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416001

**MICROFILMED**

DIST.	A.O.	C.G.	E.O.	DATE
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D. DIR.	- 4 JUN 1984			E & IL
	DEPT. OF MINES			
REF. No.	5586/84			

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED  
 Mineral Resources Division

**OPEN FILE**

E.L. 32/83 (PRINCESS)

QUARTERLY REPORT/ - FIRST QUARTER 1984

S. Taylor,  
May, 1984

001

E.L. 32/83 (PRINCESS)

QUARTERLY REPORT - FIRST QUARTER 1984  
(Covering period 10.1.84 - 3.4.84)

1. INTRODUCTION

E.Z. conducted exploration in E.L. 32/83 (Princess) on behalf of the E.Z.-Amoco (Licence holders) Joint Venture. Work during the quarter (see Fig1) comprised

- 1. completion of detailed grid-based field work and preparation of a compilation report, on the Bubs Hill area adjacent to the Lyell Highway;
- 2. further reconnaissance geology, chip sampling and stream sediment sampling in the area of anomalous geochemistry in the Princess River Basin. The exploration programme is investigating the potential for sedimentary-exhalative Pb-Zn mineralisation in the Ordovician Gordon Limestone carbonate sediments and Silurian-Devonian argillaceous sediments.

2. WORK COMPLETED

- \* A further 10 chip samples and 16 stream sediment samples were taken in the Princess River catchment area to follow-up the area of anomalous Pb-Zn-Ba drainage geochemistry, which was detected by Pickands Mather in 1968 and confirmed by E.Z. in the last quarter of 1983.
- \* Geochemical data from the Princess River Basin were forwarded to consultant S. Joyce (Geochempet Services) for interpretation.
- \* On the Bubs Hill Grid field work was completed. Fifty rock chip samples were collected and despatched for analysis and five rock samples were submitted for petrological examination.
- \* A compilation report on results of the Bubs Hill investigation was in preparation.

3. RESULTS RECEIVED

3.1. Princess River

The stream sediment sample results obtained to date by E.Z. confirm the elevated values reported by Pickands Mather in 1968. The results are summarised below.

E.L. 32/83 (Princess) Cont.

Element	Range	Est. Mean	Possibly Anomalous
Cu	35- 145	70	?
Pb	60- 790	150	>400 (6 samples)
Zn	110-1400	300	>700 (5 samples)

The chip sample results also confirm the contrasting low tenor geochemical results reported by Pickands Mather in samples collected from the outcropping shales and siltstones of the Silurian-Devonian Bell Shale. Cu, Pb and Zn were generally low at <50, <40 and <100 ppm respectively, and only one sample of 115 ppm Pb and 370 ppm Zn was considered anomalous.

A report received from consultant S. Joyce (Geochempet Services) suggests that there is a distinct possibility that none of the anomalous stream sediment geochemistry is associated with bedrock mineralisation within the catchment area. The report suggests that the area may have features in common with a muskeg terrain, in which surface vegetation is underlain by fossilised or partly decomposed peaty material and in which varied hydrologic conditions give rise to peatland, marsh, swamps and bogs. Within such settings the plants which form the peat absorb metals to such an extent that concentrations approaching ore grade can occur, especially for Cu, Zn, U, V, Fe and Mn. The occurrence of humic acids and low pH can assist dissolution and migration of elements in peat waters and then absorption, adsorption or sharp changes in pH within peaty profiles can concentrate the metals.

"Bog iron" and "bog manganese" commonly accumulate in cold humid climates with high water tables and poor drainage. Such regions may not have all the characteristics of formally defined muskeg (e.g. true peat may not be seen) but the processes are analogous. Fe and Mn are reduced by decaying organic matter, moved as soluble bicarbonates, then dumped as limonite on contact with oxygenated water (e.g. Fe-Mn enriched groundwaters coming into contact with oxygenated stream water). The limonite will then co-precipitate or adsorb other minerals, especially Pb and to a lesser extent An, Cu and Ni.

*Aw<sup>7</sup>.*

### 3.2. Bubs Hill (Refer to Fig's 2-6)

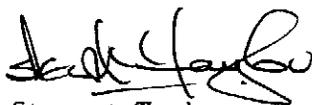
The results of the geological mapping, rock chip/soil sampling and ground magnetics undertaken on the Bubs Hill Grid, in the last quarter of 1983 and first quarter of 1984, indicate little possibility of economic concentrations of Pb-Zn mineralisation.

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E.L. 32/83 (Princess) Cont.

High on the slopes of Bubs Hill, sphalerite, rarer galena and barite, occur within calcite siderite and quartz as open-space infillings of sporadic narrow veinlets, minor solution breccias and small vughs within dolomitised limestone. As this low-grade mineralised zone is restricted to a stratigraphic unit which dips at 5-10° to the north, any potentially higher grade extensions have been removed by erosion.

