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PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

TITLE: STAGE REPORT ON THE SOUTH

BISCHOFF MINE AREA (CSB) EL 5/63

PART 2

VOLUME 1

83-1991

AREA NAME/S, STATE 1: 250,000 SHEET NO/S & COORDINATES: Burnie Sheet SK 55 /3
Metric Co-ordinate 539750mN/372500mE

COMMODITY/IES: Tin, Tungsten, Copper, Lead, Zinc

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TABLE NOS: 1 and 2 Figures

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SUMMARY

Extensive fill in gridding and extensions were added to the CSB grid resulting in approximately 80 metre line separation over the majority of the grid and a 20 metre separation over the South Bischoff Tin Mine area.

The new grid lines were geologically mapped, auger sampled at 20 metre intervals, except for the mine area which was sampled at 5 metre intervals and magnetically surveyed.

Additional geological data have outlined a third phase of Meredith Granite containing hornblende and further defined the Crimson Creek hornfels units.

The areas of propylitic? alteration of the hornfels are now ascribed to the interaction of invading Tertiary olivine basalt and the underlying hornfels.

The detailed sampling over the mine area outlined a highly anomalous Sn zone over the workings, attributed to greisenisation of the porphyritic biotite microgranitic fractures.

This zone was subsequently tested by DDH's CSB 1 (89.4m) and CSB 2 (91.5m). CSB 1 contained less than 2.5 metres of greisen with no highly anomalous Sn values (max 50 ppm). However CSB 2 outlined subeconomic Sn and Zn values;

3.6m @ 0.345% Sn and 0.449% Zn
1.6m @ 0.175% Sn and 0.93% Zn

The Sn-Zn mineralising phase is also enhanced in Pb and Ag. These values along with remaining targets in the mine area give sufficient encouragement to drill two further short diamond holes adjacent to CSB 2.

The three significant Sn-Zn-Pb soil anomalies outlined in 1981 have been further substantiated. The northwest anomaly, which is along strike from the mine, contains maximum values of Sn (660 ppm) and Zn (0.7%) and is recommended for diamond drilling following target definition.

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INTRODUCTION

This report covers the work carried out in the area of the old South Bischoff Tin Mine (Grid CSB) between June 1981 and March 1983. A Preliminary Report covers the work completed from project inception to June 1981.

This report is divided into three sections;

1. Surface Investigations
2. Diamond Drilling
3. Conclusions and Recommendations.

The first section on Surface Investigations outlines the work completed over the extended and more detailed grid (CSB) including geological mapping, geochemical sampling and geophysical surveys. The results obtained from these investigations are then outlined and discussed.

The second section on Diamond Drilling outlines the objectives of DDH's CSB 1 and CSB 2 along with the results achieved from each drillhole under the headings of Geology, Geophysics and Geochemistry followed by a discussion.

The final section, Section 3, draws together all the results from the previous sections in a general discussion and concludes with recommendations.

LOCATION AND ACCESS (Plans TAS/2/1586 and 2590)

The South Bischoff area lies between Johnson's Creek to the west, a tributary of the Wilson River, and the Ramsay River to the east some 11 km southwest of Waratah. The area lies in the northwest portion of EL 5/63 Part 2.

A four wheel drive track (Ramsay Road) leaves the Waratah-Savage River Highway approximately 8 km southwest of Waratah and bisects grid CSB 4.7 km south of the highway. The immediate mine area is accessed via Taupo Road which leaves the Ramsay Road at the 4860m mark or by a well graded walking track (Blunstone Track) which leaves the Ramsay Road at the 4800m mark.

SECTION 1 Surface Investigations Grid CSB

1.1 Previous Work

A Preliminary Report on the South Bischoff Mine Area (CSB) (Green 1981) outlines the work carried out in the area from project inception in 1980 to June 1981. Specifically the report includes sections on the old mining records, geological mapping and geochemical surveys of the original 5 line CSB grid, creeks and tracks, along with the results of a magnetic survey of the grid. Additional sections report on the detailed sampling of the old mine workings.

This work outlined greisen alteration in parts of the granite and intense propylitic? alteration of some of the metasediments. Geochemical soil sample results outlined several areas of interest, the major ones being a zone marginal to Johnson's Creek from the mine northwards (max 700 ppm), an area in upper Aylett Creek near the metasediment/granite contact (max 350 ppm) and the northeast corner of the grid (max 350 ppm).

Results from channel sampling of four mine adits and a costean indicated some economic concentration of Sn (max 1.9%) as did one grab sample (10.5%) from the area.

Intensive follow up work was recommended utilising a larger and closer spaced grid. This work, culminating in a two drillhole diamond drilling programme, finished in March 1983.

1.2 Work Completed

1.2.1 Gridding and Roding

The old CSB Grid comprising of 5 lines 240m apart between Johnson's Creek (west) and the Ramsay River (east) was infilled and extended as follows;

<u>Old Lines</u>	<u>New Lines</u>	<u>Extensions</u>
L 5000 N		
	L 5160 N	
L 5240 N		300m West

<u>Old Lines</u>	<u>New Lines</u>	<u>Extensions</u>
	L 5320 N	
	L 5400 N	
	L 5400 N(R) Mine Area only	
	L 5440 N " " "	
L 5480 N		300m West
	L 5500 N Mine Area only	
	L 5520 N " " "	
	L 5540 N " " "	
	L 5560 N	
	L 5600 N Mine Area only	
	L 5640 N	
L 5720 N		300m West
	L 5800 N	
	L 5880 N	
L 5960 N		300m West
	L 6040 N	
	L 6120 N	300m West
	L 6200 N	
	L 6280 N	

In addition a short base line (4400E) was cut (327 metres) between L 5400 N and 5720 N to control the short grid lines in the mine area.

Taupo Road was pushed for 1120 metres off Ramsay Road peg 4860 metres in order to gain access to drill pads CSB 1 and CSB 2.

1.2.2 Geological Mapping

All new CSB grid lines and Taupo Road were geologically mapped. A number of trenches encountered along or adjacent to the grid lines were also mapped. Rock samples were taken from most traverses and all trenches for petrological description and/or geochemical analysis.

1.2.3 Geochemical Surveys

C horizon auger soil samples were collected at 20 metre spacings along the new CSB grid lines. The sample interval was reduced to 5 metres in the mine area and separate geochemical plans have been produced for this area.

Graphically deduced population statistics were utilised to identify anomalous populations of Cu, Pb, Zn, As, Ni, Sn and W results.

The sample results were separated into those from granitic terrains as opposed to non granitic and then statistically treated.

In addition to the above elements samples were analysed for F, Li and Mo from the 5 metre spaced sampling programme over the old mine area.

1.2.4 Geophysical Surveys

A ground magnetic survey was carried out over the new CSB grid lines. Readings were taken every 20 metres and if the difference between successive readings exceeded 50 nT an intermediate station at 10 metres was read.

A back pack mounted Geometrics proton precession magnetometer was used.

An 800 metre section of L 5240 N (old line) was rerun so as the two new surveys could be calibrated with the old.

Six samples of granite and three of greisen were measured for their specific gravity in order to ascertain whether a sufficient density contrast existed to enable an efficient utilisation of a gravity survey.

1.2.5 Statistics

Grid Lines Cut	16.011 km
Roads Constructed	1.120 km
Geological Mapping	17.131 km
Petrological Descriptions	13
Rock Geochemical analyses	113
Soil " "	990
Geophysical Traverses	16.811 km

1.3 Results and Discussion

1.3.1 Geology

a) General

The rock units mapped during the second phase of geological investigations have been somewhat refined on those presented in the Preliminary Report of 1981.

They remain broadly conformable with those outlined by Pigott, 1980 and are summarised in Table 1.

Geological plans provided in this report are the detailed geological fact maps (1981 & 1983) (Plans TAS/2/2366, TAS/2/2375) and an interpretation map (Plan TAS/2/2375). Interpretative geology is also included on the composite profiles of each CSB grid line (plans TAS/2/2584-2588 & 3233-3225). A separate interpretation map of the Mine Area (TAS/2/3114) is also included.

The petrological report is appended as Appendix 1 and rock geochemical analyses in Appendix 11. Both appendices have the sample locations incorporated in them.

b) Lithological Units
Crimson Creek Hornfels

This unit has been provisionally divided into two sub-units. The first and most abundant is made up of the typical tuffaceous lithic wackes, labile pelites-siltstones, tuffs and minor chert. This assemblage is consistent with the Crimson Creek Formation mapped to the south and are the oldest recorded rocks in the area. The rocks are often bedded and some show disturbance by loading and turbiditic currents. These features are often masked in hand specimen by contact metamorphism and ubiquitous metasomatism associated with the nearby Meredith Granite. Most of the clastic sediments are magnetic to some degree owing to the presence of detrital magnetite, minor secondary magnetite and rarely, disseminated pyrrhotite.

The second sub-unit is relatively rare and consists of a somewhat cleaner (ie depleted in lithic grains) feldspathic-quartzose sandstone-siltstone. This sub unit is probably conformable with the first and reflects a minor change in sediment input, but is a mappable unit. It also appears to have suffered less from the contact metamorphic and metasomatic effects associated with the Metamorphic Granite.

Crimson Creek Metabasites

Rock types included in this unit are porphyritic microgabbros, porphyritic microdolerites, dolerites and basalts.

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AGE	NAME	UNIT	THICKNESS	LITHOLOGIES
Quaternary		Alluvium	0 - 10 m	Boulder and cobble gravel, sand
Tertiary		Basalt	0 - 25	Alkali olivine vesicular/amygdaloidal basalt; basal gravel, sand, mudstone
unconformity				
Upper Devonian				Porphyritic biotite microgranite
to		Meredith Granite		Coarse grain biotite granite
Lower Carboniferous				Biotite granite ± hornblende
intrusive				
Middle Cambrian		Basic intrusives	0 - 100 m	Porphyritic microdolerite, and basalt
Lower Cambrian	Crimson Creek Formation	Greywacke Sequence	800 - 1200+m	Basic to intermediate volcaniclastic greywacke, tuff, siltstone, argillite; pelite (possibly dolomitic) chert; conglomerate
unconformity				
Upper Proterozoic	Ramsay Group	Sandstone/Shale Sequence	800+ m	Carbonaceous sandstone, phyllite and shale; micaceous sandstone, siltstone, conglomerate, breccia; carbonate.

From Pigott 1980

Taking into account the variable metasomatic and low grade metamorphic effects the dividing line between the rock types is very fine and mostly defined on textural grounds along with the presence or absence of feldspar phenocrysts.

A fortunately selected rock specimen, from the Ramsay River (1780m), when sectioned, indicated a dolerite intruding a Crimson Creek hornfels, with a brecciated contact. This implies the metabasites are younger, however mapping to the south (Pigott, 1980) suggests these rocks can also be conformable and possibly contemporaneous.

Meredith Granite

This composite intrusive complex occupying over half the area investigated was intruded in the late Devonian c. 351.5 m.y. by $\text{Sr}^{87} / \text{Sr}^{86}$ isotopic dating. This compares with dates of c. 349 m.y. for the Mount Bischoff quartz porphyries and c. 354 m.y. for the Renison Bell greisenised porphyry dykes (Groves et al, 1972).

Although for simplicity's sake all the rocks in this unit are designated as granites basically on the ratio of potassic feldspar to plagioclase feldspar, some are probably close to adamellites. This requires only a small change in the Ca content of the plagioclase to alter the feldspar ratio.

There appears to be three phases of granite. The first and most important, as it hosts the South Bischoff Mine mineralisation, is a porphyritic biotite microgranite. Marginal to this on the east is a coarse grained, sometimes approaching equigranular biotite granite which abuts the sediments. The third phase is poorly defined and was only mapped on the westerly extensions is a medium grained disequigranular verging on porphyritic biotite[±]hornblende granite. In texture it is somewhat similar to the coarse grain biotite granite, but differs due to the presence of the hornblende.

The first two phases contain areas of greisenisation, aplite dykes, quartz-schornl veins although greisenisation is much more common in the porphyritic biotite microgranite.

i) Porphyritic biotite microgranite

This rock type is consistent both texturally and mineralogically. There appears to be some interaction between this phase and the coarse grain biotite granite along the contact between the two giving an irregular transitional phase. Average contents are;

	Phenocrysts	10%		
	Total biotite	28%		
Feldspar	Phenocrysts	65%	average	14 mm
Quartz	"	28%	"	5 mm
Biotite	"	7%	"	2 mm

Thin section data from one sample indentifies orthoclase, quartz, oligoclase, biotite as the major minerals present along with accessory zircon, apatite and magnetite.

ii) Coarse grained biotite granite

This marginal contact phase varies in its texture from a medium-coarse grain equigranular to a coarse grain disequigranular texture with up to 10% fine indistinguishable matrix material. An average composition is;

Feldspar	59%	average grain size	8 mm
Quartz	30%	average grain size	5 mm
Biotite	11%	"	"

In Aylett Creek a large (>1.5m) subrounded talus block contained a well rounded xenolith of biotite microgranite. On L 5160 N the granite contains rare bands of biotite microgranite and one dyke (4807E) of flow banded biotite microgranite.

iii) Semi Porphyritic biotite granite

This third and central phase varies considerably in texture and slightly in mineralogical composition, however the presence of hornblende is distinctive. The plagioclase present is typically albite as opposed to oligoclase. Of interest in sample Z 2595 (L 5480N/3942E) is the presence of metamict allanite and possible uraninite, which should in theory give the sample an appreciable radioactive response.

Tertiary Sediments

This sequence occurs sporadically in the lower reaches of Palmer Creek and is made up of poorly compacted, subhorizontally bedded (often finely) clean quartz sandstones, siltstones and mudstones. Up to 7% conspicuous black carbonaceous material, still recognisable as twigs etc occurs, usually in association with the mudstones.

The unit is inferred to be a shallow infilling of small topographic lows in Tertiary. The 'low' in Palmer Creek is still recognisable and is rapidly being filled by more recent Quaternary alluvium and it is only where prospectors have 'turned the creek over' that the tertiary sediments are visible.

Tertiary Olivine Basalt

This regionally widespread unit only impinges on the grid on L 5160 N where it is interpreted to have flowed across the Ramsay River from the east. It may also have come across the river in the vicinity of L 5720 N.

The basalt is fine-medium crystalline, dark grey, very hard, heavy, sometimes magnetic and often contains dark green-green olivine phenocrysts. It is locally amygdaloidal with amygdales reaching 7 mm, averaging 1 mm, consisting of green - probably chlorite-zeolite reaction rims and quartz-carbonate cores.

c) Structure

Little structural information could be gleaned from the area as soil profiles are well developed and the creeks, although well incised are choked with alluvium.

The limited data available indicate that the Crimson Creek rocks strike NNW-NNE and dip moderately to the west. It appears that the emplacement of the Meredith Granite has 'dragged up' the country rocks in the central portion of the grid resulting in shallow dips to the east.

The strike and general dip is in accord with the regional form. That is that CSB grid lies on the western limb of a major north trending anticline.

The structural relationship between the three phases of granite remains unclear as at no outcrop was any contact examined. However the fact that the porphyritic biotite microgranite phase is usually the marginal (Stockley, 1972) phase, but at CSB is not and that it hosts one of the few endocontact tin lodes in the Meredith complex may imply that it is a roof remanent or that it has a unique paragenesis.

The granite complex is jointed, the most common set being approximately NW-SE with a steep-moderate westerly dip.

Although minor faulting is probably quite common in the Cambrian sediments the only evidence seen for major faulting is in the vicinity of L 5720 N. The fault of unknown vertical throw and apparent dextral horizontal movement truncates the South Bischoff Mine area, displaces units to the west and causes a minor 'hiccup' in the ground magnetics. M Hussey in his photogeological interpretation shows a structure somewhat similar to the inferred fault but slightly to the south (Plan TAS/2/2026).

d) Metamorphism and Alteration

i) Crimson Creek Formation

The contact metamorphic hornfelsing of the Cambrian Crimson Creek sediments and basic intrusives appears to reach two grades. The first and most common is a moderate-low grade hornblende facies which is fairly well ubiquitous through the tuffaceous lithicwacke sub unit outlined in 1.3.1(b). The second sub unit of feldspathic-quartzose sandstone-siltstone appears to have only reached a low grade chlorite grade.

Metasomatic alteration effects are pervasive throughout the majority of the Cambrian rocks examined. Uralitisation, saussuritisation and sericitisation are the most common. Resultant products such as fibrous actinolite and tremolite are often encountered and can be seen in hand specimen.

Outcropping in the lower reaches of Palmer Creek and a minor tributary to the north is a unit described as altered (propylitic?) Cambrian sediments.

The unit is made up of soft, pale blue-pale grey-green highly altered material. This material contains a green mineral, possibly epidote or chlorite, quartz, pyrite (up to 10%) and common fine ferruginous veinlets. This assemblage has probably been formed by intense hydrothermal-propylitic alteration of the already metasomatised Cambrian rocks. Although the nearby granite is an obvious source of the requisite hydrothermal fluids it is possible that the alteration has been caused by the interaction between the sediments and hot Tertiary basalt. The basalt has since been eroded away, although remnants remain in the vicinity of Palmer Creek, leaving behind the altered sediments.

ii) Meredith Granite

Alteration products seen in the various phases of the granite are greisenisation, fine quartz - schorl veins, aplite, rare disseminated or clotty schorl and minor kaolinisation.

