

02_4697

577001

Copy for: MANAGING DIRECTOR

THE ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.
West Coast Department.

GEOLOGICAL DEPARTMENT.

GEOLOGICAL Report.

on

422 21

SURREY HILLS, RINGWOOD AND

HAMPSHIRE AREAS.

A. M. McKenzie.

August 1955.

Number: 71

File: 605.2

MINERAL RESOURCES		
FILE REF: <u>74015</u>		
3 JUN 2002		
DOC. REF:		
OFFICER	FOR ACTION	FOR INFO
RESUBMIT TO	DATE	

TT17

02_4697

Geological Report on Surrey Hills, Ringwood and Hampshire areas - SPL 253
Electrolytic Zinc Company of Australasia Limited*
McKenzie, A.M. SPL253

GEOLOGICAL REPORT
ON THE SURREY HILLS, RINGWOOD AND HAMPSHIRE AREAS

By A.M. McKenzie
August, 1955

CONTENTS

SUMMARY

INTRODUCTION

GEOLOGY

- (a) General
- (b) Structure
- (c) Economics

CONCLUSION (not with report)

ACKNOWLEDGEMENTS

LIST OF PLATES (* Not provided with this Report)

- * I Locality Map 1" = 4 miles
- II Geological Map 1" = 1 mile
- * III Structural Interpretation Map 1" = 3 miles
- IV Mine Plan - Hampshire Mine 1" = 40 ft
- V Surface Plan - Hampshire Mine 1" = 40 ft
- * VI Sections - Hampshire Mine 1" = 40 ft
- VII Geological Map - A section of the Paper Makers Road 1" = 20 chn
- VIII Cross Section ZZ Valentines Peak to Companion Hill 1" = 20 chn
- IX Cross Section XX¹ and Y Y¹ 1" = 1 mile
- * X Plan of Mt Mayday area 1" = 27 ½ chn app.

SUMMARY

Field work and interpretation from air photos and forestry maps were used in compiling the geological map accompanying this report, and in working out a possible geological structure of the area. A cross fold pattern appears to be the dominant structure.

The time available (41 days in the field) was not sufficient to do more than scan most of the areas not covered by basalt. It is estimated that 80% of the area is covered by basalt, limiting the area available for surface prospecting to 20% of the total.

It is not possible to interpret the nature of the rocks beneath the basalt and a few shallow drillholes to determine the rock types would be warranted, should further work in this area be contemplated.

The north and north west of the area is thought to be the most likely area for mineralisation.

INTRODUCTION

The Mining Tenements held by Mr. R. H. Needham and covered by this report are shown on the Locality Map (Plate I) which also shows their relationship to the Read-Rosebery area.

The areas have been covered by a series of walking traverses, radiating from base camp, designed to cover mountains and other areas thought not to be covered by basalt. Panning of creeks was carried out in some instances and geiger counter tests made on specimens and out-crops.

Twenty chain to one inch air photos were used on traverses to position outcrops and all bearings and strikes were measured by compass, the magnetic variation in this area being $10^{\circ}E$.

Forestry maps were extremely useful in interpreting areas of basalt cover. White grass is strictly confined to areas of basalt soil while button grass and bauera do not grow on basalt soil.

Once this relationship had been established it was invaluable in planning traverses.

A total of 41 days were spent in the field.

GEOLOGY

- A. The Stratigraphic sequence established in the area is as follows :-

<u>Tertiary</u>	Basalt Fluvio glacial ? Carbonaceous siltstone
<u>Silurian Devonian</u>	{ Fine grained white quartzite (? Crotty Quartzite) { Impure fossiliferous limestone (? Gordon River Limestone)
	{ Conglomerate { Current bedded ferruginous sandstones and quartzites. (? Owen Conglomerate)
<u>Cambrian</u>	Fine sandstone, siltstone and shale - trilobite fossils Metamorphic rocks .

The granite is thought to be younger than the Owen Conglomerate.

B. Structure

On Mt. Mayday (Y - 1) which is capped by conglomerate the dips are flat, but to the east and west the dips are east and west respectively, indicating that Mt. Mayday forms the crest of an anticline.

To the north, on Mt. Cattley (Y-8), outcrops of similar conglomerate strike 45° grid and dip 65° south east and to the west on Mt. Cripps (R-1) conglomerate strikes 9° grid and dips 60° east. These outcrops indicate a syncline between the Mt. Cattley - Mt. Cripps line and the outcrop of conglomerate on the north-western side of Mayday plain.

To the north and west the nearest outcrops of similar rocks are the conglomerates of St. Valentines Peak (Q-26) which dip east and the current bedded quartzites of Mt. Moory (I-8) which dip to the north west. On the Mt. Pearse ridge (extending from D-9 through E-7 to G-8 the current bedded quartzites form a syncline plunging steeply to the north.

