SEATTLE CITY LIGHT

RIPARIAN ZONE MANAGEMENT PLAN

Prepared By: Mark Heffley, Plant Ecologist
Transmission and Distribution Division
Unit 502
November 1990

16.

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OTHER WILDLIFE

Big game animals, smaller mammals, and other types of terrestrial wildlife are also affected by the quality of riparian areas. Riparian vegetation is usually distributed in long corridors that provide cover for drinking as well as protective pathways for migration and movements of animals between habitats. It is important for City Light to manage its riparian habitats in a manner which will benefit fish and wildlife as well as provide for the safe, reliable transmission of power across these areas.

RIPARIAN AREA FORMATION

Knowledge of riparian area formation can aid in management of these areas. Riparian systems have resulted from geomorphological activity on landscape features. If the geologic forces that shape and mold riparian zones are considered, it is apparent that many riparian areas are rather dynamic features and are constantly in a state of flux and transition. Streambank erosion, channel meandering and flooding are natural processes (Brown, et al, 1978).

However, some unnatural cause have produced changes in riparian areas on some portions of Seattle City Light's (SCL) right-of-way. Initial installation of the transmission line, road building, and vegetation maintenance have all caused a loss of riparian vegetation at stream-crossings.

SEATTLE CITY LIGHT STREAM CORRIDORS

Most stream corridors on SCL's right-of-ways have adequate vegetation to address the needs of fish and wildlife (see Appendices B, C, D). The purpose of the Riparian Zone Management plan is to identify stream-crossings on SCL's Skagit line and to assign to them one of two prescription types which will ensure continued adequate riparian vegetation (see Appendix A). Both prescriptions call for a 75-foot buffer on each bank of the stream. However, some small intermittent streams may only need a buffer of 25 feet on each bank when it is determined that functional values of the stream will not be decreased by a decrease in width (Snohomish County, 1990). Examples of this type of stream would be small, intermittent streams with no populations of resident or anadromous fish and low water volume during flooding.

All stream-crossings on the Skagit line have been evaluated and classified by location in a span (see Appendices B, C, D). Explanations of column classifications are in Appendix D.

VEGETATION

Successful re-vegetation is considered a key to restoring stream functions. In some cases, planting cannot be done without extensive stream channelization in areas with severe channel meandering. If an area needs planting to provide vegetation, the following general recommendations apply: Select native species adaptable to a broad range of water depths. Give

RIPARIAN ZONE MANAGEMENT PLAN

INTRODUCTION

The riparian zones and wetland areas on Seattle City Light's transmission rights-of-way are the most significant fish and wildlife habitats on City property. Undisturbed riparian ecosystems normally provide abundant food, cover, and water, and often contain some special ecological features or combinations of features that are not often found in upland areas. Consequently, riparian ecosystems are extremely productive and have diverse habitat values for fish and wildlife.

The importance of riparian ecosystems can be attributed to specific biological and physical features. There is generally a predominance of woody plant communities associated with surface water and abundant soil moisture. The presence of live and dead vegetation, water bodies, and non-vegetated substrates leads to diverse structural features which result in many different types of wildlife habitats (BLM, 1989).

FISHERIES

The wildlife group most directly affected by the quality of riparian habitat are the fisheries communities. Streamside vegetation provides habitat diversity in several ways. Overhanging vegetation or indirect root systems give fish hiding cover and provide a physical means of separation from each other. Vegetative shading controls the water temperature, which is vital to the survival of many resident and anadromous fish species. High populations and a large variety of terrestrial insects frequently inhabit riparian vegetation. These insects inadvertently fall into the water where they serve as food for fish. In bank rooted vegetation enhances bank stability and dissipates flood energy. Sediment is trapped by vegetation instead of settling in streambed gravel and choking spawning beds and reducing aquatic insect production (Washington State, 1988). Streamside vegetation also contributes to the stream energy cycle by providing organic litter from foliage drop, wind-throw, and bank cutting.

BIRD POPULATIONS

Riparian areas are also extremely significant to bird populations. Many species of birds depend on riparian areas for nesting due to the partitioning of the breeding habitat found nearstreams (Braun et al, 1978). Riparian habitats also attract a disproportionate number of migrating bird species. In comparison to surrounding uplands, riparian areas may attract up to ten times the variety of bird species in the spring and fourteen times the numbers in the fall (Knopf, et al, 1988).

priority to commercially available species or species obtainable from local sources. Select mostly perennial species with high food and cover value for fish and wildlife (Garbisch, 1986).

MAINTENANCE

Adequate streamside vegetation under power lines can be achieved with proper vegetation maintenance techniques on naturally occurring or restored vegetation. In natural riparian zones, trees that have toppled into the water, or vegetation that is seriously reducing the capacity of the channel, should be periodically removed. If performed on a regular basis, most materials can be removed with hand labor, resulting in minimum disturbances to the bank or riparian plant communities. Stump applications of herbicides to control re-sprouting of non-compatible species should not be used within 50 feet of open water areas or within 20 feet of intermittent streams. The safe use of herbicides will result in a high quality riparian zone due to less vegetation clearing disturbances.

