species	No adjacent Water Qualit	ty limited streams		
Rationale:	Dominated by woody vegetation	Adjacent land is mostly developed			
目的な行為	Less than 0.5 acres of open water	Wetland buffer is grea	ater than 40%		
Result:	Fish habitat was not as	ssessed for this wetland	CARE AND AND		
日本の世界で					
Rationale:	· · ·				
Real Provide P					
Result:	Wetland's water-quality fund	ction is impacted or degrade	ed		
S = Stribbles	Primary water source is groundwater	Wetland is between 0.	.5 and 5 acres		
Rationale:	Wetland does not flood or pond	Adjacent land is mostly developed			
	High wetland vegetation cover	No adjacent Water Qualit	y Limited streams		
Result:	Wetland's hydrologic cont	rol is impacted or degraded			
Con diana and	Wetland is not within 100 year floodplain	Dominated by wood	y vegetation		
Rationale:	Wetland does not flood or pond	Open space downslope	of development		
The second	Water has unrestricted flow out of wetland	Development upslop	e of wetland		
Result:	Wetland is potentially se	nsitive to future impacts	THE REAL PROPERTY.		
The Constitution	Stream not modified	Adjacent land is mostl	y developed		
Rationale:	Water not taken out	Adjacent zoning is mostly open space			
No. of the second	No adjacent Water Quality Limited streams	Dominated by woody vegetation			
Result:	Wetland has high en	hancement potential			
HARA THERE	Wetland functions are impacted or degraded	Wetland is between 0.5	and 5 acres		
Rationale:	Primary water source is groundwater	Wetland buffer is greater than 40%			
「「「「「「「」」」		Potentially sensitive to future impacts			
Result:	Wetland site is not appro	priate for educational use	ME TO BE - 2		
	No access allowed to wetland	No access point to we	etland exists		
Rationale:	1 or 2 visible safety hazards	Wetland is not limited m	obility accessible		
法理问法	No access or observation of other habitats				
Result:	Wetland is not appropriate or do	es not provide rec. opportu	nities		
合体の設定に	No access point to wetland exists	Wetland provides habitat	for some wildlife		
Rationale:	No boat launching can be developed	No fishing is al	lowed		
	No trails or viewing areas exist	No hunting is a	llowed		
Result:	Wetland is not aest	thetically pleasing			
MILL SEVER	One Cowardin class is visible	Wetland surrounded by la	ndscaped areas		
Rationale:	Less than 25% of wetland can be seen	Natural odors present	at wetland		
The state of the	Visual detractors present, can't be removed	Some traffic and natural no	ises are present		

Appendix E

Locally Significant Wetland Determination Sheets



Locally Significant Wetlands Criteria ORS 197.279 (3)(b)

PHS,

				YA	
Project Name:	Glenwood Area of Springfie	eld LWI	Wetland:	G	S-1
Project Location:	Glenwood, Oregon	Approx	. Area (acres):	0.4	47
Date:	10/7/2009	Wetla	and Types(s):	P	SS
Exclusions : This wet	land cannot be designated as	significant i	if the	1	
an	swer to any of the criteria be	low is "Yes"			
1 Is this wetland arti	ficially created entirely from u	pland and:		-	
a. created for the pur	pose of controlling, storing, or	maintaining	stormwater	- 10 F 40.	No
b. is used for active s	surface mining or as a log pond	l			No
c. is a ditch without a	a free and open connection to r	natural waters	s of the state		No
d. is less than 1 acre	and created unintentionally fro	m irrigation	or construction		No
e. created for the pur	pose of wastewater treatment,	cranberry pro	oduction,		
farm watering, sed	liment settling, cooling industr	ial water, or a	a golf hazard		No
2 Is the wetland or p	ortion of the wetland contamir	nated by haza	rdous		No. 350 met
substances, materi	als or wastes as per the conditi	ons of ORS 1	141-86-350 1(b)	1911 N	No
		Exclusion of	criteria satisfied?		No
Mandatory Locally Si	gnificant Wetland Criteria : T	his wetland	is locally		
significant if "Yes" is	the answer to any of the crit	eria below.			
1 Does the wetland j	provide diverse wildlife habitat	t?			No
2 Is the wetland's <i>fis</i>	h habitat function intact ?				No
3 Is the wetland's wa	ter quality function intact?				No
4 Is the wetland's hy	drologic control function intac	<i>t</i> ?			No
5 Is the wetland less	than 1/4 mile from a water bo	dy listed by I	DEQ as a		
water quality limit	ed water body (303(d) list)and				
is the wetland's wa	ter quality function intact, or in	mpacted or d	legraded?	Yes	
6 Does the wetland of	contain a rare plant community	?			No
7 Is the wetland inha	ibited by any species listed fed	erally as three	atened or		NT :
endangered, or stat	e listed as sensitive, threatened	1 or endanger	red?		No
8 Does the wetland h	have a direct surface water con	nection to a s	stream segment		
mapped by ODF w	as habitat for indigenous anac	iromous saim	ionids <u>and</u>	Ver	
1s the wetland's <i>fish</i>	i nabilat function infact, or imposed	baciea or aeg	graded ?	Yes	in the second be
	Idatory Locany Significant	. wenanu c		Ies	
Optional Locally Sign	ificant Wetland Criteria : loca	l governmen	its may		
identify a wetland as	significant if "Yes" is the ans	wer to the c	riteria below	1	
1 Does the wetland r	epresent a locally unique nativ	e plant comn	nunity and		
provides diverse w	ualife habitat or habitat for so	me species <u>o</u>	<u>)r</u>		
has a intact, or imp	acted or degraded fish habitat	junction or			
nas a intact, or imp	acted or degraded water quality	ity junction of	<u>)</u> [۸۲-
nas a intact, or imp	vaciea or aegraded hydrologic	control junci	non.		INO
2 is the wetland pub.	noty owned and used by a scho	of or organiz	auon <u>and</u>		No
does the wetland p	toriue eaucational uses ?	W/641		Parallel in such that	INO
U	puonal Locally Significant	vvetiana c	riteria satisfied ?	12 Charles	INO
「「「「「「「」」」	Locally Signi	ficant Wet	land		CHERT .
The same second decay is an inclusion of the second	Attachme	ent 1_240	and the second		

achment 1

Locally Significant Wetlands Criteria ORS 197.279 (3)(b)



n 1			117 3777			
Proj	ect Name:	Glenwood Area of Springfi		Wetland:	GS	-2
Projec	et Location:	Glenwood, Oregon Approx. Area (acres):			2.5	3
	Date:	7/27/2009	We	tland Types(s):	PF	0
Exclusi	ons : This we	tland cannot be designated a	s significar	at if the		
	a1	nswer to any of the criteria b	elow is "Y	es".		
1 Is th	nis wetland art	ificially created entirely from	upland and		3 8	
a. crea	ted for the put	rpose of controlling, storing, o	r maintaini	ng stormwater		No
b. is u	sed for active	surface mining or as a log pon	d			No
c. is a	ditch without	a free and open connection to	natural wat	ers of the state		No
d. is le	ess than 1 acre	and created unintentionally fr	om irrigatio	on or construction		No
e. crea	ted for the put	rpose of wastewater treatment,	, cranberry	production,		
farn	n watering, see	diment settling, cooling indust	rial water, o	or a golf hazard		No
2 Is th	ne wetland or	portion of the wetland contami	inated by ha	zardous		
sub	stances, mater	ials or wastes as per the condit	tions of OR	S 141-86-350 1(b)		No
			Exclusio	n criteria satisfied?		No
Mandat	ory Locally S	ignificant Wetland Criteria :	This wetlar	nd is locally		
signific	ant if "Yes" i	s the answer to any of the cr	iteria belov	٧.		
1 Doe	s the wetland	provide diverse wildlife habita	at?			No
2 Is th	ne wetland's fis	sh habitat function intact?				No
3 Isth	ne wetland's w	ater quality function intact?				No
4 Isth	ne wetland's hy	drologic control function inta	ct?			No
5 Isth	ne wetland less	s than $1/4$ mile from a water be	ody listed b	y DEQ as a		
wat	er quality limi	ted water body (303(d) list)an	d			
is th	e wetland's wa	ater quality function intact, or	impacted o	r degraded?	Yes	
6 Doe	s the wetland	contain a rare plant communit	y?			No
7 Isth	ne wetland inh	abited by any species listed fe	derally as the	nreatened or		
end	angered, or sta	te listed as sensitive, threatene	ed or endan	gered?		No
8 Doe	s the wetland	have a direct surface water co	nnection to	a stream segment		
map	ped by ODFV	V as habitat for indigenous ana	dromous s	almonids <u>and</u>		
is th	e wetland's fis	h habitat function intact, or in	npacted or	degraded ?	Yes	
	Ma	ndatory Locally Significar	nt Wetland	d criteria satisfied ?	Yes	S S T
Optiona	I Locally Sign	nificant Wetland Criteria : loc	al governm	nents may		
identify	a wetland as	significant if "Yes" is the ar	iswer to th	e criteria below		
1 Doe	s the wetland	represent a locally unique nati	ive plant co	mmunity and	1	
prov	vides <i>diverse v</i>	vildlife habitat or habitat for s	ome specie	s or		
has	a intact, or im	pacted or degraded fish habite	at function	or		
has	a intact, or im	pacted or degraded water qua	lity functio	<i>n</i> or		
has	a intact, or im	pacted or degraded hydrologi	c control fu	inction.		No
2 Isth	ne wetland put	blicly owned and used by a sch	nool or orga	nization and		
doe	s the wetland	provide educational uses?				No
	ĺ	Optional Locally Significar	nt Wetland	d criteria satisfied ?		No
		· · · · · · · · · · · · · · · · · · ·		÷		
-I.BAS		Locally Sign	nificant W	Vetland	Selenses.	to TY SE

Locally Significant Wetlands Criteria ORS 197.279 (3)(b)



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Pro Excl a. c b. i c. i d. i e. c f 2 2 3 S Man signi	bject Location: Date: Da	Glenwood, Oregon 8/12/2009 and cannot be designated as swer to any of the criteria by ficially created entirely from to pose of controlling, storing, or surface mining or as a log pond a free and open connection to be and created unintentionally from pose of wastewater treatment, liment settling, cooling industri ortion of the wetland contamina als or wastes as per the condition	Approx. Wetlan s significant if elow is "Yes". upland and: r maintaining s d natural waters of cranberry pro- crial water, or a nated by hazard ions of ORS 14	Area (acres): ad Types(s): the tormwater of the state r construction fuction, golf hazard dous	3.7 PSS/I	2 PUB No No No No
Excl 1 1 a. (b. i c. i d. i e. (f 2 1 S Man Sign	Date: Jusions : This wet an Is this wetland arti- created for the pur- is used for active s is a ditch without a is less than 1 acre created for the pur- farm watering, sec is the wetland or p substances, materi	8/12/2009 land cannot be designated as swer to any of the criteria be ficially created entirely from to pose of controlling, storing, of surface mining or as a log pond a free and open connection to be and created unintentionally from pose of wastewater treatment, liment settling, cooling industri ortion of the wetland contaminals or wastes as per the condition	Wetlan s significant if elow is "Yes". upland and: r maintaining s d natural waters of cranberry pro- rial water, or a nated by hazard ions of ORS 14	the tormwater of the state r construction fuction, golf hazard dous		PUB No No No No
Excl 1 1 a. (b. i c. i d. i e. (f 2 1 S Man Sign	<i>usions</i> : This wet an Is this wetland arti- created for the pur- is used for active s is a ditch without a s less than 1 acre created for the pur- farm watering, sec is the wetland or p substances, materi	land cannot be designated as swer to any of the criteria be ficially created entirely from to pose of controlling, storing, or surface mining or as a log pond a free and open connection to be and created unintentionally from pose of wastewater treatment, liment settling, cooling industri- ortion of the wetland contamina als or wastes as per the condition	s significant if elow is "Yes". upland and: r maintaining s d natural waters of cranberry pro- crial water, or a nated by hazard ions of ORS 14	the tormwater of the state r construction fuction, golf hazard dous		No No No No
a. 6 b. i c. i d. i e. 6 f 2 2 3 <i>Man</i> signi	this wetland art created for the pur is used for active s is a ditch without a s less than 1 acre created for the pur farm watering, sec is the wetland or p substances, materi	pose of controlling, storing, or purface mining or as a log pone a free and open connection to and created unintentionally from pose of wastewater treatment, liment settling, cooling industr ortion of the wetland contaminals als or wastes as per the condition	r maintaining s d natural waters of om irrigation of cranberry proc rial water, or a nated by hazard ions of ORS 14	tormwater of the state r construction luction, golf hazard dous		No No No No
b. i c. i d. i e. c f 2 2 3 <i>Man</i> signi	is used for active s is a ditch without a is less than 1 acre created for the pur farm watering, sec is the wetland or p substances, materi	surface mining or as a log pone a free and open connection to and created unintentionally fro pose of wastewater treatment, liment settling, cooling industr ortion of the wetland contaminals als or wastes as per the condition	d natural waters of om irrigation of cranberry proc rial water, or a nated by hazard ions of ORS 14	of the state r construction luction, golf hazard dous		No No No
c. i d. i e. c f 2 2 <i>Man</i> signi	s a ditch without a s less than 1 acre created for the pur farm watering, sec s the wetland or p substances, materi	a free and open connection to and created unintentionally fro pose of wastewater treatment, liment settling, cooling industr ortion of the wetland contamin als or wastes as per the condit	natural waters of om irrigation of cranberry proc rial water, or a nated by hazard ions of ORS 14	of the state r construction luction, golf hazard dous		No No No
d. i e. o f 2] S Man signi	s less than 1 acre created for the pur farm watering, sec is the wetland or p substances, materi	and created unintentionally fro pose of wastewater treatment, liment settling, cooling industr ortion of the wetland contaminals als or wastes as per the condition	om irrigation of cranberry proc rial water, or a nated by hazard ions of ORS 14	r construction luction, golf hazard dous		No
e. (1 2 3 <i>Man</i> signi	farm watering, sec s the wetland or p substances, materi	pose of wastewater treatment, liment settling, cooling industr ortion of the wetland contaminals or wastes as per the condit	cranberry proc rial water, or a nated by hazard ions of ORS 14	luction, golf hazard dous		No
2] S Man signi	farm watering, sec is the wetland or p substances, materi	liment settling, cooling industr ortion of the wetland contaminals or wastes as per the condition	rial water, or a nated by hazard ions of ORS 14	golf hazard dous		No
2] Man signi	s the wetland or p substances, materi	ortion of the wetland contaminals or wastes as per the condition	nated by hazard ions of ORS 14	dous		
Man	substances, materi	als or wastes as per the condit	ions of ORS 14			
Man signi	datory Locally Si	1		41-86-350 1(b)		No
<i>Man</i> signi	datory Locally Si		Exclusion cr	riteria satisfied?		No
signi	manut y more search 136	gnificant Wetland Criteria : T	This wetland is	s locally		
	ificant if "Yes" is	the answer to any of the cri	teria below.			
1]	Does the wetland	provide diverse wildlife habita	nt?			No
2]	s the wetland's fis	h habitat function intact?				No
3]	s the wetland's wo	ter quality function intact?				No
4]	s the wetland's hy	drologic control function intac	ct?			No
5]	s the wetland less	than 1/4 mile from a water bo	dy listed by DI	EQ as a	<u> </u>	
v	water quality limit	ed water body (303(d) list)and	1			
i	s the wetland's wa	ter quality function intact, or a	impacted or de	graded?	Yes	
6 I	Does the wetland o	contain a rare plant community	y?			No
7 I	s the wetland inha	bited by any species listed fee	lerally as threat	tened or	•	
e	endangered, or sta	te listed as sensitive, threatene	d or endangere	d?		No
8 I	Does the wetland l	nave a direct surface water con	nection to a str	ream segment		
r	napped by ODFW	as habitat for indigenous ana	dromous salmo	onids and		
i	s the wetland's fish	h habitat function intact, or im	pacted or degr	aded ?	Yes	
	Mai	ndatory Locally Significan	t Wetland cri	iteria satisfied ?	Yes	a sa te
Opti	onal Locally Sign	ificant Wetland Criteria : loca	al government	s may		
iden	tify a wetland as	significant if "Yes" is the an	swer to the cri	iteria below	· . ·	
1 I	Does the wetland n	epresent a locally unique nativ	ve plant commu	unity and	-	
r	provides diverse w	ildlife habitat or habitat for so	ome species or			
ĺ	as a intact, or imp	pacted or degraded fish habita	t function or	4 4 - 4 - 4		
ł	as a intact, or im	pacted or degraded water qual	lity function or		3	
ł	as a intact, or imp	pacted or degraded hydrologic	control function	on.		No
2 I	s the wetland pub	licly owned and used by a sch	ool or organiza	tion <u>and</u>	LL	
Ċ	loes the wetland p	rovide educational uses?	e e		Τ	No
	· · · · ·	ptional Locally Significan	t Wetland cri	iteria satisfied?		No

Locally Significant Wetlands Criteria ORS 197.279 (3)(b)



Project Name:	Glenwood Area of Springf	ield LWI	Wetland:	GS	-4
Project Location:	Glenwood, Oregon	Ann	rox. Area (acres):	0.8	7
Date:	7/28/2009	W	tland Types(s):	PE	M
Exclusions . This we	tland cannot be designated a	e significa	at if the	1	
Laciusions, This we	nswer to any of the criteria h	elow is "V	es"		
1 Is this wetland art	ificially created entirely from	upland and	•		
a. created for the pu	rpose of controlling, storing, c	r maintaini	ng stormwater		No
b. is used for active	surface mining or as a log pon	ıd			No
c. is a ditch without	a free and open connection to	natural wa	ters of the state		No
d. is less than 1 acre	and created unintentionally fr	om irrigati	on or construction	-	No
e. created for the put	rpose of wastewater treatment	, cranberry	production,	L	
farm watering, se	diment settling, cooling indust	rial water,	or a golf hazard		No
2 Is the wetland or	portion of the wetland contam	inated by h	azardous		
substances, mater	ials or wastes as per the condi	tions of OR	S 141-86-350 1(b)		No
		Exclusio	n criteria satisfied?		No
Mandatory Locally S	ignificant Wetland Criteria :	This wetla	nd is locally		
significant if "Yes" i	s the answer to any of the cr	iteria belo	w.	5	
1 Does the wetland	provide diverse wildlife habite	at?			No
2 Is the wetland's fix	sh habitat function intact?				No
3 Is the wetland's w	ater quality function intact?				No
4 Is the wetland's hy	vdrologic control function into	ict?			No
5 Is the wetland less	s than 1/4 mile from a water b	ody listed b	y DEQ as a		
water quality limi	ted water body (303(d) list)an	<u>id</u>		·····	
is the wetland's wa	ater quality function intact, or	impacted of	or degraded?	Yes	а Т
6 Does the wetland	contain a rare plant communit	ty?			No
7 Is the wetland inh	abited by any species listed fe	derally as t	hreatened or		
endangered, or sta	ate listed as sensitive, threaten	ed or endar	gered?		No
8 Does the wetland	have a direct surface water co	nnection to	a stream segment		
mapped by ODFV	V as habitat for indigenous and	adromous s	almonids and		27
is the wetland's fis	sh habitat function intact, or in	npacted or	degraded ?	N7	No
	Indatory Locally Significal	nt wetlan	a criteria satisfied ?	Yes	美国市市以
Optional Locally Sign	nificant Wetland Criteria : loo	cal govern	nents may		
identify a wetland as	s significant if "Yes" is the a	nswer to th	e criteria below		
1 Does the wetland	represent a locally unique nat	ive plant co	mmunity and		
provides diverse v	vildlife habitat or habitat for s	some specie	s <u>or</u>		
has a intact, or im	pacted or degraded fish habit	at function	or		
has a intact, or im	pacted or degraded water que	any functio	n <u>or</u>		N T
has a intact, or im	pactea or degraded hydrologi	ic control f	INCTION .		No
2 is the wetland put	provide advantige of the set	nool or org	mization and		NT-
does the wetland	provide eaucational uses ?	- 4 XX7-41	J		INO
	Jptional Locally Significal	ut wetlan	u criteria satisfied ?		NO
		1			
Chine PERSE	Locally Sign	nificant V	Vetland		

Locally Significant Wetlands Criteria ORS 197.279 (3)(b)



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Project Name:Glenwood AreProject Location:Glenwood, GDate:8/12/20Exclusions : This wetland cannot be c answer to any of the 1 Is this wetland artificially created end a. created for the purpose of controlling b. is used for active surface mining or c. is a ditch without a free and open compared to the purpose of control	a of Springfield LWI Oregon Appr 09 We lesignated as significar he criteria below is "Y ntirely from upland and 1g, storing, or maintaining	Wetland: rox. Area (acres): etland Types(s): nt if the es".	GS-5 4.31 PFO
Project Location:Glenwood, GDate:8/12/20Exclusions : This wetland cannot be answer to any of t1 Is this wetland artificially created eta. created for the purpose of controllinb. is used for active surface mining orc. is a ditch without a free and open control	Oregon App 09 We lesignated as significar he criteria below is "Y ntirely from upland and 1g, storing, or maintaining	rox. Area (acres): etland Types(s): nt if the es".	4.31 PFO
Date:8/12/20Exclusions : This wetland cannot be answer to any of t1 Is this wetland artificially created era. created for the purpose of controllingb. is used for active surface mining orc. is a ditch without a free and open control	09 We lesignated as significar he criteria below is "Y ntirely from upland and 1g, storing, or maintaining	etland Types(s): nt if the es".	PFO
 Exclusions : This wetland cannot be a answer to any of t 1 Is this wetland artificially created et a. created for the purpose of controllin b. is used for active surface mining or c. is a ditch without a free and open control 	lesignated as significat he criteria below is "Y ntirely from upland and 1g, storing, or maintaining	nt if the es".	
 answer to any of t 1 Is this wetland artificially created e a. created for the purpose of controllin b. is used for active surface mining or c. is a ditch without a free and open control 	he criteria below is "Y ntirely from upland and 1g, storing, or maintaining	es".	W
 Is this wetland artificially created e a. created for the purpose of controllin b. is used for active surface mining or c. is a ditch without a free and open co 	ntirely from upland and 1g, storing, or maintaining		4
 a. created for the purpose of controllin b. is used for active surface mining or c. is a ditch without a free and open co 	ig, storing, or maintaini		_
b. is used for active surface mining or c. is a ditch without a free and open co		ng stormwater	No
c. is a ditch without a free and open co	as a log pond		No
T see a second se	onnection to natural wat	ers of the state	No
d. is less than 1 acre and created unint	entionally from irrigation	on or construction	No
e. created for the purpose of wastewat	er treatment, cranberry	production,	
farm watering, sediment settling, co	oling industrial water, o	or a golf hazard	No
2 Is the wetland or portion of the wet	land contaminated by ha	azardous	
substances, materials or wastes as p	er the conditions of OR	S 141-86-350 1(b)	No
	Exclusio	n criteria satisfied?	No
Mandatory Locally Significant Wetlan	d Criteria : This wetlar	nd is locally	1
significant if "Ves" is the answer to a	ny of the criteria below	w	
1 Does the wetland provide diverse w	vildlife habitat?		No
2 Is the wetland's fish habitat function	nange naonan . 1 intact ?		No
3 Is the wetland's <i>water quality function</i>	on intact?		No
4 Is the wetland's hydrologic control:	function intact?		No
5 Is the wetland less than 1/4 mile from	m a water body listed b	v DEO as a	
water quality limited water body (3)	03(d) list) and		
is the wetland's <i>water quality function</i>	on intact or impacted o	r degraded?	No
6 Does the wetland contain a rare play	nt community?		No
7 Is the wetland inhabited by any spe	cies listed federally as the	nreatened or	
endangered, or state listed as sensiti	ve, threatened or endan	gered?	No
8 Does the wetland have a direct surf	ace water connection to	a stream segment	
mapped by ODFW as habitat for in-	digenous anadromous sa	almonids and	
is the wetland's fish habitat function	intact, or impacted or a	degraded?	No
Mandatory Locally	Significant Wetland	I criteria satisfied ?	No
Ontional Locally Significant Watland	Criteria : local governa	nents may	
identify a wetland as significant if "V	es" is the answer to th	e criteria below	
1 Does the wetland represent a locally	unique native plant cor	mmunity and	
provides diverse wildlife habitat or	habitat for some species	s or	<u>.</u>
has a intact or impacted or degrade	ed fish habitat function	or	
has a intact, or impacted or degrade	ed water quality function	n or	
has a intact, or impacted or degrade	ed hydrologic control fu	nction	No
2 Is the wetland publicly owned and 1	used by a school or orga	nization and	
does the wetland provide <i>education</i>	al uses?		No
Ontional Locally	v Significant Wetland	criteria satisfied ?	No

Locally Significant Wetlands Criteria ORS 197.279 (3)(b)



Project Name:	Glenwood Area of Sprin	ngfield LWI	Wetland:	GS-6	<u>.</u>	
Project Location:	Glenwood, Oregon	Appr	ox. Area (acres):	0.86		
Date:	Date: 7/28/2009 Wetland Types(s):					
Exclusions : This we	tland cannot be designated	d as significan	t if the			
a	nswer to any of the criteri	a below is "Ye	es".			
1 Is this wetland art	ificially created entirely fro	om upland and:				
a. created for the put	rpose of controlling, storing	g, or maintainir	ng stormwater		No	
b. is used for active	surface mining or as a log p	oond			No	
c. is a ditch without	a free and open connection	to natural wat	ers of the state		No	
d. is less than 1 acre	and created unintentionally	y from irrigatio	n or construction	×	No	
e. created for the put	rpose of wastewater treatme	ent, cranberry j	production,			
farm watering, see	diment settling, cooling ind	ustrial water, o	r a golf hazard		No	
2 Is the wetland or j	portion of the wetland conta	aminated by ha	zardous			
substances, mater	ials or wastes as per the cor	nditions of OR	<u>8 141-86-350 1(b)</u>		No	
		Exclusion	n criteria satisfied?		No	
Mandatory Locally S	ignificant Wetland Criteria	a : This wetlan	d is locally	-		
significant if "Yes" i	s the answer to any of the	criteria below	۷.			
1 Does the wetland	provide diverse wildlife had	bitat?			No	
2 Is the wetland's f	sh habitat function intact?	•			No	
3 Is the wetland's water quality function intact?					No	
4 Is the wetland's hydrologic control function intact?					No	
5 Is the wetland less	s than $1/4$ mile from a wate	r body listed by	y DEQ as a			
water quality limi	ted water body (303(d) list))and	1 1 10		<u></u>	
is the wetland's we	ater quality function intact,	or impacted of	r degraded?		NO	
6 Does the wetland	contain a rare plant commu	inity?			No	
7 Is the wetland inn	abited by any species listed	i federally as tr	reatened or		NT-	
endangered, or sta	te listed as sensitive, threat	tened or endang	gerea?		NO	
8 Does the wetland	have a direct surface water	connection to	a stream segment			
is the wetlend's fir	v as nabital for indigenous	anadromous sa	doornadad 2		No	
Is the wetland s/is	n hadilal junction iniaci, ol ndatory Locally Signifi	r impaciea or a	legraded ?	- Contraction of the second se	No	
Ivia	indatory Locarty Signing		r criteria satisfieu ?	March 199	140	
Optional Locally Sign	ificant Wetland Criteria :	local governn	ients may			
identify a wetland as	significant if "Yes" is the	e answer to the	e criteria below			
Does the wetland	represent a locally unique i	native plant con	mmunity and			
provides diverse v	vilalife habitat or habitat jo	or some species	s <u>or</u>			
has a intact, or im	pacted or degraded fish ha	bitat function	<u>or</u>			
nas a intact, or im	paciea or aegraded water	quality function	7 <u>Oľ</u>		N.	
nas a intact, or im	paciea or aegraaea nyarol	ogic control fu	ncuon.		1N0	
2 Is the wetland put	provide advantional used by a	school or orga	mzation and		Ne	
	Detional Leasther Start	aant 11/241	anitonia anti-E-J o	A STREET OF	INO	
(puonal Locally Signific	cant wettand	criteria satisfied ?	Area States 1	110	
-						
Does	not satisfy the criteria	a, Not a Loc	ally Significant W	etland		

Locally Significant Wetlands Criteria ORS 197.279 (3)(b)



 \mathbb{C}

Project Name:	Glenwood Area of Springfi	eld LWI	Wetland:	WR-7	
Project Location:	Glenwood, Oregon	Approx. Area (acres):		0.51	
Date:	Date: 9/15/2009 · Wetland Types(s):				
Exclusions : This we	tland cannot be designated as	s significant i	f the		
a	nswer to any of the criteria b	elow is "Yes'	!		
1 Is this wetland ar	tificially created entirely from	upland and:			
a. created for the pu	rpose of controlling, storing, or	r maintaining	stormwater	No	
b. is used for active	surface mining or as a log pone	d		No	
c. is a ditch without	a free and open connection to	natural waters	s of the state	No	
d. is less than 1 acre	e and created unintentionally fro	om irrigation of	or construction	No	
e. created for the pu	rpose of wastewater treatment,	cranberry pro	oduction,		
farm watering, se	diment settling, cooling indust	rial water, or a	a golf hazard	No	
2 Is the wetland or	portion of the wetland contami	nated by haza	rdous		
substances, mater	rials or wastes as per the condit	ions of ORS 1	141-86-350 1(b)	No	
		Exclusion of	criteria satisfied?	No	
Mandatory Locally S	lignificant Wetland Criteria : 1	This wetland	is locally		
significant if "Yes" i	is the answer to any of the cri	teria below.			
1 Does the wetland	provide diverse wildlife habita	nt ?		No	
2 Is the wetland's fi	sh habitat function intact?			No	
3 Is the wetland's w	Is the wetland's water quality function intact?				
4 Is the wetland's h_{j}	4 Is the wetland's hydrologic control function intact?				
5 Is the wetland les	s than 1/4 mile from a water bo	dy listed by I	DEQ as a		
water quality limi	ited water body (303(d) list)and	<u>1</u>			
is the wetland's w	ater quality function intact, or a	impacted or d	legraded?	Yes	
6 Does the wetland	contain a rare plant community	y?		No	
7 Is the wetland inh	abited by any species listed fee	derally as three	atened or		
endangered, or sta	ate listed as sensitive, threatene	d or endanger	red?	No No	
8 Does the wetland	have a direct surface water cor	nnection to a s	stream segment		
mapped by ODFV	W as habitat for indigenous ana	dromous salm	ionids <u>and</u>		
is the wetland's fis	sh habitat function intact, or im	pacted or deg	graded ?	No	
Ma	indatory Locally Significan	t Wetland c	riteria satisfied ?	Yes	
Optional Locally Sign	nificant Wetland Criteria : loc	al governmen	its may		
identify a wetland as	s significant if "Yes" is the an	swer to the c	riteria below		
1 Does the wetland	represent a locally unique nativ	ve plant comn	nunity <u>and</u>	-	
provides diverse v	vildlife habitat or habitat for so	ome species <u>o</u>	<u>r</u>		
has a <i>intact, or im</i>	pacted or degraded fish habita	t function or			
has a intact, or im	pacted or degraded water qua	lity function o	<u>or</u>		
has a intact, or im	pacted or degraded hydrologic	c control funct	tion.	No	
2 Is the wetland put	blicly owned and used by a sch	ool or organiz	ation <u>and</u>		
does the wetland	provide educational uses?			No	
	Intional Locally Significan	t Wetland c	ritaria satisfied ?	No	

Appendix F

OFWAM Field Forms and Summary Tables



WETLAND CHARACTERIZATION - WATERSHED SETTING QUESTIONS 1-14* OFWAM

Drainage Basin / Watershed Name	Square Miles	Average Slope	Stream Flow Modified	Active Irrigation or Diking Upstream	Dominant Land Use (Upstream)	Streams/Water Quality Limited	Non-Point Sources	Fisheries	S/T/E Fish Species	Wildlife Species	S/T/E Plant or Wildlife Species	Natural Corridor /Fish & Wildlife	Landscape Features/ Both Ends Corridor
Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	Q.12	0.13	0.14
Upper Willamette / Glenwood Slough At Com Ban Com Ban Com Ban Com Ban Com Ban Com Ban Com Ban Com Ban San Com Ban San San San San San San San San San S	1.06	33%	A. tributaries are modified	b. No	a. Urban	a. the Willamette River is listed as water quality limited	A. The Oregon water quality index report for the portion of the Willamette River that goes through Springfield (next City to Glenwood) rates as excellent.	a. cold water species; cutthroat b. warm water species c. anadromous	a. yes, Chinook salmon, Coho salmon, Cutthroat trout, Steelhead	a. migratory birds c. nesting birds	a. yes, potential listed species in Lane County, which could potentially be in the Glenwood area include: Marbled murrelet, Snowy plover, brown pelican, Northern spotted owl, Fender's blue butterfly, Oregon silverspot butterfly, Cregon silverspot butterfly, and Bradshaw's desert navlew	Wildlife and fish b. The natural areas are fragmented, but species movement is still possible.	b. The NW end has a natural habitat area and the SE end is developed.

