84-#604 -12745

BP Minerals Limited Vancouver

Report on

Geological Mapping and Geochemical Sampling

SIN 9 Mineral Claim

Alberni Mining Division

N.T.S. 92L 03W

Latitude: 50⁰11'N Longitude: 127⁰26'W

Owned and Operated by: BP Minerals Limited

GEOLOGICAL BRANCH ASSESSMENT REPORT

2.12

B. E. Marten S. J. Hoffman

July 30, 1984 Vancouver

BPVR 83-20

TABLE OF CONTENTS

SUMMARY AND RECOMMENDATIONS	(iii) _{<}
INTRODUCTION	l (
CLAIM DETAILS	1 /
LOCATION AND ACCESS	l ,
TOPOGRAPHY AND VEGETATION	4 ,
GEOLOGICAL SETTING	4 ,
PROPERTY GEOLOGY	4 /
SAMPLE COLLECTION AND ANALYSIS	7 /
METHOD OF DATA EVALUATION	7 /
DESCRIPTION OF RESULTS	9 /
DISCUSSION OF RESULTS	17
CONCLUSIONS	18 /

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LIST OF APPENDICES

Page No.

APPENDIX NO.	1:	Code Format for Recording Field Notes List of Field and Analytical Data for Soils and Rocks Plots for Field Notes	19 /
11	2:	Geochemical Preparation and Analytical Procedures	40 /
"	3:	Method of Histogram Interpretation	43
11	4:	Statement of Costs	46
11	5 :	List of Qualifications	48 /

LIST OF FIGURES

FIGURE NO.	1:	Location Map		2 (
	2:	Claims Map		3 /
	3:	Geological Map		5 🧹
	4A: 4B:	Histograms - Stream Sediments Histograms - Rock Chips	In "	Pocket /
	5A: 5B: 5C:	Sample Location - Stream Sediments Sample Location - Rock Chips Sample Location - Rock Specimens		107 117 127
	6A:	Copper, Lead, Zinc, Gold, Manganese, Iron, Silver, Mercury, Barium, Arsenic - In Stream Sediments, Rock Chips, Rock Specimens.	In	Pocket (
	6B:	Nickel, Cobalt, Vanadium, Strontium, Molybdenum, Aluminum, Calcium, Magnesium, Potassium, Sodium - In Stream Sediments, Rock Chips, Rock Specimens.	In	Pocket /
	6C:	Titanium, Phosphorus, Lanthanum, Boron, Chromium, Uranium, Antimony, Silica - In Stream Sediments, Rock Chips, Rock Specimens.	In	Pocket

SUMMARY AND RECOMMENDATIONS

An 800 m long zone of faulted, skarned and silicified upper Triassic siltstones and lower Jurassic volcanic rocks is exposed in logging roadcuts near tidewater. Rock chip sampling of this zone has proved disappointing. Geological mapping and sampling has, however, been limited and of a preliminary nature, and further work is required to fully evaluate the property. Follow up of stream sediments anomalous in arsenic is required in the area south-southwest of the silicified zone.

(iii)

INTRODUCTION:

The SIN 9 claim was staked on 6th July, 1983 to protect a zone of silicification and quartz veining noted in a logging roadcut during the course of reconnaissance around the main SIN group of claims (Figs. 1,2). Preliminary geological mapping, rock chip and stream sediment geochemical sampling was undertaken to evaluate the silicified zone. One traverse was done along the south claim boundary to evaluate the potential in that direction. There is no record of previous exploration on the property.

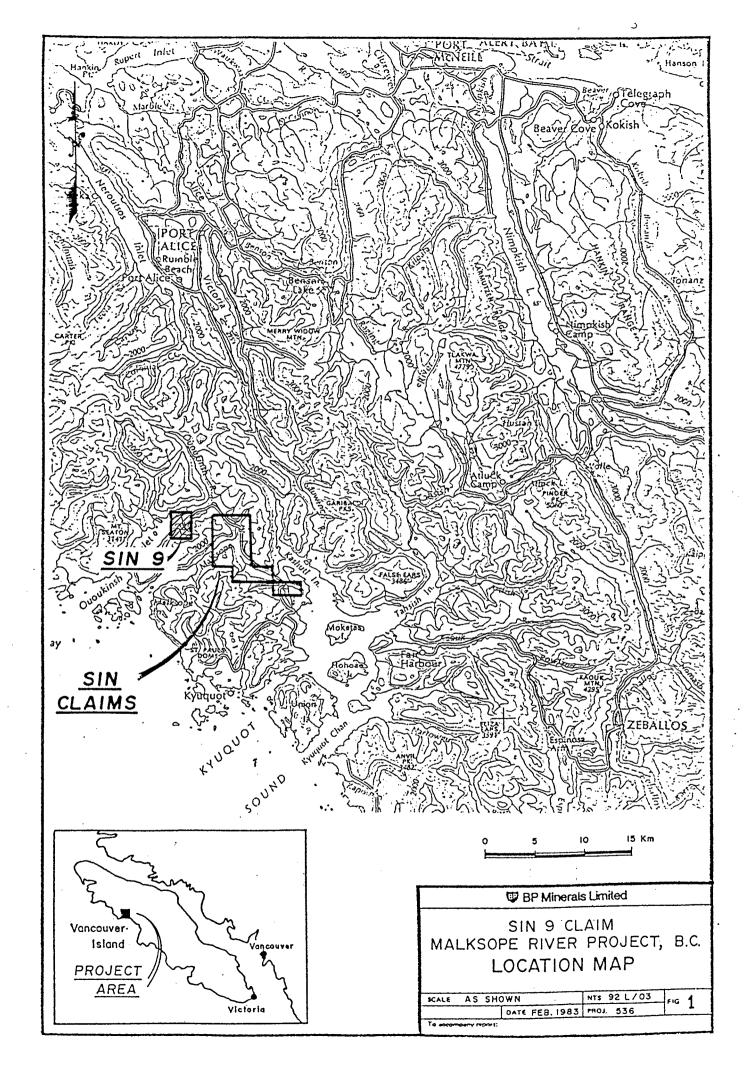
CLAIM DETAILS:

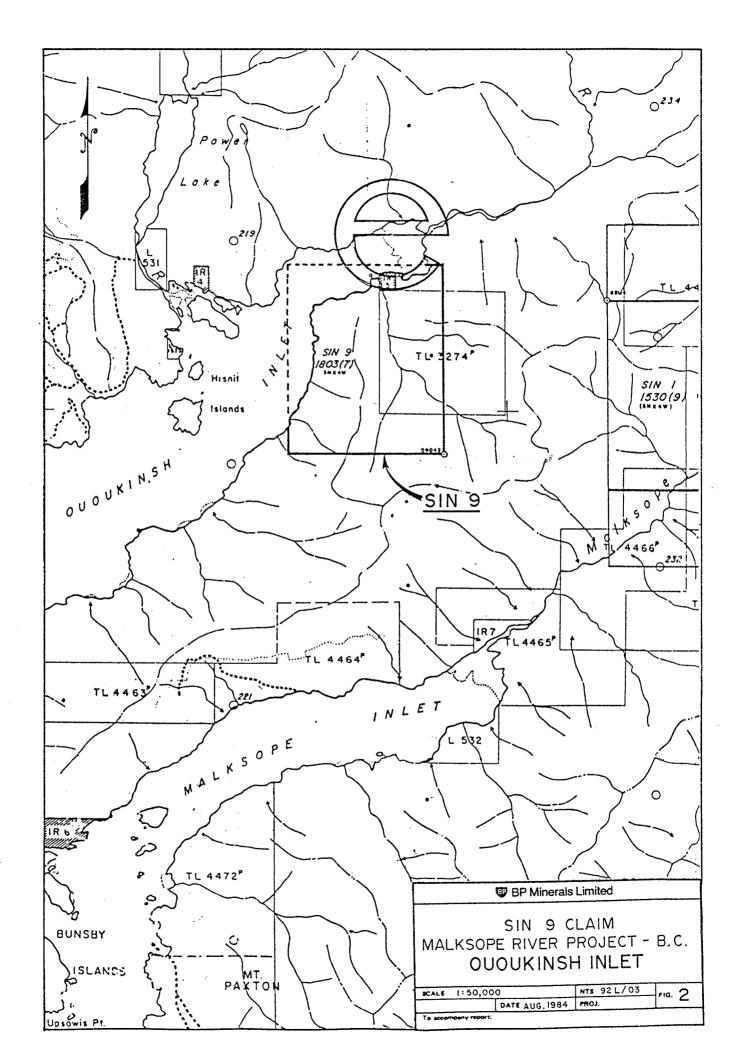
CLAIM NAME	UNITS	RECORD NO.	STAKING	RECORDING
			DATE	DATE
SIN 9	20	1803	6 July/83	21 July/83

LOCATION AND ACCESS:

The claim is located on the east side of Ououkinish Inlet on the northwest coast of Vancouver Island, 50 km due south of Port Hardy airport and 15 km due north of the fishing village of Kyuquot (Fig. 1) . The claim covers the lower portion of the Valley of Omar Creek which has been largely logged off, and there is a good network of logging roads with a dock on the inlet. Access to this road system can be gained by boat from Fair Harbour some 30 km to the east.

-1-





TOPOGRAPHY AND VEGETATION:

Topography is rugged with slopes rising from the shore of Ououkinish Inlet to elevations of about 700 m. Where not logged the vegetation consists of western red cedar, hemlock and sitka spruce. Overburden is thin and outcrop is common in the central portion and south edge of the claim, but there is much till in the valley of Omar Creek. The logging activity is recent and replanting has only just been completed.

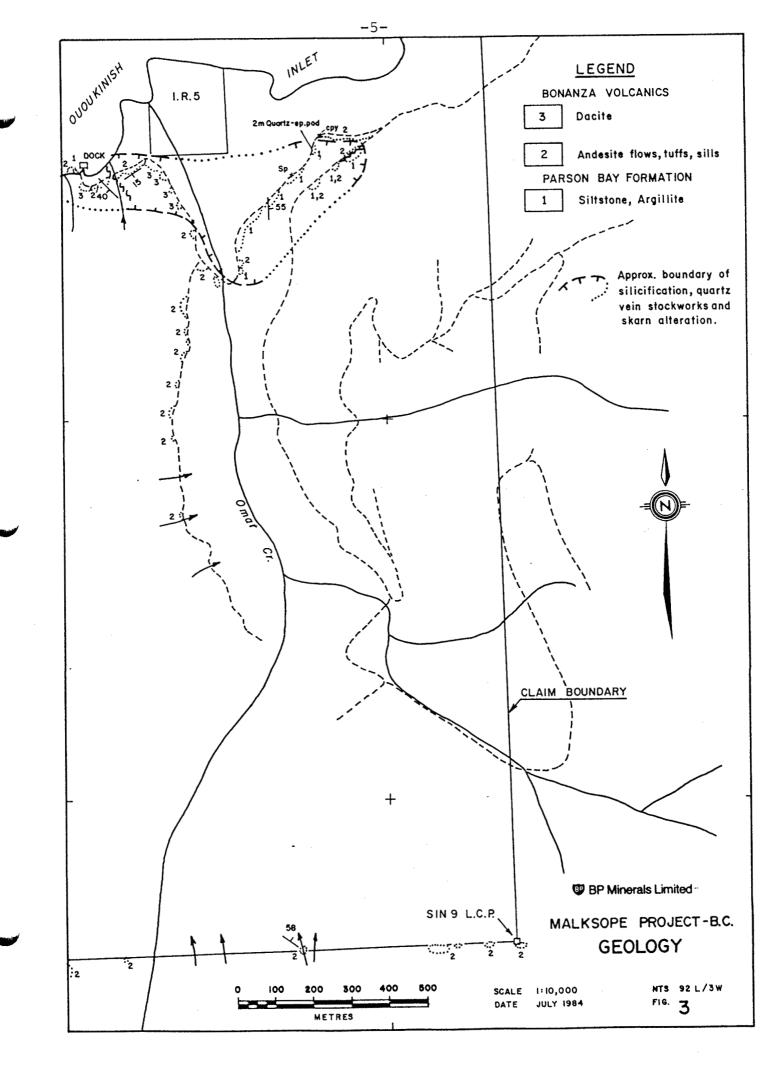
GEOLOGICAL SETTING:

The region is underlain by block faulted rocks of the Upper Triassic to Lower Jurassic Vancouver Group (Muller et al 1974). The sequence consists of Karmutsen Formation (tholeitic basalt), at the base, overlain by Quatsino Formation (limestone), grading into Parson Bay Formation (black calcaceous siltstone and argillite), succeeded by mafic to felsic Bonanza Volcanics. A quartz-feldspar porphyritic granodiorite pluton occurs at the head of the inlet.

PROPERTY GEOLOGY:

Only a small proportion of available outcrop has been mapped to date. The Parson Bay Formation and the Bonanza Volcanics appear to be represented. These rocks have been partly silicified, quartz veined and altered to skarn within an intensely faulted zone extending eastwards from the dock for about 800 m. (Fig. 3).

-4-



Where unaltered, the Parson Bay Formation consists of recessive, soft, weathered, presumably decalcified shaley siltstone. It is dark grey in colour, thinly bedded on a 1-20 cm scale and contains minor disseminated pyrite. Some of the section west of Omar Creek and all of it to the east has been altered to a tough green-grey banded fine-grained silicic skarn rock with some paler green epidotic bands. The skarned siltstone is cut by numerous quartz veinlets up to 10 cm in width. A few grains of sphalerite were noted in one quartz vein. Traces of chalcopyrite occur in a 2 m pod of massive fine-grained quartz-epidote rock (Fig. 3). One section of siltstone has been densely silicified to a dark grey cherty rock cut by a stockwork of fine quartz veinlets forming up to 40% of the rock. This locality is adjacent to a major fault zone near the east end of the zone.

The Bonanza Volcanics are represented by massive amygdaloidal andesitic flows and tuffs, and by dykes and sills of similar andesite within the Parson Bay Formation. These rocks generally show less evidence of silicification than the Parson Bay Formation. A unit of massive pale dacite occurs adjacent to the Parson Bay Formation near the dock. It contains about 1% disseminated pyrite and is characterised by a dense stockwork of quartz veinlets of at least two generations. It may be a faulted section of Bonanza Volcanics or a related intrusion.

Numerous steep faults were mapped within the silicified zone, and

-6-

bedding attitudes are highly variable. The mapping has not been extensive enough to define the overall structure.

SAMPLE COLLECTION AND ANALYSIS:

Stream sediment samples were taken of streams where these were crossed by traverse lines or roads. Samples avoided organic-rich material and were placed in Kraft paper envelopes (10 cm X 23 cm) and allowed to air dry at ambient temperatures.

Rock chip samples comprising approximatey 500 gm of material were taken of outcrop exposures. In places, selected chip samples were taken of quartz vein, fault zones, or other units which were volumetrically not representative of the rock type exposed in outcrop. Samples were submitted to Acme Analytical Laboratories in Vancouver, B.C., for ICP (inductively coupled plasma) analysis of about 30 elements. Gold was determined following an aqua regia extraction. Analytical procedures are reported in appendix 1, and a list of analytical data indexed to field technical information and coordinates is found in appendix 2.

METHOD OF DATA EVALUATION:

Appendix 2 lists the field technical data and analytical results in three parts, appropriately numbered in the upper right hand corner of each page. Histograms were drawn to summarize the distribution of metal values in stream sediments (Fig. 4A) and rock chips (Fig. 4B). Selection of arithmetic or logarithmic scales is determined by reference to the detection limit for an element and a number 25X that detection limit. If the maximum value is less than 25X the detection limit, the histogram is calculated by incrementing the detection limit value arithmetically up to 25X the detection limit. If the maximum value exceeds 25X the limit, both arithmetic and logarithmic scales have been plotted, scale increments being a constant factor of the detection limit or the standard deviation interval.

In view of the abnormally great influence exceptionally high values have on the construction of a histogram, data sets have been truncated (T on Fig. 4A and 4B) where this is prudent (i.e., where the maximum value is >25X the detection limit and truncation does not leave the remaining maximum values <25X the detection limit). Truncated data have been replotted in arithmetic or logarithmic format; all values greater than the mean plus 1.9 standard deviation interval truncation limit being plotted in the greatest concentration class interval.

Histograms are interpreted subjectively to arrive at size coding intervals for the dots shown on Fig. 6A,B,C. The largest dots represent the most anomalous conditions; numbers printed next to the largest dots represent the maximum values of the survey. The second largest dots represent weakly anomalous values. Dot selection otherwise attempts to divide the data into recognizable populations. Each population is subdivided by dot size selection to highlight the upper approximate 5 and 10 percentiles of that

-8-

population. Anomalous conditions do not necessarily have to be indicated by the very largest dots, but can also be defined relative to the majority of surrounding lower values. The largest dots are considered anomalous under all conditions, save their random distribution throughout the survey area. The method of histogram interpretation is reported in Appendix 3.

DESCRIPTION OF RESULTS:

1. Introduction:

Sample locations of Fig. 5 A, B, and C represent three types of geochemical samples: stream sediments (sample type 10) in dots, rock chips (sample types 80/81/82/83) in diamonds, and specimen-like grab samples (sample type 90) in pentagons on Fig. 6A, 6B and 6C. The specimen-like grab samples represent obvious quartz veined or gossanized material, dikes, etc., selected to determine if these materials are gold-bearing. The limited number of samples (61) comprising the geochemical investigation is sufficiently low to allow the plotting of all information on one map per element. These are described below.

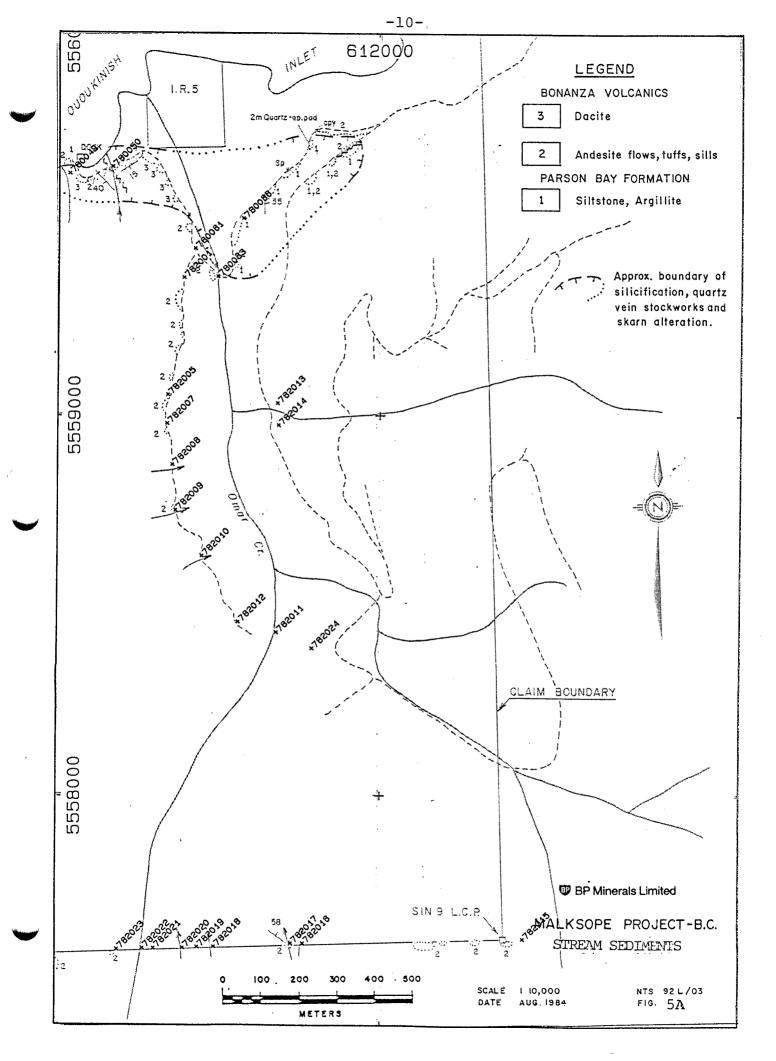
2. Copper: (Fig. 6A)

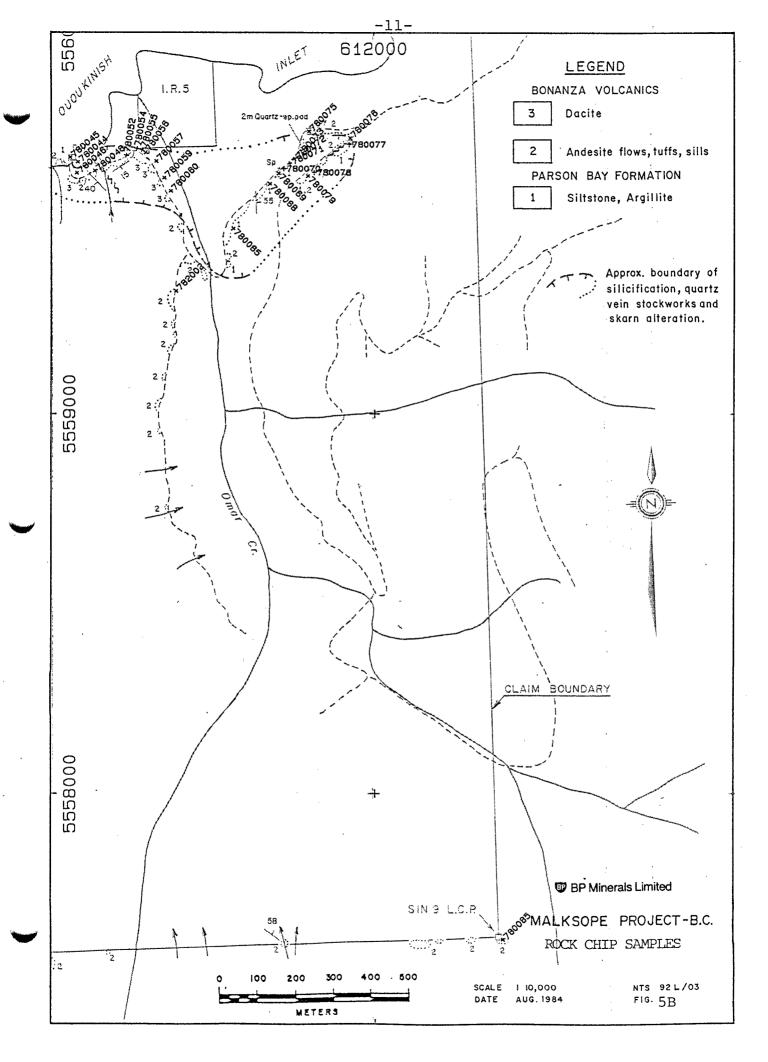
Copper levels are generally below 60 ppm. Higher values exceeding this concentration are found in the north, including two chip samples grading 140 and 2028 ppm copper.

