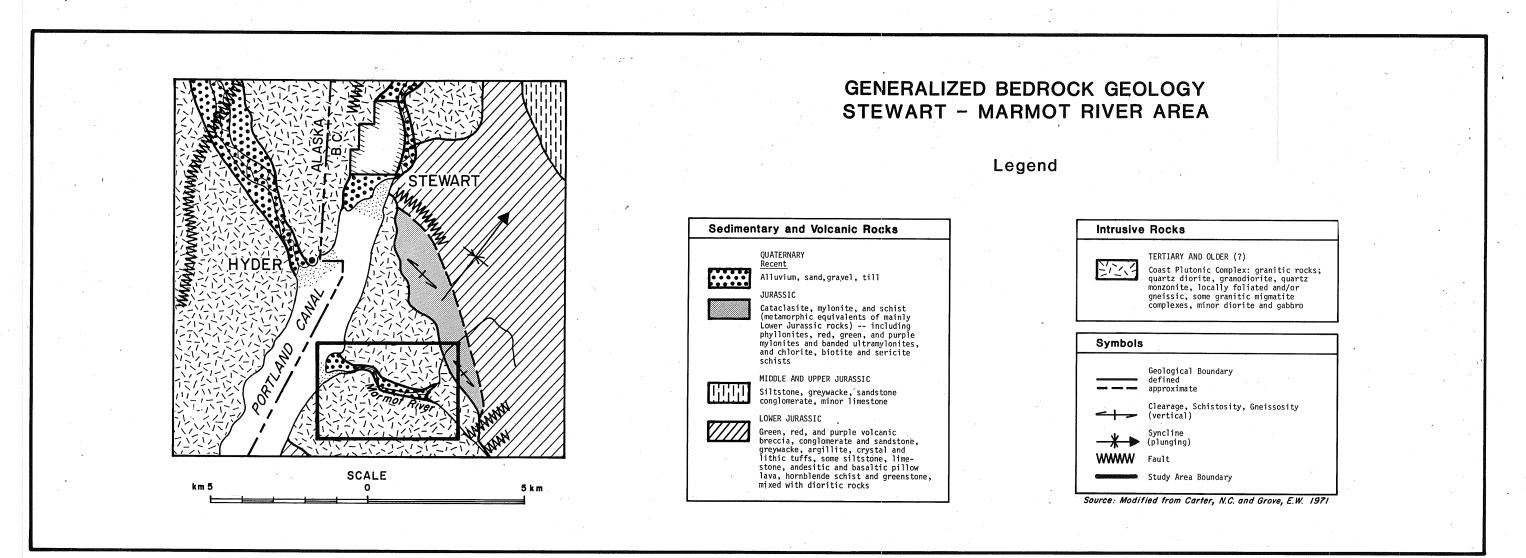
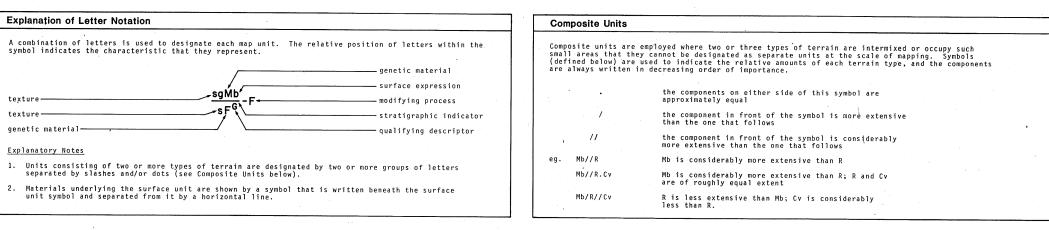