* Questions 1 through 14 apply to all wetlands within the LWI study area and Questions 15 through 40 are provided for each wetland on the Wetland Characterization - Field Form.

Wetland Characterization -- Field Form

PHS

Project Name:

Glenwood LWI

Wetland Code: 65-1

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding	Wetlan	d Habitat	Fisheries	Habitat	Wetland H	lydrology
Q A	Q	Α	Q	A = ²	Q	A
Q-15	Q-21		Q-29	C	Q-36	С
1 B.	1		Streams co	nnected to	· Q-37	C.
2 A	2	-	the W	etland	Q-38	B
3 / A	3	A	Q	A	Q-39	U
4 C	4	-	Q-30	C	Q-40	A
5	Q-22	Å	Q-31	A		
Q-16 C	Q-23	A	Q-32	Ċ		
Q-17 B	Q-24	C	Laker an	d Ponde		
Q-18 A	Q-25	N/A	Lakes an	iu i onus		
Q-19 B	Q-26	R	Q	Α		
Q-20	Q-27	A	Q-33	A	1	
1 A	Q-28	C	Q-34	Ċ		
2 A.			Q-35	C/	1	
3 A]					
4 C]					
-	1					

Wetland Characterization -- Field Form



Project Name:

Glenwood LWI

Wetland Code: 65-2

Watershed Setting: (Questions 1-14) See Attached Table

We Struct Relat Surro	tland ure and tion to unding	Wetland	Habitat	Fisheries	Habitat	Wetland I	Lydrology.
Q	Α	Q	Α	Q	\mathbf{A}^{ij}	Q	A
Q-15		Q-21		Q-29	C	Q-36	С
1	B	1 -	-	Streams co	nnected to	· Q-37	B
2	A	2 -	-	the We	tland	Q-38	B
3	A	3	-	Q	Α	Q-39	- 1997 - 1997
4	C	4 1	4	Q-30	B	Q-40	A
5		Q-22	A	Q-31	B	2	
Q-16	A	Q-23	A	Q-32	Ċ		
Q-17	B	Q-24	C	Lakes an	d Ponds		
Q-18	À	Q-25	N/A		a ronas		1
Q-19	B	Q-26	A	Q	A		
Q-20		Q-27	A	Q-33	B	÷ .	
1 1	A	Q-28	Ċ	Q-34	Č	а а _с	
· 2	A.			Q-35	B		
3	A				2	•	
4	C						
F							

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: <u>68-3</u>

Watershed Setting: (Questions 1-14)

See Attached Table

Wetland Structure and Relation to Surrounding	Wetland H	abitat	Fisheries	Habitat	Wetland F	lydrology
Q A	Q	A	Q	A	Q	A
Q-15	Q-21		Q-29	C	Q-36	C
1 A	1 P	t	Streams con	nected to	· Q-37	A
2 19	2	-	the We	tland	Q-38	\overline{C}
3 A	3 E	>	Q	- A	Q-39	
4 Ç	4	-	Q-30	C	Q-40	A
5 —	Q-22	5	Q-31	A		
Q-16 A	Q-23	B	Q-32	B		
Q-17 B	Q-24	B	Laker an	Ponde		
Q-18 A	Q-25	N/A	Lakes and	1 FORUS		
Q-19 B	Q-26	в	Q	A		
Q-20	Q-27	C	Q-33	A		
1 A	Q-28	B	Q-34	В		
2 A.			Q-35	Č		
3 A]					
4 C]		÷			
5						

Wetland Characterization -- Field Form

Project Name:

Glenwood LWI

Wetland Code: 65-4

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding	Wetland Habitat	Fisheries Habitat	Wetland Hydrology
Q A	Q A	Q A	Q A
Q-15	Q-21	Q-29 C	Q-36 C
1 A	. 1 -	Streams connected to	· Q-37 A
2 🏟	2 P	the Wetland	Q-38 C
3 A	3 -	Q A	Q-39
4 B	4 -	Q-30	Q-40 B
5 —	Q-22 A	Q-31	
Q-16 A	Q-23 C	Q-32	÷
Q-17 C	Q-24 C	Lakes and Ponds	-
Q-18 A	Q-25 N/A		
Q-19 B	Q-26 C	Q A	
Q-20	Q-27 A	Q-33	
1 12	Q-28	Q-34	
2 A.	5	Q-35	-
3 A			
4 C			
_			

Wetland Characterization -- Field Form

Project Name:

Glenwood LWI

Wetland Code: 65-5

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding	Wetland Habitat	Fisheries Habitat	Wetland Hydrology
Q A	Q A	Q A	Q A
Q-15	Q-21	Q-29	Q-36 C
1 C	1 ~	Streams connected to	· Q-37
2 🎢	2 -	the Wetland	Q-38 Č
3 PA	3	Q A	Q-39
4 C	4 A	Q-30	Q-40 B
5 A rairoad	Q-22 h	Q-31	
Q-16 C	Q-23 A	Q-32	
Q-17 C	Q-24 C	Lakes and Ponds	
Q-18 C	Q-25 N/A	Lakes and I onus	
Q-19 B	Q-26 C	Q A	
Q-20	Q-27 C	Q-33	
1 A	Q-28 C	Q-34	
2 A		Q-35	
3 PA			-
4 C			
5			

Wetland Characterization -- Field Form

PHS

Project Name:

Glenwood LWI

Wetland Code: 65-6

Watershed Setting: (Questions 1-14)

See Attached Table

Wetland Structure and Relation to Surrounding	Wetland Habitat	Fisheries Habitat	Wetland Hydrology
Q A	Q A	Q A	Q A
Q-15	Q-21	Q-29 C	Q-36 C
1 C	1 -	Streams connected to	· Q-37 🗛
2 19	2 A	the Wetland	Q-38 C
3 14	3 -	Q A	Q-39
4 A	4 -	Q-30 C	Q-40 🕑
5	Q-22 m	Q-31 C	
Q-16 A	Q-23	Q-32	
Q-17 🕑	Q-24 C	Lakes and Ponds	
Q-18 B	Q-25 N/A		
Q-19 B	Q-26 B	Q A	
Q-20	Q-27 B	Q-33 (1	
1 A	Q-28 C	Q-34 C	
2 A.		Q-35 C	
3 A			
4 C			
-			

Wetland Characterization -- Field Form

Project Name:

Glenwood LWI

Wetland Code: WE-7

Watershed Setting: (Questions 1-14)

See Attached Table

Wetland Structure and Relation to Surrounding	Wetland Habitat	Fisheries Habitat	Wetland Hydrology
Q A	Q A	Q A	Q A
Q-15	Q-21	Q-29	Q-36 C
1 C	1 ~	Streams connected to	· Q-37 C
2 19	2 -	the Wetland	Q-38 C
3 🕂	3 —	Q A	Q-39
4 A	4 🏳	Q-30	Q-40 B
5 —	Q-22 🛧	Q-31	
Q-16 A	Q-23 A	Q-32	
Q-17 B	Q-24 C	- Lakes and Ponds	
Q-18 A	Q-25 N/A		
Q-19 👸	Q-26 A	Q	
Q-20	Q-27 A	Q-33	1
1 C	Q-28 C	Q-34	1
2 A.		Q-35	1
3 A	1		-
4 🏟			

Appendix G

Riparian Data Forms



Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: West of I-5, south of
	Franklin Blvd.
Date: 7/28/2009	Riparian Code: R-GS-1
On-site: 🗵 Off-Site: 🗆	Reach Length: 1,681 feet
Investigators: <u>SE - ME</u>	Hydrologic Basin: Glenwood Slough
WATER RESOURCE INFORMATION	
Water Resource: Stream/River: x	Width: 120 feet
Lake/Pond:	Width:feet
Wetland: x	Width: 50 feet
LWI Wetland Code: GS-2	2
water present year-round: Yes	
Are salmonids present in the adjacent wate	er resource? Yes 🗆 No 🗵
Is the water resource listed for temperatur	re on DEQ's 303(d) list: Yes 🗆 No 🗵
Within FEMA-mapped 100-year floodplain	in: Yes 🗆 No 🗵
Mapped soil series:	Chehalis silty clay loam
Adjacent Land Uses? (Check as many as needed	d)
Agriculture: 🗆	Roads: 🗵
Commercial/Indus.: 🗵 Undev	veloped:
Residential: D F	Forestry:
Woody vegetation	Herbaceous vegetation
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)
Populus trichocarpa	Festuca arundinacea
Cytisus scoparius	Plantago lanceolata
Rubus discolor	Daucus carota
Robinia pseudoacacia	Aira caryophyllea
Fraxinus latifolia	Lathyrus sp.
Cornus stolonifera	Cirsium arvense
Salix species	mixed grasses (unidentified)

1 meter = 3.2 feet

RIPA	$\frac{\text{EXHIBIT E-108}}{\text{RIAN CODE: } \mathbf{R-GS-1}}$
Average slope in the riparian area: (Question 1)	
<10:1 (10%) \square Between 10:1 (10%) and 5:1 (20%) \boxtimes >5:1 (2	20%) 🗆
Extent of impervious surface within the riparian area. (Question 4)	
<10% 🗆 10% - 25% 🖾 >25% 🗖	
Is the reach constricted by man-made features? (Question 8)	
Yes D No 🗵	
Does the orientation of the riparian area allow for shading of the was summer? (Question 9)	ater resource at midday in
Yes 🖾 No 🗖	
Dominant vegetation layer within riparian area? (Question 10)	
Woody vegetation I Herbaceous vegetation Ba	re ground
Does woody vegetation hang over the edge of the water? (Questions 11	& 14)
Yes 🗵 No 🗆	
Large woody debris in riparian area? (Question 15)	
Yes 🖾 No 🗆	
Percent of water resource bordered by vegetated riparian area at le	ast 30 feet wide? (Question 16)
>40% 🗵 10% - 40% 🗆 <10% 🗖	
Degree of development or human caused disturbance. (Question 19)	
<25% D 25% - 75% X >75% D	
How does the NRCS soil survey rank water erosion hazard of the de the Riparian Area? (Question 5)	ominant mapped unit in
low, slight moderate 🖾 high, very high, severe	
What is the dominant vegetation at the top of bank (if defined) or ea	lge of water resource? (Question 3)
Woody vegetation \square Herbaceous vegetation \square Ba	re ground 🛛
Are there flood prone areas (adjacent flat areas, depressions, swales floodplain, etc.) beyond the top of bank or edge of the water resource	FEMA mapped 100-year (Question 6)
Yes 🖾 No 🗖	
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 f flood prone riparian area?	feet) high dominant in the
Yes \boxtimes No or no flood prone area present \Box	
How many vegetation layers (i.e. canopy, mid-story, groundcover) a	re present?
More than 2 🗵 2 layers 🗍 1 layer or unverse Attachment 1-258	getated

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE
R-GS-1

Date:	7/28/2009		Investigators:	SE - ME			
Dominant	tree species:	Populi	ıs trichocarpa	<u>(</u> s	ee other side t	for list of specie	es)
Potential tree height (PTH)/Actual Width of riparian area : 120/50 fe						feet	
(Width measured horizontally from edge of water resource)							
PTH deter	mined by:						
On-	-site vegetation	X	Reference site		Code		
		1					

Comments:Drainage through wetland GS-2. The eastern portions of the drainage appear tobe intermittent as no hydrology was identified during the July 2009 site visit. The western portion,just west of I-5 is perennial as flowing water was observed during an October 2009 site visit.

Typical Cross Section:



HIGH

FUNCTION IS:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield RIPARIAN CODE WATER QUALITY **R-GS-1** 1. What is the average slope in the riparian area? Score a. Less than 10:1 (10%) 3 pts b. Between 10:1 (10%) and 5:1 (20%) 2 pts 2 c. Greater than 5:1(20%)1 pt 2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts 2 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 3 c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 3 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts b. Between 10% and 25% 2 pts 2 c. Greater than 25% 1 pt 5 <u>5</u> 20 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts 2 1 pts b. High, severe, very high **Total Points:** 12 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)

Riparian Functional Assessment Answer She	et	PHS
Glenwood Area of Springfield	F	
		RIPARIAN CODE
FLOOD MANAGEMENT		R-GS-1
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes	3 pts	3
b. No	1 pt	
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes b. No or no flood prone area present 	3 pts 1 pt	3
8. Is the stream or water resource constricted by man-made features		
(e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	3
b. Yes	1 pts	
Function: High (8-9 nts) Medium (5-7 nts) I ow (3-4 nts)	Total Points:	9
runenon. 111gn (0-> pts) meurum (3-> pts) 110m (3-4 pts)		
FU	NCTION IS:	HIGH

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE THERMAL REGULATION **R-GS-1** 9. Does the aspect or orientation of the riparian area allow for shading of water Score at midday in the summer? a. Yes 3 pts 3 b. No 1 pt 10. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts 2 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 3 c. Bare ground 1 pt 11. Does woody vegetation hang over the edge of the water? 2 a. Yes 2 pts b. No 1 pts 8

Medium (5-6 pts) Low (3-4 pts)

Function:

High (7-8 pts)

Total Points:

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE WILDLIFE HABITAT **R-GS-1** 12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? Score a. More than 2 layers 3 pts b. 2 layers 2 pts 3 c. 1 layer, or unvegetated 1 pt 44 # #2.2.2.8 # #4404% # #222% # 164447 # 8 822% # 8 84444 # 82772% # 84444 # 7223% # 84 13. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt 14. Does woody vegetation hang over the edge of the water? a. Yes 2 2 pts b. No 1 pt 15. Is large woody debris present within the riparian area? 3 pts a. Yes 3 b. No 1 pt 16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide? a. Greater than 40% 3 pts b. Between 10% and 40% 2 pts 3 1 pt c. Less than 10%

Questions continued on next page
Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE WILDLIFE HABITAT (continued) R-GS-1 17. Is surface water present throughout the year? Score a. Yes 3 pts b. No 1 pt 1 18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach? a. Yes 3 pts 3 b. No 1 pt 19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area? a. Less than 25% 3 pts b. Between 25% and 75% 2 pts 2 c. Greater than 75% 1 pt 20 **Total Points:**

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

HIGH

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: ODOT ROW located E of I-5,			
	W of Judkins Dedicated Rd.			
Date: 7/27/2009	Riparian Code: R-GS-2 Left bank			
On-site: 🗵 Off-Site: 🗆	Reach Length: 1,740 feet			
Investigators: SE - ME	Hydrologic Basin: Glenwood Slough			
	· · · · · · · · · · · · · · · · · · ·			
WATER RESOURCE INFORMATION				
Water Resource: Stream/River: x	Width: 2-5 feet			
Lake/Pond:	Width: feet			
Wetland:	Width: feet			
LWI Wetland Code: GS-4				
Water present year-round: Yes 🗵	No 🗆			
Are salmonids present in the adjacent water	resource? Yes 🗆 No 🗵			
Is the water resource listed for temperature of	on DEQ's 303(d) list: Yes 🖾 No 🗆			
	· · · · ·			
Within FEMA-mapped 100-year floodplain:	Yes D No 🗵			
Mapped soil series: Dixonville-Philomath-Haz	zelair complex, Pengra silt loam, Pengra-Urban Land complex			
· · · · · · · · · · · · · · · · · · ·				
Adjacent Land Uses? (Check as many as needed)				
Agriculture: 🔲 🛛 🖁 🖁 🖁	loads: X			
Commercial/Indus: 🗵 Undevel	oned:			
Residential:	estry:			
woody vegetation	Herbaceous vegetation			
(trees, shrubs, vines >1 meter)	Dinggeng gylycostrig			
Rubus discolor	Hupericum perforatum			
Cutizeus scongrius				
Frazinus latifolia	Juncus effusus			
Symphoricarpos albus	mowed grasses (unidentified)			
Salix lasiandra	Lathyrus sp.			
Populus trichocarpa				
1 meter = 3.2 feet	· · · · · · · · · · · · · · · · · · ·			

۴ ٦
EXHIBIT E-116 RIPARIAN CODE: R-GS-2 Left bank
Average slope in the riparian area: (Question 1)
$<10:1 (10\%)$ \square Between 10:1 (10%) and 5:1 (20%) \square $>5:1 (20\%)$ \boxtimes
Extent of impervious surface within the riparian area. (Question 4)
<10% 10% - 25% ×25% ×
Is the reach constricted by man-made features? (Question 8)
Yes \Box No \boxtimes
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)
Yes 🗵 No 🗆
Dominant vegetation layer within riparian area? (Question 10)
Woody vegetation \Box Herbaceous vegetation \boxtimes Bare ground \Box
Does woody vegetation hang over the edge of the water? (Questions 11 & 14)
Yes 🗵 No 🗆
Large woody debris in riparian area? (Question 15)
Yes \Box No \boxtimes (
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)
>40% 🗆 10% - 40% 🗖 <10% 🖾
Degree of development or human caused disturbance. (Question 19)
<25% D 25% - 75% D >75% X
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)
low, slight moderate \Box high, very high, severe \boxtimes
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)
Woody vegetation \square Herbaceous vegetation \square Bare ground \square
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)
Yes 🗆 No 🗵
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?
Yes \square No or no flood prone area present \square
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?
More than 2 Image: 2 layers I layer or unvegetated Image: Attachment 1-266

feet

Glenwood Area of Springfield RIPARIAN CODE R-GS-2 Left Bank Date: 7/28/2009 Investigators: SE - ME Populus trichocarpa **Dominant tree species:** (see other side for list of species) Potential tree height (PTH)/Actual Width of riparian area : 120/40 (Width measured horizontally from edge of water resource) PTH determined by: **On-site vegetation** ⊠ Reference site Code

Riparian Width Determination

R-GS-2 is bordered to the west by I-5. The northern portion is culverted for **Comments:** approximately 462 feet before it daylights under the I-5 bridge before continuing north to the Willamette River. There is an unnamed perennial drainage that begins on the west side of I-5 and is culverted under the freeway where it converges with the culverted portion of R-GS-2. Oregon Department of Fish and Wildlife representative, Jeff Ziller, said this drainage has Cuttroat trout. The left & right bank are similar but the average slope of the left bank is 20% and the impervious surface is >25%. **Typical Cross Section:**



Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-2

Left bank

Glenwood Area of Springfield

WATER QUALITY

1. What is the average slope in the riparian area?	Score
a. Less than 10:1 (10%) 3 pts	
b. Between 10:1 (10%) and 5:1 (20%) 2 pts	1
c. Greater than 5:1 (20%) 1 pt	
2. What is the dominant vegetation cover in the riparian area?	
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts	2
c. Bare ground 1 pt	
3. What is the dominant vegetation at the top of bank (if defined)	
or edge of water resource?	(
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts	3
c. Bare ground 1 pt	
4. What is the extent of impervious surfaces within the riparian area?	
a. Less than 10% 3 pts	
b. Between 10% and 25% 2 pts	1
c. Greater than 25%	
5. How does the Natural Resources Conservation Service (formerly	
Soil Conservation Service) soil survey rank the water erosion hazard	
of the dominant mapped unit in the riparian area? Select the highest	
water erosion hazard description if more than one is listed.	
a. Low, slight, moderate 2 pts	1
b. High, severe, very high 1 pts	
Total Points:	8
Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	
FUNCTION IS:	MEDIUM

Riparian Functional Assessment Answer Sheet	PHS
Glenwood Area of Springfield	
FLOOD MANAGEMENT	RIPARIAN CODE R-GS-2 Left bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?	Score
a. Yes3 pts b. No1 pt	s <u>1</u>
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?	
a. Yes 3 pts b. No or no flood prone area present1 pt	s <u>1</u>
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?	
a. No3 pt: b. Yes1 pt:	s <u>3</u>
Total Points	s: <u>5</u>
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)	

FUNCTION IS:

MEDIUM

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

Function:

9.). Does the aspect or orientation of the riparian area allow for shading of water					
	at midday in the summer?					
	a. Yes	3 pts	3			
	b. No	1 pt				
10.	What is the dominant vegetation layer in the riparian area?					
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts				
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2			
	c. Bare ground	1 pt				
11.	Does woody vegetation hang over the edge of the water?					
	a. Yes	2 pts	2			
	b. No	1 pts				

Total Points:

7

.

High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Attachment 1-270

RIPARIAN CODE R-GS-2

Left bank

Glenwood Area of Springfield RIPARIAN CODE R-GS-2 WILDLIFE HABITAT Left bank 12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? Score a. More than 2 layers 3 pts b. 2 layers 2 pts 3 c. 1 layer, or unvegetated 1 pt 13. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 1 pt c. Bare ground 14. Does woody vegetation hang over the edge of the water? a. Yes 2 pts 2 ┿╡**╕┙╣╩╝╕╕┇┟╾╾┽┇┇╻┎╔╫╝╏┇╞╧┿┿╕╕┎╔╦╦╦╝╏╞┿╾┿╡┇**╠╦╦┇┇╏┟┿┶┿╡╏╞╦╦┇╛╕┟┿╼┿╡╙╸╟╦╦╢╛<mark>┠┷╼┿┨┇┠╝╦╖╛╖╸┝┿┿┥╵</mark>╒╦╦╦╛ b. No 1 pt 15. Is large woody debris present within the riparian area? a. Yes 3 pts 1 1 pt b. No 16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide? a. Greater than 40% 3 pts b. Between 10% and 40% 2 pts 1 c. Less than 10% 1 pt

Riparian Functional Assessment Answer Sheet

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-2

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17.	Is surface water present throughout the year?		Score
	a. Yes	3 pts	
	b. No	1 pt	3
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond)		
	within or immediately adjacent to the riparian reach?		
	a. Yes	3 pts	. 1
	b. No	1 pt	-
19.	What is the degree of development or human-caused disturbance (e.g. buildings,		
	impervious surfaces, lawns, agriculture, trash) in the riparian area?		,
	a. Less than 25%	3 pts	(
	b. Between 25% and 75%	2 pts	1
	c. Greater than 75%	1 pt	
	Το	tal Points:	14

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: ODOT ROW located E of I-5,			
	W of Judkins Dedicated Rd.			
Date: 7/27/2009	Riparian Code: R-GS-2 Right bank			
On-site: 🗵 Off-Site: 🗆	Reach Length: 1,740			
Investigators: <u>SE - ME</u>	Hydrologic Basin: Glenwood Slough			
WATER RESOURCE INFORMATION				
Water Resource: Stream/River: x Lake/Pond: Wetland: LWI Wetland Code: GS-4	Width: 2-5 feet Width: feet Width: feet			
water present year-round: Yes				
Are salmonids present in the adjacent wat	er resource? Yes 🗆 No 🗵			
Is the water resource listed for temperatur	re on DEQ's 303(d) list: Yes ⊠ No □			
Within FEMA-mapped 100-year floodplai	n: Yes 🗆 No 🗵			
Mapped soil series: Dixonville-Philomath-	Hazelair complex, Pengra silt loam, Pengra-Urban Land complex			
Adjacent Land Uses? (Check as many as needed	1)			
Agriculture: Commercial/Indus.: Under Residential: F	Roads: 🗵 veloped: 🗆 'orestry: 🗆			
Woody vegetation	Herbaceous vegetation			
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)			
Acer macrophyllum	Dipsacus sylvestris			
Rubus discolor	Hypericum perforatum			
Cytisus scoparius	Festuca arundinacea			
Fraxinus latifolia	Juncus effusus			
Symphoricarpos albus	mowed grasses (unidentified)			
Salix lasiandra	Lathyrus sp.			
Populus trichocarpa				

1 meter = 3.2 feet

	EXHIBIT E-124 RIPARIAN CODE: R-GS-2 Right bank
Average slope in the riparian area: (Question 1)	
<10:1 (10%) Between 10:1 (10%) and 5:1 (20%)	>5:1 (20%)
Extent of impervious surface within the riparian area. (Qu	estion 4)
<10% 10% - 25% >25%	% 🗆
Is the reach constricted by man-made features? (Question 8)	
Yes 🗆 No 🗵	
Does the orientation of the riparian area allow for shading summer? (Question 9)	g of the water resource at midday in
Yes 🗵 No 🗆	
Dominant vegetation layer within riparian area? (Question 1	l 0)
Woody vegetation Herbaceous vegetation	Bare ground
Does woody vegetation hang over the edge of the water? (Q	Questions 11 & 14)
Yes 🗵 No 🗆	
Large woody debris in riparian area? (Question 15)	
Yes 🗆 No 🗵	
Percent of water resource bordered by vegetated riparian	area at least 30 feet wide? (Question 16)
>40% 10% - 40% <10%	% 🗵
Degree of development or human caused disturbance. (Que	stion 19)
<25% D 25% - 75% D >75%	% 🗵
How does the NRCS soil survey rank water erosion hazard the Riparian Area? (Question 5)	l of the dominant mapped unit in
low, slight moderate high, very high, very high, very high high, very high high high high high high high hig	h, severe 🗵
What is the dominant vegetation at the top of bank (if defi	ned) or edge of water resource? (Question 3)
Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground \square
Are there flood prone areas (adjacent flat areas, depression floodplain, etc.) beyond the top of bank or edge of the wate	ns, swales, FEMA mapped 100-year er resource? (Question 6)
Yes 🛛 No 🖾	
Is woody vegetation (trees, shrubs, vines) greater than 1 m flood prone riparian area?	eter (3.2 feet) high dominant in the
Yes \square No or no flood prone area present \boxtimes	
How many vegetation layers (i.e. canopy, mid-story, groun	dcover) are present?
More than 2 🗵 2 layers 🗍 1 layer Attachment 1-274	er or unvegetated

Riparian Width Determination



Glenwood Area of Springfield

a à

RIPARIAN CODE **R-GS-2 Right bank**

Date:	7/28/2009		Investigators:	SE - ME		E - ME	
Dominant tree species: Popula		us trichocarpa	(see other s	side for list of speci	es)	
Potent	ial tree height	(PTH)/Actual	Width of riparia	1 are	a :	120/75	feet
		(Width measured	l horizontally from edg	ge of v	water resou	rce)	
PTH determined by:							
On-	site vegetation	X	Reference site		Code_		
Comments	R-GS-	2 is bordered t	o the west by I-5.	The n	orthern p	ortion is culver	ted for
approximately 462 feet before it daylights under the I-5 bridge before continuing north to the Willamette							
River. Ther	River. There is an unnamed perennial drainage that begins on the west side of I-5 and is culverted under						

the freeway where it converges with the culverted portion of R-GS-2. Oregon Department of Fish and Wildlife representative, Jeff Ziller, said this drainage has Cuttroat trout. The left & right bank are similar but the average slope of the right bank is 10% and the impervious surface is between 10-25%.