In the Mayday area the conglomerates are overlain by argillaceous limestones containing colonial type coral fossils, probably of Silurian-Devonian age. Immediately overlying the limestones is a fine grained white quartzite. These beds may correlate with the Gordon River limestones and the Crotty quartzite. The conglomerate and current bedded quartzite overly quartzites and metamorphic rocks. No attempt has been made to differentiate these older rocks.

Between Mt. Cripps and Mt. Moory fine sandstones and grits show some degree of alteration. In places they are quite similar to the porphyroids of the Read-Rosebery area.

A fine sandstone outcrop on the track in block W-12 shows some alteration and contains small patches of graphite, probably plant fragments baked by the overlying basalt. This sandstone is similar to that in block Q-3. In block P-3 the rocks are altered grits and in O-3 porphyroids.

To the north of Guildford the rocks are well exposed along the Paper Makers Road and details of this section are shown on plate VII.

The field note references are as follows :

- D/15 bedded siltstones slightly altered and hard in places
Strike 315° Mag dip 62° NE
- A/30 Dense grey cherty rocks with a 2" coarse grained band, weathers to clay, strike 110° magnetic dip 60° NE
- C/30 Grey shale rather massive containing trilobite fossils.
Strike 138° magnetic dip 34° NE
- B/30 Shales similar to C/30 but no fossils found.
Strike 120° magnetic dip 45° NE
- D/30 Flat bedded ? fluvio glacial deposits similar to deposits in Rosebery open cuts. Unsorted conglomerates with finer clayey bands.
- E/30 Flat-lying fluvio-glacial unconformably overlying fawn slate which strikes 150° mag. and dips 27° E.
- F/30 Shale unconformably overlain by flat lying ? fluvio glacial deposits with increase in thickness going north.
Strike of shale 149° mag. dip 12° E.
- G/30 Quarry - dense hard light coloured rock pyritic nodules in places - weathered to clay in one place - could be volcanic ash bed with bombs or metamorphic rock.
- H/30 Fine to medium grained banded rock - metamorphic rock - dark bands probably along vertical shears which strike 187° mag.
- J/30 Metamorphic rock with quartzite appearance
Strike 187° Mag. dip 47° W, but weathers to clay
May be a calc. silicate rock
- K/30 Metamorphic rock similar to J/30
- L/30 Metamorphic rocks similar to J/30 but containing green patches which form a planar pattern and appear to correspond to the bedding strike 30° mag. dip 32° NW.

- M/30 Dense light grey metamorphic rocks, cherty appearance showing some bedding with alteration along jointing and bedding.
North end of outcrop strike 12° Mag. dip 40° W
South end of outcrop strike 360° Mag. dip 53° W
- N/30 White clay with thin cover of basalt soil.
- O/30 Fine grained basalt.
- E/15 Porphyritic granite
- B/1 Weathered conglomerate similar to the Companion Hill conglomerate, well jointed.
- C/1 Metamorphic rock, cherty appearance and clay.
Strike 180° Mag. dip 47° W. Thin basalt soil cover.
- D/1 Clay altered shale.
Strike 10° Mag. dip 38° W.
- E/1 Cherty type metamorphic rock underlying clay - altered shale - strike 145° Mag. dip 51° W.
Thin basalt soil cover.
- F/1 Cherty type with clay bands. Waxy pale-green patches near the top in the clay - may be due to alteration by the overlying basalt.
Strike 170° Mag. dip 46° W.
- F/15 Conglomerate underlain by shale, all completely altered to clay. Strike 358° Mag. Dip 41° W.
- E/4 Conglomerate underlain by shale, all completely altered to clay. Strike 10° Mag. dip 36° W.
- A/13 Metamorphic rock similar to L/30
- B/13 Granite
- C/13 Metamorphic rock similar to L/30
- D/13 Granite.

Further north from the Companion River the rocks showing through the basalt cover are mainly granite, the exception being at the Hampshire Mine where the granite contact with shales and limestones is seen.

It appears that the shales which underlie the (Owen?) conglomerate in the St. Valentines Peak area show facies change to siltstones, and then sandstones as they go south. At the southern boundary of the Surrey Hills block the conglomerate is underlain by sandstones. The trilobite fossils found in these shales at C/30 (block P-26) suggest Cambrian age.

Fossils from the limestones and shales will be sent away for expert classification.

C. Economic Aspects.

Traces of gold were found in the ?fluvio-glacial deposits near Mayday plain, but the indications were that the amount of gold present was extremely small and of no economic value.

A limonitised shear in sandstone intersected in a small tunnel located 37 chains from the south east corner along the southern boundary of the Surrey Hills block showed no sign of economic mineralisation. It gave no increase in count when tested by the geiger counter.

