GEOCHEMISTRY OF THE ENGL CLAIM

Nanaimo Mining District
NTS 92L/7W

Homestake Mineral Development Company

GEOCHEMISTRY OF THE

ENGL CLAIM

NANAIMO MINING DISTRICT

NTS: 92L/7W
Latitude: 50°17.5'
Longitude: 126°49.5'

Owner: G.J. Prior
Operator: Homestake Mineral Development Co.

Report by: M. Flanagan
Submitted: May 31, 1985

85-450
#13738

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STATEMENT OF QUALIFICATIONS

I, Michael Flanagan, hereby certify that:

1) I have graduated from McGill University in Montreal, Quebec with an applied M.Sc degree, having specialized in mineral exploration.

2) I have been engaged in geological work during field seasons since 1975.

3) I am a geologist employed by Homestake Mineral Development Company, 201 - 856 Homer Street, Vancouver, B.C., involved in property and reconnaissance examinations.

Mike Flanagan

1.0 INTRODUCTION

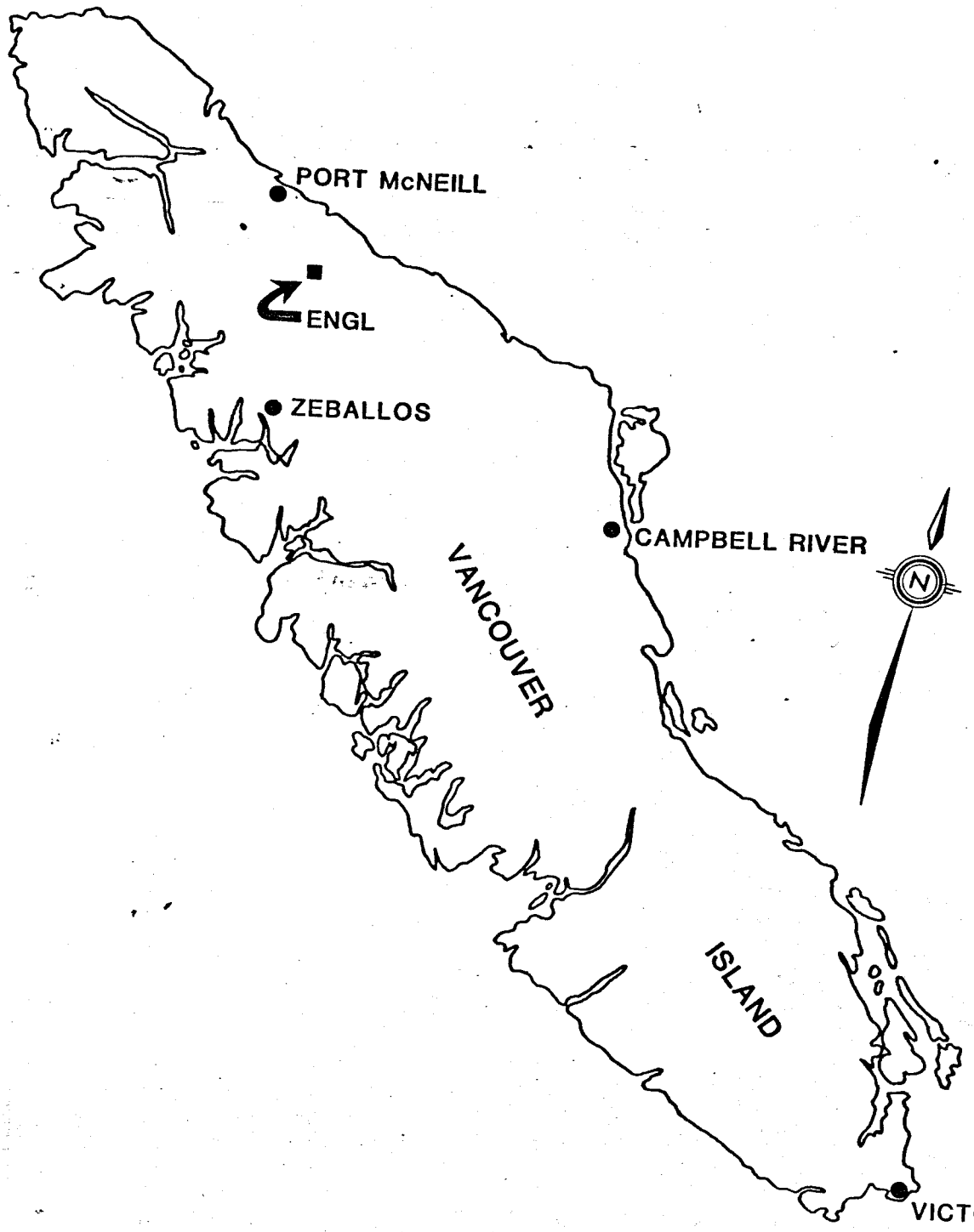
1.1 Geographic and Physiographic Position and Access

The ENGL claim is located in the Hankin Range which forms several high peaks and ridges separating Nimpkish and Bonanza Lakes. It occurs 38 km due south-southeast of Port NcNeill (refer to Key map) and topographically consists of a steep, south-southwest facing slope drained by Woodengl Creek and its subsidiary streams. The northern portion of the claim encompasses a plateau with small forested knolls interspersed with damp meadows and marshes. The slope itself is relatively heavily forested with varying amounts of undergrowth. Portions of the forest on the slope of the western margin of the claim were ravaged by fire many years ago and consequently, in this region, dense secondary growth makes traversing very difficult.

A helicopter supported camp was established for work on the ENGL claim. Somewhat more tedious access may be acquired via an unused, overgrown logging road which generally follows the contour along the north side of Woodengl Creek and begins in a gravel pit east of the railway overpass across the main highway. Easier, but more time consuming access may be acquired via the active logging road system west of Steele Lake. This route entails a drive of about 3 km up the westernmost branch of the road system, and a short climb up the slope to the plateau, then southwest to the claim area.

1.2 Property definition

The ENGL claim, consisting of 20 units, (Figure 1), was recorded on the 25th day of July, 1984 by G. Prior of Massey, Ontario, the record number being 1832, recorded at the Nanaimo district office. Figure 2 indicates topography within the preliminary grid area, called the ENGL grid, on the claim (Figure 1).



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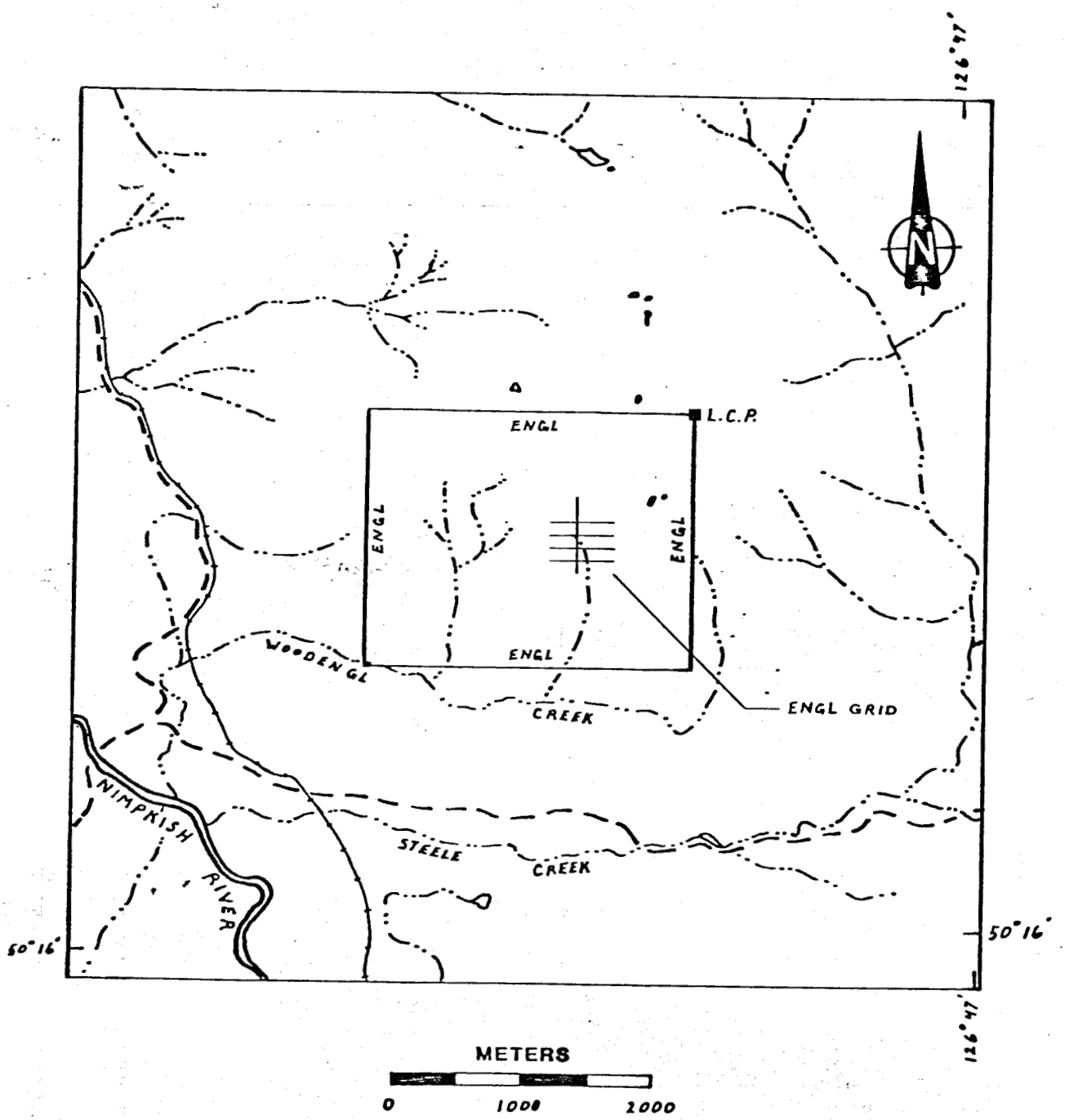
KEY MAP
ENGL CLAIM

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/7
Revised		

0 50 100
KILOMETRES



LEGEND

- ROAD
- RAILWAY
- STREAM
- CLAIM BOUNDARY
- ■ L.C.P. — LEGAL CORNER POST

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FIGURE 1
ENGL CLAIM
LOCATION MAP

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS
Revised		92L/7

Other claims in the area, to the northwest and northeast, are held by Reako Explorations Ltd. and Oakey Holding Ltd. respectively. Minor overlap was apparently incurred with Reako Explorations Ltd. claims during staking of the ENGL claims.

1.3 Work Performed

Eleven man-days were spent assessing previously discovered zinc, copper and silver mineralization. The purpose of work was to determine the extent and control of mineralization. A preliminary grid was established for soil sampling and control, and 24 soil samples and 50 rock chip samples were collected. Geological mapping of a cursory fashion was also done during rock sampling. A list of samples with descriptions is provided in Appendix I.