Trees that present a hazard to transmission lines should also be removed with hand labor as they reach a dangerous height. If possible, a well-vegetated buffer strip should be maintained on top of the bank even if it is beyond the 25-75-foot buffer zones. This strip will prevent surface run-off from adjacent land which will cause sheet or fill erosion on the face of the bank. It also prevents vegetation on the face of the bank from being undermined from behind when the stream flow exceeds the capacity of the channel.

CONCLUSION

An increasing amount of attention is being placed on Washington State's riparian zones. New philosophies and techniques are needed to consider the whole stream system in order to treat not only immediate erosion problems, but to help alleviate future erosion and flooding problems. Management techniques employed must also consider other demands placed on the stream system such as aesthetics, fish and wildlife habitat, and recreation opportunities. Hopefully, the management techniques presented here can help maintain the current quantity of vegetation present at most of SCL's stream-crossing, and help reverse the deterioration on those with inadequate amounts of vegetation.

LITERATURE CITED

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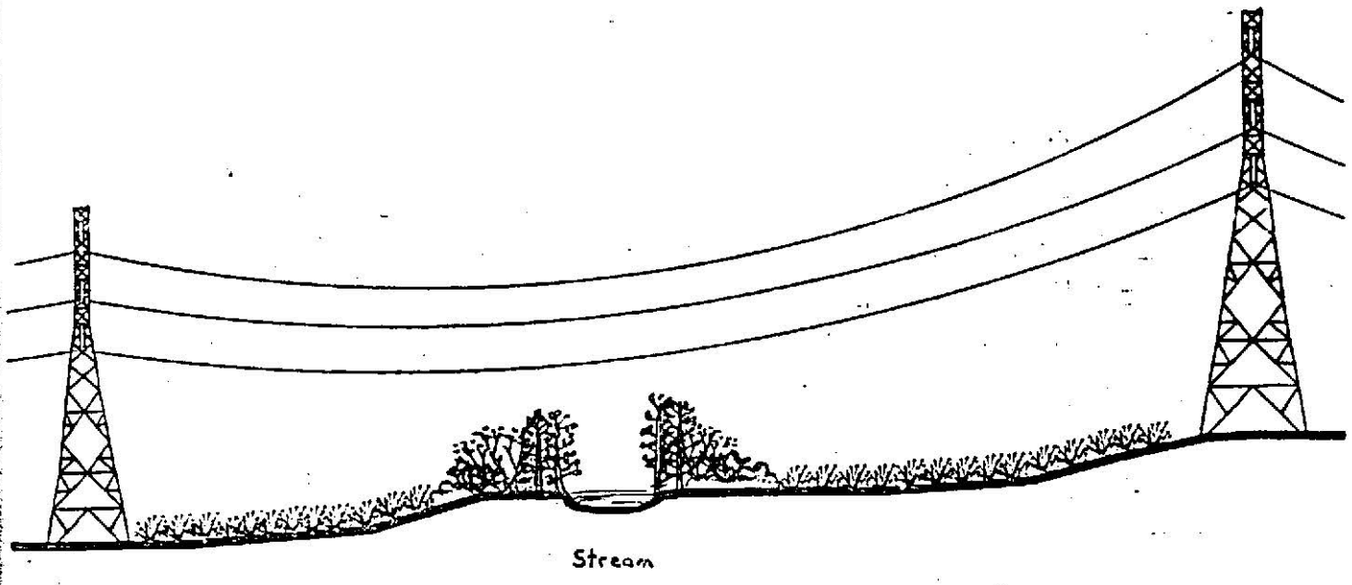
APPENDIX A

TYPE A

Description - stream on flat land crossing transmission corridor

Management Plan - allow low growing deciduous trees and low, medium and tall shrubs. Remove medium and tall trees as they grow and present a hazard to power lines. Establish 25' - 75' buffer on both stream banks either by allowing existing vegetation to grow or by planting where indicated.