The Hampshire Mine was located and mapped and although a small section appeared to have been stoped, no economic mineralisation could be found.. The Geiger counter gave a definite increase in count in this area but no uranium minerals were identified by macroscopic means. A more detailed study and chemical tests are needed on the samples taken from the mine to prove or disprove the presence of uranium.

The most promising area for further investigation appears to be the north and north west of the area in the vicinity of the granite contact.

In an article in "Economic Geology", May 1955 (Vol.50 No. 3) W.H. Gross describes a similar regional cross fold pattern and states - "There is a tendency for mineral deposits to be concentrated in cross-folded zones, so that the method of plotting folds may be useful in locating areas for detailed prospecting."

This generalisation does not necessarily apply to all areas or the whole of a particular area but may only apply to belts crossing the area.

It is possible that on the West Coast of Tasmania the mineralised belts run approximately north east-south west. One running through Queenstown, another through Zeehan-Rosebery-Tullah and possibly another through Waratah. In the belts of mineralisation the rock type would be the guide to possible mineralisation.

The areas covered by basalt are too extensive to attempt to predict the particular rock types lying beneath them. It might be possible to form an opinion as to the original nature of the rocks but not their present form as the metamorphic boundaries in this area do not conform to an easily interpreted pattern.

Just north of the Companion River on the Paper Makers Road (according to verbal report) it was necessary to sink several piles one on top of the other in order to reach a firm foundation for the road, indicating that the kaolinisation evident at the surface extends for a considerable depth.

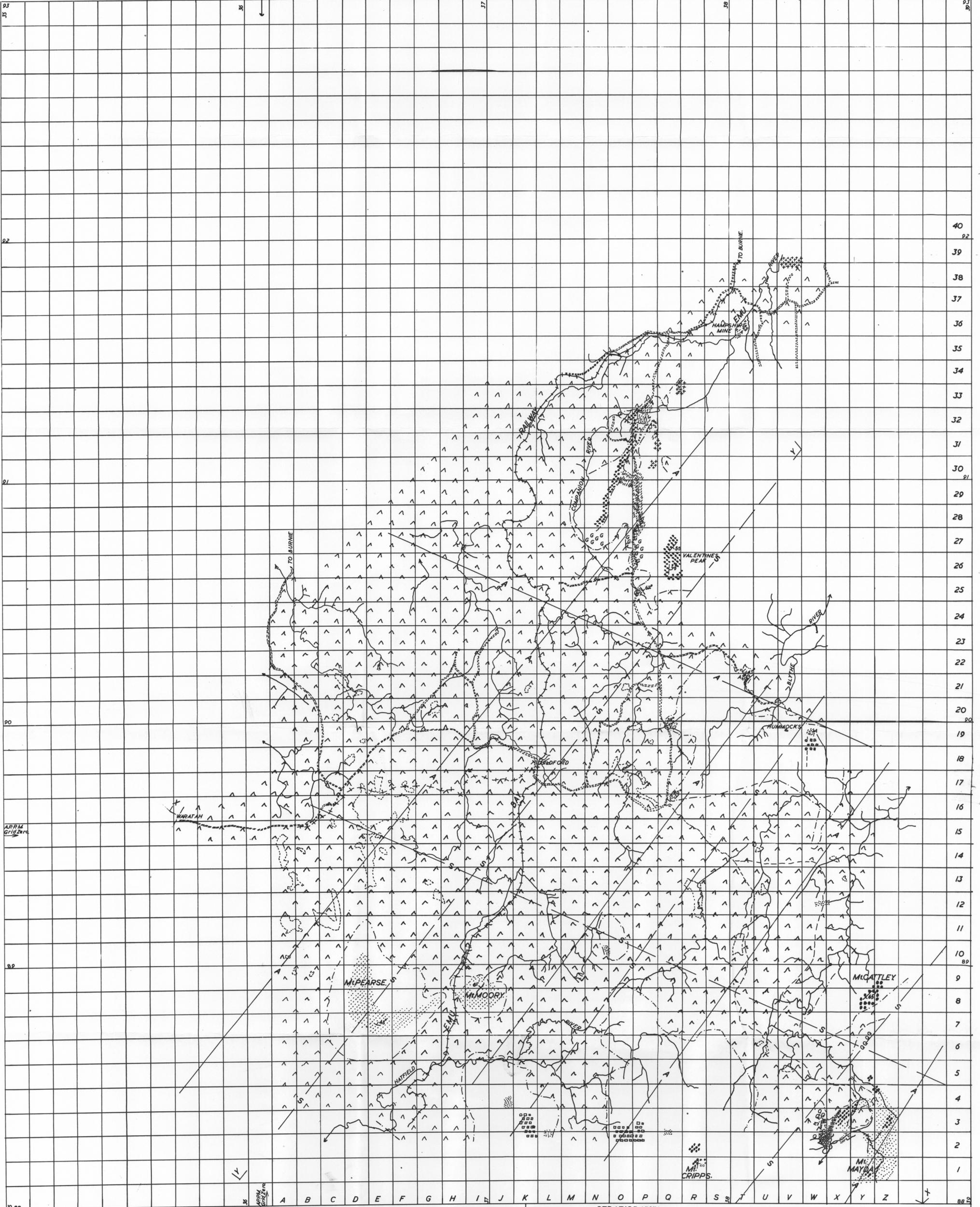
This may be indicative of faulting or shearing and if a strike could be established for this zone, it might warrant testing by drilling to the west where it would be beneath the basalt.

