

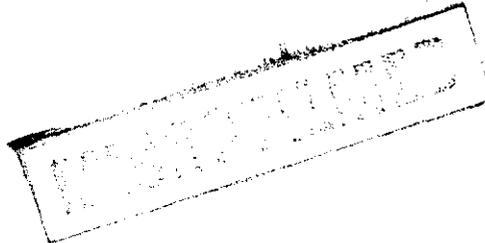
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COMSTAFF PROPRIETARY LIMITED

MT. STEWART DRILLING

EXPLORATION LICENCE 1/68

ANG COORDINATES

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1. ABSTRACT

A selected Induced Polarisation anomaly was drilled on line 50S of the Mt. Stewart grid. No apparent economic mineralisation was encountered.

2. INTRODUCTION

Geochemical soil samples taken over the Mt. Stewart grid during the 1969/70 summer season were anomalous for Ni, Co, Zn and Sn. These anomalies were irregular and patchy and apparently unrelated to the geology. They were therefore considered of dubious usefulness, although of high value.

On subsequent consideration an I.P. survey was carried out along part of the Mt. Stewart grid. Its purpose was to define a zone of disseminated mineralisation.

McPhar Geophysics Pty. Ltd. were contracted and the traversing was completed by mid-December 1970.

I.P. anomalies were located (Tas 2-254) and one of these was selected for drilling.

The diamond drill (A.S. James Pty. Ltd.) was moved from the Huskisson area to the Mt. Stewart site after much delay and drilling commenced in mid-April. The hole was completed by 7th May whereupon the drill was moved to Mt. Jasper.

3. PREVIOUS WORK (see also Mt. Stewart report summer 1969/70)

3.1. Geology

Summarily, previous regional geological mapping has tended to indicate that the Mt. Stewart area comprises a serpentinitised, zoned(?) ultramafic body, surrounded and intruded by porphyritic biotite granite. The serpentinite has been interpreted as a roof pendant within the Meredith Granite batholith (Devonian).

Contact metamorphism of the ultramafic rocks adjacent to the granite has produced actinolite hornfels.

Mapping has indicated faulting with a WNW - ESE trend. Two major faults appear to have down-faulted the southern sector of the serpentinite.

The ultramafic suite is thought to comprise layered dunite, peridotite, and pyroxenite, the former decreasing towards the east.

The attitude of the layered body was not clearly understood.

### 3.2. Geochemistry

The Mt. Stewart grid was cut following the location of stream sediment anomalies in Ni, Co, Pb, Zn, Ag and Sn.

The grid was soil sampled (A<sub>1</sub> horizon) every 50'. The base-line samples were analysed<sup>1</sup> for Ni, Co, Zn and Sn, the west lines for Sn, and the east lines for Ni, Co, Pb and Ag.

Grid anomalies were plotted using the following thresholds:

Ni	2400 ppm
Co	600 "
Zn	100 "
Ag	2 "

There were no anomalies in Pb.

From a perusal of Tas 2- 253 it is readily apparent that the anomalies are extremely irregular and bear no obvious relationship to the geology.

## 4. GEOPHYSICS

### 4.1. Induced Polarisation

Traverses were run along lines 30S, 40S, 50S, 60S and 22E, the latter being cut especially for the geophysical work. The results are summarised below (ex McPhar report):

#### Line 30S, Electrode Interval 200'

Two possible anomalies on this line reflect only minor above-background I.P. effects. They are not considered important at this time.

#### Line 40S, Electrode Interval 300'

Two definite anomalies were located at 13.0E and 25.0E. McPhar suggest that the pattern of the anomaly at 13.0E could represent the maximum I.P. effect from a relatively narrow source, or possibly "off-end effects", e.g., when the traverse lies north or south of the end of a metallic source. There is also a probable anomaly indicated at 34E.

#### Line 50S, Electrode Intervals (i) 200', (ii) 300'

First the line was traversed using a 200' electrode interval. Two definite anomalies were located at 14E and 21E. These anomalies were confirmed using a 300' electrode interval. A possible anomaly is indicated at 28E.

#### Line 60S, Electrode Interval 300'

A definite anomaly was located between 12E and 21E. McPhar suggest two sources, e.g., a shallow source between 12E and 15E and a source at depth below 18E. A possible anomaly has been indicated at 30E.

#### Line 22E, Electrode Intervals (i) 200', (ii) 300'

Both electrode intervals revealed an anomaly at depth

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below 42S to 44S. The possible anomaly at 38S is not considered to be significant at this time.

