

ODFW AQUATIC INVENTORY PROJECT
OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT

STREAM: Coal Creek (NC-16)
 BASIN: Nehalem River
 SURVEY TYPE: Pre and Post-Tx
 DATE: October 23, 2003
 REPORT PREPARED BY: Paul Jacobsen

The Coal Creek restoration project extended approximately 1,300 meters, with about 500 meters of the project being monitored for pre- and post-treatment conditions. Twelve habitat structures were created and 36 key pieces (according to the ODF Large Wood Placement Guide) were used. The intended goals of the project included increasing stream complexity, increased pool area, and enhanced salmonids spawning and rearing habitat. In the first seasons after restoration activities, large wood pieces, volume, and key pieces are increased as expected. Pool frequency has improved and there are more complex pools. Riffle fines have decreased slightly.

	ODFW	Benchmark	Winter Pre	Summer Pre	Winter Post	Summer Post	
Habitat Variable	Desirable	Undesirable	3/6/00	7/18/00	2/21/01	7/3/01	
Reach #							
Pool Area	>35	<10	51.7	59.1	38.1	54.0	
Pool Frequency	5-8	>20	4.4	5.1	4.4	3.9	
Residual Pool Depth	>0.5-1.0m	<0.2-0.5m	.52	.45	.5	.35	
Complex Pools/km	>2.5	<1.0	21	10.4	17.6	24.9	
Width/Depth Ratio	<15	>30	16.2	18.2	13.5	13.0	
Riffle Gravel % area	>35	<15	67	31	54	34	
Silt-Sand-Organic %	<12	>25	21	29	14	27	
Shade %	>70	< 60		85		91	
LWD - pieces/100m	>20	<10	28.3	23.2	36.4	37.2	
LWD - Volume/100m	>30	<20	46.3	23.3	36.6	40.6	
LWD - Key pieces/ 100m	>3	<1	1.5	0	1.1	1.0	
Riparian Conifers>20" dbh/1000ft	>300	<150		41		20	
Riparian Conifers>35" dbh/1000ft	>200	<75		0		0	

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

Sixteen habitat structures were recorded.

**ODFW AQUATIC INVENTORY PROJECT
OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT**

STREAM: Coal Creek (NC-16)
BASIN: Nehalem River
SURVEY TYPE: Post-Tx
DATE: July 3, 2001
SURVEY CREW: Sean Allen, Rachel Werner
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 8.5 km²
USGS MAPS: Vernonia
ECOREGION: Coast Range Astoria Willapa