West of the main limestone outcrop on Bubs Hill there is also little possibility of significant mineralisation as the Gordon Limestone thins and is restricted to thin fault slices until terminated by a south-west trending fault just west of the end of the grid.

Due to the low grade tenor of mineralisation, its Mississippi Valley epigenetic style and absence of any indications of sedimentary-exhalative processes, no further work will be undertaken on this prospect.



Stewart Taylor,

Supervising Geologist - Tasmania,

Mineral Resources Division

Attachment:

ELECTROLYTIC ZINC COMPANY OF AUSTRALIA LIMITED  
Mineral Resources Division

004

EXPENDITURE STATEMENT

PROJECT - E.L. 32/83(Princess)

PERIOD 11.1.84 to 3.4.84

FIRST QUARTER, 1984

STATE Tasmania

DATE COMPILED 30th May, 1984

	CURRENT PROGRAMME		TOTAL	TOTAL (CALENDAR YEAR)
	Approved Expenditure	Expenditure		
	to	11.1.84 to 3.4.84	to	to
Technical Salaries		784		
Wages		1,590		
Field Living, Supplies, Stores				
Property & Expenses				
Travel & Vehicles		430		
Administration				
Lease Expenses				
Access & Costeaming		122		
Geology		2,205		
Geochemistry		5,312		
Geophysics		672		
Drilling - Diamond				
Drilling - Other				
<b>SUB TOTAL</b>		<b>11,115</b>		
<b>OVERHEADS</b>		<b>1,667</b>		
<b>TOTAL OPERATING</b>		<b>12,782</b>		
PREVIOUS TOTAL TO				
TOTAL PROJECT EXPENDITURE TO				

Compiled by.....S. Taylor.....

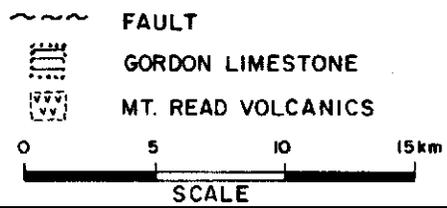
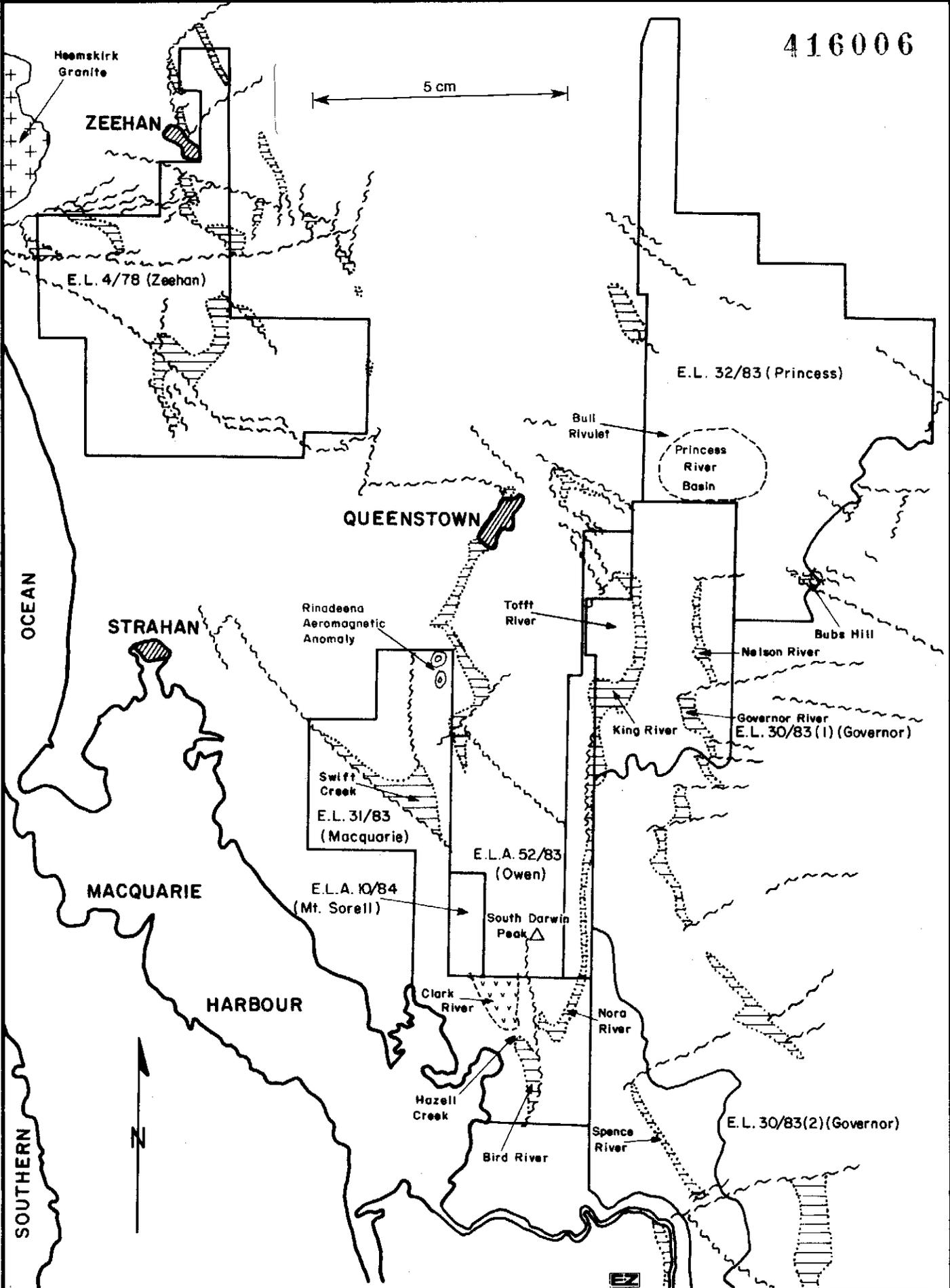
Checked by.....*[Signature]*.....