ACKNOWLEDGEMENTS

I am grateful for the assistance and friendship extended to me by all members of the A.P.P.M. staff with whom I have been associated during the course of my investigations.

I thank Mr. V. M. Cottle for his advice and assistance; Mr. D. Dickenson for acting as guide into the Mayday Area and for information regarding the known outcrop in that area; Mr. R. H. Needham and the Associated Pulp and Paper Mills for the loan of air photos and forestry maps; also Mr. M. Tibbet and Mr. T. Crisp for their co-operation and assistance at Guildford.

(Sgd.) ALLAN M. MCKENZIE



GEOLOGICAL MAP
SURREY HILLS, RINGWOOD & HAMPSHIRE AREAS
 Scale: 1" = 1 mile.
 Projection: Transverse Mercator
 Origin of Co-ordinates: 400,000 yds. West and 830,000 yds. South of True Origin of Zone 7.
 Date: 10-8-55

LEGEND

- Rivers
- Roads
- Tracks
- Railways
- Old Railway Formations
- Boundaries of Buton Grass Plains
- Rock boundaries
- Fold axes Syncline
- Fold axes Anticline
- Faults

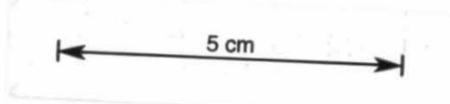
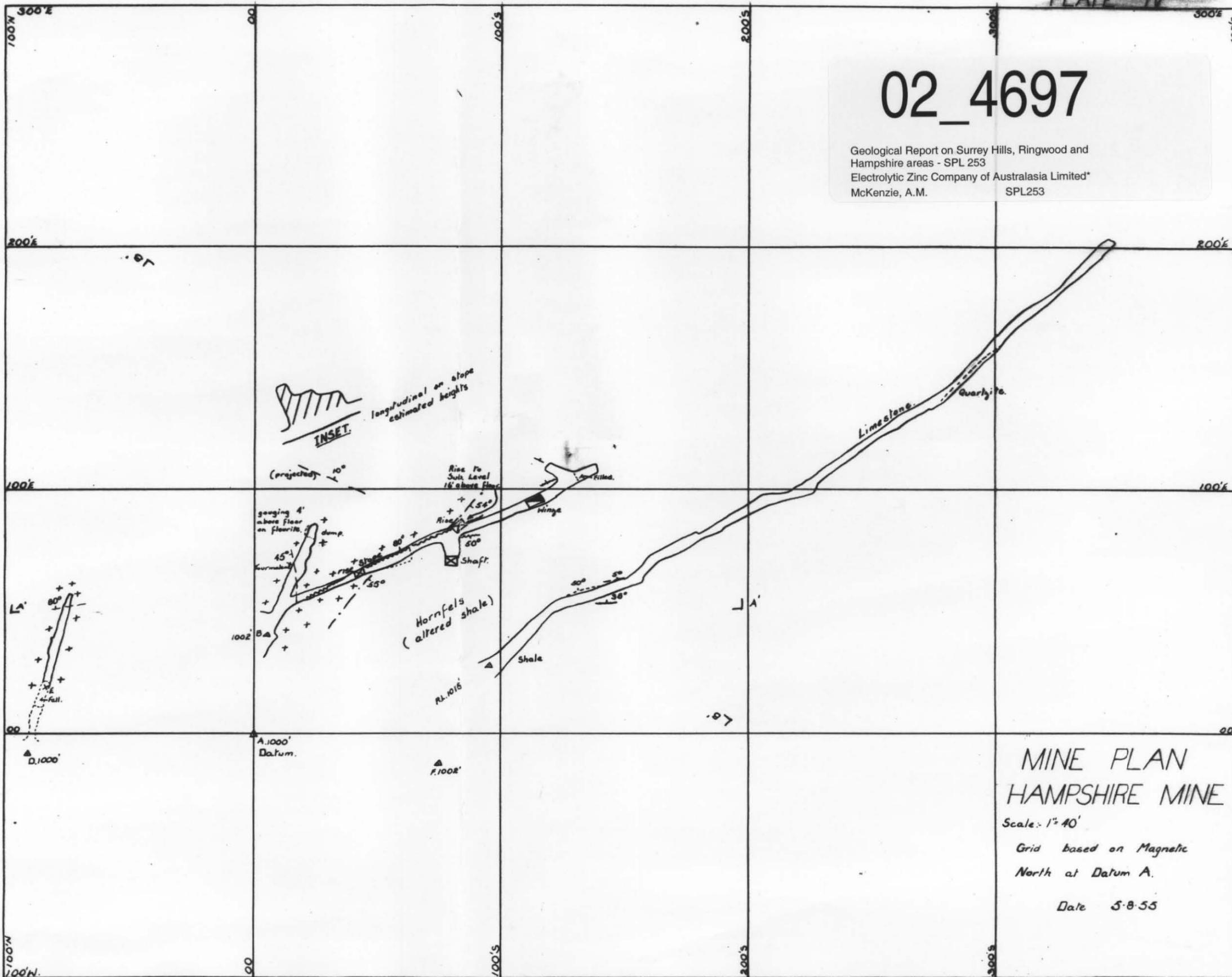
STRATIGRAPHY