Typical Cross Section:



Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield RIPARIAN CODE R-GS-2 WATER QUALITY **Right bank** 1. What is the average slope in the riparian area? Score a. Less than 10:1 (10%) 3 pts b. Between 10:1 (10%) and 5:1 (20%) 2 pts 3 c. Greater than 5:1(20%)1 pt 2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts 3 b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts b. Between 10% and 25% 2 pts 2 c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts 1 b. High, severe, very high 1 pts 11 **Total Points:** Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts) **FUNCTION IS:** MEDIUM

Riparian Functional Assessment Answer She	et $\begin{bmatrix} 1\\ \mu \end{bmatrix}$	PHS
Glenwood Area of Springfield	F	
FLOOD MANAGEMENT		RIPARIAN CODE R-GS-2 Right bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes b. No	3 pts 1 pt	1
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes b. No or no flood prone area present		
 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No 	3 pts	3
b. Yes	1 pts	
	Total Points:	5
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)		

FUNCTION IS: N

MEDIUM

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-GS-2 THERMAL REGULATION **Right bank** 9. Does the aspect or orientation of the riparian area allow for shading of water Score at midday in the summer? a. Yes 3 pts 3 b. No 1 pt 10. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 c. Bare ground 1 pt 11. Does woody vegetation hang over the edge of the water? 2 a. Yes 2 pts b. No 1 pts 7 **Total Points:**

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-GS-2 WILDLIFE HABITAT **Right bank** 12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? Score a. More than 2 layers 3 pts b. 2 layers 2 pts 3 ----c. 1 layer, or unvegetated 1 pt 13. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 c. Bare ground 1 pt 14. Does woody vegetation hang over the edge of the water? a. Yes 2 pts 2 b. No 1 pt 15. Is large woody debris present within the riparian area? a. Yes 3 pts 1 b. No 1 pt ***** 16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide? a. Greater than 40% 3 pts b. Between 10% and 40% 2 pts 1 c. Less than 10% 1 pt

Questions continued on next page

Riparian Functional Assessment Answer Sheet	ſ	PHS S	C
Glenwood Area of Springfield			
WILDLIFE HABITAT (continued)		RIPARIAN CODE R-GS-2	
	Į	Right bank	
17. Is surface water present throughout the year?	o	Score	
a. Yes b. No	3 pts 1 pt	3	
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond)			
a Yes	3 nts	1	
b. No	1 pt		
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?			6
a. Less than 25%	3 pts	* .	C
b. Between 25% and 75%	2 pts		
c. Oreater than 75%	i pt		
Tota	l Points:	14	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMAT	TION	Loca	tion of d	ata point:	Behind the Ec Portion just E	o Sort buildin	ng
Date:	8/12/2009		Riparia	n Code:	R-GS-	3 Left bank	
On-site: 🗵	Off-Site:		Reach I	ength:	2,7	06 feet	
Investigators:	SE-ME		Hydrolo	ogic Basin:	Glenw	ood Slough	
WATER RESOURCE IN	FORMATION						
Water Resource:	Stream/River: X Lake/Pond: Wetland:		Width: Width: Width:		50-75	feet feet feet	
LWI Wetland Code:	GS-1, GS-3	3		-			
Water present year-	round: Yes 🗵	No					
Are salmonids prese	nt in the adjacent water	resou	rce?	Yes		No 🗵	
Is the water resource	e listed for temperature o	on DE	Q's 303(d) list:	Yes 🗆		No 🗵
Within FEMA-mapp	oed 100-year floodplain:		Yes		No 🗆		
Mapped soil series:	Chehalis s	ilty cla	ay loam,	Pengra-Urb	oan Land comp	olex	
Adjacent Land Uses	? (Check as many as needed)						
Agriculture: □ Roads: □ Commercial/Indus.: ⊠ Undeveloped: ⊠ Residential: □ Forestry: □							
Woody vegetation				He	erbaceous veg	etation	
(trees, shrubs, vines >1 meter)				(include t	rees, shrubs, v	ines <1 meter	r)
Cornus sioionijera							
Rubus discolor	Rubus discolor						
Pseudotsuga menziesi	Pseudotsuga menziesii						

1 meter = 3.2 feet

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EXHIBIT E-132	_]
RIPARIAN CODE: R-GS-3 Left bank	
Average slope in the riparian area: (Question 1)	
<10:1 (10%) \Box Between 10:1 (10%) and 5:1 (20%) \boxtimes >5:1 (20%) \Box	
Extent of impervious surface within the riparian area. (Question 4)	
<10% 🖾 10% - 25% 🗖 >25% 🗖	
Is the reach constricted by man-made features? (Question 8)	
Yes 🗵 No 🗆	
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)	
Yes 🗵 No 🗆	
Dominant vegetation layer within riparian area? (Question 10)	
Woody vegetation \square Herbaceous vegetation \square Bare ground \square	
Does woody vegetation hang over the edge of the water? (Questions 11 & 14)	
Yes 🗵 No 🗆	
Large woody debris in riparian area? (Question 15)	
Yes 🗆 No 🗵	C
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)	
>40% 🖾 10% - 40% 🗖 <10% 🗖	
Degree of development or human caused disturbance. (Question 19)	
<25% 🗵 25% - 75% 🗆 >75% 🗆	
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)	
low, slight moderate \boxtimes high, very high, severe \Box	
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)	
Woody vegetation \square Herbaceous vegetation \square Bare ground \square	
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)	
Yes 🗆 No 🖾	
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?	
Yes \square No or no flood prone area present \boxtimes	$\left \bigcirc \right $
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?	
More than 2 2 layers Attachment 1-282	

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE **R-GS-3 Left bank**

Date:	8/12/2	2009	Investigators:		SE-N	ИЕ	_
Dominant	tree species:	Acer	macrophyllum	(s	see other side	e for list of specie	s)
Potent	ial tree height	(PTH)/Actual (Width measured	Width of riparian	1 area ge of w	ater resource	<u>90/~100</u>)	feet
PTH deter On-	mined by: site vegetation	X	Reference site		Code		_

 Comments:
 Riparian reach constricted on the right be development. Well-developed tree

 canopy on left. The eastern and western portions of the drainage were accessed during the site visit;

 however, there was no access to the central portion. The left and right banks are similar with the exceptio

 of the left bank extent of impervious surface in the riparian area is <10%, there is not large woody debris,</td>

 and the degree of development of human caused disturbance is <25%.</td>

Typical Cross Section:



Attachment 1-283

RIPARIAN CODE R-GS-3

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WATER QUALITY

1.	What is the average slope in the riparian area?		Score	
	a. Less than 10:1 (10%)	3 pts		
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	2	
	c. Greater than 5:1 (20%)	1 pt		
.2.	What is the dominant vegetation cover in the riparian area?	•		
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
3	What is the dominant vegetation at the top of bank (if defined)			
5.	or edge of water resource?	8		ſ
	a. Woody vegetation (trees shrubs vines) greater than 1 meter (3.2 feet) high	3 pts		C
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
4.	What is the extent of impervious surfaces within the riparian area?			
	a. Less than 10%	3 pts		
	b. Between 10% and 25%	2 pts	3	
	c. Greater than 25%	1 pt		
5.	How does the Natural Resources Conservation Service (formerly			
	Soil Conservation Service) soil survey rank the water erosion hazard			
	of the dominant mapped unit in the riparian area? Select the highest			
	water erosion hazard description if more than one is listed.			
	a. Low, slight, moderate	2 pts	2	
	b. High, severe, very high	1 pts		
	· 		,	
		Total Points:	13	
Fr	anction: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)			
				E
	· · · · · · · · · · · · · · · · · · ·	UNCTION IS:	HIGH	\sim

Attachment 1-284

FUNCTION IS:

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-GS-3 **FLOOD MANAGEMENT** Left bank 6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA Score mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? a. Yes 3 pts 1 b. No 1 pt 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes 3 pts 1 b. No or no flood prone area present 1 pt 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No 3 pts 1 b. Yes 1 pts **Total Points:** 3 **Function:** High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)

FUNCTION IS:

LOW

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-GS-3 THERMAL REGULATION Left bank 9. Does the aspect or orientation of the riparian area allow for shading of water Score at midday in the summer? a. Yes 3 pts 3 b. No 1 pt 10. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 1 pt c. Bare ground 11. Does woody vegetation hang over the edge of the water? a. Yes 2 pts 2 b. No 1 pts

Medium (5-6 pts) Low (3-4 pts)

Function:

High (7-8 pts)

Total Points:

FUNCTION IS:

HIGH

Attachment 1-286

8

Glenwood Area of Springfield RIPARIAN CODE R-GS-3 WILDLIFE HABITAT Left bank 12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? a. More than 2 layers 3 pts b. 2 layers 2 pts c. 1 layer, or unvegetated 1 pt 13. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 1 pt c. Bare ground 14. Does woody vegetation hang over the edge of the water?

Riparian Functional Assessment Answer Sheet

a. Yes

b. No

a. Yes

b. No

area at least 30 feet wide?

b. Between 10% and 40%

a. Greater than 40%

c. Less than 10%

15. Is large woody debris present within the riparian area?

Questions continued on next page

16. What percent of the water resource edge is bordered by a vegetated riparian

Attachment 1-287

Score

2

3

2

1

3

2 pts

1 pt

3 pts

3 pts

2 pts

1 pt

1 pt

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-3

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17.	Is surface water present throughout the year?		Score	
	a. Yes	3 pts		
	b. No	1 pt	3	
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond)			
	within or immediately adjacent to the riparian reach?			
	a. Yes	3 pts	1	
	b. No	1 pt		
19.	What is the degree of development or human-caused disturbance (e.g. buildings,			
	impervious surfaces, lawns, agriculture, trash) in the riparian area?			(
	a. Less than 25%	3 pts		
	b. Between 25% and 75%	2 pts	3	
	c. Greater than 75%	1 pt		
	То	tal Points:	18	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form

EXHIBIT E-139

PHS

Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: Behind the Eco Sort building
	Portion just E of I-5
Date: 8/12/2009	Riparian Code: R-GS-3 Right bank
On-site: 🗵 Off-Site: 🗵	Reach Length: 2,706 feet
Investigators: SE-ME	Hydrologic Basin: Glenwood Slough
WATER RESOURCE INFORMATION	· · · · · · · · · · · · · · · · · · ·
Water Resource: Stream/River: X Lake/Pond: Wetland:	Width:50-75feetWidth:feetWidth:feet
LWI Wetland Code: GS-1. GS-	3-3
Water present year-round: Yes 🗵	No 🗆
Are salmonids present in the adjacent water	r resource? Yes 🗆 No 🗵
Is the water resource listed for temperature	e on DEQ's 303(d) list: Yes 🗆 No 🗵
Within FEMA-mapped 100-year floodplain:	: Yes 🗆 No 🗆
Mapped soil series: Chehalis	silty clay loam, Pengra-Urban Land complex
Adjacent Land Uses? (Check as many as needed)	
Agriculture: 🗆 🛛 🛛	Roads:
Commercial/Indus.: 🗵 Undeve	eloped: 🗵
Residential: D For	prestry:
Woody vegetation	Herbaceous vegetation
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)
Corylus cornuta Solanum dulcamara	
Arbutus menziesii	Heracleum lanatum
Symphoricarpos albus	Solanum nugrum
Betula pendula	Cirsium arvense
Rhus diversiloba	Dipsacus sylvestris
Robina pseudoacacia	Epilobium watsonii
Fraxinus latifolia Cirsium vulgare	

1 meter = 3.2 feet

				EXHIBIT E-140	
			RIPARIAN	CODE: R-GS-3 Right b	ank
Average slope in th	he riparian area: (Qu	estion 1)		×	
<10:1 (10%)	Between 10:1 (10%)	and 5:1 (20%) 🗵	>5:1 (20%)		
Extent of impervio	ous surface within the	e riparian area. ((Question 4)		
<10%	10% - 25%	× >2	5% 🛛		
Is the reach constr	ricted by man-made f	features? (Question	8)		
Yes 🗵	No 🗆				
Does the orientations summer? (Question States	on of the riparian are 9)	ea allow for shadi	ng of the water	resource at midday in	
Yes 🗵	No 🗖				
Dominant vegetati	on layer within ripar	rian area? (Questio	n 10)		
Woody vegetation	I Herbace	ous vegetation	Bare gr	ound 🗆	
Does woody vegeta	ation hang over the e	dge of the water?	(Questions 11 & 14)	
Yes 🗵	No 🗆				
Large woody debri	is in riparian area? (Question 15)			
Yes 🗵	No 🗆				
Percent of water re	esource bordered by	vegetated riparia	n area at least 3	0 feet wide? (Question 16)	
>40% 🗵	10% - 40%		0% 🗆		
Degree of develop	ment or human cause	ed disturbance. (Q	uestion 19)		
<25% □	25% - 75%	⊠ >7	′5% □		
How does the NRC the Riparian Area	CS soil survey rank w ? (Question 5)	ater erosion haza	rd of the domin	ant mapped unit in	
low, slight mode	erate 🗵	high, very h	igh, severe		
What is the domina	ant vegetation at the	top of bank (if de	fined) or edge o	f water resource? (Questio	n 3)
Woody vegetation	Herbace	ous vegetation \Box	Bare gr	ound 🗆	
Are there flood pro floodplain, etc.) be	one areas (adjacent fl yond the top of bank	lat areas, depress or edge of the wa	ions, swales, FE ater resource? ((MA mapped 100-year Question 6)	
Yes 🗖	No 🗵				
ls woody vegetation flood prone riparia	n (trees, shrubs, vine an area?	s) greater than 1	meter (3.2 feet)	high dominant in the	
Yes 🗆	No or no flood prone	area present 🗵			
-		· - ·		· · ·	

Riparian Width Determination Glenwood Area of Springfield RIPARIAN CODE R-GS-3 Right bank Date: 8/12/2009 Investigators: SE-ME **Dominant tree species:** Acer macrophyllum (see other side for list of species) Potential tree height (PTH)/Actual Width of riparian area : 90/30-60 feet (Width measured horizontally from edge of water resource) PTH determined by: **On-site vegetation** Reference site \Box Code

Comments:Riparian reach constricted on the right be development. Well-developed treecanopy on left. The eastern and western portions of the drainage were accessed during the site visit;however, there was no access to the central portion. The left and right banks are similar with the exceptioof the right bank extent of impervious surface in the riparian area is 10-25%, there is large woody debris,and the degree of development of human caused disturbance is 25-75%.

Typical Cross Section:



Attachment 1-291

RIPARIAN CODE R-GS-3

Right bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WATER QUALITY

1. What is the average slope in the riparian area?		Score
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	2
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined)		
or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	2
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly		
Soil Conservation Service) soil survey rank the water erosion hazard		
of the dominant mapped unit in the riparian area? Select the highest		
water erosion hazard description if more than one is listed.	ſ	
a. Low, slight, moderate	2 pts	2
b. High, severe, very high	1 pts	
and a second and a second s		
	otal Dainta	12

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet		PHS
Glenwood Area of Springfield		
		RIPARIAN CODE R-GS-3
		Right bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes	3 pts	1
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	1
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	1
D. I es		
Tota	al Points:	3
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)		

FUNCTION IS:

LOW



Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

RIPARIAN CODE R-GS-3

Right bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WILDLIFE HABITAT

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	2
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the rinarian area?		
a Woody vegetation (trees shrubs vines) greater than 1 meter (3.2 feet) high	3 nts	
h. Herbacovs vegetation or woody vegetation less than 1 meter (2.2 feet) high	2 pts	3
b. Herbaceous vegetation of woody vegetation less than 1 meter (3.2 feet) mgn		
c. Bare ground	¹ pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
h No	1 nt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	3
h No	1 nt	
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a Greater than 40%	3 nte	
h Datwaan 100/ and 400/	2 pts	2
	2 pts	3
c. Less than 10%	¹ pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE **R-GS-3**

Right bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17.	Is surface water present throughout the year?		Score
	a. Yes	3 pts	
	b. No	1 pt	3
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond	l)	
	within or immediately adjacent to the riparian reach?		
	a. Yes	3 pts	1
	b. No	1 pt	
19.	What is the degree of development or human-caused disturbance (e.g. building	gs,	
	impervious surfaces, lawns, agriculture, trash) in the riparian area?		(
	a. Less than 25%	3 pts	(
	b. Between 25% and 75%	2 pts	2
	c. Greater than 75%	1 pt	,
	· · · ·	Total Points:	19

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

HIGH

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Le	ocation of data point:	Viewed N of fenceline b/w
		· ·	GS-4 & the Fed Ex parking lot
8			· · · · · · · · · · · · · · · · · · ·
Date: 7/27	7/2009	Riparian Code:	R-GS-4 Left bank
	· · · · · · · · · · · · · · · · · · ·		
On-site: 🗵 Off-S	ite: 🗆	Reach Length:	780 feet
÷			
Investigators:	SE - ME	Hydrologic Basin:	Glenwood Slough
WATER RESOURCE INFORM	TATION	-	
		x	
Water Resource: Stre	eam/River:	Width:	feet
1	Lake/Pond: x	Width:	50 - 75 feet
	Wetland:	Width:	feet
LWI Wetland Code:	GS-3		
Water present year-round	: Yes 🖂 🛛	No 🗆	
Are salmonids present in t	he adjacent water res	ource? Yes	
			_ ·
Is the water resource listed	l for temperature on l	DEQ's 303(d) list:	Yes D No 🖾
	e *		
Within FEMA-mapped 10	0-year floodplain:	Yes 🗆	No 🗵
Mapped soil series:	Chehalis silty	clay loam, Chehalis-Ur	ban Land complex
	<u>,</u>		<u> </u>
Adjacent Land Uses? (Chec	k as many as needed)		
	Deer	а., П	
	N0a0 Undevelope	us:	
	Torost		
	ruresu		
Woody veg	getation	He	erbaceous vegetation
(trees, shrubs, vi	nes >1 meter)	(include t	rees, shrubs, vines <1 meter)
Populus trichocarpa	pulus trichocarpa Echinocystis lobata		·
Pseudotsuga menziesii		Solanum dulcamara	2
Rubus discolor			
Prunus virginiana			
Fraxinus latifolia			
Acer macrophyllum			
Holodiscus discolor			
1 meter = 3.2 feet		· ·	

2.42

EXHIBIT E-148
RIPARIAN CODE: R-GS-4 Left bank
Average slope in the riparian area: (Question 1)
$<10:1 (10\%)$ \square Between 10:1 (10%) and 5:1 (20%) \boxtimes $>5:1 (20\%)$ \square
Extent of impervious surface within the riparian area. (Question 4)
<10% 🖾 10% - 25% 🗖 >25% 🗖
Is the reach constricted by man-made features? (Question 8)
Yes \Box No \boxtimes
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)
Yes 🗵 No 🗆
Dominant vegetation layer within riparian area? (Question 10)
Woody vegetation \square Herbaceous vegetation \square Bare ground \square
Does woody vegetation hang over the edge of the water? (Questions 11 & 14)
Yes 🖾 No 🗆
Large woody debris in riparian area? (Question 15)
Yes \square No \square
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)
>40% 🖾 10% - 40% 🗆 <10% 🗆
Degree of development or human caused disturbance. (Question 19)
<25% 🗵 25% - 75% 🗆 >75% 🗆
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)
low, slight moderate \boxtimes high, very high, severe \Box
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)
Woody vegetation \square Herbaceous vegetation \square Bare ground \square
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)
Yes 🗆 No 🗵
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?
Yes □ No or no flood prone area present ⊠
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?
More than 2 2 layers 1 layer or unvegetated Attachment 1-298

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE

R-GS-4 Left bank

Date: 7/28/2	2009 Inv	estigators:	SE - ME	
Dominant tree species:	Pseudotsuga	menziesii	(see other side for list o	f species)
Potential tree height (PTH)/Actual Width of riparian area : 120/50-75 fe (Width measured horizontally from edge of water resource)				-75 feet
PTH determined by: On-site vegetation	⊠ Ref	erence site	Code	

Comments:Pond behind the Fed-Ex building to the north. There are steep slopes along thesouth side. The left and right banks are similar with the exception of the extent of impervious surface withthe riparian area on the left bank is <10%.</td>

Typical Cross Section:


Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-4

Left bank

Glenwood Area of Springfield

WATER QUALITY

1.	What is the average slope in the riparian area?		Score	
	a. Less than 10:1 (10%)	3 pts		
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	2	
	c. Greater than 5:1 (20%)	1 pt		
2.	What is the dominant vegetation cover in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
3.	What is the dominant vegetation at the top of bank (if defined)			6
	or edge of water resource?			C
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
4.	What is the extent of impervious surfaces within the riparian area?	l l		-
	a. Less than 10%	3 pts		
	b. Between 10% and 25%	2 pts	3	
	c. Greater than 25%	1 pt		
		ļ		
5.	How does the Natural Resources Conservation Service (formerly			
	Soil Conservation Service) soil survey rank the water erosion hazard	÷ 1		
	of the dominant mapped unit in the riparian area? Select the highest			
	water erosion hazard description if more than one is listed.			
	a. Low, slight, moderate	2 pts -	2	
	b. High, severe, very high	1 pts		
			10	
		Total Points:	13	
F.	unction: High (12-14 nts) Medium (8-11 nts) Low (5-7 nts)			
T, f	anetton, 111gn (12-14 pts) metuam (0-11 pts) 1000 (3-7 pts)			(-
	FU	NCTION IS:	HIGH	\sim

FUNCTION IS:

Riparian Functional Assessment Answer Sheet		PHS
Glenwood Area of Springfield	-	
FLOOD MANAGEMENT		RIPARIAN CODE R-GS-4 Left bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes b. No	3 pts 1 pt	1
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes b. No or no flood prone area present	3 pts 1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No b. Yes	3 pts 1 pts	3
Tot:	al Points:	5
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)		

FUNCTION IS:

MEDIUM

RIPARIAN CODE

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

1	at midday in the summer?			
	a. Yes	3 pts	3	
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
11.	Does woody vegetation hang over the edge of the water?			(
	a. Yes	2 pts	2	
	b. No	1 pts		
		" Total Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-4

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	2
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?	<i></i>	
a. Yes	2 pts	2
b. No	1 pt	
15. Is large woody debris present within the riparian area?	2	
a. Yes	3 pts	3
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	3
c. Less than 10%	1 pt	<u> </u>

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-4

Left bank

Score

3

1

...... 3 pts 1 pt

3 pts

1 pt

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

IS	surface	water pres	ent inrougnout the year?	
a.	Yes		·	
b.	No	24		
Is	there m	ore than on	e type of water resource (e.g. stream, wetland, lake/pon	d)
wi	ithin or	immediately	y adjacent to the riparian reach?	
a.	Yes			
b.	No		· · · · · · · · · · · · · · · · · · ·	

	a. b. Is wi a. b.	a. Yes b. No Is there m within or a. Yes b. No	a. Yes b. No Is there more than or within or immediatel a. Yes b. No	a. Yes b. No Is there more than one type of water resource (e.g. stream, wetland, lake/pone within or immediately adjacent to the riparian reach? a. Yes b. No

19.	. What is the degree of development or human-caused disturbance (e.g. buildings,			
	impervious surfaces, lawns, ag	riculture, trash) in the riparian area?		
	a. Less than 25%	3 pt		
	b. Between 25% and 75%	2 pt		
	c. Greater than 75%	1 pt		

Total Points:

20

3

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

HIGH

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: Viewed N of fenceline b/w		
	GS-4 & the Fed Ex parking lot		
Date: 7/27/2009	Riparian Code: R-GS-4 Right bank		
On-site: 🗵 Off-Site: 🗆	Reach Length: 780 feet		
Investigators: <u>SE - ME</u>	Hydrologic Basin: Glenwood Slough		
WATER RESOURCE INFORMATION			
Water Resource: Stream/River:	Width:feet		
Lake/Pond: x	Width:50 - 75 feet		
Wetland:	Width:feet		
LWI Wetland Code: GS-3			
Water present year-round: Yes	No L		
Are salmonids present in the adjacent water	r resource? Yes 🗆 No 🗵		
Is the water resource listed for temperature	e on DEQ's $303(d)$ list: Yes \Box No \boxtimes		
	· · · · · · · · · · · · · · · · · · ·		
Within FEMA-mapped 100-year floodplain:	: Yes 🗆 No 🗵		
Manned soil series. Chebalis s	silty clay loam. Chebalis-Urban I and compley		
Mapped son series Chenans s	sity elay loan, chenans-erban Land complex		
Adjacent Land Uses? (Check as many as needed)	· · ·		
Agriculture:	Roads:		
Commercial/Indus.: 🗵 Undeve	eloped: 🗵		
Residential: D For	orestry:		
Woody vegetation	Herbaceous vegetation		
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)		
Populus trichocarpa	Echinocystis lobata		
Pseudotsuga menziesii	Solanum dulcamara		
Rubus discolor			
Prunus virginiana			
Fraxinus latifolia			
Acer macrophyllum			
Holodiscus discolor			

1 meter = 3.2 feet

· · · · ·	
EXHIBIT E-156	키
RIPARIAN CODE: R-GS-4 Right Dank	_
Average slope in the riparian area: (Question I) $(101/100/2)$ \square \square $(101/100/2)$ \square $(101/100/2)$ $(101/100/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $(101/10000/2)$ $($	ς
<10:1 (10%) Between 10:1 (10%) and 5:1 (20%) S >5:1 (20%)	
Extent of impervious surface within the riparian area. (Question 4)	
<10% 🗆 10% - 25% 🖾 >25% 🗖	
Is the reach constricted by man-made features? (Question 8)	
Yes \Box No \boxtimes	
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)	
Yes 🖾 No 🗖	
Dominant vegetation layer within riparian area? (Question 10)	
Woody vegetation \square Herbaceous vegetation \square Bare ground \square	
Does woody vegetation hang over the edge of the water? (Questions 11 & 14)	
Yes 🗵 No 🗖	
Large woody debris in riparian area? (Question 15)	,
Yes 🗵 No 🗆	(
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)	
>40% 🖾 10% - 40% 🗆 <10% 🗖	
Degree of development or human caused disturbance. (Question 19)	
<25% 🗵 25% - 75% 🗆 >75% 🗆	
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)	
low, slight moderate 🗵 high, very high, severe 🗆	
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)	
Woody vegetation \boxtimes Herbaceous vegetation \square Bare ground \square	
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain. etc.) beyond the top of bank or edge of the water resource? (Ouestion 6)	
Yes \Box No \boxtimes	
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?	
Yes \square No or no flood prone area present \boxtimes	\subseteq
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?	
More than 2 \square 2 layers \boxtimes 1 layer or unvegetated \square	
Attachment 1-306	

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE **R-GS-4 Right bank**

Date:	7/28/2	2009	Investigators:		SE	- ME	_
Dominant tree species:		Pseudo	Pseudotsuga menziesii (see other side for list of species)		es)		
Potential tree height (PTH)/Actual Width of riparian area : 120/50-75 f				feet			
PTH determined by:							
On-	site vegetation	\mathbf{X}	Reference site		Code	2	—

Comments: Pond behind the Fed-Ex building to the north. There are steep slopes along the south side. The left and right banks are similar with the exception of the extent of impervious surface with the riparian area on the right bank is 10-25%.

Typical Cross Section:



Attachment 1-307

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-4

Right bank

Glenwood Area of Springfield

WATER QUALITY

1. What is the average slope in the riparian area?	Score
a. Less than 10:1 (10%)	3 pts
b. Between 10:1 (10%) and 5:1 (20%)	2 pts 2
c. Greater than 5:1 (20%)	1 pt
2. What is the dominant vegetation cover in the riparian area?	
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.	2 feet) high 3 pts
b. Herbaceous vegetation or woody vegetation less than 1 meter (3	3.2 feet) high 2 pts 3
c. Bare ground	1 pt
3. What is the dominant vegetation at the top of bank (if defined)	C
or edge of water resource?	
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.1	2 feet) high 3 pts
b. Herbaceous vegetation or woody vegetation less than 1 meter (3	3.2 feet) high 2 pts 3
c. Bare ground	1 pt
4. What is the extent of impervious surfaces within the riparian ar	ea?
a. Less than 10%	3 pts
b. Between 10% and 25%	2 pts 2
c. Greater than 25%	1 pt
	An entrefaction transmission on
5. How does the Natural Resources Conservation Service (former	y
Soil Conservation Service) soil survey rank the water erosion ha	azard
of the dominant mapped unit in the riparian area? Select the high	ghest
water erosion hazard description if more than one is listed.	
a. Low, slight, moderate	2 pts2
b. High, severe, very high	1 pts
· · · · · · · · · · · · · · · · · · ·	e y a data a como a
	Total Points: 12
	м. н
•	
Function: High (12-14 pts) Medium (8-11 pts) Low (5-	-7 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-GS-4 **FLOOD MANAGEMENT Right bank** 6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA Score mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? a. Yes 3 pts 1 b. No 1 pt 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes 3 pts 1 1 pt b. No or no flood prone area present 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? 3 pts a. No 3 b. Yes 1 pts 5 **Total Points: Function:** High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)

FUNCTION IS:

MEDIUM

RIPARIAN CODE R-GS-4

Right bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		Score	
	a. Yes	3 pts	3	
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
11.	Does woody vegetation hang over the edge of the water?			(
	a. Yes	2 pts	2	
	b. No	1 pts		
	•	II	4	
	T	otal Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet

PHS

RIPARIAN CODE **R-GS-4**

Right bank

Glenwood Area of Springfield

WILDLIFE HABITAT

12.	How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
	a. More than 2 layers	3 pts	
	b. 2 layers	2 pts	2
	c. 1 layer, or unvegetated	1 pt	
13.	What is the dominant vegetation layer in the riparian area?		
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
	c. Bare ground	1 pt	
14.	Does woody vegetation hang over the edge of the water?		
	a. Yes	2 pts	2
	b. No	1 pt	
15.	Is large woody debris present within the riparian area?		
	a. Yes	3 pts	3
	b. No	1 pt	
16.	What percent of the water resource edge is bordered by a vegetated riparian		
	area at least 30 feet wide?		
	a. Greater than 40%	3 pts	
	b. Between 10% and 40%	2 pts	3
	c. Less than 10%	1 pt	
		a danke t	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-4

Right bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17. Is surface water present throughout the year?	a:	Score	
a. Yes	3 pts		
b. No	1 pt	3	_
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond)		·	
within or immediately adjacent to the riparian reach?			
a. Yes	3 pts	1	
b. No	1 pt	•	_
19. What is the degree of development or human-caused disturbance (e.g. building	s,		
impervious surfaces, lawns, agriculture, trash) in the riparian area?			C
a. Less than 25%	3 pts		C
b. Between 25% and 75%	2 pts	3	
c. Greater than 75%	1 pt		_
	Fotal Points:	20	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

HIGH

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	ocation of data point:	Viewed from the southern				
		portion of ODOT yard				
Date: 9/15/2009	Riparian Code:	R-GS-5 Left bank				
On-site: 🗵 Off-Site: 🗆	Reach Length:	339 feet				
Investigators: SE - ME	Hydrologic Basin:	Glenwood Slough				
WATER RESOURCE INFORMATION						
Water Resource: Stream/River: x Lake/Pond: Wetland:	Width: Width: Width:	2-6 feet feet feet				
LWI Wetland Code:						
Water present year-round: Yes 🗵	No 🗆					
Are salmonids present in the adjacent water re	source? Yes	Are salmonids present in the adjacent water resource? Yes D No 🗵				
Is the water resource listed for temperature on	DEQ's 303(d) list:	Yes D No 🗵				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain:	DEQ's 303(d) list: Yes	Yes No				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur	Yes □ No ⊠ No ⊠ ban Land complex				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed)	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur	Yes No No Sho Sho Sho Sho Sho Sho Sho Sh				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: C	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur	Yes No No Second statements No				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: Roa Commercial/Indus.: X Undevelop	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur	Yes No No Sho Sho Sho Sho Sho Sho Sho Sh				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: Check as many as needed) Agriculture: Roa Commercial/Indus.: Mundevelop Residential: Forest	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur ds: bed: try:	Yes No 🗵 No 🗵 ban Land complex				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: Check as many as needed) Agriculture: Roa Commercial/Indus.: Mundevelop Residential: Forest	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur ds: hed: hed: try: He	Yes No 🗵 No 🖾 ban Land complex rbaceous vegetation				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: Roa Commercial/Indus.: X Undevelop Residential: Forest Woody vegetation (trees, shrubs, vines >1 meter)	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur dds: bed: try: He (include tr	Yes D No 🗵 No 🗵 ban Land complex rbaceous vegetation rees, shrubs, vines <1 meter)				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? Check as many as needed) Agriculture: Image: Road Commercial/Industrial: Commercial/Industrial: Image: Undevelop Forest Woody vegetation (trees, shrubs, vines >1 meter) Psedotsuga mensiesii	DEQ's 303(d) list: Yes v clay loam, Chehalis-Ur ds: hds: hed: try: He (include the constraints)	Yes No No No Proceous vegetation rees, shrubs, vines <1 meter)				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: Roa Commercial/Indus.: X Undevelop Residential: S Undevelop Residential: Forest Woody vegetation (trees, shrubs, vines >1 meter) Psedotsuga mensiesii Rubus discolor	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur ded: try: He (include to <i>Cirsium arvense</i> <i>Artemesia sp.</i>	Yes D No 🗵 No 🗵 ban Land complex rbaceous vegetation rees, shrubs, vines <1 meter)				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? Check as many as needed) Agriculture: Image: Commercial/Industry Adjacential: Image: Commercial/Industry Woody vegetation (trees, shrubs, vines >1 meter) Psedotsuga mensiesii Rubus discolor Symphoricarpos albus Symphoricarpos albus	DEQ's 303(d) list: Yes Clay loam, Chehalis-Ur ds: try: He (include the Cirsium arvense Artemesia sp. Heracleum maximu	Yes □ No ⊠ No ⊠ ban Land complex rbaceous vegetation rees, shrubs, vines <1 meter) m				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: Roa Commercial/Indus.: X Undevelop Residential: S Undevelop Residential: Forest Woody vegetation (trees, shrubs, vines >1 meter) Psedotsuga mensiesii Rubus discolor Symphoricarpos albus Acer circinatum	DEQ's 303(d) list: Yes clay loam, Chehalis-Ur ded: try:	Yes No No Image: Second				
Is the water resource listed for temperature on Within FEMA-mapped 100-year floodplain: Mapped soil series: Chehalis silty Adjacent Land Uses? (Check as many as needed) Agriculture: Roa Commercial/Indus.: I Undevelop Residential: I Forest Woody vegetation (trees, shrubs, vines >1 meter) Psedotsuga mensiesii Rubus discolor Symphoricarpos albus Acer circinatum Cytisus scoparius	DEQ's 303(d) list: Yes Clay loam, Chehalis-Ur ds: red: try: Heracleum maximu Elymus glaucus	Yes No Xi No Xi Xi ban Land complex Xi Xi rbaceous vegetation Yii Yii rees, shrubs, vines <1 meter) Yii Yii m Xii Xii Xii				

1 meter = 3.2 feet

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EXHIBIT E-164	ล
RIPARIAN CODE: R-GS-5 Left bank	ļ.
Average slope in the riparian area: (Question 1)	< _
$<10:1 (10\%)$ \square Between 10:1 (10%) and 5:1 (20%) \square $>5:1 (20\%)$ \boxtimes	
Extent of impervious surface within the riparian area. (Question 4)	
<10% D 10% - 25% X >25% D	
Is the reach constricted by man-made features? (Question 8)	
Yes 🗵 No 🗆	
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)	
Yes 🗵 No 🗆	
Dominant vegetation layer within riparian area? (Question 10)	
Woody vegetation \boxtimes Herbaceous vegetation \square Bare ground \square	
Does woody vegetation hang over the edge of the water? (Questions 11 & 14)	
Yes 🖾 No 🗖	
Large woody debris in riparian area? (Question 15)	
Yes D No 🖾	Ć
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)	
>40% 🖾 10% - 40% 🗖 <10% 🗖	
Degree of development or human caused disturbance. (Question 19)	
<25% D 25% - 75% D >75% X	
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)	
low, slight moderate \boxtimes high, very high, severe \Box	
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)	
Woody vegetation \square Herbaceous vegetation \square Bare ground \square	
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)	
Yes 🗵 No 🗆	
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?	
Yes 🗵 No or no flood prone area present 🛛	\sim
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?	
More than 2 2 layers Attachment 1-314	

Riparian Width Determination Glenwood Area of Springfield RIPARIAN CODE R-GS-5 Left bank Date: 9/15/2009 Investigators: SE-ME Dominant tree species: Pseudotsuga menziesii (see other side for list of species) Potential tree height (PTH)/Actual Width of riparian area : 120/75 feet (Width measured horizontally from edge of water resource) PTH determined by: On-site vegetation 🗵 Reference site \Box Code

Comments:The western fill slope of R-GS-5 abuts Glenwood Boulevard. It is 2-6 feet wideand had 2 inches of flowing water at the time of the 9/15/09 site visit. R-GS-5 flows north where itconverges with R-GS-4 and flows under Glenwood Boulevard into R-GS-3. The left and right bank aresimilar with the exception of the left bank average slopeis 20%, the extent of impervious surface within triparian area is 10-25%, the degree of development or human caused disturbance is >75%, and there aretwo vegetation layers present.