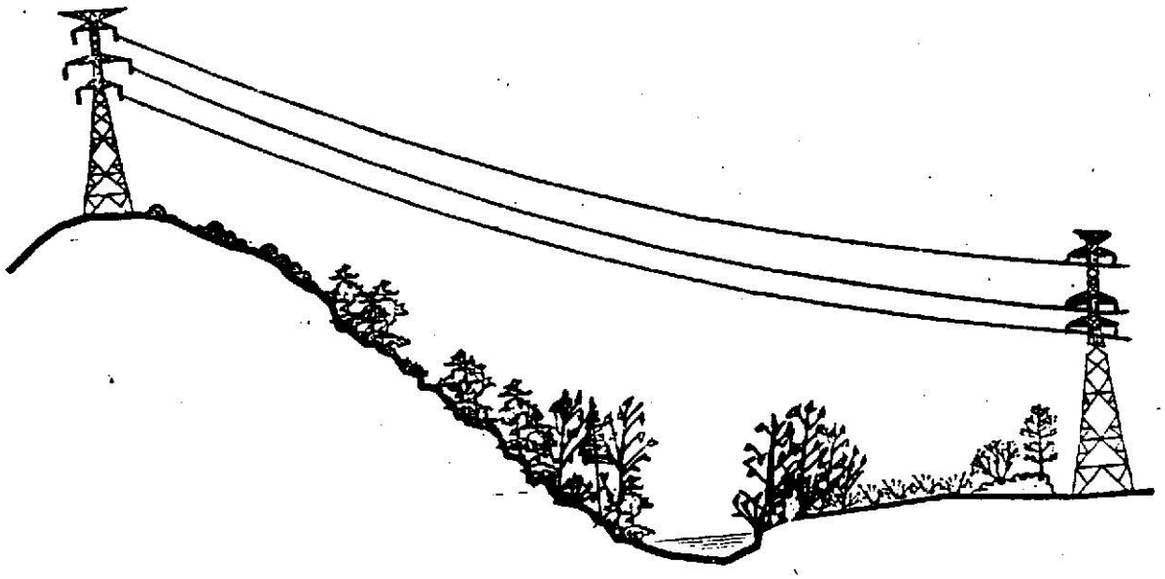


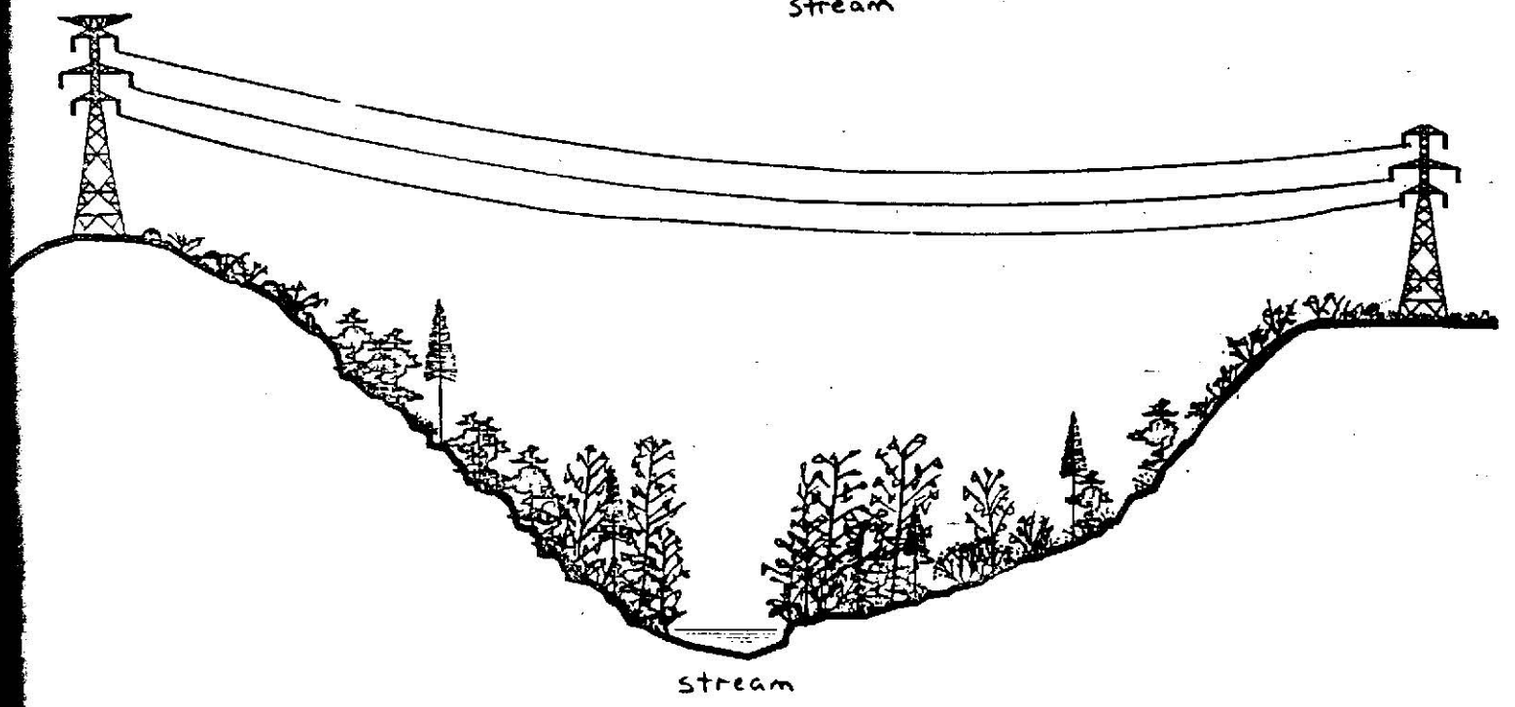
SEATTLE CITY LIGHT NSMISSION RIGHT-OF-WAY VEGETATION MANAGEMENT PLAN	VEGETATION MANAGEMENT PRESCRIPTION — A

TYPE B

Description - stream in depression or at bottom of slope

Management Plan - allow medium and low deciduous trees and tall, medium and low shrubs - remove tall trees as they grow and present a hazard to power lines. Establish 25' - 75" buffer on both stream banks, either by allowing vegetation to grow or by planting where indicated.