#### 4.2. General

McPhar suggest that the anomalies form two distinct zones diverging to the north. They suggest that the zones terminate between lines 40S and 30S but continue past the point where they appear to merge on line 60S.

#### 4.3. Magnetometer Traverses

It was thought possible that the I.P. anomalies were caused by magnetite known to be present in the area.

Magnetometer traverses, with 50' station spacings, were run over lines 40S, 50S and part of 22E.

The magnetic anomalies did not appear to correspond with the I.P. anomalies (see Tas 2-254).

Superficially the I.P. anomalies do not appear to be due to magnetite, but it is tentatively suggested that disseminated magnetite at depth would cause an I.P. effect whereas it would not necessarily produce a magnetic anomaly at the surface (see later).

### 5. DRILLING

After due consideration it was decided to drill a prospect hole to determine the exact nature of the mineralisation causing the I.P. anomalies.

The most suitable drill position was considered to be on line 50S 21.5E where a 500' vertical hole was planned. An intersection was expected at 450'.

A second vertical hole was envisaged at line 22E 44S, but this has not been drilled to date.

A road was constructed to these positions and drilling commenced.

#### 5.1. Geology of Borehole (see Tas 2-256)

Predominantly the core comprises serpentinitised dunite, the degree of serpentinitisation varying. It would seem from specimens sent for petrographic description that the percentage of olivine is increasing at depth.

In hand specimens the serpentinitised dunite is characteristically a dark, greenish-grey rock often showing a relict granular texture. Microscopically the olivine content may be seen to vary from 5-10% to 60-70%, the dunite often having a well developed mesh texture typical of pseudomorphous olivine. Commonly a few small prismatic crystals of tremolite occur in these serpentinitised dunites and some of these are replaced by carbonate, talc or serpentine. Some tremolite crystals (ST/52) were observed to pierce crystals of olivine. The presence of tremolite would

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suggest perhaps that the original dunite contained some pyroxene. Talc and opaline silica often occur along small irregular veinlets or along shearing planes. Brucite, varying in amount from a trace to 2-3% is common. Chromite is present, usually in trace proportions, but sometimes forming small euhedral crystals.

Subordinate rock types include serpentinite, a serpentine-brucite rock and a tremolite rock.

The serpentinite is described by AMDL as a medium to dark, greenish-grey rock with a waxy lustre and a mottled and veined texture. Microscopically, the rock is seen to comprise serpentine (chrysotile) which does not show clear relict textures and does not contain remnants of original minerals. Fine grained, secondary magnetite (ST 440' 3-5%) has accumulated along many small fractures or veinlets which, in places, are sub-parallel suggesting some form of tectonic stress. This rock is also cut by veins of moderately coarse-grained brucite.

The serpentinite-brucite rock (ST 373'6") is a pale green rock with a waxy lustre and contains approximately 20-30% brucite. AMDL maintain that the original rock was a medium or coarse grained dunite.

The tremolite rock (ST 319'6") is a very pale green rock composed (99%) of prismatic to fibrous tremolite crystals with apparently random orientation. It is probably derived from an ultra-basic rock (pyroxenite?).

Shearing and residual serpentinite veining are common dipping at 50-60° but flattening to 30-40° towards the bottom of the hole.

No information was obtained from the core that would directly indicate the attitude of the ultramafic body.

No sulphides were observed in the core.

## 5.2. Geochemistry of Borehole (Tas 2-256)

No mineralisation of economic interest other than a little magnetite and some chromite was observed. Certainly no sulphides were seen.

However, as a check against visual assessment the core was chip-sampled at 5' intervals. The chips were grouped in tens and analysed by spectrographic scan as groups for Co, Ni, Cr, Cu, Sn, Zn, Pd, Pt, Os, Ir and Rh. Values were very low but as a further check core from 350-400' and from 200-250' has been split into 5' sections and analysed for the above elements. These sections were chosen because of their slightly higher Cu values. The results for the split core have just been received but values have again proved very low.

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CONCLUSIONS

It is tentatively suggested that the I.P. anomaly as drilled is a result of disseminated magnetite. It is considered possible that 5% or thereabouts of magnetite at a depth of 450' would give rise to an I.P. anomaly but not necessarily to a magnetic anomaly at the surface.

The magnetic anomalies at the eastern end of lines 40S and 50S may represent the outcrop of a magnetite rich zone located at depth in the borehole (I.P. anomaly).

