

LEGEND

HABITAT TYPES and TERRAIN EVALUATION

of the COLUMBIA RIVER MARSHES

Pedology Consultants

MAP LEGEND: HABITAT TYPES

INTRODUCTION

The map units described in this legend and portrayed on the accompanying maps represent the results of a reconnaissance level field survey, interpretation of approximately 1:25,000 (colour) and 1:10,000 (black and white) scale aerial photography, and analysis of collected vegetation and soils data. In addition the following publications were consulted: *Kootenay River Diversion Project: Initial Environmental Evaluation - Volumes 2 and 3*, Vancouver, B.C., Entech Environmental Consultants, 1978; *Geomorphology and Botany of the Wilmer National Wildlife Area* (Keller, 1978); *Columbia River Marshes*, British Columbia Waterfowl Habitat Assessment (Hennan, 1975), and *Soil Resources of the Lardeau Map Area* (Wittneben, 1980).

MAP SYMBOLS

M2^B - FD²
 A composite unit composed of 80% Marsh and 20% Forested Deciduous.

Composite symbols are made up of two or three components with superscript numbers representing per cent amount. Components within map units are too complex to be separated at the scale of mapping.

Where units are too small to be delineated at scale of mapping, but deemed significant, they are represented by a circle with the appropriate habitat type symbol.

○ 01
 Location of data collection site.

SOIL CLASSIFICATION

O.EB Orthic Eutric Brunisol
 O.G Orthic Gleysol
 R.HG Rego Humic Gleysol
 R.G Rego Gleysol
 O.R Orthic Regosol
 O.R.C Orthic Regosol
 O.R.G Orthic Dark Gray

AGRICULTURE CAPABILITY

Class	Definition
3	Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.
4	Soils in this class have severe limitations that restrict the range of crops or require special conservation practices or both.
5	Soils in this class have very severe limitations that restrict their capability to produce perennial forage crops and improvement practices are feasible.
6	Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.
7	Soils in this class have no capability for arable culture or permanent pasture.

Subclasses: P - low fertility
 I - inundation by streams or lakes
 S - adverse soil characteristics
 W - excess water
 X - cumulative minor adverse characteristics

PARTICLE SIZE CLASSES

P - Fines < .075 mm
 FS - Fine Sand .075 - .42 mm
 MS - Medium Sand .42 - .70 mm
 CS - Coarse Sand 1.0 - 2.0 mm
 G - Gravels > 2.0 mm

DRAINAGE

W - Well Drained
 MW - Moderately Well Drained
 I - Imperfectly Drained
 P - Poorly Drained
 VP - Very Poorly Drained

FOREST CAPABILITY

Class	Definition
2	6.4 to 7.7 cubic metres per hectare per year
3	5.0 to 6.3 cubic metres per hectare per year
4	3.6 to 4.9 cubic metres per hectare per year
5	2.2 to 3.5 cubic metres per hectare per year
6	0.8 to 2.1 cubic metres per hectare per year
7	0 to 0.7 cubic metres per hectare per year

Species: bco - black cottonwood D - Douglas Fir
 ws - white spruce IP - lodgepole pine