SEATTLE CITY LIGHT

TRANSMISSION RIGHT-OF-WAY VEGETATION MANAGEMENT PLAN

VEGETATION MANAGEMENT PRESCRIPTION – B

APPENDIX B

SEATTLE CITY LIGHT - SKAGIT TRANSMISSION R.O.W.
STREAM CROSSING INFORMATION

DATE : 11/05/90

SPAN	SCL#	NAME	TRIB. OF	WRIA/WDF#	DNR TYPE	4S/4S/S.	TOWN/RGE	USGS MAP	ANADROMOUS	RESIDENT	CROSSING TYPE	RECOMMEND -ATIONS	COMMENTS
D03/03N	01	No Name	?	07-(*)	*	S.22	.28N,R.5E	Everett	Assume None	Assume None	A	AV	MED TALL SHRUBS LOW DEC TREES
D03/16N		Ditch Creek	Snohomish R.								A	AV	TALL GRASS ON BANK
D04/51N	02	Snohomish Riv		07-0012	10	NE4/NW4/S.14	T.28N,R.5E	Everett	Ck,Co,Ch,Pk	?	B	AV	LOW MED TALL SHRUBS MED LOW TREES
D05/41N	03	No Name	Snohomish	07-0119?	4	NW4/NE4/S.11	T.28N,R.5E	Everett	(Co),(Ch)	?	B	AV	LOW SHRUBS SPREADS TO WETLAND
D06/26N	04	No Name	Ebey Slough	07-0098	5	NE4/SE4/S.2	T.28N,R.5E	Snohomish	(Co)	?	B	AV	LOW, MED, TALL SHRUBS, LOW,MED TREE
D07/32N	05	No Name	?	07-(*)	*	NE4/NW4/S.36	T.29N,R.5E	Snohomish	?	?	A	AV	WILLOWS, CONIFERS LOW, MED SHRUBS
D07/44N	06	No Name	?	07-(*)	*	NW4/S.36	T.29N,R.5E	Snohomish	?	?	A	AV	LOW MED SHRUBS CONIFERS LOW TREES
D11/27N	07	No Name	Ebey Slough	07-0086	4	SE4/NW4/S.12	T.29N,R.5E	Lk Stevens	(Co),(Ch)	?	B	AV	ALL SHRUBS, LOW, MED TREES
D13/32N	08	No Name	Lake Stevens	07-0074	4	E2/NW4/S.36	T.30N,R.5E	Lk Stevens	(Co)	?	A	AV	LOW DEC. TREES SPREADS TO WETLAND
D19/48N	09	No Name	Star Crk	05-(*)	5	SW4/NE4/S.31	T.31N,R.6E	ArlingtonE	?	?	A	AV	LOW DEC TREES
D21/23N	10	No Name	S.Fork Still	05-0347	5	SW4/SW4/S.20	T.31N,R.6E	ArlingtonE	?	?	A	AV	LOW DEC
D22/03N	12	S.Fork Still		05-0001	1+	S.20	T.31N,R.6E	ArlingtonE	Ck,Co,Ch,Pk	?	B	AV	LOW MED TALL TREES
D22/44N	13	Jim Crk	S.Fork Still	05-0322	1	S.17 and S.16	T.31N,R.6E	ArlingtonE	Ch,Co,Ch,Pk	?	A	AV	OK FOR FEW MED TREES IN MID. OF ROW
D23/11N	14	No Name	Jim Crk	05-(*)	5	SW4/S.16	T.31N,R.6E	ArlingtonE	?	?	A	AV	LOW MED SHRUBS
D23/26N	15	Siberia Crk	Jim Crk	05-0324	3	SW4/NE4/S.16	T.31N,R.6E	ArlingtonE	Co,Ch	Yes7,	B	AV	LOW MED TALL TREES
D23/41N	16	No Name	Siberia Crk	05-0325	5	NW4/NE4/S.16	T.31N,R.6E	ArlingtonE	(Co)7,(Ch)7	Yes7,	A	AV	LOW MED TALL SHRUBS AND TREES
D24/22N	17	Bear Crk	Jim Crk	05-0329	3	NW4/SW4/S.10	T.31N,R.6E	ArlingtonE	Co	?	B	AV	LOW MED SHRUBS AND TREES

Recommendation Codes : AV = Adequate vegetation N = Needs more vegetative cover, regrowth will be adequate NP = Needs more vegetative cover, planting required