If the above very tentative postulations are correct, the attitude of the ultramafic body between stations 22E and 43E is taken to be dipping at about 25° to the west.

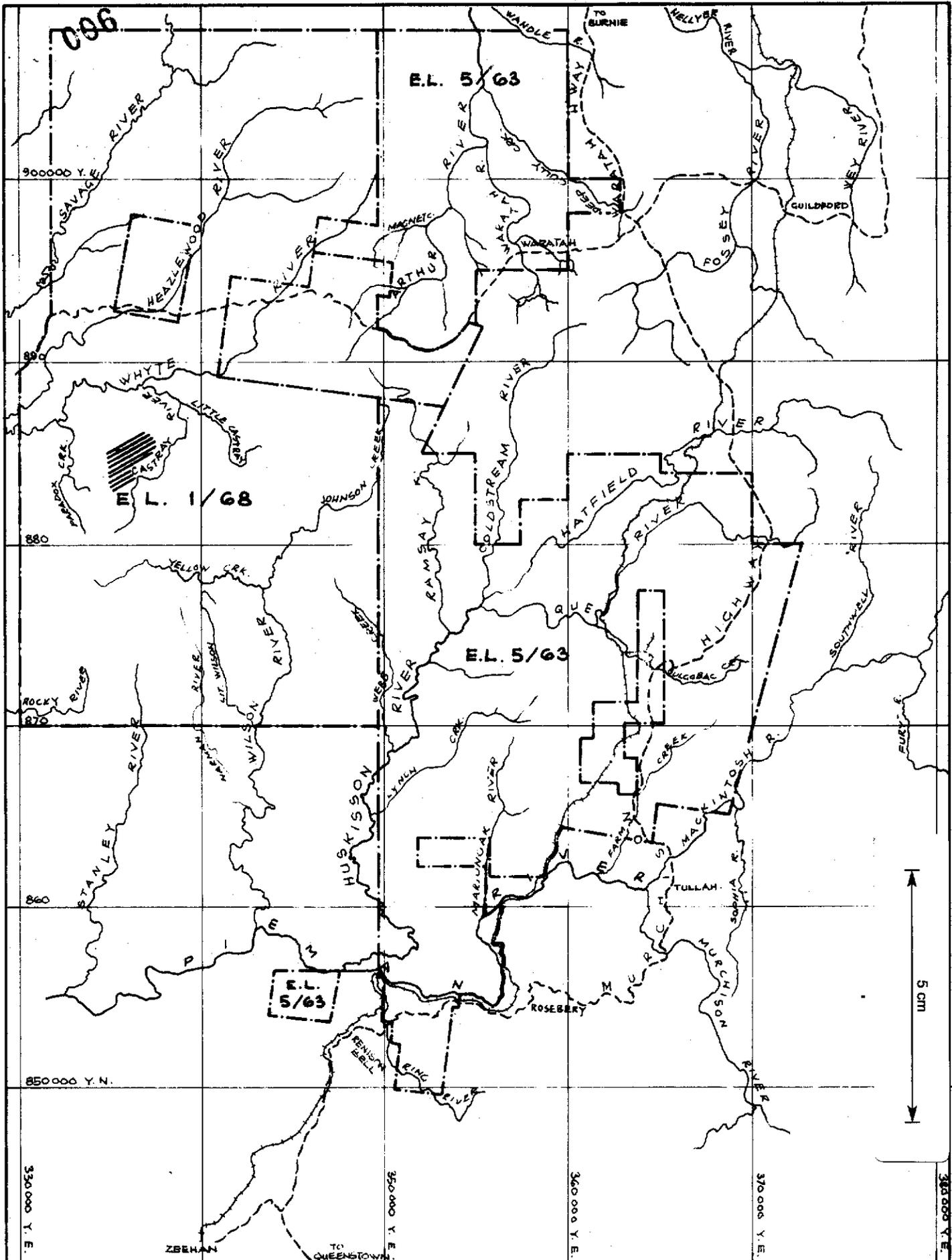
Notwithstanding the disappointing geochemistry to date it is urged that one more hole be drilled. This should be sited so that a point 350' below station 22E 44S is intersected. It is suggested that a 70° hole is drilled on a bearing of 110° from a point located 120' from station 22E 44S on a bearing of 290°.

Depending on the success of this hole consideration should be given to drilling the double anomaly on line 60S.

M. P. EVERETT

MAPS	Tas 2-252	Location
	2-253	Previous grid geochemistry (taken from summer report 1969/70)
	2-254	I.P. anomalies and geology.
	2-256	Hole geology and geochemistry.
	2-255	Geophysics - Magnetometer details.

