

**ODFW AQUATIC INVENTORY PROJECT  
RESTORATION MONITORING  
STREAM HABITAT REPORT**

STREAM: PEBBLE CREEK  
 GCG: 1-NC  
 SITE ID: 445  
 BASIN: NEHALEM  
 TREATMENT DATE: 2012  
 SURVEY DATE: 4/24/2012  
 SURVEY CREW: Kim Jones, Kris Homel, and Lora Tennant  
 USGS MAPS: VERNONIA  
 ECOREGION: Willapa Hills  
 REPORT PREPARED BY: Lora Tennant

REACH: 1 LOCATION: T04N-R04W-S33NW

**SURVEY DESCRIPTION:**

Channel morphology: Unconstrained - predominantly single channel

Dominant landuse(s): Timber harvest - not yet replanted.

Dominant riparian vegetation: Deciduous trees: size class 30-50cm dbh

Primary channel length (meters) and area (m<sup>2</sup>): 2,083 : 10,857

Secondary channel length (meters) and area (m<sup>2</sup>) 101 : 129

VWI average: 5.0 VWI Range: 1.8 - 10.2 Average Gradient: 0.5%

Pieces LWD per 100m: 19.5 Wood Volume (m<sup>3</sup>) per 100m: 32.5

Percent pools: 73% Complex pools (LWD pieces>=3): 38 Pools >=1m deep:15

<u>Percent substrate (avg):</u>	<u>Silt / organics</u>	<u>Sand</u>	<u>Gravel</u>	<u>Cobble</u>	<u>Boulder</u>	<u>Bedrock</u>
All units	3	40	40	5	0	11
Pool units	2	51	28	5	1	14
Fast water units	2	27	54	7	0	10

**SURVEY COMMENTS:**

This is a pre-restoration habitat survey. The survey was stopped short by about 500m. The restoration treatment has not been initiated and is scheduled to happen during the summer of 2012. However, the pre-treatment survey data gathered during the 2011 winter field season are lacking detail so the winter 2012 data are going to be substituted.

Survey Date: 4/24/2012

Report Date: 11/13/2012

T04N-R04W-S33NW

REACH 1

**Valley and Channel Summary**

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	0%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	100%
Valley Width Index	5.0	VWI Range:	1.8 - 10.2

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0%	Single Channel	100%
Bedrock	0%	Multiple Channel	0%
Terrace	0%	Braided Channel	0%
Alt. Terrace/Hill	0%		
Landuse	0%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m<sup>2</sup>)</u>	<u>Dry Units</u>
Primary	2,083	10,857	0
Secondary	101	129	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 5	<u>First Terrace</u> n = 1
Width: 4.9	Width: 10.4	31.2 ( 14.4 - 59 )	16.0 ( 16 - 16 )
Depth: 0.54	Height: 1.0	2.0 ( 1.8 - 2.1 )	2.0 ( 2 - 2 )

W:D ratio: 10.8

Stream Flow Type: MF

Average Unit Gradient: 0.5%

Water temperature (°C): 10.0 - 10.0

Entrenchment (ACW:FPW ratio): 3.8

Habitat Units/100m (total channel length): 5.9

Habitat Units/100m (primary channel length): 6.1

**Riparian, Bank, and Wood Summary**

	<u>Primary</u>	<u>Secondary</u>
Land Use:	TH	YT
Riparian Vegetation:	D30	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:	33%	Reach avg: 75%
Undercut Banks:	15%	Range: 17 - 100

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	406	19.5
Volume (m <sup>3</sup> ):	676	32.5
Key pieces (>=12m x 0.60m):	19	0.9