DESCRIPTION OF MAP SYMBOLS

MAP SYMBOL	DEFINITION		ENVIRONMENTAL DESCRIPTION		PARTICLE SIZE CLASS ³	DRAINAGE	WATER ⁴ DEPTH (cm)	AGRIC. CAPABILITY RATING	FOREST CAPABILITY RATING	
	GENERAL	SPECIFIC	COMMON PLANTS	OCCASIONAL PLANTS						
A1	ANTHROPOGENIC	lands modified by activities of man; potential for return to natural condition exists (abandoned fields, agricultural lands)	cultivated forage crops	<i>Poa pratensis</i>	O.EB O.G	F-MS	-	4P 5P 3X	4H-3H D WS	
A2	ANTHROPOGENIC	lands modified by activities of man; no potential for return to natural condition (gravel pits, log sorting areas, residential areas)	miscellaneous weeds	<i>Pseudotsuga menziesii</i>	not applicable	F-G	-	5P 4P	4H D WS	
F	FORESTED	forests dominated by coniferous tree species	<i>Carex</i> spp.	<i>Eleocharis palustris</i>	-	-	VP	-50 to 10	7W	7W
FC	FORESTED CONIFEROUS	forests dominated by coniferous tree species	<i>Picea glauca</i> <i>Rosa</i> sp. <i>Cornus sericea</i>	<i>Pseudotsuga menziesii</i> <i>Pinus contorta</i> <i>Thuja occidentalis</i> <i>Juniperus communis</i>	O.EB G.L.R	F-G	-100	5P P 4P	4H W D	
FD	FORESTED DECIDUOUS	forests dominated by deciduous tree species	<i>Populus trichocarpa</i> <i>Alnus</i> spp. <i>Salix</i> spp. <i>Cornus sericea</i>	<i>Betula papyrifera</i> <i>Populus tremuloides</i> <i>Symphoricarpos albus</i> <i>Poa pratensis</i> <i>Equisetum hyemale</i>	G.L.R O.R O.R O.EB	F-G	-100 to -50	6W I 5P P	4H W bco	
FM	FORESTED MIXED	forests dominated by a mixture of deciduous and coniferous tree species	<i>Rosa</i> sp. <i>Populus trichocarpa</i> <i>Picea glauca</i> <i>Betula papyrifera</i> <i>Cornus sericea</i>	<i>Pseudotsuga menziesii</i> <i>Symphoricarpos albus</i> <i>Juniperus communis</i> <i>Pyrola asarifolia</i> <i>Poa pratensis</i>	O.R O.EB G.L.R	F-G	-100	5P P 4P	3H-4H W bco WS	
M1	MARSH	mineral or peat-filled wetland periodically inundated; vegetation composed of emergents; water table at or above surface year round	<i>Scirpus acutus</i> <i>Typha latifolia</i>	<i>Equisetum fluviatile</i> <i>Phragmites communis</i> <i>Carex rostrata</i> <i>Hippuris vulgaris</i> <i>Lemna minor</i>	R.G O.G	F-FS	VP	0 to 80	7W I	7W I
M2	MARSH	mineral or peat-filled wetland periodically inundated; vegetation composed of emergents; water table below surface for part of year	<i>Carex rostrata</i> <i>Equisetum fluviatile</i>	<i>Equisetum hyemale</i> <i>Carex aquatilis</i> <i>Calla palustris</i> <i>Phalaris arundinacea</i>	G.L.R R.G O.G	F-FS	VP	-30 to 0	7W I	7W I
ME	MEADOW	lands dominated by grasses and herbs preferring relatively mesic conditions	<i>Poa pratensis</i> <i>Trifolium palustre</i>	<i>Juncus</i> spp. <i>Potentilla anserina</i> <i>Agrostis</i> sp. <i>Trifolium</i> spp.	O.R G.L.R	FS-CS	MS-I	-75 to -50	6H I 5P P	5H W WS bco
NV	NON VEGETATED	river bars or lake edges lacking appreciable vegetative cover	none	<i>Populus trichocarpa</i> <i>Dryas drummondii</i>	O.R O.R	FS-G	MS-P	-100 to 0	3X 6H 4S I	6H-6H W bco bco
P	POND	small bodies of water with marsh and shrub vegetation along perimeter (usually indicated by on-site symbol)	<i>Scirpus acutus</i> <i>Typha latifolia</i>	<i>Salix</i> spp. <i>Sium suave</i> <i>Lemna minor</i> <i>Potamogeton</i> spp.	R.G	F-FS	VP	0 to >100	7	7W I
S	SWAMP	mineral or peat-filled wetland with standing or gently flowing water; vegetation dominated by trees and shrubs	Not Sampled	Not Sampled	-	-	-	-	7W	7W I
SH1	SHRUB THicket	shrub dominated vegetation with water table at or near surface	<i>Salix</i> spp. <i>Populus trichocarpa</i> <i>Cornus sericea</i> <i>Poa pratensis</i>	<i>Carex rostrata</i> <i>Equisetum hyemale</i>	G.L.R O.R O.G	FS-G	I-P	<-75 to -30	6W I	7W I
SH2	SHRUB THicket	shrub dominated vegetation with relatively mesic soil conditions	<i>Betula papyrifera</i> <i>Alnus</i> spp. <i>Populus tremuloides</i> <i>Cornus sericea</i> <i>Poa pratensis</i>	<i>Populus trichocarpa</i> <i>Picea glauca</i> <i>Pyrola asarifolia</i>	O.R	MS-G	MS-I	<-75	5P	5H W
W1	WATER	permanently flowing water	none	none	R.G	FS-G	VP	5 to >100	7I	7W
W2	WATER	standing water > 2 metres deep	none	none	R.G	F-G	VP	>200	7I	7W
W3	WATER	standing water < 2 metres deep; < 25% aquatic plant cover	none	<i>Scirpus acutus</i> <i>Equisetum fluviatile</i> <i>Potamogeton</i> spp.	R.G	F-G	VP	5 to 200	7I W	7W I
W4	WATER	standing water < 2 metres deep; > 25% aquatic plant cover	<i>Potamogeton</i> spp. <i>Sagittaria cuneata</i>	<i>Najas variegatum</i> <i>Ceratophyllum demersum</i> <i>Lemna minor</i>	R.G	F-G	VP	5 to 200	7I W	7W I