September 1971



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E.L. 5/63

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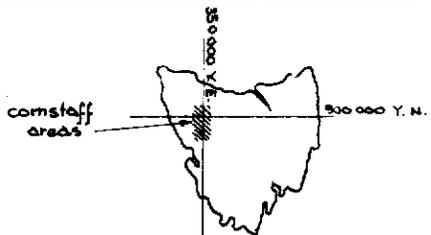
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MOUNT STEWART GRID

LOCALITY PLAN

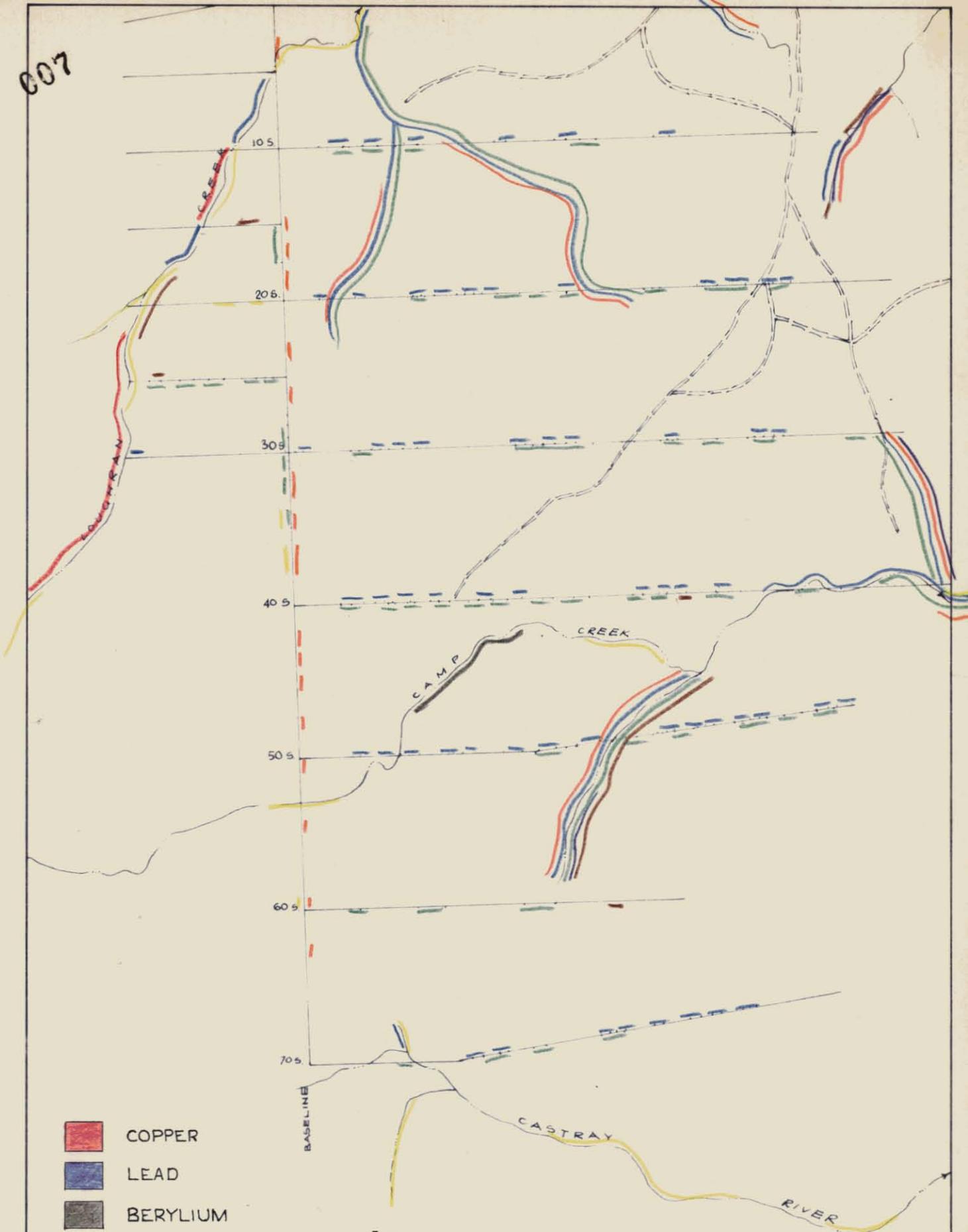


ANG COORDINATES

SCALE 1:250,000.