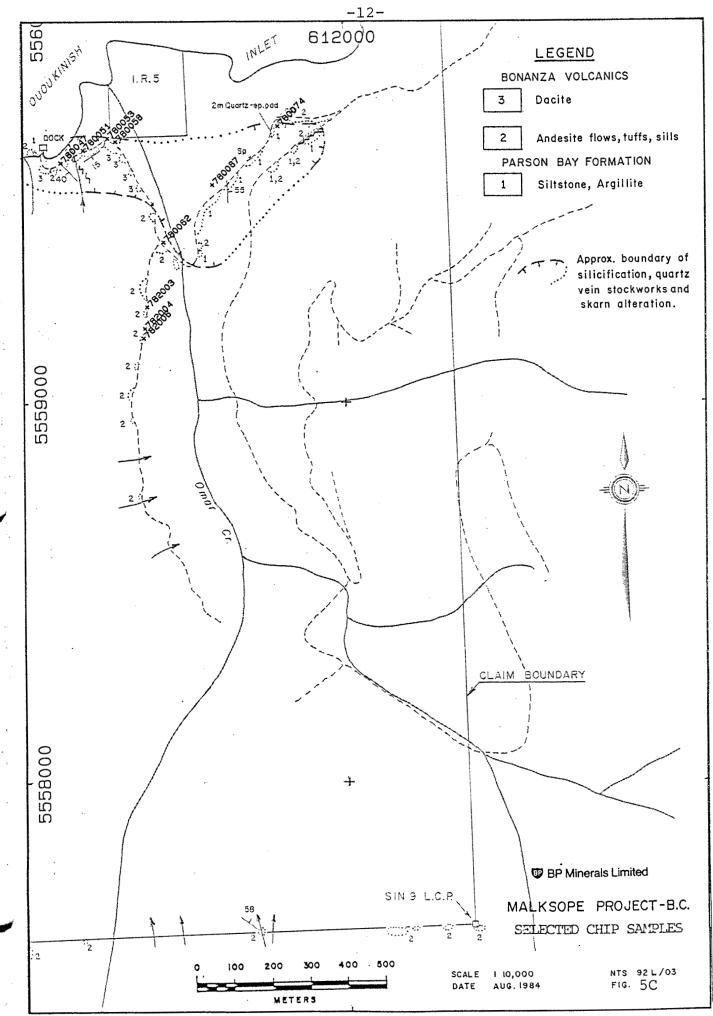
3. <u>Lead:</u> (Fig. 6A)

Lead enhancement also characterizes the northern sampling. Most

-9-







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lead values are less than 15 ppm; maximum concentrations of 22 ppm in sediments and 282 ppm in rock chips found in the northwest.

4. Zinc: (Fig. 6A)

Zinc concentrations average below 150 ppm. Maximum concentrations of 9600 ppm (high grade grab) and 1024 ppm are also located in the north, in copper and lead-poor samples. One sream sediment anomaly of 215 ppm zinc is found in a copper-rich sample in the north central portion of the survey.

5. Gold: (Fig. 6A)

Maximum gold value is 15 ppb. No anomalies were defined by the study.

6. Manganese: (Fig. 6A)

Manganese varies at background levels. Scavenging by manganese oxide should not pose a problem.

7. Iron: (Fig. 6A)

Iron contents are regionally above average, but locally fluctuate about average contents. Iron scavenging should not pose a problem.

8. Silver: (Fig. 6A)

Silver contents are all at the detection limit.

9. Mercury: (Fig. 6A)

Mercury values are generally below 100 ppb. Maximum values of 1000 ppb in stream sediments is in a metal-poor sample, 1400 ppb in selected grab is in the zinc-rich sample and 550 ppb in a rock chip is in a copper-rich environment.

10. <u>Barium:</u> (Fig. 6A)
Barium levels are not unusual.

11. Arsenic: (Fig. 6A)

Arsenic contents are notably enhanced over the northern central portion of the sampling. Values in the extreme north and south range below 30 ppm, whereas in the anomalous zone values are 50 to 100 ppm.

12. Nickel: (Fig. 6B)

The northeast corner of the sampling is nickel-rich, in part sympathetic with copper and arsenic.

13. Cobalt: (Fig. 6B)

Cobalt highlights the same area as nickel, but the distribution pattern of enhanced values is somewhat displaced northward and eastward.

14. <u>Vanadium:</u> (Fig. 6B) Vanadium follows nickel. 15. <u>Strontium:</u> (Fig. 6B) Strontium follows nickel.

16. Molybdenum: (Fig. 6B)
Molybdenum values are normally at the detection limit of less
than 2 ppm.

17. Aluminum: (Fig. 6B)

Stream sediments and some rock chips are aluminum-rich in the north. The 5.31% aluminum-bearing sediment is enriched in some base metals. This probably reflects an unusually high percentage of clays in the sample.

18. Calcium: (Fig. 6B)

The aluminum-rich sample is also calcium-rich; otherwise calcium levels fluctuate around a background average of about 0.6%. Calcium enrichment in the sediment may reflect a clay mineral overabundance or be due to a high organic content. Calcium enhancement found in rocks to the northeast may be due to carbonate minerals in bedrock.

19. Magnesium: (Fig. 6B)

Magnesium enhancement accompanies nickel, cobalt, strontium and vanadium. Background magnesium values are high along the southern claimline.

-15-

20. <u>Potassium</u>: (Fig. 6B) Leachable potassium contents are relatively low at less than 0.05%.

Sodium contents are relatively homogeneously enhanced in the northeast.

22. <u>Titanium:</u> (Fig. 6C) Titanium enhancement characterizes the southern claimline and isolated zones in the north.

23. <u>Phosphorus:</u> (Fig. 6C) Some higher phosphorus values are found in the north, but no anomalous conditions are defined.

24. <u>Lanthanum:</u> (Fig. 6C) Lanthanum values are all at their detection limit.

Clustering of high values in the north and south appear real features. Maximum levels of less than 30 ppm should not be given too much consideration as this amount of boron could be leached from the norosilicate glass test tube.

26. Chromium: (Fig. 6C)

(Fig. 6C)

21.

25.

Boron:

Sodium:

(Fig. 6B)

Chromium levels are enhanced in association with nickel, cobalt,

vanadium, strontium and magnesium. Values are also high in the south.

27. Uranium: (Fig. 6C)

The isolated sample is enriched in uranium including a two point anomaly in the north-central portion of the sampling.

28. Antimony: (Fig. 6C)

Antimony values are at background levels.

29. Silica: (Fig. 6C)

Higher silica contents (leachable in aqau regia) are found in the north, complimenting the cobalt and nickel distributions.

DISCUSSION OF RESULTS:

The geochemistry of SIN 9 appears controlled by underlying rock types. Available geological information suggests Bonanza volcanic units underlie the claim, an interpretation which is consistent with the metal distributions. The geochemical work suggests subdivision of the Bonanza into a nickel, cobalt, vandium, manganese, weak chromium-rich unit over the north central portion of the property, and perhaps over the south property.

Gold and silver values are not anomalous on the claim group. High values of copper, lead, and zinc were taken from known mineral occurrences which on site were not representative of the bulk of rock in their immediate vicinity. Discounting these high values, and the zinc sediment anomaly in a clay-organic-rich sample, base metal levels are not anomalous. Arsenic values are regionally anomalous in relatively small streams, but are not accompanied by precious metal or pathfinder element anomalies. Arsenic values elsewhere in the region are oftentimes associated with gold but form much larger halos than gold and/or silver-rich zones. If the relationship is appropriate here, the search for precious metals should proceed both to the east and west of the current arsenic anomaly. However, a number of arsenic anomalies unrelated to gold mineralization are also known nearby. Under these conditions, followup of arsenic features will only lead to discovery of an arsenic source(s) - which is not an exploration objective.

CONCLUSIONS:

A reconnaissance stream sediment and rock chip survey did not outline anomalous conditions for precious, base and pathfinder elements worthy of followup on SIN 9. More sampling is warranted to assess an arsenic anomaly. If results are negative, SIN 9 could be allowed to lapse.

-18-

Appendix 1

Code Format for Recording Field Notes List of Field and Analytical Data For Soils and Rocks