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T04N-R04W-S33NW

REACH 1

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m <sup>2</sup> )	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
GLIDE	2	48	4.7	0.30	222	0	0	20	40	0	0	40
POOL-BACKWATER	1	10	3.0	0.20	30	0	10	60	30	0	0	0
POOL-DAMMED	2	25	7.6	0.68	195	0	5	90	5	0	0	0
POOL-ISOLATED	2	9	3.3	0.55	31	0	15	81	0	5	0	0
POOL-LATERAL SCOUR	62	1,393	5.4	0.85	7,623	2	2	50	29	5	1	13
POOL-PLUNGE	4	24	7.8	0.98	196	0	1	47	22	2	0	28
RAPID/BEDROCK	1	8	0.8	0.10	6	0	60	20	20	0	0	0
RAPID/BOULDERS	3	23	2.8	0.09	63	0	0	47	53	0	0	0
RIFFLE	31	535	4.0	0.21	2,237	2	0	25	55	8	0	12
RIFFLE W/ POCKETS	2	49	2.2	0.28	110	0	10	36	52	3	0	0
STEP/BEDROCK	2	10	2.3	0.10	27	0	50	5	23	0	0	23
STEP/COBBLE	11	47	5.3	0.12	234	0	0	12	79	10	0	0
STEP/LOG	5	3	4.8	0.10	13	0	0	56	34	0	0	10
<b>Total:</b>	128	2,184	4.9	0.54	10,987	4	<b>Avg:</b> 3	40	40	5	0	11

HABITAT SUMMARY

Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders	
					(m <sup>2</sup> )	Percent	Number	(# / 100m <sup>2</sup> )
Dammed & BW Pools	5	44	4.9	0.53	256	2.33%	0	0.0
Scour Pools	66	1,417	5.5	0.86	7,819	71.17%	2	0.0
Glides	2	48	4.7	0.30	222	2.02%	0	0.0
Riffles	33	584	3.9	0.21	2,346	21.35%	2	0.1
Rapids	4	31	2.3	0.10	69	0.63%	0	0.0
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	18	61	4.8	0.11	274	2.49%	0	0.0
Dry	0	0			0	0.00%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

OREGON DEPT OF FISH AND WILDLIFE  
HABITAT INVENTORY

PEBBLE CREEK  
GCG: 1-NC SITE ID: 445

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Survey Date: 4/24/2012

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T04N-R04W-S33NW

REACH 1

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POOL SUMMARY

	<u>Total</u>	Total of all Channel Lengths <u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	71	32.5	34.1
Pools >=1m deep:	15	6.9	7.2
Complex pools (LWD pieces>=3):	38	17.4	18.2
Pool frequency (channel widths/pool):	2.9		
Residual pool depth (avg):	0.69		

**OREGON DEPARTMENT OF FISH AND WILDLIFE  
HABITAT INVENTORY**

**GCG: 1-NC**

**PEBBLE CREEK  
SITE ID: 445**

**Survey Date 4/24/2012**

**RIPARIAN ZONE**

**Report Date: 11/13/2012**

**VEGETATION SUMMARY**

**REACH 1**

Summary of Riparian Zone (0-30m) 4 transects

Total hardwoods/1000 ft	1097
Total conifers/1000 ft	259
Total conifers >20" dbh/1000 ft	76
Total conifers >35" dbh/1000 ft	0

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	0.0	5.0	0.0	5.8	0.8	2.0	0.8	12.8
15-30cm	0.0	1.0	0.5	1.0	1.3	0.5	1.8	2.5
30-50cm	0.0	1.3	0.3	0.0	0.3	0.5	0.5	1.8
50-90cm	0.0	0.3	0.5	0.3	0.8	0.3	1.3	0.8
>90cm	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Total/100m <sup>2</sup>	0.0	7.5	1.3	7.0	3.0	3.5	1.4	6.0

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Canopy closure	29		46		59	
Shrub cover	36		21		18	
Grass/forb cover	64		72		80	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters	
	(%)		(%)		(%)	
Hillslope	50		63		63	
High terrace	38		25		25	
Low terrace	0		13		13	
Floodplain	13		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		0	
Riprap	0		0		0	
Surface slope (%)	18		30		20	

Summary of Riparian Zone (0-30m) for all reaches

4 transects

Summary of riparian zone (0-100 feet) extrapolated to 1,000 feet along stream

Total hardwoods/1000 ft	1097
Total conifers/1000 ft	259
Total conifers >20" dbh/1000 ft	76
Total conifers >35" dbh/1000 ft	0

Average number of trees in a 5-m wide band

Diameter class (cm)	Zones 1-3 <u>0-30 meters</u>	
	<u>Conifer</u>	<u>Hardwood</u>
3-15cm	0.8	12.8
15-30cm	1.8	2.5
30-50cm	0.5	1.8
50-90cm	1.3	0.8
>90cm	0.0	0.3