¹ Wetland is defined as land having the water table at, near or above the land surface or which is saturated for a long enough period to promote wetland or aquatic processes as indicated by hydric soils or hydrophytic vegetation (Bastin et al., 1980). Specific wetland definitions (marsh, swamp, fen) are from the same publication.

² Publications by Hennan (1975), Entech Environmental Consultants (1978) and Keller (1978) were used in conjunction with collected data to compile lists of plants.

³ Particle size classes are adapted from Wentworth and Unified Soil Classification System.

⁴ Water depths listed were assessed during low water season (April). Negative values indicate depth of water table below soil surface.

MAP LEGEND: TERRAIN EVALUATION and GEOMORPHIC HAZARDS

INTRODUCTION

Map units described in this legend and portrayed on the accompanying maps provide a relative assessment of terrain hazards and potential hazards based on recent and present-day activity of geomorphic processes affecting the landscape immediately adjacent to the floodplain and marsh system of the Columbia River. The area between Canal Flats and Edgewater has been evaluated using existing surficial geologic mapping and hazard assessment (Haughton, 1978). North from Edgewater to Donald Station, interpretation of 1:10,000 scale black and white aerial photographs was used to designate hazard zones. Criteria defined and described by Haughton (1978) were used in the assessment of the aerial photographs.

The hazard zones defined on the maps are broad, intending to conservatively define those units subject to extremely hazardous processes (H) and those which are potentially hazardous (PH). The types of active geomorphic processes are indicated by numbers. Their position on the map indicates only the general character of the processes observed within the hazard areas and does not specifically define their exact location or type of process which may exist or occur.

HAZARD CLASSIFICATION

H Hazardous: Map units in which the extent, frequency, and/or severity of active geomorphic processes are such that they should preclude development so as to avoid increasing an already extreme hazard.

PH Potentially Hazardous: Map units in which evidence of active geomorphic processes is slight to moderate but where terrain features and conditions are such that poorly planned and constructed development may initiate or propagate erosion and mass movement processes to the extent that they pose an extreme hazard. Prior to a development being approved in these potentially hazardous areas, they should be subject to more detailed studies which evaluate the extent and severity of active and potentially active geomorphic processes.

GEOMORPHIC PROCESSES

- ① Piping, caving, and collapse in silt deposits caused by subsurface erosion.
- ② Gully by surface flow or, in silt deposits, may also be caused by further erosion of collapsed pipe and sinkholes.
- ③ Debris slides, falls, slumps, and flows caused by failure of surface material on steep slopes, including shallow deposits over bedrock, silt bluffs and gully sides, and sand and gravel terrace scarpes.
- ④ Debris torrents and slides caused by excessive runoff from steep, gullied, bedrock-controlled mountain slopes resulting in colluvial and alluvial debris deposition.
- ⑤ Fluvial erosion caused by lateral cutting of stream and river banks and of terrace scarpes adjacent to outer meander bends.

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