Greisenisation is common in the porphyritic biotite microgranite phase but very uncommon in the other two phases. The greisen alteration appears to be centred on joints and here have a similar strike - approximately NW-SE and an average dip of 70° west. The zones vary from 2.5m to a few millimetres. The altered rocks are fine grained with quartz the only surviving phenocryst mineral, relatively heavy and green-grey. The dominant minerals are quartz, muscovite (often hydrous muscovite) and chlorite. Minor minerals include leucoxene - rutile zircon and allanite. Cassiterite, when present is disseminated as single to dustered particles sized in the 50 - 500 μ range with a reddy brown colour. Greisen alteration of the marginal coarse grain biotite granite phase is confined to Aylett Creek. The greisen here shows good pseudomorphous textures after the granite. The rocks again are relatively heavy, coarse grained, green-grey with an average composition of 50% quartz and 50% chloritised hydromuscovite. Minor associated minerals are schorl as veins or clots, zircon and secondary leucoxene.

Some of the greisen zones in the mine appear to have been affected by a separate hydrothermal event post greisenisation which has introduced minor sulphides, quartz and siderite. Some such zones are now represented by a quartz-kaolinite 'pug' with malachite staining and disseminated sphalerite, as seen in Adit B at 61.0 metres.

Fine quartz veins with or without schorl are common throughout all granite phases. These rarely exceed 10 mm, except in the marginal coarse grained biotite phase where quartz float of up to 200 mm can be found containing euhedral schorl crystals up to 50 mm long. The fine quartz[±] schorl veins appear to have perfectly invaded joint planes often striking in a NW-SE direction.

The few aplite dykes mapped, although strictly not an alteration phase themselves appear to have been slightly altered. These quartz-feldspar rocks have undergone minor clay alteration and in some cases dynamic strain causing alignment of grains to give a sheared appearance.

Separate subhorizontal, bivaricating, white, streaky kaolinite veins are common in parts of some adits, averaging 20 mm. The granite in these areas is also slightly kaolinised, the orthoclase phenocrysts being preferentially altered.

1.3.2 Geochemistry

a) Soil Geochemistry

Two programmes of C horizon soil sampling were completed. The first was at 20 metre intervals over the new CSB grid lines and extensions. These samples were analysed for;

Sn, W	by XRF
Cu, Pb, Zn, As, Ni	by AAS

The results, as in the Preliminary Report, were separated into two sets, those from a granitic terrain and those from a non granitic terrain.

Anomalous samples were then identified in each set by population analysis of frequency histograms and culmulative frequency graphs. In most cases the same population cut offs were used as for the Preliminary Report.

The results from the first programme are presented as;

- i) Profiles on the Composite Sections (Plans TAS/2/ 2584-2588, 3223-3225, 3229-3234)
- ii) Contoured anomalous populations treated separately over granite and non-granite areas. (Plans TAS/2/2367-2372 & 2969)

The second soil sampling programme was carried out at 5 metre intervals over the mine area. The samples were analysed for;

Sn, W	by XRF
Cu, Pb, Zn, As, Li, Mo	by AAS
F	by SIE

In most cases the population statistics derived for granite areas were applied to these results. The results are presented as;

- i) Profiles on the Composite Sections (Plans TAS/2/3165-3175)
- ii) Contoured anomalous populations (Plans TAS/2/ 3116-3124)

The results from both programmes are discussed together under element headings. The plans listed after each heading refer firstly to the CSB grid plan and secondly to the mine area.

- i) Sn (Plans TAS/2/2370 & 3119)

The Sn results from over the granite terrain were statistically retreated, so that the anomalous populations were the most accurate possible. The anomalous area outlined over the mine area has been defined as a more N-S structure, swinging NW-SE to the south before closing off. A maximum value of 2.7% was recorded in this anomaly. The anomaly is sharply truncated to the north between L 5600 N and L 5640N dropping an order of magnitude in 40 metres. This is interpreted to be a fault controlled contact.

However a low grade anomaly delineated by the 26-80 ppm population does continue NNW to link up with the substantial composite anomaly in the NW corner of the grid. In fact one of the individual highs in the anomaly on L 6120 N at 4260 E, of 660 ppm, is the highest value outside of the mine area.

This northwestern anomaly remains open to the north and is possibly a repeat of the mine area. As such it represents positive encouragement for possibly increasing a tonnage potential delineated from the mine area.

Two other significant anomalous areas exist, the first is running NNW-SSE adjacent to Aylett Creek, the other is on Lines 5240N and 5320 N in the vicinity of 4880 E and 4820 E (Southern anomaly) respectively. The remaining anomalous responses are, after the new grid line sampling, either mine contamination, minor alluvial concentration or one sample spot highs.

The southern anomaly (as defined above) may also be due to alluvial concentration as it lies in soft swampy ground. Unfortunately the drill access road, although originally designed to bisect this anomaly, had to circumvent it to the east and south.

Although insertion of new grid lines showed that the Aylett Creek anomaly was continuous, it was unfortunately with low values, the highest value 510 ppm being on an old line. This anomaly remains open to the north.

The significant (more than one sample) anomalies outlined over the non-granite terrain all appear to be associated with secondary alluvial concentration. The remaining anomalies are restricted to single sample sites, also often associated with secondary concentration.

ii) Zn (Plans TAS/2/2369 and 3118)

The mine area anomaly (max 820 ppm) is approximately conformable with the Sn anomaly, truncated sharply between L 5600N and L 5640 N, and closed off to the south of L 5400 N.

Unlike the Sn anomaly, the Zn does not swing SE and remains approximately N-S. As with the Sn a low grade anomaly continues north and links up with a significant anomaly on L 5880 N. This anomaly has a maximum of 0.7%, the highest value on the entire grid including the mine area. Although this anomaly is in the vicinity of the northwest Sn anomaly no 1-1 correspondence is possible as the high Zn values appear to have depressed the Sn response in the laboratory. Resampling of L 5880 N at five or ten metre intervals between 4300 E and 4500E, together with a clear directive to the laboratory to minimise the Zn interference of the Sn result is required.

There are three other significant Zn anomalies over granitic rocks. All have some coincident anomalous Sn responses, this is especially true of the southern and Aylett Creek anomalies. Although, as with the Sn, these anomalies have been enlarged by secondary concentration in creek beds, over bank deposits or swamps. However they remain as significant untested anomalies which the scant geological information in the areas has been unable to explain.

The majority of the anomalous responses over the non granite terrain appear to be due units within the metabasites. The anomaly in the southeast portion of the grid on Lines 5240 N and 5160 N is due to the presence of tertiary olivine basalt.

The only exception to this correspondence on present geological mapping is the anomaly on Lines 5880 N, 5960 N and 6040 N in the area of 5400 E. However, as the second generation of results have produced no very high values (max 270 ppm) the anomaly is considered of secondary importance as it does not correspond with even a low grade Sn response which is the primary target.

iii) Pb (Plans TAS/2/2368 and 3117)

The Pb anomaly over the mine area is approximately conformable with both Sn and Zn (max 523 ppm). However in contrast to Sn and Zn it continues unbroken to the north where it links up with a widespread anomaly (max 136 ppm) which again approximately agrees with the northwest Sn and Zn anomalies.

The contouring of the Pb results for the grid is slightly misleading in separating a northwest anomaly as there are in fact only 3 samples west of Johnson's Creek that are not anomalous out of a total of 71.

As such a large area is anomalous it is possible a different background level is involved. However, there appears to be no visible major geological contact running up Johnson's Creek. Therefore the western Pb anomaly remains a significant unexplained geochemical response with values (max 330 ppm) at least as high as those over the mine area.

The southern and Aylett Creek Sn-Zn anomalies are approximately mirrored within a long Pb anomaly stretching from L 6200 N to L 5000 N following Aylett Creek. The majority of anomalous results are probably due to secondary concentration in Aylett Creek sediments. However more highly anomalous centres exist in the vicinity of the two Sn-Zn anomalies (max 208 ppm and 220 ppm).

The majority of anomalous responses over the non granite terrain are either sporadic spot highs or associated with secondary fluvial concentration. The exceptions are three N-S trending anomalies, all open to the north in the northern portion of the grid and partly coincident with Zn anomalies. One sample of float from L 6200N at 5370 E contained fine irregular iron stained quartz veins which may have contained traces of galena as the sample assayed 0.5% Pb. Such weakly mineralised veins would account for such anomalies. As the higher density soil sampling did not outline significantly enhanced values (max 191 ppm) and a maximum rock value of 0.5% Pb exists within the anomaly, the anomalies are considered of secondary importance although noteworthy.

iv) Cu (Plans TAS/2/2367 and 3116)

The distribution of anomalous Cu responses over the granite terrain appear to be spotty and sporadic. However there are minor low responses coincident with the mine area, south and Aylett Creek anomalies.

They are of interest in the respect of being related to Sn-Zn and Pb but a Cu target as such is not apparent.

There are only four minor responses over the non granite terrain. The two in the northeast sector of the grid are partly coincident with Zn and Pb anomalies but again are low representing minimal enhancement and are not considered Cu targets.

v) As (Plans TAS/2/2371 and 3120)

The anomalous As responses over the granite terrain are spotty and sporadic. However there are responses somewhat coincident with the three main Sn-Zn anomalies, these being; the mine area anomaly, the northwest anomaly and the anomalies adjacent to Aylett Creek including the response on Lines 5240 N and 5320 N in the vicinity of 4880 E, the southern anomaly.

As the response over the mine area (max 29 ppm) is less than some of the other anomalies, the effectiveness of As as a pathfinder element is limited.

The extensive As anomaly over the northwestern portion of the non granite terrain appears to be related to some areas of Crimson Creek hornfels. The maximum value is 52 ppm and does not represent significant enhancement that maybe expected from a Sn-As associated ore body.

vi) W (Plans TAS/2/2969 and 3121)

The majority of anomalous responses are sporadic and 'spotty'. However some of the 'spots' are high eg 299 ppm, 138 ppm, 149 ppm but do not have any extent and are considered insignificant.

There appear to be four anomalies of interest. The anomalies in the northwest sector of the grid and marginal to Aylett Creek are both approximately coincident with Sn-Zn anomalies but cover a much smaller area.

The largest (in area) anomaly occurs in the southwest sector of the grid adjacent to Johnson's Creek. This anomaly is in part coincident with minor Sn-Zn-Pb responses and as such is of interest.

The fourth anomaly lies adjacent to the granite-non granite boundary in the southern portion of the grid. As it is very thin, approximately 20 metres, the anomaly is considered worthy of follow up.

The one anomaly in the mine area that encompasses more than one sample site is probably due to contamination as it appears to follow the haulageway.

vii) Ni (Plan TAS/2/2372)

The anomalous Ni responses are mostly spotty and do not appear to conform with geological units.

The notable exception is the anomaly (max 395 ppm) on the eastern end of Lines 5240 N and 5160 N which corresponds very well with Tertiary olivine basalt.

The anomalies over the north-west portion of the grid are disjointed and may reflect units within the Crimson Creek hornfels containing higher proportions of basic-intermediate lithic grains.

It is apparent that because of the high basic intermediate lithic component of the Crimson Creek sediments there is little contrast in Ni values with the metabasite units.

viii) F (Plan TAS/2/3124)

Samples were analysed for Fluorine over the mine area. The results are low, the anomalous samples (max 800 ppm) are not significantly enhanced over background (~200 ppm) and do not add extra information as to the position of the other anomalies' centres.

ix) Li (Plan TAS/2/3123)

Lithium was analysed for in soil samples over the mine area to try and narrow down the target zone as most of the other elements have a wider dispersion halo.

Unfortunately the anomalies that were recorded away from areas of contamination were of too low a level (max 30 ppm) to use this technique successfully as in the Erzgebirge. (Tischendorf 1973).

x) Mo (Plan TAS/2/3122)

The Mo results from the mine area appear to be anomalously high only in the areas of suspected contamination, as was the case with Li.

However the overall picture appears to be one of depletion over the areas returning high values in the other elements, specifically Sn.

b) Rock Geochemistry

Rock sample assay results are appended as Appendix 11. The result sheets also contain brief descriptions and sample locations.

Some 95 rock samples were submitted for analyses for;

Sn and W	by XRF
Cu, Pb, Zn, Li, As and Mo	by AAS
F	by SIE

The results are summarised below then discussed under general lithological headings.

<u>Average Contents</u>											<u>No of Samples</u>
	<u>Sn</u>	<u>W</u>	<u>F</u>	<u>Li</u>	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>	<u>As</u>	<u>Mo</u>	<u>Ni</u>	
py. bi. mcr. g.	7	BLD	835	31	2	23	36	1	4	108	20
Fliers removed	310				310		240	66			
co. bi. g.	5	BLD	727	33	4	9	29	0.5	4.5	98	11
Fliers removed		10									
semi. py. bi. g.	5	BLD	860	22	5	11	49	2	6.5	92	5
Fliers removed		50									
grs	132	15	858	28	62	48	198	3	10	99	26
- Sn 'fliers' removed - 0.53%, 6.0%, 0.09% Pb 'flier' removed 0.115%											
High grade ho	11	3	450	16	77	27	99	7	0.9	99	6
Fliers removed	120					0.5%	590				
Low grade ho	10	14	650	38	70	17	81	8	2.4	65	4
Metabasites	11	BLD	622	12	41	14	115	2	1.4	58	9
Fliers removed	370					110					

A number of results have not been included in the above analysis as they are altered, mixtures or are single representatives of a lithology and therefore it would be misleading to compare them.

i) Porphyritic biotite microgranite

Twenty samples of this granite type were assayed, the specimens ranging from extremely hard and fresh to soft and weathered. There were few anomalous samples. The only notably anomalous Sn sample (Z 2577) was from L 5600N, 4300E. (Sn 310 ppm). As the sample comes from the vicinity of the mine it appears likely that it represents minor country rock enrichment.

One sample (Z 2510) is highly anomalous in Cu (310 ppm) compared with an average of 2 ppm. The sample comes from L 6120N, 4345E in the vicinity of the north west Sn-Zn soil anomaly, there is no Cu soil anomaly. There is greisen as talus along strike and it is probable that this sample represents minor halo enrichment.

Sample Z 2601 (L 5520N/4437E) is anomalous in Zn (240 ppm). It also contains Sn enrichment (25 ppm). This sample like the others is marginal to an area of greisenisation, in this case, the mine area. Similarly it is regarded as slight halo enrichment.

The additional samples from the second programme of rock sampling confirm this granite phase as being stanniferous (Bailey, 1975).

ii) Coarse biotite granite

This phase contained no sampled economic concentrations of elements. The one W 'flier' of 10 ppm is not significant as the limit of detection is 10 ppm.

By Bailey's (Bailey, 1975) ternary diagram this phase is considered to be 'normal' ie not stanniferous.

iii) Semi Porphyritic biotite granite

This unit also contains the transitional area between the first two granite phases. No economic grades of any element were contained in the samples from this phase.

However the tungsten value of 50 ppm from L 5720 N/ 3955 E is considerably enriched as would be expected as this phase on the western portion of the grid has anomalous W soil results.

iv) Greisen

The areas of greisenisation were extensively sampled, some 26 samples being collected in addition to the Adit sampling reported in the 1981 Preliminary Report.

Two samples from the second generation of sampling produced economic grades of Sn;

Z 2576 (5602 N/4389 E) - 6%

Z 2599 (L 5440 N/4393 E) - 0.53%

Unfortunately there appears to be no visible difference between these rocks and 'normal' greisen.

Another sample, Z 2578, (L 5560 N/4360 E) was also 'stripped out' from the average derivation as it contained 0.09% Sn.

The samples of greisen are enhanced in Sn, W, Cu, Pb, and Zn, however only the mine area has returned greisen with economic grades of Sn.

Significant amounts of greisen talus and float occur in the areas associated with the northwest and adjacent to the Aylett Creek Sn soil anomalies. As thin section and hand specimen inspection have outlined the association of base metals with greisen from the mine area it is probable that greisen alteration is the source of Cu-Pb-Zn soil anomalies over the granite areas.

v) Crimson Creek hornfels

As only a limited number of samples were assayed from the two sub-units making up this unit an exact discussion of enrichment-depletion is not possible.

However the slight Ni enhancement apparent in the high grade hornfels would be expected as the sub unit contains a significant amount of basic-intermediate lithic grains.

Although no economic grades of any metal were found, in this group, Z 2506 (L 6200 N/5370 E) contained 0.5% Pb evidently derived from goethite veinlets containing oxidised sulphides. Sn (120 ppm), Cu (135 ppm) and Zn (590 ppm) are also enhanced. The Sn value is worthy of note as the petrologist (Appendix 1) tentatively identified cassiterite in a thin section of Z 2506.