**RIPARIAN ZONE VEGETATION**

Reach 1										Reach 1					
Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
17	LF	1	HS	40	30	20	80	Conifer							4 M HT
								Hardwood			1				
17	LF	2	HS	35	70	10	40	Conifer			1	2			50% DUFF
								Hardwood							
17	LF	3	HS	10	75	60	40	Conifer		1		1			
								Hardwood							
17	RT	1	HS	65	10	10	90	Conifer							
								Hardwood	1		2	1			
17	RT	2	HS	70	10	10	90	Conifer							
								Hardwood		1					
17	RT	3	HS	10	80	0	100	Conifer	2				1		
								Hardwood		2	1				
46	LF	1	HT	0	0	35	65	Conifer							
								Hardwood							
46	LF	2	HT	0	0	25	75	Conifer							
								Hardwood							
46	LF	3	HT	0	60	10	90	Conifer	1						
								Hardwood							
46	RT	1	HT	0	30	80	20	Conifer							
								Hardwood	12		1				
46	RT	2	HS	60	60	30	70	Conifer							2-90+ CEDARS CLOSE, 1-90+
								Hardwood	11						
46	RT	3	HS	60	60	30	70	Conifer					1		
								Hardwood	1					1	
76	LF	1	FP	0	80	70	30	Conifer							
								Hardwood		1	1				
76	LF	2	LT	0	90	80	20	Conifer							
								Hardwood	4	1		1			
76	LF	3	LT	0	50	20	80	Conifer							
								Hardwood	4						
76	RT	1	HS	30	60	0	100	Conifer							
								Hardwood	2	2					
76	RT	2	HS	20	50	0	100	Conifer							
								Hardwood							
76	RT	3	HS	20	80	0	100	Conifer		2	1				maple
								Hardwood			1	1			
102	LF	1	HT	0	0	0	100	Conifer							
								Hardwood							
102	LF	2	HT	0	0	0	100	Conifer							
								Hardwood							

**RIPARIAN ZONE VEGETATION**

Reach 1										Reach 1					
Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
102	LF	3	HT	0	0	0	100	Conifer							
								Hardwood							
102	RT	1	HS	10	20	70	30	Conifer							
								Hardwood	5	1					
102	RT	2	HS	55	85	10	80	Conifer			2			10% DUFF	
								Hardwood	8	2					
102	RT	3	HS	60	70	25	60	Conifer			2			15% DUFF	
								Hardwood	3						



OREGON DEPT OF FISH AND WILDLIFE  
HABITAT INVENTORY

OREGON PLAN MONITORING SITE  
SURVEY DATE: 4/24/2012

COMMENT SUMMARY

MONITORING AREA: 1-NC SITE ID: 445 STREAM: PEBBLE CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	1	LP	00	26.2		START 485394/5070681, PICS 662-66 UDLR, US/WF D30/G TH/YT
1	2	RI	00	78.2		T=10C, SOME POCKETS, 1-0.6M DEEP LP 4M LONG
1	4	RI	00	123.7		COHO JUVIES BY UNDERCUT
1	5	LP	01	155.9	/TJ	WATER IN TJ ON RT
1	6	SR	11	155.9		BDRK IS HRDPN, ACW=2, T=9, HT=1.0M
1	7	RI	00	168.7		SP UNDER ROOTS
1	10	SL	00	176.5		HT=0.3M
1	11	DP	01	190.9	TJ/	UNNAMED, LOTS OF SMALL BRUSH
1	12	RR	11	190.9	AM	485540/5070706, ACW=2.2M, T=10C, UNNAMED, NEWT
1	13	LP	00	204.4		LOG BREAK AT HEAD OF LP BUT NOT SL WORTHY

COMMENT SUMMARY

MONITORING AREA: 1-NC SITE ID: 445 STREAM: PEBBLE CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	14	LP	00	231.4		SL SEPARATES
1	15	RI	00	274.4	/LI	SCOUR AT END FROM 1.0+ DBH LOG STEEP CUT BANK
1	16	LP	00	286.4	/LA	LANDSLIDE ON LEFT AND BIG DJ, PIC 673-74
1	17	RI	00	294.9		RIP, AM, 485616/5070627, CH/MV D30/G TH/ST
1	18	LP	00	309.2		SLUMP OFF HILL
1	20	GL	00	344.7		1-0.4Mx4M SCOUR
1	25	LP	00	392.1		GIANT NURSE LOG ON RIGHT, PIC 675
1	27	LP	01	422.5	TJ/	UNNAMED
1	28	RI	11	422.5		T=9C, ACW=1.1, 485720/5070651
1	31	LP	00	477.5	WL	PORTION OF LP ACTING AS BW BUT WELL CONNECTED, ELK TRAILS EVERYWHERE