2.0 TECHNICAL DATA

2.1 Geology

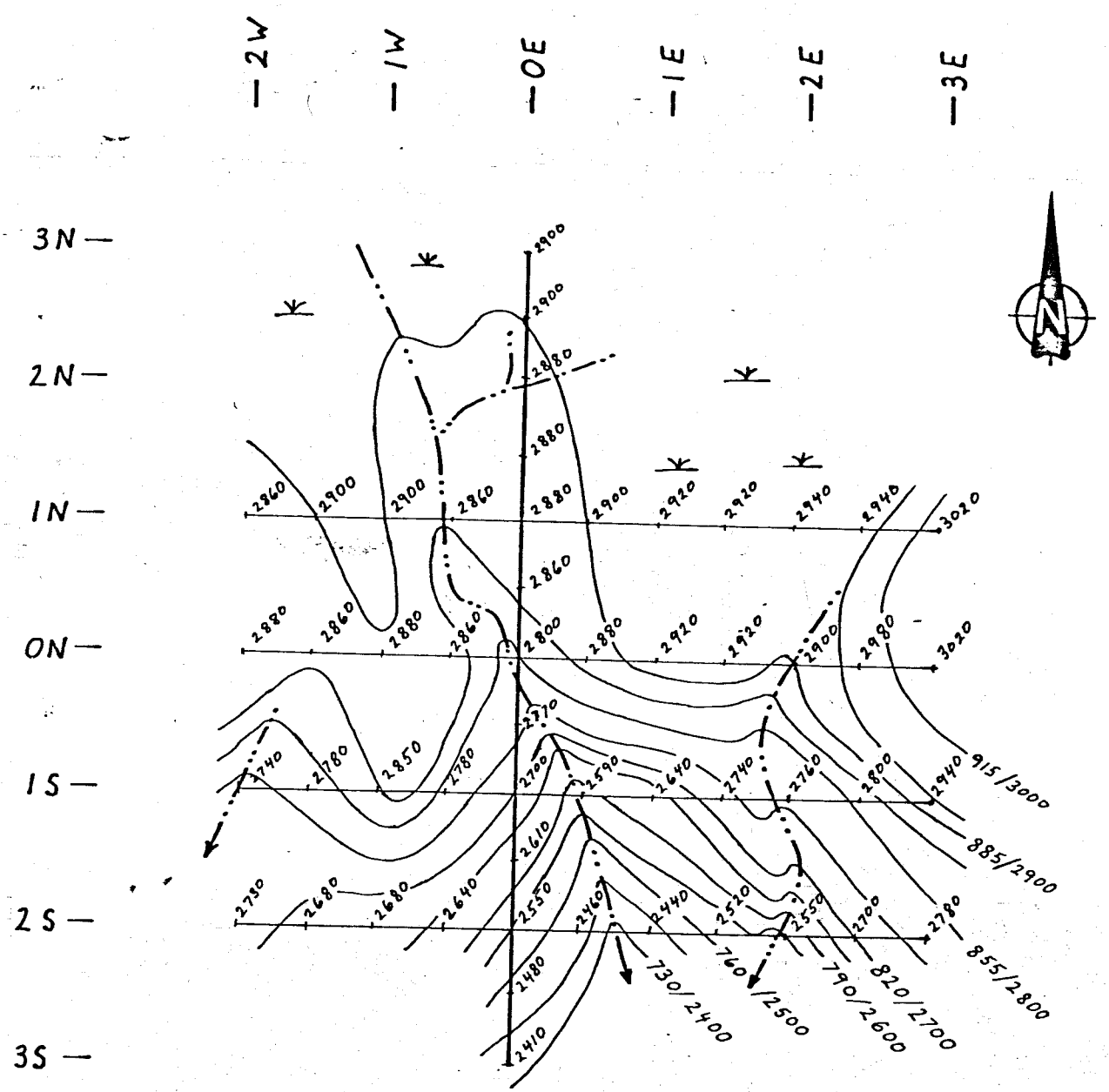
Regionally, the area between the southern ends of Nimpkish and Bonanza Lakes consists of Upper Vancouver Group sedimentary rocks and Bonanza Group volcanic rocks intruded by granodioritic Island Intrusions. The Vancouver Group rocks of the area consist of the Quatsino and Parson Bay formations which together comprise a gradational sequence of massive grey limestone to thinly bedded calcareous siltstone and micrite. The volcanic rocks are generally andesitic in composition and are comprised of flows, lithic and lithic-crystal tuffs, and coarser pyroclastic rocks.

The intrusions of the area are part of the Nimpkish Batholith, (Carson, 1973) which is described as predominantly granodioritic, with hornblende $\pm$ biotite. The intrusive is generally medium to coarse grained, equigranular, with local porphyritic phases.

Geology within the claim is comprised of the above mentioned lithologies in a poorly understood structural relationship. The sedimentary and volcanic rocks occur on the southwestern flank of the batholith and are frequently intruded by very fine to medium grained, equigranular to porphyritic sills, dykes and stocks of granodiorite or more felsic rock related to the main intrusive body to the east and north. In the central portion of the claim, limestone of the Quatsino formation, on the lower portions of the steep slope, grades upslope into fine grained well bedded calcareous siltstone and micrite. These in turn grade into calcareous to non-calcareous, well bedded volcaniclastic rocks and non-bedded pyroclastic rocks, predominately lithic tuffs. However, on the western margin of the claim, almost the entire boundary is underlain by coarse pyroclastic rocks. Contact relationships between and within these two areas are obscured by the frequent intrusion of large and small dykes, sills and stocks. Similarly, faults and shears complicate geological relationships.

The main area of mineralization occurs in the central portion of the claim, in the upper reaches of the creek draining this region. Figure 1 shows the ENGL grid which is centred over the main area of mineralization. Figure 12 indicates generalized geology of the main creek.

Mineralization is generally structurally controlled along a sheared fault zone, which forms the creek bed, and its subsidiary shears, and consists primarily of sphalerite with local pods of massive pyrrhotite and chalcopyrite. The sulphides are sporadic within the shear zones and are often associated with gossanous weathering, and/or chlorite, sericite and silica alteration. Silica alteration may be easily confused with hornfelsing which occurs associated with the intrusions in some areas. Anomalous silver values generally occur associated with sphalerite. Minor mineralization occurs as replacements of lithic fragments in some areas within the pyroclastic rocks. The sheared fault zone, which generally trends southeast with a steep, northeasterly dip has a vertical displacement of approximately 150 m. Mineralization is generally but not strictly confined to the downthrown, hanging wall side of the fault, and as such is generally located on the northeastern side of the stream.



METERS

0 100 200

LEGEND

820/270 — CONTOUR LINE WITH ELEVATION IN METERS/FEET ABOVE SEA LEVEL

ALPINE MARSH

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FIGURE 2
ENGL GRID
TOPOGRAPHY

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/7

Revised

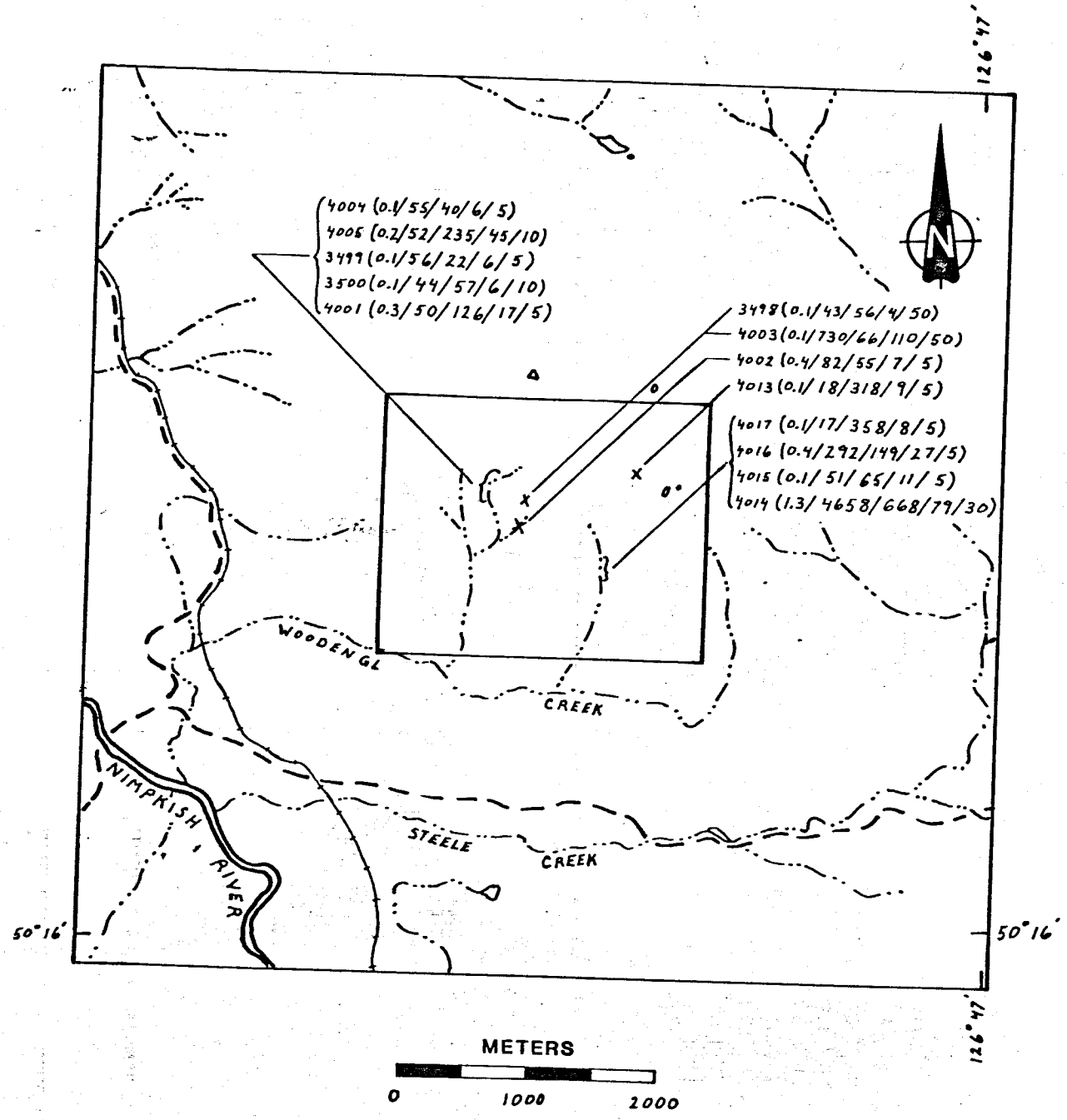
2.2 Geochemistry

The geochemical survey consisted of systematic rock chip sampling, selective grab sampling and soil sampling. Fifteen rock samples were collected in the grid area across the trend of the sporadically mineralized structure and subsidiary structures in order to acquire an estimate of the average grade of mineralization. The length of chip samples varied according to the width of the shear zone, however generally chips were selected at intervals of 20 to 30 cm over a length of 3 to 5 m.

Twenty-one grab samples on the grid, and thirteen grab and chip samples elsewhere on the claim were collected to test specific characteristics of mineralization, such as the silver content of sphalerite, or the potential for disseminated mineralization in wall rocks outside shear zones. Rock sample locations and analytical results are shown in Figures 3 to 5. Figure 3 shows locations and results of samples outside the ENGL grid area. Figures 4 and 5 show locations and results of grab samples and chip samples respectively. A complete listing of rock sample analyses is contained on pages 2 and 3 of Appendix II.

In addition 24 soil samples were collected at 100 m intervals on the ENGL grid area. Figure 6 shows the locations of the twenty-three upper B-horizon soil samples collected. One C-horizon soil sample (VA-01-2-3964) was collected directly above mineralization at the location of B-horizon soil sample VA-01-2-3965. Soil samples were collected from the upper B-horizon generally at depths of 15 to 30 cm. Figures 7 to 11 show the analytical results of the five most significantly variable elements. A complete listing of soil sample analyses is contained on page 1 of Appendix II.