Approved by.....

416005

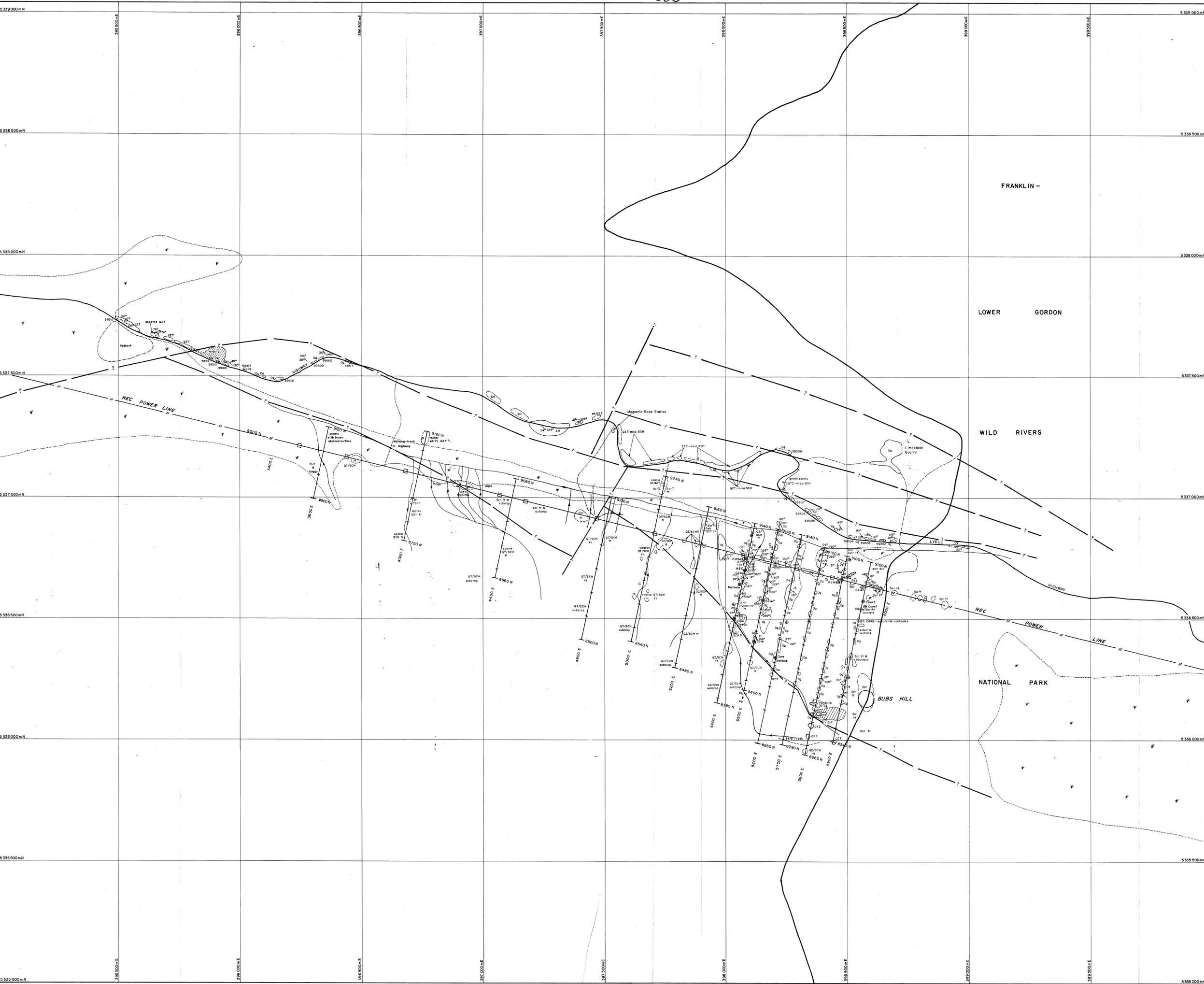
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416006