SCALE 1:15 840



MARMOT RIVER DELTA STUDY

TERRAIN LEGEND



Texture						Surface E	xpression	
Texture ref fibre conte	ers to the size nt of organic s	, roundness and s ediments.	orting of particles in clastic se	diments, and the proportional		Surface exp to describe	pression is the e features that	topography or form of the land surface. In general, the terms listed here are used are not adequately shown on the topographic base map.
Symbol	Name	Size (mm.)	Other char	acteristics	1 .	Symbol	Name	Description
<u>Clastic S</u>	ediments		_					
b	bouldery	>256	rounded & subrounded particles	includes a minor amount of finer interstitial material		a	apron	A sloping surface that is typically at the foot of a steeper slope and underlain by material derived from above.
k	cobbly	64-256	rounded & subrounded particles	and sand matrix		b .	blanket ,	A mantle of unconsolidated material which derives its general surface expression from the topography of the unit which it overlies; it masks minor topographic irregularities in the underlying unit and is more than
g	gravelly		a mixture of pebbles, cobbles and possibly					1 m thick; if the underlying unit consists of unconsolidated materials, it is shown in the unit symbol; if no underlying unit is shown, it may be assumed to be bedrock.
			boulders in a sand matrix			f	fan	A surface that is a sector of a cone.
s \$	sandy silty	.06-2				h	hummocky	Steep-sided hillocks and hollows that are rounded (bedrock) or irregular (unconsolidated) in plan; slopes of 10 to 90º predominate on both un- consolidated and bedrock; local relief is greater than 1 m.
ŗ	rubbly	2-256	angular and subangular particles	includes a minor amount of finer interstitial material		1	level	A flat or gently inclined (less than $5^{\rm O}$) surface with uniform slope and local relief of less than 1 m.
a 	blocky	>256	large angular and sub- angular particles rang-	- · · · · · · · · · · · · · · · · · · ·		m .	subdued	Irregular features with slopes ranging up to $10^{ m 0}$ and with local relief greater than 1 m.
			ing up to 5 m in diameter		, o	· s	steep	Steeply inclined erosional slopes (scarps) with gradients commonly greater than 35° on both unconsolidated materials and bedrock.
Explanatory						t	terraced	Step-like topography; includes both scarp face and the horizontal or gently inclined surface above it.
observe bedrock informa	d in the field geology. The tion.	and cannot be rel reader is referre	nit symbol indicates that texture iably interpreted from air photos d to genetic material description	or from a knowledge of the s for general textural		` v	veneer	A mantle of unconsolidated materials which has no constructional form of its own, but derives its surface expression from the topography of the underlying unit; it reflects minor irregularities of the underlying surface, is generally between 10 cm and 1 m in thickness, and outcrops of the underlying unit are common; if the underlying material is unconsoli-
2. Where to e.g. \$	wo textural ter s is silty sand	ms are used toget I, sg is sandy gra	her, they are written in order of vel	increasing importance.				dated, it is included in the unit symbol; if no underlying unit is in- dicated, it is assumed to be bedrock.

Genetic	: Materials		7	Modifying Proce	sses	•
physicai	l materials are classifi characteristics such as slope stability.	ed according to their mode of formation or deposition. This influences their texture, structure and compaction which in turn control conditions of drain-		These are terms w and surface expre	hich indicate processes that a ssions.	are currently modifying or have modified genetic materials
Symbol.	Name	Description	-	Symbol	Name (Process status*)	Description
C	colluvial (A)			- A	avalanched (A)	Slopes modified by frequent snow avalanches and by the deposition of rock debris transported by snow avalanches.
	COTTUVIAT (A)	Products of mass wastage : chiefly consists of rubbly and blocky bedrock derived material, but includes minor amounts of material reworked from unconsolidated Quaternary sediments. Consists		- A ¹		-avalanche slopes occupy less than 20% of unit area and generally more than one avalanche track is present
	4	chiefly of talus (rockfall) and avalanche material, and mantles of disintegrated bedrock; includes deposits of debris flows		- A ²		-avalanche slopes occupy 20-50% of unit area
F .	fluvial (I)	Materials transported and deposited by streams and rivers, alluvial materials; generally consists of boulders, cobbles and sandy gravels,		- A ³		-avalanche slopes occupy more than 50% of unit area
F G	fluvioglacial (I)	includes flood plains, river terraces and alluvial fans				-avalanche gullies
	Truvingiaciai (1)	Fluvial materials deposited in association with glacier ice; includes rubbly and blocky material deposited by a sudden outburst of a glacier dammed lake (jökulhlaup), and sandy and silty outwash material		-E	channelled (I)	Surfaces crossed by channels formed by running water; includes steep tributary channels and channels on avalanche cones and alluvial fans
L	lacustrine (I)	Sediments deposited in a lake, generally consist of hard compact silt. Restricted to Us units		-E ^A		-possibility of shifting channels on fans and valley floors
М	morainal (I)	Material deposited directly by glaciers, till; generally consists of		~EV '	122	-stream channel in gully
		moderate to well compacted non-sorted, non stratified material that contains a heterogeneous mixture of particle sizes, shapes and lithologies. Tills developed upon plutonic rocks tends to have a sandy matrix, those developed upon the metamorphic and volcanic rocks typically have a silty matrix. Till of the Marmot Delta area has a silty sandy matrix		-F ,	failing (A)	Steep slopes modified by slow or catastrophic downslope movement of unconsolidated material. Slopes may be crossed by tension fractures or slump scars or show other evidence of slow failure
0	organic (A)	Material resulting from the accumulation and decay of vegetation generally consists of peat, although minor amounts of marl and inorganic detritus may be included		- N	nivated (A)	Surface modified by shallow depressions that result from frost action, meltwater erosion and mass wasting around and under snow patches
R	bedrock (I) undifferentiated (I)	Outcrops and rock covered by less than 10 cm of unconsolidated material		- R	rapid mass- wastage (A)	Steep slopes modified by rockfall (R ^r) or debris flows (R ^d)
	undifferentiated (1)	A layered sequence of three or more types of material outcropping on a scarp slope		-R ^{r1}	* '.	-rockfall affects a small part of the unit or a few very small areas within the unit
* See Qualifying Descriptors for definition of process status descriptors.				-R ^{r2} -R ^{r3}		-intermediate between R ^{r1} and R ^{r3}
	,		ا ا			-rockfall affects most of the unit
Qualifyi	ng Descriptors		1	-R ^r		-rockfall affects an unspecified proportion of the unit area
These descriptions qualify either genetic material or modifying process terms. They are used in order to supply additional information about the mode of formation or modification of terrain units.				-R ^{d1}	1 P	-debris flows affect a small proportion of the unit or a few flows are scattered across the unit
Supply a	ddicional information ab	out the mode of formation or modification of terrain units.		- R ^{d2}		-intermediate between $R^{\mbox{\scriptsize d}1}$ and $R^{\mbox{\scriptsize d}3}$
Symbol	Name	Description	1	- R d 3		-debris flows are common throughout the unit
G	glacial	Used to qualify non-glacial genetic materials or process modifiers	1 1	-R ^d		-debris flows affect an unspecified proportion of the unit
•		where there is evidence that glacier ice affected the mode of deposition of materials or the mode of operation of a process. (See F ^G)		-R rd	·	-slopes modified by both rockfall and debris flow
Α,Ι	active, inactive	Process Status Descriptors - used to qualify genetic materials and		- RV		-rockfalls and/or debris flows in gullies
		Active: there is evidence that a modifying process is either oper-			gullied (A)	surface crossed by deep, steep-sided, parallel or subparallel ravines
		ating continuously or is of a recurrent nature at the present time; there is evidence that the process of formation of a genetic material is operative at the present time. Inactive: there is no evidence to		Explanatory Notes		
		Is operative at the present time. <u>Inactive</u> : there is no evidence to suggest that a modifying process is continuing or recurrent; the process of formation of a genetic material has ceased. A process status descriptor is designated for each genetic material and for each modifying process on the basis of their most common state of activity at the present time. (See process status column in Constitution that the column is constituted to the constitution of the con		 These letter : process. On-s a few features 	symbols are used where a relat site symbols may be used to in s such as rockfall, debris flo	ively large portion of a map unit is affected by the modifying dicate modification of a small part of the unit by a single or w, or avalanches.
		process on the basis of their most common state of activity at the present time. (See process status column in Genetic Materials and		2. Conventions a	dopted for use of A,E, and R w	ith V are distinguished by position of comma.
	,	Modifying Processes above). Process status descriptors are shown in unit symbols on the map only where the current state of activity is contrary to the designated state.		Examples: -A	² R ^r V, gullies formed by A	and R -A ³ ,ER ^{r1} V many avalanche slopes, stream
		concrary to the designated State.		-A	2 V, R ¹ A^{2} (avalanches) in g	channel and rockfall in gullies ullies,