Typical Cross Section:



Attachment 1-315

RIPARIAN CODE R-GS-5

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WATER QUALITY

1.	What is the average slope in the riparian area?	Score	
	a. Less than 10:1 (10%)	3 pts	
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts 1	
	c. Greater than 5:1 (20%)	1 pt	_
2.	What is the dominant vegetation cover in the riparian area?		
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts 3	_
	c. Bare ground	1 pt	_
3	What is the dominant vegetation at the top of bank (if defined)		
5.	or edge of water resource?		(
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts 3	
	c. Bare ground	1 pt	_
		an 1 1 1	
4.	What is the extent of impervious surfaces within the riparian area?		
	a. Less than 10%	3 pts	
	b. Between 10% and 25%	2 pts 2	
	c. Greater than 25%	1 pt	-
5	How does the Natural Descurres Concernation Service (formarly		
э.	Soil Conservation Service) soil survey reak the water prosion begand		
	of the dominant manned unit in the vinevian area? Select the highest		
	water erosion beyond description if more than one is listed	<u>.</u>	
	a Low alight moderate	2 ptp 2	
	a. Low, slight, moderate		_
	b. High, severe, very high		
		. 11	
	Total	'oints: 11	
Fı	unction: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)		\sim
	FUNCTIO	N IS: MEDIUM	

Riparian Functional Assessment Answer Sheet		PHS
Glenwood Area of Springfield	-	
FLOOD MANAGEMENT		RIPARIAN CODE R-GS-5 Left bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes	3 pts	3
b. No	1 pt	
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes b. No or no flood prone area present 	3 pts 1 pt	3
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	1
b. Yes	1 pts	
. Tota	al Points:	7
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)		

Ci 0

FUNCTION IS:

MEDIUM

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-GS-5 **THERMAL REGULATION** Left bank 9. Does the aspect or orientation of the riparian area allow for shading of water Score at midday in the summer? a. Yes 3 pts 3 b. No 1 pt 10. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt 11. Does woody vegetation hang over the edge of the water? 2 a. Yes 2 pts b. No 1 pts 8 **Total Points: Function:** High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

RIPARIAN CODE R-GS-5

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WILDLIFE HABITAT

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	2
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pt	
15. Is large woody debris present within the riparian area?		x
a. Yes	3 pts	1
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	. 3
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-5

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17. Is surface water present throughout the year?

17.	Is surface water present throughout the year?		Score	
	a. Yes	3 pts		
	b. No	1 pt	3	•
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond)			
	within or immediately adjacent to the riparian reach?			
	a. Yes	3 pts	1	_
	b. No	1 pt		
19.	What is the degree of development or human-caused disturbance (e.g. buildings	,		
	impervious surfaces, lawns, agriculture, trash) in the riparian area?			(
	a. Less than 25%	3 pts		C
	b. Between 25% and 75%	2 pts	1	
	c. Greater than 75%	1 pt		
	Т	otal Points:	16	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: Viewed from the southern		
	portion of ODOT yard		
Date: 9/15/2009	Riparian Code: R-GS-5 Right bank		
On-site: 🖾 Off-Site: 🗆	Reach Length: 339 feet		
Investigators: SE - ME	Hydrologic Basin: Glenwood Slough		
WATER RESOURCE INFORMATION			
Water Resource: Stream/River: x Lake/Pond: Wetland:	Width:2-6feetWidth:feetWidth:feet		
LWI Wetland Code:			
Water present year-round: Yes 🗵	No 🗆		
A resolution in the adjacent wate			
Is the water resource listed for temperature	re on DEQ's 303(d) list: Yes I No I		
Within FEMA-mapped 100-year floodplain	n: Yes 🗆 No 🗵		
Mapped soil series: Chehalis	s silty clay loam, Chehalis-Urban Land complex		
Adjacent Land Uses? (Check as many as needed)	d)		
Agriculture:□Commercial/Indus.:⊠UndevResidential:□Fo	Roads: veloped: forestry:		
Woody vegetation	Herbaceous vegetation		
(trees, shrubs, vines >1 meter)	(trees, shrubs, vines >1 meter) (include trees, shrubs, vines <1 meter)		
Psedotsuga mensiesii	Cirsium arvense		
Rubus discolor	Artemesia sp.		
Symphoricarpos albus	Heracleum maximum		
Acer circinatum	Elymus glaucus		
Cytisus scoparius			
· · · · · · · · · · · · · · · · · · ·			

1 meter = 3.2 feet

EXHIBIT E-172 IMPARIAN CODE R-GS-5 Right bank Average slope in the riparian area: (Question 1) <10:1 (10%) ID Between 10:1 (10%) and 5:1 (20%) >55:1 (20%) Extent of impervious surface within the riparian area. (Question 4) <10% ID 10% - 25% >23% Is the reach constricted by man-made features? (Question 8) Yes ID No Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 10) Woody vegetation Is riparian area? (Question 10) Woody vegetation IN Herbaccous vegetation 10) Bare ground Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes ID No Large woody debris in riparian area? (Question 15) Yes ID No Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ID 10% - 40% ID <10% D <25% D 25% - 75% ID >75% D <25% D 25% - 75% ID >75% D		· · ·
Impatian code R-GS-5 Right bank Average slope in the riparian area: (Question 1) (1011 (10%) IM Between 10:1 (10%) and 5:1 (20%) Impact 25% Impact		EXHIBIT E-172
Average slope in the riparian area: (Question 1) <10:1 (10%) □ Between 10:1 (10%) and 5:1 (20%) □ >5:1 (20%) □ Extent of impervious surface within the riparian area. (Question 4) <10% □ 10% - 25% > 25% □ Is the reach constricted by man-made features? (Question 8) Yes □ No □ Yes □ No □ Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes □ No □ Dominant vegetation larger within riparian area? (Question 10) Woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes □ No □ Large woody debris in riparian area? (Question 15) Yes □ No □ Large woody debris in riparian area? (Question 15) Yes □ No □ Large woody debris in riparian area? (Question 15) Yes □ No □ Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% □ 10% - 40% □ <10% □ >25% □ 25% - 75% □ >75% □ How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5) low, slight moderate □ low, slight moderate □ bigh, very high, severe		RIPARIAN CODE: R-GS-5 Right bank
<pre><10:1 (10%) I Between 10:1 (10%) and 5:1 (20%) I >5:1 (20%) I Extent of impervious surface within the riparian area. (Question 4) <10% I 10% - 25% >25% I Is the reach constricted by man-made features? (Question 8) Yes N No I Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes N No I Dominant vegetation layer within riparian area? (Question 10) Woody vegetation IN Herbaceous vegetation I Bare ground I Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes N No I Large woody debris in riparian area? (Question 15) Yes N No I Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% I 10% - 40% I <10% - 10% - 10% I Degree of development or human caused disturbance. (Question 19) <25% I 25% - 75% I >75% I How does the NRCS soil survey rank water eroson hazard of the dominant mapped unit in the Riparian Area? (Question 5) I ow, slight moderate I hero of bank (f defined) or edge of water resource? (Question 3) Woody vegetation I Herbaceous vegetation I Bare ground I Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6) Yes N No I Swoody vegetation I I croaceous vegetation I Bare ground I Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6) Yes N No I Swoody vegetation layers (i.e. canopy, mid-story, groundeover) are present? More than 2 I 2 layers Attachment 1-322 </pre>	Average slope in the riparian area: (Question 1)	(
Extent of impervious surface within the riparian area. (Question 4) <10% Image: 10% - 25% control = 25% c	<10:1 (10%) \boxtimes Between 10:1 (10%) and 5:1 (20%) \Box	>5:1 (20%)
10% E 10% - 25% 25% E Is the reach constricted by man-made features? (Question 8) Yes E No □ One of the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes E No □ Dominant vegetation layer within riparian area? (Question 10) Woody vegetation Iager within riparian area? (Question 10) Woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes E No □ Large woody debris in riparian area? (Question 15) Yes □ No □ Large woody debris in riparian area? (Question 15) Yes □ No □ Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ☑ 10% - 40% □ <10% □ Degree of development or human caused disturbance. (Question 19) <25% □ 25% - 75% ☑ >75% □ How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 1) Woody vegetation I Herbaceous vegetation □ Bare ground □ Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 3) Woody vegetation [Yes IN No □ Is woody vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 □ 2 layers _ Attachment 1-322	Extent of impervious surface within the riparian area. (Q	(uestion 4)
Is the reach constricted by man-made features? (Question 8) Yes ⊠ No Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes ⊠ No Dominant vegetation layer within riparian area? (Question 10) Woody vegetation layer within riparian area? (Question 10) Woody vegetation layer or the edge of the water? (Questions 11 & 14) Yes ⊠ No Jerge woody debris in riparian area? (Question 15) Yes □ No Large woody debris in riparian area? (Question 15) Yes □ No Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ☑ 10% - 40% □ Yes ○ No ○ Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ☑ 10% - 40% □ Yes ○ 25% - 75% ☑ No > Wo dot set h NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5) low, slight moderate ☑ high, very high, severe □ What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3) Woody vegetation [Creex, shrubs, vines] greate	<10% 🖾 10% - 25% >2	5% 🗖
Yes ⊠ No Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes ⊠ No Yes ⊠ No Dominant vegetation layer within riparian area? (Question 10) Woody vegetation man gover the edge of the water? (Questions 11 & 14) Yes ⊠ No Joes woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes ⊠ No Large woody debris in riparian area? (Question 15) Yes □ No Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ⊠ 10% - 40% Question 19) <25% □	Is the reach constricted by man-made features? (Question	8)
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes ⊠ No Dominant vegetation layer within riparian area? (Question 10) Woody vegetation ⊠ Herbaceous vegetation □ Bare ground □ Does woody vegetation Image over the edge of the water? (Questions 11 & 14) Yes ⊠ No Large woody debris in riparian area? (Question 15) Yes □ No ⊠ Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% □ (10% □ >40% □ 10% - 40% □ <10% □	Yes 🗵 No 🗖	
Yes ⊠ No □ Dominant vegetation layer within riparian area? (Question 10) Woody vegetation ⊠ Herbaceous vegetation □ Bare ground □ Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes ⊠ No □ Large woody debris in riparian area? (Question 15) Yes □ No □ Yes □ No □ Image: No □ Image: No □ Large woody debris in riparian area? (Question 15) Yes □ No □ Yes □ No □ Image: No □ Image: No □ Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% □ <10% □	Does the orientation of the riparian area allow for shadin summer? (Question 9)	ng of the water resource at midday in
Dominant vegetation layer within riparian area? (Question 10) Woody vegetation Image over the edge of the water? (Questions 11 & 14) Yes Image No Large woody debris in riparian area? (Question 15) Yes Image No Yes Image No Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% Image 10% - 40% Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% Image 10% - 40% 25% Image 10% - 40% Vestion 19 <25% Image 25% - 75% Imag	Yes 🗵 No 🗆	
Woody vegetation III Herbaccous vegetation IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Dominant vegetation layer within riparian area? (Question	a 10)
Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes No Large woody debris in riparian area? (Question 15) Yes No Yes No Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% 10% - 40% Percent of evelopment or human caused disturbance. (Question 19) <25%	Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground
Yes ⊠ No □ Large woody debris in riparian area? (Question 15) Yes No ⊠ Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ⊠ 10% - 40% □ <10% □	Does woody vegetation hang over the edge of the water?	(Questions 11 & 14)
Large woody debris in riparian area? (Question 15) Yes No Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% 10% - 40% Percent of development or human caused disturbance. (Question 19) <25%	Yes 🗵 No 🗖	
Yes No ⊠ Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ⊠ 10% - 40% □ Degree of development or human caused disturbance. (Question 19) <25% □	Large woody debris in riparian area? (Question 15)	
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16) >40% ⊠ 10% - 40% □ <10% □	Yes 🗆 No 🖾	
>40% ⊠ 10% - 40% □ <10% □	Percent of water resource bordered by vegetated riparia	n area at least 30 feet wide? (Question 16)
Degree of development or human caused disturbance. (Question 19) <25%	>40% 🖾 10% - 40% 🗖 <1	0% 🗆
<25%	Degree of development or human caused disturbance. (Q	uestion 19)
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5) low, slight moderate in high, very high, severe What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3) Woody vegetation Image: Herbaceous vegetation Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6) Yes No Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? Yes No or no flood prone area present How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 2 layers 1 layer or unvegetated Attachment 1-322	<25% 🗆 25% - 75% 🖾 >7	5% 🗆
low, slight moderate inigh, very high, severe Imigh, very high, severe What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3) Woody vegetation Imigh, very high, severe Imigh, very high, severe What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3) Woody vegetation Imigh, very high, severe Imigh, very high, severe Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6) Yes No Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? Yes No or no flood prone area present How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 2 layers 2 layers 1 layer or unvegetated	How does the NRCS soil survey rank water erosion haza the Riparian Area? (Question 5)	rd of the dominant mapped unit in
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3) Woody vegetation I Herbaceous vegetation I Bare ground I Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6) Yes INO I Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? Yes INO or no flood prone area present I How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 I algers Attachment 1-322	low, slight moderate 🗵 high, very h	igh, severe
Woody vegetation Image: Herbaceous vegetation Image: Bare ground Image: Bare	What is the dominant vegetation at the top of bank (if de	fined) or edge of water resource? (Question 3)
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6) Yes No Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? Yes No or no flood prone area present How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 2 layers 2 layers 1 layer or unvegetated	Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground
Yes ⊠ No □ Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? Yes ⊠ No or no flood prone area present □ How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? ≥ 2 layers More than 2 ⊠ 2 layers ⇒ 1 layer or unvegetated □	Are there flood prone areas (adjacent flat areas, depress floodplain, etc.) beyond the top of bank or edge of the wa	ions, swales, FEMA mapped 100-year iter resource? (Question 6)
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? Yes ⊠ No or no flood prone area present How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 ⊠ 2 layers 1 layer or unvegetated □	Yes 🖾 No 🗆	
Yes ⊠ No or no flood prone area present □ How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 ⊠ 2 layers □ 1 layer or unvegetated □ Attachment 1-322	Is woody vegetation (trees, shrubs, vines) greater than 1 flood prone riparian area?	meter (3.2 feet) high dominant in the ϵ
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? More than 2 2 layers 1 layer or unvegetated Attachment 1-322	Yes 🗵 No or no flood prone area present \Box	
More than 2 Image: 2 layers Image: 1 layer or unvegetated Image: Attachment 1-322	How many vegetation layers (i.e. canopy, mid-story, grou	indcover) are present?
	More than 2 \boxtimes 2 layers \square 1 la	ver or unvegetated
		-
	· · · · · · · · · · · · · · · · · · ·	

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE

R-GS-5 Right bank

Date:	9/15/2	2009	Investigators:		SE-M	Е	
Dominant	tree species:	Pseudot	tsuga menziesii	(s	ee other side f	or list of species)
Potential tree height (PTH)/Actual Width of riparian area : 120/50 feet					feet		
(Width measured horizontally from edge of water resource)							
PTH determined by:							
On-	site vegetation		Keierence site	Ц		_	

Comments:The western fill slope of R-GS-5 abuts Glenwood Boulevard. It is 2-6 feet wideand had 2 inches of flowing water at the time of the 9/15/09 site visit. R-GS-5 flows north where itconverges with R-GS-4 and flows under Glenwood Boulevard into R-GS-3. The left and right bank aresimilar with the exception of the right bank average slope is 10%, the extent of impervious surface withinthe riparian area is <10%, the degree of development or human caused disturbance is 25-75%, and there</td>are more than two vegetation layers present.Typical Cross Section:



Attachment 1-323

Riparian Functional Assessment Answer Sheet

RIPARIAN CODE R-GS-5

Right bank

Glenwood Area of Springfield

WATER QUALITY

1.	What is the average slope in the riparian area?		Score	
	a. Less than 10:1 (10%)	3 pts		
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	3	
	c. Greater than 5:1 (20%)	1 pt		
2.	What is the dominant vegetation cover in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
3.	What is the dominant vegetation at the top of bank (if defined)			<u> </u>
	or edge of water resource?			\bigcirc
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
4.	What is the extent of impervious surfaces within the riparian area?			
	a. Less than 10%	3 pts		
	b. Between 10% and 25%	2 pts	3	
	c. Greater than 25%	1 pt		
5	How does the Natural Resources Conservation Service (formerly			
	Soil Conservation Service) soil survey rank the water erosion hazard			
	of the dominant mapped unit in the riparian area? Select the highest	a:		
	water erosion hazard description if more than one is listed.			
	a. Low, slight, moderate	2 pts	2	
	b. High, severe, very high	1 pts		
		(),,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
		Total Points:	14	
Т		· .		
Fυ	inction: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)			-
	T T	UNCTION IS.	нсн	\smile

UNCTION IS:

Riparian Functional Assessment Answer She	et	HS
Glenwood Area of Springfield		
	Γ	RIPARIAN CODE
FLOOD MANAGEMENT		R-GS-5 Right bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA		Score
mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	3
b. No	1 pt	
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes b. No or no flood prone area present 	3 pts 	3
8. Is the stream or water resource constricted by man-made features		
(e.g. channelization, riprap, concrete wall)? a. No b. Yes	3 pts 1 pts	1
	Total Points:	7
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)		
FUI	NCTION IS:	MEDIUM

RIPARIAN CODE R-GS-5

Right bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	at midday in the summer?		Score	
	a. Yes	3 pts	3	
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt	· ·	
11.	Does woody vegetation hang over the edge of the water?			(
	a. Yes	2 pts	2	
	b. No	1 pts		
		11		
	, Ta	tal Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

RIPARIAN CODE R-GS-5

Right bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WILDLIFE HABITAT

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?	· .	Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	3
c. 1 layer, or unvegetated	1 pt	
		• • • •
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	1
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	3
c. Less than 10%	1 pt	
	·····	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-5

Right bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17.	Is surface water present throughout the year?		Score
	a. Yes	3 pts	
	b. No	1 pt	3
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond)		
	within or immediately adjacent to the riparian reach?		
	a. Yes	3 pts	1
	b. No	1 pt	
19.	What is the degree of development or human-caused disturbance (e.g. buildings,		
	impervious surfaces, lawns, agriculture, trash) in the riparian area?		· · · · · · · · · · · · · · · · · · ·
	a. Less than 25%	3 pts	
÷	b. Between 25% and 75%	2 pts	2
	c. Greater than 75%	1 pt	
	Т	otal Points:	18

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form

PHS

Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: Viewed from the southern			
	portion of ODOT yard			
Date: 10/7/2009	Riparian Code: R-GS-6			
	N			
On-site: 🗵 Off-Site: 🗆	Reach Length: 575 feet			
Internet SE ME	Hadralasis Desira			
Investigators: <u>SE-ME</u>	Hydrologic Basin: Glenwood Slougn			
WATER RESOURCE INFORMATION				
Water Deserves Streem /Diver	T Wildth. 2 foot			
Water Resource: Stream/River: A	Width:foot			
wetland:				
LWI Wetland Code:				
Water present year wound. Ves X				
water present year-round: Yes 🖾				
Are salmonids present in the adjacent water	resource? Yes 🗆 No 🗵			
Is the water resource listed for temperature	on DEQ's 303(d) list: Yes 🗆 No 🗵			
Within FEMA-mapped 100-year floodplain:	Yes 🗆 No 🗵			
Mapped soil series: Chehalis silty clay loam				
Adjacent Land Uses? (Check as many as needed)				
Agriculture: 🗆 🛛 🛛	Roads:			
Commercial/Indus.: 🗵 Undevel	eloped: 🗀			
Residential: D For	restry:			
Woody vegetation	Herbaceous vegetation			
(trees, shrubs, vines >1 meter) (include trees, shrubs, vines <1 meter)				
Salix sitchensis Cirsium arvense, Phalaris arundinacea				
Rosa nutkana Solanum dulcamara				
Salix lasiandra Lathyrus sp.				
Rubus discolor Equisetum arvense				
	Aster sp.			
· · · · · · · · · · · · · · · · · · ·	Conium maculatum			
	Dipsacus sylvestris			

1 meter = 3.2 feet

	RIPA	LAN CODE: R-GS-6
Average slope in the ri	Darian area: (Question 1)	
<10:1 (10%) 🗵 Betw	veen 10:1 (10%) and 5:1 (20%) $\Box > 5:1 (2)$	0%) 🗆
Extent of impervious su	Irface within the riparian area. (Question 4)	
<10% 🗵	10% - 25% 🗆	
Is the reach constricted	by man-made features? (Question 8)	
Yes 🗵	No 🗆	
Does the orientation of summer? (Question 9)	the riparian area allow for shading of the wa	ater resource at midday in
Yes 🗵	No 🗆	
Dominant vegetation la	yer within riparian area? (Question 10)	
Woody vegetation \Box	Herbaceous vegetation 🗵 Ba	re ground
Does woody vegetation	hang over the edge of the water? (Questions 11	& 14)
Yes 🗵	No 🗆	
Large woody debris in	riparian area? (Question 15)	
Yes 🗆	No 🗵	
Percent of water resour	ce bordered by vegetated riparian area at le	ast 30 feet wide? (Question 16)
>40% 🗆	10% - 40% 🗵 <10% 🗆	
Degree of development	or human caused disturbance. (Question 19)	
<25% □	25% - 75% ⊠ >75% □	
How does the NRCS so the Riparian Area? (Que	l survey rank water erosion hazard of the do	ominant mapped unit in
low, slight moderate	ĭ high, very high, severe	
What is the dominant v	egetation at the top of bank (if defined) or ec	ge of water resource? (Question 3)
Woody vegetation \Box	Herbaceous vegetation 🗵 Ba	re ground \Box
Are there flood prone a floodplain, etc.) beyond	reas (adjacent flat areas, depressions, swales the top of bank or edge of the water resourc	, FEMA mapped 100-year e? (Question 6)
Yes 🗆	No 🗵	
Is woody vegetation (tro flood prone riparian ar	ees, shrubs, vines) greater than 1 meter (3.2 f ea?	eet) high dominant in the
Yes 🗆 No o	r no flood prone area present 🗵	
How many vegetation la	yers (i.e. canopy, mid-story, groundcover) a	re present?

Glenwood Area of Springfield RIPARIAN CODE R-GS-6 Investigators: SE-ME Date: 10/7/2009 Salix sitchensis **Dominant tree species:** (see other side for list of species) Potential tree height (PTH)/Actual Width of riparian area : 30 feet (Width measured horizontally from edge of water resource) PTH determined by: On-site vegetation \square Reference site \Box Code R-GS-6 is located between the railroad tracks and the ODOT maintenance yard. **Comments:** R-GS-6 is a channelized manmade feature that flows northwest and converges with GS-5.

Riparian Width Determination

Typical Cross Section:



Riparian Functional Assessment Answer Sheet



RIPARIAN CODE

R-GS-6

Glenwood Area of Springfield

WATER QUALITY

1. What is the average slope in the riparian area?		Score	
a. Less than 10:1 (10%)	3 pts		
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	3	
c. Greater than 5:1 (20%)	1 pt		
2. What is the dominant vegetation cover in the riparian area?			
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2	
c. Bare ground	1 pt		
3. What is the dominant vegetation at the top of bank (if defined)			(
or edge of water resource?			
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	•	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	^{2 pts} –	2	
c. Bare ground	1 pt		
A What is the extent of impervious surfaces within the rinarian area?			
a Less than 10%	3 pte		
a. Less than 10%	3 pts	2	
b. Between 1076 and 2576	2 pis -		
c. Ofeater than 25%			
5. How does the Natural Resources Conservation Service (formerly			
Soil Conservation Service) soil survey rank the water erosion hazard			
of the dominant mapped unit in the riparian area? Select the highest			
water erosion hazard description if more than one is listed.			
a. Low, slight, moderate	2 pts	2	
b. High, severe, very high	1 pts		
	Total Points:	12	
Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)			Ē
		The state	\bigcirc
FU	NCTION IS:	HIGH	

PHS

Riparian Functional Assessment Answer She	eet	PHS
Glenwood Area of Springfield	ſſ	
		RIPARIAN CODE
FLOOD MANAGEMENT		R-GS-6
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the		Score
water resource?		
a. Yes	3 pts	1
b. No	1 pt	
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes b. No or no flood prone area present 	3 pts 1 pt	1
8. Is the stream or water resource constricted by man-made features		
(e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	1
b. Yes	1 pts	
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)	Total Points:	3
FU	NCTION IS:	LOW

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	Does the aspect or orientation of the riparian area allow for shading of water		Score	
	at midday in the summer?	3 ptc	3	
	b. No	3 pis 1 pt	3	•
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2	
	c. Bare ground	1 pt		
11.	Does woody vegetation hang over the edge of the water?			(
	a. Yes	2 pts	2	
	b. No	1 pts		8

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

Total Points:

HIGH

7

Attachment 1-334



RIPARIAN CODE

R-GS-6

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE

R-GS-6

Glenwood Area of Springfield

WILDLIFE HABITAT

12.	How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
	a. More than 2 layers	3 pts	
	b. 2 layers	2 pts	2
	c. 1 layer, or unvegetated	1 pt	
13.	What is the dominant vegetation layer in the riparian area?		
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2
	c. Bare ground	1 pt	
14.	Does woody vegetation hang over the edge of the water?		
	a. Yes	2 pts	2
•	b. No	1 pt	
15.	Is large woody debris present within the riparian area?		
	a. Yes	3 pts	1
	b. No	1 pt	
16.	What percent of the water resource edge is bordered by a vegetated riparian		
	area at least 30 feet wide?		
	a. Greater than 40%	3 pts	
	b. Between 10% and 40%	2 pts	2
	c. Less than 10%	1 pt	

Questions continued on next page
Riparian Functional Assessment Answer Sheet



RIPARIAN CODE

R-GS-6

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17.	Is surface water present throughout the year?		Score	
	a. Yes	3 pts		
	b. No	1 pt	3	_
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond within or immediately adjacent to the riparian reach?)		
	a. Yes	3 pts	1	
	b. No	1 pt		
19.	What is the degree of development or human-caused disturbance (e.g. building	gs,		
	impervious surfaces, lawns, agriculture, trash) in the riparian area?			6
	a. Less than 25%	3 pts		C
	b. Between 25% and 75%	2 pts	2	
	c. Greater than 75%	1 pt		-
		Total Points:	15	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: Viewed from Henderson Ave, and Newman Street			
Date: 10/7/2009	Riparian Code: R-GS-7 Left bank			
On-site: 🗵 Off-Site: 🗆	Reach Length: 1,669 feet			
Investigators: SE-ME	Hydrologic Basin: Glenwood Slough			
WATER RESOURCE INFORMATION				
Water Resource: Stream/River: X Lake/Pond: Wetland:	Width:8-10feetWidth:feetWidth:feet			
LWI Wetland Code: <u>GS-5</u>				
Water present year-round: Yes 🗵	No 🗆			
Are salmonids present in the adjacent water	resource? Yes D No 🗵			
Is the water resource listed for temperature on DEQ's 303(d) list: Yes □ No ⊠				
Within FEMA-mapped 100-year floodplain: Yes D No 🗵				
Mapped soil series: Chehalis silty clay loam, Newberg fine sandy loam				
Adjacent Land Uses? (Check as many as needed)				
Agriculture:Image: Commercial/Indus.:Image: Commercial/Indus.:Residential:Image: Commercial C	Roads: loped: restry:			
Woody vegetation	Herbaceous vegetation			
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)			
Fraxinus latifolia	Heracleum lanatum			
Sympnoricarpos albus	Talling anandiflong			
Cratagous monomina	Carer lentonoda			
Echinocystis lobata				
Crataegus douglasii	· · · · · · · · · · · · · · · · · · ·			

1 meter = 3.2 feet

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		• ·
line in the second s	RIPARIAN CODE:	XHIBIT E-188 B-CS-7 Left bank
Average slope in the vinewish erect (Overtice 1)	KI ANAN CODE.	R-GS-7 Left Dallk
Average slope in the riparian area: (Question 1) <10.1 (10%) \square Between 10.1 (10%) and 5.1 (20%) \square	>5.1 (20%) 🗖	
	-). -)	
$\leq 10\%$ [X] $10\% = 25\%$ $>25\%$	m 4) □	
Is the reach constricted by man made features? (Ouestier 9)		
Yes $ \overline{X} $ No \square		
Does the orientation of the riparian area allow for shading of summer? (Question 9)	the water resource	e at midday in
Yes 🖾 No 🗆		
Dominant vegetation layer within riparian area? (Question 10)		
Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground \Box	
Does woody vegetation hang over the edge of the water? (Oues	tions 11 & 14)	
Yes X No		
Large woody debris in riparian area? (Question 15)		
Yes \Box No \boxtimes		(
Percent of water resource bordered by vegetated riparian are	a at least 30 feet wi	de? (Ouestion 16)
>40% 🗵 10% - 40% 🗆 <10%		
Degree of development or human caused disturbance. (Question	n 19)	
<25% □ 25% - 75% ⊠ >75% Ⅰ		
How does the NRCS soil survey rank water erosion hazard of the Riparian Area? (Question 5)	the dominant map	ped unit in
low, slight moderate 🗵 high, very high, s	evere 🗆	and a second
What is the dominant vegetation at the top of bank (if defined) or edge of water	resource? (Question 3)
Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground \Box	
Are there flood prone areas (adjacent flat areas, depressions, floodplain, etc.) beyond the top of bank or edge of the water re	swales, FEMA mag esource? (Question 6)	ped 100-year
Yes 🗆 No 🖾		•
Is woody vegetation (trees, shrubs, vines) greater than 1 meter flood prone riparian area?	r (3.2 feet) high dor	ninant in the
Yes \Box No or no flood prone area present \boxtimes		
How many vegetation layers (i.e. canopy, mid-story, groundco	over) are present?	
More than 2 More than 2 \square 2 layers Attachment 1-338	r unvegetated	
· · ·		

Riparian Width Determination Glenwood Area of Springfield RIPARIAN CODE R-GS-7 Left bank Date: 10/7/2009 SE-ME Investigators: **Dominant tree species:** Fraxinus latifolia (see other side for list of species) Potential tree height (PTH)/Actual Width of riparian area : 75 feet (Width measured horizontally from edge of water resource) **PTH determined by: On-site vegetation** ⊠ Reference site Code

Comments:Railroad is located on left side; development is located to the right. Wetted widthis approximately 4-6 feet; average water depth was two inches at the time of the October 2009 sitevisit. The left and right bank of the riparian area are similar with the exception of the left bank between10-20%.

Typical Cross Section:



Attachment 1-339

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield RIPARIAN CODE R-GS-7 WATER QUALITY Left bank 1. What is the average slope in the riparian area? Score a. Less than 10:1 (10%) 3 pts b. Between 10:1 (10%) and 5:1 (20%) 2 2 pts c. Greater than 5:1 (20%) 1 pt 2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 3 2 pts 1 pt c. Bare ground 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts b. Between 10% and 25% 2 pts 3 c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. 2 a. Low, slight, moderate 2 pts b. High, severe, very high 1 pts 13 **Total Points: Function:** High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)

FUNCTION IS:

HIGH

PHS.