PROJECT: GORDON LIMESTONE J.V.	
<b>LOCATION PLAN</b>	
Compiled: S.T.	Date:
Drawn: R. J. R.	Scale:
PLAN NO	
Fig. 1	

COLOUR		LEGEND	
pk - pink	wh - white	wh - white	
br - brown	bl - black	bl - black	
bl - blue	gr - green	gr - green	
gy - grey	yl - yellow	yl - yellow	
rd - red	or - orange	or - orange	
cr - cream	gt - gold	gt - gold	
lt - light	dk - dark	dk - dark	
TEXTURE		TEXTURE	
fg - fine grained	foss - fossiliferous	foss - fossiliferous	
mg - medium grained	sil - siliceous	sil - siliceous	
cg - coarse grained	mic - micaceous	mic - micaceous	
bxd - brecciated	fer - ferruginous	fer - ferruginous	
clvd - cleaved	int - intense	int - intense	
shrd - sheared	wk - weak	wk - weak	
colc - calcareous	v - very	v - very	
carb - carbonaceous	pb - pebbly	pb - pebbly	
lom - laminated	cb - cobble	cb - cobble	
xbd - cross bedded	tr - trace	tr - trace	
tr bd - thin bedded	in bd - inter bedded	in bd - inter bedded	
th bd - thick bedded			
ROCK TYPE		ROCK TYPE	
SST - sandstone	SLT - siltstone	SLT - siltstone	
LST - limestone	DLST - dolomite	DLST - dolomite	
BR - breccia	CGL - conglomerate	CGL - conglomerate	
SH - shale	BSH - black shale	BSH - black shale	
QZT - quartzite	LIM - limestone	LIM - limestone	
GRIT - grit	CLAY - clay	CLAY - clay	
PUG - pug			
MINERALOGY or ALTERATION		MINERALOGY or ALTERATION	
qt - quartz	py - pyrite	py - pyrite	
gn - galena	sp - sphalerite	sp - sphalerite	
lim - limonite	cp - chalcopyrite	cp - chalcopyrite	
cbd - carbonated	sl'd - silicified	sl'd - silicified	
ORDER		ORDER	
eg	eg	eg	
dk gy mg foss SST or gy calc SH py or py LST sl'd			
TOPOGRAPHICAL		TOPOGRAPHICAL	
cut grid lines	joint	joint	
roads	joint - vertical	joint - vertical	
tracks	overturned	overturned	
tramways	bedding	bedding	
power lines	bedding - vertical	bedding - vertical	
rivers, creeks	quarries	quarries	
swampy area	scarp	scarp	
	flint	flint	
GEOLOGY		GEOLOGY	
PRECAMBRIAN	Quartzites	Quartzites	
	Quartzites and Quartz-mica Schists	Quartzites and Quartz-mica Schists	
ORDOVICIAN	Gordon Limestones and Dolomites	Gordon Limestones and Dolomites	
SILURIAN	Crofty Quartzite	Crofty Quartzite	
DEVONIAN	Bell Shale / Floreana Quartzite	Bell Shale / Floreana Quartzite	
QU	Alluvium	Alluvium	