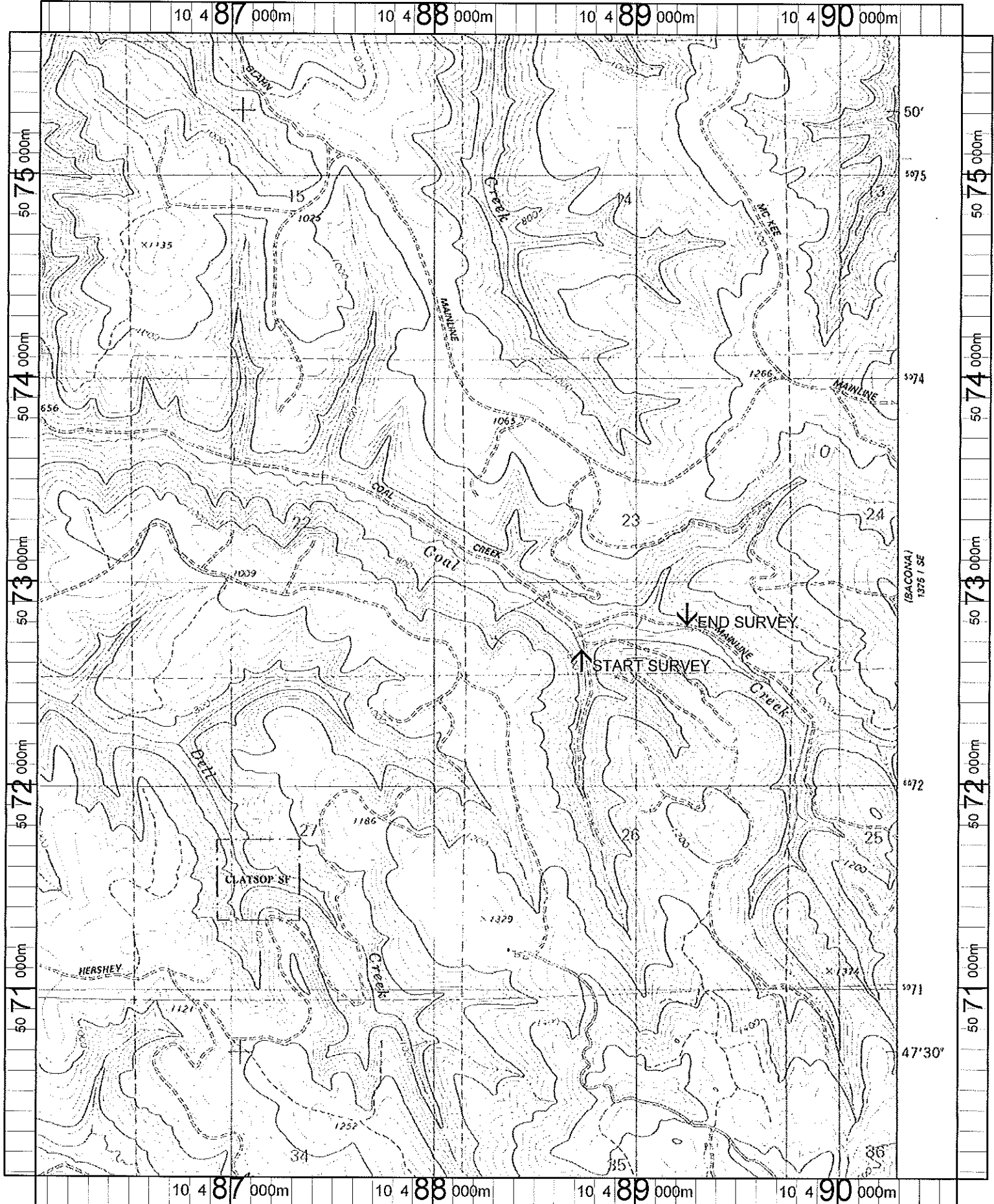
GENERAL DESCRIPTION:

The Coal Creek habitat survey extended 514 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 8.6 (range: 6.0 – 10.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 1.5 percent. Scour pools (52%) and riffles (38%) dominated stream habitat. Sand (29%) and gravel (27%) dominated stream substrate. Wood volume was high at 40.6 m³/100m.

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

The crew noted several habitat structures during the survey.



Name: VERNONIA
 Date: 1/10/2002
 Scale: 1 inch equals 2000 feet

Location: 10 488324 E 5072880 N
 Caption: COAL CREEK RESTORATION SITE - NEHALEM BASIN

REACH 1

T4N-R4W-S23SE

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	100
Moderate V-shape	0	Multiple Terraces	0
Open V-shape	0	Wide Floodplain	0

Valley Width Index avg: 8.6 range: 6.0-10.0

Channel Morphology (Percent Reach Length)

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

Channel Characteristics

<u>Type</u>	<u>Length(m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary	514	1,561	0
Secondary	89	190	1

Channel Dimensions(m)

<u>Wetted</u>		<u>Active</u>	<u>Floodprone</u>	<u>First Terrace</u>
Width	2.9	6.7	8.0	9.3
Depth	0.26	0.5	1.0	1.2
		W:D ratio	13.0	Entrenchment
				1.2

Stream Flow Type: LF Water Temp: 12.0-12.0°C
Avg. Unit Gradient: 1.5% Habitat Units/100m: 7.3

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	
Riparian Vegetation:	D3	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	12%	Reach avg: 91%
Undercut Banks	10%	Range: 56-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces (≥3m x 0.15m)	191	37.2
Volume (m ³)	209	40.6
Key pieces (≥10m x 0.6m)	5	1.0

REACH 1

T4N-R4W-S23SE

REACH 1

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
POOL-BACKWATER	3	11	2.7	0.23	32	0	27	52	13	7	2	0
POOL-LATERAL SCOUR	18	241	3.4	0.44	830	3	16	37	23	13	7	4
POOL-STRAIGHT SCOUR	2	28	2.9	0.30	84	0	15	30	28	20	8	0
PUDDLED CHANNEL	1	25	1.0	0.30	25	0	0	25	30	40	5	0
RAPID/BOULDERS	3	47	2.0	0.05	110	23	0	7	25	37	32	0
RIFFLE	17	251	2.6	0.11	671	8	6	21	34	25	12	3
Total:	44	603	2.9	0.26	1,751	34	Avg:11	29	27	20	10	3