Plots of Field Notes

1

GEN	ERAL
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0	NERAL								
1-2	SAMPLE TYPE	1-2	SAMPLE TYPE Cont.	1-2	SAMPLE TYPE Cont.	8 1	ROJECT IDENTIFICATION	1	INTRUSIVE ROCKS
	10. Stream sediment	51.	Soil-other horizons (organic-		Channel sample/split core		Blank-reconnaissance	-1-	QUARTZ RICH
	 Stream water Drainage ditch sediment 		rich samples or when 2 samples taken at same hole)	87.	Drill chips Drill sludge		A,B,C, etc properties, anomalies, (List 6)	1 2	Granite Quartz Monzonite
	 Heavy mineral concentrate Seepage (spring) sediment 		Frost boil or seepage boil Groundwater sample	88. *89	Heavy mineral concentrate High grade sample	9 1	DUPLICATE SAMPLES	3	Granodiorite
	21. Seepage (spring) water	55.	Deep overburden sample	* 90.	Special sample-specify		Label duplicates as 1,2, etc.	4	Quartz diorite
	 Lake sediment - lake center Lake water 		Heavy mineral concentrate Talus fines		Standard sample		(collect 1 duplicate pair in 30)	-2- 1	INTERMEDIATE Syenite
	32. Lake sediment-near shore	63.	Talus blocks-hand sample	*Clea	rly label if high grade.		SAMPLER IDENTIFICATION	2	Monzonite
	40. Bog-upper 100 cm 41. Bog-stagnant water		Talus blocks-chips Heavy mineral concentrate		Special Note		(List 7)	3 4	Diorite Gabbro
	42. Bog-below 100 cm	70.	Biogeochemical sample		For keypunchers benefit, 7's should be crossed 7 and 0's	13-15	EAST COORDINATE	-3	FELDSPATHOID RICH
	 Bog-organic material at mineral horizon interface 	80.	Radon Bedrock hand specimen		(letter) should be slashed \emptyset			1 2	Nepheline Syenite Nepheline Monzonite
	 Bog-mineral horizon Soil-top of the B horizon 		Bedrock chips + hand sample Float hand specimen	3-4	YEAR		NORTH COORDINATE	-40	ULTRABASIC
	(or top of the C horizon	83.	Float chips + hand sample	5-7	PROJECT NUMBER	34-38	NTS MAP SHEET NUMBER Example: record 92F/3 as	-50	CARBONATITES
	if B horizon absent)	84.	Drill core specimens	4 =7	PROJECT NOTBER		92F03	-6-	SPECIAL TYPES
S	REAM SEDIMENTS							1	Pegmatite
								2	Aplite Lamprophyre
40	SAMPLE ENVRIONMENT		OVERBURDEN ORIGIN Cont.	53-5	AVERAGE DEPTH OF STREAM-CM	68	ORGANIC FRACTION *(Complete where sediment composition is	4	Trap
	 Side of creek Middle of stream 		 Lake sediment-clay Talus 	56	STREAM VELOCITY		unusual)	5 6	Felsite Intrusion Breccia
	9. Composite across stream		9. Residual *use only if		1. Dry		 Large amount of undecom- posed leaves, twigs, etc. 	7	Diabase
	A. Soil		C. Boulder field* former origin D. Gravel* cannot be		2. Stagnant 3. Slow		4. Large amount of well-de-		LIST 2
41	WATER MURKINESS		E. Soil* identified		4. Moderate		composed vegetation 5. Moss	2	VOLCANIC ROCKS
	Blank-clear 1. Murky (report findings in	46	BEDROCK		5. Fast 6. Turbulent		7. Sediment grains coated in	-0-	UNDIFFERENTIATED
	note section)		M. Mineralized				organic matter 8. Lake sediment ooze.	-1-	BASALT
42	PRECIPITATE		P. Present within 100m upslope	57	INDICATE AS TRIBUTARY			-2-	ANDESITE
	Blank-none		D. Present within 100m down- slope		R. Stream enters on the right looking down main stream	6 9	MINERAL FRACTION *(Complete where composition is un-	-3-	DACITE
	 Record colour (report presence of precipitate 		B. Underlies sample site		L. Stream enters on left		usual)	-4-	RHYOLITE
	in immediate vicinity in		G. Gossan F. Fe surface stains		looking down main stream		 Notable content of mafic minerals, resistates 	-5-	QUARTZ LATITE
	stream bed. If heavy precipitate, sample		R. Radioactivity	58-60	LOCAL BEDROCK COMPOSITION		 Very high content of 	-6-	LATITE
	separately as sample type 90)	47-48	PH		Estimate-use Lists 1-4		mafics, resistates	-7-	TRACHYTE
47	90) OVERBURDEN TRANSPORT		SAMPLE TEXTURE	61-6	COLOUR_	71	SCINTILLOMETER NUMBER	-8	PHONOLITE
43	L. Local M. Mixed local		Ø. Organic-decomposed		Munsell notation or	72-75	GAMMA COUNT AT SAMPLE DEPTH	-9-	NEPHELINE LATITE
	E. Extensive & extensive		 Clay Silt and fine sand 		abbreviation		(make note if landscape is	1 2	Fine grained flows Prophyritic flows
	U. Unknown		 Sift and fine sand Sand 	67	CONTAMINATION	76	affecting gamma count)	3	Crystal tuffs
45	OVERBURDEN ORIGIN		 Gravel Cemented 		Blank - none L - logging	/6	ROCK	4 5	Ash tuffs Lapilli tuffs
	 Till-angular boulders Outwash-sandy, rounded 		 Precipitate 		C - culvert M - mine		*Star if bedrock is influen- ing scint count	6	Agglomerate
	boulders		 Twigs or undecomposed organic matter 		F - farming R - road G - garbage T - trench	77-78	APPROXIMATE SLOPE ANGLE	-+7	Lapilli breccia Block breccia
	3. Lake sediment-sand/silt	50-57			H - house \emptyset - other - spec.			8 9	Turbidite
	 Alluvium-stream deposit Peat-bog 		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col				APPROXIMATE SLOPE DIRECTION	-	
	 Alluvium-stream deposit 		AVERAGE WIDTH OF STREAM-M		H - house Ø - other - spec. I - industry			-	Turbidite
SC	 Alluvium-stream deposit Peat-bog 		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col		H - house \emptyset - other - spec.			9	Turbidite
	 Alluvium-stream deposit Peat-bog Colluvium* 		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col	55-56	H - house Ø - other - spec. I - industry			9 3 -1- 1 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone
-	4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium* NLS <u>SITE TOPOGRAPHY</u> 1. Hill top		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders	55-50	H - house Ø - other - spec. I - industry	79-80	APPROXIMATE SLOPE DIRECTION	9 3 -1- 1 2 3	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Silistone Mudstone Greywake
-	4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium* DILS <u>SITE TOPOGRAPHY</u> 1. Hill top 2. Gentle slope		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded	55-56	<pre>H - house Ø - other - spec. I - industry SOIL HORIZOM LH. Leaf, humus layer, unde- composed vegetation lying</pre>	79-80	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic	9 3 -1- 1 2	Turbidite LIST 3 SEDIMENTARY ROCKS SILISTONE Mudstone Greywake Sandstone Quartzite
	4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium*		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt	55-56	<pre>H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample)</pre>	79-80	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon	9 3 1 2 3 4 5 6	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate
-	4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium* MLS <u>SITE TOPOGRAPHY</u> 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvim-stream deposit	55-54	<pre>H - house Ø - other - spec. I - industry SOIL HORIZOM LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic</pre>	79-80	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon diagnostic B. Brunisostic B. Brunisol-BM horizon is	9 3 -1- 1 2 3 4 5 6 -2-	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Graywake Sandstone Quartzite Conglomerate ARGILLACEOUS
	4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt	55-50	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon 	79-80	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podgol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile	9 3 1 2 3 4 5 6	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate
-	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide)	55-5(H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface 	79-80	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podsol-BF horizon di dignostic B. Brunisol-BH horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil	9 3 -1- 1 2 3 4 5 6 -2- 1 2 -3-	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide)	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grev to white (occassionally 	79-80 57	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podsol-BF horizon diagnostic B. Brunisol-BF horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon		Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide)	55-56	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. bark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral 	79-80 57	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon. only LH (maybe) and C horizon G. Gleysol-BG horizon	9 3 -1- 1 2 3 4 5 6 -2- 1 2 -3-	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-boulders 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 4. Frost bolls 6. Soulder field ⁴	55-50	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; 	79-80 57	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of diagnostic B. Brunisol-BM horizon is only B horizon of grofile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-BG horizon diagnostic Ø. Organic soil-bg vegeta-		Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT
40	4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium* DILS <u>SITE TOPOGRAPHY</u> 1. Hill top 2. Gentle slope 3. Steep slope > 20° 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog <u>SAMPLE ENVIRONMENT</u> 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-swampy		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* E. Boulder field* D. Gravel*	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark qrey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by Br or BT 	79-80 57	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Cleysol-BG horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter	9 3 -1- 2 3 4 5 6 -2- -2- 1 2 -3- 1 2 -3- 1 2 1 2 1 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITA: Chert Marble
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 20° 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Boy SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dyn 1. Tundra-swampy 4. Grassland, meadows 5. Peat mounds		AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-boulders 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 4. Frost bolls 6. Soulder field ⁴	55-50	 H - house Ø - other - spec. I - industry <u>SOIL HORIZON</u> LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark qrey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) Leached mineral horizon near ground sur- face, usually sandy; accompanied by Bro BT horizon at depth (do not sample) 	79-80 57	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podeol-BF horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-BG horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDRCK COMPOSITION	9 3 -1- 2 3 4 5 6 -2- -2- 1 2 -3- 1 2 -3- 1 2 1 2 1 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALENTEL PRECIPITAT Chert Marble Iron Formation
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-dry 4. Grassland, meadows 5. Peat mounds 6. Bog in depression	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 6. Talus 9. Residual A root bolla* 5. Boulder field* D. Gravel* Use only if former origin cannot be identified.	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic - rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AF. Grey to white (occassionally horizon near ground surface, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- 	79-80 57 58-60	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon diagnostic B. Brunisol-BH horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-BG horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL EEROCK COMPOSITION Estimate-use Lists 1-4	9 3 -1- 1 2 3 4 5 6 -2- 1 2 -3 1 2 -3 1 2 1 2 1 2 1 2 1 2 1 2 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3 4 5 6 1 2 3 1 2 3 1 2 3 1	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITA Chert Marble LIST 4
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 20° 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Boy SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dyn 1. Tundra-swampy 4. Grassland, meadows 5. Peat mounds		AVERGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* B. Seepage bolls* C. Boulder field* D. Gravel* * Use only if former origin	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark rept Dalack, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground surface, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich mineral horizon at depths greater than 15cm 	79-80 57	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podeol-BE horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-BC horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or	9 3 -1- 2 3 4 5 6 -2- 1 2 3 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 2 3 4 4 5 6 1 2 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITA Chert Marble Iron Formation LIST 4 METANORPHIC ROCKS
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Forest-coniferous 6. Forest-deciduous 9. Forest-mixed	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolla* 5. Boulder field* D. Gravel* Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up-	55-51	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- greater than 15cm (do not sample) BE Badekorpus inspecies 	79-80 57 58-60 61-66	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-8T horizon diagnostic P. Podzol-8F horizon diagnostic B. Brunisol-8M horizon of profile R. Regosol-little or no soil development. No 8 soil horizon, only LH (maybe) and C horizon diagnostic 0. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation	9 3 -1- 2 3 4 4 1 2 3 1 2 3 1 2 3 1 2 3 3 1 2 3 3 4 1 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 2 2 3 2 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITA Chert MarDie Iron Formation LIST 4 METAMORPHIC ROCKS
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Forest-deciduous 9. Forest-coniferous 8. Forest-deciduous 9. Forest-niked A. Alder or willows 8. Cultivated land	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* E. Boulder field* D. Gravel* * Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- greater than 15cm (do not sample) BE Badekorpus inspecies 	79-80 57 58-60	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Gleysol-BG horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION	9 3 -1- 2 3 4 5 6 -2- 1 2 3 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 2 3 4 4 5 6 1 2 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITA Chert Marble Iron Formation LIST 4 METANORPHIC ROCKS
40	4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-bummocky 2. Tundra-dry 3. Tundra-ary 3. Tundra-ary 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Forest-coniferous 9. Forest-deciduous 9. Forest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* B. Seepage bolls* C. Boulder field* D. Gravel* * Use only if former origin cannot be identified. BEDROCK M. Mineralized P. Present within 100m up- slope D. Present within 100m down- slope	55-50	 H - house Ø - other - spec. I - industry SOIL HORIZOM LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic - rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground surface, usually sandy; accompanied by Br or BT horizon at depth (do not sample) BH. Black, organic-rich min-eral horizon (do to sample) BF. Red-brown, iron-rich horizon BF. Red-brown, clay-rich horizon 	79-80 57 58-60 61-66	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon is only B horizon of profile R. Begusol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-BG horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLUOR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging	9 3 -1- 2 3 4 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3 4 2 3 4 2 3 4 2 1 2 3 4 2 3 4 2 3 4 2 1 2 1 2 1 2 3 4 2 1 2 3 4 2 1 2 2 3 1 2 2 3 4 2 1 2 2 3 1 2 2 3 2 1 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 1 2 3 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 1 2 3 1 1 2 3 1 1 1 2 1 1 1 1	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITA Chert Marble Iron Formation LIST 4 METAMORPHIC ROCKS FINE GRAINED CONTA PHANERITIC Matha quartzite Marble
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-Bummocky 2. Tundra-avampy 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Forest-deciduous 9. Forest-nixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Residual 7. Lake sediment-clay 8. Residual 7. Lake sediment-clay 8. Seepage bolls* 6. Boulder field* D. Gravel* Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope	55-50	 H - house Ø - other - spec. I - industry <u>SOIL HORIZON</u> LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon mear ground sur- face, usually sandy; accompanied by Br or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral horizon to depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon BF. Brown, olay-rich horizon EG. Horizon which is water- saturated most of the 	79-80 57 58-60 61-66	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podsol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-Ittle or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR MUNSEL notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - faming R - road	9 3 -1- 2 3 4 2 4 1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3 4 1 2 3 4 2 3 4 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 2 2 2 2 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT Chert Marble Iron Formation LIST 4 METAMORPHIC ROCKS FINE GRAINED CONTAU PHANERITIC Matha quartzite Marble
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIROMENT 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Forest-coniferous 8. Forest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Beart, semi-arid D. Barren E. Talus fan F. Bank soil-stream	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* B. Seepage bolls* C. Boulder field* D. Gravel* 9. Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope D. Present within 100m down- slope B. Underlies sample site G. Gossan F. Fe surface stains	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon BF Rown, clay-rich horizon BG. Horizon which is water- saturated most of the year; identified by red 	79-80 57 58-60 61-66	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-8T horizon diagnostic P. Podzol-8F horizon diagnostic B. Brunisol-8M horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-8G horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists I-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench	9 3 -1- 1 2 3- 1- 2- 3- 1-1- 2- 3- 3- 4- 5- 4- 5-	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite State Marble FINE GRAINED CONTA PHANERITIC Meta quartzite Marble Soapstone Hornfels Serpentine
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-Bummocky 2. Tundra-avampy 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Forest-deciduous 9. Forest-nixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A root bolls 6. Boulder field D. Gravel* 0. Boulder field D. Gravel* 1. Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope D. Present within 100m down- slope B. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity	55-5(H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark qrey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by Br or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral horizon at depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon BF. Red-brown, iron-rich horizon BF. Brown, clay-rich horizon BG. Horizon which is water- saturated most of the year, identified by red brown motizon which is 	79-80 57 58-60 61-66	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podsol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-Ittle or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR MUNSEL notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - faming R - road	9 3 -1- 2 3 4 5 6 -2- 1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 2 3 4 2 3 4 2 3 4 2 3 4 2 3 2 3 4 2 3 4 2 3 4 1 2 3 4 1 2 3 1 2 3 1 2 3 1 2 3 1 1 2 3 1 1 2 3 1 1 2 3 1 1 2 3 1 1 2 3 1 1 2 3 1 1 1 1 1 1 1	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS LIST 4 METAMORPHIC ROCKS FINE GRAINED CONTAC PHANERITIC Meta quartzite Marble Soapstone Hornfels Skarn Amphibolite
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Forest-coniferous 8. Porest-coniferous 8. Porest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-lake N. Road cut	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 9. Residual 9. Residual 0. Goulder field 0. Gravel* 7. Use only if former origin cannot be identified. BEDROCK M. Mineralized P. Present within 100m up- slope 8. Underlies sample site G. Gossan F. Pe surface stains R. Radioactivity EM.	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy: accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral, horizon (do not sample) BF. Red-brown, iron-rich horizon which is water- saturated most of the year, identified by red brown motiles BM. Brown horizon which is only slightly different 	79-80 57 58-60 61-66	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-Ittle or no soil development. No 8 soil horizon, only LH (maybe) and C horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - cuvert M - mine F - faming R - road G - garbage T - trench H - house Ø - other - spec.	9 3 -1- 2 3 4 5 6 -2- 1 2 3 3 1 2 3 3 4 -10 -2- 3 4 5 6 2 3 4 5 6 2 3 4 2 3 4 2 3 4 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 3 2 3 4 2 3 4 2 3 2 3 2 3 2 3 2 3 3	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltscone Mudstone Greywake Sandstone Quartzite Conglomerate Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT Chert METAMORPHIC ROCKS FINE GRAINED CONTAC PHANERITIC Mata quartzite Mathe Soapstone Hornfels Seppentine Skarn
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry 3. Torest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-stream G. Bank soil-stream G. Bank soil-lake N. Road cut SITE DBAINAGE	45	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-boulders 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 9. Residual 1. Exest bouls 1. Boulder field D. Gravel* * Use only if former origin cannot be identified. BEDROCK M. Mineralized P. Present within 100m down- slope D. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity EM SAMPLE TEXTURE	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AL. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depths greater than 15cm (do not sample) BH. Black, organic-rich min- greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon which is water- saturated most of the year, identified by red brown mortles BM. Brown horizon which is only slightly different in appearance from under- lying parent material 	79-80 57 58-60 61-66 67	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of profile R. Regosol-little or no soil development. No B soil horizon only LH (maybe) and C horizon diagnostic O. Cleysol-BC horizon diagnostic O. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry 4 COARSE FRACMENTS	9 3 -1- -2- -3- -4- -1- -2- -3- -1- -2- -3- -3- -1- -2- -3- -1- -2- -3- -1- -1-2- -3- -1-2- -3- -1-2- -3- -1-2- -1-2- -3- -1-2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltscone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT Chert METAWORPHIC ROCKS FINE GRAINED CONTAC PHANERITIC Mata quartzite Marble Soapstone Hornfels Serpentine Skarn Amphibolite Ecloyite MECHANICAL
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 5. Peat mounds 6. Bog in depression 7. Porest-coniferous 8. Forest-deciduous 9. Forest-niked A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-lake H. Road cut SITE DRAINAGE 1. Dry 2. Moist	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 9. Residual 9. Residual 0. Goulder field 0. Gravel* 7. Use only if former origin cannot be identified. BEDROCK M. Mineralized P. Present within 100m up- slope 8. Underlies sample site G. Gossan F. Pe surface stains R. Radioactivity EM.	55-50	 H - house Ø - other - spec. I - industry SOIL HORIZOM LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground surface, usually sandy; accompanied by Bro BT horizon at depth (do not sample) BH. Black, organic-rich mineral horizon at depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon BG. Horizon which is water-saturated most of the year, identified by red brown horizon which is only slightly different in appearance from under- 	79-80 57 58-60 61-66 67 68-69	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR MUNSEL notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry <u>M COARSE FRACMENTS</u> SHAPE OF COARSE FRACMENTS A. Angular	9 3 -1- 2 3 4 2 4 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3 4 2 3 4 2 3 4 2 3 4 2 2 3 4 2 2 3 4 2 2 3 4 2 2 2 3 1 2 2 2 3 1 2 2 2 1 2 2 1 2 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS LIST 4 METAMORPHIC ROCKS FINE GRAINED CONTAC PHANERITIC Meta quartzite Marble Soapstone HONFIELS Soapstone HONFIELS Serpentine Skarn Amphibolite EElogite MECHANICAL MYLONIE
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-bummocky 2. Tundra-bummocky 2. Tundra-swampy 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Corest-coniferous 8. Corest-coniferous 8. Corest-coniferous 8. Corest-coniferous 8. Corest-deciduous 9. Forest-aleciduous 9. Forest-aleciduous 9. Forest-aleciduous 9. Corest-niked A. Alder or villows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-stream G. Bank so	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Residual A. Frost bolls B. Seepage bolls 6. Boulder field* D. Gravel* 9. Was only if former origin cannot be identified. BEDROCK M. Mineralized P. Present within 100m up- slope D. Present within 100m down- slope B. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity EH SAMPLE TEXTURE Ø. Organic muck 1. Fibrous, peaty organic matter	55-54	 H - house Ø - other - spec. I - industry <u>SOIL HORIZON</u> LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark gray to black, organic - rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon are ground surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon are ground surface, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich mineral horizon at depth greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon BG. Horizon which is water-saturated most of the year, identified by red brown horizon which is only slightly different in appearance from underliving parent material for soil CA. White calcium carbonate 	79-80 57 58-60 61-66 67 68-69	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-Ittle or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Gleysol-BG horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry MCOARSE FRACMENTS A. Angular R. Rounded	$\begin{array}{c}9\\ 3\\ -1-\\1\\2\\3\\4\\5\\6\\ -2-\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\5\\6\\7\\8\\7\\8\\7\\8\\2\\2\\3\\2\\2\\3\\2\\2$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS LLIMESTONE DOLOMIE CALCAREOUS LIMESTONE MATDIE CALCAREOUS LIMESTONE MATDIE SCALCAREOUS LINE GRAINED FINE GRAINED FINE GRAINED CONTAC PHANERITIC Meta quartzite Marble Soapstone HORIFELS Serpentine Skarn Amphibolite EElogite MECHANICAL MYLONIE Flaser Augen
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLCS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-hummocky 2. Tundra-hummocky 2. Tundra-hummocky 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Gorest-deciduous 9. Forest-deciduous 9. Forest-deciduous 9. Porest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-lake N. Road cut SITE DRAINAGE 1. Dry 2. Moist 3. Wet 4. Saturated	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 9. Residual 9. Residual 9. Residual 0. Goulder field ⁴ D. Gravel ⁴ * Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope B. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity <u>PH</u> <u>SAMPLE TEXTURE</u> Ø. Organic muck 1. Fibrous, peaty organic	55-50	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral horizon (do not sample) BF. Red-brown, iron-rich horizon which is water- saturated most of the year; identified by red proven motiles BM. Brown horizon which is only slightly different in appearance from under- ilying parent material for soil CA. White calcium carbonate precipitate in C horizon 	79-80 57 58-60 61-66 67 68-69 70	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of diagnostic B. Brunisol-BK horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR MUNSEl notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry <u>A COARSE FRACMENTS</u> SHAPE OF COARSE FRACMENTS A. Angular R. Rounded M. Mixed above types	9 3 -1- 2 3 4 2 2 2 2 2 1 2 1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3 4 2 3 4 2 2 3 4 2 2 3 1 2 2 2 2 2 2 2	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT CHEMICAL PRECIPITAT CHEMICAL PRECIPITAT CHEMICAL PRECIPITAT CHEMICAL PRECIPITAT CHEMICAL PRECIPITAT CHEMICAL PRECIPITAT PHANERITIC PHANERITIC Mata quartzite Mata quartzite Mata juartzite Mata juartzi
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLCS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-bummocky 2. Tundra-bummocky 2. Tundra-swampy 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Corest-coniferous 8. Corest-coniferous 8. Corest-coniferous 8. Corest-coniferous 8. Corest-deciduous 9. Forest-alied 1. Bank soil-stream G. Bank soil-stream 1. Dry 2. Moist 3. Wet	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide)	55-50	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon which is water- saturated most of the year; identified by red brown motizes BM. Brown horizon which is only slightly different in appearance from under- lying parent material for soil CA. White calcium carbonate precipitate in C horizon SJ, 29, 31, etc. Bog sample at various depths 	79-80 57 58-60 61-66 67 68-69 70 71	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-8T horizon diagnostic P. Podzol-8F horizon di sonly B horizon of profile Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-8G horizon diagnostic Ø. Organic soil-80 vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists I-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry <u>A COARSE FRACMENTS</u> SHAFE OF COARSE FRAGMENTS A. Angular S. Bounded S. Subrounded M. Mixed above types SCINTILLOMETER MUNBER	$\begin{array}{c}9\\9\\ 3\\ -1-\\2\\3\\4\\6\\ -2-\\6\\ -2-\\6\\7\\10\\2\\3\\4\\11\\2\\3\\4\\10\\ -2-\\3\\4\\6\\7\\8\\8\\6\\7\\8\\8\\6\\7\\8\\8\\6\\7\\8\\8\\8\\8\\8\\8\\8$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT Chert Marble ITON FORMATION METAMORPHIC ROCKS FINE GRAINED CONTAG PHANERITIC Mata quartzite Marble Soapstone Hornfels Sarpentine Skarn Amphibolite Eclogite MECHANICAL Mylonite Flaser Augen Ultramylonite SLATE
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. fundra-hummocky 2. Tundra-swampy 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Forest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren F. Talus fan F. Bank soil-stream G. Bank soil-stream G. Bank soil-stream G. Moist 1. Moist 3. Wet 4. Saturated OVERBURDEN TRANSPORT L. Local	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* B. Sepage bolls* C. Boulder field* D. Gravel* * Use only if former origin cannot be identified. BEDROCK M. Mineralized P. Present within 100m up- slope B. Underlies sample site G. Gosgan F. Fe surface stains R. Radioactivity PH SAMPLE TEXTURE Ø. Organic muck 1. Fibrous, peaty organic matter 2. Very sandy 3. Sandy		 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral horizon at depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon which is water- saturated most of the year, identified by red brown mottles BM. Brown horizon which is only slightly different in appearance from under- lying parent material for soil CA. White calcium carbonate precipitate in C horizon SJ, 20, etc. Bog sample at various depths T. Talus fines 	79-80 57 58-60 61-66 67 68-69 70 71	SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon di agnostic G. Geysol-BG horizon di diagnostic G. Geysol-BG horizon di diagnostic G. Geysol-BG horizon di diagnostic Ø. Organic soil-bgo vegetation-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry A COARSE FRACHENTS SAMPE OF COARSE FRACHENTS NANGLA R. Rounded N. Mixed above types SCINTILIONETER NUMBER GANMA COUNT AT SAMPLE SITE	$\begin{array}{c}9\\ 3\\ -1-\\ -2\\2\\3\\4\\5\\6\\ -2-\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\3\\2\\3\\3\\4\\3\\3\\3\\4\\3\\3$	Turbidite LIST 3 SEDIMENTARY ROCKS SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate Argillite CALCAREOUS Limestone Dolomite CALENT CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT CHEM
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep Slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-bummocky 2. Tundra-hummocky 2. Tundra-dry 3. Tundra-bummocky 2. Tundra-dry 3. Tundra-swampy 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Porest-coniferous 8. Colleivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-stream G. Bank soil-stream G. Bank soil-stream 5. Noist 1. Dry 2. Moist 3. Wet 4. Saturated OVERBURDEN TRANSPORT	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-boulders 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 7. Residual 9. Residual 1. Erost bolls* B. Secape bolls* C. Boulder field* D. Gravel* * Use only if former origin cannot be identified. BEDROCK M. Mineralized P. Present within 100m down- slope B. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity EH SAMPLE TEXTURE Ø. Organic muck 1. Fibrous, peaty organic matter 2. Very sandy 3. Sand-silt 5. Sand-silt-clay	55-54	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed veyetation lying on the ground surface (do not sample) AL. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy: accompanied by BF or BT horizon at depths greater than 15cm (do not sample) BH. Black, organic-rich min- seral horizon at depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon which is water- saturated most of the year, identified by red brown mortles BM. Brown horizon which is only slightly different in appearance from under- lying parent material for soil CA. White calcium carbonate precipitate in C horizon \$1,\$2,\$2,\$ etc. Bog sample at warious depths TF. Talus fines SOIL TYPE 	79-80 57 58-60 61-66 67 68-69 70 71	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-8T horizon diagnostic P. Podzol-8F horizon di sonly B horizon of profile Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon G. Gleysol-8G horizon diagnostic Ø. Organic soil-80 vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists I-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry <u>A COARSE FRACMENTS</u> SHAFE OF COARSE FRAGMENTS A. Angular S. Bounded S. Subrounded M. Mixed above types SCINTILLOMETER MUNBER	$\begin{array}{c}9\\9\\ 3\\ -1-\\2\\3\\4\\5\\6\\2\\1\\2\\3\\1\\2\\3\\3\\1\\2\\3\\3\\4\\5\\7\\7\\3\\3\\4\\5\\3\\1\\2\\3\\4\\5\\5\\5\\6\\ 0\\6$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltscone Mudstone Greywake Sandstone Quartzite Conglomerate Argillite Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT Chert Marble Iron Formation LIST 4 METAMORPHIC ROCKS FINE GRAINED CONTAG PAMERITIC Meta quartzite Marble Soapstone Hornfels Serpentine Skarn Amphibolite Eclogite MECHANICAL Myionite SLATE PHYLLITE SCHIST
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLCS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-bummocky 2. Tundra-bummocky 2. Tundra-hummocky 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Corest-coniferous 8.	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide)		 H - house Ø - other - spec. I - industry <u>SOIL HORIZOM</u> LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic - rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon at depth (do not sample) BH. Black, organic-rich mineral horizon at depth (do not sample) BH. Black, organic-rich mineral horizon at depth (do not sample) BF. Red-brown, iron-rich horizon (layerich horizon brite) BF. Red-brown, iron-rich horizon BG. Horizon which is water-saturated most of the year, identified by red brown mottles BM. Brown horizon which is only slightly different in appearance from underlying parent material (Cl.2C.Cl. etc. Parent material for soil CA. White calcium carbonate precipitate in Chorizon BJ. #2.Ø. etc. Bog sample at various depths SOIL TYPE C. Chernozem-prairie soil 	79-80 57 58-60 61-66 67 68-69 70 71	SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon diagnostic B. Brunisol-BM horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon diagnostic G. Regosol-Intel or no soil development. No B soil horizon di G. Cleysol-BG horizon diagnostic Ø. Organic soil-bog vegetation-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - gatbage T - trench H - house Ø - other - spec. I - industry A. Angular R. Subrounded M. Xixed above types SCINTILLOWERER NUMBER GAMMA COUNT AT SAMPLE SITE Souch Souch	$\begin{array}{c}9\\ 3\\ -1-\\ -2\\2\\3\\4\\5\\6\\ -2-\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\1\\2\\3\\3\\4\\3\\2\\3\\3\\4\\3\\3\\3\\4\\3\\3$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITA Chert Marble Iton Formation LIST 4 METAMORPHIC ROCKS FINE GRAINED CONTA PHANERITIC Meta quartzite Marble Soapstone Hornfels Serpentine Skarn Amphibolite Eclogite MECHANICAL Mylonite SLATE PHYLLITE
40	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep Slope > 200 4. Base of slope 5. Valley floor 6. Oepression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-hummocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Forest-coniferous 8. Forest-coniferous 8. Forest-deciduous 9. Forest-mixed 9. Bank soil-stream G. Bank soil-stream G. Bank soil-stream G. Bank soil-stream 5. Peat mounds 1. Dry 2. Moist 4. Saturated OVERBURDEN TRANSPORT L. Local E. Extensive U. Unknown M. Mixed	45 46 47-48	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide)	57	 H - house Ø - other - spec. I - industry <u>SOIL HORIZON</u> LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic - rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground surface, usually sandy; accompanied by BP or BT horizon at depth (do not sample) BH. Black, organic-rich mingreater than 15cm (do not sample) BF. Red-brown, iron-rich horizon which is water-saturated most of the year, identified by red brown horizon which is water-lying parent material for soil CL Mite calcium carbonate precipitate in C horizon (do not sample) C. Chernozem-prairie soil usually under grassland or madow, thick AH > l0cm, 	79-80 57 58-60 61-66 67 68-69 70 71 72-75	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon is only B horizon of profile R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic Ø. Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation COUTAMINATION Blank - none L - logging C - culvert M - mine F - faming R - road G - garbage T - trench H - house Ø - other - spec. I - industry A COARSE FRACMENTS SHAPE OF COARSE FRACMENTS A. Angular R. Rounded M. Mixed above types SCINTILLOMETER NUMBER GAMMA COUNT AT SAMPLE SITE Scint reading at ground level over hole ROCK	$\begin{array}{c}9\\9\\ 3\\ -1-\\1\\2\\3\\4\\5\\6\\ -2-\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\4\\5\\6\\7\\8\\7\\8-\\1\\8-\\7\\8-\\8-\\7\\8-\\8-\\7\\8-\\8-\\7\\8-\\8-\\7\\8-$	Turbidite LIST 3 SEDIMENTARY ROCKS SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS LIST 4 METAMORPHIC ROCKS FINE GRAINED CONTAM PHANERITIC Matale Starn Anphibolite Eclogite MECHANICAL MYlonite Flaser Augen Ultramylonite SLATE PHYLLITE SCHIST GNEISS * MIGWATITE * "Granite
40 41 42 43	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep Slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-humpocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Porest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-stream G. Bank soil-stream G. Bank soil-stream 4. Saturated OVERBURDEN TRANSPORT L. Local E. Extensive U. Unknown M. Mixed WATER HOVEMENT	45 46 47-48 49 50-51	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy, rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual 9. Residual 9. Residual 9. Residual 0. Gravel 1. Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope 0. Present within 100m down- slope 8. Underlies aample site 6. Gostan F. Fe surface stains R. Radiactivity PH SAMPLE TEXTURE Ø. Organic muck 1. Fibrous, peaty organic matter 2. Very sandy 3. Sand-silt 5. Salt-clay 6. Clay 9. Gravel SMMPLE INTERVA	57	 H - house Ø - other - spec. I - industry SOIL HORIZON LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth BH. Black, organic-rich min- eral horizon do not sample) BF. Red-brown, iron-rich horizon which is water- saturated most of the year; identified by red brown motiles BM. Brown horizon which is only slightly different in appearance from under- ilying parent material for soil CA. White calcium carbonate precipitate in C horizon SJL #J. Edu C. Chernozem-prairie soil usually under grassland or meadow, thick AH > locm, CA horizon at depth 	79-80 57 58-60 61-66 67 68-69 70 71 72-75 76	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of profile N. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic O Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - gatbage T - trench H - house Ø - other - spec. I - industry <u>A COASE FRACMENTS</u> SHAPE OF COARSE FRACMENTS A. Angular R. Rounded S. Subrounded M. Mixed above types SCINTILLOMETER NUMBER CAMMA COUNT AT SAMPLE SITE Scint reading at ground level over hole <u>ROCK</u>	$\begin{array}{c}9\\9\\ 3\\ -1-\\2\\3\\4\\5\\6\\ -2-\\1\\2\\3\\1\\2\\3\\3\\1\\2\\3\\3\\4\\1\\2\\3\\4\\1\\2\\3\\4\\7\\8$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltstone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPIENT CHEMICAL PRECIPIENT CHETAMORPHIC ROCKS FINE GRAINED CONTAU PHANERITIC Meta quartzite Marble Soapstone HOTAFLES Serpentine Skarn Amphibolite Eelogite MECANICAL MYLONITE Flaser Augen ULTRAYIONITE SHIST GNEISS * MIGWATITE * "Granite Monzonite
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40 41 42 43	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep Slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-humpocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Porest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-stream G. Bank soil-stream G. Bank soil-stream 4. Saturated OVERBURDEN TRANSPORT L. Local E. Extensive U. Unknown M. Mixed WATER HOVEMENT	45 46 47-48 49 50-51	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* B. Seepage bolls* C. Boulder field* D. Gravel* * Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope 0. Present within 100m down- slope 8. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity <u>PH</u> <u>SAMPLE TEXTURE</u> 9. Organic muck 1. Fibrous, peaty organic matter 2. Very sandy 1. Sand-silt - 5. Sand-silt-clay 6. Silt 7. Silt-clay 8. Clay 9. GTWO OF SOIL SAMPLE INTERVAL-	57	 H - house Ø - other - spec. I - industry SOIL HORIZOM LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral horizon at depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon Brown, clay-rich horizon BG. Horizon which is water- saturated most of the year, identified by red brown motiles BM. Brown horizon which is only slightly different in appearance from under- lying parent material Cl. 22, cl. etc. Parent material for soil CA. white calcium carbonate precipitate in C horizon (J. 92, 03, etc. Bog sample at various depths SIT. Talus fines SOIL TYPE C. Chernozem-prairie soil usually under grassland or meadow, thick AH > 10cm, CA horizon at depth 	79-80 57 58-60 61-66 67 68-69 70 71 72-75 76 77-78	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon of profile N. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon diagnostic O Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - gatbage T - trench H - house Ø - other - spec. I - industry <u>A COASE FRACMENTS</u> SHAPE OF COARSE FRACMENTS A. Angular R. Rounded S. Subrounded M. Mixed above types SCINTILLOMETER NUMBER CAMMA COUNT AT SAMPLE SITE Scint reading at ground level over hole <u>ROCK</u>	$\begin{array}{c}9\\9\\ 3\\ -1-\\1\\2\\3\\4\\5\\6\\2\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\4\\1\\2\\3\\4\\1\\2\\3\\4\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\2\\2$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltscone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT CHEMICAL PRECIPITAT CHETAMORPHIC ROCKS FINE GRAINED CONTAC PHANERITIC Meta quartzite Marble Soapstone Hornfels Serpentine Skarn Amphibolite Eclogite MechantcaL Mylonite SLATE PHYLLITE SCHIST GREISS * MIGWATITE * "Granite Mononite Granddorite Conglomerate Sandstone
40 41 42 43	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep Slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-humpocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Porest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-stream G. Bank soil-stream G. Bank soil-stream 4. Saturated OVERBURDEN TRANSPORT L. Local E. Extensive U. Unknown M. Mixed WATER HOVEMENT	45 46 47-48 49 50-51	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* B. Seepage bolls* C. Boulder field* D. Gravel* * Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope 0. Present within 100m down- slope 8. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity <u>PH</u> <u>SAMPLE TEXTURE</u> 9. Organic muck 1. Fibrous, peaty organic matter 2. Very sandy 1. Sand-silt - 5. Sand-silt-clay 6. Silt 7. Silt-clay 8. Clay 9. GTWO OF SOIL SAMPLE INTERVAL-	57	 H - house Ø - other - spec. I - industry SOIL HORIZOM LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral horizon at depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon Brown, clay-rich horizon BG. Horizon which is water- saturated most of the year, identified by red brown motiles BM. Brown horizon which is only slightly different in appearance from under- lying parent material Cl. 22, cl. etc. Parent material for soil CA. white calcium carbonate precipitate in C horizon (J. 92, 03, etc. Bog sample at various depths SIT. Talus fines SOIL TYPE C. Chernozem-prairie soil usually under grassland or meadow, thick AH > 10cm, CA horizon at depth 	79-80 57 58-60 61-66 67 68-69 70 71 72-75 76 77-78	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon disonostic B. Brunisol-BM horizon of profile N. Regosol-little or no soil development. No B soil horizon, only LH (naybe) and C horizon diagnostic Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry A CORSE FRACMENTS SHAPE OF COARSE FRACMENTS A. Angular K. Rounded S. Subrounded M. Mixed above types SCINTILLOMETER NUMBER CAMMA COUNT AT SAMPLE SITE SCINT read Ground level over hole ROCK	$\begin{array}{c}9\\9\\ 3\\ -1-\\2\\3\\4\\5\\6\\ -2-\\1\\2\\3\\1\\2\\3\\1\\2\\3\\3\\4\\10\\ -2-\\3\\3\\4\\5\\6\\7\\3\\1\\2\\3\\4\\5\\6\\6\\7\\6\\7\\6\\7\\6\\7\\6\\7\\7$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltscone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CHEMICAL PRECIPITAT CHETAWORPHIC ROCKS FINE GRAINED CONTAC PHANERITIC Mata quartzite Matbie Soapstone Hornfels Serpentine Skarn Amphibolite Eclogite MECHANICAL Mylonite SLATE PHYLLITE SCHIST GREISS • NIGWATITE • °Grandiorite Conglomerate Sandstone Augen Uteramine Sandstone
40 41 42 43	4. Alluvium-stream deposit 5. Peat-box 6. Colluvium* MLS SITE TOPOGRAPHY 1. Hill top 2. Gentle slope 3. Steep Slope > 200 4. Base of slope 5. Valley floor 6. Depression 7. Level 8. Rolling 9. Bog SAMPLE ENVIRONMENT 1. Tundra-humpocky 2. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 3. Tundra-dry 4. Grassland, meadows 5. Peat mounds 6. Bog in depression 7. Porest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-coniferous 8. Forest-deciduous 9. Forest-mixed A. Alder or willows 8. Cultivated land C. Desert, semi-arid D. Barren E. Talus fan F. Bank soil-stream G. Bank soil-stream G. Bank soil-stream 4. Saturated OVERBURDEN TRANSPORT L. Local E. Extensive U. Unknown M. Mixed WATER HOVEMENT	45 46 47-48 49 50-51	AVERAGE WIDTH OF STREAM-M Decimal point in col 51 (or col 52 if stream > 10m wide) OVERBURDEN ORIGIN 1. Till-angular boulders 2. Outwash-sandy. rounded boulders 3. Lake sediment-sand/silt 4. Alluvium-stream deposit 5. Peat-bog 6. Colluvium 7. Lake sediment-clay 8. Talus 9. Residual A. Frost bolls* B. Seepage bolls* C. Boulder field* D. Gravel* * Use only if former origin cannot be identified. <u>BEDROCK</u> M. Mineralized P. Present within 100m up- slope 0. Present within 100m down- slope 8. Underlies sample site G. Gossan F. Fe surface stains R. Radioactivity <u>PH</u> <u>SAMPLE TEXTURE</u> 9. Organic muck 1. Fibrous, peaty organic matter 2. Very sandy 1. Sand-silt - 5. Sand-silt-clay 6. Silt 7. Silt-clay 8. Clay 9. GTWO OF SOIL SAMPLE INTERVAL-	57	 H - house Ø - other - spec. I - industry SOIL HORIZOM LH. Leaf, humus layer, unde- composed vegetation lying on the ground surface (do not sample) AH. Dark grey to black, organic -rich mineral horizon usually no deeper than 15cm from the surface (do not sample) AE. Grey to white (occassionally brown) leached mineral horizon near ground sur- face, usually sandy; accompanied by BF or BT horizon at depth (do not sample) BH. Black, organic-rich min- eral horizon at depths greater than 15cm (do not sample) BF. Red-brown, iron-rich horizon Brown, clay-rich horizon BG. Horizon which is water- saturated most of the year, identified by red brown motiles BM. Brown horizon which is only slightly different in appearance from under- lying parent material Cl. 22, cl. etc. Parent material for soil CA. white calcium carbonate precipitate in C horizon (J. 92, 03, etc. Bog sample at various depths SIT. Talus fines SOIL TYPE C. Chernozem-prairie soil usually under grassland or meadow, thick AH > 10cm, CA horizon at depth 	79-80 57 58-60 61-66 67 68-69 70 71 72-75 76 77-78	APPROXIMATE SLOPE DIRECTION SOIL TYPE Cont. L. Luvisol-BT horizon diagnostic P. Podzol-BF horizon disonostic B. Brunisol-BM horizon of profile N. Regosol-little or no soil development. No B soil horizon, only LH (naybe) and C horizon diagnostic Organic soil-bog vegeta- tion-no mineral matter LOCAL BEDROCK COMPOSITION Estimate-use Lists 1-4 COLOUR Munsell notation or abbrevation CONTAMINATION Blank - none L - logging C - culvert M - mine F - farming R - road G - garbage T - trench H - house Ø - other - spec. I - industry A CORSE FRACMENTS SHAPE OF COARSE FRACMENTS A. Angular K. Rounded S. Subrounded M. Mixed above types SCINTILLOMETER NUMBER CAMMA COUNT AT SAMPLE SITE SCINT read Ground level over hole ROCK	$\begin{array}{c}9\\9\\ 3\\ -1-\\12\\3\\4\\5\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\1\\2\\3\\4\\5\\6\\7\\8\\6\\7\\8\\1\\2\\3\\4\\1\\2\\3\\4\\1\\2\\3\\4\\2\\3\\4\\2\\3\\4\\4\\5\\5\\4\\4\\5\\5$	Turbidite LIST 3 SEDIMENTARY ROCKS ARENACEOUS Siltscone Mudstone Greywake Sandstone Quartzite Conglomerate ARGILLACEOUS Shale Argillite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite CALCAREOUS Limestone Dolomite Soapstone Marble Seppentine Skarn Amphibolite Eclogite MECHANICAL Mylonite SLATE PHYLLITE SCHIST GREISS • MIGWATITE • Grandiorite Grandiorite Grandiorite Grandiorite Grandiorite