Analyses were performed by Acme Analytical Laboratories Ltd., 852 E. Hastings Street, Vancouver, B.C. Rock samples were crushed to a -100 mesh pulp, soil samples sieved to a -80 mesh pulp. All samples were analysed for thirty elements by inductively coupled argon plasma method. As well, all samples were analysed for gold by fire assay preconcentration and atomic absorption methods, and mercury by cold vapour atomic absorption.



LEGEND

ROAD
RAILWAY
STREAM
CLAIM BOUNDARY
SAMPLE LOCATION
SAMPLE NUMBER AND Ag/Cu/Zn/As/Hg VALUES IN PPM

X
4004(0.1/55/40/6/5)

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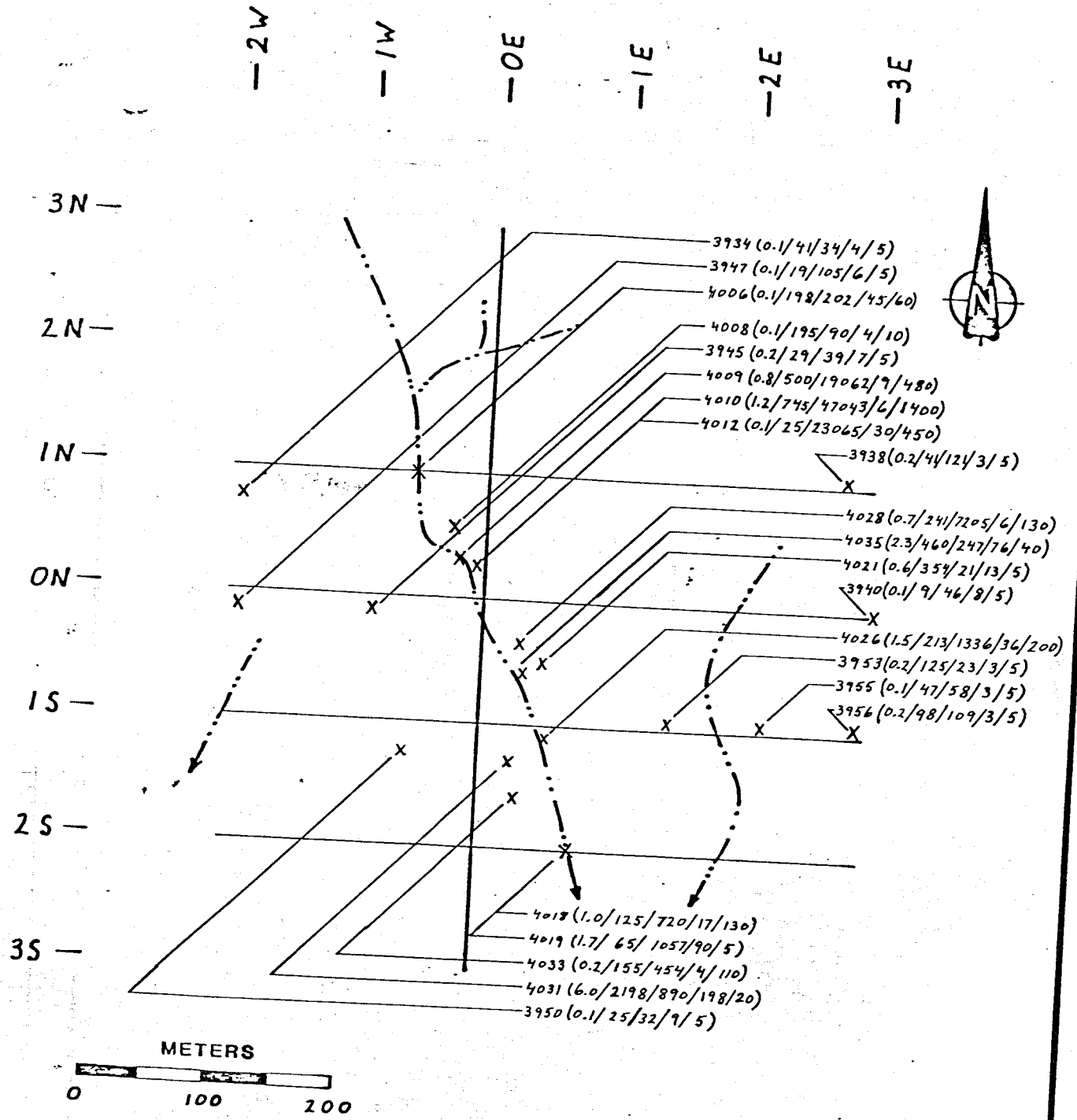
FIGURE 3

ENGL CLAIM

ROCK GEOCHEMISTRY EXCLUSIVE OF GRID AREA

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/7

Revised



LEGEND

GRID LINE

STREAM

X
3934 (0.1/41/34/4/5)

ROCK GRAB SAMPLE
SAMPLE NUMBER AND Ag/Cu/Zn/As/Hg VALUES IN PPM

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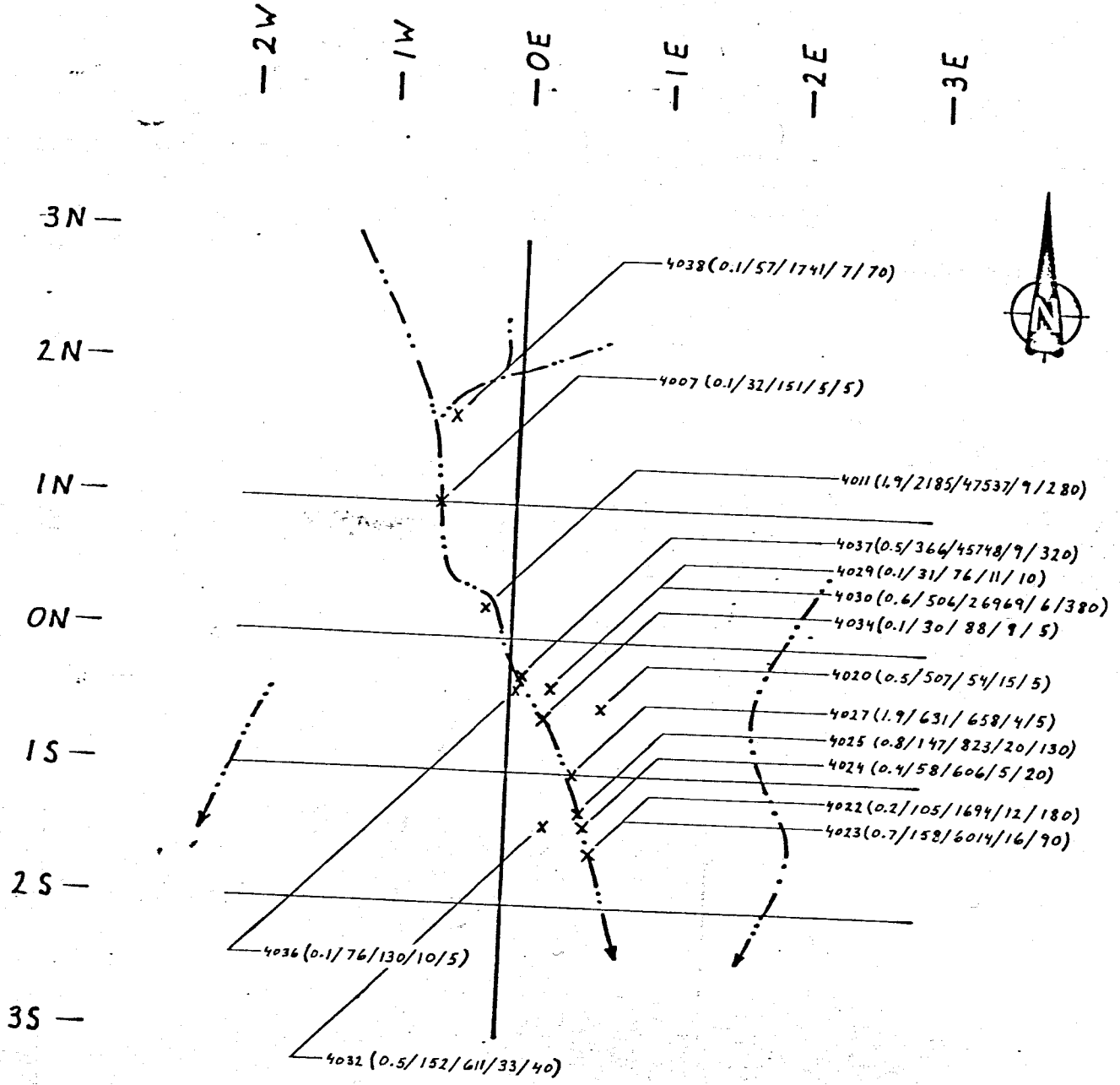
FIGURE 4
ENGL GRID
ROCK GRAB SAMPLE GEOCHEMISTRY

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/17
Revised		



METERS

0 100 200

LEGEND

GRID LINE

STREAM

X 4034(0.1/30/88/9/5) ROCK CHIP SAMPLE SAMPLE NUMBER AND Ag/Cu/Zn/As/Hg VALUES IN PPM

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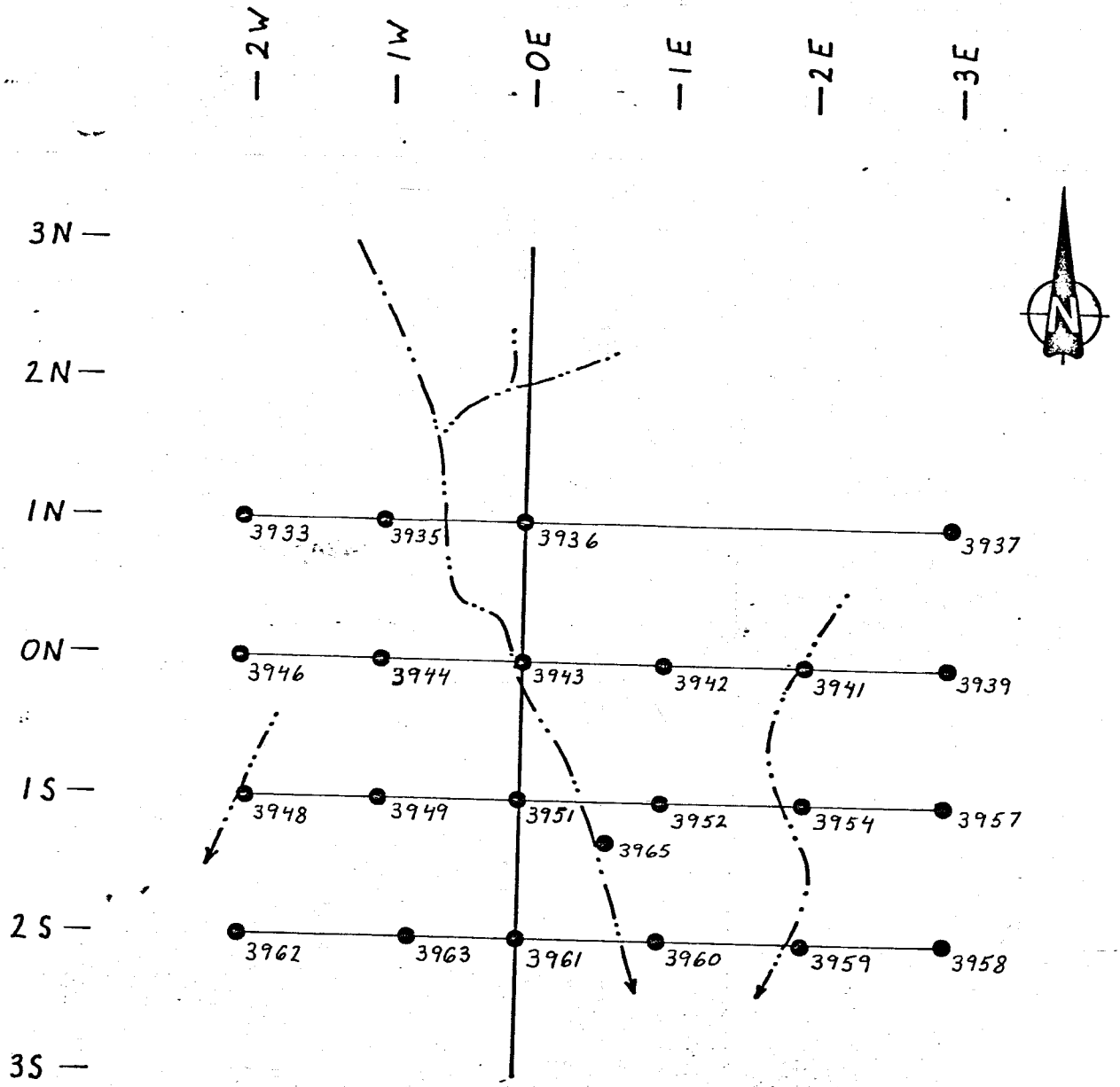
FIGURE 5