1 1	su	bparallel ravines							
	Explanatory Notes								
	 These letter symbols are used where a relatively large portion of a map unit is affected by the modifying process. On-site symbols may be used to indicate modification of a small part of the unit by a single or a few features such as rockfall, debris flow, or avalanches. 								
	2. Conventions adopted for use of A,E, and R with V are distinguished by position of comma.								
	Examples: $-A^2R^{r}V$, gullies formed by A and R	• • • • • • • • • • • • • • • • • • • •	many avalanche slopes, stream channel and rockfall in gullies						
	$-A^2V,R^{r1}$ A^2 (avalanches) in gullies R^2 (rockfall) not in gulli	-A,R ^{d2} ,A ² R ^{r2} V	avalanche slopes, some debris flows on slopes, some avalanche and rockfall in qullies						

References and Credits

Date of drafting: November 1980

On-Site Symbols Abandoned Channel Avalanche Track ••••••• Debris Flow and/or Rockfall Track Combination of Avalanche, Debris Flow and Rockfall Tracks **▼▼▼▼▼** Escarpment Rockfall Scar Stratigraphic Point Information

Grove, E.W. 1971. Geology and Mineral Deposits of the Stewart area. British Columbia Department of Petroleum Resources, Bulletin No. 58. Ryder, J.M. 1979. Potlach Creek Folio, Terrain Map, Resource Analysis Branch, British Columbia Ministry of Environment Thomson, B. 1981. Marmot Delta Study Terrain, Working Report 1981, Terrestrial Studies Branch, British Columbia Ministry of Environment. Project coordinated by: B. Thomson Mapped by: B. Thomson Project area: Marmot River Delta Study Appoximate scale: 1:15 840, Enlarged from 1977 air photograph No. B.C. 77066 Date of fieldwork: August 1980

Carter, N.F., and Grove, E.W. 1971. Geology Compilation Map of Stewart, Anyox, Alice Arm, Terrace areas. British Columbia Department of Mines and Petroleum Resources, Preliminary Map No.8.

Environment and Land Use Committee Secretariat, 1976. Terrain Classification System.