Tertiary	Basalt	CCC	Cambrian	Shales	AAA
	Fluvio-glacial	GGG		Fine Sandstone	GGG
	Siltstone, etc.	TTT		Metamorphic Rocks	AAA
Silurian-Devonian	Croftly Quartzite	OOO		Where rocks have altered	AAA
	Corston River Limestone	GGG		Granite	AAA
	Owen Conglomerate	GGG			
	Quartzite	GGG			

Scale: 5 cm

02_4697

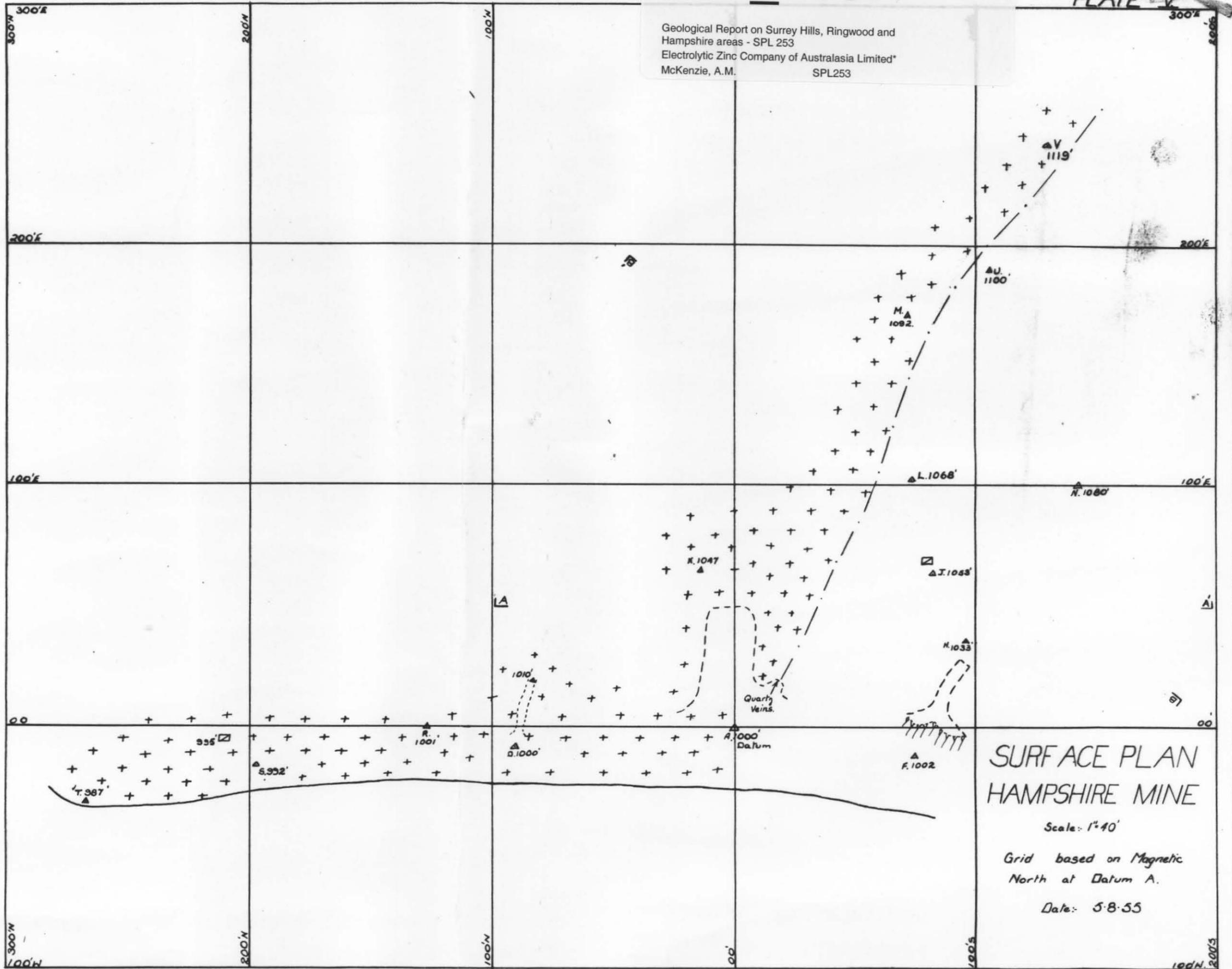
Geological Report on Surrey Hills, Ringwood and Hampshire areas - SPL 253
Electrolytic Zinc Company of Australasia Limited*
McKenzie, A.M. SPL253