ENGL GRID

ROCK CHIP SAMPLE GEOCHEMISTRY

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/7

Revised



LEGEND

GRID LINE

STREAM

3933 LOCATION AND NUMBER OF UPPER B HORIZON SOIL SAMPLE

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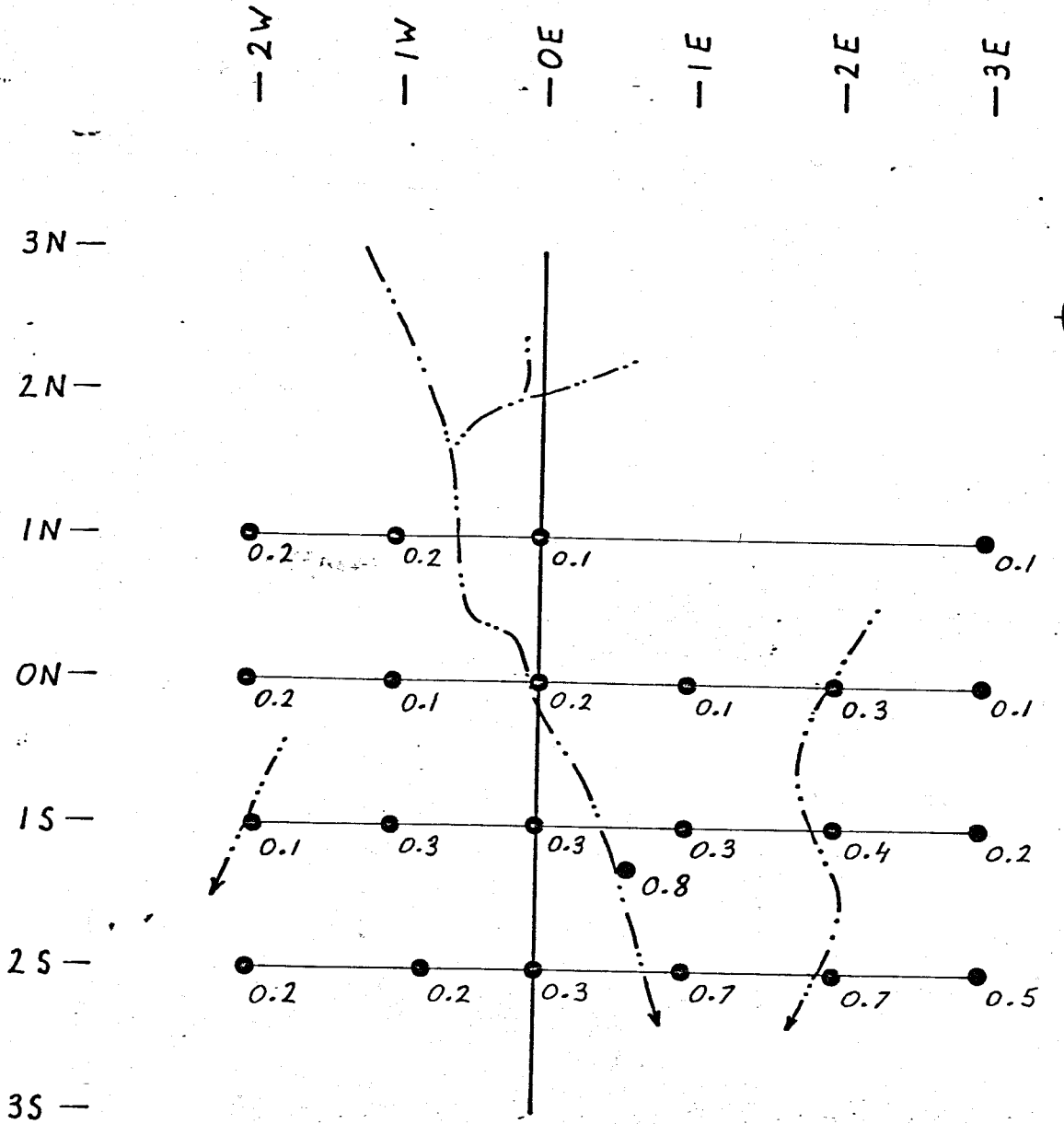
FIGURE 6

ENGL GRID

SOIL SAMPLE LOCATIONS

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS
Revised		92L/T



METERS

0 100 200

LEGEND

GRID LINE

STREAM

● 0.2 PPM Ag IN UPPER B HORIZON SOIL SAMPLE

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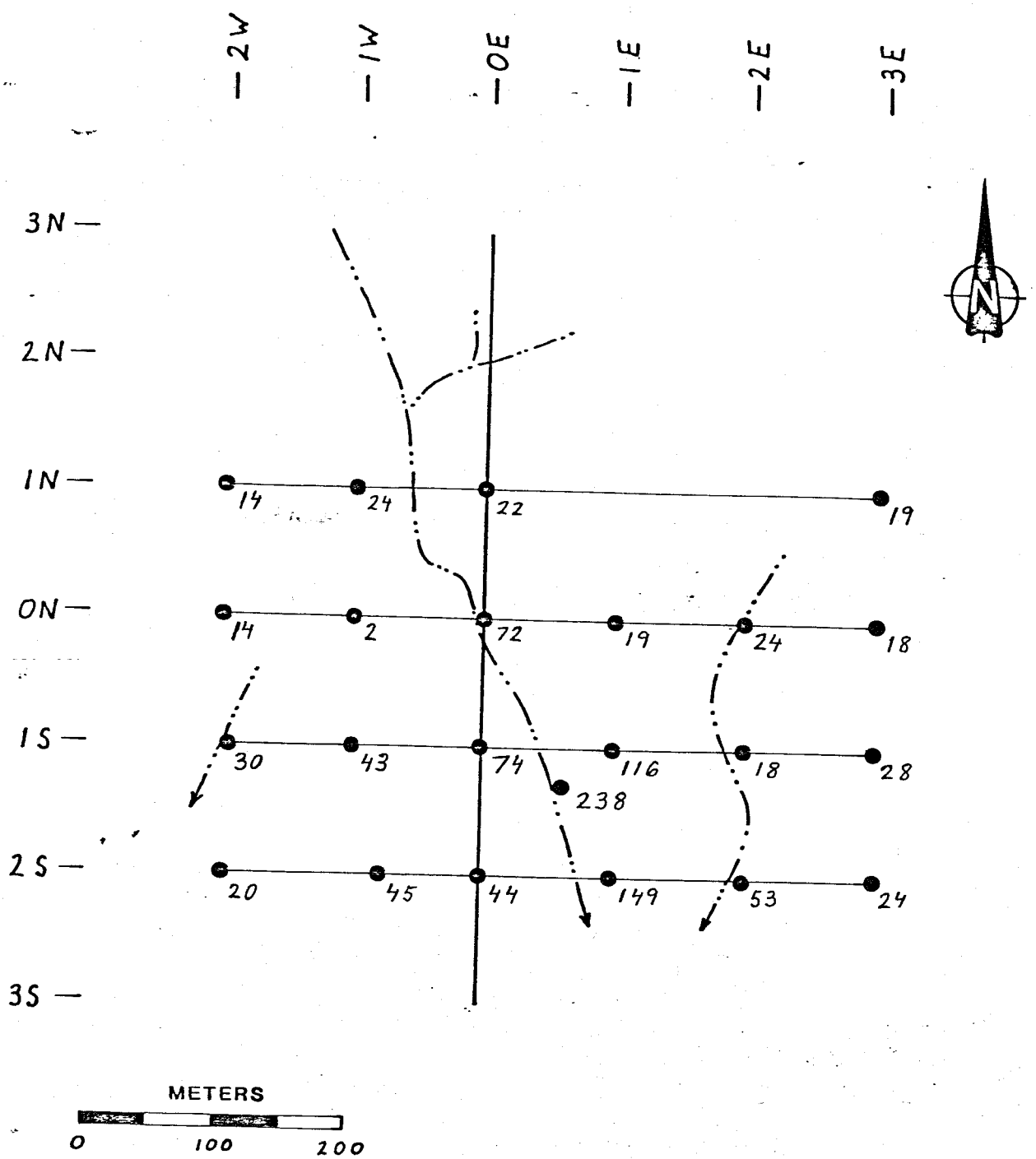
FIGURE 7