416007

**ELECTROLYTIC ZINC CO. OF ASIA LTD.**  
**PROJECT: BUBS HILL EL.32/83 ,TAS.**

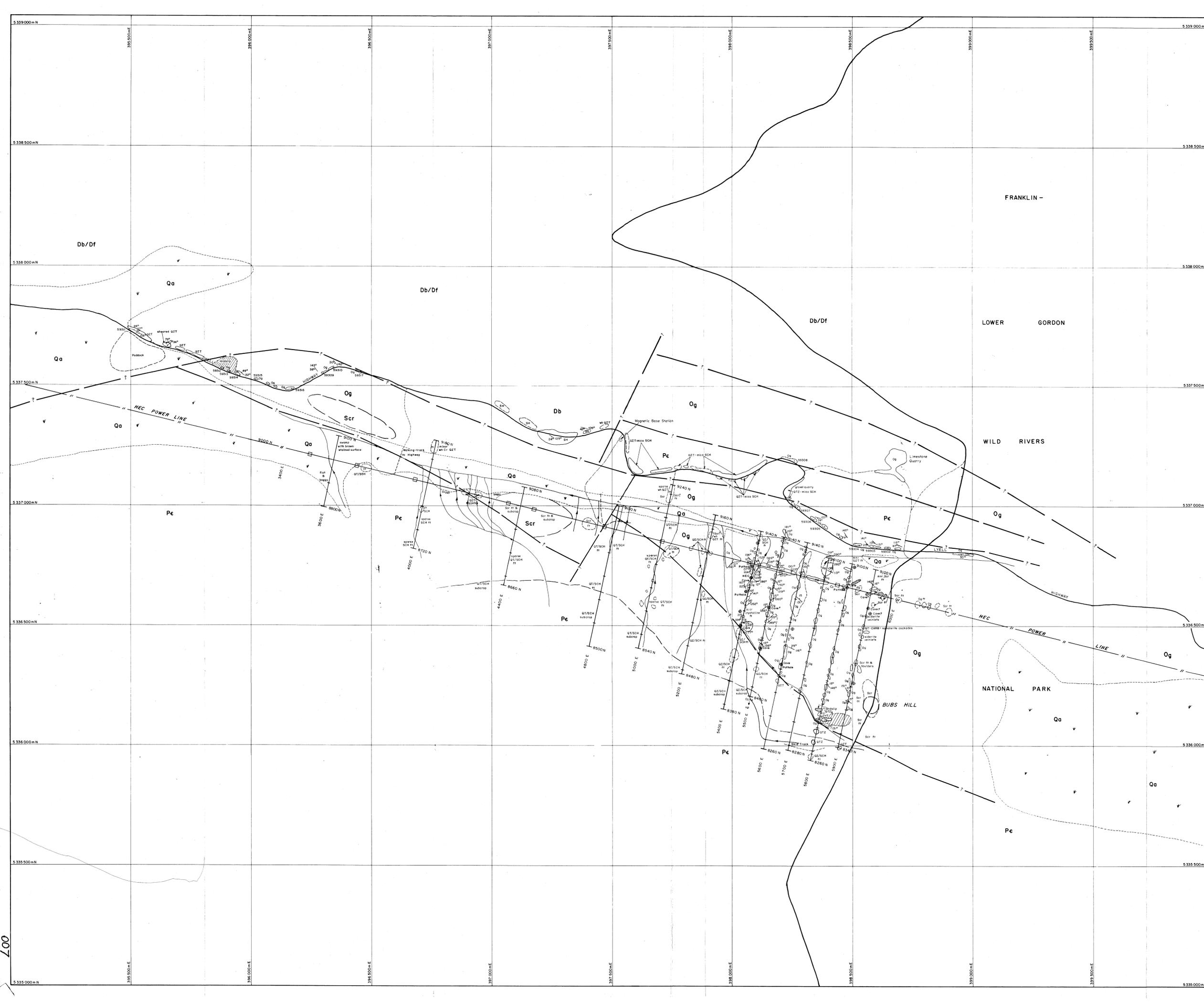
5 cm

**GEOLOGY** 006

(FACT)

2-2139

Scale: 1:5000	Survey: I. MAT.	Revised:
Reference: H.E.C.	Date: 28-3-'84	Ref. No.
Drawn: R. J. R.	Checked:	AO-531-0001



**COLOUR**

wh - white	wh - white
br - brown	bk - black
bl - blue	gr - green
gy - grey	yl - yellow
rd - red	or - orange
cr - cream	pl - pale
lt - light	dk - dark

**TEXTURE**

fg - fine grained	fos - fossiliferous
mg - medium grained	sil - siliceous
cg - coarse grained	mic - micaceous
bd - brecciated	fer - ferruginous
clvd - cleaved	int - intense
shrd - sheared	wk - weak
calc - calcareous	v - very
carb - carbonaceous	cb - cobble
lam - laminated	cd - cobble
abd - cross bedded	tr - trace
tr bed - thin bedded	tr bed - thin bedded
tk bed - thick bedded	tr bed - thin bedded

**ROCK TYPE**

SST - sandstone	SLT - siltstone
LST - limestone	DLS - dolomite
BR - breccia	CG - conglomerate
SH - shale	BSH - block shale
QZT - quartzite	LIM - limestone
GRIT - grit	CLAY - clay
PUG - pug	

**MINERALOGY or ALTERATION**

qt - quartz	py - pyrite
gln - glauconite	sp - sphalerite
ilm - ilmenite	cp - chalcopyrite
cd - carbonated	sil - silicified

**ORDER**  
 Colour, Texture, Rock Type, Mineralogy or Alteration, Fossils  
 e.g.  $py$   $mg$   $fos$   $SST$  or  $gy$   $calc$   $SH$  or  $pl$   $gy$   $LST$   $sil$

**TOPOGRAPHICAL**

cut grid lines	joint
roads	joint - vertical
tracks	overturned
tramways	bedding - vertical
power lines	quarries
rivers, creeks	shar
swampy area	outcrop
	foot

**GEOLOGY**

	PRECAMBRIAN	Quartzites and Quartzite-mica Schists
	ORDOVICIAN	Gordon Limestones and Dolomites
	SILURIAN	Crofty Quartzite
	DEVONIAN	Bell Shale / Florence Quartzite
	QU	Alluvium

41600S

ELECTROLYTIC ZINC CO. OF ASIA LTD.  
 PROJECT: BUBS HILL EL. 32/83 ,TAS.