TAS-2-252

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- COPPER
- LEAD
- BERYLLIUM
- NICKEL
- COBALT
- ZINC
- SILVER
- TIN

5 cm

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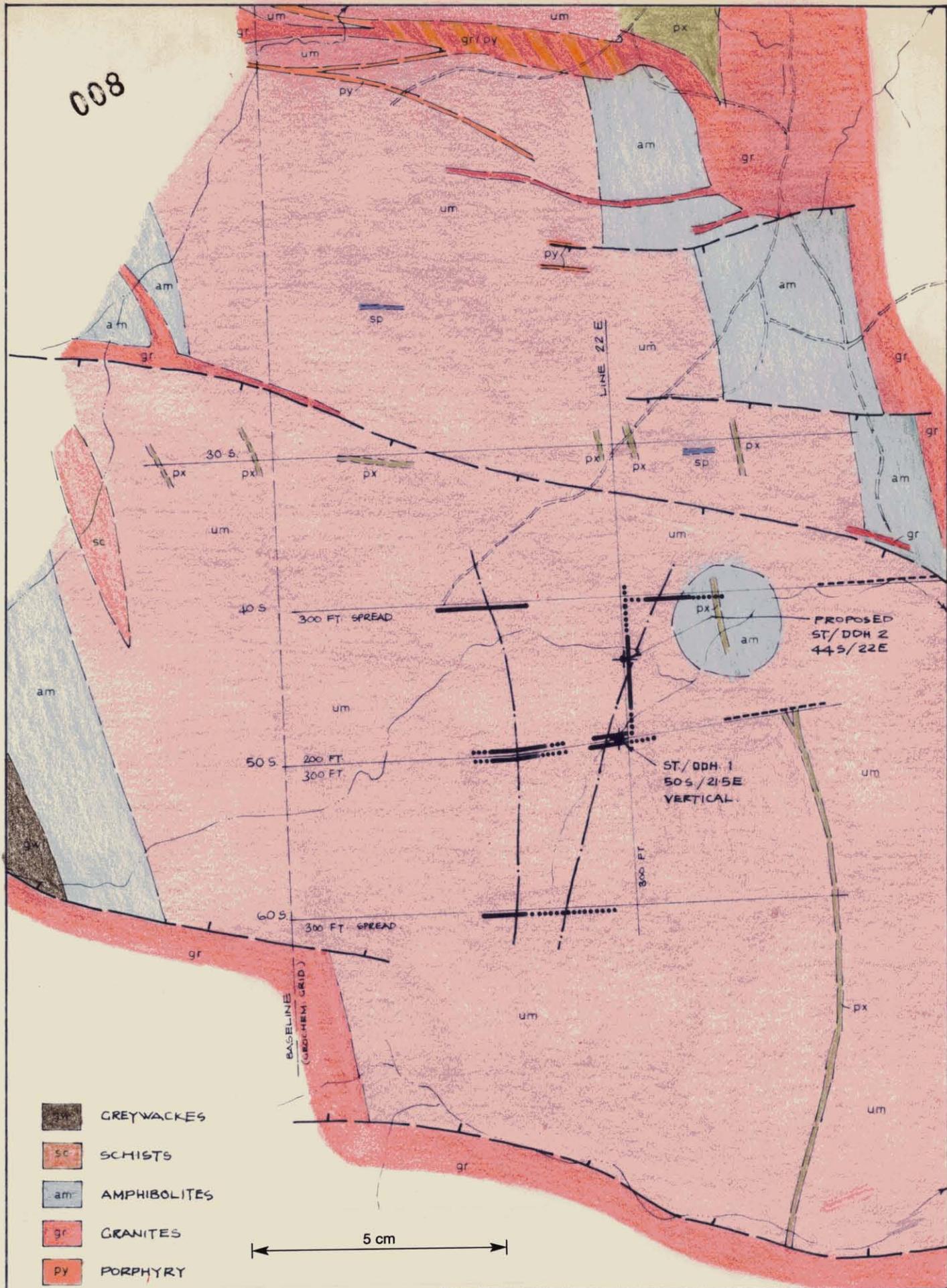
**MOUNT STEWART GRID.**