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m ²)	Percent	Large Boulders Number	#/100m ²
Dammed & BW Pools	3	11	2.7	0.23	32	1.84	0	0.0
Scour Pools	20	269	3.3	0.43	914	52.18	3	0.3
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	17	251	2.6	0.11	671	38.31	8	1.2
Rapids	3	47	2.0	0.05	110	6.25	23	21.0
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	0	0	-	-	0	0.00	0	0.0
Dry	1	25	1.0	0.30	25	1.42	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	23	38.2
Pools ≥1m deep:	0	0.0
Complex pools (LWD pieces≥3):	15	24.9
Pool Frequency (channel widths/pool):	3.9	
Residual pool depth (avg)	0.35m	

STREAM SUMMARY

COAL CREEK POST-TX (#16)

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Substrate Percent Wetted Area						Total Large Boulder
					S/O	Sand	Grvl	Cbbl	Bldr	Bdrk	
44	603	2.9	0.26	1,751	11	29	27	20	10	3	34

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	914	52.2
Backwater Pools	32	1.8
Glide	0	0.0
Riffle	671	38.3
Rapid	110	6.3
Cascade	0	0.0
Step	0	0.0
Dry	25	1.4

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) (3 transects)

Total hardwoods/1000 ft	1,036
Total conifers/1000 ft	20
Total conifers >20" dbh/1000 ft	20
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	3.3	0.0	2.7	0.0	6.0	0.0	12.0
15-30cm	0.0	1.3	0.0	1.3	0.0	0.0	0.0	2.7
30-50cm	0.0	1.0	0.0	0.7	0.0	0.7	0.0	2.3
50-90cm	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m ²	0.0	5.7	0.0	4.7	0.3	6.7	0.1	5.7

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	78		77		72	
Shrub cover	72		55		70	
Grass/forb cover	26		48		28	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	17		33		50
High terrace	83		67		50	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		0	
Riprap	0		0		0	
Surface slope (%)	12		24		32	

Summary of Riparian Zone (0-30m) for all reaches (3 transects)

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

Total hardwoods/1000 ft	1,036
Total conifers/1000 ft	20
Total conifers >20" dbh/1000 ft	20

Average number of trees in a 5-meter wide band

<u>Diameter</u> <u>class (cm)</u>	<u>Zones 1-3</u>	
	<u>Conifer</u>	<u>Hardwood</u>
3-15cm	0.0	12.0
15-30cm	0.0	2.7
30-50cm	0.0	2.3
50-90cm	0.3	0.0
>90cm	0.0	0.0