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SELECTION # 1

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UTN LIMITS	
NORTH 5560000 SOUTH 5557000 EAST 613000 WEST 611000	
SAMPLE TYPE(S) ALL	
BEDROCK TYPE(S) ALL	
SOIL HORIZON(S) ALL	
SAMPLE TEXTURE(S) ALL	
OVERBURDEN ORIGIN(S) ALL	
LABORATORY-SIZE FRACTION-EXTRACTION(S) ALL	
PAIR STATUS ALL	
REC# SMPL# UTM-E UTM-N	MO CU PB ZN NI U MN FE AG
44 8183536 780044A8A6112175559659 92L03₩ OFLOAT DCIT QZ	1 15 5 13 4 8 264 1.3 .2
45 8183536 780045A8A6111965559671 92L03W 0 REP PBF SLSN QZ	2 73 13 97 34 2 668 4.3 .1
45 8183536 780045A8A6112145559630 92L03W 0 REP DCIT QZ	1 5 4 19 3 2 289 1.6 .1
47 9083536 780047A8A6112525559628 92L03W 0 SEL FLTS Q2CYCB	3 140 43 159 21 2 654 3.2 .1
48 8183535 780048A8A5112625559635 92L03W 0 REP PBF SLSN	3 51 9 114 28 2 621 3.7 .1
49 1083536 780049A8A6111815559633 92L03W 2 L 1P7540.2 54 24 11	2014 3 62 10 80 28 - 2 965 5.5 .1
50 1083536 780050A8A6112955559650 92L03W 2 L 1P7540.2 53 311 11	15N 5 38 22 156 30 2 711 4.1 .2
9083536 780051A8A6113115559660 92L03W 0 REP PBF SLSN EPCB02	1 13 7 123 8 2 332 1.7 .1
👾 8183536 780052A8A6113475559674 92L03W 0 REP PBF MDSN	4 54 11 127 34 2 598 4.3 .1
53 9083536 780053A8A6113755559691 92L03W 00.40M ANDS PYQZ	1 62 252 436 28 2 623 4.2 .1
54 8183536 780054A8A6113755559691 92L03₩ 0 REP PBF ARGL PYQZ	4 107 72 252 12 2 417 2.7 .1
55 8183536 780055A8A6113985559688 92L03W 0 REP ANDS CLQZ	1 12 11 58 4 2 562 4.8 .1
56 8183536 780056A8A6113965559682 92L03W 0 REP DCIT DZ	2 18 9 21 5 2 368 2.2 .1
57 8183536 780057A8A6114235559660 92L03W 0 REP DCIT QZ	1 64 2 37 5 2 439 2.8 .1
58 9083536 780058A8A6113965559682 92L03W 0 SEL VEINS QZ	1 9 3 6 4 2 232 1.1
59 8183536 780059A8A6114445559616 92L03W 0 REP DCIT DZ	1 7 2 23 5 2 382 2.4 .1
60 8183536 780060A8A6114615559582 92L03W 0 REP DCIT QZ	1 8 2 17 4 2 325 2.2 .1
61 1083536 780061A8A6115115559434 92L03W 1 E 6520.50053 1 81	05NE 4 174 5 94 26 11 672 5.6 .3
62 9083536 780062A8A6115205559417 92L03W 0 REP VEIN 02	05NE 1 63 37 61 13 2 433 2.8 .1
63 1083536 780063A8A6115705559360 92L03W 1 7533.0 205	1 48 5 156 21 2 1012 4.8 .1
64 8183536 780064A8A6116205559405 92L03W 0 REP BREC PYCBQZ	1 25 16 99 13 2 656 4.7 .1
65 8183536 780065A8A6116255559489 92L03W 0 REP PBF SLSN EPQZ	1 54 7 33 7 2 363 2.9 .1
66 1083536 780066A8A6116385559514 92L03W 4 7540.5 55	2 42 19 182 15 2 737 3.8 .1
67 9083536 780067A8A6116505559568 92L03W 0 SEL PBF SLSN SPEPQZ	3 59 4 9627 9 2 308 1.3 .4
68 8183536 780068A8A6117225559607 92L03W 0 REP SLSN EPCBQZ	1 27 17 116 11 2 748 3.7 .1
69 8183536 780069A8A6117455559634 92L03W 0 REP PBF SLSN CYQZCB	2 73 10 113 23 3 620 3.4 .1
70 8183536 780070A8A6117575559643 92L03W 0 REP PBF SLSN CBQI	1 55 8 112 10 4 458 1.7 .2
71 8183536 780071A8A6117735559655 92L03W 0 REP PBF SLSN CBQZ	1 84 9 164 12 5 399 1.7 .3
72 8183536 780072A8A6117865559666 92L03W 0 REP PBF SLSN EPCBQZ	3 146 10 1224 23 5 723 3.7 .4
73 8183536 780073A8A6117945559670 92L03W 0 REP PBF SLSN EPCB0Z	2 104 9 387 25 9 606 2.9 .1
74 9083536 780074A9A6118245559720 92L03W 0 REP VEIN EP0Z	1 87 3 23 4 4 171 .7 .1
75 8183536 780075A8A6118255559737 92L03W 0 REP SKRN EPQ7	4 2028 3 179 17 3 538 2.3 .2
74 8183536 780076A8A6119335559720 92L03₩ 0 REP ANDS EPQZ	1 21 8 146 10 2 565 2.8 .1
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79 8183536 780079A8A6118225559627 92L03₩ 0 REP PBF SLSN QZ	4 99 16 209 14 2 805 4 .1
85 1083536 782001A8A6114815559357 92L03W 1 N 2P7540.30054 P11	10N 4 122 7 85 38 2 1066 6 .3