5cm

GEOLOGY 007  
 (INTERP)

Scale: 1:5000	Survey: I.M.A.T.	Revised:
Reference: H.E.C.	Date: 30-3-'84	Ref. No.
Drawn: R.J.R.	Checked:	AO-531-0006



**LEGEND**

<b>COLOUR</b>	wh - white
pk - pink	bk - black
br - brown	gr - green
bl - blue	yl - yellow
gy - grey	or - orange
rd - red	pl - pale
cr - cream	dc - dark
lt - light	
<b>TEXTURE</b>	foss - fossiliferous
fg - fine grained	sil - siliceous
mg - medium grained	mic - micaceous
cg - coarse grained	fer - ferruginous
brd - brecciated	int - intense
clvd - cleaved	wk - weak
shrd - sheared	v - vary
calc - calcareous	pb - pebble
carb - carbonaceous	cb - cobble
lam - laminated	fr - trace
xbd - cross bedded	in bd - inter bedded
tn bd - thin bedded	
th bd - thick bedded	
<b>ROCK TYPE</b>	SLT - siltstone
SST - sandstone	DLS - dolomite
LST - limestone	CGL - conglomerate
BX - breccio	BSH - black shale
SH - shale	LW - limestone
QZT - quartzite	CLAY - clay
GRIT - grit	
PUG - pug	
<b>MINERALOGY or ALTERATION</b>	py - pyrite
qt - quartz	sp - sphalerite
gn - gneiss	cp - chalcopyrite
lm - limonite	sl - silicified
cd - carbonated	
<b>ORDER</b>	
Colour, Texture, Rock Type, Mineralogy or Alteration, Fossils	
* g	
di gy mg foss SST or gy calc SH py or pl gy LST sld	

**TOPOGRAPHICAL**

cut grid lines	joint
roads	joint - vertical
tracks	overturned
tramways	bedding
power lines	bedding - vertical
rivers, creeks	quarries
swampy area	