Such fine sulphide veinlets may account for the Zn-Pb soil anomalies present in the northeast sector of the grid. As the maximum element values are not remarkably high; 330 ppm and 169 ppm respectively from the soils such scattered veinlets rather than an economic concentration of base metal sulphides is more likely.

The possibility of these values resulting from leakage from a massive sulphide is remote.

vi) Metabasites

As the Cambrian sediments contain significant proportions of basic-intermediate lithic grains only minor geochemical contrasts exist with the metabasites.

Minor depletion of Cu and enhancement of Zn is apparent compared with the sediments.

Two 'fliers' were removed for statistical calculation of the average elemental constitution of the metabasite unit.

Only one exceeds an order of magnitude in enrichment, Z 2579 (5320 N/5053 E), which contains 370 ppm Sn. As this rock occurs adjacent to the contact granite it is possible that Sn rich fluids moving up the interface emanated from the granite out into the surrounding country rocks.

vii) Miscellaneous

A number of interesting samples cannot be precisely put into the preceeding units. The most notable is a sample of white coarsely crystalline quartz, Z 2586 (L 5400 N(R)/4314 E) which assayed 0.83% Sn. Although the sample is from the vicinity of the mine area, quartz veining is vary rare in the mine workings. It is possible that there was another phase, before or after greisenisation, of Sn mineralisation associated with quartz veining.

1.3.3 Geophysics

Ground Magnetics

The results of the ground magnetic survey are presented as a contoured plan of the total magnetic field (Plan TAS/2/2374) and on the composite sections along each grid line (Plans TAS/2/2584-2588, 3223-3225, 3229-3234).

The survey was carried out using three Geometrics portable proton precession magnetometers, one of which was a G 856 Memory Magnetometer. The Memory Magnetometer was set up adjacent to the Waratah office as a base station. The two field magnetometers were run over a portion of L 5240 N surveyed in 1981 so as both surveys could be incorporated on the one contour plan.

Owing to the use of the Memory Magnetometer, freeing the field operators of the need to return to a base station every hour, the survey of 16.8 km took three days.

The data was corrected for diurnal variation and the difference between the two generations of data.

All lines show a gently uniform gradient over both granite types, slowly increasing toward the contact with non-granitic rocks.

Over the Crimson Creek hornfels the readings are generally high and 'spiky'. This is due to the fact that the metasediments contain both detrital magnetite and secondary magnetite, commonly attracting a hand held magnet. The pronounced magnetic low on Lines 5240 N and 5160 N appears to be due to the presence of tertiary olivine basalt. As the basalt also commonly attracts a hand held magnet it would appear a significant amount of reverse remanent magnetization is required in the basalt to effectively cancel out some of magnetic field concentrated by the Cambrian sediments.

There are no significant magnetic anomalies associated with areas of geological or geochemical interest.

Gravity

Nine samples of porphyritic biotite microgranite and greisen were dispatched to D B Trussell (AAA Ltd, Senior Geophysicist) for specific gravity determination. This was done on the premise that if a sufficient density contrast existed between the greisen and granite then a gravity survey would be an effective tool in accurately delineating areas of greisen by computer modeling.

The results can be divided into four groups;

	<u>Sample No</u>	<u>Specific gravity</u>	<u>Description</u>
Group 1	B 3	2.51	weathered greisen
Group 2	D 001	2.64	py. bi. mcr. g.
	SB 026	2.65	"
	4	2.65	"
	BT 1	2.66	"
	600 M	2.66	"
Group 3	SB 168	2.71	greisen
	2	2.82	
Group 4	SB 115	3.00 ?	py. bi. mcr. g.

There is some doubt about the specific gravity result of SB 115.

Thus there is a real density difference between the fresh py. bi. mcr. g. and greisen and a gravity survey would be an effective greisen delineation tool. However gravity measurements will not be able to differentiate between Sn bearing and merely Sn enhanced greisen.

SECTION 2 Diamond Drilling2.1 Introduction

This section covers the diamond drilling carried out at Ramsay Grid, CSB, in the vicinity of the old South Bischoff Tin Mine, active in the earlier part of century (Green, 1981).

The drilling programme encompassing diamond drillholes CSB 1 and 2 (190.9 metres) was commenced on 22nd February 1983 and completed on 27th February, 1983.

A day and night shift were used.

All core was geologically logged in detail and sampled for geochemical assay. Work completed and results achieved on each drill hole are outlined under headings of geology, geophysics and geochemistry followed by a discussion.

2.2 Diamond Drillhole CSB 1 (Plan TAS/2/3114)

Collared at grid co-ordinates	5598 N/4336 E
National grid co-ordinates	5401854mN/370932mE
Azimuth (av)	84° M
Inclination (av)	-44.75°
RL	656 m ASL
Depth	89.4 m

2.2.1 Objective

To explore the Sn-Zn-Cu mineralisation of the greisenised granite at the old South Bischoff Tin Mine and associated Sn-Zn-Cu-Pb soil geochemical anomalies.

2.2.2 Geology

a) Local

The local surface geology is presented as geological details of the South Bischoff Mine area (Plan TAS/2/3113) and a derived geological interpretation plan (TAS/2/3114).

A detailed geological plan of the mine adits and main costean is included (TAS/2/2606) from the Preliminary Report.

Relevant geological data from both sets are presented on the composite profile of L 5600 N. (Plan TAS/2/3167)

The local geology of the mine area is dominated by the porphyritic biotite microgranite phase of the Meredith Granite (see 1.3.1 b). Away from the mine workings and rarely within the workings it is very hard, grey and relatively heavy. In Adit D it appears to be weathered and/or altered being soft, light and having a distinct orange-brown colour. Very soft Kaolinite veins up to 10 mm are common in some areas as are black schorl (tourmaline) clots which have been noted up to 15 mm.

In the mine area and its raison d'être is an appreciable concentration of fracture controlled? greisenisation (see 1.3.1 d). These greisen zones vary, in the mine area, from two metres to a few millimetres in thickness. They have an average strike of 330° (M) and dip of 70° west.

b) Drillhole

The geology downhole can be summarised as follows;

<u>Depth (m)</u>	<u>Rock Type</u>	<u>Mineralization</u>
0-15.0	triconed	
15.0-17.6	soft weathered porphyritic biotite microgranite	
17.6-22.9	competent, relatively fresh porphyritic biotite micro gran	20% greisen chlorite-muscovite-quartz
22.9-27.0	weathered porphyritic biotite microgranite	
27.0-30.4	fresh, competent porphyritic biotite microgranite	
30.4-42.1	fractured, intermittently altered porphyritic biotite microgranite.	25% greisen chlorite muscovite-quartz
42.1-89.4	fresh, hard porphyritic biotite microgranite.	

A detailed geological log is appended (Appendix 3). The detailed geology and an interpretation are included in section form (Plans TAS/2/3210 and 3221)

2.2.3 Geophysics

The ground magnetic profile is presented on the Composite Section of L 5600 N (Plan TAS/2/3167). A separate ground magnetic contour plan was not prepared for the mine area as the gradient was uniformly low and considerable interference was detected from iron pipes, wheels, corrugated iron sheeting etc.

The ground magnetic profile of L 5600 N is very quiet and the slow decrease in the total magnetic field from W to E is attributed to the regional gradient.

2.2.4 Geochemistrya) Local

The accompanying contoured soil geochemistry plans Sn (TAS/2/3119), Zn (TAS/2/3118), Cu (TAS/2/3116) and Pb (TAS/2/3117) outline a coincident anomaly on L 5600 N over Adit D. DDH CSB 1 passed beneath this anomaly. The Composite Section of L 5600 N (Plan TAS/2/3167) also outlines the soil geochemistry.

A rock sample from a trench at 4388 E on L 5600 N, of hard dark green chlorite-muscovite greisen produced a Sn assay of 6%.

The hard rock sampling of Adit D (Plan TAS/2/2607) produced a maximum value of 100 ppm Sn towards the portal. This sample was also anomalous in;

Pb - 335 ppm - Plan TAS/2/2608
 Mo - 12.5 ppm - Plan TAS/2/2609
 Bi - 29 ppm - Plan TAS/2/2609

b) Drillhole

After detailed geological logging of the drill core it was divided into sections for geochemical sampling by either grinding or splitting as follows:-

a) Splitting by diamond saw

<u>Depth interval</u> (m)	<u>Sample Nos</u>
0 - 19.7	Z 2627-2630
21.7 - 22.7	Z 2632
30.3 - 42.2	Z 2637-2645
82.6 - 84.0	Z 2666

b) Grinding by diamond wheel

<u>Depth interval</u> (m)	<u>Sample Nos</u>
19.7 - 21.7	Z 2631
22.7 - 30.3	Z 2633-2636
42.2 - 82.6	Z 2646-2665
84.0 - 89.4	Z 2667-2669

The samples were dispatched to Analabs for assay of the following elements; Sn, W, Zn (Plan TAS/2/3211), Cu, Pb, Ag (Plan TAS/2/3212) and Mo, Ta, F (Plan TAS/2/3213). The results are appended to the detailed geological drill logs (Appendix 3).

In addition a full ICP (Inductively Coupled Plasma) Emission Spectroscopic scan was carried out on nine samples of split drill core. The results of the scan are appended as Appendix 4.

A simple unweighted statistical analysis of the geochemical results is presented below;

	Cu	Pb	Zn	Ag	Mo	Sn	W	Ta
n	43	43	43	43	43	43	43	15
$\bar{x}$	48	30	142	BLD	3.5 (BLD)	9	63	BLD
σ	63	133	81	-	7.1	10	84	-
LD	5	5	5	0.5	10	3	10	20
max	340	885	355	0.5	20	50	450	BLD
$\bar{x} + 2\sigma$	174	296	304	-	18	29	231	-
no of anomalous samples	1	1	3	-	6	3	2	-

n = number of samples included in analysis
 $\bar{x}$ = mean
 σ = standard deviation
 LD = Limit of Detection
 max = maximum value

2.2.5 Discussion

No economic values of any element assayed for were intersected in CSB 1.

However all anomalous geochemical values were associated with zones of greisenisation, as outlined below;

Depth	Anomalous ($>\bar{x} + 2\sigma$) Values Only								Greisen Association
	Cu	Pb	Zn	Ag	Mo	Sn	W	Ta	
0 - 15.5	-	-	-	-	20	50	-	-	greisen frag preferentially cored
17.6 - 18.6	-	-	-	-	20	-	-	-	15% greisen
19.7 - 21.7	340	-	340	-	-	-	450	-	Marginal to below
21.7 - 22.7	-	885	-	-	-	45	-	-	100% greisen
30.3 - 31.5	-	-	-	-	20	35	-	-	25% greisen
40.3 - 40.9	-	-	-	-	20	-	-	-	marginal to below
40.9 - 41.4	-	-	355	-	-	-	-	-	100% greisen
41.4 - 42.2	-	-	310	-	20	-	-	-	marginal to above
82.6 - 84.0	-	-	-	-	20	-	240	-	43% greisen

Less than 2.5 metres of greisen were intersected in CSB 1. If an initial average concentration of 132 ppm (1.3.2 a) was assumed for relatively intensely greisenised granite, it would more than account for the above anomalous Sn zones.

It appears that the greisen in CSB 1 although slightly enriched in some elements, probably during formation, it has not been affected by a secondary Sn-Zn±Cu±Pb phase which has introduced economic grades of these elements elsewhere in the mine area.

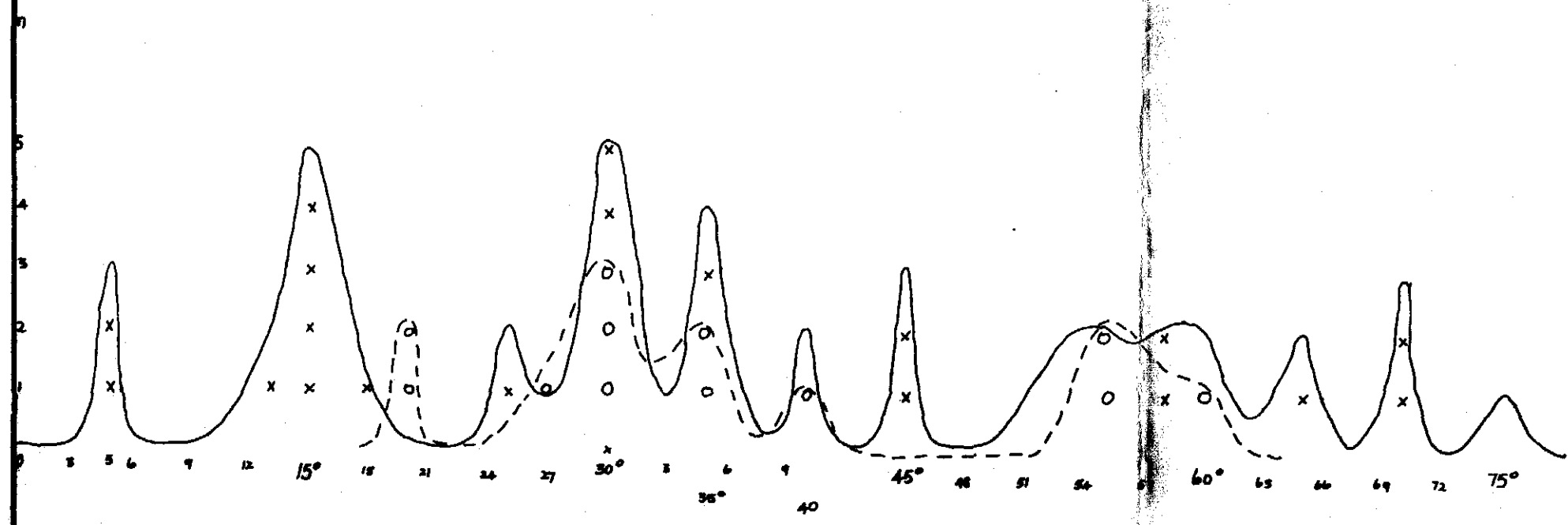
The Zn, Cu and Pb anomalous core samples are sufficiently high to explain the anomalous soil geochemistry. Taking into account cassiterite's high resistance to chemical weathering and high specific gravity it is quite possible that it would concentrate in the soil profile and produce the soil values registered (max 850 ppm)

Another possible explanation for the lack of economic grades of Sn in the drillhole would be that the greisen zones or that the Sn grade bearing part of them tends to shrink and swell. This could explain the 6% Sn value at surface and poor grades at depth. Further to this it is possible that a Sn grade phase, migrating up the greisen zones, 'settled out' at a particular depth, evidently not coincident with that of CSB 1.

FIGURE 1

037

560038



LCA Intersection Angle (Degrees)

COMSTAFF PROPRIETARY LIMITED

Fracture Distribution From DDH CSB 1
 x Unassociated 'normal' fractures
 o Greisen associated fractures

DRAWN COMPILED SCALE FIG 1

The erratic nature of the W values downhole although mostly associated with greisen zones, defies explanation at this stage of analysis. It appears that W may have been associated with a separate W-? fluid phase unrelated to the Sn-Zn-Pb[±] Cu phase although probably using the same approximate path.

The path taken by the greisenising fluids appears to be controlled by fractures as nearly all greisen zones contain a central fracture. The greisen is zoned around this fracture, having a central core of dark green chlorite-muscovite-quartz grading out into a green-pale green muscovite-quartz with few relict altered feldspar phenocrysts zone. In CSB 1 the greisen associated fractures are roughly grouped at 30-35° and 55° (LCA) (Fig 1). Figure also shows the distribution of normal fractures. The low number precludes any firm conclusions as to grouping and association with the greisen fractures.

2.3 Diamond Drillhole CSB 2 (Plan TAS/2/3114)

Collared at grid co-ordinates	5510 N/4334 E
National grid co-ordinates	5401753mN/370929mE
Azimuth (av)	085° M
Inclination (av)	-43.7°
RL	648m ASL
Depth	91.5

2.3.1 Objective

To explore the Sn-Zn-Cu mineralisation of the greisenised granite at the old South Bischoff Tin Mine and associated Sn-Zn-Pb-Cu-Li-F soil geochemical anomalies.

2.3.2 Geology

a) Local

The local surface geology is presented as geological details of the South Bischoff Mine area (TAS/2/3113) and a derived geological interpretation plan (TAS/2/3114).

A detailed geological plan of the mine adits and main costean is included (TAS/2/2606) from the Preliminary Report.

The geological data from both sets are presented on the composite profile of L 5500 N (Plan TAS/2/3171).

The local geology in the vicinity of CSB 2 is essentially the same as that at CSB 1 - see section 2.2.2.

b) Drillhole

The geology downhole can be summarised as follows:-

Depth (m)	Rock Type	Mineralisation
0 - 12.0	Weathered porphyritic biotite microgranite	
12.0- 32.3	Relatively fresh porphyritic biotite microgranite	
32.3- 44.5	Fractured py bi microgranite with greisen as zones centred on chloritic fractures	grs~15% of core
44.5- 49.6	Greisen zone - 8 major overlapping fracture controlled zones with central sulphides-chlorite-chl & muscovite green-pink feldspar phen	grs~95% of core fine sphalerite veins trace
49.6- 53.7	Porphyritic biotite microgranite	
53.7- 57.9	Fractured & slightly altered py biotite microgranite	
57.9- 91.5	Fresh, hardness increasing downhole, porphyritic biotite microgranite	rare 'splashes' Molybdenite along fractures

A detailed geological drill log is appended (Appendix 5).