-21-

86	8183536	782002A8A5114745559318	92L03₩ 0	REP BNANZ VSND			-	12 8	40	60	2 743	4.2	.1
87	9083536	782003A8A6114755559247	92L03₩ 0	SEL BNANZ VSND CL	C907		1	54 7	35	20	2 354	4	.1
88	9083536	782004A8A5114695559190	92L03¥ 0	SEL FAULT BREC	07		1	22 7	212	31	2 515	3	.1
89	1083536	782005A8A6114385559051	92L03# 2	N 187540.40205 22	21 11	15NE	2 1	06 10	215	29	7 1172	5.5	.2
90	9083536	782006A8A6114655559165	92L03W 0	SEL DCIT BREC	PYOZ		1	6 5	34	5	2 463	2.4	.1
91	1083536	7820076866114365558976	92L03₩ 4	E 207540.30055 23	18 71	20NE	1	49 5	86	21	10 1105	4.8	.1
92	1083536	7820084846114505558867	92L03W 4	E 207540.20055 23	5 11	25NE	1	32 7	56	12	2 769	3.5	.1
93	1083536	7820098886114585558748	92L03₩ 4	E 207540.30055	11	25NE	1	52 8	123	18	7 1069	4.6	.2
94	1083536	7820106866115275558629	92L03W 4	E 207540.40105	11	25NE	1	31 4	70	17	2 1088	4.7	.2
95	1083536	782011A8A6117245558429	92L03# 6	N 187543.00406L22	22 11	20NE	1	47 7	85	31	5 1299	4.6	.1
95	1083536	7820128886116235558457		E 2 7540.40105	11	25NE	1	33 3	49	11	2 1130	4.2	.1
• =	1083536	7820134846117275559029		L 1P 42.00206 23	3 11	30N#	1	45 6	109	20	2 897	4.6	.1
, .	1083536	7820146866117305558971		L 1P 40.50055	11	20NW	1	38 9	145	18	2 1005	4.4	.2
	1083536	7820154846123735557624		L 1P7040.50105	11	30NE	1	19 8	74	23	2 1043	4.1	.1
	1083536	7820164846117955557612		M 2 6540.40054	11	20N	1	22 8	60	30	2 1057	4.5	.1
••••	1083536	7820176865117535557512		M 2P7040.30001	11	20N#	-	27 11	53	23	2 1114	5.2	.1
	1083536	782018A8A6115605557604		1 1 7040.50012	11	ZONH	-	67 10		27	2 1348	5.3	.1
• • =	1083536	7820194846115165557603		7041.00034	31	15NW	-	25 12		27	2 1089	3.5	.1
•••	1083536	7820204846114785557601		7040.30054	11	20N#	•	43 11		31	2 1022	4.8	.1
	1083536	7820218886114025557600			11	1584	-	27 9		26	2 1202	4.9	.1
	1083536	7820224886113735557600		7542.50406	11	15NE	•	z, 34 10		36	2 1378	5.3	1
	1083536	7820234845113753337600		7041.00024	11	15%	•	34 9		29	2 1033	4.7	.1
107		7820246866118185558388		7031.50034 22		10E	1	60 9	• •	25	2 1008	5.9	.1
					07EP	102	•	18 5		26	3 580	4.1	.1
107	8183536	780085A8A6123345557617	72LU3# 0	REP BNANZ ANTF	ALCL		1	10 0		10	0 000		••

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Part 2 - Page l.

-23-

REC#	SMPL# CO) AU	AU?	AS	ŀ	IG SB	SN	멅	F	ТН	CD	91	Ų	B	A SR	} S	1 4	il.	CA I	MG N	A K	AE 1	AE2	TI
44	780044	4	5	1	9		2	2	2		2	1	2	29	355	23			3.76		.09	.03		.09
45	780045	17	I	1	19	30	2	2	2		2	1	2	107	31	38			3.1		.08	.01		. 14
46	780045	4	2	1	5	10	2	2	2		2	1	2	27	4	9			1.46		.05	.01		.07
47	780047	12	1	1	19	190	2	2	2		2	1	2	69	29	30	.05	4.53	3.4	.8	.03	.04		.1
48	780048	9	1	1	7	50	2	2	2		2	1	2	123	35	90	.09	3.15	1.33	.98	.16	.02		.11
	780049	17	2	1	25	110	8	2	2		2	1	2	81	86	33	.18	3.64	.51	. 89	.05	.03		.07
	780050	12	2	1	19	60	2	2	2		2	1	2	60	53	16	.11	2.47		.75	.01	.02		.08
	780051	4	1	1	9	60	2	2	2		2	1	2	41	22	18	.11	3.23	3.04	.73	.04	.05		.08
	780052	10	2	1	15	150	5	2	2		2	1	2	78	100	78	.09	3.04	.5	1.1	.1	.15		.11
	780053	21	2	1	27	180	2	2	2		2	2	2	81	4	35	.15	2.93	1.71	1.4	.01	.01		.21
	780054	7	1	1	18	40	2	2	2		2	1	2	49	2	30	.07	2.62	2.32	.75	.01	.01		.11
	780055	11	1	1	5	20	2	2	2		2	1	2	90	16	18	.08	2.7	1.79	1.18	.18	.02		.17
	780056	4	1	1	2	30	2	2	2		2	1	2	41	115	25	.17	3.59	3.51	.7	.04	.01		. 1
	780057	8	4	1	12	40	2	2	2		2	1	3	55	5	15	.14	2.44	1.93	.81	.05	.01		.17
	780058	4	1	1	16	10	2	2	2		2	1	2	23	38	13	.15	3.2	4.15	.19	.01	.01		.05
	780059	7	1	1	5	30	2	2	2		2	1	2	40	39	14	.14	2.45	1.65	.85	.05	.05		.09
	780060	4	3	1	4	10	2	2	2		2	1	2	41	31	8	.1	2.02	1.36	.72	.04	.05		.07
	780061	36	7	1	82	100	2	2	2		2	1	2	112	30	26	.22	3.63	.54	1.2	.01	.02		.09
	780062	10	1	1	5	10	2	2	2		2	1	2	71	42	21	.14	2.66	2.43	1.07	.03	.01		.15
	780063	21	17	1		1000	2	2	2		2	1	2	93	31	15		2.63		1.78	.01	.01		.05
	780064	14	2	1	18	20	2	2	2		2	1	2	129	10	:32	.1	3.31	3.38	1.91	.04	.02		.17
	780065	9	3	1	15	30	2	2	2		2	1	2	69	13	19	.07	2.72	3.2	1.02	.03	.04		.13
	780066	16	3	1	28	60	2	2	2		2	1	2	97	34	30	.15	2.63	.86	.73	.01	.02		. 1
	780067	18	5	1		1400	2	2	2		2	28	2	40	3	22			4.15	.42	.06	.01		.12
	780068	10	1	1	10	50	2	2	2		2	1	2	79	4	40			2.08		.03	.01		.19
59	780069	15	2	1	30	30	2	2	2		2	1	2	74	37	5	.05	3.14	2.07	.96	.06	.04		.15

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70 780070	11	5	1	45	30	2	2	2	2	i	2	50	19	4	.06 3.95	4.53	.49	.01	.01	.08
71 780071	11	2	1	27	50	2	$\overline{2}$	2	2	1	2	52	16	10	.05 4.09		.5	.01	.01	.00
72 780072	17	1	1	28	180	2	2	3	2	5	2	74	18	9	.04 4.3		.95	.01	.01	.12
73 780073	15	2	1	27	70	2	2	2	2	1	2	56	15	6	.04 3.51		.83	.03	.01	.12
74 780074	2	1	1	2	20	2	2	2	2	1	2	10	16	70	.06 1.24		.11	.01	.01	.05
75 780075	19	1	1	ģ	550	5	2	2	2	1	2	35	17	71	.05 1.26		.84	.01	.01	.11
75 7 8 0076	8	3	1	27	20	2	2	2	2	1	2	68	3	8	.12 2.79		.95	.01	.01	.13
77 790077	5	2	1	13	50	2	2	2	2	1	2	41	5	9	.09 2.75	3.05	.67	.01	.02	.05
78 780078	3	2	i	6	10	2	2	2	2	1	2	21	2	3	.12 2.62	3.29	.18	.01	.01	.05
79 780079	ş	12	Í	33	100	2	2	2	2	1	2	90	2	11	.12 4.39	3.55	1.39	.01	.01	. 11
85 782001	34	8	-1	90	60	2	2	2	2	1	2	109	28	19	.19 3.64	.51	1.62	.01	.02	.08
86 782002	20	2	1	69	10	2	2	2	2	İ	2	68	54	113	.1 3.24	2.97	2.9	.02	.09	.04
87 782003	15	2	1	46	30	2	2	2	2	1	2	97	9	28	.11 3.33	1.61	2.45	.04	.02	.18
88 782004	13	1	1	3	50	2	2	2	2	1	2	87	5	10	.12 4.14			.03	.01	.15
89 782005	37	4	1	103	160	2	2	2	2	1	2	142	78	120	.07 5.31			.03	.05	.05
90 782006	5	2	1	8	10	2	2	2	2	1	2	28	22	10	.14 2.33			.05	.02	.07
91 782007	24	1	1	52	60	2	2	2	2	1	2	109	41	27	.23 3.19		1.71	.02	.02	.07
92 782008	16	2	1	15	40	2	2	2	2	1	2	71	33	13	.03 1.73		1.06	.01	.02	.05
93 782009	23	3	1	25	70	2	2	2	2	1	2	95	80	20	.05 2.44		1.32	.02	.03	.05
94 782010 85 782011	22	2	1	18	30	2	2	2	2	1	2	104	32	12	.05 2.39		1.4	.02	.03	.09
95 782011	26	5	1	32	80	2	2	2	2	1	2	94	91	20	.09 2.95			.01	.02	.05
94 782012	22	2 12	1	12 32	70	2	2	2	2	1	2	82	37	12	.03 2.05			.01	.02	. 96
/82013 98 782014	20 20	12 4	1	32 23	40 70	2 5	2 2	2 2	2 2	1	2	93	26	14	.06 2.38		1.43	.02	.03	.07
99 782015	18	י 5	1	23	70	а 2	2	2	2	1	2 2	99	32	17	.09 2.75		1.04	.02	.02	.09
100 782015	27	5	1	, 3		2	2	2	2	1	-	92 99	60 EE	11	.03 2.63		2.01	.02	.05	.15
101 782017	22	5	1	21		2	2	2	2	1	2 2	77 163	55 46	11	.02 2.94		2.02	.02	.04	.05
102 782018	20	5	1	67		2	2	2	2	1	2	105	40 38	14	.04 3.04		1.62	.03	.03	.07
103 782019	20	5	1	42		2	2	2	2	1	2	87	-30 48	14 23	.11 4.18		1.53	.01	.02	.11
104 782020	22	5	1	25		2	2	2	2	1	2	113	- 36	21	.05 3.3		2.03	.01 .02	.03	. 1
105 782021	25	5	1	19		2	2	2	2	1	2	107	39	16	.02 2.74		1.72	.02	.03 .03	.14 .15
106 782022	22	5	1	38		2	2	2	2	1	2	105	136	10	.05 2.82		1.73	.01	.03	.13
107 782023	20	5	1	10		2	2	2	2	1	2	102	67	16	.04 2.77		1.92	.02	.04	.09
108 782024	23	20	1	33		2	2	2	2	1	2	113	71	10	.03 2.91		1.45	.01	.05	.03
109 780085	18	1	1	2	10	2	2	2	2	1	2	51	43	15	.04 2.22			.03	.11	.16

-24-

Part 2 - Page 2.

-25-

Part 3 - Page l.

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50	780050	.05	3		4	28		
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52	780052	.11	4		5	50		
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54	780054	.05	3		4	24		
55	780055	.33	7		4	3		
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57	780057	.05	2		3	4		

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64	780064	.05	2	4	49
65	780065	.06	2	3	12
65	780066	.05	2	4	27
67	780067	.05	2	3	11
68	780068	.15	2	3	25
50 59	780069	.07	2	30	36
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71	780070	.03	2	27	29
72	780071	.05			
			2	28	29 70
73	780073	.05	3	28	39
74	780074	.02	3	30	4
75	780075	.05	2	25	11
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77	780077	.02	2	6	18
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	780079	.11	2	3	49
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86	782002	.04	2	4	117
87	782003	.05	2	6	36
88	782004	.07	2	3	81
89	782005	.05	2	4	51
90	782006	.03	2	4	13
91	782007	.08	3	4	31
92	782008	.08	4	4	18
93	782009	.1	6	3	23
94	782010	.09	3	2	25
95	782011	.07	4	5	57
96	782012	.09	4	2 -	16
97	782013	.09	3	3	25
98	782014	.07	4	3	22
99	782015	.05	2	23	32
100	782016	.04	2	23	51
101	782017	.07	2	10	50
102	782018	.06	2	14	44
103	782019	.05	2	16	50
104	782020	.09	2	13	50
105	782021	.05	2	12	37
105	782022	.06	3	10	70
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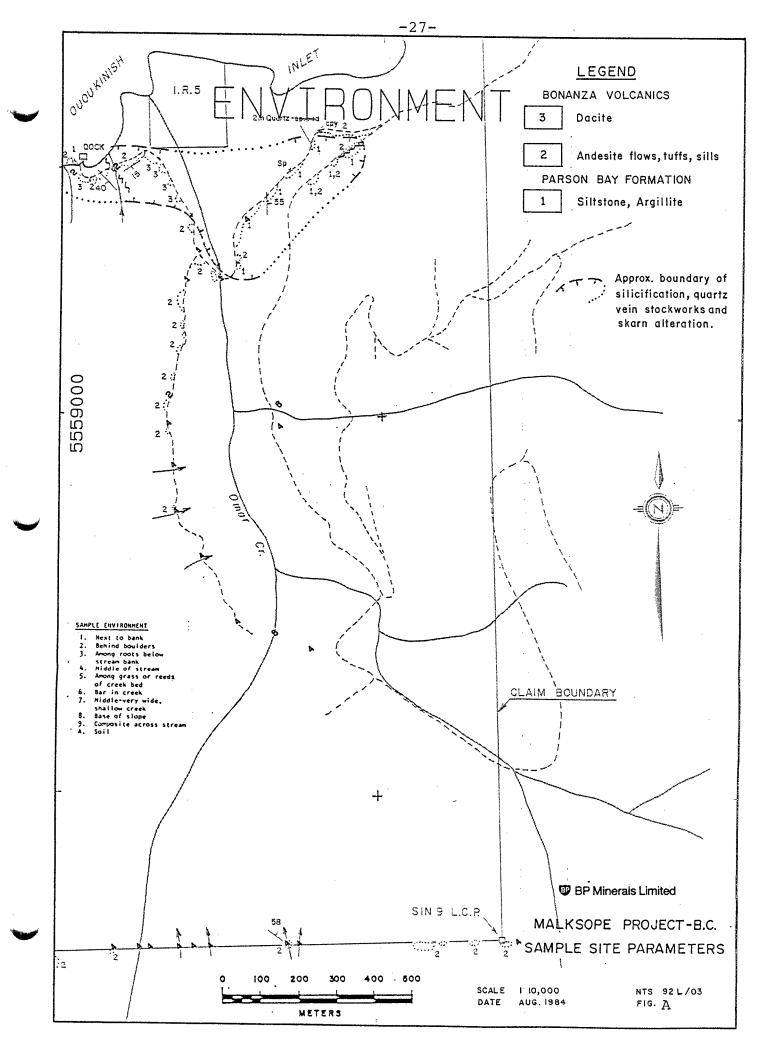
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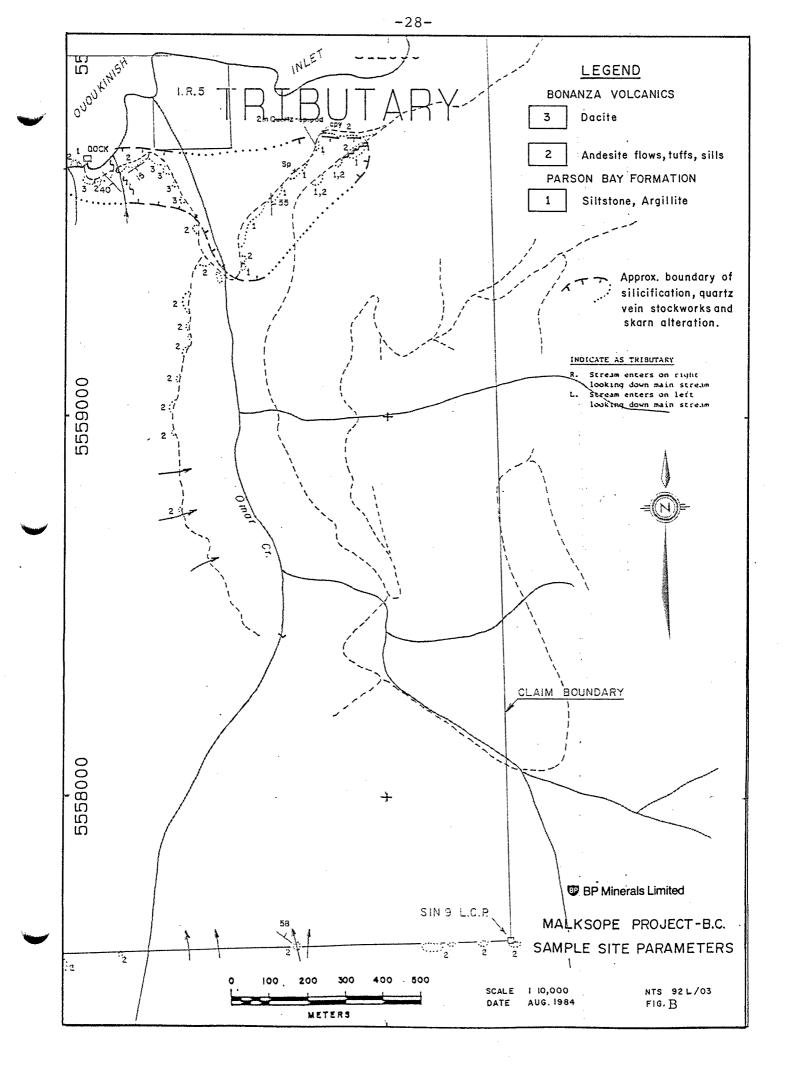
-26-