**GEOCHEMICAL ANOMALIES**

SCALE 1:10000	DWN. G.E.C.	TAS. 2-253
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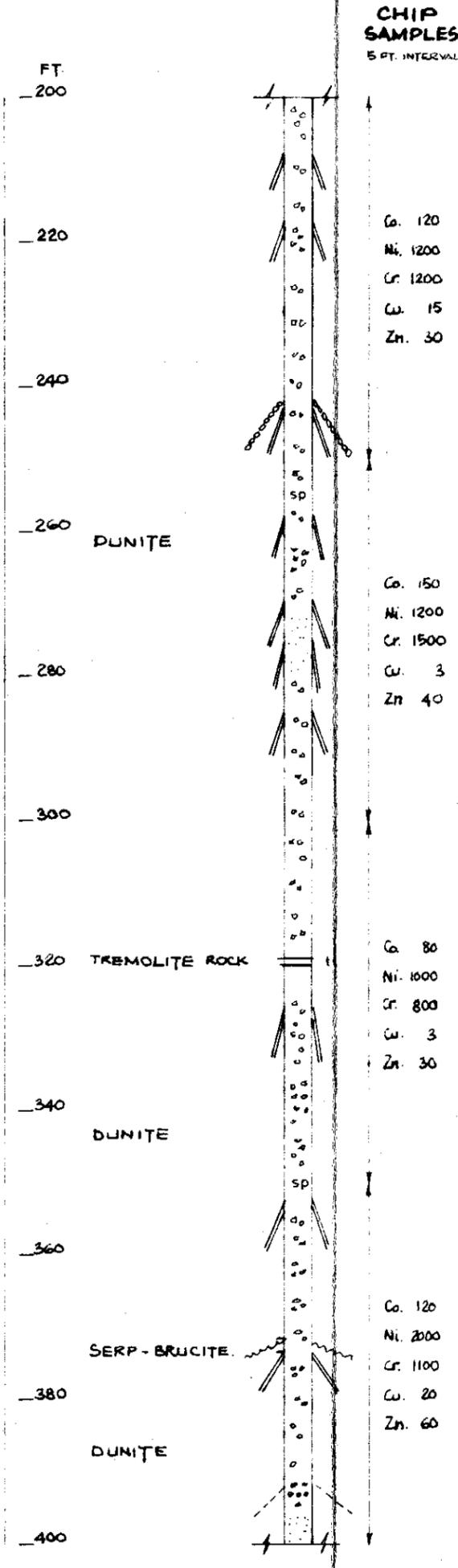
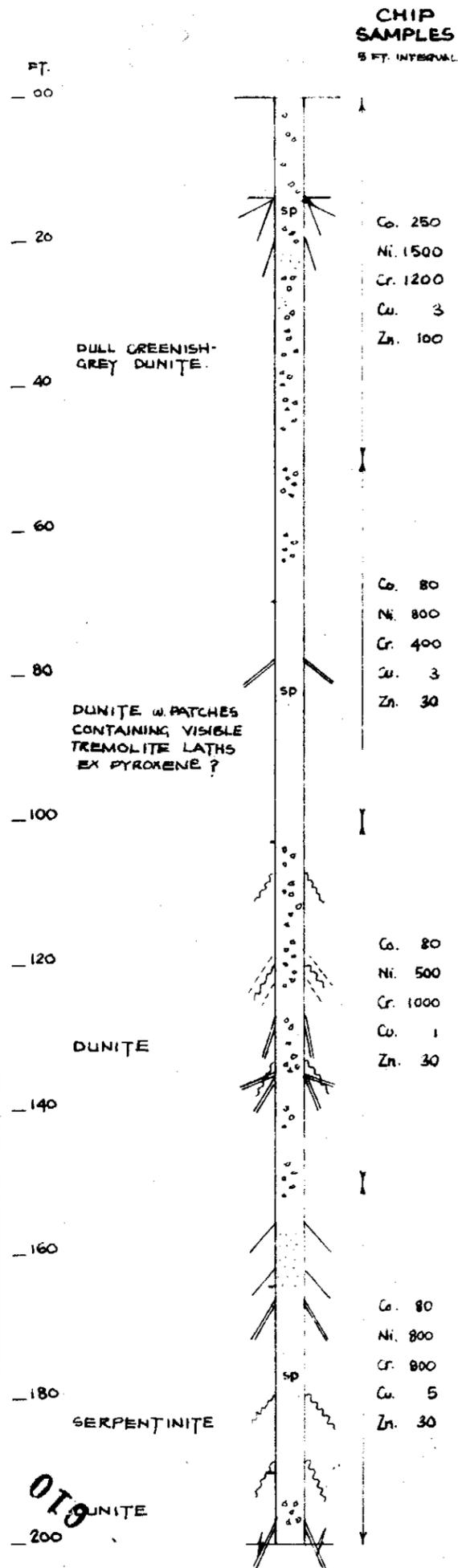