SPAN	SCL#	NAME	TRIB. OF	WRIA/WDF#	DNR TYPE	4S/4S/S.	TOWN/RGE	USGS MAP	ANADROMOUS	RESIDENT	CROSSING TYPE	RECOMMEND -ATIONS	COMMENTS
D25/31N	19	No Name	Porter Crk	05-0332	3	SE4/SE4/S.3	T.31N,R.6E	ArlingtonE	Co7,	Yes7,	A	AV	LOW MED SHRUBS LOW TREES
D25/31N	20	Porter Crk	Jim Crk	05-0330		SW4/SW4/S.2	T.31N,R.6E	ArlingtonE	Co	Yes7,	A	AV	LOW MED SHRUBS
D26/08N	21	No Name		05-(*)	5	NW4/S.2	T.31N,R.6E	ArlingtonE	(None)7,	(None)7,	A	AV	LOW MED TREES LOW MED SHRUBS
D26/26N	22	No Name	?	05-(*)	*	S.2	T.31N,R.6E	ArlingtonE	(None)7,	(None)7,	A	AV	LOW MED SHRUBS
D26/39N	23	No Name	?	05-(*)	*	S.2	T.31N,R.6E	ArlingtonE	?	?	A	AV	SOUTHERN STR. LOW MED SHRUBS
D26/39N	23	Unnamed	?	05-(*)	*	S.2	T.31N,R.6E	ArlingtonE	?	?	B	AV	NORTHERN STR. MED, TALL SHRUBS,TREES
D27/12N	23	No Name	?	05-(*)	*	E2/SE4/SE4/S.35	T.32N,R.6E	GranFalls?	?	?	A	AV	INTERMITTENT STR., LOW MED SHRUBS
D27/23N	25	Jim Crk	S.Fork Still	05-0322	1	NW4/SW4/S.36	T.32N,R.6E	Gran Falls	Ck,Co,Ch,Pk	?	B	AV	PRIV. YARD TALL MED TREES
D28/11N	26	Griff Crk	Jim Crk	05-0335	3	NE4/NE4/S.36	T.32N,R.6E	Gran Falls	?	?	B	AV	MED, LOW TREES AND SHRUBS
D29/11N	27	No Name	Jim Crk	05-0337	4	SE4/NW4/S.30	T.32N,R.7E	Gran Falls	Co,Ch	?	A	AV	PASTURE, LOW MED SHRUBS
D30/31N	28	No Name	05-0172	05-(*)	5	SE4/NW4/S.20	T.32N,R.7E	Oso	?	?	A	AV	SOUTH STR., LOW MED TALL DEC TREES,EVERG
D30/31N	29	No Name	05-0172	05-(*)	4	E2/NW4/S.20	T.32N,R.7E	Oso	?	?	A	AV	NORTH STR. LOW MED SHRUBS
D31/17N	30	No Name	?	05-(*)	*	SE4/SE4/S.17	T.32N,R.7E	Oso	?	?	B	AV	STEEP BANK
D31/22N	30.1	No Name	*	05-*	*	S2/S.16	T.32N,R.7E	Oso	(Co)8	?	B	AV	LOW MED TREES
D32/04N	31	No Name	05-0213	05-(*)	4	SE4/NW4/S.16	T.32N,R.7E	Oso	?	?	A	AV	SOUTH STR, LOW MED SHRUBS
D32/04N	32	No Name	NF Still	05-0213	3	SE4/NW4/S.16	T.32N,R.7E	Oso	Co	?	A	AV	NORTH STR. LOW MED SHRUBS
D33/07N	33	No Name	NF Still?	05-(*)	*	NE4/NW4/S.15	T.32N,R.7E	Oso	?	?	A	AV	LOW MED SHRUBS
D33/23N	34	No Name	NF Still	05-(*)	5	NW4/NW4/S.15	T.32N,R.7E	Oso	?	?	A	AV	LOW MED SHRUBS

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SPAN	SCL#	NAME	TRIB. OF	WRIA/WDF#	DNR TYPE	4S/4S/S.	TOWN/RGE	USGS MAP	ANADROMOUS	RESIDENT	CROSSING TYPE	RECOMMEND -ATIONS	COMMENTS
D33/35N	35	Montague Crk	NF Still	05-0217	1	NW4/NW4/S.10	T.32N,R.7E	Oso	Co,Pk	?	A	AV	LOW MED SHRUBS LOW TREES
D34/01N		No Name	?								A	AV	LOW MED SHRUBS LOW TREES
D34/48N	37	No Name	NF Still?	05-(*)	*	S2/SW4/S.12	T.23N,R.7E	Oso	?	(Prob)8	A	AV	LOW MED SHRUBS
D35/07N	38	No Name	NF Still	05-(*)	3	SW4/S.12	T.32N,R.7E	Oso	?	?	A	AV	LOW MED SHRUBS
D38/21N	43	Boulder Rvr	NF Still	05-0229	1	NW4/SE4/S.9	T.32N,R.8E	Oso	Ck,Co,Ch,Pk	?	A	AV	LOW MED SHRUBS
D39/13N	44	French Crk	NF Still	05-0246	1	N2/SE4/S.10	T.32N,R.8E	Oso	Ck,Co,Ch,Pk	?	B	AV	BANK SLUMPING LOW MED TALL TREES
D40/08N	45	No Name	NF Still	05-0251	4	NE4/SW4/S.11	T.32N,R.8E	Fortson	Co,Ch	?	A	AV	
D40/20N	46	Little Fren C	NF Still	05-0253	4	NW4/SE4/S.11	T.32N,R.8E	Fortson	Co,Ch	?	A	AV	LOW MED TALL SHRUBS
D41/01N	47	No Name	?	05-(*)	*	SW4/SW4/S.12	T.32N,R.8E	Fortson	?	?	A	AV	
D42/03N	48	Moose Crk	NF Still	05-0257	3	NE4/SW4/S.7	T.32N,R.8E	Fortson	Co,Ch	?	A	AV	MED TALL SHRUBS
D42/03N	49	No Name	Moose Crk	05-(*)	*	NE4/SW4/S.7	T.32N,R.9E	Fortson	?	?	A	AV	MED TALL SHRUBS
D42/51N	50	Squire Crk	NF Still?	05-0260	1	NE4/SW4/S.8	T.32N,R.9E	Fortson	Ck,Co,Ch,Pk	?	A	AV	LOW TREES EXPAND RMZ TO 75 FT
D43/10N	50	Squire Crk	NF Still?	05-0260	1	NE4/SW4/S.8	T.32N,R.9E	Fortson	Ck,Co,Ch,Pk	?	A	AV	LOW TREES
D47/19N	51	No Name	Sauk Rvr	03/04-1093	3	NW4/SW4/S.12	T.32N,R.9E	Darrington	?	?	A	AV	LOW TREES ALLOW PRES VEG TO GROW
D47/42N	52	No Name	Sauk Rvr	03/04-1090	3	SE4/SE4/S.1	T.32N,R.9E	Darrington	(Co),(Ch)	?	A	AV	
D48/12N	53	Beverly Crk	Sauk Rvr	03/04-1091	3	NW4/S.6	T.32N,R.10E	Darrington	?	?	A	AV	LOW MED SHRUBS TANSY AREA
D49/05N	54	No Name	Sauk Rvr	03/04-1067	3	E2/SW4/S.31	T.33N,R.10E	Darrington	(Co),(Ch)	?	A	AV	
D49/27N	55	No Name	Sauk Rvr	03/04-(*)	5	SW4/NE4/S.31	T.33N,R.10E	Darrington	?	?	A	AV	