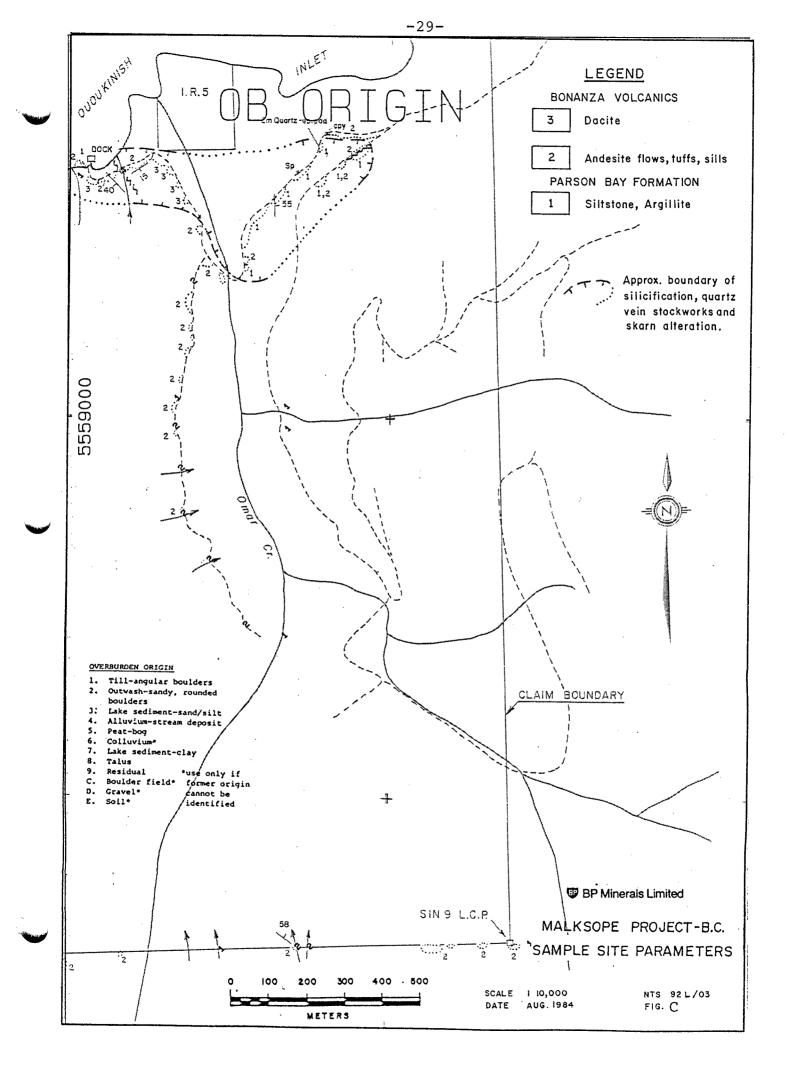
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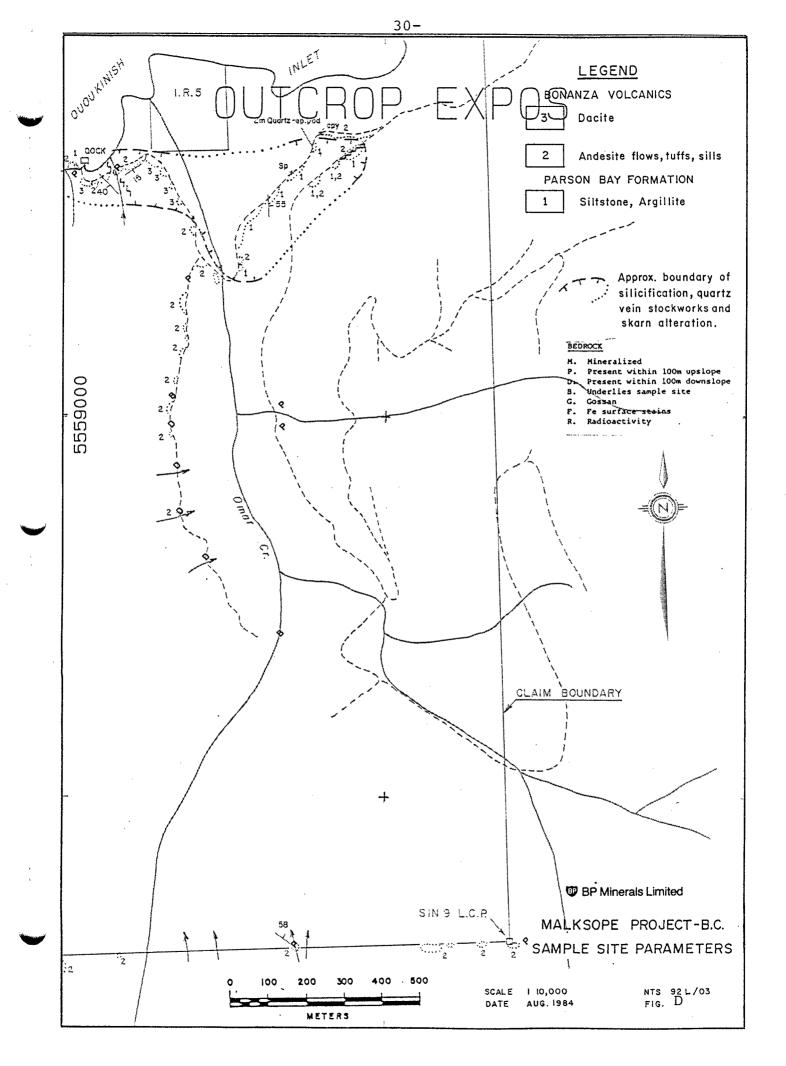
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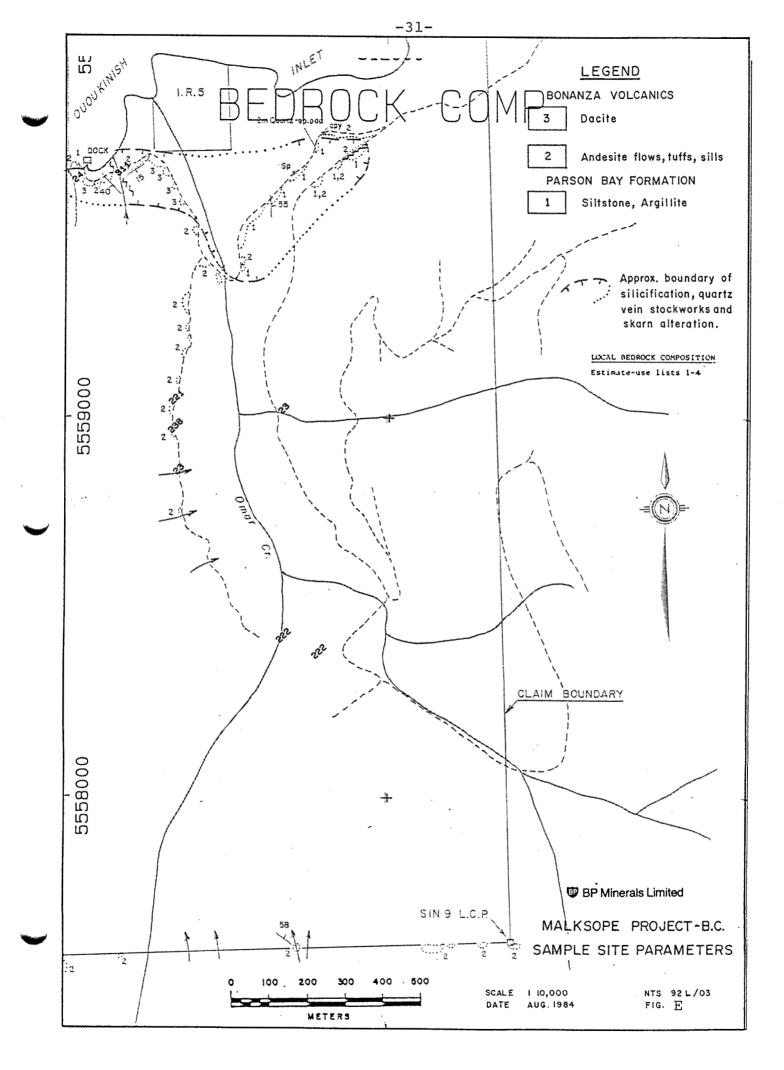
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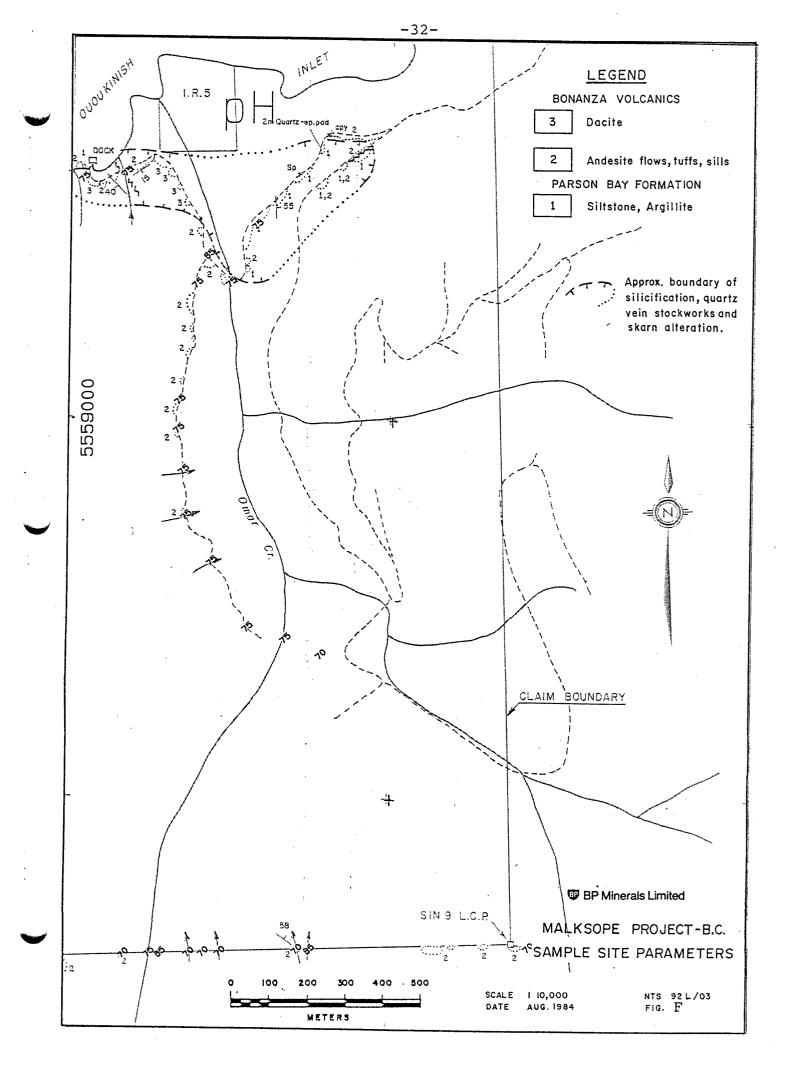