- GREYWACKES
- SC
- AM
- GR
- PY
- GB
- PX
- SP
- UM

- MAGNETOMETER ANOMALY
- I.P. ANOMALY DEFINITE
- I.P. ANOMALY INFERRED
- I.P. ZONE

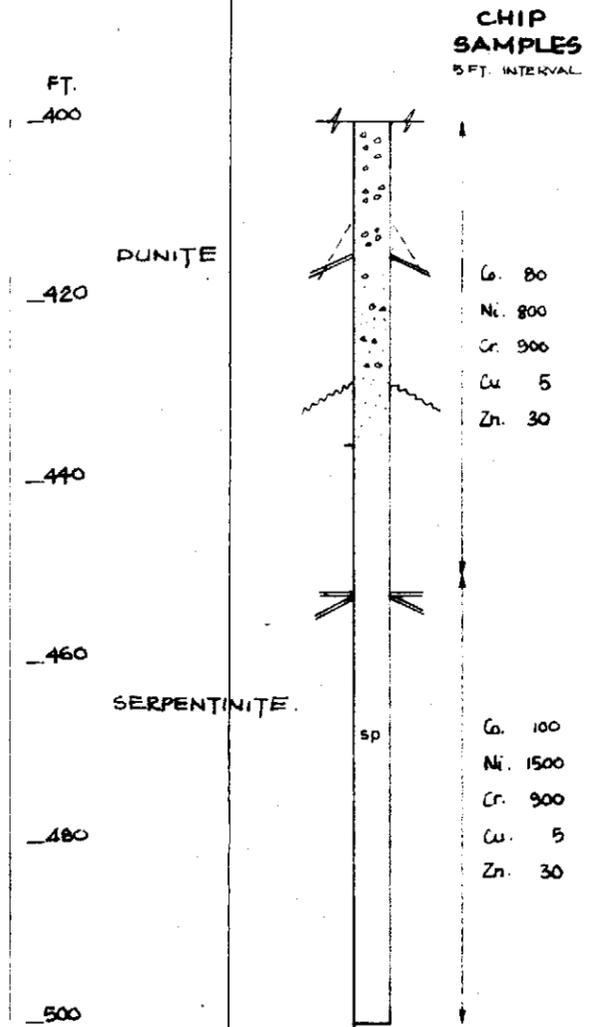
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<b>MOUNT STEWART GRID</b>		
<b>GEOLOGY/GEOPHYSICS</b>		
SCALE 1:10000	DWN. G.E.C.	TAB 2-254

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SPLIT SECTIONS

	Co.	Ni.	Cu.	Pb.	Zn.	Ag.
600	1500	3	X	40	0.1	
600	2000	3	X	20	X	
800	2500	5	3	20	0.1	
600	1500	3	3	30	0.1	
800	2500	5	1	60	0.3	
800	2000	3	1	30	X	
600	1500	3	1	40	0.1	
600	1500	3	1	40	X	
800	2000	5	1	60	0.1	
600	1500	5	1	60	X	
400	2000	5	1	20	X	
600	1500	5	1	60	X	
600	1200	5	1	60	X	
400	2000	3	3	60	0.1	
400	1200	3	3	80	0.1	
400	1000	5	3	60	0.1	
400	1000	3	5	80	0.1	
300	1000	3	5	100	0.1	
600	1500	10	10	100	0.1	
400	1000	5	3	100	0.1	



ST. / D.D.H. 1.  
50 S. / 21 E.  
VERTICAL 500 FT.

- sp SERPENTINITE
  - t TREMOLITE
  - Coarse Grained
  - Fine Grained
  - RESIDUAL VEINS
  - SHEARS
  - CHROMITE
  - LAYERING
- 5 cm