The detailed geology and an interpretation are included in section form (Plans TAS/2/3215 & 3222) respectively.

2.3.3 Geophysics

The ground magnetic profile is presented on the Composite Section of L 5500 N (Plan TAS/2/3171).

A separate ground magnetic contour was not prepared for the mine area as the gradient was uniformly low and considerable interference was detected from iron pipes, wire, wheels, corrugated iron sheeting etc.

The problem of interference was marked on L 5500 as it bisects one of the old hut sites used by the original miners.

However there is possibly a minor negative response over Adit B which contains at that point a considerable amount of greisenised material. Such a subtle response is what would be expected over a significant amount of greisen.

2.3.4 Geochemistry

a) Local

The accompanying contoured soil geochemistry plans; Sn (TAS/2/3119), Zn (TAS/2/3118), Cu (TAS/2/3116), Pb (TAS/2/3117), Li (TAS/2/3123) and F (TAS/2/3124) outline a coincident anomaly on L 5500 N above the trace of CSB 2 and Adit B. The Composite Section of L 5500 N (Plan TAS/2/3171) also outlines the soil geochemical responses.

The hard rock sampling of Adit B produced a maximum value of 1.9% Sn (Plan TAS/2/2607) in the vicinity of the projected drill hole trace. This sample was also anomalous in Bi - 210 ppm (Plan TAS/2/2609).

b) Drillhole

After detailed geological logging of the drill core, sections were selected for splitting by diamond saw. The remaining core was ground using a diamond wheel. Sections selected for splitting were;

<u>Depth</u>	<u>Interval (m)</u>	<u>Sample Nos</u>
10.0	11.0	Z 2675
32.3	40.3	Z 2686-2690
44.3	49.6	Z 2693-2696
53.6	58.0	Z 2699-2701
59.7	60.2	Z 2703
61.0	61.5	Z 2705
75.0	76.0	Z 2713

The samples were dispatched to Analabs for assay of the following elements; Sn, W, Zn (Plan TAS/2/3216) Cu, Pb, Ag (Plan TAS/2/3217) and Mo, Ta, F (Plan TAS/2/3218).

The results are also appended in tabular form as an appendix to the detailed geological drill log (Appendix 5).

In addition to the above systematic sampling four samples of greisen were submitted for a full ICP (Inductively Coupled Plasma) Emission Spectroscopic scan. The results of the scan are appended as Appendix 4.

A simple unweighted statistical analysis of the downhole geochemical results is presented below;

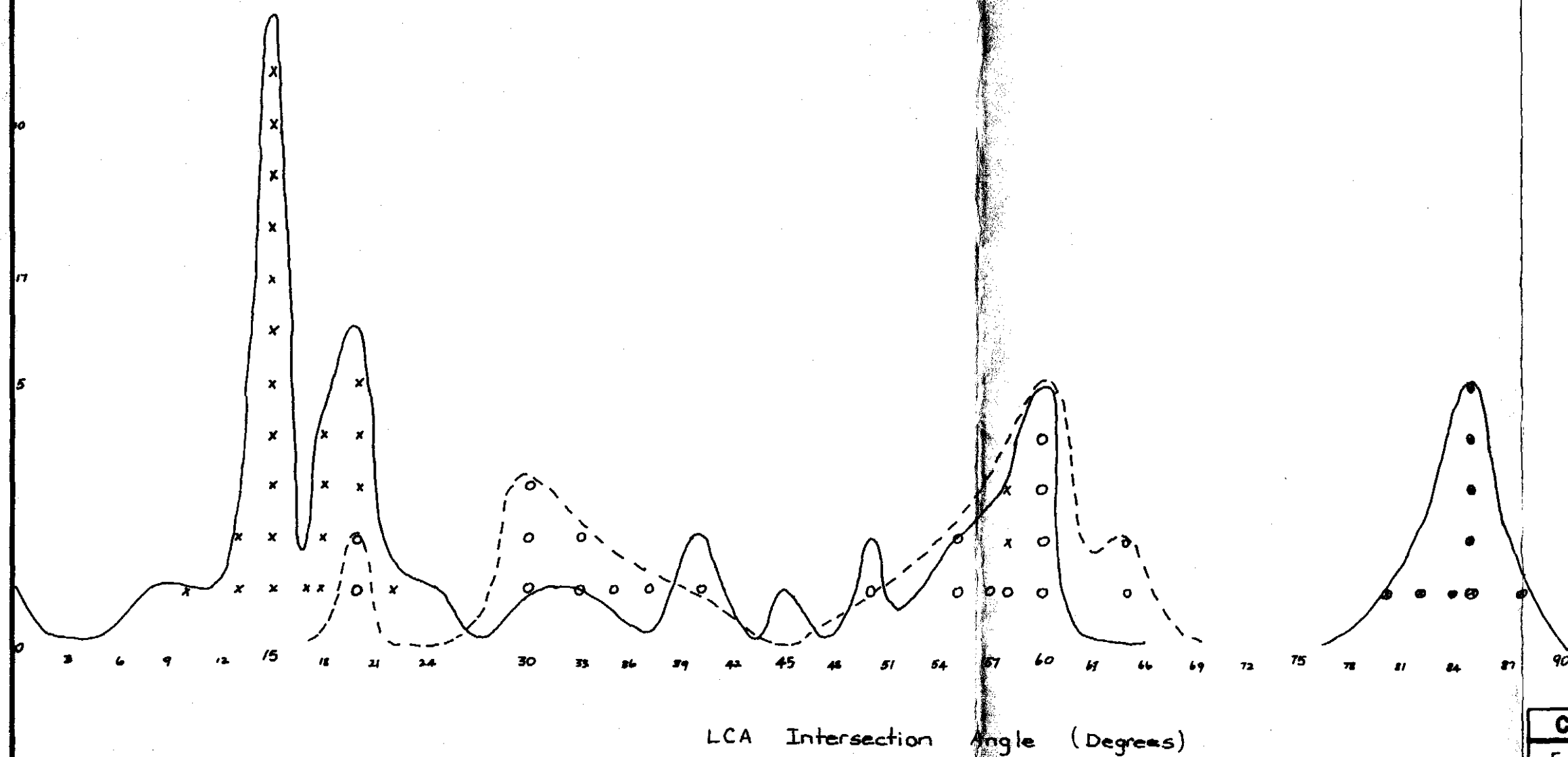
	Cu	Pb	Zn	Ag	Mo	Sn	W split core	Ta
n	52	51	48	51	52	49	16	16
$\bar{x}$	88	35	166	0.3BLD	2.0BLD	11	17	BLD
σ	58	65	90	1.0	5.0	21	23	-
max	235	730	1.06%	16.5	20	0.63%	95	BLD
LD	5	5	5	0.5	10	3	10	20
$\bar{x} + 2\sigma$	204	165	346	2.3	12.0	53	64	-
No of anomalous samples	2	5	6	4	2	5	1	-
'Fliers' removed		730	1.06%	16.5	-	0.17%	-	-
$\bar{x}$ flier		48	0.32%	0.7		0.63%		
σ "		115	0.10%	2.4		0.17%		
			0.93%		$\bar{x}$ fliers	199 ppm		
$\bar{x}$ fliers			618 ppm	σ "		916 ppm		
σ "			0.19%					

n = number of samples included in analysis
 $\bar{x}$ = mean
 σ = standard deviation
 LD = Limit of Detection
 max = maximum value

2.3.5 Discussion

Sub-economic grades of Sn and Zn were intersected in CSB 2.

FIGURE 2

**COMSTAFF PROPRIETARY LIMITED**

Fracture Distribution From DDH CSB2
x Unassociated 'normal' fractures
o Greisen associated fractures
• Molybdenite associated fractures

Best intersection are;

<u>Depth</u> (m)	<u>Interval</u>	<u>Drilled Width</u>	<u>Weighted Sn Average</u>	<u>Weighted Zn Average</u>
44.3 - 47.9		3.6 m	0.345 %	0.449%
55.0 - 56.6		1.6 m	0.175 %	0.935%

These intervals also contain anomalous Pb and Ag with enhanced Cu.

Apart from Cu which appears to be enriched in CSB 2 (av 88 ppm) as compared with CSB 1 (av 49 ppm) the average values overall are comparable. As the drillholes are approximately 90 metres apart this would be expected. However parts of the greisen zones in CSB 2 have been subjected to a mineralising phase not apparent in CSB 1. This phase contained Sn-Zn-Pb-Ag[±] Cu rich fluids. As in CSB 1 the greisenising fluids and apparently in CSB 2 the mineralising solutions migrated along fractures. The zonation of the greisen around the fractures is similar in both holes except in two significant respects. The first and most obvious is the greater thickness of greisen in CSB 2 (8.3 metres) especially the intense dark green chloritic core. The second is the addition of a third zone into the core of the greisen. This third zone is central, rarely exceeds 30 mm and is composed of sphalerite-siderite-quartz[±] galena[±] chalcopryrite[±] clay.

The greisen zones are again all associated with central fractures. These fractures are plotted on Fig 2. They appear to be grouped at 30-35° and 55-60° in a similar manner to CSB 1. In variance to CSB 1 the main concentrations of normal fracture are sharply divided into groups at 13-20° and 55-60°. It certainly appears that the greisenising fluids have preferentially moved up the fractures at 30-35° and 55-60° as opposed to 13-20° in the vicinities of CSB 1 and 2. It is possible that the fracturing at 13-20° occurred post greisenisation.

The fact that a significant concentration of normal fracturing occurred at 30° in CSB 1 but not in CSB 2 is of unknown relevance.

However of more interest in CSB 2 is the existence, from 64.5m to 77.2m, of fractures concentrating exclusively at 85° with very fine 'splashes' of molybdenite. This phase of fracturing and mineralisation appears to be completely absent from CSB 1.

Although the presence of the molybdenite along fractures is highly visible, the assay results do not reflect the apparent abundance as the sampling was carried out almost perpendicular to the molybdenite bearing fractures.

The tungsten values from the CSB 2 split core are, like those from CSB 1, erratic and although associated with greisen are not concentrated in a similar manner to the majority of the elements. Unfortunately the ground core W results have been contaminated with W from the diamond wheel owing to inexperienced operators grinding core in the wrong direction (Green, 1982). These values average 200 ppm (min 110 ppm max 380 ppm) as opposed to the split core average of 15 ppm. As the results are uniformly enhanced any economic grades of W would be additional and easily noted by examination and statistical analysis.

Cu is the only other element possibly affected in a similar manner;

Ground Core average	107 ppm	min 55 ppm	max 235 ppm
Split Core	" 46 "	" BLD "	" 220 "

SECTION 3

Conclusions and Recommendations

It is apparent from surface and mine rock sampling and CSB 2 that economic-sub economic concentrations of Sn and Zn occur in the vicinity of the old South Bischoff Tin Mine. It is equally apparent that not all greisenised areas have been affected by this additional mineralising solution in the tested areas.

The presence of an almost pure quartz rock assaying 0.83% (Z 2586) and greisen containing 0.47% W (T 8268, Preliminary Report) indicates that possibly two further mineralising phases have yet to be assessed.

There also exists outside the mine significant Sn-Zn-Pb⁺ Cu soil anomalies, specifically the northwest anomaly (along strike from the mine), the Aylett Creek marginal anomaly and the smaller southern anomaly between Palmer Creek and Taupo Road. Further specific work is recommended in all areas.

As only 180 metres of diamond drilling has been completed on the prospect it is recommended that further diamond drilling be carried out in the mine area and ultimately on the northwest soil anomaly. In order to fulfill these recommendations two further diamond drillholes are proposed in the mine area.

i) Diamond Drillhole Proposal A

CSB Grid Co-ordinates	5561 N/4316 E
National Grid Co-ordinates	5401784mN/370914mE
Azimuth	090° T, 078° M
Inclination	-45°
RL	654 m ASL
Depth	90 m

ii) Diamond Drillhole Proposal B

CSB Grid Co-ordinates	5462 N/4343 E
National Grid Co-ordinates	5401701mN/370939mE
Azimuth	090° T, 078° M
Inclination	-45°
RL	642 m ASL
Depth	100 m

iii) Northwest Anomaly

In a similar manner to the second phase of closer spaced auger sampling over the mine area a programme of ten metre soil sampling is recommended for this anomaly. It must be remembered that this area has not been disturbed by prospectors and therefore contamination from mining operations will not enhance values (as at the mine area). This makes the values of 0.14% and 0.7% Zn (L 5880 N, 4340 E and 4360 E) even more remarkable, as they are greater than any soil value from the mine area. It also indicates a mineralising phase is present in addition to base level greisen associated enhancement. Not surprisingly these high Zn values have depressed the apparent Sn values probably due to Zn interference in the XRF analysis.

The northwest anomaly also contains the highest Sn soil value (660 ppm) discovered in the 20 metre auger sampling programme.

The following ten metre auger soil sampling programme coupled with specific instructions to the laboratory concerning expected Zn values should outline the best possible anomaly for diamond drilling;

<u>Line</u>	<u>10m Sampling</u>
L 6200 N Extended 400 metres west	4000 E - 4400 E
L 6120 N Existing	4100 - 4400 E
L 6040 N Extended 300 " "	4060 - 4500 E
L 5960 N Existing	4100 - 4500 E
L 5880 N Extended 100 " "	4180 - 4500 E
(With present stations resampled for Sn assay and Zn verification)	
L 5800 N Existing	4260 - 4500 E

A statistical breakdown of the above is;

Grid Cutting 800 metres
Number of samples 160

iv) Aylett Creek Anomaly

Although the individual soil values are high;

Sn	510 ppm
Zn	310 "
Pb	208 "
W	132 "
Cu	36 "

only Zn, Pb and Cu are near coincident on L 6200 N around 4800-4840 E. It is also noted that the sampling of the greisenised coarse grain biotite granite did not indicate a sympathetic Sn-Zn relationship viz;

<u>Sample</u>	<u>Location</u>	<u>Sn</u>	<u>Zn</u>
AL 003	335 m	35	0.235%
AL 004	"	BID	"
AL 005	350 m	35	0.175%
AL 006	358 m	120	240

As Sn is the primary commodity being sought, the Sn anomaly on L 5960N at 4820E must receive priority for further work.

Since the Sn anomaly is less than 150 metres from the Ramsay Road a short costean parallel to L 5960N is recommended to enable the collection of further geological information and facilitate accurate hard rock geochemical sampling.

v) Southern Anomaly

Originally this anomaly was first thought to be associated with possibly secondary concentration in the swamp but the new grid lines indicate that it crosses Palmer Creek and extends, albeit at reduced levels northward.

The most prospective site to test this anomaly is on L 5320N in the vicinity of 4820E. Here Sn, Zn, Pb and Cu anomalies coincide;

Sn	286 ppm
Zn	103 ppm
Pb	94 ppm
Cu	42 ppm

As Taupo Road is only 40 metres to the east a short costean would be an ideal exploratory option as in the manner of the Aylett Creek anomaly.

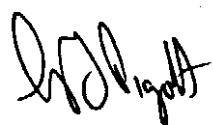
Although gravity measurements could not differentiate between Sn bearing and barren greisens it is possible that the Sn mineralising phase may carry traces of radioactive minerals and scintillometer measurements may prove effective in differentiation.

3.1 Statistical Summary

Diamond Drilling

- i) Mine Area 190 metres
- ii) Northwest Anomaly 200 metres

Grid Cutting	800 metres
Surveying and Flagging	1000 "
Costeaning	200 "
Rock Samples	40
Soil Samples	160

 for N P GREEN

R E F E R E N C E S

- Bailey, J C Fluorine in Granitic Rocks and Melts: A Review. Chemical Geology, 1a (1977) 1-42.
- Central Mineralogical Petrological Report No 82/12/14
Services Pty Ltd (1983)
- Green, N P 1981 Preliminary Report on the South Bischoff Mine Area (CSB) EL 5/63, Part 2, Comstaff Pty Ltd. Report to Mines Department (Unpublished)
- Green, N P 1982 Interim Report on Ramsay Grid CAF, EL 5/63, Part 2, Comstaff Pty Ltd. Report to Mines Department (Unpublished)
- Groves, D I, Martin, E L, A Century of Tin Mining at Mount Murchie, H., and Wellington, Bischoff 1871-1971 Bull Geol Survey H K 1972 Tasm No 54.
- Pigott, G F 1980 Interim Report on the Ramsay Area. EL 5/63, Part 2, Comstaff Pty Ltd. Report to Mines Department (Unpublished)
- Tischendorf, G 1973 The Metallogenetic basis of Tin Exploration in the Erzgebirge. IMM Transactions, Section B, Vol 82, 1973.