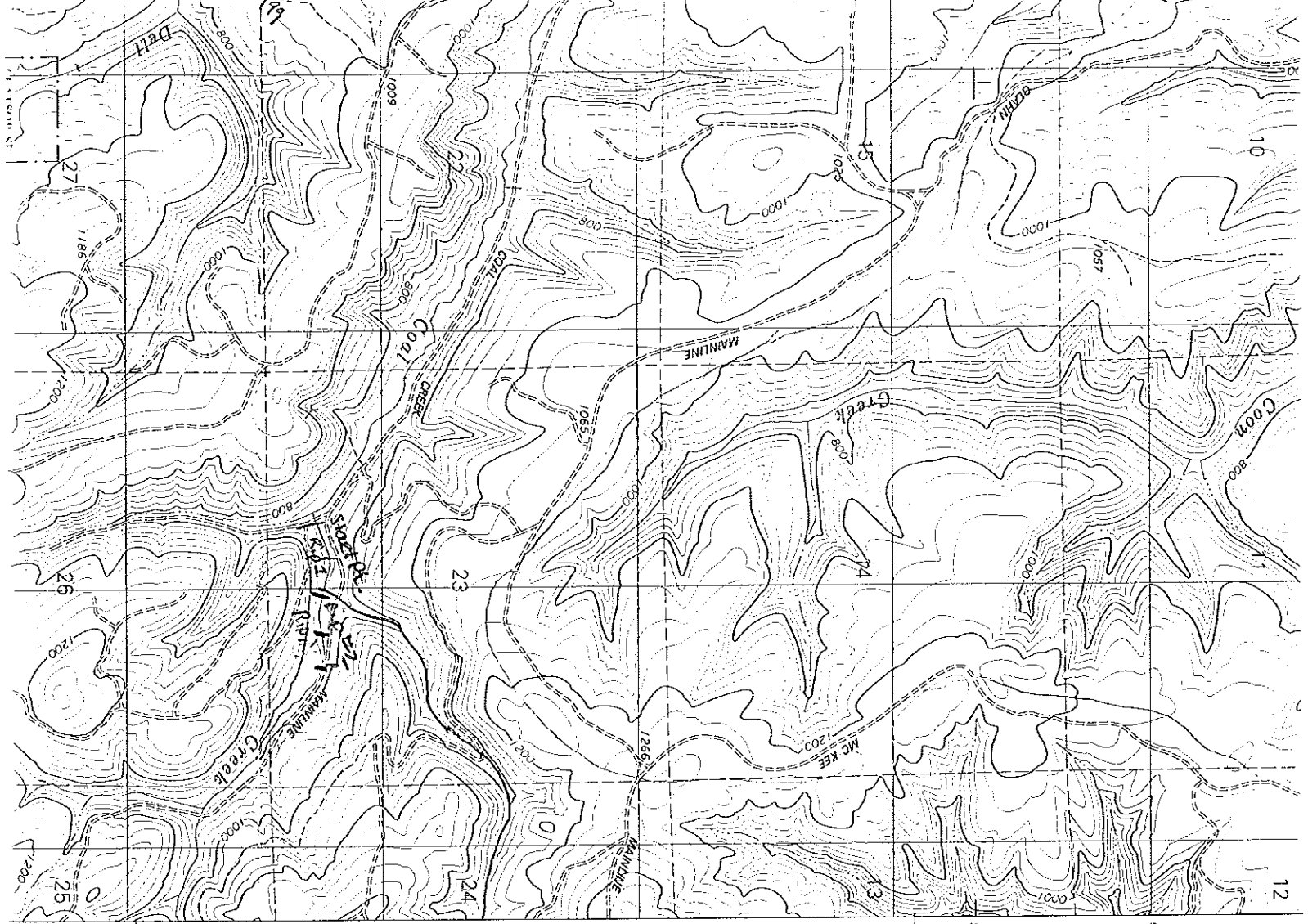
RIPARIAN ZONE VEGETATION

Reach 1

Reach 1

VEGETATION DETAIL

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90	
14	LF	1	HT	3.0	80	85	10	Conifer	0	0	0	0	0	
								Hardwood	2	1	0	0	0	
14	LF	2	HT	3.0	85	50	50	Conifer	0	0	0	0	0	
								Hardwood	4	0	0	0	0	
14	LF	3	HT	0.0	85	40	60	Conifer	0	0	0	1	0	
								Hardwood	4	0	0	0	0	
14	RT	1	HS	55.0	75	95	5	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
14	RT	2	HS	60.0	65	100	0	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
14	RT	3	HS	65.0	70	100	0	Conifer	0	0	0	0	0	
								Hardwood	0	0	2	0	0	
24	LF	1	HT	3.0	60	50	50	Conifer	0	0	0	0	0	
								Hardwood	4	0	0	0	0	
24	LF	2	HT	0.0	70	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
24	LF	3	HT	8.0	70	10	90	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
24	RT	1	HT	4.0	75	100	0	Conifer	0	0	0	0	0	
								Hardwood	0	0	1	0	0	
24	RT	2	HT	0.0	65	100	20	Conifer	0	0	0	0	0	
								Hardwood	0	1	0	0	0	
24	RT	3	HS	50.0	55	100	0	Conifer	0	0	0	0	0	
								Hardwood	2	0	0	0	0	
37	LF	1	HT	0.0	85	20	75	Conifer	0	0	0	0	0	
								Hardwood	1	1	0	0	0	VINE MAPLE
37	LF	2	HT	10.0	85	20	80	Conifer	0	0	0	0	0	
								Hardwood	0	3	2	0	0	
37	LF	3	HT	0.0	60	90	5	Conifer	0	0	0	0	0	
								Hardwood	5	0	0	0	0	
37	RT	1	HT	8.0	90	80	15	Conifer	0	0	0	0	0	
								Hardwood	3	2	2	0	0	
37	RT	2	HS	70.0	90	60	40	Conifer	0	0	0	0	0	
								Hardwood	4	0	0	0	0	
37	RT	3	HS	70.0	90	80	15	Conifer	0	0	0	0	0	
								Hardwood	7	0	0	0	0	



Coal Creek = R116
 7/13/61