02_4697

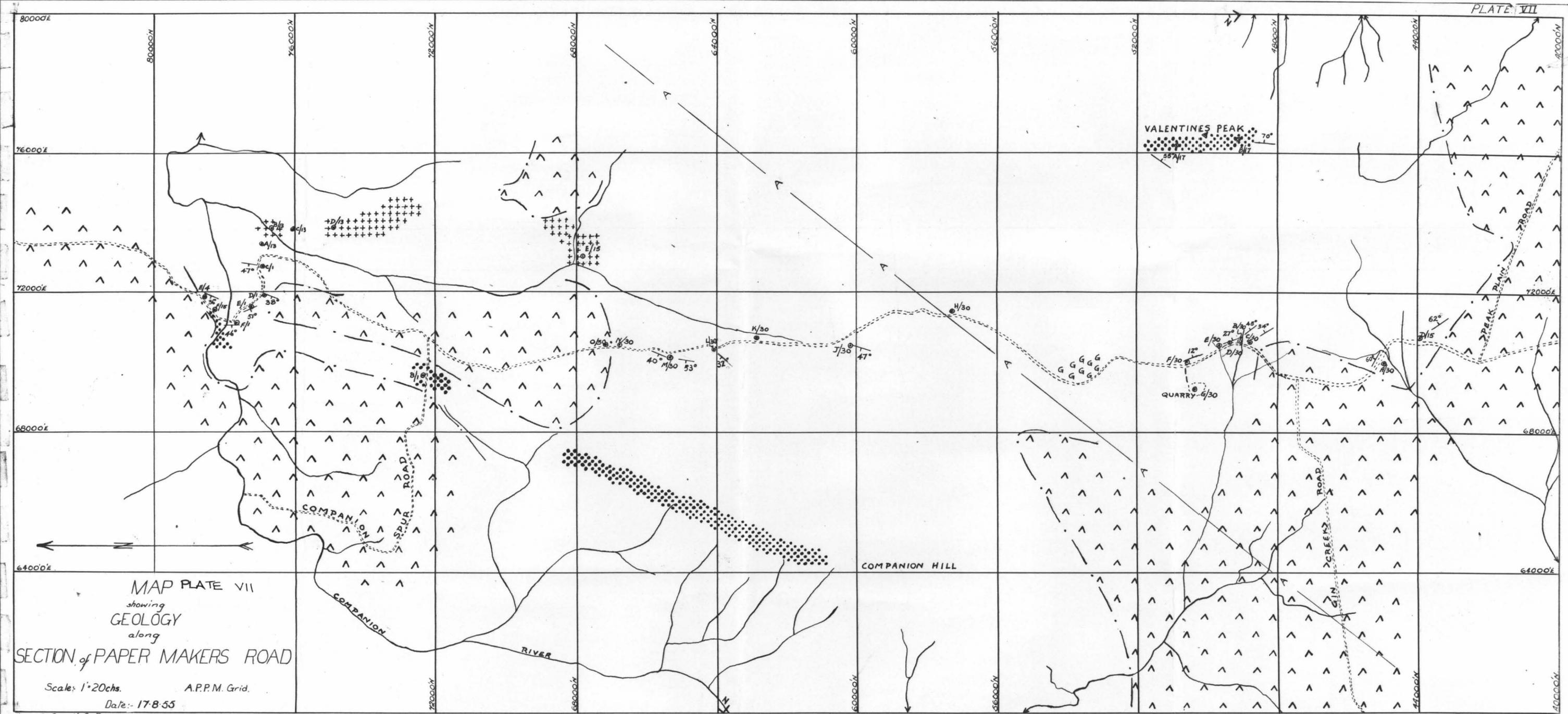
PLATE V

Geological Report on Surrey Hills, Ringwood and Hampshire areas - SPL 253
Electrolytic Zinc Company of Australasia Limited*
McKenzie, A.M. SPL253