A P P E N D I X 1

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Comstaff Pty. Ltd.
Mt. Bischoff Road
WARATAH / TAS. 7321

6th January, 1983

REPORT CMS 82/12/14

YOUR REFERENCE:	Consignment No. 82/126
DATE RECEIVED:	10th December, 1982
SAMPLE NOS.:	13 Samples
SUBMITTED BY:	N.P. Green
WORK REQUESTED:	Petrology

H.W. Fander
H.W. Fander, M. Sc.

REPORT CMS 82/12/14

Thirteen rock samples were received for petrological description; thin-sections were prepared, and offcuts were subjected to potash stain tests, where appropriate. The rocks are briefly described in the accompanying table.

Summary

This suite includes metasediments, metamorphosed basic igneous rocks, greisens, granites and an olivine basalt which is out of context with the others and is much younger.

The metasediments (Z 2506, Z 2567) are believed to have been ?Crimson Creek tuffaceous greywackes; they are severely altered/modified, being strongly chloritised and amphibolised respectively, with evidence of both metamorphism and metasomatism.

The meta-igneous rocks comprise contact-metamorphosed basalts and dolerites; some are porphyritic, with surviving phenocrysts despite hornblende-hornfels facies metamorphism. This group includes Z 2513, Z 2568, Z 2570 and Z 2590. This unit is presumably pre-Devonian.

The two greisens (Z 2524, Z 2600) are similar; they originated as biotite granites (in the broad sense - since feldspars have been destroyed, the rocks can no longer be accurately classified). Small amounts of tourmaline, siderite and sulphides were introduced into Z 2600.

The granites (Z 2574, Z 2592, Z 2594, Z 2595) are all genetically related; their compositions are similar, with some variations in textures and proportions of major minerals. They contain a distinctive suite of accessory minerals, and some (e.g. Z 2595) are no doubt appreciably radioactive. One of the features of these rocks is the variability in grainsize and fabric within the same specimens.

Whilst the rocks are classified as granites, based on the usual criteria of feldspar species and ratios (as well as other factors of course), some are probably close to adamellites in composition; it requires only a small change in the Ca content of the plagioclase to achieve this.

The N.W. Tasmanian "granites" tend to be of adamellitic composition, but there is some variation in this; the presence of minor hornblende in Z 2594 and Z 2595 is quite unusual; also, the K-rich sample Z 2592 is distinctive in the regional context.

The occurrence of microgranite with preferred orientation (Z 2592) is noteworthy; it could be a cognate xenolith in a coarser host, but in this rock, and in Z 2574, the changes in fabric are not readily explained by examination of a hand specimen out of context with outcrop.

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	CENTRAL MINERALOGICAL SERVICES Comments
Z 2506 (T.S. 44828) CSB ~~20N~~ ~~5370E~~	Chloritised Greywacke. Small angular quartz grains set in a matted, random mass of fine pale chlorite, abundant leucoxene, fine illite-sericite. CSB 111	Structureless. Faint relict clastic textures. Fine sand-size grains.	Goethite veinlets are oxidised sulphides, carrying cloudy ?cassiterite.	Possibly Crimson Creek type tuffaceous greywacke; extensively chloritised lithic, ?andesitic and other grains.
Z 2513 CSB ~~6120N~~ ~~5362E~~	Hornfels (Metabasalt?). Tufts of fine fibrous tremolite with phlogopite, abundant fine oxide opaques, matrix of untwinned plagioclase. Cognate xenoliths. CSB 119	Fine-grained, with finer xenoliths. Uniform, structureless, but xenoliths weakly aligned.	Chalcedony-goethite veinlets.	Believed to be a hornfelsed basalt or similar rock, i.e. pre-dating granite intrusion. Albite-epidote hornfels facies.
Z 2524 CSB ~~5460N~~ ~~4231E~~	Greisen. Coarse stressed anhedral quartz, pseudomorphs of chlorite/muscovite intergrowths after coarse subhedral feldspar. Minor chloritised biotite. CSB 131	Coarse granitoid fabric, with relict textures. Porphyritic.	Minor iron-staining.	Originally a coarse quartzofeldspathic rock with igneous fabric; broadly granitic composition.
Z 2567 CSB ~~5460N~~ ~~5324E~~	Hornblende Hornfels. Grains of quartz and altered lithic and volcanic material; abundant microgranular amphibole and fine oxide opaques. CSB 158	Clastic grain textures preserved. Faintly bedded. Fine sand-size. Uniform.	Small scattered pyrite and ?pyrrhotite grains. Tremolite veinlets.	Similar derivation to Z 2506, but showing higher metamorphic grade. Oxide opaques are recrystallized sedimentary material.
Z 2568 CSB ~~5560N~~ ~~5336E~~	Metabasalt. Relict andesine phenocrysts set in a fine mass of fibrous-radiating tremolite-actinolite, oxide opaques, untwinned plagioclase. CSB 159	Fine-grained, uniform, relict igneous fabric. Random phenocrysts.	Many veins of acicular to fibrous actinolite; also as replacive patches.	Closely resembles Z 2513 and clearly represents the same rock. Hornblende-hornfels metamorphism, also metasomatism.
Z 2570 CSB ~~5560N~~ ~~5170E~~	Hornblende Hornfels (Metadolerite). Relict large andesine phenocrysts in a fine mass of andesine, phlogopite, platy ?ilmenite, fibrous and poikiloblastic hornblende. CSB 162	Relict porphyritic igneous fabric preserved; medium-grained.	Scattered fine pyrrhotite throughout. Phenocrysts partly sericitised.	Clearly related to Z 2513, Z 2568; metamorphosed and metasomatised. Originally slightly coarser than the others.
Z 2574 CSB ~~5560N~~ ~~4739E~~	Biotite Microgranite. About 40 % orthoclase, 30 % quartz, 20 % oligoclase, 10 % biotite; also coarser patches of the same minerals, but different proportions. CSB 166	Variable fabric, mostly medium-grained, but partly coarsely-crystalline.	Accessory zircon, apatite, oxide opaques ?Xenotime, associated with biotite.	A fresh granitic intrusive. Reason for grain size variations not obvious from specimen or T.S.; perhaps marginal.
Z 2588 CSB ~~5160N~~ ~~5240E~~	Olivine Basalt. Small fresh olivine phenocrysts in a mass of subparallel andesine laths, microgranular augite, small magnetite crystals. CSB 184	Definite preferred orientation. Fine-grained. A few amygdaloes.	Amygdaloes contain carbonate. Quartz xenocrysts with reaction rims.	Markedly different from Z 2513, Z 2568, Z 2570. Not metamorphosed. Typical of Tertiary basalts in Tasmania.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	CENTRAL MINERALOGICAL SERVICES Comments
Z 2590 CSB 5160N ~~5130E~~	Hornblende Hornfels (Metadolerite). Relict andesine phenocrysts; many hornblende aggregates, with interstitial andesine, platy oxide opaques (?ilmenite). CSB 186	Relict igneous, medium grained fabric preserved. Replacive textures.	Veins of matted actinolitic hornblende replacing rock.	Closely resembles Z 2570 in particular, and related to Z 2513, Z 2568. Metamorphosed and metasomatised.
Z 2592 CSB 5160N ~~4807E~~	Microgranite/Granite. Microgranite of 50 % orthoclase, 40 % quartz, 5 % biotite, tourmaline, oligoclase, in contact with much coarser rock with similar composition, but more biotite. CSB 188	Microgranite has definite preferred orientation. Both rocks weakly stressed.	Accessory xenotime embedded in biotite. Rare monazite. Fe-staining in microgranite.	Alkali-granite composition. The two phases are ?contemporaneous, but finer phase may be dyke or vein in coarser phase.
Z 2594 CSB 5240N ~~3938E~~	Porphyritic Biotite Granite. A few quartz, albite, orthoclase phenocrysts in quartz, albite, orthoclase and biotite; composition is 35 % orthoclase, 30 % quartz, 25 % albite, 10 % biotite (+ hornblende). CSB 191	Porphyritic. Typical granitic fabric verging on medium-grained.	Accessory apatite, zircon, xenotime and hornblende, associated with biotite.	Compositionally this verges on an adamellite because albite verges on oligoclase. Genetically related to Z 2574.
Z 2595 CSB 5480N ~~3942E~~	Porphyritic Biotite Granite. 35 % orthoclase, 30 % quartz, 25 % albite, 10 % biotite (+ hornblende); a few albite phenocrysts in normal granitic mass. CSB 195	Weakly porphyritic only. Typical coarse granitic fabric. Zoned plagioclase.	Accessory zircon, ?xenotime, metamict allanite, possible uraninite, apatite.	Closely resembles Z 2594 with only minor textural differences - slightly coarser, less porphyritic. Wide range of accessory minerals.
Z 2600 (T.S. 44840) CSB 4400E ~~5481N~~	Greisen. Stressed anhedral quartz patches, pseudomorphs of hydromuscovite/quartz after feldspar; oxidised siderite; patches of schorl. Sn - 35 ppm CSB 200	Coarse granitoid fabric and feldspar textures recognisable.	Sericitised biotite. Trace sulphides (sphalerite, ?galena, ?molybdenite). Zn 545 ppm, Pb 245 ppm Mo 65 ppm.	Broadly similar to Z 2524, but chlorite absent, siderite and sulphides present. Originally biotite granite.

A P P E N D I X 11

Location	Sn	Cu	Pb	Zn	F	Li	As	Ag	Mo	B, Ni	W	Description	SAMPLE NUMBER
L 6280N 4673E	10	—	5	70	1700	56	—	—	2.0	15	—	equigran bi. m.g.	Z 2501
L 6280N 4733E	4	—	—	25	300	32	—	—	2.5	10	—	co. grain ~ equigran. wtd. bi. g	SB 101 Z 2502
L 6280N 5000E	7	20	5	125	500	16	—	—	1.0	55	—	v. hd., uraltised med xtaline py. dr	SB 102 Z 2503
L 6280N 5050E	15	10	—	70	500	7	13	—	0.5	45	—	v. hd., ho, metasom f-med. tuf. lt. wke	SB 104 Z 2504
L 6280N 5518E	8	85	10	50	300	27	—	—	3.0	35	15	wtd. b. r., rel. s. qtzose s.s.	SB 106 Z 2505
L 6200N 4618E	3	—	10	35	1200	35	—	—	2.0	15	—	py. bi. m. g.	SB 109 Z 2507
L 6200N 5007E	15	75	110	250	800	11	—	—	1.5	80	—	v. hd. uraltised, amphibol py. m dr.	SB 112 Z 2508
L 6120N 4210E	5	—	—	50	500	17	—	—	1.5	20	—	wtd. bi. m. g. - py?	SB 113 Z 2509
L 6120N 4345E	8	310	—	45	900	29	—	—	5.5	105	—	py. med-m bi g-py	SB 114 Z 2510
L 6120N 4710E	6	5	20	30	1000	55	—	—	9.0	175	10	co. grain bi. g ~ minor schorl	SB 115 Z 2511
L 6120N 5207E	7	25	10	80	600	9	—	—	—	60	—	hd, uraltised py. m. dr	SB 116 Z 2512
L 6040N 5478E	6	80	15	105	500	7	—	—	1.5	100	—	hd, metasom. v. f. tuf lt. wke - s.s. & tr Py	SB 117 Z 2514
L 6040N 5390E	4	130	10	60	400	24	—	—	5.5	85	15	wtd. qtzose s.s.	SB 120 Z 2515
L 6040N 5125E	10	20	5	110	300	5	—	—	1.5	50	—	hvy. uraltised f-med xtaline dr	SB 121 Z 2516
L 6040N 4865E	6	—	10	35	500	32	—	—	7.0	135	—	co. grain. disequigran. bi. g.	SB 122 Z 2517
L 6040N 4699E	3	10	5	45	700	48	—	—	7.0	175	—	co. py. m-co. xtaline disequigran. g	SB 124 Z 2518 SB 125

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CSB-Rocks

DATE 1/12/82

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05.

Location	Sn	Cu	Pb	Zn	F	Li	As	Ag	Mo	B, Ni	W	Description	SAMPLE NUMBER
L6040N 4535E	—	—	—	35	500	26	—	—	4.0	110	—	Py. bl. m. g.	Z 2519
L6040N 4380E	—	—	5	70	700	40	1	—	2.5	20	—	Py. bl. m. g.	SB 126 Z 2520
L5960N 4285E	170	5	25	165	700	24	—	—	7.0	145	20	qz. py. grs.	SB 127 Z 2521
L5960N 4275E	140	—	535	170	1100	24	—	—	2.0	15	35	fresh. qz. py. grs.	SB 128 Z 2522
L5960N 4250E	180	10	20	55	600	14	—	—	2.5	15	10	light, leached qz. py. grs.	SB 129 Z 2523
L5960N 4231E	230	—	140	170	700	27	1	—	4.0	110	20	fresh. qz. py. grs.	SB 130 Z 2525
L5880N 5165E	20	30	5	50	500	16	—	—	2.0	35	—	hd, ho, uraltised py. m. dr.	SB 131 Z 2526
L5880N 5197E	—	50	—	15	—	7	—	—	9.0	165	—	wthd. f. sach. qzose rock = vugs.	SB 132 Z 2527
L5880N 5237E	10	100	5	95	300	16	18	—	2.5	120	—	hd, ho, metasom. ss.	SB 133 Z 2528
L5880N 5339E	10	165	110	125	500	28	—	—	1.0	115	10	v. hd, ho, metasom. v. f. luf. Hc. wk = 1% Py.	SB 134 Z 2529
L5880N 5390E	65	65	160	715	300	40	5	—	0.5	110	—	wld. ss. = lim vns.	SB 135 Z 2530
L5880N 5255E	8	30	5	100	1100	13	—	—	1.0	55	—	co. - med. uraltised dr.	SB 136 Z 2531
L5880N 4277E	6	—	5	45	600	39	—	—	4.0	95	—	py. m. bi. g.	SB 138 Z 2532
L5880N 4610E	15	5	15	45	900	29	—	—	3.5	130	—	py. m. bi. g.	SB 139 Z 2533
L5320N 4580E	6	—	5	55	1100	27	66	—	5.5	95	—	fresh. hd. py. m. bi. g. = tr. schorl.	SB 140 Z 2534
L5480N 4380E	5	—	45	45	800	39	—	—	0.5	100	—	" " "	Z 2535

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CSB - Rocks

DATE 1/12/82

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260038

058

560059

Location	Sn	Cu	Pb	Zn	F	Li	As	Ag	Mo	B+N	W	Description	SAMPLE NUMBER
L5500N 4385E	5	—	—	35	500	21	—	—	7.0	155	—	wtld py. m. bi. g	Z 2536
L5500N 4390E	15	20	145	125	900	65	—	—	4.0	100	25	qz. py. grs.	Z 2537
L5500N 4395E	110	35	40	195	900	34	—	—	5.0	145	—	wtld. qz. py. grs.	Z 2538
L5500N 4400E	90	45	85	295	400	34	—	—	9.5	90	20	hd. fresh. qz py grs.	Z 2539
L5600N 4400E	15	—	5	50	800	25	—	—	2.5	105	—	py. m. bi. g.	Z 2540
L5600N 4395E	—	—	—	45	800	37	—	—	2.5	85	—	" "	Z 2541
L5600N 4260E	—	—	5	40	600	33	—	—	2.5	105	—	~ py. bi. m. g	Z 2542
L5600N 4840E	—	—	10	30	100	13	—	—	5.0	115	—	wtld. bi. gm. g.	Z 2543
L5720N 4040E	10	5	15	35	700	23	—	—	4.0	155	—	py. m. bi. g	Z 2544
L5720N 5380E	8	25	15	110	500	26	—	—	—	105	10	v. hd. ho, metasom s.s.	Z 2545
L5800N 5340E	10	25	10	85	200	41	—	—	—	85	—	wtld qzose? s.s.	Z 2546
L5960N 4280E	105	5	5	40	900	41	—	—	2.5	75	—	py. bi. m. g.	Z 2547
L5960N 4320E	9	—	5	125	800	32	—	—	3.5	105	—	" "	Z 2548
L6120N 5380E	9	25	10	40	500	8	—	—	—	45	—	py. uraltised m. dr	Z 2549
L6200N 4640E	3	5	15	25	600	33	—	—	3.0	135	—	co.-med. xbtline disequigran. bi. g with	Z 2550
L6200N 5320E	15	80	20	90	400	11	13	—	—	110	—	v. hd. ho metasom tbl. ss.	Z 2551