Riparian Functional Assessment Answer Shee	et (PHS
Glenwood Area of Springfield		
·		RIPARIAN CODE
FLOOD MANAGEMENT		R-GS-7 Left bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes	3 pts	1
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	1
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	1
b. Yes	1 pts	
Т	Cotal Points:	3
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)		

FUNCTION IS:

LOW

Riparian Functional Assessment Answer Sheet

PHS

RIPARIAN CODE R-GS-7

Left bank

Glenwood Area of Springfield

THERMAL REGULATION

9. Does the aspect or orientation of the riparian area allow for shading of water		Score	
at midday in the summer?			
a. Yes	3 pts	3	
b. No	1 pt		
10. What is the dominant vegetation layer in the riparian area?			
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
c. Bare ground	1 pt		
			C
11. Does woody vegetation hang over the edge of the water?			
a. Yes	2 pts	2	~
b. No	1 pts		
То	tal Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet

RIPARIAN CODE

2

3

2

1

Glenwood Area of Springfield

R-GS-7 WILDLIFE HABITAT Left bank 12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? Score a. More than 2 layers 3 pts b. 2 layers 2 pts c. 1 layer, or unvegetated 1 pt 13. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 14. Does woody vegetation hang over the edge of the water? a. Yes 2 pts b. No 1 pt 15. Is large woody debris present within the riparian area? a. Yes 3 pts b. No 1 pt 16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide? a. Greater than 40% 3 pts

b. Between 10% and 40% 2 pts 3 c. Less than 10% 1 pt

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-7

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17.	Is surface water present throughout the year?		Score
	a. Yes	3 pts	
	b. No	1 pt	3
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riperion reach?		
		0	1
		_3 pts	<u>I</u>
	b. No	1 pt	
19.	What is the degree of development or human-caused disturbance (e.g. buildings,		
	impervious surfaces, lawns, agriculture, trash) in the riparian area?		
	a. Less than 25%	3 pts	
	b. Between 25% and 75%	2 pts	2
	c. Greater than 75%	1 pt	

Total Points:

17

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMAT	TION	Loca	ation of data _j	point:	Viewed from	Henderson A	ve,
				_	and Newman	Street	
Date:	10/7/2009	-	Riparian Co	de:	R-GS-	7 Left bank	
On-site: 🗵	Off-Site:		Reach Leng	th:	1,6	669 feet	
Investigators:	SE-ME	-	Hydrologic 1	Basin:	Glenw	ood Slough	
WATER RESOURCE I	NFORMATION	• <u>.</u> _					÷.
Water Resource:	Stream/River: X Lake/Pond: Wetland:		Width: Width: Width:		8-10	feet feet feet	
LWI Wetland Code:	GS-5						
Water present year-	round: Yes 🛛	No					
Are selmonids prese	nt in the adjacent water	rasou	rco?	Vos		No X	
Is the water resource	e listed for temperature of	on DE	CQ's 303(d) li	st:	⊥ Yes □		No 🗵
Within FEMA-map	Within FEMA-mapped 100-year floodplain: Yes 🗆 No 🗵						
Mapped soil series:	Chehalis	silty	clay loam, Ne	wberg	fine sandy loa	m	
Adjacent Land Uses	? (Check as many as needed)						
Agriculture:		loads:			v		
Commercial/Indus.:	Undevel	oped:					
Residential:	□ For	estry:					
Woo	ody vegetation		•	He	rbaceous veg	etation	
(trees, shrubs, vines >1 meter)		(inc	clude tr	rees, shrubs, v	ines <1 meter	r)	
Fraxinus latifolia		Heracleum la	anatum	1			
Symphoricarpos albu	5		Phalaris aru	ndinac	ea		
Kubus discolor		Tellima gran	aijiora				
Echinocystis lobata				ouu			
Crataegus douglasii					r		
- and Sas woughast							

1 meter = 3.2 feet

	t r
EX	<u>HIBIT E-196</u>
RIPARIAN CODE: F	t-GS-7 Right bank
Average slope in the riparian area: (Question 1)	
<10:1 (10%) \boxtimes Between 10:1 (10%) and 5:1 (20%) \square >5:1 (20%) \square	
Extent of impervious surface within the riparian area. (Question 4)	
<10% 🖾 10% - 25% 🗆	
Is the reach constricted by man-made features? (Question 8)	
Yes 🗵 No 🗖	
Does the orientation of the riparian area allow for shading of the water resource a summer? (Question 9)	ıt midday in
Yes 🗵 No 🗆	
Dominant vegetation layer within riparian area? (Question 10)	
Woody vegetation \boxtimes Herbaceous vegetation \square Bare ground \square	
Does woody vegetation hang over the edge of the water? (Questions 11 & 14)	
Yes 🖾 No 🗖	
Large woody debris in riparian area? (Question 15)	
Yes 🗆 No 🗵	1
Percent of water resource bordered by vegetated riparian area at least 30 feet wide	e? (Question 16)
>40% 🖾 10% - 40% 🗖 <10% 🗖	
Degree of development or human caused disturbance. (Question 19)	
<25% D 25% - 75% X >75% D	
How does the NRCS soil survey rank water erosion hazard of the dominant mappe the Riparian Area? (Question 5)	ed unit in
low, slight moderate 🗵 high, very high, severe 🗆	
What is the dominant vegetation at the top of bank (if defined) or edge of water res	source? (Question 3)
Woody vegetation \square Herbaceous vegetation \square Bare ground \square	
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapp floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)	ed 100-year
Yes 🗋 No 🗵	
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high domin flood prone riparian area?	nant in the
Yes \square No or no flood prone area present \boxtimes	(
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?	
More than 2 2 layers Attachment 1-346	

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE

R-GS-7 Right bank

Date: 10/7/2	009 Investigators:	SE-ME				
Dominant tree species: <i>Fraxinus latifolia</i> (see other side for list of species)			-			
Potential tree height (PTH)/Actual Width of riparian area : 75/>120 fee (Width measured horizontally from edge of water resource)						
PTH determined by: On-site vegetation I Reference site Code						

Comments:Railroad is located on left side; development is located to the right. Wetted widthis approximately 4-6 feet; average water depth was two inches at the time of the October 2009 sitevisit. The left and right bank of the riparian area are similar with the exception of the right bank at 10%.

Typical Cross Section:



Attachment 1-347

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE **R-GS-7**

Right bank

Glenwood Area of Springfield

WATER QUALITY

1.	What is the average slope in the riparian area?		Score	
	a. Less than 10:1 (10%)	3 pts		
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	3	
	c. Greater than 5:1 (20%)	1 pt		
_				
2.	What is the dominant vegetation cover in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts _	3	
	c. Bare ground	1 pt		
3.	What is the dominant vegetation at the top of bank (if defined)		,	\cap
	or edge of water resource?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
4	What is the extent of impervious surfaces within the ringrian area?			,
	a Less than 10%	3 nts		
	h Between 10% and 25%	2 pts	3	
	c. Greater than 25%	1 pt		
5.	How does the Natural Resources Conservation Service (formerly			
	Soil Conservation Service) soil survey rank the water erosion hazard			
	of the dominant mapped unit in the riparian area? Select the highest			
	water erosion hazard description if more than one is listed.			
	a. Low, slight, moderate	2 pts	2	
÷	b. High, severe, very high	1 pts		
	Transformed and the second secon	otal Points.	14	
TC-				
гu	$methon: mign (12-14 \text{ pts}) \text{Medium } (\delta-11 \text{ pts}) \text{Low } (5-7 \text{ pts})$			\bigcirc
	FUNC	CTION IS:	HIGH	<u> </u>

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-GS-7 FLOOD MANAGEMENT Right bank 6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA Score mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? a. Yes 3 pts 1 b. No 1 pt 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes 3 pts 1 b. No or no flood prone area present 1 pt 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No 3 pts 1 b. Yes 1 pts **Total Points:** 3 Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)

FUNCTION IS:

LOW

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE **R-GS-7 THERMAL REGULATION Right bank** 9. Does the aspect or orientation of the riparian area allow for shading of water Score at midday in the summer? a. Yes 3 3 pts b. No 1 pt 10. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt • 11. Does woody vegetation hang over the edge of the water? 2 a. Yes 2 pts b. No 1 pts 8 **Total Points:**

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-7

Right bank

Glenwood Area of Springfield

WILDLIFE HABITAT

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	2
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	1
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	3
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-GS-7

Right bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17. Is surface water present throughout the year?		Score	
a. Yes	3 pts		
b. No	1 pt	3	
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond)			
within or immediately adjacent to the riparian reach?			
a. Yes	3 pts	1	
b. No	1 pt		
19. What is the degree of development or human-caused disturbance (e.g. buildings,	,		
impervious surfaces, lawns, agriculture, trash) in the riparian area?			6
a. Less than 25%	3 pts		C
b. Between 25% and 75%	2 pts	2	
c. Greater than 75%	1 pt		
The second se	otal Points:	17	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION Location of data point: East 22nd Avenue			
Date: 10/7/2009 On-site: ⊠ Off-Site: □	Riparian Code:R-GS-8Reach Length:317		
Investigators: ME-SE	Hydrologic Basin: Glenwood Slough		
WATER RESOURCE INFORMATION			
Water Resource: Stream/River: X Lake/Pond: Wetland:	Width:3feetWidth:feetWidth:feet		
LWI Wetland Code:			
Water present year-round: Yes 🗵 N	No 🗆		
Are salmonids present in the adjacent water rese	ource? Yes 🗆 No 🗵		
Is the water resource listed for temperature on I	DEQ's 303(d) list: Yes D No 🗵		
Within FEMA-mapped 100-year floodplain:	Yes 🗆 No 🗵		
Mapped soil series: Urban l	and-Hazelair-Dixonville complex		
Adjacent Land Uses? (Check as many as needed)	•		
Agriculture:□RoadCommercial/Indus.:⊠UndevelopeResidential:□Forestr	ls: ⊠ d: ⊠ y: □		
Woody vegetation	Herbaceous vegetation		
(trees, shrubs, vines >1 meter) (include trees, shrubs, vines <1 meter)			
Salix stichensis Festuca arundinacea			
Populus trichocarpa	Typna latifolia		
Kuous alscolor	Trifolium pratense		
	Daucus carota		
	Tanacetum vulgare		

 $\frac{1}{1 \text{ meter}} = 3.2 \text{ feet}$

	RIPARIAN CODE: R-GS-8
Average slope in the riparian area: (Question 1)	
<10:1 (10%) 🗵 Between 10:1 (10%) and 5:1 (20%) 🗆	>5:1 (20%)
Extent of impervious surface within the riparian area. (Q	Question 4)
<10% 🗆 10% - 25% >25	5% 区
Is the reach constricted by man-made features? (Question 8	8)
Yes 🖾 No 🗖	
Does the orientation of the riparian area allow for shadir summer? (Question 9)	ng of the water resource at midday in
Yes 🗵 No 🗆	·
Dominant vegetation layer within riparian area? (Question	n 10)
Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground
Does woody vegetation hang over the edge of the water?	(Questions 11 & 14)
Yes 🗵 No 🗖	
Large woody debris in riparian area? (Question 15)	
Yes 🗖 No 🖾	
Percent of water resource bordered by vegetated riparia	n area at least 30 feet wide? (Question 16)
>40% 10% - 40% <1	0% 🗵
Degree of development or human caused disturbance. (Qu	uestion 19)
<25% II 25% - 75% II >7	5% 🗵
How does the NRCS soil survey rank water erosion hazar the Riparian Area? (Question 5)	rd of the dominant mapped unit in
low, slight moderate 🖾 high, very hi	igh, severe
What is the dominant vegetation at the top of bank (if de	fined) or edge of water resource? (Question 3)
Woody vegetation \square Herbaceous vegetation \boxtimes	Bare ground
Are there flood prone areas (adjacent flat areas, depressi floodplain, etc.) beyond the top of bank or edge of the wa	ons, swales, FEMA mapped 100-year ter resource? (Question 6)
Yes 🗆 No 🗵	
Is woody vegetation (trees, shrubs, vines) greater than 1 r flood prone riparian area?	meter (3.2 feet) high dominant in the
Yes \square No or no flood prone area present \boxtimes	
How many vegetation layers (i.e. canopy, mid-story, grou	ndcover) are present?
More than 2 More than 2 2 layers Attachment 1-354	ver or unvegetated 4
	• • • • • • • • • • • • • • • • • • • •

•

Riparian Wi	idth Det	ermination		PHS
Glenwood Ar	ea of Spr	ingfield	10.0	
				RIPARIAN CODE
				R-GS-8
Data		Investigatore	· ME SE	
Date: Dominant tree specie	es:	Salix sitchensis		st of species)
Potential tree he	ight (PTH)/A (Width me	ctual Width of riparian easured horizontally from edge	area: 2	20 feet
PTH determined by: On-site vegeta	tion 🗵	Reference site	Code	
Comments: 1	he riparian are	ea appears to be a roadsid	e ditch; however, it l	has perennial flow,

therefore it was evallated as a stream. R-GS-8 is approximately 3 feet wide and the water flows north into a culvert under East Ave. It is assumed the culvert daylights north into either R-GS-6 or R-GS-7.

Typical Cross Section:



Attachment 1-355

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE

R-GS-8

Glenwood Area of Springfield

WATER QUALITY

a. Less than 10:1 (10%) 3 pts b. Between 10:1 (10%) and 5:1 (20%) 2 pts c. Greater than 5:1 (20%) 1 pt 2. What is the dominant vegetation cover in the riparian area? 3 pts a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) 2 pts or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 c. Bare ground 1 pt 1 2 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts b. Between 10% and 25% 2 pts 1 1 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. 2 pts 2 a. Low, slight, moderate 2 pts 1 pt 1 1 b. H	1. What is the average slope in the riparian area?		Score	
b. Between 10:1 (10%) and 5:1 (20%) 2 pts 3 c. Greater than 5:1 (20%) 1 pt 2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt 1 pt 3. What is the dominant vegetation at the top of bank (if defined) 1 pt or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 c. Bare ground 1 pt 1 pt 2 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts b. Between 10% and 25% 2 pts 1 1 c. Greater than 25% 1 pt 1 1 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest 2 2 a. Low, slight, moderate 2 pts 2 2 2 b. High, severe, very hi	a. Less than 10:1 (10%)	3 pts		
c. Greater than 5:1 (20%) 1 pt What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 2 pts b. Herbaceous vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt What is the extent of impervious surfaces within the riparian area? a. Less than 10% 2 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate b. High, severe, very high 1 pts Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	3	
2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 a. Woody vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 2 pts b. Between 10% and 25% c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pt 1 pt 1	c. Greater than 5:1 (20%)	1 pt		
2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 2 pts 2 pts . 3 meters 3 pts 2 pts 3 b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 0 redge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 2 pts 2 3 a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 0 redge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 2 pts 2 2 a. Woody vegetation or woody vegetation less than 1 meter (3.2 feet) high 0 redge of water resource? 3 pts 2 2 a. Woody vegetation or woody vegetation less than 1 meter (3.2 feet) high 0 redge of water resource? 3 pts 2 2 b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 2 2 c. Bare ground 1 pt 1 pt 1 1 4. What is the extent of impervious surfaces within the riparian area? 3 pts 2 pts 1 1 c. Greater than 25% 1 pt 1 pt 1 1 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. 2 pts 2 2 b. High, severe, very high 1 pts <td></td> <td></td> <td></td> <td></td>				
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaccous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) 1 pt or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts a. Woody vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 2 c. Bare ground 1 pt 2 2 4. What is the extent of impervious surfaces within the riparian area? a Less than 10% 3 pts b. Between 10% and 25% 2 pts 1 c. Greater than 25% 1 pt 1 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest 2 pts 2 b. High, severe, very high 1 pts 1 pts 1 1 Total Points: 11 1 1 1	2. What is the dominant vegetation cover in the riparian area?			
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) 1 pt or edge of water resource? 3 pts a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? 1 pt a. Less than 10% 3 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? a. Low, slight, moderate 2 pts b. High, severe, very high 1 pts Total Points: 11	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% b. Between 10% and 25% 2 pts c. Greater than 25% 2 pts f. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pt Total Points: 11	c. Bare ground	1 pt		
or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? 3 pts a. Less than 10% 3 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pt Total Points: 11	3. What is the dominant vegetation at the top of bank (if defined)		ž	
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? 1 pt a. Less than 10% 3 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pt Total Points: 11	or edge of water resource?			
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 1 pt 1 pt 4. What is the extent of impervious surfaces within the riparian area? 3 pts a. Less than 10% 3 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pt Total Points: 11	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? 3 pts a. Less than 10% 3 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pt Total Points: 11	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2	
4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts a. Less than 10% 3 pts 2 pts b. Between 10% and 25% 2 pts 1 c. Greater than 25% 1 pt 1 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. 2 pts 2 a. Low, slight, moderate 2 pts 2 2 b. High, severe, very high 1 pt 1 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	c. Bare ground	1 pt		
a. Less than 10% 3 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. 2 pts a. Low, slight, moderate 2 pts 2 b. High, severe, very high 1 pts 1 Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	4. What is the extent of impervious surfaces within the riparian area?			
b. Between 10% and 25% 2 pts 1 c. Greater than 25% 1 pt 1 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. 2 pts 2 a. Low, slight, moderate 2 pts 2 2 b. High, severe, very high 1 pts 1 1 Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	a. Less than 10%	3 pts		
c. Greater than 25%1 pt	b. Between 10% and 25%	2 pts	1	
 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts 2 b. High, severe, very high 1 pts 1 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts) 	c. Greater than 25%	1 pt		
 S. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate b. High, severe, very high Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)				
Soli Conservation Service) soli survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pts Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts) 10	5. How does the Natural Resources Conservation Service (formerly			
of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pts Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	Soll Conservation Service) soil survey rank the water erosion hazard			
water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pts Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	of the dominant mapped unit in the riparian area? Select the highest			
a. Low, slight, moderate b. High, severe, very high Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	water erosion nazard description if more than one is listed.	0	•	
b. High, severe, very high 1 pts Total Points: 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	a. Low, slight, moderate	2 pts		
Total Points: <u>11</u> Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	b. High, severe, very high	1 pts		
Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)	· · · · · · · · · · · · · · · · · · ·		11	
Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)		otal Points:	11	
Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)				
	Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)			\square
FUNCTION IS: MEDIUM	FUNC	CTION IS:	MEDIUM	\bigcirc

PHS

Riparian Functional Assessment Answer She	et	PHS
Glenwood Area of Springfield	F	
		RIPARIAN CODE
FLOOD MANAGEMENT		R-GS-8
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a Ves	3 pts	1
b. No	1 pt	
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes b. No or no flood prone area present 	3 pts 1 pt	1
8. Is the stream or water resource constricted by man-made features		
(e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	1
b. Yes	1 pts	
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)	 Total Points:	3
TTA .	NCTION IS-	LOW

RIPARIAN CODE

R-GS-8

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	Does the aspect or orientation of the riparian area allow for shading of water	*	Score	
	a. Yes	3 pts	3	
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
11.	Does woody vegetation hang over the edge of the water?			(
	a. Yes	2 pts	2	~
	b. No	1 pts		•
	3			
	Т	otal Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

PHS

RIPARIAN CODE

R-GS-8

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WILDLIFE HABITAT

12.	How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
	a. More than 2 layers	3 pts	
	b. 2 layers	2 pts	2
	c. 1 layer, or unvegetated	1 pt	
13.	What is the dominant vegetation layer in the riparian area?		
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
	c. Bare ground	1 pt	
14.	Does woody vegetation hang over the edge of the water?		
	a. Yes	2 pts	2
	b. No	1 pt	
	•		
15.	Is large woody debris present within the riparian area?		
	a. Yes	3 pts	1
	b. No	1 pt	
16.	What percent of the water resource edge is bordered by a vegetated riparian		
	area at least 30 feet wide?		
	a. Greater than 40%	3 pts	а. -
	b. Between 10% and 40%	2 pts	1
	c. Less than 10%	1 pt	
		1	

Questions continued on next page

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Riparian Functional Assessment Answer Sheet		PHS	
Glenwood Area of Springfield			
		RIPARIAN CODE	
WILDLIFE HABITAT (continued)		R-GS-8	
17. Is surface water present throughout the year?		Score	
a. Yes	3 pts		
b. No	1 pt	3	
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond)			
within or immediately adjacent to the riparian reach?			
a. Yes	3 pts	1	
b. No	1 pt		
19. What is the degree of development or human-caused disturbance (e.g. buildings,			
impervious surfaces, lawns, agriculture, trash) in the riparian area?			\bigcap
a. Less than 25%	3 pts		C
b. Between 25% and 75%	2 pts	1	
c. Greater than 75%	1 pt		
Tota	al Points:	14	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

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GENERAL INFORMATION	Locati	on of data poin	t: Viewed from the southern	n and	
			castern portion of the dra		
Date: 10/7/2009	F	Riparian Code:	<u>R-GS-9</u>		
On-site: 🗆 Off-Site: 🗵	F	Reach Length:	274 feet		
Investigators: ME-SE	I	Iydrologic Basi	n: Glenwood Slough		
WATER RESOURCE INFORMATION					
Water Resource: Stream/River: Lake/Pond: Wetland: LWI Wetland Code:		Vidth: Vidth: Vidth:	40 feet feet feet		
Water present year-round: Ves X		 ¬			
Water present year-round. Tes K					
Are salmonids present in the adjacent wa	iter resourc	e? Y	es 🗆 🛛 No 🖾		
Is the water resource listed for temperature on DEQ's 303(d) list: Yes D No 🗵					
Within FEMA-mapped 100-year floodpla	ain: Y	(es 🗆	No 🗵		
Mapped soil series:	Be	llpine silty clay	loam		
Adjacent Land Uses? (Check as many as need	ed)				
Agriculture:	Roads:				
Commercial/Indus.: I Und	eveloped:				
	rorestry:				
Woody vegetation	•	Constant 1	Herbaceous vegetation		
(trees, shrubs, vines >1 meter)	-	(includ	e trees, shrubs, vines <1 met	er)	
			·		

1 meter = 3.2 feet

				EXHIBIT E-212	 ,
			RIPARIAN CODE	R-GS-9	ļ
Average slope in the r	iparian area: (Quest	tion 1)			(
<10:1 (10%) 🗆 Ber	ween 10:1 (10%) ar	nd 5:1 (20%)	>5:1 (20%) 🖾		
Extent of impervious	surface within the s	riparian area. (Que	stion 4)		
<10% 🗵	10% - 25%	>25%			
Is the reach constricte	d by man-made fea	atures? (Question 8)		Ň	
Yes 🗖	No 🗵				
Does the orientation o summer? (Question 9)	f the riparian area	allow for shading	of the water reso	urce at midday in	
Yes 🗵	No 🗖				
Dominant vegetation	ayer within riparia	an area? (Question 10))		
Woody vegetation	Herbaceou	us vegetation \Box	Bare ground		
Does woody vegetation	hang over the edg	ge of the water? (Qu	uestions 11 & 14)		
Yes 🗵	No 🗆				
Large woody debris in	riparian area? (Qu	uestion 15)			6
Yes 🗆	No 🗵				C
Percent of water resou	rce bordered by ve	egetated riparian a	rea at least 30 fee	t wide? (Question 16)	
>40%	10% - 40% E	□ <10%	6 🗵		
Degree of developmen	t or human caused	disturbance. (Ques	tion 19)	·	
<25% □	25% - 75%	× >75%	6 🗆		
How does the NRCS so the Riparian Area? (Q	bil survey rank wat lestion 5)	ter erosion hazard	of the dominant r	napped unit in	
low, slight moderate		high, very high	i, severe 🛛		
What is the dominant	vegetation at the to	op of bank (if defin	ed) or edge of wa	ter resource? (Question 3)	
Woody vegetation	Herbaceou	us vegetation 🗵	Bare ground		
Are there flood prone floodplain, etc.) beyon	areas (adjacent fla d the top of bank o	t areas, depression or edge of the water	s, swales, FEMA r resource? (Questic	mapped 100-year	
Yes 🗆	No 🗵				
Is woody vegetation (t flood prone riparian a	rees, shrubs, vines) rea?	greater than 1 me	ter (3.2 feet) high	dominant in the	Ē
Yes 🗆 No	or no flood prone ar	rea present 🗵			C
How many vegetation	layers (i.e. canopy,	mid-story, ground	lcover) are presen	t?	
More than 2 \square	2 lavers [- • • • • • • • • • • • • • •	তা	

Riparia	n Width Det	ermination		PHS
Glenwoo	d Area of Spr	ingfield		
		0		RIPARIAN CODE R-GS-9
Date:	10/7/2009	Investigators:	ME-SE	,
Dominant tro Potentia	ee species:	Salix lasiandra	(see other side fo	r list of species) <u>35</u> <u>feet</u>
PTH determi On-sit	ined by: e vegetation 🖾	Reference site	Code	
Comments:	PHS was able to	o observe the drainage from	m the southern ar	nd western portions.

There are very steep slopes down to the drainage. It drains north towards E. 22nd Avenue. PHS could not see the bottom of the drainage due to a steep bank and *Salix* sp. thicket.

Typical Cross Section:



Attachment 1-363

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield	F	
		RIPARIAN CODE
WATER QUALITY	· .	R-GS-9
1. What is the average slope in the riparian area?		Score
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	1
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?	æ.	
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	2
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?	· .	
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	3
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly		
Soil Conservation Service) soil survey rank the water erosion hazard		
of the dominant mapped unit in the riparian area? Select the highest		
water erosion hazard description if more than one is listed.	5.	
a. Low, slight, moderate	2 pts	2
b. High, severe, very high	1 pts	
	tal Doints.	11

FUNCTION IS:

MEDIUM

Attachment 1-364

Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)

PHS,

Riparian Functional Assessment Answer She	et (PHS
Glenwood Area of Springfield		
		RIPARIAN CODE
FLOOD MANAGEMENT		R-GS-9
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA		Score
mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	1
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high		
dominant in the flood prone riparian area?		
a. Yes	3 pts	1
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features		
(e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	3
b. Yes	1 pts	
	Total Points:	5
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)		

FUNCTION IS:

MEDIUM

Riparian Functional Assessment Answer Sheet

High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

Glenwood Area of Springfield

THERMAL REGULATION

Function:

9.	Does the aspect or orientation of the riparian area allow for shading of water		Score	
	at midday in the summer?			
	a. Yes	3 pts	3	
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
11.	Does woody vegetation hang over the edge of the water?			C
	a. Yes	2 pts	2	\subseteq
	h. No	1 pts		
		u II		
		Total Dointa	Q	
		TOTAL LOURTS:		

FUNCTION IS:

HIGH

Attachment 1-366



RIPARIAN CODE

R-GS-9

Riparian Functional Assessment Answer Sheet		PHS
Glenwood Area of Springfield		
		RIPARIAN CODE
WILDLIFE HABITAT		R-GS-9
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pt	
15. Is lange woody debyis present within the vineyier area?		
a Ves	3 nts	1
h No	1 pt	<u>_</u>
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		5
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE WILDLIFE HABITAT (continued) R-GS-9 17. Is surface water present throughout the year? Score a. Yes 3 pts b. No 1 pt 3 18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach? a. Yes 3 pts 1 b. No 1 pt 19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area? a. Less than 25% 3 pts 2 pts b. Between 25% and 75% 2 c. Greater than 75% 1 pt 14 **Total Points:**

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point: N of Franklin Blvd, W of the
	crane shop along the River
Date: 10/7/2009	Riparian Code: R-WR-1 Left bank
On-site: 🗵 🛛 Off-Site: 🗆	Reach Length: 4671 feet
Investigators: ME - SE	Hydrologic Basin: Willamette River
WATER RESOURCE INFORMATION	· · ·
Water Resource: Stream/River: Lake/Pond: Wetland:	XWidth:Approximately 420feetWidth:feetWidth:feet
LWI Wetland Code:	
Water present year-round: Yes	No 🗆
Are salmonids present in the adjacent wa	ter resource? Yes 🖾 No 🗆
Is the water resource listed for temperate	re on DEQ's 303(d) list: Yes ⊠ No □
Within FEMA-mapped 100-year floodpla	in: Yes 🗵 No 🗆
Mapped soil series:	Newberg-Urban land complex
Adjacent Land Uses? (Check as many as need	ed)
Agriculture:	Roads:
Commercial/Indus.: 🗵 Und	eveloped:
Residential:	Forestry:
Woody vegetation	Herbaceous vegetation
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)
Acer macrophyllum, Populus trichocarpa	Lactuca serriola
Fraxinus latifolia	Hypericum perforatum
Rubus discolor	Hypochaeris radicata
Hedera helix	Carex obnupta
Alnus rubra	
Corylus cornuta	
Salix lasiandra	

1 meter = 3.2 feet

EXHIBIT E-220	
Average slope in the ringrian area: (Question 1)	\sim
$<10:1 (10\%)$ \square Between 10:1 (10%) and 5:1 (20%) \square $>5:1 (20\%)$ \boxtimes	
Extent of impervious surface within the ringrian area (Question 4)	
<10% 10% - 25% ×10% ×10% ×10% ×10% ×10% ×10% ×10% ×10	
Is the reach constricted by man-made features? (Ouestion 8)	
Yes \square No \square	
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Ouestion 9)	
Dominant vegetation layer within rinarian area? (Question 10)	
Woody vegetation X Horheseous vegetation D Bare ground D	
Deer medarmentetting has a smart the adverted to a father metars? (O and 11.6.14)	
Ves X No D	
Ves [] No [X]	
Demonst of water waterway hand be waterted vinceries area at least 20 feet wide? (Or estim 10)	
>40% \square 10% - 40% \boxtimes <10% \square	
Degree of development on human coursed disturbance (Oursier 10)	
Degree of development or numan caused disturbance. (Question 19)	
<25% Li 25% - 75% Li >75% Li	
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)	
low, slight moderate \boxtimes high, very high, severe \Box	
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)	
Woody vegetation \square Herbaceous vegetation \square Bare ground \square	
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)	
Yes 🗵 No 🗖	
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?	·~ .
Yes 🛛 No or no flood prone area present 🗵	2
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?	
More than 2 \boxtimes 2 layers \square 1 layer or unvegetated \square	

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE **R-WR-1 Left bank**

10/7/2009	Investigators:	ME-SI	Ξ	
cies:	Acer macrophyllum	(see other side fo	or list of spec	cies)
height (PTH)/A	ctual Width of riparian are	ea :	75/30	feet
(Width m	easured horizontally from edge of	water resource)		
oy:				
etation 🗵	Reference site	Code		
	10/7/2009 cies: height (PTH)/A (Width mo oy: etation 🗵	10/7/2009 Investigators: cies: Acer macrophyllum height (PTH)/Actual Width of riparian are (Width measured horizontally from edge of by: etation Image: Reference site Image: I	10/7/2009 Investigators: ME-SI cies: Acer macrophyllum (see other side for height (PTH)/Actual Width of riparian area : (Width measured horizontally from edge of water resource) oy: Reference site Code	10/7/2009 Investigators: ME-SE cies: Acer macrophyllum (see other side for list of spectrum) height (PTH)/Actual Width of riparian area : 75/30 (Width measured horizontally from edge of water resource) Provide the state of t

Comments:Developed portion along the south bank of the Willamette River. No accessto upper beach.Assessment taken at downstream (west) end just north of Franklin Boulevard.