E.Z. Co. W.C.D. Geol. Dept. Y.O. 139

577013

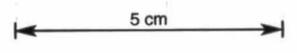


MAP PLATE VII
 showing
 GEOLOGY
 along
 SECTION of PAPER MAKERS ROAD

Scale: 1"=20chs. A.P.P.M. Grid.
 Date: 17-8-55

E.Z. Co. W.C.D. Geol. Dept. Y.O. 137

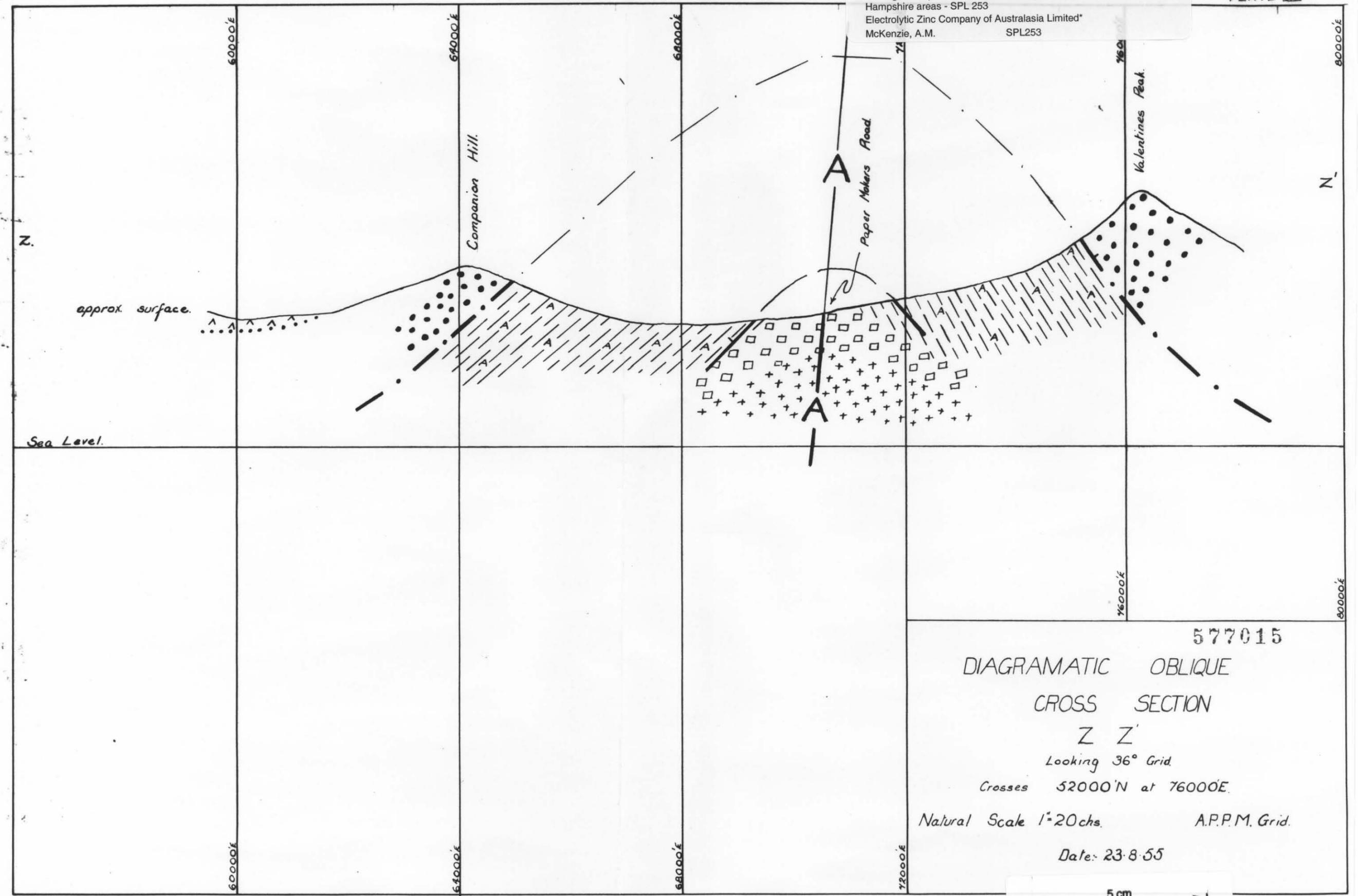
TCR: 02-4697 577014



02_4697

Geological Report on Surrey Hills, Ringwood and Hampshire areas - SPL 253
Electrolytic Zinc Company of Australasia Limited*
McKenzie, A.M. SPL253

PLATE VIII



577015

DIAGRAMATIC OBLIQUE

CROSS SECTION

Z Z'

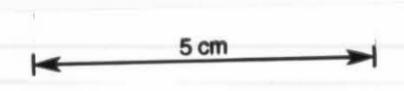
Looking 36° Grid.