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D49/39N	56	No Name	Sauk Rvr	03/04-(*)	5	N2/NE4/S.31	T.33N,R.10E	Darrington	?	?	A	AV	
D50/31N	58	No Name	Sauk Rvr	03/04-1064	3	NE4/S.30	T.33N,R.10E	Darrington	(Co),(Ch)	?	A	AV	
D51/12N	59	No Name	Sauk Rvr	03/04-1062	3	SW4/SW4/S.20	T.33N,R.10E	Darrington	(Co),(Ch)	?	B	AV	LOW MED TREES
D51/31N	60	No Name	Sauk Rvr	03/04-(*)	*	E2/E2/S.20	T.33N,R.10E	Darrington	?	?	A	AV	
D52/03N	61	No Name	Sauk Rvr	03/04-0707	3	SW4/SW4/S.17	T.33N,R.10E	Darrington	Co,(Ch),(Pk)	?	A	AV	SLUMPING AREA
D52/38N	62	No Name	Sauk Rvr	03/04-0706	4	E2/NE4/S.18	T.33N,R.10E	Darrington	?	?	A	AV	LET MED TREES GROW IN DEPRESSION
D54/07N	63	Rinker Crk	Sauk Rvr	04/03-0701	3	W2/SE4/S.6	T.33N,R.10E	Darrington	Co,Ch,(Pk)	?	B	AV	LOW MED TREES
D56/36N	64	Flume Crk	Sauk Rvr	03/04-0688	3	SE4/SW4/S.30	T.34N,R.10E	Rockport	(Co),(Ch),(None	?	B	AV	LOW MED TREES,LOW MED TALL SHRUBS
D57/10N	65	Sauk Rvr		03/04-0673	1+	S.19	T.34N,R.10E	Rockport	Co,Ck,Ch,Pk	?	B	AV	LOW MED TALL TREES OK HIGH CLEARANCE
D58/13N	66	No Name	?	03/04-0680	3	SE4/SE4/S.18	T.34N,R.10E	Rockport	?	?	A	AV	
D59/09N	67	No Name	Hilt Crk	03/04-(*)	*	SE4/NW4/S.17	T.34N,R.10E	Rockport	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D59/22N	67	No Name	Hilt Crk	03/04-(*)	*	SE4/NW4/S.17	T.34N,R.10E	Rockport	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D59/35N	68	Hilt Crk	Sauk Rvr	03/04-0678	3	NE4/SW4/S.8	T.34N,R.10E	Rockport	Co,Ch,Pk	?	B	N	ALLOW SPECIES PRESENT TO GROW
D60/40N	69	No Name	Skagit?	03/04-(*)	5	SW4/S.5	T.34N,R.10E	Rockport	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D61/11N	70	No Name	Skagit?	03/04-(*)	4	NE4/SW4/S.4	T.34N,R.10E	Rockport	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D61/20N	71	No Name	Skagit?	03/04-(*)	*	SE4/NW4/S.4	T.34N,R.10E	Rockport	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D61/33N	72	No Name	Skagit?	03/04-(*)	5	NE4/S.4	T.34N,R.10E	Rockport	?	?	B	N	ALLOW SPECIES PRESENT TO GROW
D61/47N	73	No Name	Barn Slough?	03/04-(*)	4	SE4/SE4/S.33	T.35N,R.10E	Illabot	?	?	B	N	SOUTH STR. ALLOW SP. PRES TO GROW

Recommendation Codes : AV = Adequate vegetation N = Needs more vegetative cover, regrowth will be adequate NP = Needs more vegetative cover, planting required