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CSB - Rocks

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Location	Sn	Cu	Pb	Zn	F	Li	As	Ag	Mo	B, Ni	W	Description	SAMPLE NUMBER
L6280N 4700E	8	5	20	60	700	41	—	—	7.0	165	—	wld. ~ equigran co. grain. bi. g.	Z2552
L5640N 4912E	3	5	15	25	700	23	1	—	1.5	10	—	disequigran. ~ py. g. transitional phase?	Z2553 SB 141
L5640N 4864E	15	15	20	20	1500	10	—	—	3.0	15	—	m-co. ~ equigran. g bi. depleted.	Z2554 SB 142
L5640N 4550E	7	5	20	35	800	24	—	—	11.0	210	—	py. bi. mfg. fresh.	Z2555 SB 143
L5640N 4362E	180	225	390	160	600	24	7	—	9.0	130	10	qz-chl mica? grs. (trend) pale gr. ~ qz phc. dc	Z2556 SB 144
L5642N 4363E	170	175	435	195	700	28	17	—	3.0	20	—	as above - dk gr mtr	Z2557 SB 145
L5640N 4360E	130	70	275	225	600	28	10	—	1.0	20	10	trench olc as above	Z2558 SB 146
L5640N 4360E	150	310	145	150	800	24	9	—	8.0	130	10	trench dump as above	Z2559 SB 147
L5638N 4249E	160	105	380	175	500	81	6	—	6.5	160	15	qz py. grs ~ qz hydrous. m. hsc. ~	Z2560 SB 148
L5635N 4254E	140	20	100	85	1300	16	—	—	5.0	150	—	qz ~ v.s. grs ~ py. m. bi. g	Z2561 SB 149
L5720N 4202E	180	5	290	155	1300	15	—	—	1.0	15	—	~ q.v. + to a contact v. hd. gr - qz grs ~	Z2562 SB 151
L5720N 4180E	6	5	15	30	800	17	—	—	5.0	130	—	qz plc. m. g. ~ aplite - bi	Z2563 SB 152
L5720N 4148E	160	15	60	170	800	18	—	—	132.5	135	15	depleted. grsised py. g. ~ fsp	Z2564 SB 153
L5720N 3985E	7	5	15	20	700	14	1	—	7.0	120	—	plc. glob. ls + qz. phc. m. - ned. xtaline equigran.	Z2565 SB 154
L5720N 3955E	3	15	10	75	1300	18	—	—	10.0	90	50	bi. g. - Transitional phase py. disequigran. bi. g	Z2566 SB 155
L5560N 5176E	4	10	10	55	600	6	1	—	0.5	45	—	Transitional phase lgt, s, wld mst.	Z2567 SB 161

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CSB - Rocks

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260060

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560061

Location	Sn	Cu	Pb	Zn	F	Li	As	Ag	Mo	B, Ni	W	Description	SAMPLE NUMBER
L5560N 5070E	20	40	40	130	1700	62	34		1.0	55	25	v. wtd. tufo qzose	Z2571
												S.S. z q.v. - sr?	SB 163
												S., light, wtd qz	Z2572
L5560N 508E	10	30	60	75	1400	21	-		5.5	115	-	Py. dyke in sects.	SB 164
												co. grain. equigran	Z2573
L5560N 4938E	4	5	5	20	900	25	-		-	10	-	bi. g. wtd.	SB 165
4670												hd, fresh, py. m. bi. g	Z2574
L5560N 4739E	-	5	30	60	1300	36	7		3.0	85	-		SB 168
												hd, dk gr qz - chl?	Z2576
L5602N 4389E	6.00%	170	140	230	400	25	-		7.0	125	65	grs z Fe Cr stain qz vugs	SB 168
												wtd py. m. bi. g	Z2577
L5600N 4300E	310	5	25	50	1100	36	1		6.0	120	-		SB 169
												wtd, pale gr v. mic.	Z2578
L5560N 4360E	900	5	25	175	600	22	1		4.0	130	15	z dk gr chl & qz grs.	SB 170
												hd, ho, uraltised	Z2579
L5320N 5053E	370	85	40	175	700	14	6		-	75	-	py. m. dr z tr Py	SB 171
												hvy, f. m. xtaline qz	Z2580
L5320N 5250E	20	5	10	15	100	6	1		10.0	220	-	tr schorl.	SB 173
												hd, uraltised f xtaline	Z2581
L5400N 5165E	15	60	35	105	600	16	8		6.0	70	-	py. m. dr	SB 176
												m-co. xtaline qz	Z2582
L5400N 5080E	5	5	5	10	-	7	-		10.0	225	-	z vugs & tr schorl	SB 178
												wtd, py m. bi. g	Z2583
L5400N 5047E	10	5	10	40	1100	35	-		3.0	75	-		SB 179
												dissequigran bi. g.	Z2584
L5400N 4850E	-	-	5	15	600	30	-		6.0	120	-	wtd.	SB 180
												ap. dyke in dissequigran	Z2585
L5400N 4713E	-	-	15	15	200	19	1		5.0	115	-	med. - co xtaline bi. g.	SB 181
												fine-co. xtaline vuggy	Z2586
L5400N(R) 434E	0.83%	5	5	10	-	8	-		11.0	240	15	in of qz z v. f. dk to - Cs?	SB 183
												wtd pale gr grs v.	Z2587
L "									4.0	130	15	mic.	SB 183(12)

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CSB-Rocks

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Location	Sn	Cu	Pb	Zn	F	Li	As	Ag	Mo	B+Ni	W	Description	SAMPLE NUMBER
L5160N 5290E	150	55	10	145	600	10	6		1.0	200	—	mag. am. pd. ls - Tert.	Z25889
												hd, fresh	SB185
-5160N 4915E	3	5	—	15	500	16	—		5.0	135	—	co. grain. ~ equigran.	Z2591
												bi. g. & diff. bands.	SB187
-5160N 4807E	—	—	10	20	200	17	—		3.0	90	—	dissequigran. bi. g. &	Z2592
												flow band. ap. dyke	SB188
L5160N 4715E	5	—	5	25	700	40	6		—	5	—	dissequigran. med. co	Z2593
												xtalike. bi. g.	SB189
5480N 3938E	6	—	10	45	600	22	1		6.5	115	—	~ py. bi. g.	Z25945
L5480N 3938E												transitional phase	SB195
L5480N 3874E	120	20	1150	110	1400	27	1		4.5	120	20	v. wtd py. m. g. - sl.	Z2596
												grs. ised & qz. phc.	SB196
1400E 5429N	25	50	90	150	1400	15	7		6.0	120	—	hd, FeOx stained ext.	Z2597
												v. mic. & qz. phc. grs	SB197
5440N 4359E	65	40	135	145	1400	16	—		2.0	95	—	railway ballast, v.f. mic.	Z2598
												& chl. grs.	SB198
5440N 4393E	0.53%	115	465	390	700	28	6		6.5	80	25	v. mic. gr qz. py.	Z2599
												grs. - mica rh.	SB199
1/4 4400E 5481N	35	15	245	545	1900	21	1	0.5	6.5	100	10	gr-gy. mic. grs. &	Z2600
												fr schorl, fresh.	SB200
L5520N 4437E	25	5	45	240	1200	34	12	—	6.0	120	—	hd, fresh, py m. bi. g	Z2601
												& f. l. schorl.	SB201
1/4 4400E 5626N	8	—	5	80	1000	34	6	—	7.5	125	—	py. m. f. bi. g.	Z2602
													SB202
1/4 4430E 5680N	140	55	80	275	700	26	9	—	17.0	105	25	v. mic. grs., heavy qz. phc.	Z2603
												trench dump.	SB203
1/4 4428E 5687N	130	35	90	205	400	30	—	—	6.0	110	15	as. above	Z2604
													SB204
1/4 4424E 5690N	110	75	140	300	200	37	—	2.5	5.5	90	10	dr. grs. qz. in Worked CK	Z2605
												gr	SB205
L6200N 5370N	120	135	5000	590	—	—	19	0.5	—	100	10	low grade ho & few	Z2506
												vuggy FeOx stain. veins	SB111

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ASSAY RESULT SHEET FOR

CSB-Rocks

DATE 1/12/82

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A P P E N D I X 111

Summary Sheet

PROJECT Ramsey

AREA South Bischoff (CSB)

DRILLHOLE	TYPE
DDH	

CO-ORDS 5401854 mN
370932 mE

DEC LN -45°

AZIMUTH 078° MN

RL 656 m⁺

DH
No. CSB 1

DATE
COMMENCED 22 /2/83

DATE COMPLETED 25 / 2 / 83

DRILLED BY Longyear

DRILL RIG Longyear 38

Non Coring to: 15.0 m

HQ Core to: -

NQ Core to: 89.4 m

BQ Core to: -

EOH 89-47

SURVEY DATA

Instrument: downhole camera

LOG SUMMARY

N. P. Green

064

260065

VISUAL
PERCENTAGE
MINERALISATION

LITHOLOGY

DRILL ADVANCE

PTN	DRILL ADVANCE (m)	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
0	0.6	0.02	3.33%		Predominantly soft, <u>weathered porphyritic micro biotite granite</u> . Common iron staining especially associated & fractures. Rare blocks & pervasive greisenisation usually centred on intense chloritisation evident as an irregular vein, in some cases more competent than surrounding granite & preferentially cored. Phenocrysts = 10%	0.6m: Small block of relatively heavy. FeOx stained. chlorite/ muscovite after py. mcr bi granite. Surface weathering effects = FeOx staining feldspar → kaolinite rare black tourmaline = schorl patches up to 20mm.		Core soft & largely exhibiting little structure possibly preferred fracture orientation. - greissen as hard, relatively heavy, usually rounded, blocks.	No mineralisation observed. Cassiterite associated & grs alteration, extremely difficult to observe & naked eye.
3.6	0.4	0.03	7.50%						
0	1.0	0.00	0%						
0	1.0	0.03	3.00%						
3.0	1.0	0.00	0%						
4.0	1.5	0.00	0%						
5									
5.5	1.5	0.02	1.33%						
7.0	1.5	0.12	3.00%						
8.5	1.5	0.00	0%						
10.0	1.5	0.10	6.67%						
11.5	0.3	0.00	0%						
12.0	1.0	0.02	2.0%						
13.0	1.5	0.20	13.33%						
14.5	1.0	0.15	15.00%						

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH CSB 1

LOGGED BY N.P. Green FROM 0 TO 15m

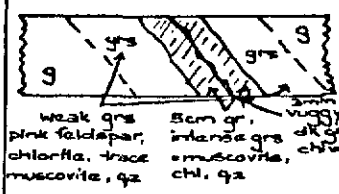
DATE 24/2/83

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DRILL ADVANCE

LITHOLOGY

DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
15.8	1.1	0.95	96.5%	16				Core more competent & an increase in core recovery.	greissenisation details.
16.6	0.8	0.45	93.3%	17		4-6 frags of weak chl-musc gr & 1-1.5 mm feldspar crystals. 16-20 mm patch of disseminated crystalline schist			17.1 rel. weak dk gr greisenisation, 17.3 mostly fragments, zone of -30°
17.2	1.8	1.45	80.5%	18	17.6	Competent porphyritic biotite microgranite. Granite relatively hard, broken by common ferric oxide red-brown stained & slightly weathered fractures. Granite taking on typical fresh grey colour. Phenocrysts 15%, total biotite 20% feldspar - average 10mm, maximum 30mm. - white-pink colour 45% quartz - av. 4 mm, max 10 mm - translucent gy - 45% biotite - av. 2mm, max 7mm, black - 10% rare coarse bi in feldspar phc + v. rare bi clogs. traces of schist, rarely assoc & fels phc.	common fractures highly FeOx (re-br) stained & minor staining pervasive. into surrounding granite. Few fine, average 2mm, dark green greissen (chlorite) veins; varying from 10-30° & weak pervasive bi + chl + feldspar; wh + pink greissenisation surround -ing - out to 20 mm around a 1mm vn.	granite competent, cut by common fractures - possibly jointing. frac average at 30° predominant set one other - rare at 45°.	18.4 5cm zone of grs. isation at 30°.
19.0	2.9	2.96	100%	20					
21.9	5.6	4.6	82.1%	23	22.9	Weathered porphyritic biotite microgranite zones of pervasive weathering resulting in brown-grey colouration of granite, not strictly & locally related to fractures.	general softening of granite, biotites sometimes degraded with slight ferric oxide staining, minor alteration of feldspar to kaolin in intense zones.	where competent cut by fine FeOx stained fractures.	21.7 pervasive intense centre-weak grs. zone of dk gr muscovite-chlorite. 2.4 mm limonite, some at base of zone. 22.4
				24				24.8 frac at 45°	Apparently barren & rare patches of schist. - trace.
				25				25.6 frac at 15°	
				26				26.4 frac at 15°	
				27	27.0	Fresh competent porphyritic biotite microgranite. Very hard gy. fresh competent, apparently unfractured py bi microgranite. phc 10% feldspar - av. 12 mm, max 30 mm, wh - 55% quartz - av 4 mm, max 10 mm, translucent gy - 40% biotite - av 3 mm, max 8 mm, bk - 5%	apparently unaltered.	massive competent zone.	27.5 fragments of chlorite minor muscovite, grs - possibly rad-drill from further up the hole?
27.5	3.0	3.04	100%	28					
				29					
				30					

SCALE 1:100 (1cm = 1m)

DRILL ADVANCE

LITHOLOGY

PTN		DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
30.5	1.5	1.45	80-86%	31	30.4	Fractured Intermittently altered porphyritic biotite microgranite. Pale gy often with brown tinge denoting decrease in hardness & freshness. Common irregular fractures & minor ferric oxide staining. Feldspar phenocrysts adjacent to greissen zones pale pink, whereas normally white, phc 15%-20%. feldspar - average 10 mm, maximum 22 mm - 60% quartz - av 5 mm, max 10 mm - 35% biotite - av 2 mm, max 5 mm - 5% larger feldspar phc often composite & inclusions of bi, tourmaline.	32.4 greissen related alteration surrounding 2 intense veins, pervasive 21" wh feldspar < pink pale gr - v soft - pale green frac coats.	30.6 frac at 35° 30.9 fault? & slickensided surfaces at 35° 31.3 frac at 75°	30.6 grs zone at 40° chl + musc - qz 30.9 few fine dark green 1 greissen veins, average 1mm 32.3 core destroyed over 10cm zone to soft fragments. 32.6 frac at 30°	32.3 intense 5cm grs zone intensely fractured, now only fragments.
32.3	1.3	1.10	84-82%	33			33.0 granite generally slightly softer than completely fresh granite, probably related to fracture & greissen frequency.	33.4 frac at 30° 33.8 frac at 35°		34.1 f. dk gr 1 mm grs vn at 35°
33.6	2.1	2.10	100%	34				34.7 frac at 40° 35.0 20 cm zone of 45° frac.		35.4 1 mm grs vn at 30° 35.7 2x 1mm dk gr grs - chl vns & attendant halos of pink feldspar at 30°
35.7	1.2	1.10	91-62%	36				36.2 frac at 30° 37.0 frac at 15°		37.8 2x 1mm dk gr chl - grs vn at 27°
36.9	1.3	1.25	100%	37				37.0 frac at 15° 37.2 frac 65° 37.4 frac 25°-45° 37.8 frac 70° 40.0 frac 70°		
38.4	1.6	1.52	95-00%	39						
40.0	2.2	1.80	81-82%	40						
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SCALE 1:100 (1cm = 1m)

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DRILLHOLE LOG FOR DDH CSB 1

LOGGED BY N.P. Green FROM 30 TO 45m

DATE 27/2/83

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560068

VISUAL
PERCENTAGE
MINERALISATION

LITHOLOGY

DRILL ADVANCE

EPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
45.2	2.8	2.4	96.40%			45.5 3cm white fine crystalline quartz vn at 75°		45.6 frac at 45°	
	0		46			46.4 5 mm wh f. xln q.v. at 70°		46.2 zone of fracturing at 10°-20°	
			47					46.8 fractures decreasing in frequency ↓	
47.7	1.9	1.8	94.74%						
			49						
49.6	2.4	2.4	100.7%			49.4 Common fine, average 2 mm pale green -white, carbonate-chlorite veins at ~45°, irregular often bifurcate, few feldspar phenocrysts adjacent to vn chloritised or → pink, + very rare biotite phc → sulphida (Pyrite).		49.8 frac at 45°	
			50					50.1 10 mm f. xln qz-feldspar vn at 70° + aphte?	
			52						
52.0	3.0	2.90	93.6%						
			53						
			54			53.6 veins as above, very rare.		54.2 frac at 40°	
			55						
55.0	3.0	3.05	100.7%						
			56					56.6 frac at 30°	
			57						
			58			57.3 12 mm coarse pegmatite vn. Few coarse feldspar-qz vns & rare biotite grains, av. grain size 3 mm often graded finer to margins. Few fine av 2mm regular zones of alk ⁺ marked by pink feldspar. 57.5 10 mm c. bi granite vn at 65°		58.7 frac at 65°	
			59						
			60						

SCALE 1:100 (1cm = 1 m)

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DRILLHOLE LOG FOR DDH CSB1

LOGGED BY N.P. Green FROM 45 TO 60m

DATE 27/2/83

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VISUAL
PERCENTAGE
MINERALISATION

LITHOLOGY

DRILL ADVANCE

DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
61.0	3.0	3.06	100%+	61		60.9 5cm coarse granite vein-dyke at 65°			
				62					
				63		62.9 35 mm c. granite & trace biotite vn-dyke at 65°			
64.0	2.0	2.04	100%+	64		64.1 10 mm c. bi granite vn at 35°			
				65					
66.0	0.8	0.66	82.50%	66		66.0 30 mm c. bi granite vn at 37°			
66.8	3.1	3.08	99.35%	67		66.3 coarse pegmatitic biotite granite veins very rare. Rare fine, average 2mm vns of alteration marked by pinking of feldspar.			
				68					
69.9	3.1	3.0	96.77%	70		69.9 2mm carbonate- chlorite vn at 12°.			70.5 2mm dark green chlorite-graissen vn at 55° & attendant 30 mm weak pervasive alteration of quartz feldspar → pink, white.
	0			71					
				72					
73.0	3.0	2.95	98.33%	73		concentrations of fi black bl, 'roftlike'			
				74					
				75		74.5 as above			74.7 10 mm patches of pyrrhotite & visible chalcopyrite after formaline (positively bl)