X = below 5 ppm  
 Note - All results are ppm

416009

**ELECTROLYTIC ZINC CO. OF ASIA LTD.**  
 PROJECT: BUBS HILL EL 32/83 ,TAS.

5 cm

**GEOCHEMISTRY**

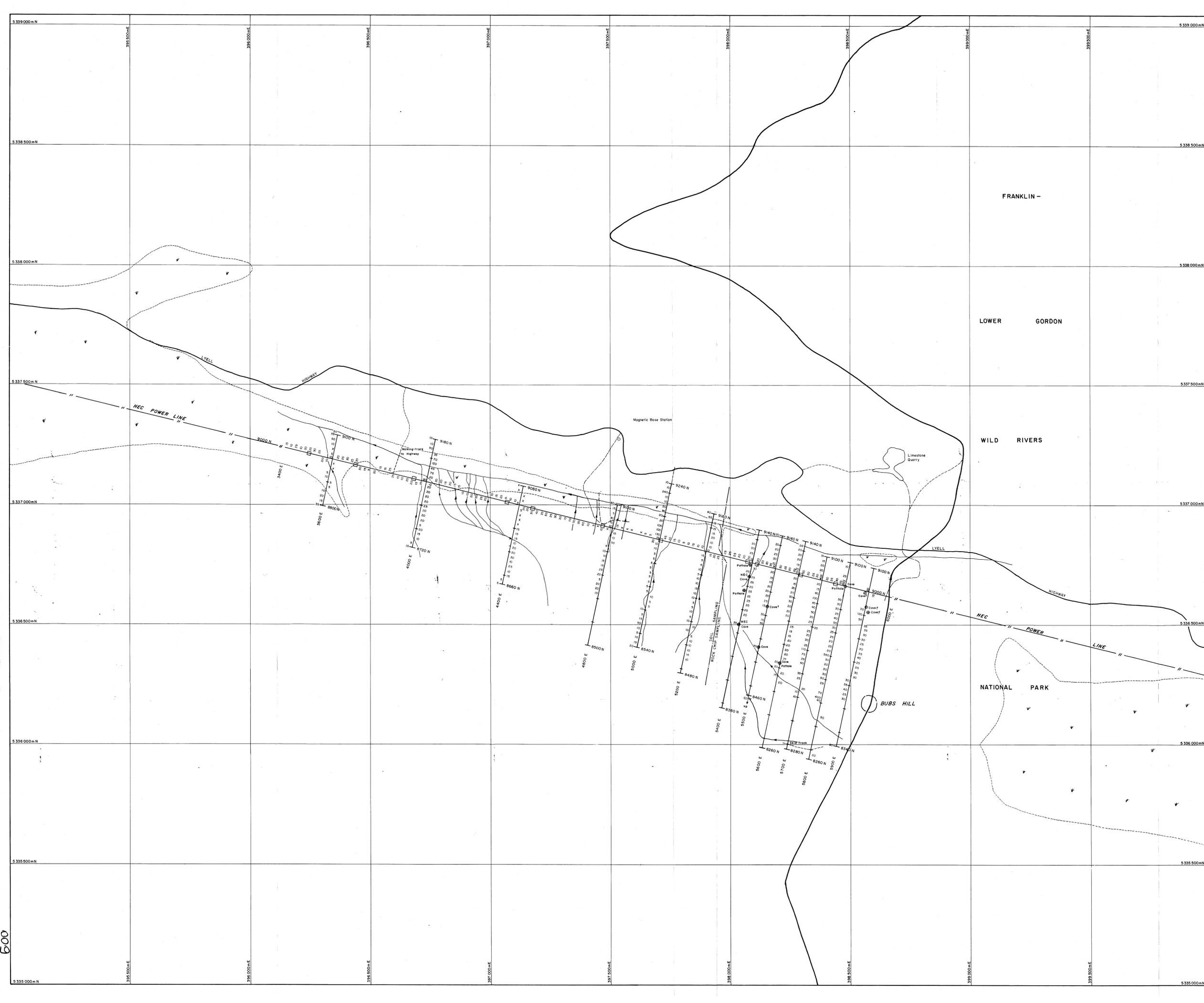
Pb

008

84-2139

Scale: 1:5000	Survey: 1. MAT.	Revised:
Reference: H. E. C.	Date: 28-3-'84	Ref. No.
Drawn: R. J. R.	Checked: L. W.	AO-531-0004

800



**LEGEND**

<b>COLOUR</b>	pk - pink	wh - white
br - brown	bk - black	gr - green
bl - blue	pl - yellow	or - orange
gy - grey	rd - red	pi - pale
rg - red	cr - cream	dk - dark
lt - light		
<b>TEXTURE</b>	fg - fine grained	fss - fossiliferous
mg - medium grained	sil - siliceous	mic - micaceous
cg - coarse grained	fer - ferruginous	int - intense
brd - brachioid	clv - cleaved	wk - weak
shd - shaly	shd - shaly	v - very
calc - calcareous	carb - carbonaceous	pb - pebble
lam - laminated	xbd - cross bedded	cb - cobble
tbl - thin bedded	tbl - thin bedded	tr - trace
thick - thick bedded	tbl - thin bedded	tbl - thin bedded
<b>ROCK TYPE</b>	SST - sandstone	SLT - siltstone
LST - limestone	BLK - breccia	DLST - dolomite
CGC - conglomerate	SH - shale	CSH - calc shale
QZT - quartzite	GRT - grit	LIM - limestone
PUG - pug		CLAY - clay
<b>MINERALOGY or ALTERATION</b>	qt - quartz	py - pyrite
gn - galena	sp - sphalerite	cp - chalcopyrite
lim - limonite	cd - carbonated	slc - silicified
<b>ORDER</b>	Colour, Texture, Rock Type, Mineralogy or Alteration, Fossils	
e.g. dk gy mg fss SST or gy calc SH py or pl gy LST slc		
<b>TOPOGRAPHICAL</b>	cut grid lines	joint
roads	joint - vertical	joint - vertical
tracks	overturned	overturned
tramways	bedding	bedding
power lines	bedding - vertical	bedding - vertical
rivers, creeks	quarries	quarries
swampy area		

X = below 5 ppm  
 Note - All results are ppm

416010

**ELECTROLYTIC ZINC CO. OF ASIA LTD.**

PROJECT: BUBS HILL EL. 32/83 ,TAS.