Typical Cross Section:



Attachment 1-371
Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-1

Left bank

Glenwood Area of Springfield

WATER QUALITY

1.	What is the average slope in the riparian area?		Score	
	a. Less than 10:1 (10%)	3 pts		
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	1	_
	c. Greater than 5:1 (20%)	1 pt		_
2	What is the dominant vegetation cover in the ringrian grea?			
4.	a Woody vegetation (trees shrubs vines) greater than 1 meter (3.2 feet) high	3 nts		
	h. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 nts	3	
	c. Bare ground	1 pt		-
•		(21 10000 102X255 10000		
3.	What is the dominant vegetation at the top of bank (if defined)			$\left(\right)$
	or edge of water resource?	2 mto		\subseteq
	a. Woody vegetation (frees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	2	
	b. Heroaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pis		-
4.	What is the extent of impervious surfaces within the riparian area?	~		
	a. Less than 10%	3 pts		
	b. Between 10% and 25%	2 pts	1	
	c. Greater than 25%	1 pt		9
5	How does the Natural Desources Conservation Service (formerly			
5.	Soil Conservation Service) soil survey rank the water erosion hazard			
	of the dominant manned unit in the rinarian area? Select the highest			
	water erosion hazard description if more than one is listed.			
	a. Low, slight, moderate	2 pts	2	
	b. High, severe, very high	1 pts		
	· * * •	Total Points:	10	
		_		
Fr	inction: High (12-14 nts) Madium (2 11 nts) I aw (5-7 nts)			par in.
гu	$\frac{1}{2} = \frac{1}{2} = \frac{1}$			

FUNCTION IS:

MEDIUM

Glenwood Area of Springfield RIPARIAN CODE **R-WR-1 FLOOD MANAGEMENT** Left bank 6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA Score mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? a. Yes 3 pts 3 b. No 1 pt 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes 3 pts 1 b. No or no flood prone area present 1 pt 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No 3 pts 1 b. Yes 1 pts **Total Points:** 5 High (8-9 pts) Medium (5-7 pts) Low (3-4 pts) Function:

Riparian Functional Assessment Answer Sheet

MEDIUM

FUNCTION IS:



Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-WR-1 THERMAL REGULATION Left bank 9. Does the aspect or orientation of the riparian area allow for shading of water Score at midday in the summer? a. Yes 3 3 pts 1 pt b. No 10. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt 11. Does woody vegetation hang over the edge of the water? 2 a. Yes 2 pts 1 pts b. No 8 **Total Points:** High (7-8 pts) Medium (5-6 pts) **Function:** Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-1

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	3
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		8
a. Yes	2 pts	2
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	1
b. No	1 pt	
· ·		
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	2
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-1

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17. Is surface water present throughout the year?		Score	
a. Yes	3 pts		
b. No	1 pt	3	
18. Is there more than one type of water resource (e.g. stream, wetland, lake/por	nd)		
within or immediately adjacent to the riparian reach?			
a. Yes	3 pts	1	
b. No	1 pt		
19. What is the degree of development or human-caused disturbance (e.g. build	ings,		
impervious surfaces, lawns, agriculture, trash) in the riparian area?			(
a. Less than 25%	3 pts		C
b. Between 25% and 75%	2 pts	2	
c. Greater than 75%	1 pt		
	Total Points:	17	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

)

1 meter = 3.2 feet

GENERAL INFORMATION	ation of data point: Bra	mbaugh property on				
	NE	Brooklyn Street				
Date: 10/7/2009	Riparian Code:	R-WR-2 Left bank				
On-site: 🗵 Off-Site: 🗆	LINFORMATION Location of data point: Brambaugh property on N Brooklyn Street e: 10/7/2009 Riparian Code: R-WR-2 Left bank e: Off-Site: Reach Length: 130 feet restigators: SE-ME Hydrologic Basin: Willamette River RESOURCE INFORMATION Feet Width: 300 feet er Resource: Stream/River: X Width: feet wetland: Width:					
Investigators: SE-ME	Hydrologic Basin:	f data point: Brambaugh property on N Brooklyn Street rian Code: R-WR-2 Left bank h Length: 130 feet ologic Basin: Willamette River h: 300 feet feet h: feet h: feet yes No J3(d) list: Yes Yes No g fine sandy loam Herbaceous vegetation (include trees, shrubs, vines <1 meter) ra sp., Polystichum munitum cohupta				
WATER RESOURCE INFORMATION	x .					
Water Resource: Stream/River: X Lake/Pond: Wetland:	Width: Width: Width:	300 feet feet feet				
LWI Wetland Code:		1				
Water present year-round: Vos X	 \ []					
Water present year-round. Tes 🖾	, L	· · · · · · · · · · · · · · · · · · ·				
Are salmonids present in the adjacent water r	irce? Yes 🗵	No 🗆				
Are salmonids present in the adjacent water resource? Yes 🗵 No 🗆						
Is the water resource listed for temperature of	EQ's 303(d) list:	Yes 🗵 No 🗆				
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain:	EQ's 303(d) list: Yes 🗵	Yes 🖾 No 🗆				
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series:	EQ's 303(d) list: Yes I lewberg fine sandy loam	Yes 🗵 No 🗆				
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed)	EQ's 303(d) list: Yes I lewberg fine sandy loam	Yes 🗵 No 🗆				
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture:	EQ's 303(d) list: Yes ⊠ Newberg fine sandy loam	Yes 🖾 No 🗆				
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture: Commercial/Indus.: Desider tiple	Location of data point: Brambaugh property on N Brooklyn Street 10/7/2009 Riparian Code: R-WR-2 Left bank Off-Site: Reach Length: 130 feet s: SE-ME Hydrologic Basin: Willamette River E INFORMATION Kitter 6eet ce: Stream/River: X Width: 300 feet Lake/Pond: Width:					
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture: Commercial/Indus.: Residential:	EQ's 303(d) list: Yes ⊠ Newberg fine sandy loam : □ : ⊠ : □	Yes 🗵 No 🗆				
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture: Check as many as needed) Agriculture: Residential: Residential: Fore Woody vegetation	EQ's 303(d) list: Yes I lewberg fine sandy loam : I : I : I Herba	Yes I No I				
ENERAL INFORMATION Location of data point: Brambaugh property on <u>N Brooklyn Street</u> Date: 10/7/2009 Riparian Code: R-WR-2 Left bank Dn-site: Off-Site: Reach Length: 130 feet Investigators: SE-ME Hydrologic Basin: Willamette River ATER RESOURCE INFORMATION Width: 300 feet Water Resource: Stream/River: X Width: feet Water Resource: Stream/River: X Width: feet Wetland Code:						
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture: □ Residential: □ Residential: □ Woody vegetation (trees, shrubs, vines >1 meter) Populus trichocarpa, Symphoricarpos albus,	EQ's 303(d) list: Yes X lewberg fine sandy loam : : : : Herba (include trees Mentha sp., Polystichus	Yes I No I No I No s, shrubs, vines <1 meter) m munitum				
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture: Ro Commercial/Indus.: Undevelop Residential: Fore Woody vegetation (trees, shrubs, vines >1 meter) Populus trichocarpa, Symphoricarpos albus, Alnus rhombifolia, Acer macrophyllum, Corylus	EQ's 303(d) list: Yes ⊠ Iewberg fine sandy loam : □ : ⊠ : □ Herba (include trees Mentha sp., Polystichus Carex obnupta	Yes I No I No I				
Internation Location of data point: Brambaugh property on <u>N Brooklyn Street</u> Date: 10/7/2009 Riparian Code: R-WR-2 Left bank Date: 10/7/2009 Riparian Code: R-WR-2 Left bank Dn-site: Øff-Site: Reach Length: 130 feet Investigators: SE-ME Hydrologic Basin: Willamette River Mater Resource: Stream/River: X Width:						
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture: Ro Commercial/Indus.: Undevelop Residential: Fore Woody vegetation (trees, shrubs, vines >1 meter) Populus trichocarpa, Symphoricarpos albus, Alnus rhombifolia, Acer macrophyllum, Corylus cornuta, Physocarpus capitatus, Cornus stolonifera, Salix sitchensis, Hedera helix, Salix	NERAL INFORMATION Location of data point: Brambaugh property on N Brooklyn Street Date: 10/7/2009 Riparian Code: R-WR-2 Left bank n-site: Øff-Site: Reach Length: 130 feet Investigators: SE-ME Hydrologic Basin: Willamette River TER RESOURCE INFORMATION Width:					
Is the water resource listed for temperature of Within FEMA-mapped 100-year floodplain: Mapped soil series: Adjacent Land Uses? (Check as many as needed) Agriculture: Agriculture: Residential: Woody vegetation (trees, shrubs, vines >1 meter) Populus trichocarpa, Symphoricarpos albus, Alnus rhombifolia, Acer macrophyllum, Corylus cornuta, Physocarpus capitatus, Cornus stolonifera, Salix sitchensis, Hedera helix, Salix lasiandra, Rubus discolor, Crataegus douglasii,	EQ's 303(d) list: Yes ⊠ Iewberg fine sandy loam : □ : □ : □ : □ : □ : □ : □ : □	Yes I No I No I No I				

Hypericum perforatum

EXHIBIT E-228 RIPARIAN CODE: R-WR-2 Left bank RIPARIAN CODE: R-WR-2 Left bank Average slope in the riparian area: (Question 1) <1010 I (10%) I Between 10:1 (10%) and 5:1 (20%) I >5:1 (20%) I >5:1 (20%) I Extent of impervious surface within the riparian area. (Question 4) <10% I 10% - 25% >25% Is the reach constricted by man-made features? (Question 8) Yes I 10% - 25% Yes I No I Yes I No I Yes I No I Yes I Production surface within riparian area? (Question 10) Yes I No I
RIPARIAN CODE: R-WR-2 Left bank Average slope in the riparian area: (Question 1) <10:1 (10%) I Between 10:1 (10%) and 5:1 (20%) >5:1 (20%) Extent of impervious surface within the riparian area. (Question 4) <10% I 10% - 25% >25% Is the reach constricted by man-made features? (Question 8) Yes No I Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes No Dominant vegetation layer within riparian area? (Question 10) Woody vegetation I Herbaceous vegetation Bare ground Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes No
Average slope in the riparian area: (Question 1) $<10:1 (10\%) \boxtimes$ Between $10:1 (10\%)$ and $5:1 (20\%) \square >5:1 (20\%) \square$ Extent of impervious surface within the riparian area. (Question 4) $<10\% \boxtimes$ $10\% - 25\%$ $<10\% \boxtimes$ $10\% - 25\%$ Is the reach constricted by man-made features? (Question 8) Yes \square No \boxtimes Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes \boxtimes No \square Dominant vegetation layer within riparian area? (Question 10) Woody vegetation \boxtimes Herbaceous vegetation \square Bare ground \square Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes \boxtimes No \square
(10:1 (10%) \boxtimes Between 10:1 (10%) and 5:1 (20%) \square >5:1 (20%) \square Extent of impervious surface within the riparian area. (Question 4) (10% \boxtimes 10% - 25% >25% \square Is the reach constricted by man-made features? (Question 8) Yes \square No \boxtimes Poes the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes \boxtimes No \square Dominant vegetation \boxtimes Herbaceous vegetation 10) Woody vegetation \boxtimes Herbaceous vegetation \square Bare ground \square Does woody vegetation \boxtimes No \square
Extent of impervious surface within the riparian area. (Question 4) $<10\% \boxtimes$ 10% - 25% Is the reach constricted by man-made features? (Question 8) Yes No Pominant vegetation Herbaceous vegetation 10) Woody vegetation Herbaceous vegetation Bare ground Yes No Image: State of the state s
<10% II $10% - 25%$ $>25%$ Is the reach constricted by man-made features? (Question 8)YesNoIIYes IINoYes III NoYes III NoHerbaceous vegetation 10)Woody vegetation IIIHerbaceous vegetation IIIBare ground IIIYes III NoYes III No
Is the reach constricted by man-made features? (Question 8) Yes No Image: Constrict of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes No Image: Constrict of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes No Image: Constrict of the riparian area? (Question 10) Woody vegetation Herbaceous vegetation Bare ground Image: Constrict of the water? (Question 10) Woody vegetation No Image: Constrict of the water? (Question 10) Image: Constrict of the water? (Question 10) Woody vegetation Merbaceous vegetation Bare ground Image: Constrict of the water? (Question 10) Ves No Image: Constrict of the water? (Question 10) Image: Constrict of the water? (Question 10) Yes No Image: Constrict of the water? (Question 10) Image: Constrict of the water? (Question 10) Yes No Image: Constrict of the water? (Question 10) Image: Constrict of the water? (Question 10) Yes No Image: Constrict of the water? (Question 10) Image: Constrict of the water? (Question 10)
Yes No ⊠ Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes No □ Yes No □ Dominant vegetation No □ Woody vegetation □ Bare ground □ Does woody vegetation □ Bare ground □ Yes □ □ □
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9) Yes No \sim Dominant vegetation layer within riparian area? (Question 10) Bare ground \sim Woody vegetation Herbaceous vegetation Bare ground \sim Does woody vegetation No \sim \sim \sim \sim Yes No \sim
YesNoDominant vegetation layer within riparian area? (Question 10)Woody vegetationHerbaceous vegetationBare groundDoes woody vegetation barg of the water? (Question 11 & 14)YesNo
Dominant vegetation layer within riparian area? (Question 10) Woody vegetation Image: Herbaceous vegetation Image: Bare ground Image: Bare
Woody vegetation I Herbaceous vegetation I Bare ground I Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes I No I
Does woody vegetation hang over the edge of the water? (Questions 11 & 14) Yes X No
Yes 🗵 No 🗆
Large woody debris in riparian area? (Question 15)
Yes 🗆 No 🗵
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)
>40% 🖾 10% - 40% 🗆 <10% 🗖
Degree of development or human caused disturbance. (Question 19)
<25% D 25% - 75% D >75% X
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)
low, slight moderate \boxtimes high, very high, severe \Box
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)
Woody vegetation \square Herbaceous vegetation \square Bare ground \square
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)
Yes 🗵 No 🗆
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?
Yes \boxtimes No or no flood prone area present \Box
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?
More than 2 🖾 2 layers 🗍 1 layer or unvegetated 🗆 Attachment 1-378

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE R-WR-2 Left bank

Date:		2009	Investigators:	S	E-ME		
Dominant	tree species:	Populi	us trichocarpa	(see other	side for list of speci	es)	~
Potent	ial tree height ((PTH)/Actual	Width of riparian a	rea :	75/75	feet	
		(Width measured	horizontally from edge of	of water resou	urce)		
PTH deter	mined by:						
On-	site vegetation	X	Reference site	Code_			

Comments:This section of the Willamette River riparian area is one of the few residentiallots that remains forested. The vegetation is predominately native. The house/structure on site is set backfrom the river and has a relatively wide riparian corridor.

Typical Cross Section:



Attachment 1-379

Riparian Functional Assessment Answer Sheet



Glenwood Area of Springfield RIPARIAN CODE **R-WR-2** WATER QUALITY Left bank 1. What is the average slope in the riparian area? Score a. Less than 10:1 (10%) 3 pts 2 pts 3 b. Between 10:1 (10%) and 5:1 (20%) c. Greater than 5:1 (20%) 1 pt 2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts 3 c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts b. Between 10% and 25% 2 pts 3 c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. 2 a. Low, slight, moderate 2 pts b. High, severe, very high 1 pts **Total Points:** 14 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts) HIGH **FUNCTION IS:**

Riparian Functional Assessment Answer She	eet $\begin{bmatrix} 1 \\ \mu \end{bmatrix}$	PHS
Glenwood Area of Springfield	-	
FLOOD MANAGEMENT		RIPARIAN CODE R-WR-2 Left bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes b. No	3 pts 1 pt	3
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes b. No or no flood prone area present 	3 pts 1 pt	3
 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No b. Yes 	3 pts 1 pts	3
Function: High (8.9 pts) Modium (5.7 pts) I ow (3.4 pts)	Total Points:	9
r unction. 111gu (o-2 pis) miculum (o-7 pis) 10w (o-4 pis)		

FUNCTION IS:

HIGH

RIPARIAN CODE R-WR-2

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	Does the aspect or orientation of the riparian area allow for shading of water		Score	
	at midday in the summer:	. I	2	
	a. Yes	3 pts	3	
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
11.	Does woody vegetation hang over the edge of the water?			(
	a. Yes	2 pts	2	~
	b. No	1 pts		
		Total Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-WR-2 WILDLIFE HABITAT Left bank 12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? Score a. More than 2 layers 3 pts b. 2 layers 2 pts 3 c. 1 layer, or unvegetated 1 pt 13. What is the dominant vegetation layer in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 3 2 pts c. Bare ground 1 pt 95 1 Provent a Balan a revera a Balala i Severa Balala i Provi a Balan i Provin Balan i Privi a Balala Provi i Balala i P 14. Does woody vegetation hang over the edge of the water? a. Yes 2 2 pts b. No 1 pt 15. Is large woody debris present within the riparian area? a. Yes 3 pts 1 b. No 1 pt 1921 - 1977 - 1 - 1922 - 1977 - 1922 - 1977 - 1922 - 1977 - 1922 - 1977 - 1922 - 1977 - 1922 - 1977 - 1922 - 19 16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide? a. Greater than 40% 3 pts b. Between 10% and 40% 2 pts 3 c. Less than 10% 1 pt Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-2

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17. Is surface water present throughout the year?		Score	
a. Yes	3 pts		
b. No	1 pt	3	-
18. Is there more than one type of water resource (e.g. stream, wetland,	lake/pond)		
within or immediately adjacent to the riparian reach?			
a. Yes	3 pts	1	
b. No	1 pt		•
19. What is the degree of development or human-caused disturbance (e.	g. buildings,		
impervious surfaces, lawns, agriculture, trash) in the riparian area	?		6
a. Less than 25%	3 pts		
b. Between 25% and 75%	2 pts	1	
c. Greater than 75%	1 pt		
	Total Points:	17	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	Location of data point:	Under Franklin Bridge across
	-	Willamette River
Date: 10/7/2009	Riparian Code:	R-WR-3 Left bank
On-site: 🗵 Off-Site: 🗆	Reach Length:	2,311 feet
Investigators: ME-SE	Hydrologic Basin:	Willamette River
WATER RESOURCE INFORMATION		·····.
Water Resource: Stream/River: X Lake/Pond:	Width: Width:	400 feet feet
Wetland:	Width:	feet
I WI Wetland Code:		
Water present year-round: Yes 🗵	No 🗆	
Are salmonids present in the adjacent water n	esource? Yes	⊠ No □
Is the water resource listed for temperature o	n DEQ's 303(d) list:	Yes 🗵 No 🗆
Within FEMA-mapped 100-year floodplain:	Yes 🗵	No 🗆
Mapped soil series:	Newberg fine sandy lo	Dam
Adjacent Land Uses? (Check as many as needed)		
Agriculture: 🗆 Re	bads: 🗵	
Commercial/Indus.: 🗵 Undevelo	ped: 🗵	
Residential: D Fore	stry:	
Woody vegetation	He	erbaceous vegetation
(trees, shrubs, vines >1 meter)	(include t	rees, shrubs, vines <1 meter)
Quercus garryana	Festuca arundinace	ea line line line line line line line line
Populus trichocarpa	Holcus lanatus	
Salix spp.	Phalaris arundinac	ea
Fraxinus latifolia	Taraxacum officina	ale
Symphoricarpus albus	Carex obnupta	
Berberis aquifolium	Dactylis glomerate	
	Polystichum muniti	um

1 meter = 3.2 feet

EXHIBIT E-236
RIPARIAN CODE: R-WR-3 Left Bank
Average slope in the riparian area: (Question 1)
<10:1 (10%) \boxtimes Between 10:1 (10%) and 5:1 (20%) \square >5:1 (20%) \square
Extent of impervious surface within the riparian area. (Question 4)
<10% 🗵 10% - 25% 🗆
Is the reach constricted by man-made features? (Question 8)
Yes \Box No \boxtimes
Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)
Yes 🗵 No 🗆
Dominant vegetation layer within riparian area? (Question 10)
Woody vegetation \boxtimes Herbaceous vegetation \square Bare ground \square
Does woody vegetation hang over the edge of the water? (Questions 11 & 14)
Yes 🗵 No 🗆
Large woody debris in riparian area? (Question 15)
Yes D No 🗵
Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)
>40% 🖾 10% - 40% 🗆 <10% 🗖
Degree of development or human caused disturbance. (Question 19)
<25% D 25% - 75% X >75% D
How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)
low, slight moderate \square high, very high, severe \square
What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)
Woody vegetation \square Herbaceous vegetation \square Bare ground \square
Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)
Yes 🗆 No 🖾
Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?
Yes \square No or no flood prone area present \boxtimes
How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?
More than 2 Image: 2 layers I layer or unvegetated Image: Attachment 1-386

Riparian Width Determination			PH	PHS	
Glenwood	d Area of Sp	oringfield			
				RIPAR R-WR-	RIAN CODE 3 Left ban
Date:	10/7/2009	Investigators:	ME-SE		-
Dominant tree	e species:	Populus trichocarpa (s	see other side for li	st of species)
Potential	tree height (PTH)	/Actual Width of riparian area	ı:	75	feet
PTH determin	Width	measured horizontally from edge of w	ater resource)		

 Comments:
 Area under Franklin Bridge, just west of Willamette River. There is a narrow

 fringe of trees and shrubs along this section of the Willamette; however, just beyond the dominant

 vegetation the area consists of mowed grass and forbs.

Typical Cross Section:



Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-3

Left bank

Glenwood Area of Springfield

WATER QUALITY

1.	. What is the average slope in the riparian area?		Score	
	a. Less than 10:1 (10%)	3 pts		
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	3	
	c. Greater than 5:1 (20%)	1 pt		
2.	What is the dominant vegetation cover in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
-	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
3	c. Bare ground	1 pt		_
3.	What is the dominant vegetation at the top of bank (if defined)			C
	or edge of water resource?	5		
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		-
4.	What is the extent of impervious surfaces within the riparian area?			
	a. Less than 10%	3 pts		
	b. Between 10% and 25%	2 pts	3	
	c. Greater than 25%	1 pt		-
5.	How does the Natural Resources Conservation Service (formerly			
	Soil Conservation Service) soil survey rank the water erosion hazard			
	of the dominant mapped unit in the riparian area? Select the highest			
	water erosion hazard description if more than one is listed.			
	a. Low, slight, moderate	2 pts	2	
	b. High, severe, very high	1 pts		-
	· · · · · · · · · · · · · · · · · · ·	otal Points:	14	
			~ •	-

Function:

High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)

FUNCTION IS:

HIGH

PHS,

Riparian Functional Assessment Answer She	et [HS S
Glenwood Area of Springfield	-	
FLOOD MANAGEMENT		RIPARIAN CODE R-WR-3 Left bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		Score
a. Yes b. No	3 pts 1 pt	
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes b. No or no flood prone area present 	3 pts 1 pt	1
 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No b. Yes 	3 pts 1 pts	3
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)	" Total Points:	

FUNCTION IS:

MEDIUM

RIPARIAN CODE R-WR-3

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	Does the aspect or orientation of the riparian area allow for shading of water		Score	
	at midday in the summer?			
	a. Yes	3 pts	3	
	b. No	1 pt		
10	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		_
11.	Does woody vegetation hang over the edge of the water?			C
	a. Yes	2 pts	2	
	b. No	1 pts		_
		I		
		Total Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

RIPARIAN CODE R-WR-3

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WILDLIFE HABITAT

12. How m	any vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a. Mor	e than 2 layers	3 pts	
b. 2 la	yers	2 pts	3
c. 1 la	ver, or unvegetated	1 pt	
13. What is	s the dominant vegetation layer in the riparian area?		
a Woo	ndy vegetation (trees shruhs vines) greater than 1 meter (3.2 feet) high	3 pts	
h Her	haceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 nts	3
c Bar	around	1 nt	
C. Dar			
14. Does w	oody vegetation hang over the edge of the water?		
a. Yes		2 pts	2
b. No		1 pt	
15 Is larós	woody debris present within the ringrian area?		
a Ves	woody debris present within the riparian area.	3 nts	1
h No		1 nt	_
5. 110		·	
16. What p	ercent of the water resource edge is bordered by a vegetated riparian		
area at	least 30 feet wide?		
a. Grea	ater than 40%	3 pts	
b. Bet	ween 10% and 40%	2 pts	3
c. Less	s than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-3

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

face water present throughout the year?

17.	Is surface water present throughout the year?		Score
	a. Yes	3 pts	
	b. No	1 pt	3
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond)		
	within or immediately adjacent to the riparian reach?		
	a. Yes	3 pts	1
	b. No	1 pt	
19.	What is the degree of development or human-caused disturbance (e.g. buildings,		
	impervious surfaces, lawns, agriculture, trash) in the riparian area?		. (
	a. Less than 25%	3 pts	
	b. Between 25% and 75%	2 pts	2
	c. Greater than 75%	1 pt	
	Το	tal Points:	18

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION				
	mobile home park			
Date: 9/15/2009	Riparian Code: R-WR-4 Left bank			
On-site: 🗵 Off-Site: 🗆	Reach Length: 2,150 feet			
Investigators: <u>ME-SE</u>	Hydrologic Basin: Willamette River			
WATER RESOURCE INFORMATION				
Water Resource: Stream/River: X	Width: 200 feet			
Lake/Pond:	Width: feet			
Wetland:	Width:feet			
LWI Wetland Code: None				
Water present year-round: Yes 🗵	No 🗆			
Are salmonids present in the adjacent water r	resource? Yes ⊠ No □			
Is the water resource listed for temperature o	n DEQ's 303(d) list: Yes ⊠ No □			
Within FEMA-mapped 100-year floodplain:	Yes 🗵 No 🗆			
Mapped soil series: Newberg fine sandy loam	, Newberg-Urban land complex, Camas gravelly sandy loam			
Adjacent Land Uses? (Check as many as needed)				
Agriculture: 🔲 🛛 Ro	nads: 🗵			
Commercial/Indus.: Undevelo	\mathbf{D}			
Residential: 🗵 Fore	estry:			
Woody vegetation	Herbaceous vegetation			
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)			
Liquidambar styraciflua	Unknown grass			
Pseudotsuga menziesii	Taraxacum officinalte			
Libocedrys decurrens	Trifolium pratense			
Acer macrophyllum				
Salix sp.				
Fraxinus latifolia				
Rubus discolor				

1 meter = 3.2 feet

		RIPARIAN CODE:	R-WR-4 Left ban
Average slope in the	e rinarian area: (Ouestion 1)		· · ·
<10:1 (10%)	Between 10:1 (10%) and 5:1 (20%)) 🗵 >5:1 (20%) 🗆	
Extent of imperviou	is surface within the riparian are	ea. (Question 4)	· ·
、 <10% 区	10% - 25%	>25%	
Is the reach constri	cted by man-made features? (Que	stion 8)	
Yes 🗆	No 🗵		
Does the orientation summer? (Question 9)	n of the riparian area allow for s	hading of the water resourc	e at midday in
Yes 🗵	No 🗆		
Dominant vegetatio	n layer within riparian area? (Qu	uestion 10)	
Woody vegetation	Herbaceous vegetation	n 🗆 Bare ground 🗆	1
Does woody vegetat	ion hang over the edge of the wa	ter? (Questions 11 & 14)	
Yes 🗵	No 🗆		
Large woody debris	in riparian area? (Question 15)		
Yes 🗆	No 🗵		·
Percent of water res	source bordered by vegetated rip	arian area at least 30 feet w	ide? (Question 16)
>40% 🗆	10% - 40%	<10% 🗵	
Degree of developm	ent or human caused disturbanc	e. (Question 19)	
<25% □	25% - 75% 🗵	>75% 🗆	
How does the NRCS the Riparian Area?	S soil survey rank water erosion (Question 5)	hazard of the dominant maj	oped unit in
low, slight mode	rate 🗵 high, ve	ery high, severe 🛛	
What is the domina	nt vegetation at the top of bank (if defined) or edge of water	resource? (Question
Woody vegetation	Herbaceous vegetation	$\square \square Bare ground \square$	
Are there flood pro floodplain, etc.) bey	ne areas (adjacent flat areas, dep ond the top of bank or edge of th	ressions, swales, FEMA ma e water resource? (Question 6	pped 100-year
Yes 🗵	No 🗆	:	
Is woody vegetation flood prone ripariar	(trees, shrubs, vines) greater than area?	un 1 meter (3.2 feet) high do	minant in the
Yes 🗵 N	lo or no flood prone area present		
,			

Riparian Width Determination Glenwood Area of Springfield RIPARIAN CODE **R-WR-4** Left bank Date: 9/15/2009 Investigators: ME-SE **Dominant tree species:** Pseudotsuga menziesii (see other side for list of species) Potential tree height (PTH)/Actual Width of riparian area : 75 feet (Width measured horizontally from edge of water resource) PTH determined by: On-site vegetation \square Reference site \Box Code In Shamrock Village, there is a narrow strip of vegetation east of the mobile **Comments:** park road and river. Mature trees with grass and picnic tables make up this section of riparian corridor.

Typical Cross Section:



Attachment 1-395

Riparian Functional Assessment Answer Sheet

RIPARIAN CODE R-WR-4

Left bank

Glenwood Area of Springfield

WATER QUALITY

1.	What is the average slope in th	e riparian area?		Score	
	a. Less than 10:1 (10%)	·	3 pts		
	b. Between 10:1 (10%) and 5:1	(20%)	2 pts	2	
	c. Greater than 5:1 (20%)		1 pt		
		· · · · · ·			
2.	What is the dominant vegetation	n cover in the riparian area?			
	a. Woody vegetation (trees, shru	ubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or wo	ody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground		1 pt		
2					
з.	what is the dominant vegetatio	n at the top of bank (if defined)			. (
	or edge of water resource?	$1 \rightarrow 2$	0 = 4		\sim
	a. woody vegetation (trees, shru	los, vines) greater than 1 meter (3.2 feet) high	3 pts	2	
	b. Herbaceous vegetation or wo	bdy vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground		1 pt		
4.	What is the extent of imperviou	s surfaces within the riparian area?			
	a. Less than 10%		3 pts		
	b. Between 10% and 25%		2 pts	3	
	c. Greater than 25%		1 pt		
5.	How does the Natural Resource	s Conservation Service (formerly			
	Soil Conservation Service) soil	survey rank the water erosion hazard			
	of the dominant mapped unit in	the riparian area? Select the highest			
	water erosion hazard description	n if more than one is listed.			
	a. Low, slight, moderate		2 pts	2	
	b. High, severe, very high		1 pts		
		· ·	Total Points:	13	
		а. - С			
Fr	nction: High (12-14 pts)	Medium (8-11 pts) Low (5-7 pts)			(···
~ •	ingu (i = i i pu)	internan (o xx pus) - Lon (o , pus)			\Box
				THOM	\sim

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-WR-4 **FLOOD MANAGEMENT** Left bank 6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA Score mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? a. Yes 3 pts 3 b. No 1 pt 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? 3 pts a. Yes 3 b. No or no flood prone area present 1 pt 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No 3 pts 3 b. Yes 1 pts 9 **Total Points:** Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		Score	
		3 nts	3	
				_
	b. No	1 pt		
10	. What is the dominant vegetation layer in the riparian area?		×.	
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	_
	c. Bare ground	1 pt		_
11.	. Does woody vegetation hang over the edge of the water?			C
	a. Yes	2 pts	2	\sim
	b. No	1 pts		-
		Total Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Attachment 1-398



RIPARIAN CODE R-WR-4

Left bank

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-4

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT

)

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present	?	Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	2
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1. pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	1
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	1
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-4

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17. Is surface water present throughout the year?	_ ~	Score	
a. Yes	3 pts		
b. No	1 pt	3	_
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pone	d)		
within or immediately adjacent to the riparian reach?			
a. Yes	3 pts	1	
b. No	1 pt	×	
19. What is the degree of development or human-caused disturbance (e.g. buildin	lgs,		
impervious surfaces, lawns, agriculture, trash) in the riparian area?			(
a. Less than 25%	3 pts		C
b. Between 25% and 75%	2 pts	2	
c. Greater than 75%	1 pt		_
•	Total Points.	15	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

Riparian Characterization Form



Glenwood Area of Springfield

GENERAL INFORMATION	CENERAL INFORMATION Logation of data point: West of Franklin Plud in					
	Wetland WR-7	-				
	Wohana Witt /	_				
Date: 1/0/1900	Riparian Code: R-WR-5 Left bank	_				
On-site: 🗵 Off-Site: 🗆	Reach Length: 5,134 feet	_				
Investigators: <u>SE - ME</u>	Hydrologic Basin: Willamette River	_				
WATER RESOURCE INFORMATION		11				
Water Resource: Stream/River: x	Width: 100 feet					
Lake/Pond:	Width:feet					
Wetland:	Width:feet					
LWI Wetland Code: None						
Water present year-round: Yes 🗵 N						
Are salmonids present in the adjacent water reso	ource? Yes 🗵 No 🗆					
Is the water resource listed for temperature on I	DEQ's 303(d) list: Yes 🗵 N	o 🗆				
Within FEMA-mapped 100-year floodplain:	Yes 🗵 No 🗆					
Mapped soil series: Dixonville-Philomath-Ha	zelair complex, Ochrepts and Umbrepts, Riverwash	_				
Adjacent Land Uses? (Check as many as needed)						
Agriculture: 🗆 Road	Is: X					
Commercial/Indus.: 🗵 Undevelope	d: ⊠					
Residential: D Forestr	y: 🗆					
Woody vegetation	Herbaceous vegetation					
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)					
Acer macrophyllum, Pseudotsuga menziesii,	Rubus discolor					
Quercus garryana, Rubus discolor,	Daucus carota					
Populus trichocarpa,	Festuca arundinacea					
Rhus diversiloba	grass sp.					
Populus trichocarpa	Cynosurus echinatus					
Fraxinus latifolia	Dactylis glomerata					
Salix sp.						