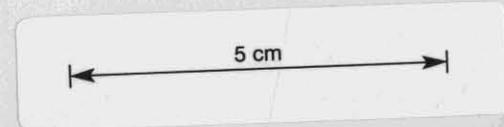
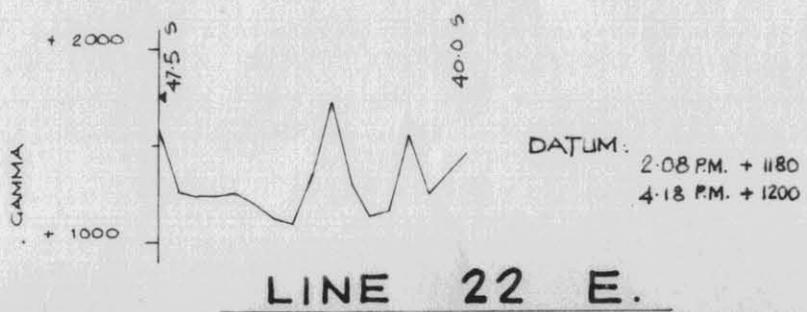
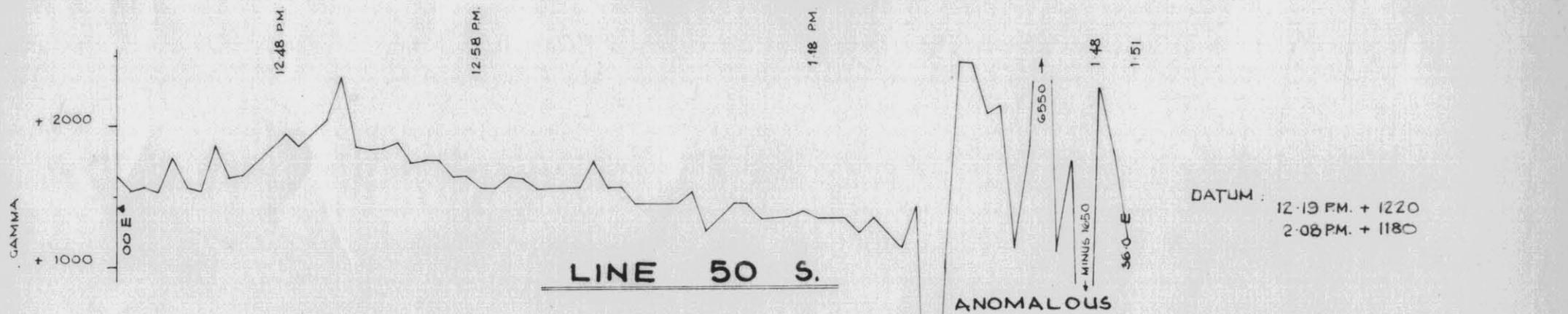
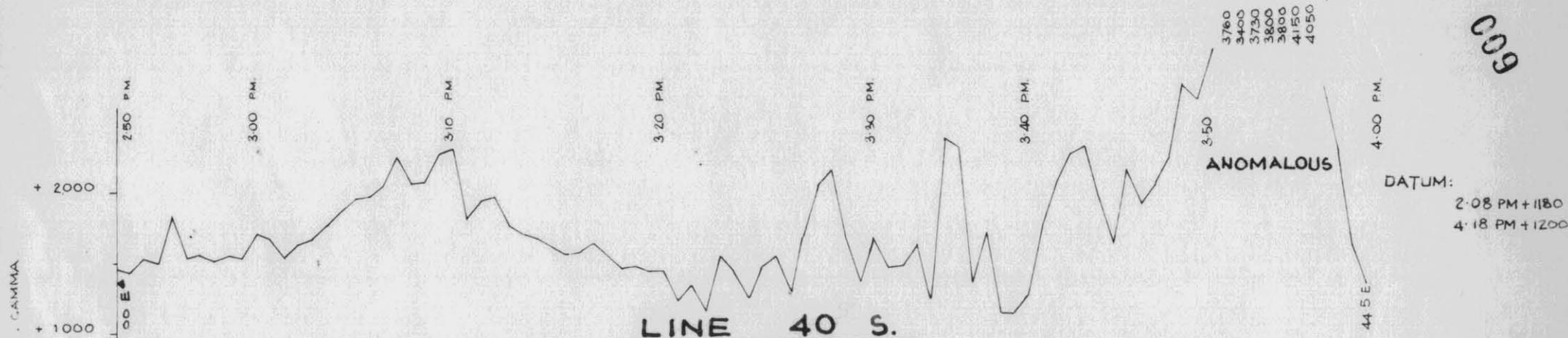
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MOUNT STEWART GRID.

ST. / D.D.H.1. DETAILS

SCALE 1 IN. = 20 FT. DWN. G.E.C. TAS 2-256

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COMSTAFF PROPRIETARY LIMITED  
 MOUNT STEWART GRID  
 GEOPHYSICS  
 MAGNETOMETER DETAILS

SCALE 1 IN. = 500 FT. DWN. C.E.C. TAS 2-255