SPAN	SCL#	NAME	TRIB. OF	WRIA/WDF#	DNR TYPE	4S/4S/S.	TOWN/RGE	USGS MAP	ANADROMOUS	RESIDENT	CROSSING TYPE	RECOMMEND -ATIONS	COMMENTS
D61/47N	74	No Name	Barn Slough?	03/04-(*)	5	NE4/SE4/S.33	T.35N,R.10E	Illabot	(None)2	Yes(2)	B	N	NORTH STR. ALLOW SP. PRES TO GROW
D62/20N	75	No Name	Barn Slough?	03/04-(*)	5	NE4/SE4/S.33	T.35N,R.10E	Rockport	Possibly (2)	Probably (2	B	N	ALLOW SPECIES PRESENT TO GROW
D62/48N	76	Illabot Crk	Skagit	03/04-1346	1	NW4/NW4/S.34	T.35N,R.10E		Ck,Co,Ch,Pk	Yes	A	NP	FEW SP. PRESENT PLANTING NECESSARY
D63/05N	77	Illabot Crk	Skagit	03/04-1346	*	SW4/SW4/S.27	T.35N,R.10E		Ck,Co,Ch,Pk	?	A	NP	FEW SP. PRESENT PLANTING NECESSARY
D63/38N		No Name	?								A	N	WETLAND AREA SPECIES PRESENT CAN GROW
D64/24N	78	Skagit Rvr		03/03-0176	1+	S.22	T.35N,T.10E	Marblemt	Ck,Co,Sk,Ch,Pk	Yes	A	AV	INCREASE RMZ TO 75 FT
D64/45N	79	Corkindale	Skagit	03/04-1401	1	NW4/S.23	T.35N,R.10E	Marblemt	Co,Ch,(Pk),St3	Rb3,Ct3	A	N	OK N. OF HWY 20 ONLY GRASS SOUTH
D67/22N	80	Backus Crk	Skagit	03/04-1407	3	SW4/NE4/S.12	T.35N,R.10E	Marblemt	(Co),Ch5,(St)3	Rb3,Ebt3,	A	N	LOW TREES MED SHRUBS LET PRES VEG GROW
D67/35N	81	Olson Crk	Skagit	03/04-1747	3	NW4/NE4/S.12	T.35N,R.10E	Marblemt	Co,Ch5,(Pk),St3	Rb3,Ct3,	A	NP	FEW SPECIES ON BANK PLANTING NECESSARY
D69/37N	82	Diobsud	Skagit	03/04-1750	2	SE4/SE4/S.31	T.36N,R.11E	Marblemt	Ck,Co,(Ch),Pk,S	Ct4	A	NP	ROCKY, FEW SP. PLANTING REC.
D71/33N	83	Bacon Crk	Skagit	03/04-1774	2	SE4/SW4/S.20	T.36N,R.11E	Marblemt	Ck,Co,Ch,Pk	?	A	NP	SOME SHRUBS LOW TREES PLANTING REC.
D71/47N	84	No Name	Bacon Crk	03/04-(*)	*	NW4/SW4/S.21	T.36N,R.11E	Marblemt	?	?	A	NP	FEW SP. PRESENT PLANTING RECOMMENDED
D72/24N	85-	No Name	Bacon Crk	03/04-(*)	*	NW4/SE4/S.21	T.36N,R.11E	Marblemt	(Co)3,	(Ct)3	A	NP	FEW SP. PRESENT PLANTING RECOMMENDED
D73/28N	86	No Name	?	03/04-(*)	*	SW4/SW4/S.15	T.36N,R.11E	Marblemt	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D73/38N	87	No Name	Skagit	03/04-(*)	5	NE4/SW4/S.15	T.36N,R.11E	Marblemt	?	?	B	N	ALLOW SPECIES PRESENT TO GROW
D73/47N	88	No Name	?	03/04-(*)	5	SE4/NW4/S.15	T.36N,R.11E	Marblemt	?	(None)2	B	N	ALLOW SPECIES PRESENT TO GROW
D74/05N		Skagit River									A	N	ALLOW SPECIES PRESENT TO GROW
B74/22N	95	No Name	Skagit	03/04-(*)	*	NW4/SE4/S.10	T.36N,R.11E	Marblemt	?	?	B	N	ALLOW SPECIES PRESENT TO GROW

Recommendation Codes : AV = Adequate vegetation N = Needs more vegetative cover, regrowth will be adequate NP = Needs more vegetative cover, planting required