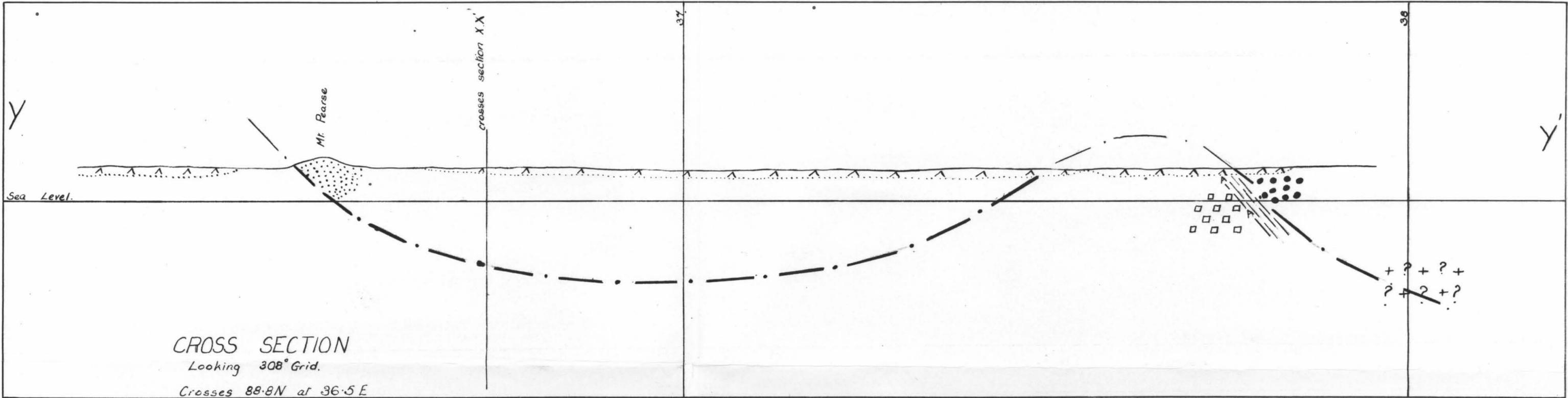
Crosses 52000'N at 76000'E.

Natural Scale 1"=20chs.

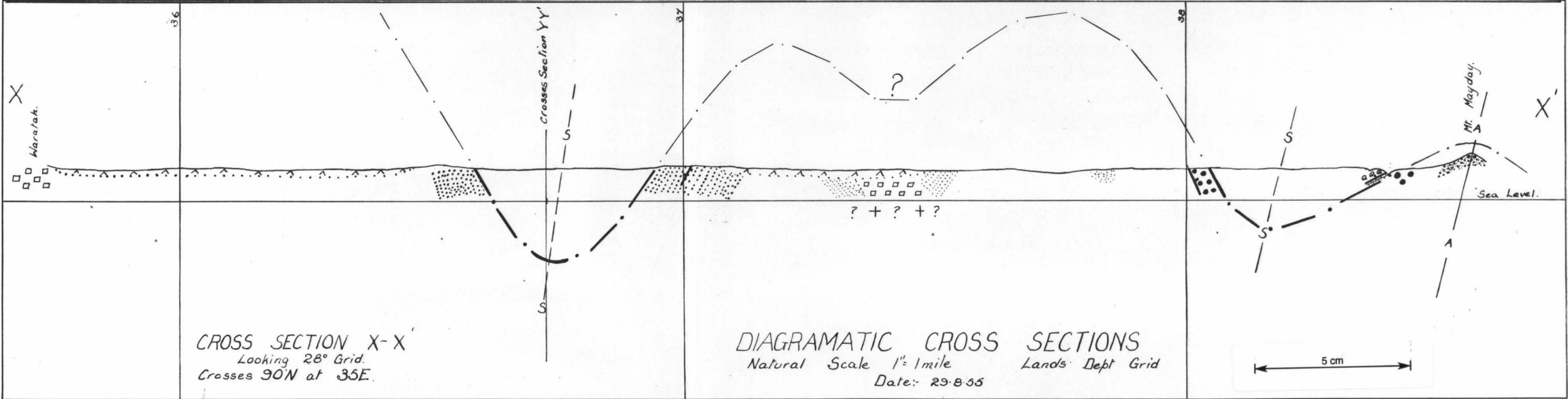
A.P.P.M. Grid.

Date: 23.8.55



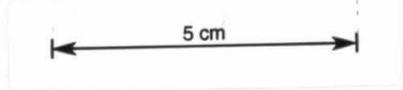


CROSS SECTION
Looking 308° Grid.
Crosses 88.8N at 36.5E



CROSS SECTION X-X'
Looking 28° Grid.
Crosses 90N at 35E.

DIAGRAMATIC CROSS SECTIONS
Natural Scale 1" = 1 mile
Lands Dept Grid
Date: 29.8.55



577016 TCR. 02-4697
PLATE IX