OREGON DEPT OF FISH AND WILDLIFE  
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OREGON PLAN MONITORING SITE  
SURVEY DATE: 4/24/2012

COMMENT SUMMARY

MONITORING AREA: 1-NC SITE ID: 445 STREAM: PEBBLE CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	39	RI	00	586.5	SS/	
1	40	LP	00	606.2		WL-ELK
1	41	LP	00	627.2		PIC 676 - DJ MASS PILE WITH SMALL STUFF
1	42	SL	00	627.7		MASS PILE WITH SMALL STUFF
1	43	DP	00	638.7		MASS PILE WITH SMALL STUFF
1	46	SC	01	692.8		US/WF D30/S YT/TH, 485874/5070530
1	48	LP	01	715.4	/TJ	UNNAMED SMALL TRIB
1	49	RB	11	715.4		T=9.5C, ACW=0.9, 485878/5070499
1	50	RI	00	756.4		HUGE LOG 1.2M DBH
1	53	LP	00	844.3		MEANDERING LP

COMMENT SUMMARY

MONITORING AREA: 1-NC SITE ID: 445 STREAM: PEBBLE CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	54	LP	00	868.8		MEANDERING LP
1	55	LP	00	903.3		MEANDERING LP
1	58	RI	00	948.7	/SS	
1	59	PP	00	951.5		PIC 677
1	60	SL	00	952.2		HT=0.3M
1	68	LP	01	1068.5	WL	RACCOON
1	76	RI	00	1164.1		CH/MV D30S TH/YT, 486215/5070476, RIP
1	79	LP	00	1226.1	WL	FUNKY POOL, MAJOR ELK TRAIL
1	80	RI	01	1235.8	TJ/	UNNAMED
1	81	RI	11	1235.8		T=10.0C, ACW=2.0M, JUVIE COHO, 486243/5070503