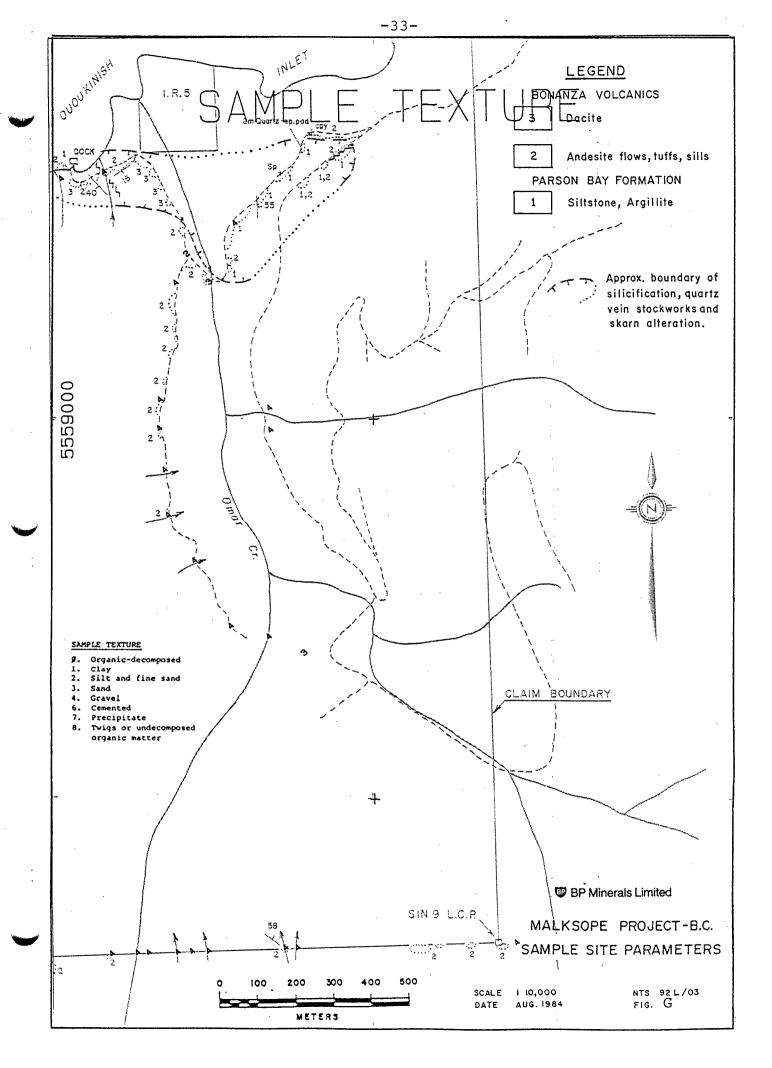


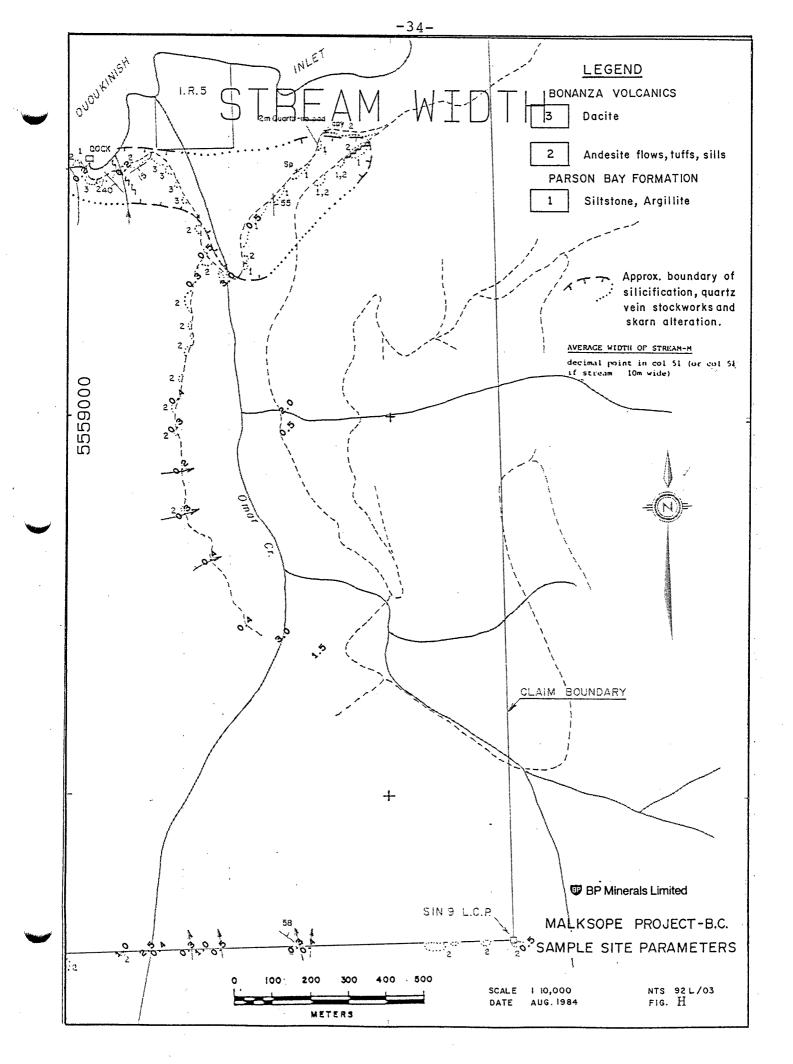


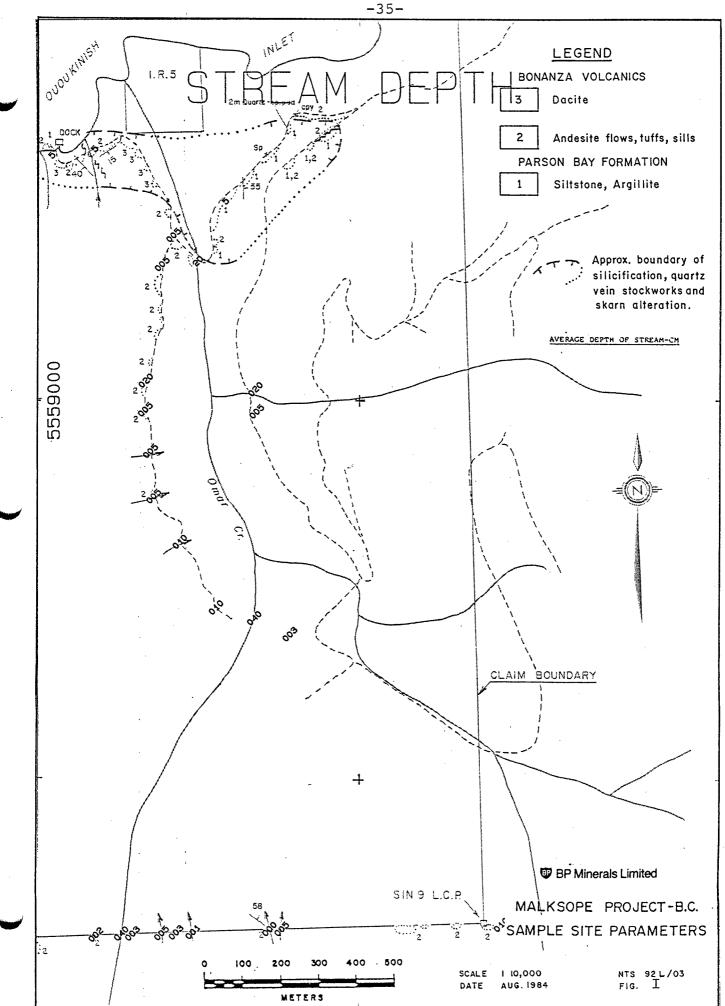


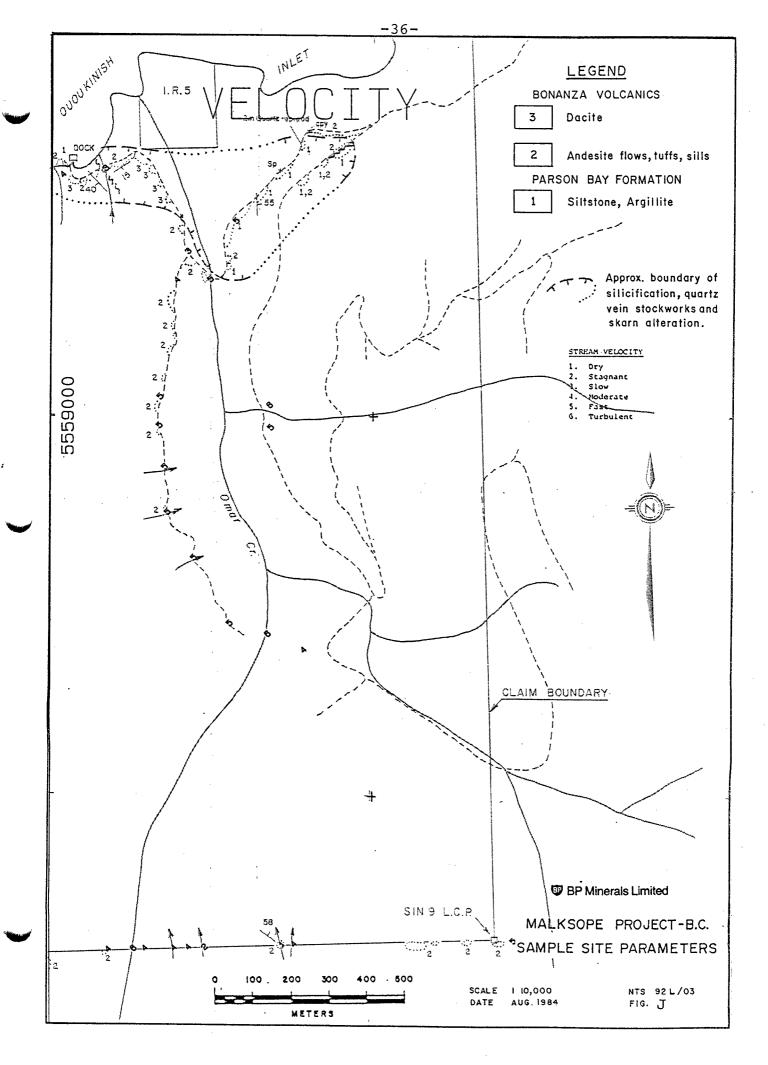


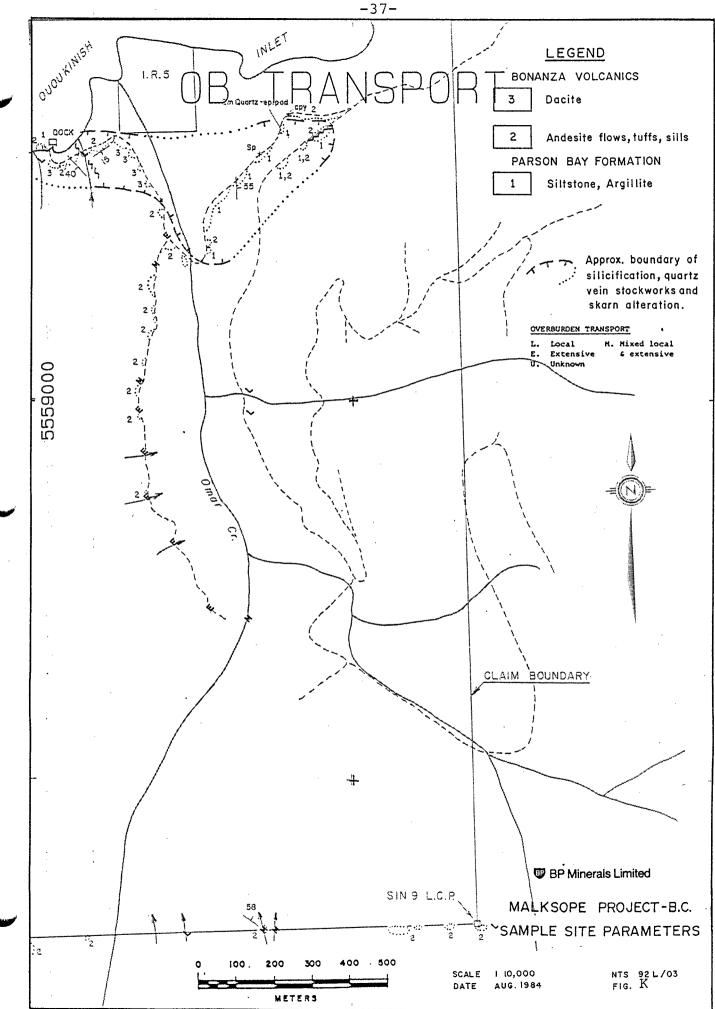


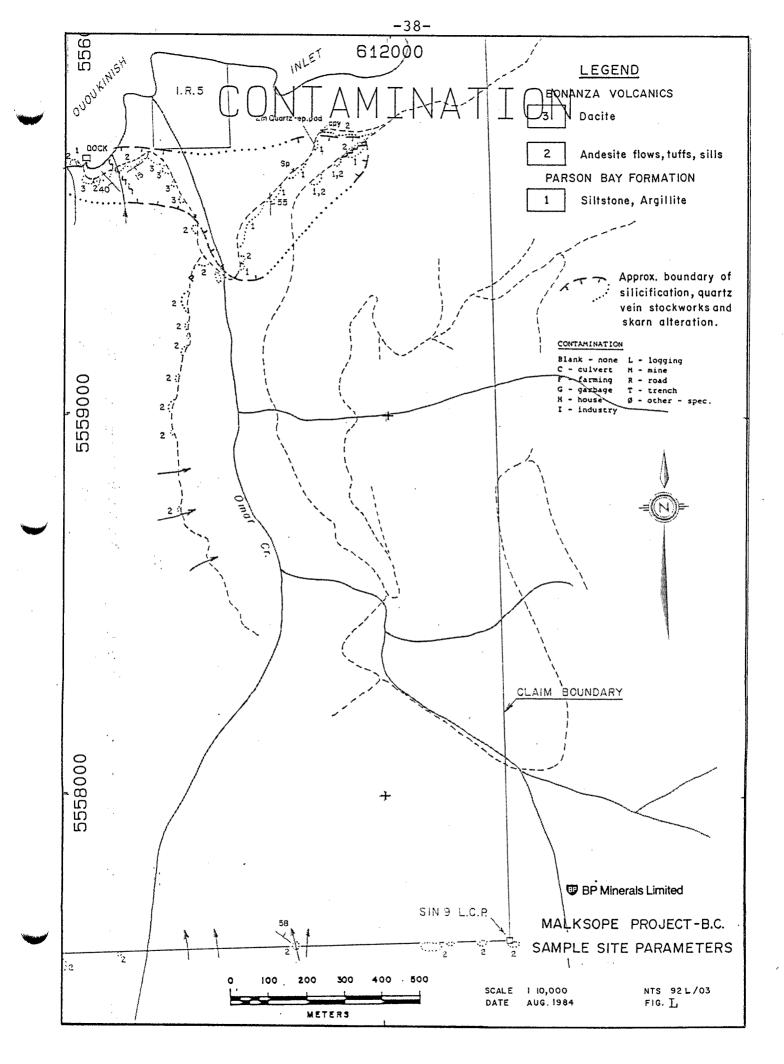


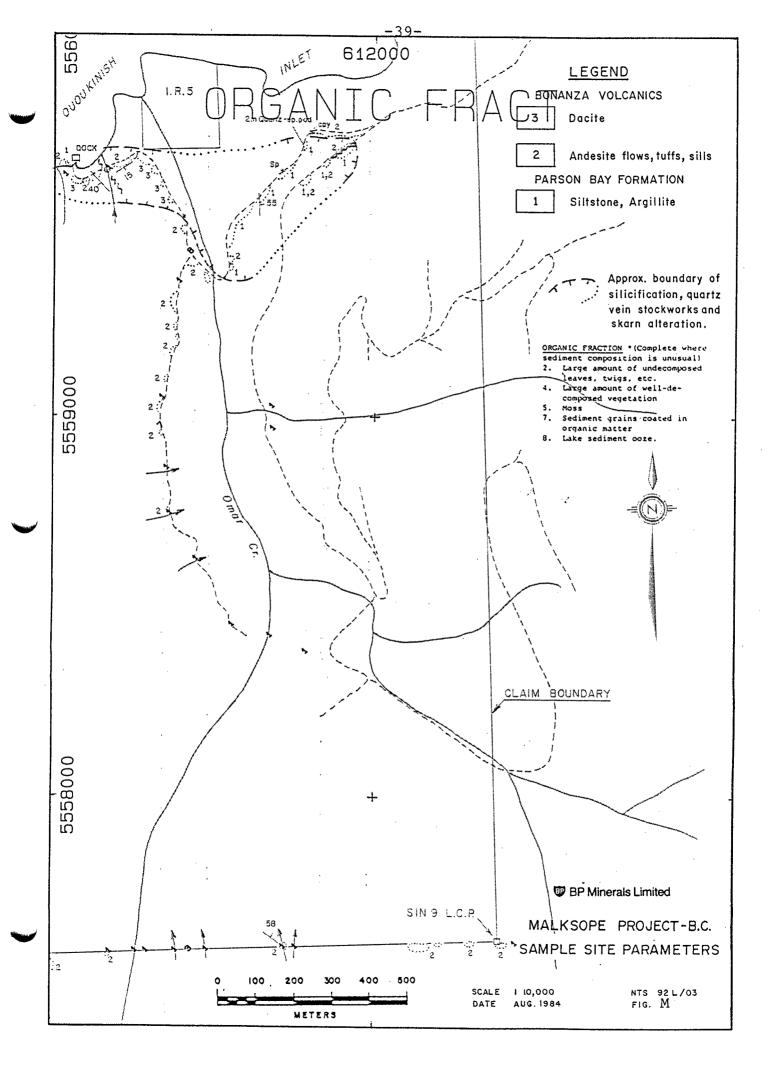












Geochemical Preparation

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Analytical Procedures

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ACME ANALYTICAL LABORATORIES LTD. Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6 Telephone : 253 - 3158

GEOCHEMICAL LABORATORY METHODOLOGY - 1984

Sample Preparation

Soil samples are dried at 60°C and sieved to -80 mesh.
 Rock samples are pulverized to -100 mesh.

Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by :

A. Atomic Absorption (AA)

Ag*, Bi*, Cd*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb*, Tl, V, Zn (* denotes with background correction.)

B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

Geochemical Analysis for Au*

10.0 gram samples that have been ignited overnite at 600°C are digested with hot dilute aqua regia, and the clear solution obtained is extracted with Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 5 ppb direct AA and 1 ppb graphite AA.)

Geochemical Analysis for Au**, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt and Rh are determined in the solution by graphite furnace Atomic Absorption.

Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

Geochemical Analysis for Barium

0.1 gram samples are digested with hot NaOH and EDTA solution, and diluted to 10 ml.

Ba is determined in the solution by Atomic Absorption or ICP. Geochemical Analysis for Tungsten

1.0 gram samples are fused with KCl, KNO_3 and Na_2CO_3 flux in a test tube, and the fusions are leached with 20 ml water. W in the solution determined by ICP with a detection of 1 ppm.

ACME ANALYTICAL LABORATORIES LTD. Assaying & Trace Analysis 852 E. Hastings St., Vancouver, B.C. V6A 1R6

Telephone : 253 - 3158

Geochemical Analysis for Uranium

0.5 gram samples are digested with hot aqua regia and diluted to 10 ml.

Aliquots of the acid extract are solvent extracted using a salting agent and aliquots of the solvent extract are fused with NaF, $K_2^{\rm CO}{}_3$ and $Na_2^{\rm CO}{}_3$ flux in a platinum dish.

The fluorescence of the pellet is determined on the Jarrel Ash Fluorometer. Geochemical Analysis for Fluorine

0.25 gram samples are fused with sodium hydroxide and leached with 10 ml water. The solution is neutralized, buffered, adjusted to pH 7.8 and diluted to 100 ml.

Fluorine is determined by Specific Ion Electrode using an Orion Model 404 meter.

Geochemical Analysis for Tin

1.0 gram samples are fused with ammonium iodide in a test tube. The sublimed iodine is leached with dilute hydrochloric acid.

The solution is extracted with MIBK and tin is determined in the extract by Atomic Absorption.

Geochemical Analysis for Chromium

0.1 gram samples are fused with $\mathrm{Na_2O_2}$. The melt is leached with HCl and analysed by AA or ICP.

Geochemical Analysis for Hg

0.5 gram samples is digested with aqua regia and diluted with 20% HCl.

Hg in the solution is determined by cold vapour AA using a F & J Scientific Hg assembly. An aliquot of the extract is added to a stannous chloride / hydrochloric acid solution. The reduced Hg is swept out of the solution and passed into the Hg cell where it is measured by AA.

Geochemical Analysis for Ga & Ge

0.5 gram samples are digested with hot aqua regia with HF in pressure bombs.

Ga and Ge in the solution are determined by graphite furnace AA.

Geochemical Analysis for Tl (Thallium)

0.5 gram samples are digested with 1:1 $\mathrm{HNO}_3.$ Tl is determined in the extract by graphite AA.

Geochemical Analysis for Te (Tellurium)

0.5 gram samples are digested with hot aqua regia. The Te extracted in MIBK is analysed by AA graphite furnace.

Method of Histogram Interpretation

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Rules for choice of size coding or contouring intervals

- (1) Examine both arithmetic and logarithmic histograms for each type of survey data. Choose the histogram which most closely approximates a normal (or lognormal) distribution. If there are several populations exhibited on the histogram, subjectively divide the data into a series of normal or lognormal distributions. Avoid interpreting histograms which are strongly skewed. Portions of the arithmetic or logaritmic histograms may be chosen for data interpretation over specific metal concentration intervals, if this allows for the best portrayal of the data in graphical form.
- (2) Choose, as two of the coding intervals, points which represent between 90% and 95%, and 95% and 97.5% of the data, two different numbers. These choices highlight 1 in 10 and 1 in 20 samples which are considered slightly anomalous and definately anomalous, respectively. These limits are optimistic in that the two categories are defined to be anomalous regardless of the distribution of values on the remainder of the histogram. A rigorous statistical approach would suggest that only the 97.5% value be considered the anomaly threshold.
- (3) Divide the remaining portion of the histogram into recognizable populations. The dividing point of each of these populations is chosen as a coding interval. Minimums caused by the failure of a laboratory to record specific concentration values are ignored. These artificial breaks in the histogram can be recognized by scanning the laboratory reports.
- (4) For each population, choose one or two numbers which correspond to the 90% and 95% cumulative frequencies for that population (1 in 10 and 1 in 20 samples for that population respectively). These will also be used to represent anomalous conditions for each population.
- (5) A maximum of six numbers can be chosen to plot symbol maps. This number is dictated by the ability to present data in graphical form with sufficiently different symbol sizes to be easily distinguishable, particularly if maps are to be reduced. The seven defined concentration classes are normally sufficient to represent geochemical data on a map. More intervals can be chosen if data are to be controured. Avoid choosing arithmetic intervals without considering rules (1) and (4).
- (6) Maps plotted using the preceeding instructions might result in two areas being distinguished from each other by a relatively uniform density of symbol sizes, yet only poor contrast anomalies are indicated. Differences between the two areas, A and B, might be due to underlying geology, overburden character, soils etc. Whatever the cause, the data are not well displayed. If the underlying control distinguishing A and B can be recognized, the data must be divided and re-interpreted following steps (1) to

-44-

(5). Two sets of maps can be drawn, or both sets of interpreted data can be plotted on a single map. For such superimposed geochemical maps the symbol sizes lose their absolute meaning but assume a more important stance, that of reflecting anomalous conditions regardless of the underlying control. To illustrate, consider the case where A and B are areas underlain by very different geology. Anomalous conditions for low background rock types might be concentrations which are much lower than average values for the high background rock types. Nevertheless, anomalies defined in each area are to be considered significant. Reliance on absolute concentrations can be misleading in such cases.

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Statement of Costs

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STATEMENT OF COSTS - SIN 9

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1.	Senior geologist - B. Marten, 2 days \$ Assistant geologist - W. Bleaney, 2 days	600.00 192.00
2.	Field accommodation - 4 man/days @ \$30.00	120.00
3.	Vehicle rental - 2 days @ \$30.00	60.00
4.	Geochemical analyses (Acme Analytical Invoices)	785.00
5.	Field supplies - sample bags, flagging	8.00
6.	Geochemical interpretation and report - S. J. Hoffman, 1 day	300.00
7.	Drafting, typing	50.00
		115 00

TOTAL:

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\$2,115.00

List of Qualifications

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STATEMENT OF QUALIFICATIONS - B. E. MARTEN

B.A. (Hons.) Geology 1965

MSc. Geology 1971

PhD. Geology 1977

- Trinity College, Dublin, Ireland.

- Memorial University of Newfoundland.
- Memorial University of Newfoundland.

Fellow of the Geological Society (1966).

Fellow of the Geological Association of Canada (1970).

I have practised my profession continuously since graduation in 1965, in field mapping projects (Geological Survey of Zambia 1965-69; Manitoba Mines Branch 1973-74; Newfoundland Department of Mines and Energy 1974-1975); in research applied to mineral exploration (1969-77) and in mineral exploration (1975 to present). List of Qualifications - S. J. Hoffman

BSc 1969 - McGill University (Hons., Geology and Chemistry)
MSc 1972 - The University of British Columbia (Geochemistry)
PhD 1976 - The University of British Columbia (Geochemistry)

List of Publications (to August, 1984)

1. Hoffman, S. J., 1972

Geochemical dispersion in bedrock and glacial overburden around a copper property in south central British Columbia. MSc thesis, unpublished, U.B.C., 209 pp.

2. Hoffman, S. J. and Fletcher, W.K., 1972

Distribution of copper at the Dansey-Rayfield River property, south central British Columbia. J. Geoch. Expl. <u>1</u>, 163-180.

3. Hoffman, S. J. and Waskett-Meyers, M. J., 1974

Determination of molybdenum in soils and sediments with a modified zinc dithiol procedure. J. Geoch. Expl. <u>3</u>, 61-66.

4. Hoffman, S. J., 1974

Pebble cards - A record of the coarse fraction of stream sediments for geochemical exploration. J. Geoch. Expl. 3, 387-388.

5. Hoffman, S. J. and Fletcher, W. K., 1976

Reconnaissance geochemistry on the Nechako Plateau, B.C., using lake sediments. J. Geoch. Expl. <u>5</u>, 101-114.

6. Hoffman, S. J., 1976

Mineral Exploration of the Nechako Plateau, central British Columbia, using lake sediment geochemistry. PhD thesis, unpublished, U.B.C., 347 pp.

7. Hoffman, S. J., 1977

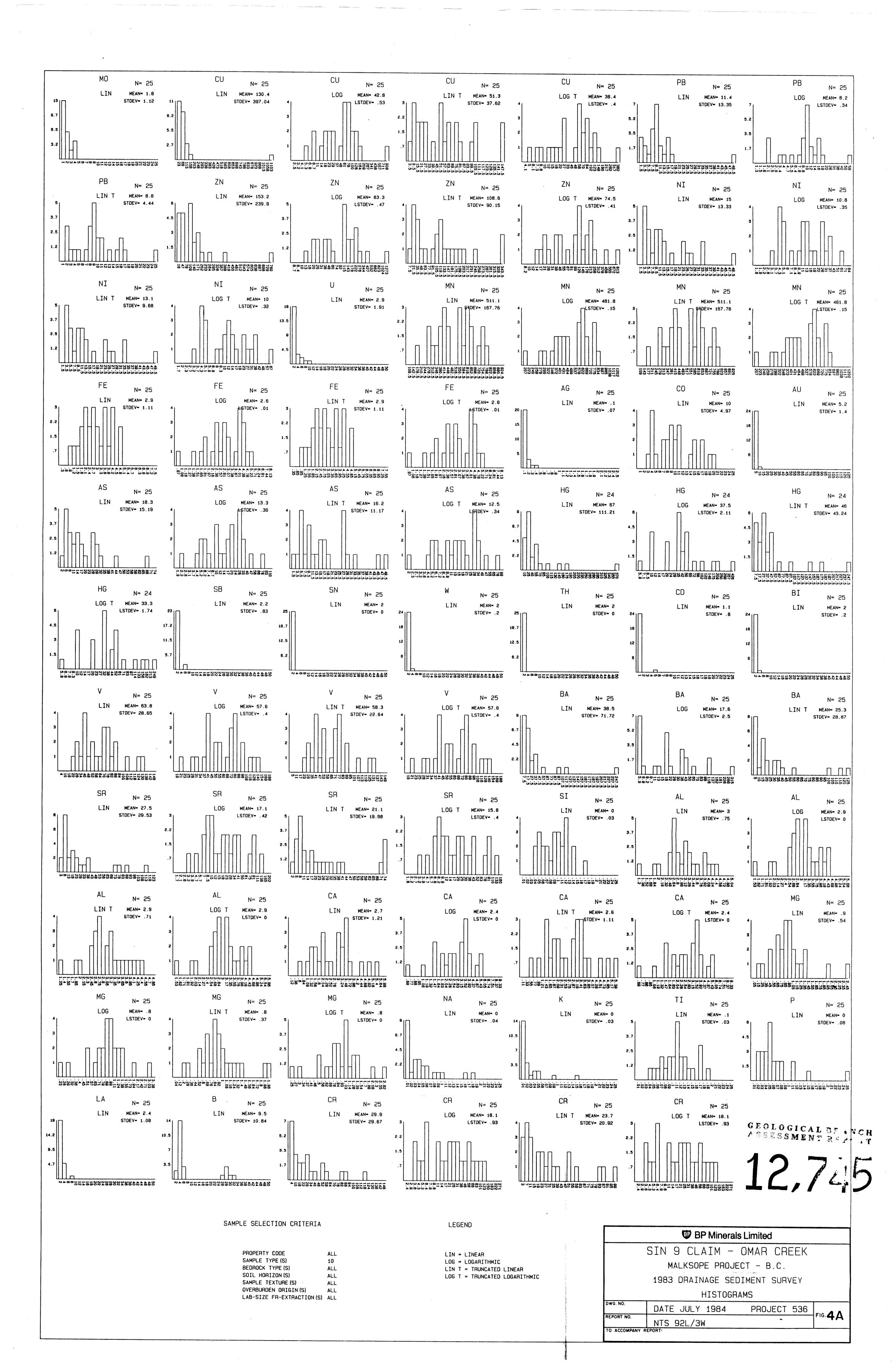
Talus fine sampling as a regional geochemical exploration technique in mountainous regions. J. Geoch. Expl. 7, 349-360.