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH CSB1

LOGGED BY N.P. Green

FROM 60 TO 75m

DATE 21/2/83

PAGE 6 OF 7

063

560070

VISUAL
PERCENTAGE
MINERALISATION

LITHOLOGY

DRILL ADVANCE

EPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
76.0	3.0	2.89	96.33%	77					
79.0	3.0	2.92	97.33%	80					
82.0	3.0	2.96	98.33%	85		82.8 See mineralisation		82.4 frac at 60° 82.9 frac at 55° 83.4 frac at 13° 84.1 frac at 53° 84.6 frac at 14°	81.7 2x2mm chlorite-graissen vms at average 40°
85.0	2.9	2.98	99.31%	86		85.7 13cm zone, at 35°, of transitional granite - matrix 10% quartz-feldspar av 4mm biotite predominantly fine.		fracturing increases from zero to weak, core partially destroyed in area of q.v.	82.8 zone at 55°; intense q.v. - muscovite-chlorite haloing 22m q.v. E to aphanite - Pyrite.
87.4	1.3	1.3	100%	88		87.1 20cm zone of perma- lite differentiation of granite especially qz - av 4mm - 40% of rock.		Predominantly very hard fresh grey porphyritic micro biotite granite & rare fractures.	83.4 83.7 2 fine 2mm Py vms at 32° in relatively fresh granite.
89.4	0.2	0.2	100%						
90.4									

End of D.D.H: CSB 1 at 89.4m

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH CSB 1

LOGGED BY N.P. Green

FROM 75 TO 89.4m

DATE 1/3/83

PAGE 1 OF 1

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo							SAMPLE NUMBER
0																
1																
2																
3																
4																
5																
6																
7		15		30	140	BLD			20							22627
8																
9																
10																
11																
12																
13																
14																
15																

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH CDB 1

ASSAYED BY Analabs

FROM 0 TO 15m

DATE 18/3/83

PAGE 1 OF

071

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	Ta						SAMPLE NUMBER
15		50	15	15	30	140	BLD			20	BLD						Z 2627
15.5																	
16		15	10	35	10	105	BLD			BLD	BLD						Z 2628
17																	
17.6		15	5	10	10	90	BLD			20	BLD						Z 2629
18																	
18.6		BLD	5	BLD	BLD	60	BLD			BLD	BLD						Z 2630
19																	
19.7		20	340	450	20	340	BLD			BLD	BLD						Z 2631
20																	
21																	
21.7		45	20	160	885	240	0.5			BLD	BLD						Z 2632
22																	
22.7		10	140	170	15	190	BLD			BLD							Z 2633
23																	
24																	
25	25 m																
26		3	65	120	15	110	BLD			BLD							Z 2634
27																	
27 m		10	55	30	5	95	BLD			BLD							Z 2635
28																	
29	29 m	BLD	85	180	BLD	125	BLD			BLD							Z 2636
30																	

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH CSB 1

ASSAYED BY Analabs

FROM 15 m TO 30 m

DATE 18/3/83

PAGE 2 OF

560022

076

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	Tg						SAMPLE NUMBER
30.3	35	5	60	10	185	BLD			20	BLD						Z 2637
31.5	8	5	BLD	25	280	BLD			BLD	BLD						Z 2638
33.2	5	5	BLD	BLD	130	BLD			BLD	BLD						Z 2639
35.2	5	BLD	15	15	255	BLD			10	BLD						Z 2640
37.4	10	5	BLD	5	145	BLD			BLD	BLD						Z 2641
38.9	9	5	20	10	175	BLD			10	BLD						Z 2642
40.3	BLD	BLD	10	5	245	BLD			20	BLD						Z 2643
40.9	10	5	BLD	25	355	BLD			BLD	BLD						Z 2644
41.4	BLD	5	BLD	15	310	BLD			20	BLD						Z 2645
42.2	7	55	85	BLD	115	BLD			BLD							Z 2646

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH CGB1

ASSAYED BY Analabs

FROM 30 m TO 45 m

DATE 18/3/83

PAGE 3 OF

560073

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	To						SAMPLE NUMBER
45		6	90	55	BLD	130	BLD			BLD							Z 2647
46	46 m																
47		6	45	30	BLD	90	BLD			BLD							Z 2648
48	48 m																
49		9	20	15	BLD	60	BLD			BLD							Z 2649
50	50 m																
51		BLD	10	25	BLD	55	BLD			10							Z 2650
52	52 m																
53		7	15	BLD	BLD	60	BLD			BLD							Z 2651
54	54 m																
55		5	95	50	BLD	125	BLD			BLD							Z 2652
56	56 m																
57		8	10	10	BLD	55	BLD			BLD							Z 2653
58	58 m																
59		8	10	BLD	BLD	55	BLD			BLD							Z 2654
60	60 m																

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH GSB

ASSAYED BY Analabs

FROM 45 m TO 60 m

DATE 18/3/83

PAGE 4 OF

024

	Meters	Sn	Cu	W	Pb	Zn	Ag	As	Ni	MO							SAMPLE NUMBER
0	60m	5	40	10	BLD	70	BLD			BLD							Z 2655
1																	
2	62m	7	25	20	BLD	60	BLD			BLD							Z 2656
3																	
4	64m	4	15	10	BLD	50	BLD			BLD							Z 2657
5																	
6	66m	BLD	45	20	10	75	BLD			BLD							Z 2658
7																	
8	68m	5	75	45	5	110	BLD			BLD							Z 2659
9																	
0	70m	7	20	10	5	65	BLD			BLD							Z 2660
1																	
2	72m	10	135	75	BLD	155	BLD			BLD							Z 2661
3																	
4	74m																
5																	

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH CSB 1

ASSAYED BY Analabs

FROM 60m TO 75m

DATE 18/3/83

PAGE 5 OF

560075

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	Ta						SAMPLE NUMBER
75		9	55	40	BLD	110	BLD			BLD							Z 2662
76	76m																
77		6	140	100	5	165	BLD			BLD							Z 2663
78	78m																
79		BLD	115	120	BLD	140	BLD			BLD							Z 2664
80	80m																
81		7	100	90	BLD	120	BLD			BLD							Z 2665
82																	
83	82.6	15	5	240	55	290	0.5			20	BLD						Z 2666
84	84.0																
85		7	80	65	5	115	BLD			BLD							Z 2667
86	86m																
87		3	110	170	5	135	BLD			BLD							Z 2668
88	88m																
89		9	90	85	5	120	BLD			BLD							Z 2669
90	89.4																

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH C5B1

ASSAYED BY Analabs

FROM 75m TO 90m

DATE 18/3/83

PAGE 6 OF

A P P E N D I X 1V

ANALYTICAL REPORT No. 6.08.1866.

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

ORDER No.

PROJECT

Customer's Name
Address
Telephone
Fax

ORDER No. PROJECT

DATE RECEIVED

RESULTS REQUIRED

DATE RECEIVED RESULTS REQUIRED

NO. OF PAGES
OF RESULTS

DATE
REPORTED

NO.
OF COPIES

TOTAL No. OF SAMPLES

6 153.83.

TYPE OF SAMPLE	PRE-TREATMENT								ANALYSIS		
	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PUL- VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	2675.86 2269.-96.99-01 22703.05.13 93.94.96										101 402 401 128

RESULTS

TO

RESULTS

TO

REMARKS

STATE OF SAMPLES	ANALYSIS — PREPARATION						ANALYSIS — METHOD	
hol core lit re tring ck il ulp ate ssue ream sediment savy mineral	WC SC CU Ro SO PU WA TI SS HM	perchloric acid hydrochloric acid nitric acid aqua regia nitric-perchloric HF mixture HF under pressure fusion	A1 A2 A3 A4 A5 A6 A7 A8	cold acid specific sulphide other mixed acids alkaline attack volatilization ignition pressed powder (XRF) glass fusion (XRF)	CA SS Ma AA VO IG PP GF		atomic absorbtion x-ray fluorescence spectrophotometry colorimetry chromatography titration other chemicals means miscellaneous fluorescence inductively coupled plasma	AA5 XRF SPEC COL CHR TTN CHEM MISC FLUOR ICP

AUTHORISED OFFICER

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

TUBE No.		SAMPLE No.	Cu		Fe		Mn		Pb		OF	
2	2675		220	230	240	0.5	10					
2	86		5	30	105	X	20					
	87		5	X	85	X	X					
	88		5	X	85	X	10					
5	89		15	130	475	120	20					
	90		5	85	155	0.5	10					
7	93		115	730	1.06%	165	X					
	94		5	30	130	0.5	X					
	95		150	340	3200	4.0	X					
10	96		30	165	1200	3.0	10					
	99		5	10	95	0.5	X					
12	100		165	185	9350	4.5	X					
	101		5	75	165	0.5	10					
	103		5	20	175	0.5	X					
15	105		X	55	190	0.5	X					
	13		X	5	50	X	X					
17												
18												
19												
20												
21												
22												
23												
24												
25												

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

— = element not determined

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079

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

560080

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SUB 2

OF

TU No.	SAMPLE No.	Cu	Pb	Zn	Ag	Mo			
1		295	95	750	1.0	X			
2		220	230	255	1.0	X			
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

Results in ppm unless otherwise specified

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560081

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SAMPLE PREFIX		REPORT NUMBER				REPORT DATE		CLIENT ORDER No.		PAGE
CSB 2		6-108-1866						83/41		OF
TEST No.	SAMPLE No.	Str	V	F	Ta					
	2675	75	10	300	X					
2	86	5	10	500	X					
	87	4	6	500	X					
4	88	6	10	500	X					
5	89	40	X	700	X					
	90	6	X	800	X					
7	93	1700	X	800	X					
	94	20	10	800	X					
	95	6300	15	500	X					
10	96	100	95	1000	X					
11	99	30	X	600	X					
12	700	1750	X	800	X					
13	01	10	10	900	X					
14	03	40	30	500	X					
15	05	15	30	600	X					
16	13	15	X	600	X					
17										
18										
19										
20										
21										
22										
23	DETAILED									
24	DETAILED									
25	DETAILED									

Results in ppm unless otherwise specified

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

CS:32									OF	
TUBE No.	SAMPLE No.	Ta	Ba	Cr	La	Nb	Sr	Th	Ti	V
1	2675	X	480	45	55	15	80	30	3000	50
2	2693	X	470	75	55	15	45	30	2750	40
3	2694	X	480	65	45	20	95	30	2650	35
4	2696	X	480	65	50	20	80	35	2650	20
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	HEAVY METALS	10	20	5	20	3	5	4	50	5
24	COBALT									
25	IRON	401	401	401	401	401	401	401	401	401

Results in ppm unless otherwise specified

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X = element concentration is below detection limit

— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

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PAGE

CS23 2

OF

TUBE No.	SAMPLE No.	Zr	Y	Ce	Sc	Ga	Ge	In	Sb	Be
1	2675	2000	50	90	5	20	X	X	X	X
2	2693	2000	50	95	3	15	X	X	X	X
3	2694	2000	50	90	4	20	3	X	4	X
4	2696	2000	55	100	X	30	X	X	X	X
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	1000000000	5	5	30	3	5	3	3	3	10
24	1000000000									
25	1000000000	402	402	402	402	402	402	402	402	402

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

— = element not determined

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083

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SAMPLE PREFIX			REPORT NUMBER			REPORT DATE		CLIENT ORDER No.		PAGE
SVB 2			6.108-1866			30.3.83		83/41		OF
TIME	SAMPLE No.	UNIT	Co	Ni	As	Cd	Pb			
	2675	1000	10	62	3	3.6	x			
2	2693	1000	9	99	1	75.0	65			
	2694	1000	7	97	1	0.9	2			
4	2696	1000	12	59	1	7.4	x			
7										
9										
12										
14										
15										
17										
20										
22										
23	1000	1000	1	1	1	0.1	1			
	1000	1000								
25	1000	1000	102	102	102	114	102	102		

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

— = element not determined

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ANALYSIS

A division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

8	1			6.1	85	1859				1 OF 2
USE	SAMPLE	Bo	F	Mn	Co	Ni	As	Cd	Bi	Sn
No.	No.									
1	22627	X	500	520	12	195	2	X	X	50
2	22628	X	500	330	7	112	1	0.1	X	15
3	22629	X	700	400	7	98	1	0.2	1	15
4	22630	X	400	345	6	125	2	0.2	1	X
5	22632	X	800	450	7	136	1	4.5	X	45
6	22637	X	600	530	9	95	1	1.7	X	35
7	22638	X	400	510	9	113	1	0.9	X	8
8	22639	X	700	325	5	73	1	0.1	X	5
9	22640	X	300	465	8	83	X	0.8	X	5
10	22641	X	500	315	8	61	X	X	X	10
11	22642	X	900	360	5	85	2	X	X	9
12	22643	X	900	370	9	86	3	X	X	X
13	22644	X	700	480	8	90	5	0.4	X	10
14	22645	X	900	740	10	118	4	0.8	X	X
15	22666	X	800	380	8	77	7	2.3	X	15
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	10	100	1	1	1	1	0.1	1	3
24	DIGESTION									
25	METHOD	119	128	102	102	102	114	102	102	402

Results in ppm unless otherwise specified

1 = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

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ANALYSIS

A Division of MacDonald Hamilton & Co., Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER NO.

PAGE

SAMPLE PREFIX			REPORT NUMBER			REPORT DATE		CLIENT ORDER NO.		PAGE
085 1			6.1 08 1859							2 of 2
ITEM NO.	SAMPLE ID	M	Ta	Re	Cr	La	Nb	Sr	Th	Ti
1	22637	15	X	450	100	40	20	75	30	2700
2	22638	35	X	450	90	40	20	90	25	2530
3	22639	10	X	430	80	45	15	110	35	2500
4	22630	X	X	420	95	45	20	130	30	2400
5	22632	160	X	410	80	50	20	80	30	2750
6	22637	60	X	450	80	50	15	100	30	2600
7	22638	X	X	500	75	45	20	100	30	2850
8	22639	X	X	450	55	50	15	150	40	2550
9	22640	15	X	500	60	40	20	140	35	2550
10	22641	X	X	470	60	45	15	150	35	2500
11	22642	20	X	460	45	45	20	140	30	2600
12	22643	10	X	460	65	60	15	75	35	2700
13	22644	X	X	400	45	55	15	25	30	2700
14	22645	X	X	460	80	55	20	60	30	2800
15	22656	240	X	420	70	45	20	110	40	2650
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	10	10	20	5	20	3	5	4	50
24	ESTIMATION									
25	METHOD	401	401	401	401	401	401	401	401	401

Results in ppm unless otherwise specified

T = Element present, but concentration too low to measure

X = Element concentration is below detection limit

- = Element not determined

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

SB 1	6.1 08 1859									
TUBE NO	SAMPLE NO.	V	Zn	V	Co	Sc	Ga	Ge	In	Sb
1	22627	45	260	50	80	6	20	3	X	10
2	22628	35	260	55	90	4	20	X	X	5
3	22629	40	250	50	90	4	20	X	X	10
4	22630	30	250	50	85	3	15	X	X	X
5	22632	40	280	55	120	4	20	X	X	4
6	22637	40	270	100	3	20	X	X	X	X
7	22638	45	280	50	95	4	20	X	X	3
8	22639	35	270	50	110	3	25	X	X	X
9	22640	35	270	50	120	4	20	X	X	X
10	22641	30	250	45	85	3	20	X	X	X
11	22642	40	270	50	120	4	20	3	X	3
12	22643	35	280	55	130	3	20	X	X	X
13	22644	45	260	50	100	5	20	X	X	X
14	22645	40	280	50	100	4	20	X	X	X
15	22646	40	260	55	100	5	20	X	X	X
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	30	3	5	3	3	3
24	DIGESTION	401								
25	METHOD		401	402	402	402	402	402	402	402