1 meter = 3.2 feet

	· · · · · ·
	EXHIBIT E-252
	RIPARIAN CODE: R-WR-5 Left bank
Average slope in the riparian area: (Question 1)	
<10:1 (10%) Between 10:1 (10%) and 5:1 (20%)	>5:1 (20%) 🗵
Extent of impervious surface within the riparian area. (Que	estion 4)
<10% 🖾 10% - 25% >25%	6
Is the reach constricted by man-made features? (Question 8)	
Yes 🗆 No 🗵	
Does the orientation of the riparian area allow for shading summer? (Question 9)	of the water resource at midday in
Yes 🗵 No 🗖	
Dominant vegetation layer within riparian area? (Question 1	0)
Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground
Does woody vegetation hang over the edge of the water? (Q	uestions 11 & 14)
Yes 🗵 No 🗆	
Large woody debris in riparian area? (Question 15)	
Yes 🗆 No 🗵	
Percent of water resource bordered by vegetated riparian	area at least 30 feet wide? (Question 16)
>40% 🖾 10% - 40% 🗖 <109	% □
Degree of development or human caused disturbance. (Ques	stion 19)
<25% 25% - 75% >75%	% □
How does the NRCS soil survey rank water erosion hazard the Riparian Area? (Question 5)	of the dominant mapped unit in
low, slight moderate high, very high	n, severe 🗵
What is the dominant vegetation at the top of bank (if defin	ned) or edge of water resource? (Question 3)
Woody vegetation \boxtimes Herbaceous vegetation \square	Bare ground
Are there flood prone areas (adjacent flat areas, depression floodplain, etc.) beyond the top of bank or edge of the wate	ns, swales, FEMA mapped 100-year r resource? (Question 6)
Yes 🗵 No 🗆	
Is woody vegetation (trees, shrubs, vines) greater than 1 mo flood prone riparian area?	eter (3.2 feet) high dominant in the
Yes \boxtimes No or no flood prone area present \Box	
How many vegetation layers (i.e. canopy, mid-story, ground	dcover) are present?
More than 2 🖾 2 layers 🗍 1 layer Attachment 1-402	r or unvegetated

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE

R-WR-5 Left bank

Date:	9/15/2	2009	Investigators:		SE/ME]	_
Dominant	tree species:	Acer	nacrophyllum	(see other side fo	r list of specie	5)
Potential tree height (PTH)/Actual Width of riparian area : 75 fe (Width measured horizontally from edge of water resource)					feet		
PTH deter On-	mined by: site vegetation	X	Reference site		Code		

 Comments:
 The southern portion of this section of riparian area is forested with an

 unimproved road within the corridor. The left bank of the river is steep. The north and central

 portion of the corridor is undeveloped and has a narrow fringe of trees and vegetation along the river

 with bare, disturbed ground beyond. Since there was no access to the northern portion, observations

 were identified from aerial photographs.

Typical Cross Section:



Attachment 1-403

Glenwood Area of Springfield RIPARIAN CODE R-WR-5 WATER QUALITY Left bank 1. What is the average slope in the riparian area? Score a. Less than 10:1 (10%) 3 pts 2 pts b. Between 10:1 (10%) and 5:1 (20%) c. Greater than 5:1 (20%) 1 pt 2. What is the dominant vegetation cover in the riparian area? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource? a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high 3 pts b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high 2 pts c. Bare ground 1 pt 4. What is the extent of impervious surfaces within the riparian area? a. Less than 10% 3 pts b. Between 10% and 25% 2 pts c. Greater than 25% 1 pt 5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed. a. Low, slight, moderate 2 pts b. High, severe, very high 1 pts **Total Points:** 11 Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts) **FUNCTION IS:**

Riparian Functional Assessment Answer Sheet

1

3

3

3

1

MEDIUM

Riparian Functional Assessment Answer Shee	t [I	PHS
Glenwood Area of Springfield	-	
FLOOD MANAGEMENT		RIPARIAN CODE R-WR-5 Left bank
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the	Ľ	Score
water resource? a. Yes b. No	3 pts 1 pt	3
 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes 	3 pts	3
 b. No or no flood prone area present 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? 	1 pt	
a. No b. Yes	3 pts 1 pts	3
T	otal Points:	9
Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)	CTION IS:	HIGH

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

THERMAL REGULATION

9.	Does the aspect or orientation of the riparian area allow for shading of water		Score	
	at midday in the summer?			
	a. Yes	3 pts	3	
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
11.	Does woody vegetation hang over the edge of the water?			
	a. Yes	2 pts	2	
	b. No	1 pts		
		II.		
		Total Points:	8	

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION IS:

HIGH

Attachment 1-406



RIPARIAN CODE R-WR-5

Left bank

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-5

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT

12. Ho	w many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		Score
a.	More than 2 layers	3 pts	
b.	2 layers	2 pts	3
c.	1 layer, or unvegetated	1 pt	
13. Wh	nat is the dominant vegetation layer in the riparian area?		
a.	Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b.	Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
с.	Bare ground		
14. Doe	es woody vegetation hang over the edge of the water?		
. a.	Yes	_2 pts	2
b.	No	1 pt	
15. Is la	arge woody debris present within the riparian area?		
a.	Yes ,	3 pts	1
b.	No	1 pt	
		•••	
16. Wh	at percent of the water resource edge is bordered by a vegetated riparian		
are	ea at least 30 feet wide?		
a.	Greater than 40%	3 pts	
b.	Between 10% and 40%	2 pts	3
c.	Less than 10%	1 pt	

Questions continued on next page
Riparian Functional Assessment Answer Sheet



RIPARIAN CODE R-WR-5

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17.	Is surface water present throughout the year?		Score	
	a. Yes	3 pts		
÷	b. No	1 pt	3	
18.	Is there more than one type of water resource (e.g. stream, wetland, lake/pond)			
	within or immediately adjacent to the riparian reach?			
	a. Yes	3 pts	1	
	b. No	1 pt		
19.	What is the degree of development or human-caused disturbance (e.g. buildings	, ,		
	impervious surfaces, lawns, agriculture, trash) in the riparian area?			(
	a. Less than 25%	3 pts		l
	b. Between 25% and 75%	2 pts	2	
·	c. Greater than 75%	1 pt		
	Т	otal Points:	18	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

MEDIUM

.

EXHIBIT E-259

Riparian Characterization Form



Glenwood Area of Springfield

1

GENERAL INFORMATION	Location of data point: At culvert located east of
	Franklin Boulevard
Date: 10/7/2009	Riparian Code: R-WR-6 Left bank
On-site: 🗵 Off-Site: 🗆	Reach Length: 331 feet
Investigators: ME-SE	Hydrologic Basin: Willamette River
WATER RESOURCE INFORMATION	
Water Resource: Stream/River: X Lake/Pond: Wetland: X	K Width: 2-3 feet Width: feet feet K Width: feet
LWI Wetland Code: WR-	.7
Water present year-round: Yes	No 🗵
Are salmonids present in the adjacent wat	ter resource? Yes 🗆 No 🗵
Is the water resource listed for temperature	re on DEQ's 303(d) list: Yes □ No ⊠
Within FEMA-mapped 100-year floodplai	in: Yes 🗆 No 🗵
Mapped soil series:	Dixonville-Philomath-Hazelair complex
Adjacent Land Uses? (Check as many as needed	cd)
Agriculture:□Commercial/Indus.:□UndeResidential:☑	Roads: ⊠ eveloped: ⊠ Forestry: □
Woody vegetation	Herbaceous vegetation
(trees, shrubs, vines >1 meter)	(include trees, shrubs, vines <1 meter)
Acer macrophyllum, Populus trichocarpa	Festuca arundinacea
Ilex aquifolium, Rubus discolor	Phalaris arundinacea
Fraxinus latifolia	
Symphoricarpus albus	
Hedera helix	
Quercus garryana	
Oemleria cerasiformis	

1 meter = 3.2 feet

	۰ ۲ P
	EXHIBIT E-260
	RIPARIAN CODE: R-WR-6 Left bank
Average slope in the riparian area: (Question 1)	Ľ.
$<10:1 (10\%)$ \square Between 10:1 (10%) and 5:1 (20%) \square	□ >5:1 (20%) ⊠
Extent of impervious surface within the riparian area. ((Question 4)
<10% 🖾 10% - 25% >2	25% 🗆
Is the reach constricted by man-made features? (Question	n 8)
Yes D No 🗵	:
Does the orientation of the riparian area allow for shad summer? (Question 9)	ing of the water resource at midday in
Yes 🗵 No 🗆	
Dominant vegetation layer within riparian area? (Question	on 10)
Woody vegetation 🗵 Herbaceous vegetation 🛛	Bare ground □
Does woody vegetation hang over the edge of the water	? (Questions 11 & 14)
Yes 🗵 No 🗆	
Large woody debris in riparian area? (Question 15)	
Yes D No 🗵	
Percent of water resource bordered by vegetated ripari	an area at least 30 feet wide? (Question 16)
>40% 🗵 10% - 40% 🗆 <	10% 🗆
Degree of development or human caused disturbance. (Question 19)
<25% 🗵 25% - 75% 🗆 >	75% 🗆
How does the NRCS soil survey rank water erosion haz the Riparian Area? (Question 5)	ard of the dominant mapped unit in
low, slight moderate high, very back of the second	high, severe 🗵
What is the dominant vegetation at the top of bank (if d	efined) or edge of water resource? (Question 3)
Woody vegetation I Herbaceous vegetation	Bare ground
Are there flood prone areas (adjacent flat areas, depress floodplain, etc.) beyond the top of bank or edge of the w	sions, swales, FEMA mapped 100-year ater resource? (Question 6)
Yes D No 🗵	
Is woody vegetation (trees, shrubs, vines) greater than 1 flood prone riparian area?	meter (3.2 feet) high dominant in the
Yes 🔲 No or no flood prone area present 🖾	
How many vegetation layers (i.e. canopy, mid-story, gro	oundcover) are present?
More than 2 🗵 2 layers 🗍	ayer or unvegetated 10

Riparian Width Determination



Glenwood Area of Springfield

RIPARIAN CODE

R-WR-6 Left bank

Date: 10/7/2	2009 Investigators:	ME-SE	
Dominant tree species:	Populus trichocarpa	ulus trichocarpa (see other side for list of species)	
Potential tree height	(PTH)/Actual Width of riparian	area :	120 feet
	(Width measured horizontally from edg	e of water resource)	
PTH determined by: On-site vegetation 🖾 Reference site 🗆 Code			

Comments:The stream flows through Wetland WR-7. The stream begins upslope, east ofI-5. The stream is culverted under Franklin Boulevard and outfalls east into the Willamette River.

Typical Cross Section:



RIPARIAN CODE **R-WR-6**

Left bank

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

WATER QUALITY

			4	
1.	What is the average slope in the riparian area?		Score	
	a. Less than 10:1 (10%)	3 pts		
	b. Between 10:1 (10%) and 5:1 (20%)	2 pts	1	
	c. Greater than 5:1 (20%)	1 pt		•
2.	What is the dominant vegetation cover in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		
-				,
3.	what is the dominant vegetation at the top of bank (if defined)			(
	or edge of water resource?	2 -1-		
	a. woody vegetation (trees, snrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	2	
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	•
	c. Bare ground	1 pt		
4.	What is the extent of impervious surfaces within the riparian area?			
	a. Less than 10%	3 pts		
	b. Between 10% and 25%	2 pts	3	
	c. Greater than 25%	1 pt		
5.	How does the Natural Resources Conservation Service (formerly			
	Soil Conservation Service) soil survey rank the water erosion hazard			
	of the dominant mapped unit in the riparian area? Select the highest			
	water erosion hazard description if more than one is listed.	× .		
	a. Low, slight, moderate	2 pts	1	
	b. High, severe, very high	1 pts		

		Total Points:	11	
		-		
Fu	unction: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)			· F
			and the second s	

Attachment 1-412

FUNCTION IS:

MEDIUM

Riparian Functional Assessment Answer Sheet Glenwood Area of Springfield RIPARIAN CODE R-WR-6 **FLOOD MANAGEMENT** Left bank 6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA Score mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? a. Yes 3 pts 1 -----b. No 1 pt 7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area? a. Yes 3 pts 1 b. No or no flood prone area present 1 pt 8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No 3 pts 3 b. Yes 1 pts **Total Points:** 5

Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)

. 1

FUNCTION IS:

MEDIUM

RIPARIAN CODE **R-WR-6**

Left bank

Riparian Functional Assessment Answer Sheet

High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

Glenwood Area of Springfield

THERMAL REGULATION

Function:

9.	Does the aspect or orientation of the riparian area allow for shading of water		Score	
	at midday in the summer?	II.		
	a. Yes	3 pts	3	-
	b. No	1 pt		
10.	What is the dominant vegetation layer in the riparian area?			
	a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
	b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3	
	c. Bare ground	1 pt		-
11.	Does woody vegetation hang over the edge of the water?			C
	a. Yes	2 pts	2	
	b. No	1 pts	2	•
		l		
		Total Points:	8	

FUNCTION IS:

HIGH

RIPARIAN CODE **R-WR-6**

Left bank

Score

3

Glenwood Area of Springfield WILDLIFE HABITAT 12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present? a. More than 2 layers 3 pts b. 2 layers 2 pts c. 1 layer, or unvegetated 1 pt

Riparian Functional Assessment Answer Sheet

c

13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	3
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	1
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian		
area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	3
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet



RIPARIAN CODE **R-WR-6**

Left bank

Glenwood Area of Springfield

WILDLIFE HABITAT (continued)

17. Is surface water present throughout the year?		Score	
a. Yes	3 pts		
b. No	1 pt	1	
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond)			
within or immediately adjacent to the riparian reach?			
a. Yes	3 pts	3	
b. No	1 pt		
19. What is the degree of development or human-caused disturbance (e.g. buildings,			
impervious surfaces, lawns, agriculture, trash) in the riparian area?			6
a. Less than 25%	3 pts		Ľ
b. Between 25% and 75%	2 pts	3	
c. Greater than 75%	1 pt		
	tal Points.	10	

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS:

HIGH



Glenwood Natural Resource Wildlife Habitat Assessment 2010



Report and field sheets City of Springfield Environmental Services Division Water Resource Section

Glenwood Wildlife Assessment February 2010

February 10, 2010 Sunny Washburn Meghan Murphy

Overview and project understanding

January 2010 Pacific Habitat Service (PHS) submitted a draft document that listed areas that they considered riparian corridors in Glenwood needing protection based on Safe Harbor and/or the Urban Riparian Inventory and Assessment Guide (URIAG) methods. The goal of the study was to address the wetland and riparian requirements of Statewide Planning Goal 5 (*Natural Resources, Scenic and Historic Areas, and Open Spaces*).

In order for the City to incorporate the PHS riparian areas identified into the Cities existing Natural Resource Inventory (NRI) it was determined that an additional assessment method was required since the NRI is an adopted inventory by Council. See Figure 1 for identified sites.

Springfield Adopted Wildlife Habitat Inventory Methodology and Inventory Requirements

The City adopted method and requirements are listed in the Springfield Natural Resource Study Report 2005. Section 3.2 Identifying Significant Resource Sites discusses the screening criteria, administration of the Wildlife Habitat Assessment, and significance criteria. A short explanation is given below.

3.2 Identifying Significant Resource Sites

- Screening criteria
 - a. Areas mapped as wetland on the National Wetland Inventory and the Springfield Local Wetland Inventory.
 - b. Areas which have been designated as jurisdictional wetland by the Oregon Division of State Lands or Army Corps of Engineers.
 - c. Streams mapped on the Oregon Department of Fish and Wildlife and Department of Forestry Fish Bearing Stream maps.
 - d. Undeveloped areas which contain natural vegetation (non-cultivated, including forests, natural prairies and meadows) and are larger than 1 acre.
 - e. Undeveloped natural areas that are contiguous with a water feature.
 - f. Areas which are undeveloped, and which in their natural state are un-vegetated (e.g., rock outcrops, gravel bars).
 - g. Locations of plants listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.

Glenwood Wildlife Assessment February 2010

Attachment 1-100

h. Documented habitat of animals listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.

Areas found meeting the above criteria move to the next step; Tierl evaluation. PHS fulfilled the above task by doing the Local Wetlands Inventory and Riparian Corridor Assessment.

Sites identified were subject to on-site evaluation using a protocol called the Wildlife Habitat Assessment (WHA). The WHA evaluates sites based on the food, water, and cover it offers for wildlife. The assessment determines a relative rating for each site based on 13 factors, such as seasonality of the water on the site, variety of food, layers of vegetation, and disturbance of the site. Sites that passed the Tier 1 and Tier 2 criteria comprise the final proposed inventory of *significant* sites for incorporation into the existing Springfield Natural Resource Inventory.

Significance criteria

A required step of Statewide Land Use Goal 5 is to determine if a site is *significant* or *not significant*. Springfield chose to adopt a two-tiered approach for determining the significance of sites. Tier1 criteria are very closely associated with the original screening criteria (described above). Tier2 criteria serve to narrow the list of sites identified by the Tier1 criteria to only those sites that provide relatively high quality riparian areas, wetlands, or wildlife habitat.

Tier1 significance criteria

- Tier1 significance criteria must meet at least 1 factor of the 7 listed.
 - 1. Areas mapped on State Wetlands Inventory (NWI).
 - 2. Areas mapped as jurisdictional wetlands (LWI).
 - 3. Areas mapped as Fish-Bearing Streams (ODFW maps).
 - 4. Undeveloped natural areas (UNDA), primary native veg, continuous with water feature & provide habitat.
 - 5. Locations with threatened, endangered or sensitive (TES) plants.
 - 6. Locations with documented habitat for TES animals.
 - 7. Other ecologically significant area identified by public agencies/natural resource professional.
- Areas matching Tier1 criteria move to the list of sites subject to Tier2.

Six sites met the criteria of Tier1. See Table 1 -Tier1 Significance Criteria Evaluation Table for results. See Figure 1 for identified sites.

Tier2 significance criteria

• Sites that meet one or more Tier1 criteria were assessed using the WHA methodology.

-

Glenwood Wildlife Assessment February 2010

Attachment 1-101

• Sites with a WHA rating of 17 or greater shall be included on the Goal 5 inventory.

PHS Riparian Site Name			Tier1 S	Significan		Existing Inventory NRI	Comment		
	1	2	3	4	5	6	7		
	NWI	LWI	Fish	UDNA	TES-P	TES-A	Other		
R-GS-1		Х	X		4 1			E39	T2 needed east
									section
R-GS-2		Х	X						T2 – split system
R-GS-3		X	X					E39	Existing protection
R-GS-4		X	X					E39	Existing protection
R-GS-5			X						T2
R-GS-6			Х					а.	T2
R-GS-7		X						E39	T2 needed SE
									section
R-GS-8									Did not meet T1
R-GS-9	<u></u>			?			Х		ESD staff bumped
									to T2
R-WR-1	X		X					WA/WB	Existing protection
R-WR-2	Х		X	9				WA/WB	Existing protection
R-WR-3	X		X					WA/WB	Existing protection
R-WR-4	X		X					WA/WB	Existing protection
R-WR-5	X		Х					WA/WB	Existing protection
R-WR-6		X							T2

Table 1 - Tier1 Significance Criteria Evaluation Table

Property Access and Time of Year

Due to limited site access, the field crews were only able to perform the WHA from public Right of Ways and private property where access was granted. Aerial photos and existing wetland and riparian data gathered by PHS were also used in aiding the narrative description and scoring process of Tier2.

Since the WHA for Glenwood was performed in February, not all vegetation layers were visible. Dry vegetation, duff materials such as leaves, nuts, berries, and the field sheets from PHS initial assessment were used to aid in determining species presence and layering.

Glenwoo

Glenwood Wildlife Assessment February 2010

Attachment 1-102

Results

The seven riparian areas identified as Tier 2 Wildlife Habitat include some areas with existing protection from the Springfield Natural Resource boundaries of E39. Therefore, these areas were not subject to reevaluation.

Site areas adjoining E39 were evaluated and compared to the existing E39 site descriptions and habitat. Some of the adjoining sites were split into separate evaluation areas based on their proximity. For example: R-GS-7 has existing protection in the middle of the riparian area from E-39 but the west and east ends required an evaluation for T2 criteria. Therefore R-GS-7 was split into evaluation areas "A" and "B". All of the adjoining sites were similar in nature and can be easily absorbed into the existing protection of E39.

Sites not adjoining any existing resource area were subject to a full walk through, with the exception of R-WR-6 which could not be accessed. This site was easily visible from the ROW areas.

Results are listed in Table 2 below. It is recommended that three additional resource sites be added to Springfield's Natural Resource Inventory, and that three adjoining sites be incorporated into the existing E39 boundaries. One site did not meet T2 criteria and needs no action taken.

It is also recommended that the existing E39 boundaries and Water Quality Limited Waterway boundaries be better identified on maps and in the City GIS digital files. Over the past few years GIS layers have been updated and shifted, new aerial photos are available and property has been developed, which leave some current boundaries unclear and not well defined.

Site	WHA	T2 criteria	Comments
	Score	met	
R-GS-1	22	Yes	Incorporate into existing E39 protection
R-GS-2A	57	Yes	New riparian resource area
R-GS-2B	17	Yes	Restoration work will improve area and allow it to be
			incorporated into E39
R-GS-5	34	Yes	Incorporate into existing E39 protection
R-GS-6	15	No	
R-GS-7E	61	Yes	Incorporate into existing E39 protection
R-GS-7W	42	Yes	Incorporate into existing E39 protection
R-GS-9	45	Yes	ESD staff bumped this site to T2 evaluation level; site is highly
			disturbed on the top of bank on the south end, the riparian area
			appears to be in its natural state, has continuity with a water
			feature and mixture of native and non native veg. This area did
			pass the T2 significance criteria. – New riparian resource area
R-WR-6	61	Yes	New riparian resource area

Glenwood Wildlife Assessment February 2010

Attachment 1-103



Figure 1 - Identified sites

Glenwood Wildlife Assessment February 2010

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Attachment 1-104

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Field Sheets

Wildlife Habitat Assessment Narrative Sheet Eugene-Springfield Metropolitan Natural Resources Study

R-GS-1 (eastern upper reach)

Location: West of Glenwood Blvd, south of Franklin, access thru Sanipac truck parking lot

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 10th, 2010

Weather

Precipitation (yes, no, type): Steady light rain

Wind: ESE @ 3.0 mph

Percent cloud cover: Foggy grayed out sky

Temperature: 40.1F

Physical Parameters

General topography: Flat upper banks with slight slope to wetlands.

Degree and orientation of slope: East to west water system with north and south banks, banks at 10 to 20% slope.

Water features (pond, lake, stream stagnant, etc.): Upper east end is 2 small streams feeding into the wetlands (Spfld. WQLW designations). Both appear to be storm system fed. Wetlands are ponded with a flowing channel.

Percent of silt inundated by water:

Major structures, roads: 2 stormwater outfall pipes on the upper east end, parking lot and pavement on 2 sides, commercial back yard on the north side and wetlands on the west.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (*Populus trichocarpa*) – Dominant tree species Willow (*Salix sp.*) Grass species Blackberry (*Rubus armeniacus/discolor*) Thistle (*Cirsium*) Teasel (*Dipsacus*) Plantain (*Plantago*) Flowering plum (*Prunus sp.*)

Mostly non native vegetation along top of banks and around asphalt. Lower lying areas and wetland edge have a more native vegetation base of emergent wetland community to palustrine forested. Canopy layer can be improved as blackberries and willows are the co-dominant species.

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<u>Wildlife</u>

Species observed (herps, fish, birds, mammals):

None seen – nutria scat in area, bird droppings in area.

Species not observed but known to be present, and sources of information:

Fish Bearing Status	ODFW
Nutria	Past assessments and Spfld. staff
Raccoon	Past assessments and Spfld. staff
Crows	<u> </u>
Jays	**
Robins	"
Starlings	**

General description of habitat function (food sources, roosting, perching, nesting, etc.):

There is low habitat layering at this upper end; cottonwoods are dominant tree species with willows and blackberries as co-dominant. Large and small woody debris throughout the area with a large duff layer of leaves and twigs. Water system seems to be storm fed and seasonal with the wetland area staying damp; currently ponded with a stream flow thru the edge.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area is surrounded by commercial land and uses with a parking lot and asphalt on 2 sides and a back yard of a commercial business on the north side. Lots of garbage in the water, along banks and throughout the riparian area. Heavy noise from large garbage trucks and equipment moving metal dumpsters. There are two stormwater outfalls in this small area; one from a parking lot swale not currently flowing and the other is a permitted (DEQ permit holder) industrial stormwater discharge outfall from the Sanipac site with discharge water currently flowing.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

This area can be easily incorporated into the existing E39 boundaries. The E39 boundary is very close to the end of the upper reach and the WQLW boundary. This area has a lot of potential for enhancement thru invasive species removal and garbage control. The industrial discharger may also be able to provide enhancements to the stream channel that they discharge to as a water treatment area (Water Quality Facility – swale).

Additional Comments:

Unique features, rare, threatened, or sensitive species: None



RGS-leastern upper reach facing north



RGS-1 – eastern upper reach facing west

Page3

Wildlife Habitat Assessment Scoring Sheet Eugene-Springfield Metropolitan Natural Resources Study

Date of Field Visit: February 10th, 2010 Observer Name: Sunny Washburn, Meghan Murphy Location: West of Glenwood Blvd and south Franklin Blvd. Site #: <u>R-GS-1</u>_____ Comments: Evaluated upper eastern reach, access thru Sanipac Parking lot.

	Component	Range of Values			Score	Comments
	Seasonality	Seasonal 4		Perennial	.4	
TER	Quality	Stagnant 0	Seasonally Flushe	d Continually Flushed6	3	
WA	Proximity to cover	None 0	Nearby 44	Immediately Adjacent	6	
	Diversity (streams, ponds, wetlands)	One present 2	Two present	Three present	4	WQLW and Wetlands
	Variety	Low 0	Medium 4	High 8	0	
FOOD	Quantity	Low 0	Limited 4	Year Round 8	0	
	Seasonality	None 0	Limited 44	Year Round	2	
	Structural Diversity	Low 0	Medium 4	High 8	1	
COVER	Variety	Low 0	Medium 4	High 8	0	
	Seasonality	Low 0	Medium 2	High	0	
<u>.</u>	Physical	High 0	Medium 2	Low 4	1	Storm system outfalls
DISTU	Human	High 0	Medium 2	Low 4	0	Surrounded by commercial use and pavement
	Wildlife	Not Unique 0	Somewhat Unique 2	e Very Unique 4	0	
INIQUE	Flora	Not Unique 0	Somewhat Unique	e Very Unique 4	0	
	Rarity of Habitat Type	Not Rare0	Somewhat Rare	Very Rare4	0	
)	Interspersion	Low 0	Medium 3	High 6	1	Potential to incorporate into E39 and enhancements

TOTAL SCORE: 22



Wildlife Habitat Assessment Narrative Sheet

Eugene-Springfield Metropolitan Natural Resources Study

R-GS-2A southern section with wetlands

Location: East of 15 and at the southwest end of Judkins dedicated rd. Just south of the 15 bridge over the Willamette River at Glenwwod.

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 10th, 2010

Weather

Precipitation (yes, no, type): Overcast sky

Wind: East @ 2.0 mph

Percent cloud cover: Grayed out sky / overcast

Temperature: 47.8 F

Physical Parameters

General topography: Flat upper bank and flat along wetlands. East bank slightly sloped to water course, west bank steeper along freeway edge and down to watercourse.

Degree and orientation of slope: South to north water system with east and west banks, banks at >20% slope.

Water features (pond, lake, stream stagnant, etc.): Wetland channels are braided and come from underground springs that are also braided. The main watercourse is a narrow stream that starts out meandering and becomes channelized as it flows north. Added flows from storm system culverts and industry. A large fish friendly culvert separates the system into two sections of open water with riparian corridors.

Percent of silt inundated by water:

Major structures, roads: 15 along the west top of bank on part of the system. Culverts and outfall structures. A section of this system was recently piped with a large fish friendly culvert separating it from the lower waterway section under the bridges.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) Doug Fir (Pseudotsuga mensiesii) Big Leaf Maple (Acer mauophylum) Cedar (Calocedrus decurrens) Willow (Salix sp.) Alder (Alnus sp.) Hawthorn (Crataegus sp.) Rose (Rosa sp.) Thistle (Cirsium sp.) Teasel (Dipsacus sp.) Queen Anne Lace (Daucus carota) Blackberry (Rubus armeniacus/discolor) Cowparsnip (Heracleum maximum) Broom (Cytisus scoparius) Reed Canary Grass (Phalaris arundinacea) Sword Fern (Polystichum munitum)

Page1

Poison Hemlock (Conium maculatum) Mint (Mentha arvensis) Mowed grass sp. English Holly (*Ilex aquifolium*) Rush (*Juncus effuses*)

A dominant canopy is missing in the wetlands with scattered Hawthorn trees and a small stretch with conifers bordering parts of the wetlands. The main watercourse has a dominant canopy of willows mixed with hawthorns.

Wildlife

Species observed (herps, fish, birds, mammals):

Crow Nutria scat Deer tracks

Species not observed but known to be present and sources of information:

Sources: Fish bearing status by ODFW, past assessments and Spfld. staff

Raccoon	Starlings	Nutria
Crows	Jays	
Deer	Fish	

General description of habitat function (food sources, roosting, perching, nesting, etc.):

There is low habitat layering along the watercourse with willows and hawthorn dominant. The wetlands are open and mowed.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area is surrounded by commercial land and ROW. There is a lot of noise from traffic on I5. There are boot worn trails in the wetland area from foot traffic. ODOT currently has the area marked for bridge work they are doing to the north. Signs of culvert work are becoming over grown with blackberries and willows.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

None

Additional Comments:

Unique features, rare, threatened, or sensitive species: None

Page2



RGS-2A facing south at fish culvert

facing north form southern end



Facing northwest midway from wetlands

Page3



Wetland area southeast of Judkins dedicated rd.



Wetlands and watercource south of Judkins dedicated rd.

Attachment 1-114

Wildlife Habitat Assessment Scoring Sheet

Eugene-Springfield Metropolitan Natural Resources Study

 Observer Name: Sunny Washburn, Meghan Murphy
 Date of Field Visit: February 10th, 2010

 Site #: R-GS-2A
 Location: East of I5 and at the southern end of Judkins dedicated rd. just south of the I5 Bridge going over the Willamette River in Glenwood.