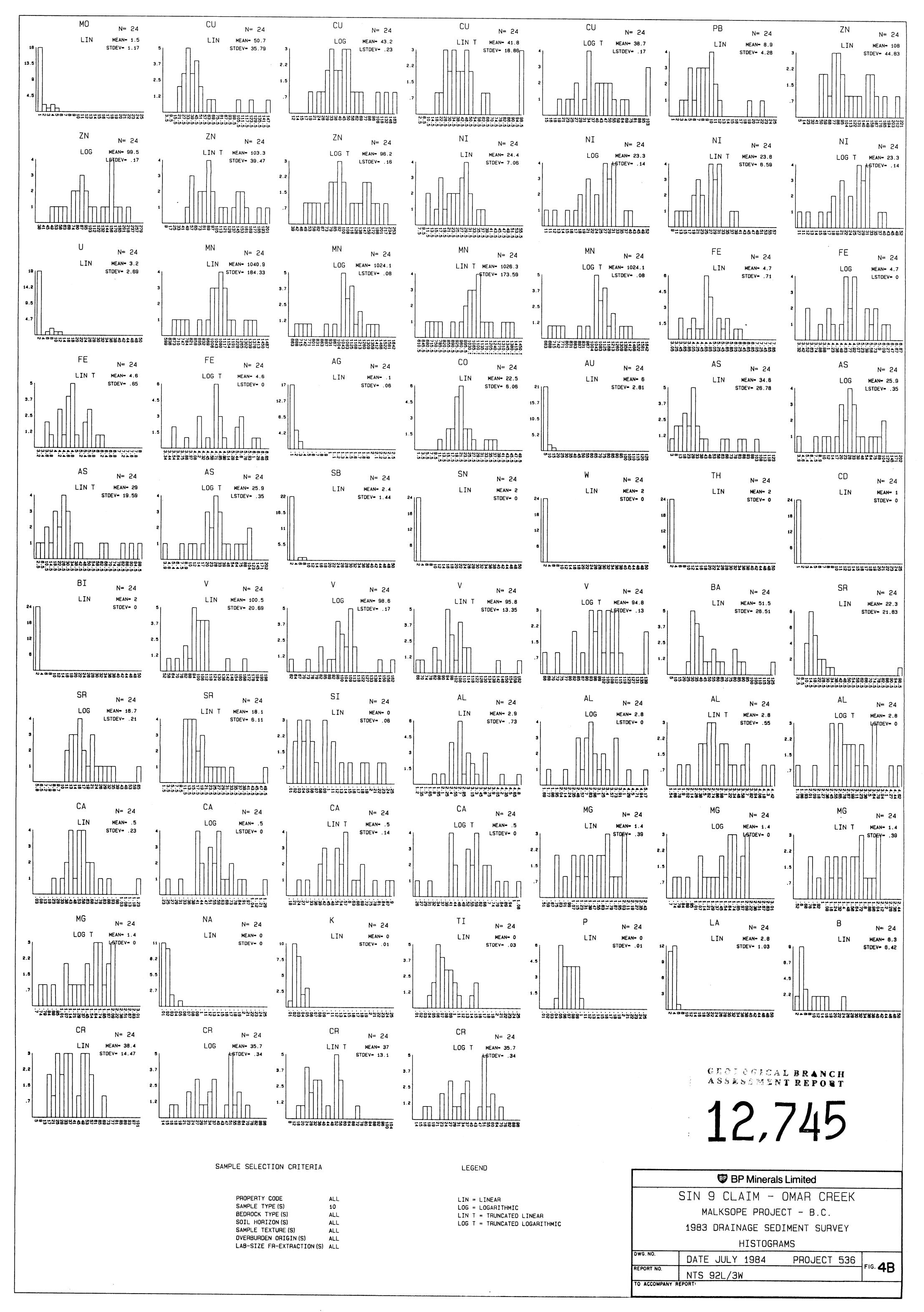
- 8. Hoffman, S. J. and Fletcher, W. K., 1979 Sequential extraction of copper, zinc, iron, manganese and molybdenum from soils and sediments. In Geochemical Exploration 1978, Proceedings of the Seventh International Geochemical Exploration Symposium, Golden, Colorado, 289-299. Hoffman, S. J. and Fletcher, W. K., 1981 9. Detailed lake sediment sampling of anomalous lakes on the Nechako Plateau, central British Columbia - Comparison of trace metal distributions in Capoose and Fish Lakes. J. Geoch. Expl. 14, 221-224. 10. Hoffman, S. J. and Fletcher, W. K., 1981 Organic matter scavenging of copper, zinc, molybdenum, iron, and manganese, estimated by a sodium hypochlorite extraction (pH 9.5). J. Geoch. Expl. 15, 549-562. Hoffman, S. J., 1983 11. Geochemical exploration for unconformity-type uranium deposits in permafrost terrain - Hornby Bay Basin, Northwest Territories, Canada. J. Geoch. Expl. 19, 11-32. 12. Hoffman, S. J., Arnold, P. M. and Zink, E. W., 1984 Rapid field determination of copper by anodic stripping voltammetry (ASV). 13. Hoffman, S. J., 1984 Lake sediment geochemistry. In press, Encyclopedia of Earth Sciences. Hoffman, S. J., and Mitchell, G. G., 1984 14. Microcomputers in geochemical exploration. Presented, Helsinki, August, 1983, and Reno, March, 1984. In press, J. Geoch. Expl. List of Memberships Geological Association of Canada, since 1967. 1. Canadian Institute of Mining and Metallurgy, since 1973. 2.
 - 3. Association of Exploration Geochemists, since 1973.

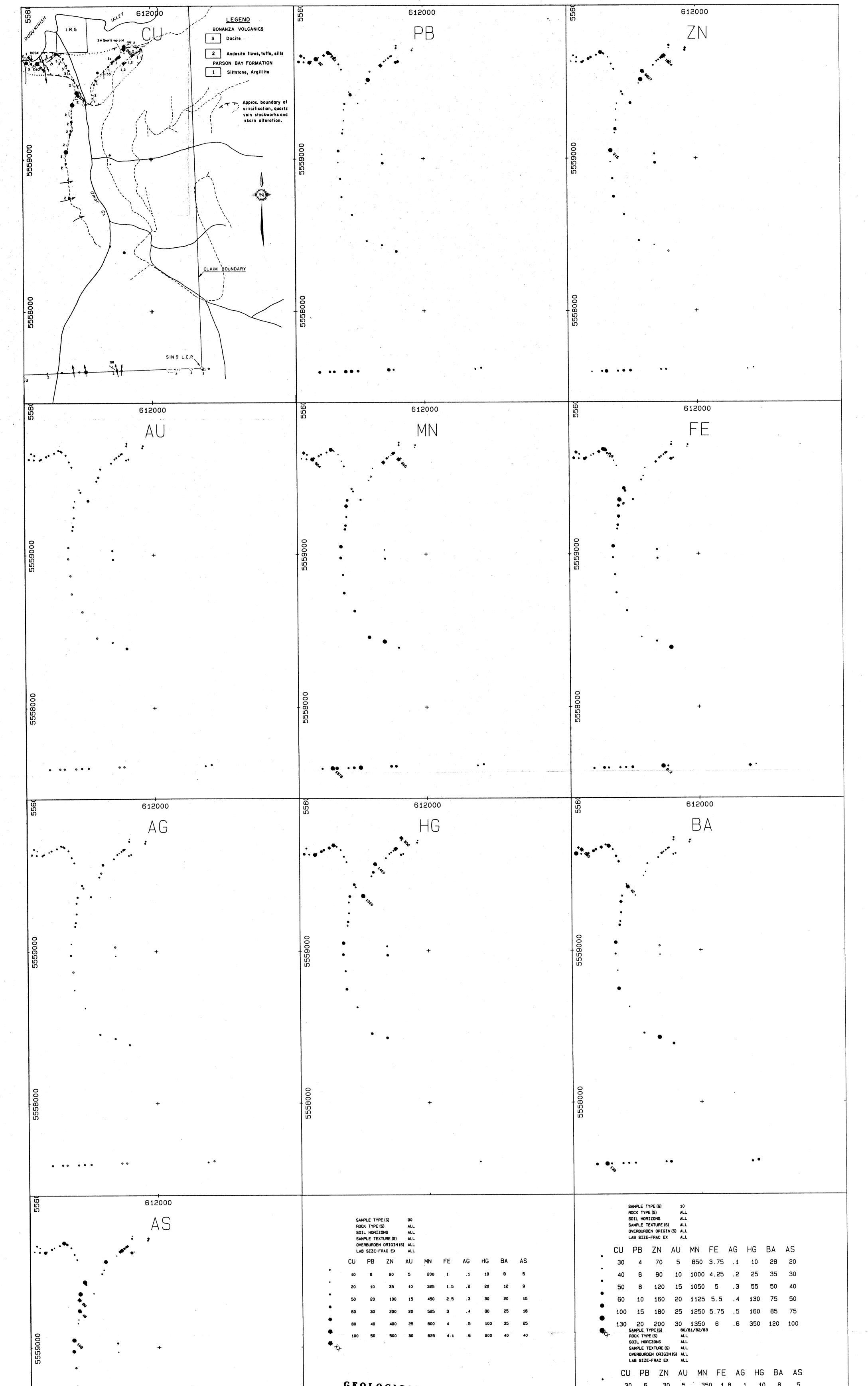
- 4. American Society of Agronomy, since 1973.
- 5. Geochemical Society, since 1983.

Other Qualifications

- Instructor of methods of geochemical exploration for the B.C. Department of Mines prospecting school, May 1977 - 1984 (8 years).
- Instructor, Short course on Geochemical Exploration in the Canadian Shield, McGill University, January 1979.
- 3. Speaker, CIM in Prince George, B.C. on "Lake Sediment Geochemistry", May, 1977.
- Speaker, Geosciences Council, Yellowknife on "Lake Sedimentary Geochemistry, Hornby Bay area", December 1978, and also December 1980.
- 5. Instructor, Short course on Geochemical Exploration (computer and statistical applications), Northwest Mining Association, Spokane, Washington, December 1979.
- Council member, Association of Exploration Geochemists, 1980-1984.
- 7. Chairman, GOLD-81 Symposium. Precious Metals in the Northern Cordillera: April 12-15, 1981. Co-sponsored by the Association of Exploration Geochemists and the Cordilleran Section of the Geological Association of Canada.
- 8. Business Editor, Proceedings of the GOLD-81 Symposium published February 1982.
- 9. Lecturer, Exploration geochemistry, University of British Columbia, credit course, 1983, 1984.
- Member, committee to determine qualifications for geochemical option of professional geologist (P. Geol.), a sub classification of P. Eng., 1982-1983.
- Chairman, Geochemistry 1986 Symposium, to be held in Vancouver.
- External examiner, MSc thesis, University of Calgary, 1984.

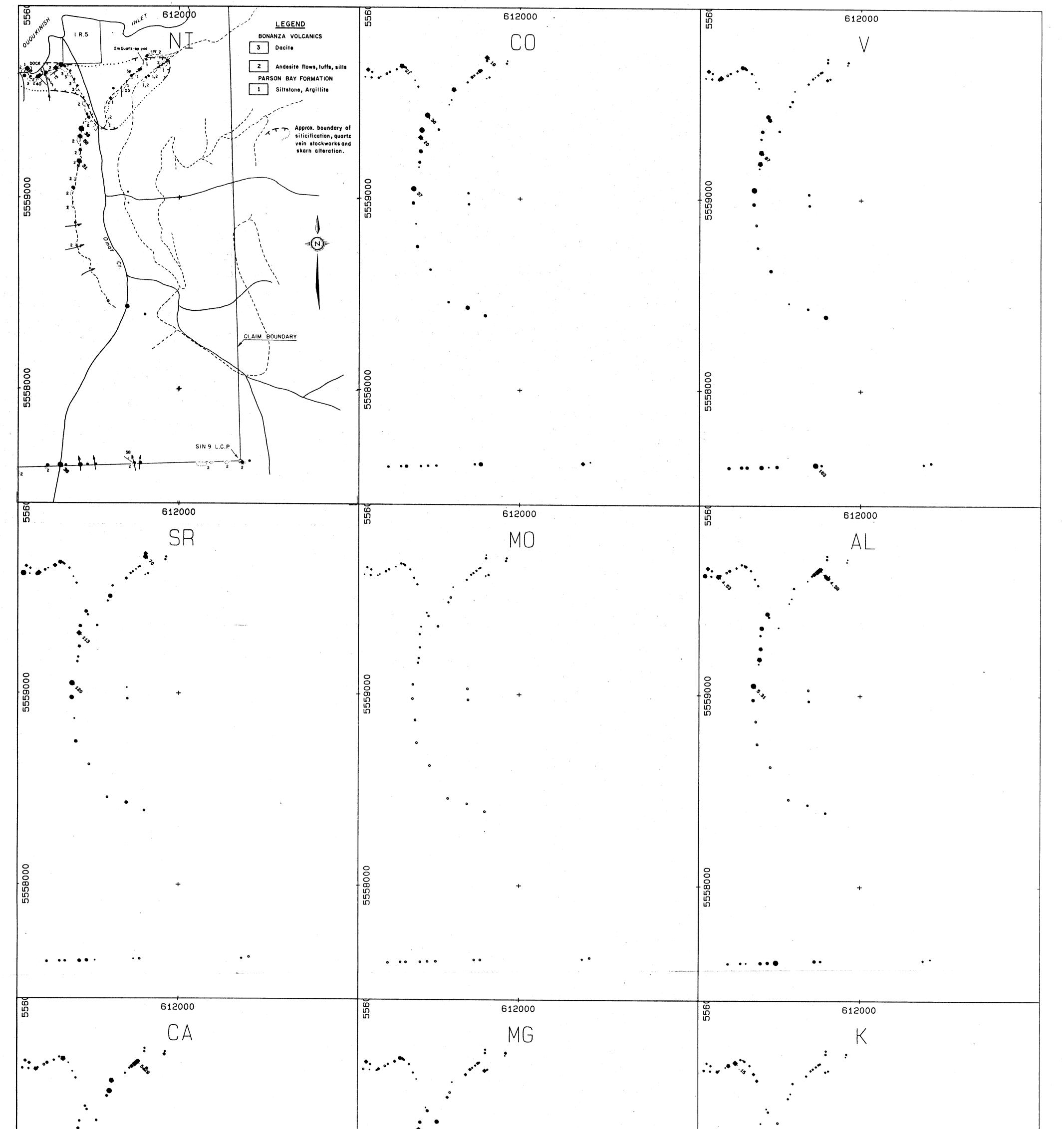






GEOLOGICAL BRANCH ASSESSMENT REPORT 350 1.8 .1 10 8 5 5 30 6 30 • 500 2.5 .2 25 15 10 75 10 50 B ο. 55 30 20 65 10 140 15 600 3 .3 12,745 85 12 200 20 650 3.9 .4 130 50 28 • 150 16 300 25 725 4.5 .5 160 100 40 • **500 50 1000 30 775 4.8** .6 350 200 65 * # I 500 METERS **BP** Minerals Limited 5558000 SIN 9 CLAIM - OMAR CREEK MALKSOPE PROJECT - B.C. 1983 GEOCHEMICAL SURVEY PROJECT 536 FIG. 6A DWG. NO. DATE JULY 1984 • • • • REPORT NO. NTS 92L/3W SCALE 1: 10000 TO ACCOMPANY REPORT `_

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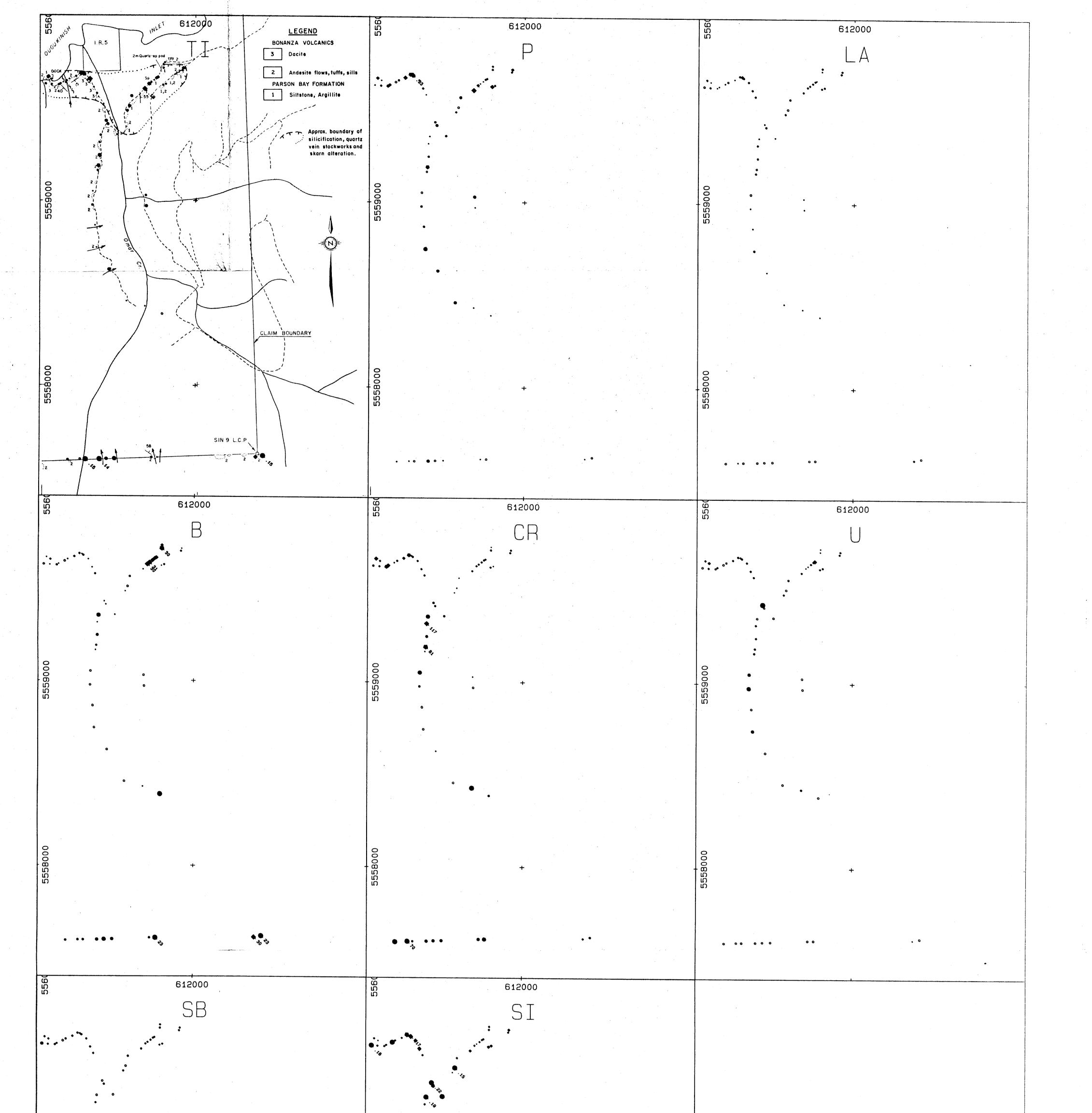


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