ENGL GRID

SOIL GEOCHEMISTRY - SILVER

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS
Revised		92L/T



METERS

0 100 200

LEGEND

GRID LINE

STREAM

● 14 PPM Cu IN UPPER B HORIZON SOIL SAMPLE

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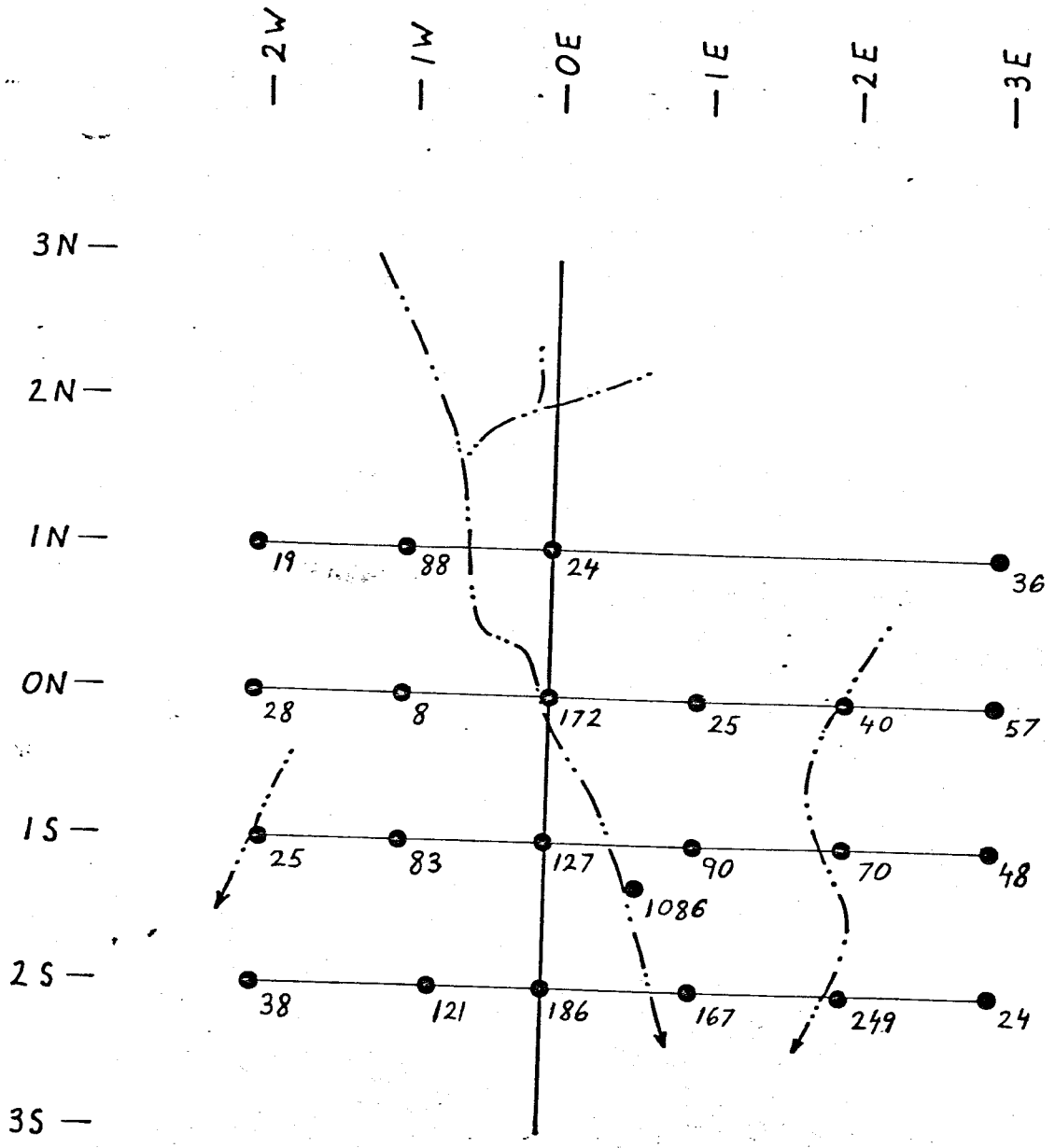
FIGURE 8

ENGL GRID

SOIL GEOCHEMISTRY – COPPER

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS
Revised		92L/7



METERS

0 100 200

LEGEND

GRID LINE

STREAM

● 19 PPM Zn IN UPPER B HORIZON SOIL SAMPLE

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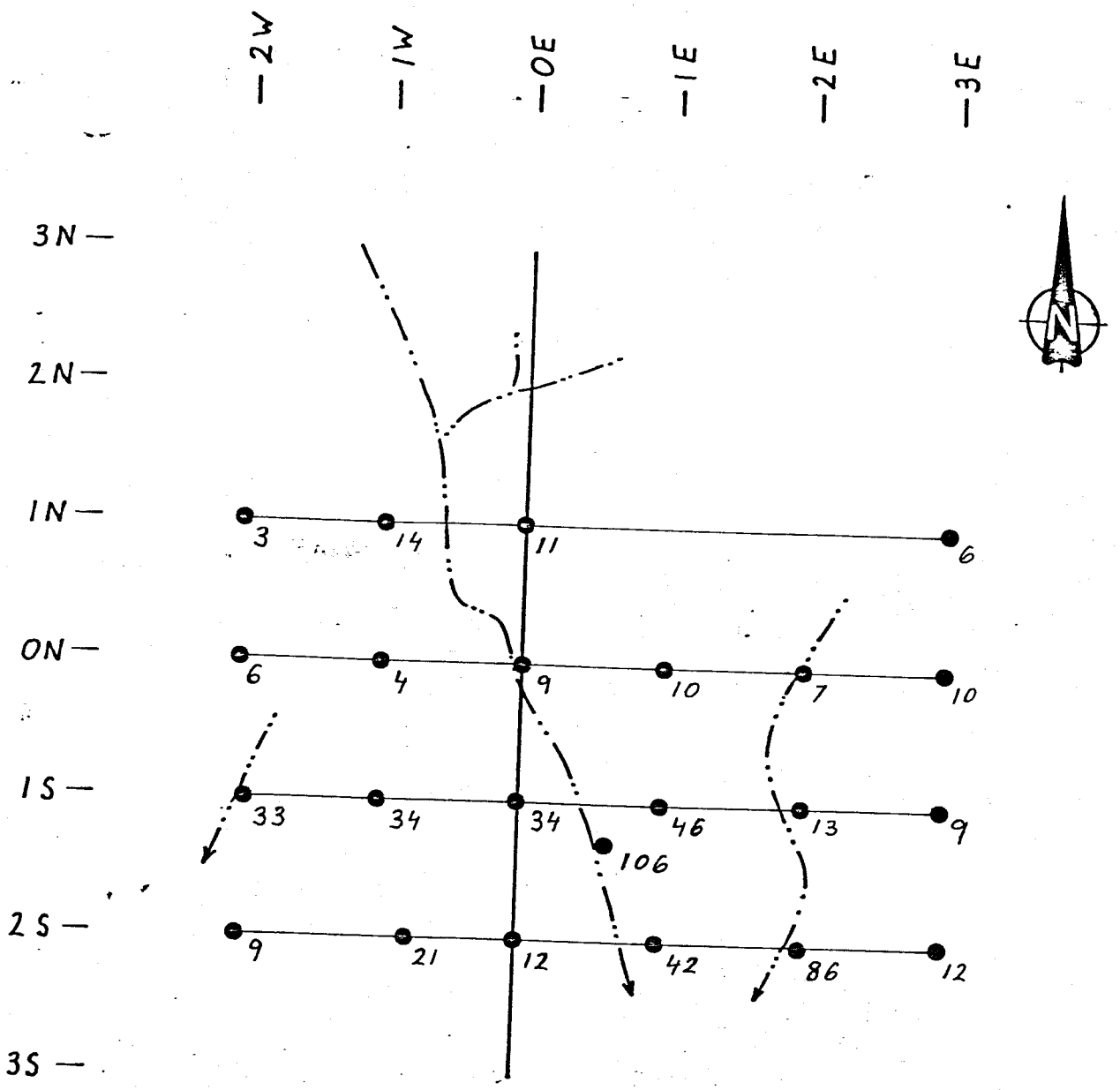
FIGURE 9

ENGL GRID

SOIL GEOCHEMISTRY - ZINC

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/1

Revised



METERS

0 100 200

LEGEND

GRID LINE

STREAM

● 3 PPM As IN UPPER B HORIZON SOIL SAMPLE

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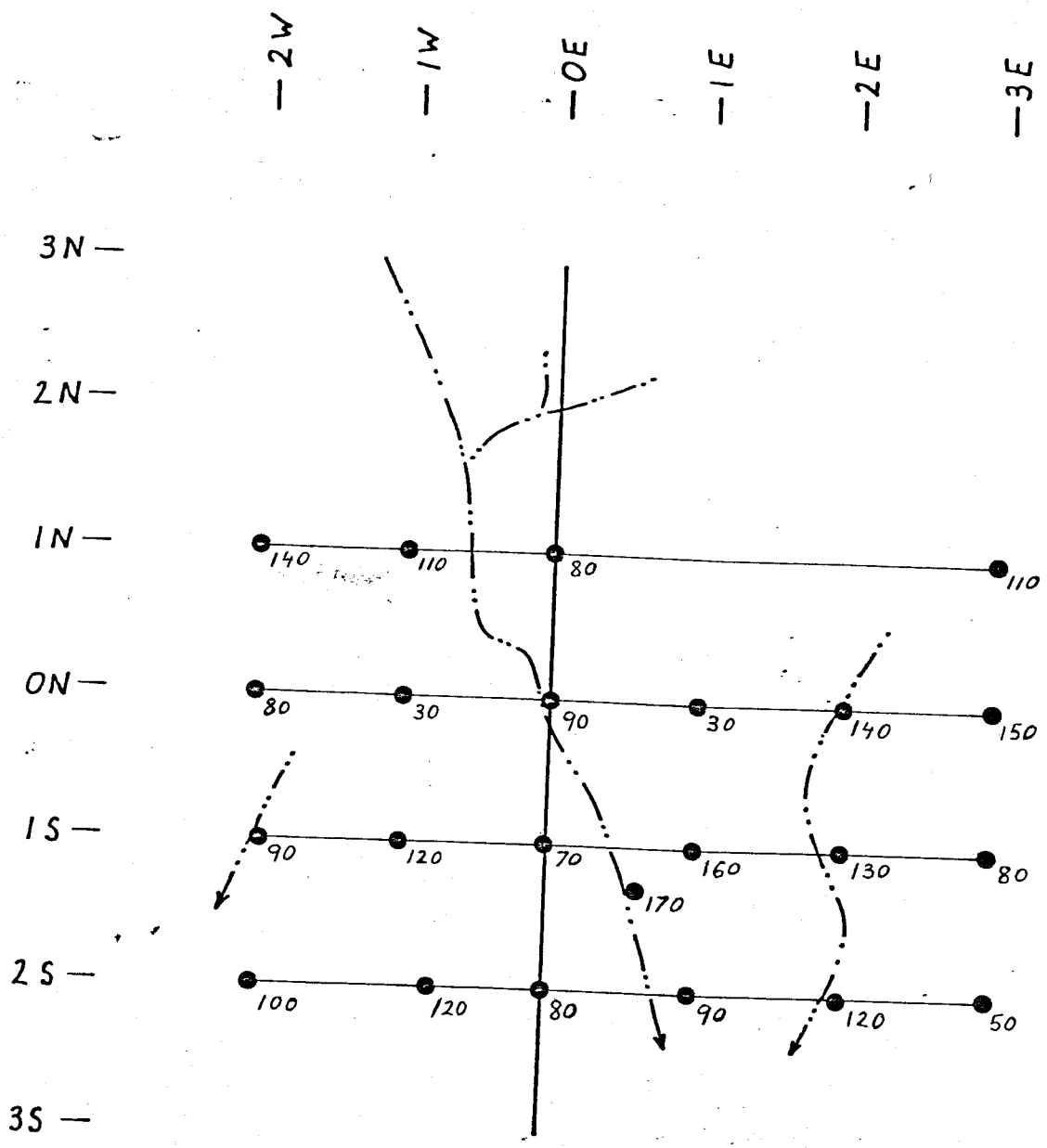
FIGURE 10