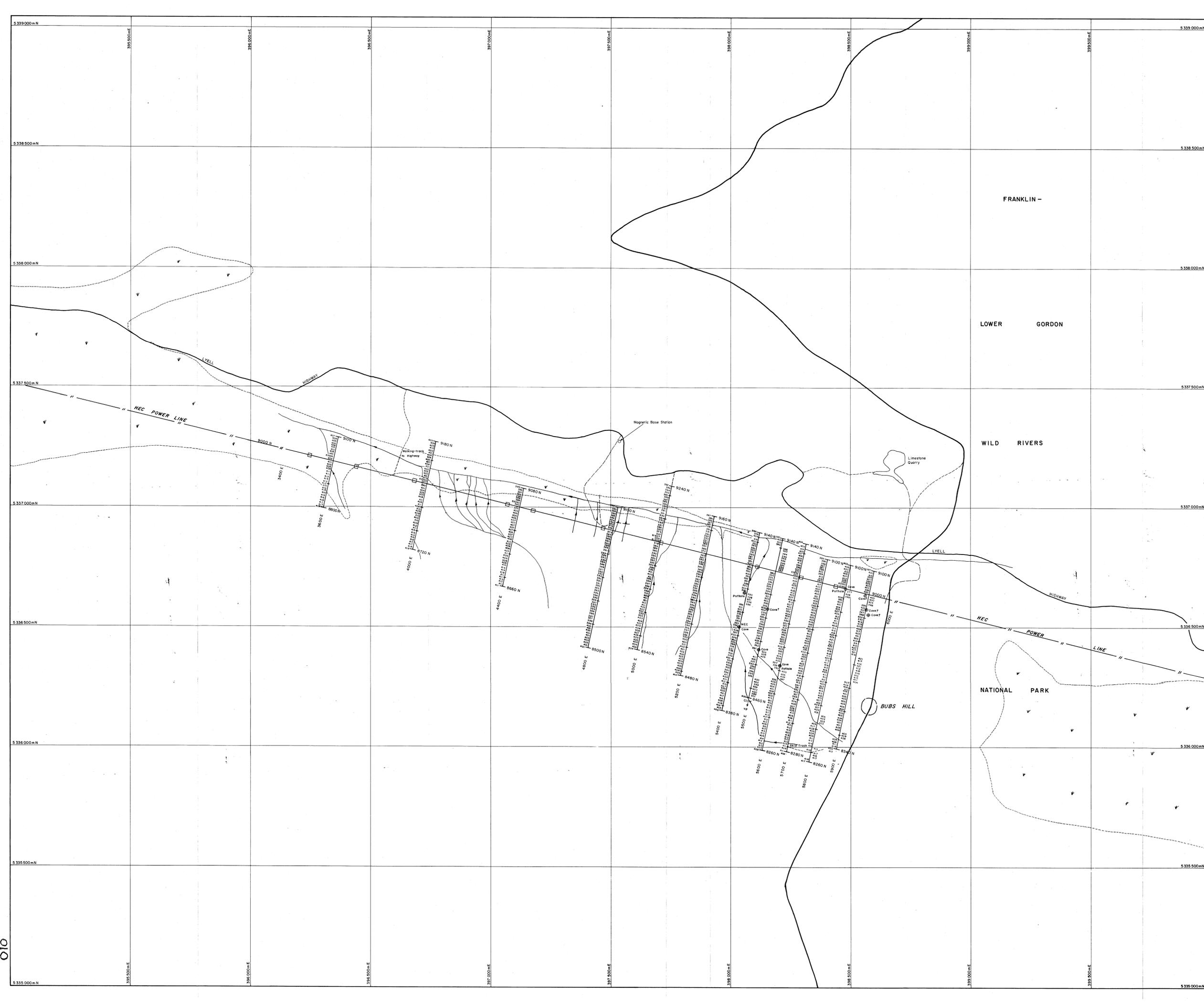
5cm

**GEOCHEMISTRY**

Zn 009

24-2139

Scale: 1:5000	Survey: I.M.A.T.	Revised:
Reference: H.E.C.	Date: 28-3-84	Ref. No:
Drawn: R.J.R.	Checked: L.W.	AO-531-0003



**LEGEND**

<b>COLOUR</b>	wh - white
br - brown	bk - black
bl - blue	gr - green
gy - grey	yl - yellow
rd - red	or - orange
cr - cream	pl - pale
lt - light	dk - dark
<b>TEXTURE</b>	fos - fossiliferous
fg - fine grained	sil - siliceous
mg - medium grained	mic - micaceous
cg - coarse grained	fer - ferruginous
bak - brackiated	int - intense
clvd - cleaved	wk - weak
shrd - sheared	v - very
colc - calcareous	pb - pebbles
carb - carbonaceous	cb - cobble
lsm - laminated	fr - trace
abd - cross bedded	in bd - inter bedded
tbl - thin bedded	
thk - thick bedded	
<b>ROCK TYPE</b>	SLT - siltstone
SST - sandstone	DLST - dolomite
LST - limestone	CGL - conglomerate
BX - breccia	BSH - black shale
SH - shale	LIM - limestone
QZT - quartzite	CLAY - clay
GRIT - grit	
PUG - pug	
<b>MINERALOGY or ALTERATION</b>	py - pyrite
qt - quartz	sp - sphalerite
gn - goethite	cp - chalcopyrite
lim - limonite	sls - silicified
cd - carbonates	
<b>ORDER</b>	
Colour, Texture, Rock Type, Mineralogy or Alteration, Fossils	
*9	
dk gy mg foss SST or gy colc SH py or pl gy LST sls	

**TOPOGRAPHICAL**

cut grid lines	joint
roads	joint - vertical
tracks	overturned
tramways	bedding
power lines	bedding - vertical
rivers, creeks	quarries
swampy area	

BASE = 62,000 n.T., unless shown otherwise.

416011

ELECTROLYTIC ZINC CO. OF ASIA LTD.  
PROJECT: BUBS HILL EL. 32/83, TAS.



GEOPHYSICS 010

GROUND MAGNETICS

Scale: 1:5000	Survey: I. MAT.	Revised: 7-2-89
Reference: H.E.C.	Date: 28-3-'84	Ref. No.
Drawn: R. J. R.	Checked:	AO-531-0002