SPAN	SCL#	NAME	TRIB. OF	WRIA/WDF#	DNR TYPE	4S/4S/S.	TOWN/RGE	USGS MAP	ANADROMOUS	RESIDENT	CROSSING TYPE	RECOMMEND -ATIONS	COMMENTS.
D74/31N	89	No Name	Skagit	03/04-1843	3	SE4/SE4/S.10	T.36N,R.11E	Marblemt	?	Rb3	B	AV	
D74/45N	90	No Name	Skagit	03/04-(*)	*	NW4/SW4/S.11	T.36N,R.11R	Marblemt	(None)2	(None)2	B	AV	
B75/18N	96	No Name	Skagit	03/04-(*)	*	NE4/NW4/S.11	T.36N,R.11E	Marblemt	?	?	B	N	ALLOW PRESENT SPECIES TO GROW
D75/37N	91	Damnation Crk	Skagit	03/04-1844	*	NE4/NW4/S.11	T.36N,R.11E	Marblemt	Co,(Ch),(Pk),St	Rb6,	A	NP	FEW SPECIES PRESENT PLANTING REC.
D75/51N	92	Sky Crk	Skagit	03/04-1848	4	NE4/SE4.S.2	T.36N,R.11E	Marblemt	(Co)	?	B	AV	
D76/33N	93	No Name	Sky Crk	03/04-(*)	*	NW4/S.1	T.36N,R.11E	Marblemt	?	?	A	AV	
D77/45N	94	Thorton Crk	Skagit	03/04-1855	?	SE4/NE4/S.36	T.37N,R.11E	Marblemt	Co,Ch,Pk,St3-4-	Rb3-6	A	NP	PLANTING RECOMMENDED
D78/07N	97	No Name	?	03/04-(*)	*	SE4/NE4/S.36	T.37N,R.12E	Marblemt	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D78/20N	98	No Name	?	03/04-(*)	*	NW4/NW4/S.31	T.37N,R.12E	MArblemt	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D79/09N	99	L. Goodell?	Skagit	check	N/	NW4/SE4/S.30	T.37N,R.12E	Marblemt	?	?	A	N	ALLOW SPECIES PRESENT TO GROW
D79/15N	100	No Name	?	03/04-(*)	N/	?	?	Marblemt	?		A	N	ALLOW SPECIES PRESENT TO GROW
D80/22N	102	Goodell Creek	Skagit	03/04-1867	N/	NE4/SW4/S.20	T.37N,R.12E	Marblemt	Ck,Co,CH,Pk	?	A	NP	PLANTING RECOMMENDED

Recommendation Codes : AV = Adequate vegetation N = Needs more vegetative cover, regrowth will be adequate NP = Needs more vegetative cover, planting required

APPENDIX C

COLUMN HEADINGS AND ABBREVIATIONS

Note: Some reports may contain only some of these column headings.

SPAN: The nearest tower number, closest to the Bothell Sub. Each tower has a number which reflects the distance form the Bothell Sub. There are two lines, D and B. Where these two lines are adjacent, just the D# is used. However, at Mile 87, the D and B lines separate and are referred to separately.

NUMBER: A unique number, assigned to each stream identified in this inventory.

DIST/TWR: The distance from the tower. This number is only an estimate of the distance (feet) from the nearest tower.

NAME: The name of the stream. If it has none, "no name".

TOWN/RGE: The Township and Range where the stream is located.

4S/4S/S: The nearest quarter section which can be identified; i.e., the NW quarter of the SW quarter of Section 11 = NW4/SW4/S.11.

USGS MAP: The name of the USGS Map on which the stream is located. The name of the map is given even if the stream is not identified on the USGS map.

DNR TYPE: The DNR stream type, if available. Stream types were taken from the Stream Classification maps published by the Department of Natural Resources.

WRIA/WDF#: Stream number from the Catalog of Washington Streams and Salmon Utilization, Washington Department of Fisheries. Basin number is given first, then a dash, then the stream number i.e., Stream #0005 in the Snohomish (05) river basin, would be shown as 05-0005. When stream number was not found, an (*) was used.

ANADROMOUS: Fish species either suspected or confirmed to be present in this stream are listed. When suspected, the fish species are listed in parenthesis. The sources for this information are listed when available (see * following), and species are abbreviated as follows:

Anadromous	- Ck Chinook	Resident	- Rb Rainbow Trout
	- Co Coho		- Ebt E. Brook Trout
	- Ch Chum		- Ct Cutthroat
	- Sk Sockeye		
	- St Steelhead		

RESIDENT: See Anadromous

CROSSING TYPE: Indicates which vegetative prescription (See Appendix A) is applicable.

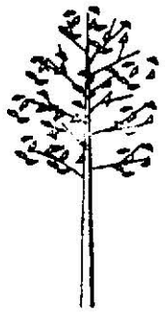
RECOMMENDATIONS: Indicates whether adequate vegetation is present (AV), or whether the stream crossing needs more vegetation which can be achieved by regrowth of species present (N), or whether the stream needs more vegetation from planting (NP).

COMMENTS: Included in this column are comments related to types of vegetation present and management of the stream crossing.

APPENDIX D

TABLE 3-2

PLANTING KEY (COMPLIANCE SERVICES, ET AL, 199(

SYMBOL	TYPE/SIZE	EXAMPLE
	**EVERGREEN TREES** TALL (OVER 80') MEDIUM (40–80')	DOUGLAS FIR WESTERN HEMLOCK WESTERN RED CEDAR LODGEPOLE PINE
	**DECIDUOUS TREES** TALL (OVER 80') MEDIUM (40'–80') LOW (25'–40')	BIG LEAF MAPLE WHITE-POPLAR PAPER BIRCH BLACK COTTONWOOD RED- Alder VINE MAPLE ROCKY MOUNTAIN MAPLE EUROPEAN ASH Shrub WILLOWS
	**WILDLIFE FORAGING SHRUBS** TALL (8'–15') MEDIUM (3'–8')	THIMBLEBERRY HARDHACK OCEANSPRAY GOOSEBERRY WESTERN SERVICE BERRY SALMON BERRY RED OSIER DOGWOOD RED ELDERBERRY RED HUCKLEBERRY SPIREA
	**WILDLIFE FORAGING SHRUBS** LOW (1'–3')	KINNIKINNIK LONG-LEAVED OREGON GRAPE MOUNTAIN BOX