ENGL GRID

SOIL GEOCHEMISTRY – ARSENIC

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/1T

Revised



METERS

0 100 200

LEGEND

GRID LINE

STREAM

PPM Hg IN UPPER B HORIZON SOIL SAMPLE

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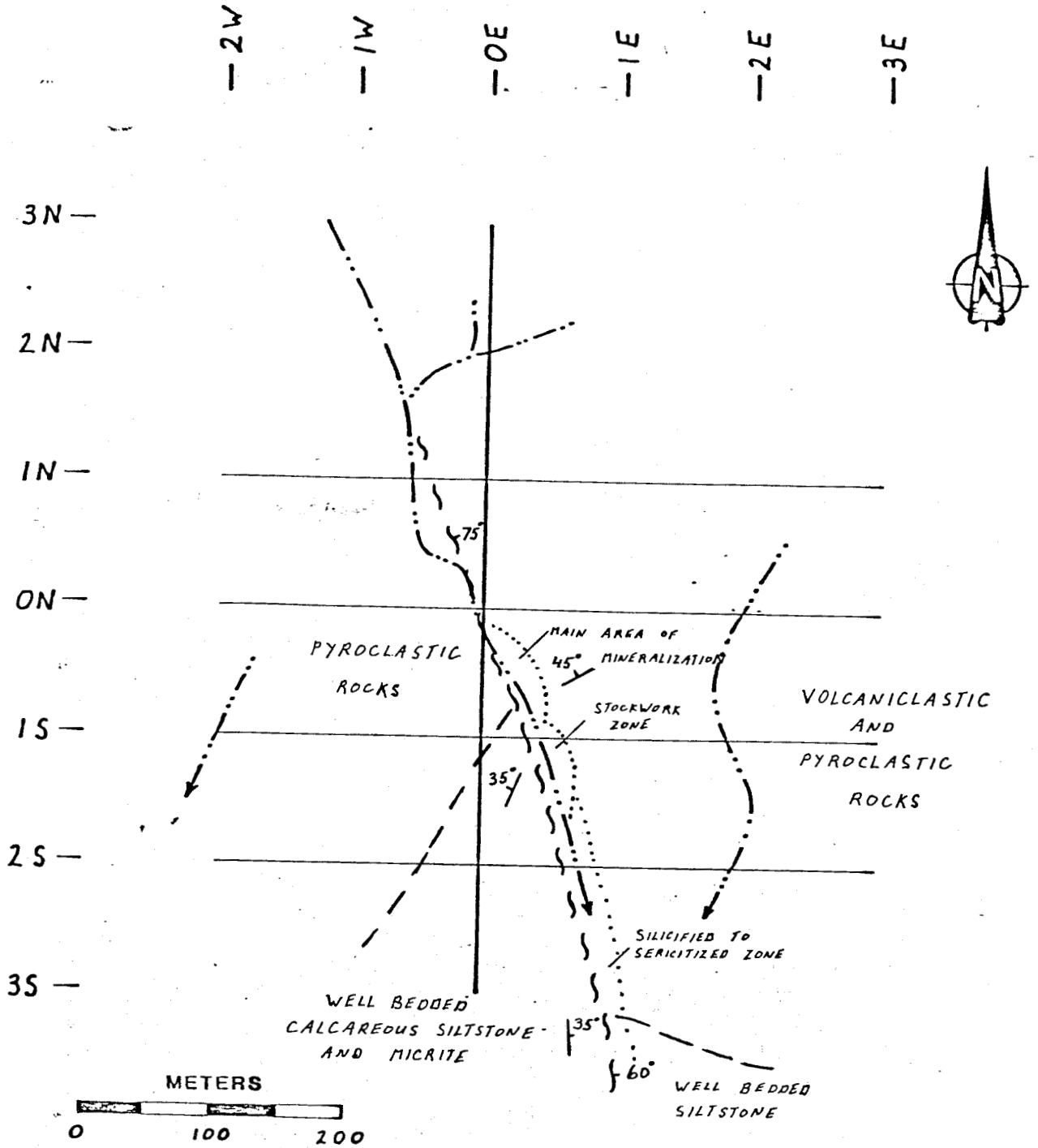
FIGURE 11

ENGL GRID

SOIL GEOCHEMISTRY - MERCURY

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS 92L/7

Revised



LEGEND

- STREAM
- GEOLOGIC CONTACT
- FAULT ZONE
- FAULT ATTITUDE
- BEDDING ATTITUDE

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FIGURE 12

ENGL GRID

GENERALIZED GEOLOGY OF MAIN CREEK

DRAWN	DATE	FILE CODE
GJP	SEPT. 1984	NTS
Revised		92L/17

For ICP and mercury analyses half gram samples were digested in dilute aqua regia in a boiling water bath and then diluted to 10 ml with de-mineralized water in preparation for analysis. For gold analyses 10 to 30 gram samples were required and digestion was as above. The sample was subjected to fire assay preconcentration techniques to produce a silver bead. The bead was dissolved and gold content determined in the solution by graphite furnace atomic absorption. Mercury, in solution, is determined by cold vapour atomic absorption. A small portion of the extract is added to a stannous chloride/hydrochloric acid solution. The reduced mercury is swept out of the solution and passed into a mercury cell where it is measured by atomic absorption.

3.0 INTERPRETATION, SUMMARY AND CONCLUSIONS

An averaging of chip samples collected on the ENGL grid over a vertical distance of about 125 meters and a horizontal distance of about 300 meters yields values of 336 ppm Cu, 8,860 ppm Zn, and 0.566 ppm Ag. Rock grab samples on the grid show that local concentrations attain grades up to 4.7% zinc, 0.2% copper, and 6 grams/tonne silver. These values are from selected samples of visibly high grade rock and are not consistent over appreciable areas. Outside the immediate area of mineralization grab and chip samples suggest limited potential for a wider area of mineralization. Anomalous values in soil samples from an area of limited outcrop exposure on the southern portion of the grid suggest that mineralization may exist in the subsurface south of the grid. The anomalous values in soils probably do not reflect significant underlying zinc mineralization since they are less than 23% of an anomalous B-horizon soil sample collected directly above known mineralization (Sample 3965).

A liberal assessment of tonnage and grade in the grid area is estimated at approximately 2,500 tonnes averaging 0.5% zinc, 0.5 grams/tonne silver and minor copper.

In summary, mineralization, predominantly sphalerite, occurs structurally controlled along a fault which juxtaposes pyroclastic rocks to the east against calcarous well bedded siltstone, sandstone and micrite to the west. Highest grade mineralization occurs along the fault structure and subsidiary minor structures, but secondary controls may be represented by lithological changes. In this regard mineralization occurs predominantly within the pyroclastic volcanic rocks which overlie the calcareous sedimentary rocks. The role of the abundant dykes and sills in the area is not known with certainty, although they are infrequently mineralized and are truncated in places by fault structures. The fault zone itself is less than a meter wide and consists of clay gouge material. No mineralization is observed within this gouge zone, although alteration and mineralization parallel the fault trend within the hanging wall. Alteration mineralogy is variably silica, sericite and chlorite and the highest grade mineralization has a strong association with chlorite. A silicified quartz stockwork zone about 3 to 5 m wide occurs in the hanging wall below the main area of mineralization, contains limited high grade zinc mineralization, and probably represents a feeder system to the overlying mineralization.

At present the area does not appear to have economic potential. Mineralization is limited to a small area and although zinc mineralization attains very local high grades, the silver content is not exceptional. There is no evidence to suggest that mineralization may be more extensive with depth, nor laterally away from the fault zone.

Further work may be warranted at lower elevations where potential was not investigated. If mineralization is related to the intrusives of the area then skarn potential may exist in limestone presumed to underlie the well bedded, calcareous sedimentary rocks observed during the present investigation.

4.0 ITEMIZED COST STATEMENT

Introduction

August 14, 1984 was spent in Port McNeill doing logistical work and waiting for an available helicopter for transportation to the ENGL claim. August 15th to August 20th were spent establishing a preliminary grid and rock and soil sampling. Reconnaissance geological mapping was also performed in two areas east and west of the main area of mineralization. August 21, 1984 was spent in Port McNeill compiling field work. An additional 6 man-days were spent preparing the assessment report in mid September. Two geologists were employed during this work.

Itemized Costs

Salaries: August 14 to 21, 1984 and September 11 to 13, 1984

11 man days @ $ 90.38	- $ 994.18	
11 man days @ $107.69	- 1,184.59	
		$2,178.77

Geochemical analyses: Acme Analytical Labs

74 ICP @ $6.00	$444.00	
74 Geochem Au by F.A. & A.C. @ $5.50	407.00	
74 Geochem Hg by A.A. @ $3.00	222.00	
24 Soil preparations @ $0.60	14.40	
50 rock preparations @ $2.75	137.50	
		$1,224.90

Accommodations:

August 13, 1984	$ 36.38	
August 14, 1984	36.38	
August 20, 1984	36.38	
		$ 109.14

Itemized Cost Statement - cont'd

Meals:			
	August 14, 1984	$ 73.70	
	August 15, 1984	9.45	
	August 20, 1984	41.00	
	August 21, 1984	36.70	
			$ 160.85
Supplies:			
	Groceries August 14	$128.48	
	Field Materials August 14	2.12	
	Office " August 21	7.48	
			$ 138.08
Transportation: Okanagan Helicopters			
	August 15	$533.50	
	August 20	533.50	
			$1,067.00
Vehicle Rental:			
	August 14 to August 21 - 8 days @ 1039.75/month x 8/30		$ 277.27
Laundry:	August 21		$ 5.00
Air Photos:	4 @ $2.50		$ 10.00
		TOTAL:	$5,171.01

5.0 BIBLIOGRAPHY

Carson, D.J.T., 1973, The plutonic rocks of Vancouver Island; G.S.C. paper 72-44

Muller, J.E., Northcote, K.E., and Carlisle, D., 1974, Geology and mineral deposits of Alert Bay - Cape Scott map-Area, Vancouver Island, British Columbia; G.S.C. paper 74-8

APPENDIX I

APPENDIX I SAMPLE DESCRIPTIONS

All samples prefixed with VA-01-4-

3498 grab; fine grained, pale green coloured, equigranular diorite containing less than 1% pyrite

3499 chip; over 10 m; well bedded dark grey to grey coloured, fine to medium grained. Some beds calcareous, some contain up to 10% syngenetic? pyrrhotite.

3500 grab; pale grey-green coloured, very fine grained feldspathic dyke with minor pyrrhotite intruding well bedded volcaniclastics

3934 grab; light grey, fine grained lithic tuff; less than 2% pyrrhotite

3938 grab; dark green, very fine grained, volcanic rock. Weakly pervasive chlorite with some calcite (and quartz?) microveinlets.

3940 grab; feldspar and minor hornblende phenocrysts in a fine grained felsic matrix. Feldspars and hornblende somewhat chloritically altered. Weak pervasive sericitization and silicification.

3945 grab; light grey, fine grained volcanic? rock minor pyrrhotite.

3947 feldspar-hornblende $\pm$ biotite porphyry. Phenocrysts up to 2 mm in light green coloured matrix. Hornblende chloritized. Minor fine grained pyrrhotite.

3950 grab; light green, lithic-crystal lapilli tuff; rounded feldspar crystals up to 3 mm long, rounded fragments up to 1 cm in diameter

3953 grab; light grey, very fine grained, Bonanza tuff. Minor pyrite, graphite and manganese oxide.

3955 grab; dioritic feldspar-hornblende porphyry. Phenocrysts up to 3 mm long. Minor disseminated pyrrhotite.

3956 grab; light grey, lithic-crystal-lapilli tuff. Rounded fragments up to 2 cm long, feldspar crystals up to 2 cm long. Occasional hairline quartz veinlets, minor disseminated pyrrhotite and dendritic manganese oxide.

4001 chip; black to grey, calcareous siltstone to micrite. Up to 5% pyrrhotite.