Comments: Evaluated upper reach separate from lower because of large culvert splitting the system.

	Component	Range of Values			Score	Comments
	Seasonality	Seasonal 4		Perennial	8	
TER	Quality	Stagnant 0	Seasonally Flushed	Continually Flushed	5	-
WA'	Proximity to cover	None 0	Nearby 2	Immediately Adjacent	7	
	Diversity (streams, ponds, wetlands)	One present 2	Two present	Three present	4	WQLW and Wetlands
	Variety	Low 0	Medium 4	High 8	4	÷
FOOD	Quantity	Low 0	Limited 44	Year Round	6	
/	Seasonality	None 0	Limited 44	Year Round	4	
	Structural Diversity	Low 0	Medium 44	High 8	6	
COVER	Variety	Low 0	Medium 44	High8	4	
8	Seasonality	Low 0	Medium 2	High 4	2	
R-	Physical	High 0	Medium 2	Low4	2	Large storm structure from under 15 & fish culvert
DISTU	BANC Human	High 0	Medium 2	Low 4	2	Surrounded by commercial use and I5
	Wildlife	Not Unique 0	Somewhat Unique 2	Very Unique4	0	
UNIQUE	Flora	Not Unique 0	Somewhat Unique 2	Very Unique4	0	
	E Rarity of Habitat Type	Not Rare 0	Somewhat Rare2	Very Rare4	0	
)	Interspersion	Low 0	Medium 3	High 6	3	Wetlands in and immediately adjacent

TOTAL SCORE: <u>57</u>



Wildlife Habitat Assessment Narrative Sheet

Eugene-Springfield Metropolitan Natural Resources Study

R-GS-2B northern section under I5 Bridge

Location: Under 15 and along railroad tracks south of the Willamette River and at the west end of Judkins rd.

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 10th, 2010

Weather

Precipitation (yes, no, type): Overcast sky

Wind: East @ 2.0 mph

Percent cloud cover: Grayed out sky / overcast

Temperature: 47.8 F

Physical Parameters

General topography: Flat upper bank steep down to watercourse. Construction activity as damaged the banks and vegetation is cut/missing.

Degree and orientation of slope: South to north water system with east and west banks, banks at >20% slope.

Water features (pond, lake, stream stagnant, etc.): The waterway has been channelized from construction activity with the intent to pass water thru the area quickly.

Percent of silt inundated by water:

Major structures, roads: Major construction activity for bridge replacement

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) Thistle (Cirsium sp.) Teasel (Dipsacus sp.) Blackberry (Rubus armeniacus/discolor) Willow (Salix sp.)

The area is mostly barren with little vegetation in the channel area. No existing riparian corridor currently exists. When the construction activity is complete ODOT may be obligated to re-vegetate the area. If re-vegetation is to occur it is assumed that they would use riparian vegetation appropriate for the area and wetlands to the north.

Attachment 1-117

Wildlife

Species observed (herps, fish, birds, mammals):

None seen

Species not observed but known to be present and sources of information:

Fish bearing status by ODFW

General description of habitat function (food sources, roosting, perching, nesting, etc.):

No habitat currently exists

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area is under construction by ODOT, lies under the I5 bridge and has the railroad on the north. Heavy noise area from traffic and trains.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

When construction activity is complete ODOT may be obligated to re-vegetate the area. If re-vegetation is to occur it is assumed that they would use riparian vegetation appropriate for the area and wetlands to the north.

Additional Comments:

Unique features, rare, threatened, or sensitive species:

None

Page2

Wildlife Habitat Assessment Scoring Sheet Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan MurphyDate of Field Visit: February 10th, 2010

Site #: <u>R-GS-2B</u>____Location: <u>Under 15 and along railroad tracks south of the Willamette River and at the west end of Judkins rd.</u>

Comments: Evaluated lower reach separate from upper because of large culvert splitting the system.

		Component	Range of Values	Score	Comments
÷	WATER	Seasonality	Seasonal Perennial 48	8	
		Quality	Stagnant Seasonally Flushed Continually Flushed 036	5	
		Proximity to cover	NoneNearbyImmediately Adjacent048	0	
		Diversity (streams, ponds, wetlands)	One present Two present Three present 248	2	WQLW
	FOOD	Variety	LowMediumHigh048	0	
		Quantity	LowLimitedYear Round048	0	
		Seasonality	NoneLimitedYear Round048	0	
	COVER	Structural Diversity	Low Medium High 0 4 8	0	
		Variety	Low Medium High 048 8	0	
		Seasonality	Low Medium High 024 24	0	
	DISTUR- BANCE	Physical	High Medium Low 0 2 4	2	construction
		Human	High Medium Low 02 4		construction
	UNIQUE FEATURES	Wildlife	Not UniqueSomewhat UniqueVery Unique024	0	
		Flora	Not UniqueSomewhat UniqueVery Unique024	0	
		Rarity of Habitat Type	Not Rare Somewhat Rare Very Rare 024	0	
)		Interspersion	Low Medium High 036 6	0	Wetlands in and immediately adjacent

TOTAL SCORE: 17_



Wildlife Habitat Assessment Narrative Sheet

Eugene-Springfield Metropolitan Natural Resources Study

R-GS-5

Location: East of Glenwood Blvd just north of the Rail Road and west of the ODOT maintenance yard off Henderson.

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 10th, 2010

Weather

Precipitation (yes, no, type): Steady light rain

Wind: SE @ 2.0 mph -

Percent cloud cover: Foggy grayed out sky

Temperature: 43.0 F

Physical Parameters

General topography: Flat upper bank on the east side with slight slope to watercourse, west bank steep off Glenwood Blvd.

Degree and orientation of slope: South to north water system with east and west banks, banks at > 20% slope.

Water features (pond, lake, stream stagnant, etc.): Narrow stream meanders thru willow thicket to wetlands north. The system is choked at times by Reed canary grass.

Percent of silt inundated by water:

Major structures, roads: A major boulevard on the upper west bank, gravel parking lot and equipment lot on the east bank. At the southern end of the reach the railroad bed create a levy that bounds the reach.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) Doug Fir (Pseudotsuga mensiesii) Hazelnut (Corylus sp.) Willow (Salix sp.) Rose (Rosa sp.) Broom (Cytisus scoparius) Poison Hemlock (Conium maculatum) Blackberry (Rubus armeniacus/discolor) English Ivy (Hedera_helix) Thistle (Cirsium sp.) Teasel (Dipsacus sp.) Queen Anne Lace (Daucus carota) Plantain (Plantago sp.) Reed Canary Grass (Phalaris arundinacea) Sedge (Carex sp.) Horsetail (Equisetum sp.) Cowparsnip (Heracleum maximum)

Attachment 1-121

Mostly non native vegetation along top of banks and around asphalt. Lower lying areas and wetland edge have a more native vegetation base of emergent wetland community to palustrine scrub-shrub. Dominant canopy is willow with a few Hazel nut and Douglas Fir trees. The water way at times is being choked by Reed canary grass.

Wildlife

Species observed (herps, fish, birds, mammals):

None seen - nutria scat in area, deer tracks and can hear song birds.

Species not observed but known to be present and sources of information:

Sources: Fish bearing status by ODFW, other species by past assessments and Spfld. staff

RaccoonNutriaCrowsDeerJaysFishRobinStarlings

General description of habitat function (food sources, roosting, perching, nesting, etc.):

There is low habitat layering at this upper end (southern end). A dead cottonwood snag with wood pecker holes and signs of nesting is in the southeast corner of the reach. Willows are the dominant species with a few Doug Firs at each end. The Fir trees become thicker and more dominant at the northern end edging the wetlands. There is small woody debris throughout the area with a large duff layer of leaves and twigs. Water system seems to be storm fed and seasonal with the wetland area staying damp; currently ponded with a slow stream flow.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area is surrounded by commercial land and ROW with a parking lot on one side, Railroad on the south end and at top of bank on the west end is Glenwood Blvd. Heavy noise from large traffic volume and rail system. Since half of this reach is currently protected as E39 Natural Resource area it can easily be included by a boundary adjustment.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

This area can be easily incorporated into the existing E39 boundaries. There are signs that the railroad and the ODOT facility use herbicides to control vegetation along their property perimeters.

Page2

Additional Comments:

Unique features, rare, threatened, or sensitive species:

There is a nice snag that is currently being used by birds; it has wood pecker holes in it and signs of nesting.



RGS-5 facing the north taken from the southern end

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Wildlife Habitat Assessment Scoring Sheet Eugene-Springfield Metropolitan Natural Resources Study

Date of Field Visit: February 10th, 2010 Observer Name: Sunny Washburn, Meghan Murphy Location: East of Glenwood Blvd., north of the railroad and west of the ODOT Site #: <u>R-GS-5</u> Maintenance yard off Henderson.

Comments: <u>Current Natural Resource area protect on ½ of the reach (E39)</u>

	Component	Range of Values			Score	Comments
WATER	Seasonality	Seasonal 4		Perennial	4	
	Quality	Stagnant 0	Seasonally Flushed	Continually Flushed6	3	
	Proximity to cover	None 0	Nearby I 4	mmediately Adjacent	7	
	Diversity (streams, ponds, wetlands)	One present 2	Two present4	Three present	4	Moon Mt system and Slough Wetlands
	Variety	Low 0	Medium 4	High8	1	
FOOD	Quantity	Low 0	Limited	Year Round	2	
	Seasonality	None 0	Limited	Year Round	2	
	Structural Diversity	Low 0	Medium 4	High 8	4	
COVER	Variety	Low 0	Medium	High 8	0	
	Seasonality	Low 0	Medium 2	High 4	1	
R- E	Physical	High 0	Medium 2	Low 4	2	Railroad and Glenwood Blvd.
DISTU BANC	Human	High 0	Medium 2	Low 4	1	Surrounded by commercial use and rail
UNIQUE FEATURES	Wildlife	Not Unique 0	Somewhat Unique 2	Very Unique 4	0	
	Flora	Not Unique 0	Somewhat Unique 2	Very Unique 4	0	
	Rarity of Habitat Type	Not Rare 0	Somewhat Rare	Very Rare4	0	
	Interspersion	Low 0	Medium 33	High 6	3	Potential to incorporate into E39 and enhancements

TOTAL SCORE: 34


Wildlife Habitat Assessment Narrative Sheet

Eugene-Springfield Metropolitan Natural Resources Study

R-GS-6

Location: East of Glenwood Blvd just north of the Rail Road and south of the ODOT maintenance yard off Henderson.

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 10th, 2010

Weather

Precipitation (yes, no, type): Steady light rain

Wind: SE @ 2.0 mph

Percent cloud cover: Foggy grayed out sky

Temperature: 43.0 F

Physical Parameters

General topography: Flat upper bank on both the north and south sides with slight slope to watercourse.

Degree and orientation of slope: East to west water system with north and south banks, banks at <20% slope.

Water features (pond, lake, stream stagnant, etc.): Narrow stream meanders thru blackberry thickets and Reed canary grass. The system is choked at times by Reed canary grass.

Percent of silt inundated by water:

Major structures, roads: The railroad parallels the reach on the south bank. There is also a fiber optic underground line that parallels the system at top of bank on the south side. Glenwood Blvd. is also close by.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) Doug Fir (Pseudotsuga mensiesii) Maple (Acer sp) Willow (Salix sp.) Rose (Rosa sp.) Broom (Cytisus scoparius) Poison Hemlock (Conium maculatum) Blackberry (Rubus armeniacus/discolor) Thistle (Cirsium sp.) Teasel (Dipsacus sp.) Queen Anne Lace (Daucus carota) Cowparsnip (Heracleum maximum) Reed Canary Grass (Phalaris arundinacea) Sweet pea (Lathyrus sp.)

Attachment 1-126

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Mostly non native vegetation throughout the reach as Reed Canary grass has taken over the area. A dominant canopy is missing with scattered willows, maples and a couple fir trees present. The waterway is being choked by Reed canary grass. A large cottonwood is on the west end with a dead snag that birds are using. Signs of wood pecker holes and nesting in snag.

<u>Wildlife</u>

Species observed (herps, fish, birds, mammals):

Humming bird	Nutria scat
Song sparrow	Deer scat

Species not observed but known to be present and sources of information:

Sources: Fish bearing status by ODFW, other species by past assessments and Spfld. staff.

Raccoon	Nutria
Crows	Fish
Jays	
Starlings	
Deer	

General description of habitat function (food sources, roosting, perching, nesting, etc.):

There is low habitat layering, a dead cottonwood snag with wood pecker holes and signs of nesting are in the northwest corner of the reach. Grasses are the dominant species with a few Doug Firs at each end. Water system seems to be storm fed and seasonal.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area is surrounded by commercial land and ROW with a gravel parking lot on the north side and railroad on the south. Heavy noise.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

There are signs that the railroad and the ODOT facility use herbicides to control vegetation along their property perimeters.

Additional Comments:

Unique features, rare, threatened, or sensitive species:

There is a nice snag that is currently being used by birds; it has wood pecker holes in it and signs of nesting.



RGS-6 facing east taken from the west end

.

Observer Name: Sunny Wa	shburn, Meghan Murphy	Date of Field Visit: <u>February 10th, 2010</u>
Site #: <u>R-GS-6</u>	Location: East of Glenwood Blvd., north	of the railroad and south of the ODOT
	Maintenance yard off Henderson.	

Comments:

1 mile	Component	Range of Values			Score	Comments
	Seasonality	Seasonal 4	-	Perennial	4	
TER	Quality	Stagnant 0	Seasonally Flushed	Continually Flushed6	3	
WA.	Proximity to cover	None 0	Nearby I	mmediately Adjacent	1	
	Diversity (streams, ponds, wetlands)	One present 2	Two present	Three present8	2	Moon Mt system
	Variety	Low 0	Medium 4	High 8	1	
FOOD	Quantity	Low 0	Limited	Year Round	1	
).	Seasonality	None 0	Limited 4	Year Round	1	
	Structural Diversity	Low 0	Medium 4	High 8	0	<i></i>
COVER	Variety	Low 0	4	High 8	0	
	Seasonality	Low 0	Medium 2	High 4	0	
ВŖ	Physical	High 0	Medium 2	Low4	2	Railroad
DISTU BANC	Human	High 0	Medium 2	Low 4	0	Surrounded by commercial use and rail
S	Wildlife	Not Unique 0	Somewhat Unique 22	Very Unique4	0	
JNIQUE	Flora	Not Unique 0	Somewhat Unique 2	Very Unique 4	0	
	Rarity of Habitat Type	Not Rare 0	Somewhat Rare	Very Rare4	0	<u> </u>
)	Interspersion	Low 0	Medium 3	High 6	0	Might provide some food source to wildlife in wetland area - north

TOTAL SCORE: <u>15</u>



Wildlife Habitat Assessment Narrative Sheet

Eugene-Springfield Metropolitan Natural Resources Study

R-GS-7 East end

Location: Western end is at the south end of Henderson Rd, south of Franklin Blvd. and the eastern end is southwest of Nugget Way.

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 12th, 2010

Weather

Precipitation (yes, no, type): none

Wind: SSW @ 8.0 mph

Percent cloud cover: Partly cloudy

Temperature: 56.7 F

Physical Parameters

General topography: Flat upper bank on both the north side with steep slope to watercourse, the south bank is railroad bed and steep to watercourse.

Degree and orientation of slope: East to west water system with north and south banks, banks at >20% slope.

Water features (pond, lake, stream stagnant, etc.): Stream channel meandering through willow thicket to the train bridge where the flow slows and the water starts to pond.

Percent of silt inundated by water:

Major structures, roads: The railroad parallels the reach on the south bank then crosses over the waterway. Asphalt pavement on the north bank from a truck parking and loading area.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) Doug Fir (Pseudotsuga mensiesii) Big Leaf Maple (Acer mauophylum) Willow (Salix sp.) Reed Canary Grass (Phalaris arundinacea) Sword Fern (Polystichum munitum) English Ivy (Hedera helix) Hazelnut (Corylus sp.) Blackberry (Rubus armeniacus/discolor) Queen Anne Lace (Daucus carota) Cowparsnip (Heracleum maximum) Broom (Cytisus scoparius) Cedar (Calocedrus decurrens)

Attachment 1-131

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Large woody debris throughout the area with a willow thicket running through the middle. One large tree was recently cut by either the power company or railroad into and across the waterway. Lots of young fir and Cedar trees. The area at the far eastern end was recently planted by the bakery with small conifers and deciduous trees. The railroad bed area is showing strong signs of long term herbicide use that is reaching into the riparian area.

<u>Wildlife</u>

Species observed (herps, fish, birds, mammals):

Shrew Song sparrow Nutria scat Red wing blackbird

Species not observed but known to be present and sources of information:

Sources: from past assessments and Spfld. staff.

Nutria Raccoon Crows Jays Starlings Deer

General description of habitat function (food sources, roosting, perching, nesting, etc.):

Large woody debris throughout the area with a willow thicket running through the middle. Lots of young trees. Habitat is the same as the existing E39 habitat.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area is surrounded by commercial land and ROW with a asphalt parking lot on the north side and railroad on the south. Heavy noise. The railroad bed area is showing strong signs of long term herbicide use that is reaching into the riparian area. Two stormwater outfalls from the bakery were seen.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

There are signs that the railroad uses herbicides to control vegetation along the tracks.

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Additional Comments:

Unique features, rare, threatened, or sensitive species:

None



RGS-7 East end - facing west



RGS-7 East end - facing east in the middle



RGS-7 East end - facing west outside the bakery area

Observer Name: Sunny Washburn, Meghan MurphyDate of Field Visit: February 12th, 2010

Site #: <u>R-GS-7 East</u> Location: <u>Western end is at the south end of Henderson Rd, south of</u> Franklin Blvd. and the eastern end is southwest of Nugget Way.

Comments:

	Component	Range of Values			Score	Comments	
	Seasonality	Seasonal 4		Perennial	8		
TER	Quality	Stagnant 0	Seasonally Flush	ed Continually Flushed6	3		
WA	Proximity to cover	None 0	Nearby 4	Immediately Adjacent	8		
	Diversity (streams, ponds; wetlands)	One present 2	Two present	Three present	4	WQLW and Wetlands	
	Variety	Low 0	Medium 4	High 8	6		
FOOD	Quantity	Low 0	Limited4	Year Round8	4		
	Seasonality	None 0	Limited 4	Year Round8	6) (
	Structural Diversity	Low 0	Medium 4	High	6		
COVER	Variety	Low 0	Medium 4	High 8	4		
0	Seasonality	Low 0	Medium 2	High 4	2		
К.	Physical	High 0	Medium 2	Low 4	3	Railroad	1
DISTU BANCI	Human	High 0	Medium 2	Low 4	-3	Surrounded by commercial use and rail	-
S	Wildlife	Not Unique 0	Somewhat Uniqu 2	e Very Unique 4	0		
JNIQUE LATURE	Flora	Not Unique 0	Somewhat Uniqu 2	e Very Unique4	0		
1 FE	Rarity of Habitat Type	Not Rare 0	Somewhat Rare	Very Rare	0		
	Interspersion	Low 0	Medium 3	High 6	4		E

TOTAL SCORE: 61



Wildlife Habitat Assessment Narrative Sheet

Eugene-Springfield Metropolitan Natural Resources Study

R-GS-7 West end

Location: Western end is at the south end of Henderson Rd, south of Franklin Blvd. and the eastern end is southwest of Nugget Way.

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Weather

Precipitation (yes, no, type): none

Wind: E @ 2.0 mph

Percent cloud cover: overcast

Temperature: 48.0 F

Physical Parameters

General topography: Flat upper bank on the north side with steep slope to watercourse, the south bank is railroad bed and steep to watercourse and the west bank is mild to watercourse.

Degree and orientation of slope: Southeast to northwest water system with north, south and banks, banks at >20% slope.

Water features (pond, lake, stream stagnant, etc.): Stream channel meandering through willow thicket to the train bridge where the flow slows and the water starts to pond.

Percent of silt inundated by water:

Major structures, roads: The railroad parallels the reach on the south bank then crosses over the waterway where two tracks merge into one. Gravel parking area on the north bank from a truck parking and loading area.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) Blackberry (Rubus armeniacus/discolor) Big Leaf Maple (Acer mauophylum) Willow (Salix sp.) Reed Canary Grass (Phalaris arundinacea) Oregon ash (Fraxinus latifolia) Hawthorn (Crataegus douglasii) Queen Anne Lace (*Daucus carota*) Sedge (*Carex leptopoda*)

Date: February 10th, 2010

Lots of willow and Ash trees, small and large woody debris with a thick canopy layer.

Page1

Wildlife

Species observed (herps, fish, birds, mammals):

None seen – nutria scat

Species not observed but known to be present and sources of information:

Sources: from past assessments and Spfld. staff.

Nutria Raccoon Crows Jays Starlings Deer

General description of habitat function (food sources, roosting, perching, nesting, etc.):

Small and large woody debris, bird nests in trees. Habitat is the same as the existing E39 habitat.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area is surrounded by commercial land and ROW with a gravel parking lot on the north side and railroad on the south. Heavy noise. The railroad bed area is showing strong signs of long term herbicide use that is reaching into the riparian area.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

There are signs that the railroad uses herbicides to control vegetation along the tracks.

Additional Comments:

Unique features, rare, threatened, or sensitive species: None



RGS-7 West end - facing east

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Observer Name: Sunny Washburn, Meghan MurphyDate of Field Visit: February 12th, 2010

Site #: <u>R-GS-7_West_____</u>Location: <u>Western end is at the south end of Henderson Rd, south of</u> <u>Franklin Blvd. and the eastern end is southwest of Nugget Way.</u>

Comments:

	Component	Range of Values	3		Score	Comments
	Seasonality	Seasonal 4		Perennial	8	
TER	Quality	Stagnant 0	Seasonally Flushed	Continually Flushed6	3	
WA	Proximity to cover	None 0	Nearby 4	Immediately Adjacent	7	
	Diversity (streams, ponds, wetlands)	One present 2	Two present4	Three present8	4	WQLW and Wetlands
	Variety	Low 0	Medium 4	High 8	2	
FOOD	Quantity	Low 0	Limited 4	Year Round	4	
)	Seasonality	None 0	Limited	Year Round	3	
	Structural Diversity	Low 0	Medium 4	High 8	3.	
COVER	Variety	Low 0	Medium 4	High 8	0	
	Seasonality	Low 0	Medium 2	High 4	0	
E.F.	Physical	High 0	Medium 2	Low4	2	Railroad
DISTUBANC	Human	High 0	Medium	Low	1	Surrounded by commercial use and rail
S	Wildlife	Not Unique 0	Somewhat Unique 22	Very Unique 4	0	
INIQUE	Flora	Not Unique 0	Somewhat Unique 2	Very Unique	0	
	Rarity of Habitat Type	Not Rare	Somewhat Rare	Very Rare	0	
)	Interspersion	Low 0	Medium 3	High 6	5	

TOTAL SCORE: 42



R-GS-9

Location: North of 22nd Ave. and south of I5

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 12th, 2010

Weather

Precipitation (yes, no, type): none

Wind: SE @ 3.0 mph

Percent cloud cover: Partly cloudy

Temperature: 48.3 F

Physical Parameters

General topography: Flat upper bank on the south side with a very steep drop into the riparian area. Upper bank disturbed from past grading activity. Eastern and western bank are also very steep and start to taper at the northern end.

Degree and orientation of slope: Banks at >20% slope.

Water features (pond, lake, stream stagnant, etc.): A narrow stream that starts from a stormwater structure designed to slow the flow of water and limit impact to the open water system. The waterway meanders through willow and blackberry thickets. The system is fed by a storm system from under the freeway and exits through a storm culvert next to a house at the northern end.

Percent of silt inundated by water:

Major structures, roads: A stormwater structure designed to slow the flow of water and limit impact to the open water system sits at the start of the system at the bottom of the channel. The land at the top of bank has been graded and graveled in places. Residential housing at the northern end of the system.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) English Ivy (Hedera helix) Maple (Acer sp) Blackberry (Rubus armeniacus/discolor) Alder (Alnus sp.) Cedar (Calocedrus decurrens) Teasel (Dispsacus sp.) Hazelnut (Corylus sp.) Willow (Salix sp.) Possible Knotweed species

Page1

Native and non native vegetation exists throughout the reach. There appears to be a clump of knotweed at the top of the bank on the south end. There is a very large cotton wood tree that is constantly being used by birds for food and nesting. Willow thickets and blackberries are the dominant vegetation along the narrow waterway.

<u>Wildlife</u>

Species observed (herps, fish, birds, mammals):

Lots of birds: jays, crows, song birds, redwing black bird, wood peckers, flickers, chickadees and killdeer.

Nutria and deer scat

Species not observed but known to be present and sources of information:

Nutria and deer

General description of habitat function (food sources, roosting, perching, nesting, etc.):

There is a thick canopy layer of willows along the watercourse mixing with cottonwoods and maples. A large cottonwood is providing habitat for lots of birds. The steep sloping banks keep people out of this area, but there has been lots of grading/blading at top of bank on the south end. Large and small woody debris cross the waterway.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

The steep sloping banks have kept people out of this area, but there has been lots of grading/blading at top of bank on the south end. A storm structure is in the bottom of the channel at the start of the system (manhole). This area has traffic noise from I-5, some commercial use present on the south western top and some residential use present on the lower north. Undeveloped land sits to the east.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

This area has the potential to become a valuable resource and open water system. The current open waterway lies in a steep area that would be difficult to develop. The top of bank could be better managed by including a setback. If vegetation is not maintained in this area there is the

Page2

potential for erosion and bank failure. This site could potentially be used as a water quality facility to treat water coming into Springfield from under the freeway.

Additional Comments:

Unique features, rare, threatened, or sensitive species:

None



R-GS-9 facing northwest from top



R-GS-9 facing down to storm structure at bottom



R-GS-9 facing northwest

Page3

Observer Name: Sunny Washburn, Meghan Murphy

_____ Date of Field Visit: February 12th, 2010

Site #: R-GS-9Location: South of 22nd Ave and north of I5 west of Henderson Rd.Comments: This area is an undeveloped area that has a lot of disturbance on the top of bank, but not in the riparian area.

	Component	Range of Values		MARKAN	Score	Comments
	Seasonality	Seasonal 4		Perennial8	4	
ER	Quality	Stagnant 0	Seasonally Flushe	d Continually Flushed	3	
WAT	Proximity to cover	None 0	Nearby 4	Immediately Adjacent	7	
	Diversity (streams, ponds, wetlands)	One present 2	Two present	Three present	2	
	Variety	Low 0	Medium 4	High 8	4	
FOOD	Quantity	Low 0	Limited 44	Year Round	4	
	Seasonality	None 0	Limited 4	Year Round	4	
	Structural Diversity	Low 0	Medium 4	High 8	4	
COVER	Variety	Low 0	Medium 4	High 8	4	
	Seasonality	Low 0	Medium 2	High 4	2	
R- E	Physical	High 0	Medium 2	Low 4	3	
DISTU BANC	Human	High 0	Medium 2	Low4	3	
SS	Wildlife	Not Unique 0	Somewhat Unique	e Very Unique4	0	
JNIQUE	Flora	Not Unique 0	Somewhat Unique 2	e Very Unique4	0	
1 FE	Rarity of Habitat Type	Not Rare 0	Somewhat Rare	Very Rare	0	
	Interspersion	Low 0	Medium 33	High 6	1	

TOTAL SCORE: 45



Wildlife Habitat Assessment Narrative Sheet

Eugene-Springfield Metropolitan Natural Resources Study

R-WR-6

Location: West of McVay Hwy and east of 15, north of the 15 on ramp to 15 north bound.

Observer: Sunny Washburn, Meghan Murphy (Spfld. ESD)

Date: February 12th, 2010

Weather

Precipitation (yes, no, type): none

Wind: SSW @ 7.0 mph

Percent cloud cover: Partly cloudy

Temperature: 56.5 F

Physical Parameters

General topography: Flat upper bank on both the north and south sides with slight slope to watercourse. The west slope is very steep from the freeway and the east bank is steep from the roadway. The bottom is flat.

Degree and orientation of slope: West to east water system with north, south, east and west banks, banks at >20% slope.

Water features (pond, lake, stream stagnant, etc.): Narrow stream meanders thru willow thickets and Reed canary grass. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.

Percent of silt inundated by water:

Major structures, roads: There are major roadways on the west and east ends with residential housing on the north and south sides.

Vegetation

Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:

Black Cottonwood (Populus trichocarpa) Doug Fir (Pseudotsuga mensiesii) Red-Osier Dogwood (Cornus stolonifera) Blackberry (Rubus armeniacus/discolor) Reed Canary Grass (Phalaris arundinacea) Field Horsetail (Equisetum arvense) Oregon Ash (Fraxinus latifolia) English Ivy (Hedera helix) Maple (Acer sp) Willow (Salix sp.) Indian Plum(Oemleria cerasiformis) White Oak (Quercus Garryana)

Page1

Native and non native vegetation throughout the reach and wetland. Reed Canary grass is starting to overtake the wetland area. There is a thick canopy with cottonwoods, maples and willows. Lots of Oak trees and Ash just outside the area with a scattering in the site.

Wildlife

Species observed (herps, fish, birds, mammals):

None seen

Species not observed but known to be present and sources of information:

None known

General description of habitat function (food sources, roosting, perching, nesting, etc.):

There is a thick canopy layer with a wetland in the middle of this riparian area. Sloping banks with flat bottom. There are more invasive blackberries on the western freeway banks than on the bottom or north and south banks. Scattered Oaks, Ash and cottonwood over story with a willow under story.

Human Use

List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersion with other natural areas.

This area has heavy traffic noise from I5 and the McVay Hwy. The railroad is just across the McVay Hwy to the east. Residential houses on the north and south banks with scattered garbage on the top of banks.

Management/Potential

A brief statement on enhancement, maintenance, or compatible uses and development:

Lots of blackberries on the western end along I5 that appear to be managed by herbicides. The top of banks around the residential housing is mowed grass. It also appears that the McVay Hwy. is either mowed or the maintenance crews use herbicides along the ROW, which is the edge of the riparian area.

Additional Comments:

Unique features, rare, threatened, or sensitive species:

None



R-WR-6 facing west

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Observer Name: <u>Sunny Washburn, Meghan Murphy</u> Date of Field Visit: <u>February 12th, 2010</u>

Site #: <u>R-WR-6</u> Location: <u>West of McVay Hwy and east of 15, north of the 15 on ramp to 15</u> north bound.

Comments:

	2	Component	Range of Value	S		Score	Comments
		Seasonality	Seasonal 4		Perennial	6	
	TER	Quality	Stagnant 0	Seasonally Flushe	d Continually Flushed6	3	
WA	WA	Proximity to cover	None 0	Nearby 44	Immediately Adjacent	8	
		Diversity (streams, ponds, wetlands)	One present 2	Two present	Three present	4	waterway and wetlands
		Variety	Low 0	4	High 8	4	
	FOOD	Quantity	Low 0	Limited 4	Year Round	4	
).	•	Seasonality	None 0	Limited	Year Round	4	
		Structural Diversity	Low 0	Medium4	High8	7	
	COVER	Variety	Low 0	Medium 4	High 8	6	
		Seasonality	Low 0	Medium 2	High	3	
	IR- E	Physical	High 0	Medium 2	Low 4	4	
	DISTUBANC	Human	High 0	Medium 2	Low 4	4	
	S	Wildlife	Not Unique 0	Somewhat Unique 2	e Very Unique4	0	
	JNIQUE ATURE	Flora	Not Unique 0	Somewhat Unique	e Very Unique 4	0	*
	r FE	Rarity of Habitat Type	Not Rare 0	Somewhat Rare	Very Rare 4	0	
)		Interspersion	Low 0	Medium 3	High 6	4	

TOTAL SCORE: <u>61</u>



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