OREGON DEPT OF FISH AND WILDLIFE  
HABITAT INVENTORY

OREGON PLAN MONITORING SITE  
SURVEY DATE: 4/24/2012

COMMENT SUMMARY

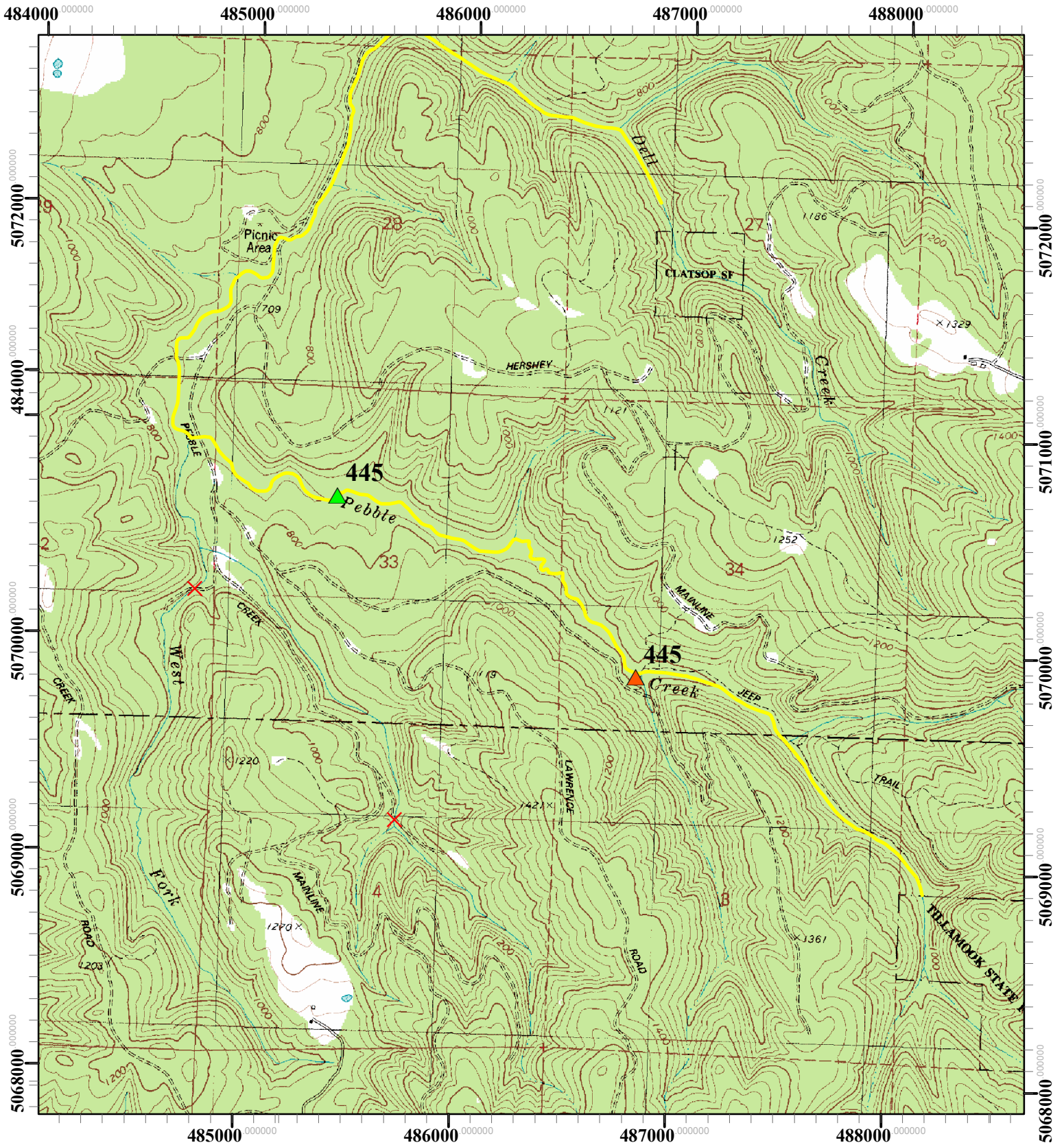
MONITORING AREA: 1-NC SITE ID: 445 STREAM: PEBBLE CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	91	RI	00	1405		START OF MEADOW MEANDER, PIC 678-79
1	93	RI	00	1433.6		W/WEAK PP, 3x3M PP 0.5M DEEP
1	99	RP	00	1548.6		SLIGHT SCOURS
1	100	LP	00	1580.6		MEANDERS THRU U 116
1	102	LP	00	1623.3	WL	US/WF P/D30 YT/ST, 486344/5070347, RIP, ELK GRAZING
1	103	RI	00	1629.7	/SS	
1	105	LP	00	1687.8		STILL MEANDERING COMES W/IN 3 M OTHER CHNL
1	110	RI	00	1774.5		STILL MEANDERING
1	111	LP	00	1800.6		SMALL PP
1	115	LP	00	1883.1		OUT OF MEANDER-END OF MEADOW

**COMMENT SUMMARY**

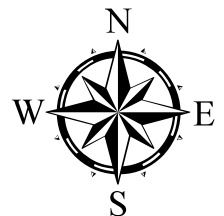
MONITORING AREA: 1-NC SITE ID: 445 STREAM: PEBBLE CREEK

REACH	UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTES
1	116	SC	00	1887.8		OUT OF MEANDER
1	121	RI	00	1984.8		0.68 SCOUR BY TREE
1	126	LP	00	2040.8		PIC 690 - GIANT RW, 7M HUGE CUT BANK LEFT
1	127	RI	00	2066.8		1 - 0.45M SCOUR
1	128	LP	00	2082.8		END @ DJ, NO SIGN, 486550/5070183, STOPPED ~500M SHORT OF END SIGN--NO TRT



Restoration Site ID: NC-445  
 Stream: Pebble Cr  
 T04N-R04W-S33NW  
 USGS Map: Vernonia  
 Basin: Nehalem

- ▲ Restoration Start
- ▲ Restoration End
- × Potential Barrier
- Spawning Survey Segments



## NC-445 Pebble Creek (Nehalem Basin) - 2012 Winter Restoration Survey



Start of survey looking upstream.



Old log habitat structure.



Debris jam of naturally recruited wood.



Start of the meandering meadow section of the stream.



View of meandering meadow section of the stream.



Giant 1.0+ meter diameter rootwad.