4002 grab; quartz vein trending 160^{o} containing some green host rock and minor chalcopyrite and pyrite.

4003 grab; pyritized, epidotized, gossaned granular rock-possibly greywacke but more likely diorite with leached or altered grain boundaries and matrix.

4004 grab; silicified, pale green-grey, lithic-crystal tuff cut by very fine quartz veinlets. Minor pyrrhotite.

4005 grab; pyritic zone in fault gouged volcaniclastic rock cut by felsic veinlets.

4006 grab; pale green, sericitized diorite (?) cut by calcite, quartz, and sulphide veinlets.

4007 chip; variably sericitized to silicified, locally gossanous rock with fracture coatings of pyrite.

4008 grab; chloritic, possibly sericitized, diorite (?) with pyrrhotite.

4010 grab; fracture controlled, gossanous zones containing chlorite, quartz, sericite, sphalerite, and pyrrhotite in diorite (?).

4011 chip; chloritic, sericitic diorite (?) with local blebs and disseminations of sphalerite.

4012 grab; sericitized, mildly silicified, pale grey-green rock with tabular blebs and disseminations of sphalerite.

4013 grab; green-grey, slightly porphyritic diorite. Minor pyrrhotite.

4014 grab; well bedded, moderately hornfelsed, siltstone to mudstone with local occurence of chalcopyrite, pyrrhotite $\pm$ sphalerite. Some felsic veinlets and shearing.

4015 chip; strongly deformed, black to grey, gouged micrite with $\leq 5\%$ pyrite. Cut by abundant calcite $\pm$ quartz veinlets.

4016 chip; pyrrhotite-rich, chloritized to silicified metasedimentary rock cut by calcite and quartz veinlets up to 2 mm wide.

4017 grab; pale green, sericitized metasedimentary rock with up to 2% pyrite. Cut by calcite veinlets.

4018 grab; sericitized, pale green to grey, slightly sheared metasediment. Up to 3% pyrite.

4019 grab; single quartz-calcite vein with abundant chlorite and pyrite.

4020 chip; well bedded, variably sericitized to moderately silicified volcaniclastic rock. Locally gossanous with pyrite $\pm$ pyrrhotite and manganese.

4021 grab; local pod of gossanous, pyrrhotite-manganese bearing, volcaniclastic rock.

4022 chip; pale green, variably silicified and sericitized pyroclastic rock (lapilli to lithic tuff) with occasional quartz veinlets near shear zone. Contains quartz, plagioclase chlorite, cubic pyrite $\pm$ sphalerite.

4023 chip; duplicate sample of 4022.

4024 chip; pale green, variably silicified to sericitized volcaniclastic or pyroclastic fragmental rock. Variable amounts of pyrite, chlorite and quartz.

4025 chip; pale to dark green, pyroclastic rock cut by veinlets of quartz and calcite. Contains variable amounts of pyrite and chlorite.

4026 grab; slightly mineralized, massive, smoky white quartz vein east of shear zone.

4027 chip; sample across shear zone of moderately to strongly silicified pyroclastic rock with stockwork quartz veining (approximately 20 veins/meter over 4 meters). Pale green to white in colour.

4028 grab; sericitized to mildly silicifed pyroclastic rock with pod (replacing fragment?) of sphalerite. Some thin quartz-calcite veinlets.

4029 chip; strongly gossaned zone about 1 m wide by 15 m long of pyroclastic rock $\pm$ sphalerite, pyrite, pyrrhotite and chalcopyrite. Sulphides occur in pods associated with thin quartz-calcite veinlets generally trending 150°

4030 chip; similar to 4029

4031 grab; sericitized to silicified limestone with small pods about 20 cm x 4 cm of massive pyrrhotite.

4032 chip; dark to pale grey, calcareous siltstone to micrite. Up to 5% pyrite.

4033 grab; thinly bedded, dark grey, calcarous siltstone to micrite. Mildly silicified, containing finely disseminated cubic pyrite and narrow, tan to white coloured calcite veinlets. Rock weathers to a black to tan, knobby surface.

4034 chip; relatively unaltered micrite to calc-silicate. Deformed with bedding nearly vertical. Cut by calcite veinlets and contains up to 2% disseminated pyrite.

4035 grab; chloritic rock with veins and disseminated pyrite; strongly gossaned.

4036 chip; mildly silicified to sericitized pyroclastic rock with minor disseminated pyrite.

4037 chip; variably silicified, sericitized, chloritized, gossaned pyroclastic rock. Mineralization hosted in fracture zones trending 150°, dipping 70° to the east.

4038 chip; variably sericitized to mildly silicified, pale green to grey, volcanic rock. Up to 2% pyrite.

APPENDIX II

ACME ANALYTICAL LABORATORIES LTD. 852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6 PHONE 253-3158

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1-SOIL P2-3 ROCK AU** ANALYSIS BY FA+AA FROM 10 GRAM SAMPLE. HG ANALYSIS BY FLAMELESS AA.

DATE RECEIVED: AUG 23 1984 DATE REPORT MAILED: Aug 24/84 ASSAYER. Dean Toye DEAN TOYE. CERTIFIED B.C. ASSAYER

HOMESTAKE MINERAL PROJECT # 5710 FILE # 84-2257 PAGE 1

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	MN PPM	FE %	AS PPM	U PPM	AU PPM	TH PPM	SR PPM	CD PPM	SB PPM	BI PPM	V PPM	CA %	P %	LA PPM	CR PPM	MG %	BA PPM	TI %	B PPM	AL %	NA %	K %	W PPM	AU** PPB	HG PPB
VA-01-2-3933	2	14	13	19	.2	5	1	81	5.80	3	5	ND	3	11	1	2	2	137	.09	.06	2	14	.10	29	.29	18	1.43	.01	.03	2	2	140
VA-01-2-3935	1	24	22	88	.2	1	1	111	10.41	14	5	ND	5	9	1	2	2	215	.07	.07	2	25	.12	23	.21	7	2.60	.01	.04	2	7	110
VA-01-2-3936	1	22	16	24	.1	1	1	81	9.59	11	5	ND	4	10	1	2	2	264	.08	.06	2	22	.07	24	.48	13	2.07	.01	.03	2	1	80
VA-01-2-3937	1	19	22	36	.1	4	1	248	6.79	6	5	ND	4	9	1	2	2	156	.10	.09	2	16	.25	39	.23	15	2.61	.01	.03	2	2	110
VA-01-2-3939	1	18	31	57	.1	5	1	365	3.77	10	5	ND	5	15	1	2	2	90	.14	.24	2	18	.17	29	.22	20	3.93	.01	.02	2	2	150
VA-01-2-3941	1	24	16	40	.3	5	1	266	5.11	7	5	ND	3	10	1	2	2	110	.10	.10	2	16	.12	31	.20	13	2.99	.01	.02	2	2	140
VA-01-2-3942	2	19	10	25	.1	8	1	87	2.90	10	5	ND	2	27	1	2	3	154	.17	.07	2	11	.09	26	.44	20	.65	.01	.01	2	2	30
VA-01-2-3943	1	72	14	172	.2	12	2	220	4.26	9	5	ND	3	25	1	2	2	84	.21	.05	2	23	.43	46	.23	24	4.29	.01	.02	2	1	90
VA-01-2-3944	2	2	24	8	.1	3	1	31	.70	4	5	ND	2	17	1	2	2	100	.12	.02	2	6	.04	26	.23	21	.47	.01	.02	2	1	30
VA-01-2-3946	1	14	15	28	.2	8	1	146	8.48	6	5	ND	4	9	1	2	2	220	.13	.12	2	59	.43	46	.51	17	2.92	.01	.04	2	2	80
VA-01-2-3948	.1	30	10	25	.1	5	1	83	5.39	33	5	ND	2	13	1	2	2	118	.13	.07	2	15	.13	33	.34	25	2.44	.01	.02	2	7	90
VA-01-2-3949	1	43	28	83	.3	9	1	288	7.07	34	5	ND	4	17	1	2	2	131	.15	.15	2	19	.43	41	.28	18	5.49	.01	.03	2	13	120
VA-01-2-3951	4	74	21	127	.3	13	1	339	8.73	34	5	ND	2	29	1	2	2	147	.63	.41	2	20	.43	41	.24	2	2.54	.01	.01	2	1	70
VA-01-2-3952	1	116	8	90	.3	16	12	362	9.22	46	5	ND	4	28	1	2	2	139	.30	.11	2	24	.37	52	.36	22	5.05	.01	.03	2	3	160
VA-01-2-3954	1	18	17	70	.4	6	1	182	4.09	13	5	ND	3	12	1	2	2	100	.12	.07	2	12	.17	33	.21	20	3.09	.01	.03	2	1	130
VA-01-2-3957	1	28	15	48	.2	5	1	171	8.62	9	5	ND	4	20	1	2	2	130	.17	.09	2	21	.25	30	.36	10	2.26	.01	.01	2	2	80
VA-01-2-3958	1	24	21	24	.5	3	1	206	5.09	12	5	ND	2	20	1	2	2	100	.19	.12	2	8	.17	38	.26	16	1.03	.01	.03	2	2	50
VA-01-2-3959	1	53	94	249	.7	8	10	328	7.06	86	5	ND	4	15	1	2	2	100	.16	.08	2	21	.25	38	.18	24	5.24	.01	.02	2	3	120
VA-01-2-3960	1	149	13	167	.7	19	6	336	4.52	42	5	ND	5	28	1	2	2	77	.23	.08	2	16	.54	59	.22	19	2.78	.01	.02	2	1	90
VA-01-2-3961	3	44	12	186	.3	15	2	242	5.62	12	5	ND	4	20	1	3	2	136	.38	.18	2	21	.27	48	.14	13	3.16	.01	.03	3	1	80
VA-01-2-3962	1	20	8	38	.2	7	1	118	3.78	9	7	ND	3	24	1	2	3	84	.20	.06	2	14	.21	46	.27	15	2.90	.01	.02	2	1	100
VA-01-2-3963	17	45	10	121	.2	35	1	120	4.54	21	9	ND	2	16	1	2	2	98	.10	.28	2	22	.26	48	.14	2	3.91	.01	.02	2	2	120
VA-01-2-3964	11	1286	1562	5449	1.8	29	219	3871	6.39	292	5	2	3	26	32	2	2	78	.34	.32	13	34	.68	69	.09	2	4.13	.01	.04	2	38	470
VA-01-2-3965	5	238	58	1086	.8	23	4	437	5.81	106	7	ND	4	20	1	2	5	87	.18	.08	2	28	.66	69	.18	2	3.96	.01	.03	2	5	170
STD S-1/FA-AU	93	123	115	189	32.3	152	82	493	3.16	122	88	35	176	127	83	70	92	57	.56	.12	129	64	.58	123	.08	160	1.50	.22	.23	61	51	90

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Appendix II

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	MN PPM	FE %	AS PPM	U PPM	AU PPM	TH PPM	SR PPM	CD PPM	SB PPM	BI PPM	V PPM	CA %	P %	LA PPM	CR PPM	MG %	BA PPM	TI %	B PPM	AL %	NA %	K %	W PPM	AU** PPB	HG PPB
VA-01-4-3934	2	41	1	34	.1	11	7	314	3.54	4	5	ND	2	83	1	2	2	80	1.07	.11	9	8	1.07	24	.19	24	1.93	.13	.04	2	11	5
VA-01-4-3938	1	41	6	121	.2	15	10	971	5.22	3	5	ND	2	157	1	2	2	99	1.54	.13	10	8	2.29	47	.20	4	3.88	.37	.03	2	3	5
VA-01-4-3940	2	9	9	46	.1	9	3	564	1.81	8	5	ND	2	56	1	2	2	44	.93	.14	13	5	.42	25	.18	26	1.03	.06	.03	2	2	5
VA-01-4-3945	1	29	1	39	.2	6	5	466	3.09	7	5	ND	3	51	1	2	2	66	1.01	.13	8	6	1.23	62	.25	29	1.89	.11	.05	2	1	5
VA-01-4-3947	1	19	1	105	.1	20	4	464	2.89	6	5	ND	2	121	1	2	2	64	1.34	.11	7	28	1.38	28	.21	28	2.57	.17	.03	2	2	5
VA-01-4-3950	1	25	1	32	.1	16	4	449	2.52	9	5	ND	2	46	1	2	2	64	.97	.12	9	21	1.34	48	.25	24	1.69	.06	.02	2	3	5
VA-01-4-3953	1	125	2	23	.2	24	11	256	4.10	3	5	ND	2	169	1	2	2	40	1.28	.09	6	12	.64	60	.19	29	2.32	.29	.03	2	1	5
VA-01-4-3955	1	47	1	58	.1	2	2	724	3.79	3	5	ND	2	44	1	2	2	68	.83	.07	8	5	1.39	33	.27	28	2.08	.05	.04	2	1	5
VA-01-4-3956	1	98	5	109	.2	35	12	460	3.99	3	5	ND	2	191	1	2	2	53	1.54	.11	8	46	1.00	27	.11	30	2.74	.14	.02	2	2	5
VA-01-4-3498	1	43	1	56	.1	4	2	451	3.60	4	5	ND	2	48	1	2	2	71	.99	.06	7	8	1.20	65	.26	30	2.17	.09	.04	2	2	50
VA-01-4-3499	2	56	1	22	.1	21	5	300	2.96	6	5	ND	2	115	1	2	2	51	3.03	.08	5	20	.78	151	.14	31	1.91	.23	.03	2	2	5
VA-01-4-3500	2	44	1	57	.1	1	1	736	4.09	6	5	ND	3	17	1	2	2	32	.79	.13	9	2	1.15	44	.26	27	1.70	.05	.04	2	1	10
VA-01-4-4001	1	50	1	126	.3	17	4	285	3.91	17	5	ND	2	71	1	2	2	43	3.81	.05	3	17	1.51	31	.12	27	1.91	.08	.04	2	1	5
VA-01-4-4002	1	82	27	55	.4	4	1	568	1.50	7	5	ND	2	70	1	2	2	23	.79	.06	6	5	.71	8	.10	8	1.03	.01	.01	2	1	5
VA-01-4-4003	3	730	2	66	.1	11	21	217	4.37	110	5	ND	2	110	1	2	2	13	.84	.09	3	7	.10	11	.09	8	.53	.01	.01	2	1	50
VA-01-4-4004	1	55	1	40	.1	29	2	392	2.15	6	5	ND	2	170	1	2	2	34	1.42	.10	7	41	.80	42	.25	9	2.21	.22	.01	2	1	5
VA-01-4-4005	3	52	1	235	.2	4	10	936	2.34	45	5	ND	2	44	1	2	2	8	.83	.06	7	6	.26	11	.07	5	.35	.01	.01	2	4	10
VA-01-4-4006	3	198	5	202	.1	5	8	998	3.02	45	5	ND	2	126	1	2	2	13	5.87	.08	11	5	.69	13	.02	2	1.08	.01	.04	2	2	60
* VA-01-4-4007	2	32	2	151	.1	50	7	1249	4.15	5	5	ND	2	57	1	2	2	71	3.40	.09	11	94	2.30	48	.08	11	2.38	.05	.03	2	1	5
VA-01-4-4008	1	195	2	90	.1	9	12	601	5.26	4	5	ND	2	60	1	2	2	120	.89	.13	9	3	2.01	75	.24	3	2.41	.08	.03	2	2	10
VA-01-4-4009	19	500	7	19062	.8	42	24	2229	7.88	9	5	ND	2	46	116	2	12	90	.97	.11	6	127	3.04	24	.17	30	3.87	.01	.01	2	1	480
VA-01-4-4010	36	745	17	47043	1.2	64	55	4221	10.83	6	5	ND	3	13	267	2	17	110	.35	.10	12	220	3.72	13	.09	17	4.68	.01	.01	2	3	1400
* VA-01-4-4011	38	2185	10	47537	1.9	15	55	3219	8.20	9	5	ND	2	25	288	2	13	45	.36	.02	8	72	2.34	5	.05	2	3.28	.01	.01	2	4	280
VA-01-4-4012	21	25	2	23065	.1	3	38	2205	4.39	30	5	ND	2	35	142	2	8	9	1.91	.16	10	7	1.70	5	.05	4	1.52	.01	.01	2	2	450
VA-01-4-4013	2	18	1	318	.1	3	5	477	3.78	9	5	ND	3	34	1	2	2	77	.91	.13	13	6	1.10	32	.20	3	1.79	.06	.03	2	2	5
VA-01-4-4014	4	4658	1	668	1.3	41	42	597	2.73	79	5	ND	2	159	4	2	2	12	1.10	.01	8	8	.23	11	.05	5	.68	.01	.01	2	1	30
VA-01-4-4015	1	51	1	65	.1	14	1	675	1.33	11	5	ND	2	342	1	2	2	15	19.75	.11	13	17	.30	8	.01	5	.42	.01	.01	2	1	5
VA-01-4-4016	23	292	7	149	.4	42	3	2369	8.08	27	5	ND	4	65	1	2	2	147	7.27	.10	6	16	.70	37	.07	2	2.16	.01	.01	2	2	5
VA-01-4-4017	5	17	4	358	.1	16	3	1222	2.63	8	5	ND	4	111	2	2	2	22	8.30	.27	11	16	.47	37	.01	3	1.09	.01	.08	2	4	5
VA-01-4-4018	417	125	47	720	1.0	10	22	3254	7.26	17	5	ND	3	67	2	2	2	70	2.80	.09	6	10	2.26	112	.01	16	3.52	.01	.17	2	2	130
VA-01-4-4019	7	65	84	1057	1.7	19	47	3306	15.26	90	5	ND	4	7	4	2	9	87	.50	.09	3	18	2.18	18	.06	2	3.20	.01	.06	2	9	5
* VA-01-4-4020	1	507	2	54	.5	12	8	548	4.42	15	5	ND	2	91	1	2	2	71	1.60	.09	4	26	1.90	21	.15	9	3.26	.11	.01	2	1	5
VA-01-4-4021	1	354	4	21	.6	29	29	318	7.78	13	5	ND	2	23	1	2	2	32	1.48	.06	2	10	.83	13	.13	18	1.92	.01	.01	2	1	5
* VA-01-4-4022	1	105	24	1694	.2	12	6	2124	5.07	12	5	ND	3	54	7	2	2	92	2.52	.12	5	28	2.00	63	.15	18	2.72	.03	.10	2	3	180
* VA-01-4-4023	4	158	21	6014	.7	16	15	2280	5.98	16	5	ND	3	37	29	2	2	100	2.09	.12	3	46	2.11	40	.16	2	2.87	.02	.08	2	3	90
* VA-01-4-4024	1	58	30	606	.4	18	16	2250	6.11	19	5	ND	3	29	1	2	2	100	2.41	.10	2	19	2.48	43	.15	16	2.91	.03	.03	2	5	20
* VA-01-4-4025	1	147	24	823	.8	18	12	1044	4.61	20	5	ND	2	25	3	2	2	56	1.09	.07	2	26	1.25	36	.08	10	1.93	.02	.02	2	2	130
STD S-1AFA-AU	84	120	113	182	31.7	149	78	483	3.17	114	96	36	157	126	79	71	91	58	.56	.10	128	62	.58	122	.08	156	1.50	.19	.19	63	52	95

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	MN PPM	FE %	AS PPM	U PPM	AU PPM	TH PPM	SR PPM	CD PPM	SB PPM	BI PPM	V PPM	CA %	P %	LA PPM	CR PPM	MG %	BA PPM	TI %	B PPM	AL %	NA %	K %	W PPM	AU** PPB	HG PPB
VA-01-4-4026	5	213	1215	1336	1.5	1	5	140	1.20	36	5	ND	2	8	8	2	2	4	.22	.02	2	2	.10	28	.01	5	.23	.01	.07	2	16	200
* VA-01-4-4027	1	631	452	658	1.9	3	3	591	1.97	4	5	ND	2	14	3	2	2	14	.41	.07	5	2	.60	41	.07	2	.92	.01	.07	2	3	5
VA-01-4-4028	7	241	11	7205	.7	10	8	1788	3.90	6	5	ND	2	16	35	2	2	58	1.14	.07	2	20	1.49	8	.09	2	1.65	.06	.01	2	1	130
* VA-01-4-4029	1	31	6	76	.1	48	13	529	3.30	11	5	ND	2	14	1	2	2	56	.91	.02	2	147	2.24	16	.14	5	2.15	.05	.04	2	2	10
* VA-01-4-4030	21	506	26	26969	.6	20	36	2540	6.92	6	5	ND	2	70	147	2	2	82	1.47	.10	2	15	2.53	36	.07	5	3.41	.05	.02	2	6	380
VA-01-4-4031	1	2198	129	890	6.0	152	95	913	20.15	198	5	ND	4	9	4	14	2	18	.58	.05	2	9	.38	11	.01	5	.61	.01	.02	2	38	20
* VA-01-4-4032	1	152	12	611	.5	58	10	1195	2.65	33	5	ND	4	61	3	2	2	61	7.63	.10	3	66	.87	21	.05	4	1.89	.01	.01	2	1	40
VA-01-4-4033	2	155	7	454	.2	33	8	1502	2.83	4	5	ND	5	81	2	2	2	43	11.13	.31	7	41	.92	34	.01	3	1.00	.01	.08	2	1	110
* VA-01-4-4034	1	30	9	88	.1	32	1	478	1.24	9	5	ND	2	134	1	2	2	42	19.62	.84	8	38	.47	11	.03	4	1.55	.01	.02	2	1	5
VA-01-4-4035	3	460	42	247	2.3	21	93	1310	18.38	76	5	ND	4	36	1	2	2	95	.62	.12	6	31	1.88	8	.21	2	2.43	.01	.06	2	10	40
* VA-01-4-4036	1	76	5	130	.1	4	9	1227	6.39	10	5	ND	2	27	1	2	2	156	.93	.11	10	5	2.02	39	.25	2	2.76	.08	.04	2	1	5
* VA-01-4-4037	38	366	14	45748	.5	8	125	1514	4.90	9	5	ND	2	74	312	2	9	55	3.18	.10	8	11	1.73	35	.09	2	2.21	.06	.02	2	11	320
* VA-01-4-4038	3	57	6	1741	.1	9	12	846	3.20	7	5	ND	2	75	11	2	2	45	3.13	.10	8	19	1.30	27	.01	2	1.67	.05	.06	2	2	70
STD S-1/FA-AU	94	123	115	185	31.6	152	81	510	3.16	120	96	35	178	126	88	72	93	59	.56	.12	128	64	.58	123	.08	163	1.50	.21	.22	62	52	90

* ROCK CHIP SAMPLE (ALL OTHERS ROCK GRAB SAMPLES)