Results in ppm unless otherwise specified

L = element present, but concentration too low to measure

X = element concentration is below detection limit

= element not determined

AUTHORIZED
OFFICER

A P P E N D I X V

089

560090

DRILL ADVANCE

LITHOLOGY

VISUAL
PERCENTAGE
MINERALISATION

DN	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
0	1.0	0.45	45.0%	0.0	Weathered Porphyritic biotite microgranite. Predominantly whtd brown py bi mcrg with red-br ferric oxide staining related to fractures where staining intense - also controlling weathering, significant proportions of relatively fresh, grey, moderately hard granite between frags. - very rare, v. fine bi replacement of feldspar phenocrysts. - rare differentiation of granite to a coarse grain bi granite - pervasive and irregular. phc 10%	Basically surface wthg effects mask other possible alteration - rare greissen alt ⁿ . - see mineralisation 21.5mm pale gy translucent quartz veins at 60°		Broken fractured core, frags often indistinct due to weathering.	Apparently barren
	0.7	0.3	42.86%						
	1.6	1.6	100%						
	1.7	1.35	79.41%						
	0.5	0.5	100%						
	1.5	1.15	76.67%						
	1.5	1.2	80.0%						
	1.5	1.45	96.67%						
	3.0	2.75	91.67%						
	3.0	2.07	69.0%						
				2.0	Relatively fresh Porphyritic biotite microgranite. Relatively fresh hard gy py bi mcrg with common frce, sometimes chlorite or clay coated; minor differentiation at top, see alt ⁿ . Some schorl replacement into feldspar phc. Rare patches & diffuse irregular boundaries (xenoliths/off phc?) of	alt zone of differentiation running oblique to core with intense ly py, 80% qz-feld granite. - rare FeOx staining re-br along frags, v. rare f. 3mm average zones of pale pink - 14.3 2cm zone of intensely py 80% - feldspar bi g. at 20% feldspar associated & v.f. chlorite vms 1mm.		12.3 frac at 45° 12.6 frac at 50° 13.3 frac at 50° 13.6 frac at 25°	- 13.0 v.f. 1mm black schorl vms & minor weak greissenisation at ~60° - 13.8 10cm zone of weak, slightly whtd grs - predominantly muscovite & chlorite at 60°

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH C972

LOGGED BY N.P. Green FROM 0 TO 5m

DATE 1/3/83

PAGE 2 OF 8

091
260092

DRILL ADVANCE

LITHOLOGY

DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	LITHOLOGY				GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				INTERVAL	DESCRIPTION	ALTERATION					
						-30.6 3cm dk ovoid clast - xenolith? of very fine bi-20% + qtz + minor fsp all < 1mm.			30.1 frac at 15°		
31.7	2.8	2.07	90.0%	32.3	Fractured porphyritic biotite microgranite. Subtle change in granite to a slightly softer, slightly more fractured form owing to alteration increase along joint? planes. Greissen zones increasing in frequency. phenocrysts = 10%, total biotite = 10-15% feldspar - average 8 mm, maximum 20 mm quartz - av. 5 mm, max 8 mm biotite - av. 2 mm, max 5 mm Few feldspar phc replaced / partly replaced by schorl.	Zones of greissenisation, clay all? along fractures + chlorite veins, increasing. (for individual grs entries see mineralisation)			30.6 frac at 15° 31.2 frac at 33° 32.2 frac at 15° 32.9 frac at 15° Fracture increase owing to increase in alteration. 33.2 frac at 13° 34.4 frac at 15° - clay coated 34.9 frac at 15° 35.1 frac at 15° All greissen veins have fractures associated & them. 37.4 frac 37.6 zone of moderate-intense fracturing > 5 /m. 39.1 Fractures back to weak to moderate : 2/3 /m. 41.4 30 cm of fracturing at 15° 42.2 frac, pale yellow clay coated at 20° 42.4 frac, pale ye, clay coated at 60° 42.7 frac, 43.2 frac at 15° 43.4 frac at 15° 43.9 frac at 60°	10 cm grs zone & 3 cm dk gr chlorite - muscovite core, qtz diffuse out of that, zone at 60° 33.4 2 cm bk schorl in at 85° 35.2 2x1mm dk gr chl in & 4cm halo at 40° 35.4 wuggy 2mm dk gr chl in & a pale gr 10cm chl-musc all? halo at 35° 36.3 chl? all? in at 50° 36.9 2mm wuggy dk gr chl in & 6cm all? halo - gr chl + musc, pale ye fsp at 37° 37.1 1mm dk gr chl in & 3 cm halo at 35° Zone is predominantly greissen & 4 zones, average 4cm, intense chlorite - muscovite grs - total altered granite = 80%, including alteration release, zones at 30°. very rare discontinuous 1mm sp vns. 39.8 10 cm dk gr-gr chl-musc grs zone centred on frac at 30°, all? zone 30cm. 44.7 Cardinal wuggy 3mm w/d dk gr chlorite & biotite at 85°	
44.5					Greissen.						

SCALE 1:100 (1cm = 1m)

P.T.O.

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH G3N 2

LOGGED BY N.P. Green

FROM 30 TO 45m

DATE 3/3/83

PAGE 4 OF 8

DRILL ADVANCE

LITHOLOGY

DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
46.0	3.0	2.71	93.67%	46	<u>Greissen.</u> Zone greissenisation basically controlled by 3 major zones whose haloes overlap, in fact 0.3 m of unaltered porphyritic micro biotite granite. Zonation as before: centre = intense dark green chlorite ± sulphides + gr chl-muscovite + pale olive gr musc + chl ± pink feldspar phenocrysts. py microgranite texture still visible except in most intense zones.	Common fine, average 2 mm, dk gr chl veins. biotite largely disappears very rare tourmaline (bk schorl) - quartz patches up to 3 cm. few v.f. orange-brown clay coated fractures or as v.f. vns at 40°-45°.		45.6 frac controlled by f. chl vns at 60°	45.0 3cm quartz-sphalerite vein 2 galena? at 50°. central Sp dk br + pale yellow-br outer.
47				47				46.7 frac at 17° + 58°	46.8 intense dk gr chlorite zone - 6 f. irregular 2mm sp - 61? vns at 20°
48				48				47.4 frac stickersided = fault? at 55°	47.4 intense dk gr chl zone 6 f. 2 mm sp - 61? vns at 30°.
49.0	3.0	2.96	95.33%	49					49.0 clay-qz zone - washed & fragments of Sp = Cassiterite??
50				50	49.6 <u>Porphyritic biotite microgranite.</u> -relatively fresh, grey, compactant, py, phc 10-12%, bi total 10-15% microgranite. feldspar - average 15 mm, maximum 25 mm, 50% quartz - av. 5 mm max 20 mm, 45% biotite - av. 3 mm max 5 mm, 5%	rare f. av 1mm, dk gr chl vns & minor weak alteration haloes. rare black schorl, partial replacement of feldspar phc.		50.3 frac at 20°	Apparently barren.
51				51					51.7 1mm frac dk gr chl vns at 35°
52.0	3.0	2.85	95.0%	52					
53				53					
54				54	53.7 <u>Fractured + Altered Porphyritic biotite microgranite.</u> fracturing related to alteration, which is controlled by greissenisation centered on dk gr chl vns ± sulphides + traces of siderite. feldspar phc → pale pink, gr. total unaltered (relatively) granite is 1.5 m.	Common f. dk gr chl vns & or without associated dk gr chl-muscovite gr. isat 1 pervasive pale gr alt? halo.		53.7 frac at 30°	54.0 intense dk gr chl zone & attendant finer chl vns in halo at 65°.
55.0	0.6	0.52	86.67%	55				Fracturing intense + alt? generally softening zone at 54.7 fracs at 60°	
55.6	2.4	2.03	84.58%	56				obscuring fracs, few sub-55.3 frac at 20°	55.0 30cm zone at 55.6-60° of dk gr intense chl-muscovite gr & a 2cm frag of Sp-chalcopyrite - 61? - siderite
56				56				rounded fragments.	
57				57				57.0 frac at 15°	
58.0	3.0	3.07	100%	58	57.9 <u>Porphyritic biotite microgranite.</u> Relatively compactant, unfractured + less altered, py, bi microgranite, with few grs zones; rare bk schorl partial replacement of feldspar phc as before.	Few grs zones. very rare, irregular patches of f. bk biotite concentrations.		57.5 frac at 10°	57.8 8cm grs zone at 57°
59				59				58.2 frac at 58°	
60				60				Fractures becoming uncommon → 1/m.	60.0 20cm zone of gr & f. pyrite - associated & intense chl vns at 60°

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH C5A2

LOGGED BY N.P. Green

FROM 45 TO 60m

DATE 3/3/70

PAGE 1 OF 1

VISUAL
PERCENTAGE
MINERALISATION

LITHOLOGY

RILL ADVANCE

PTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
10	3.0	2.98	99.67%	61-62					61.3 10cm greissen zone centred on fracture at 58° 62.1 3cm weak grs zone at 55°
10	3.0	2.98	99.33%	63-64	63.5 Fresh Porphyritic biotite microgranite Fresh hand grey, gradually increasing to very hd downhole with few fractures + rare alteration. Rare differentiation of granite to a coarse feldspar - quartz phase & biotite averaging 5% at 1mm. phenocrysts 10-15%, total biotite 20% feldspar - average 10 mm, maximum 30 mm-60% qz - av. 5 mm, max 15 mm - 35% bi - av. 2 mm, max 5 mm - 5% Few irregular (rarely lenticular) patches of concentrated fine black biotite - replaced feldspar phenocrysts or replaced/altared xenoliths.	Relatively unaltered, rare pale green-white, 64.8 discontinuous patchy m of fine bi at 30° altared chlorite? veins associated with rare fractures.		63.4 frac at 45° Rare fractures, core competent + massive. 63.2 frac chlorite coated at 55°	64.8 frac? at 55° & 2-3 mm 'splashes' of Mo. 64.9 frac? at 55° & rare 'splashes' of Mo. 65.7 frac?? at 55° & tr Mo.
10	3.0	3.0	100%	65-69					66.7 frac?? at 52° & few 1mm 'splashes' of Mo
10	3.0	3.01	100%	70-71					70.3 frac?? at 50° - v.f. specks Mo in + associated & feldspar-tr.
10	3.0	2.94	98.0%	72-73					71.8 frac? at 58° & f. splashes up to 2mm of Mo. 73.7 discontinuous frac at 50° & tr f. Mo 73.8 frac? at 45° & tr Mo 55 f. frac 40.31.

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH CAN 2

LOGGED BY N. P. Green

FROM 60 TO 75 m

DATE 3/3/83

PAGE 6 OF 8

094

560095

DRILL ADVANCE

LITHOLOGY

DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
6.0	3.0	2.96	98.67%			75.2 Very coarse quartz-feldspar crystalline vein at 57° zone: 75.2-75.6 of partial zone differentiation to 6.4 bi granite, fsp-wh + pink		76.8 fracture associated & very weak greisen at 58°	75.6 10 cm greisen zone - altered coarse grain bi granite, zone at 6° around fracture. 76.4 frac? & tr Mo at 55° 77.2 frac? & tr Mo at 54°
9.0	3.0	2.94	98.0%			77.8 2mm pale green chlorite carbonate vein at 15° 78.2 2mm pale gr chld oblvn at 17°			
12.0	3.0	2.88	96.0%			82.4 2mm chld - pale chl? vn at 23°		83.1 frac at 22°	
15.0	3.0	3.08	99.33%			87.1 1mm chl vns at 55°			
18.0	3.0	2.96	98.67%			88.3 1mm wh fsp? vn at 20° 88.6 1mm wh fsp? vn at 15°			88.8 Brass clip marks on core → copper contamination.

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH CRR 2

LOGGED BY N.P. Gwan

FROM 75 TO 90 m

DATE 4/3/83

PAGE 7 OF 8

DRILL ADVANCE

LITHOLOGY

DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION
9.0	0.5	0.54	100%	91		4.0-6.0 cm zone of c.g. bi-granite - 9.0 zone of coarse grain bi to granite, folded quartz - 9.1-9.2 3 m of 10% fine matrix - 9.1-9.2 3 m of 10% fine matrix			
91.5	0.0			92	91.5	End of DDH: <u>CSB 2 at 91.5m</u>			

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH CSB 2

LOGGED BY N.P. Green

FROM 90 TO 91.5m

DATE 4/3/83

PAGE 3 OF 3

960095

030

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	Tg						SAMPLE NUMBER
0																	
1	0	25	235	130	35	265	BLO			BLO							Z2670
2	1 m																
3		10	130	120	10	205	BLO			BLO							Z2671
4	4 m																
5		5	115	110	10	240	BLO			BLO							Z2672
6	6 m																
7		BLO	180	170	10	425	BLO			BLO							Z2673
8	8 m																
9		5	145	150	15	415	BLO			BLO							Z2674
10	10 m																
11		75	220	10	230	260	0.5			10							Z2675
12	11 m																
13		6	145	290	15	270	BLO			BLO	BLO						Z2676
14	13 m																
15		5	95	150	15	195	0.5			BLO							Z2677
16	15 m																

260097

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH GSB 2

ASSAYED BY Analabs

FROM 0 TO 15 m

DATE 18/3/83

PAGE 1 OF 1

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo						SAMPLE NUMBER
15	15 m															
16		BLO	130	290	10	160	BLO			BLO						22678 1
17	17 m															
18		7	105	180	10	145	BLO			BLO						22679
19	19 m															
20		BLO	95	220	10	190	BLO			BLO						22680
21	21 m															
22		BLO	155	350	10	180	BLO			BLO						22681
23	23 m															
24		BLO	155	310	10	200	BLO			BLO						22682
25	25 m															
26		BLO	170	370	BLO	300	BLO			BLO						22683
27	27 m															
28		6	135	310	5	180	BLO			BLO						22684
29	29 m															
30																

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH C5B2

ASSAYED BY Analabs

FROM 15 m TO 30 m

DATE 18/3/83

PAGE 2 OF 7

098

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mg	Ta						SAMPLE NUMBER
30																	
31		4	145	380	10	180	BLD			10							Z 2685 1
32																	
33	32.3	5	5	10	30	105	BLD			20	BLD						Z 2686
34	33.6	4	5	10	BLD	85	BLD			BLD	BLD						Z 2687
35																	
36	35.6	6	5	10	BLD	85	BLD			10	BLD						Z 2688
37																	
38	37.4	40	15	BLD	130	475	1.0			20	BLD						Z 2689
39																	
40	39.3	10	5	BLD	85	155	0.5			10	BLD						Z 2690
41	40.3	7	95	210	10	200	BLD			BLD							Z 2691
42																	
43	42.3	BLD	100	230	10	165	BLD			BLD							Z 2692
44																	
45	44.3	1700	115	BLD	730	1.06%	16.5			BLD	BLD						Z 2693

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH CSB.2

ASSAYED BY

Analabs

FROM

30m

TO

45m

DATE 18/3/83

PAGE 3

OF 7

260092

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	Ta						SAMPLE NUMBER
45	45.3	20	5	10	30	130	0.5			BLD	BLD						Z 2694
46	46.2																
47		6300	150	15	340	3200	4.5			BLD	BLD						Z 2695
48	47.9																
49		100	30	95	165	1000	3.0			10	BLD						Z 2696
50	49.6																
51		8	90	200	10	135	BLD			BLD							Z 2697
52	51.6																
53		5	100	250	5	135	BLD			BLD							Z 2698
54	53.6																
55		30	5	BLD	10	95	0.5			BLD	BLD						Z 2699
56	55																
57		1750	165	BLD	185	9350	4.5			BLD	BLD						Z 2700
58	56.6																
59		10	5	10	75	165	0.5			10	BLD						Z 2701
60	58																
		BLD	130	290	5	155	BLD			BLD							Z 2702
	59.7																
		40	5	30	20	175	0.5			BLD	BLD						Z 2703

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH GSB 2

ASSAYED BY Analabs

FROM 45m TO 60m

DATE 18/3/83

PAGE 4 OF 7

100

200101

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	Ta						SAMPLE NUMBER
60	60.2	6	85	150	5	115	BLO			BLO							Z 2704
61	61.0	15	BLO	30	55	190	0.5			BLO	BLO						Z 2705
62	61.5																
63		BLO	70	150	5	100	BLO			BLO							Z 2706
64	63.5																
65		3	60	140	BLO	85	BLO			BLO							Z 2707
66	65.5																
67		BLO	90	180	BLO	120	BLO			BLO							Z 2708
68	67.5																
69		3	80	206	10	110	BLO			BLO							Z 2709
70	69.5																
71		7	65	120	30	90	BLO			BLO							Z 2710
72	71.5																
73		3	85	190	5	115	BLO			BLO							Z 2711
74	73.5																
75		7	90	190	BLO	130	BLO			BLO							Z 2712
	75m																

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH CSB 2

ASSAYED BY Analabs

FROM 60 TO 75m

DATE 18/3/85

PAGE 5 OF 1

	Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Mo	Ta						SAMPLE NUMBER
5	75.0	15	BLO	BLO	5	50	BLO			BLO	BLO						Z 2713
6	76m																
7		BLO	55	120	10	85	0.5			BLO							Z 2714
78	78m																
9		BLO	70	120	5	100	BLO			BLO							Z 2715
80	80m																
1		BLO	50	110	5	85	BLO			BLO							Z 2716
2	82m																
3		BLO	85	210	5	110	0.5			BLO							Z 2717
4	84m																
5		3	60	110	10	90	BLO			BLO							Z 2718
6	86m																
7		BLO	75	140	5	100	BLO			BLO							Z 2719
8	88m																
9		BLO	75	150	10	110	BLO			BLO							Z 2720
0	90m																

COMSTAFF PROPRIETARY LIMITED

ASSAY RESULT SHEET FOR

DDH C582

ASSAYED BY Analabs

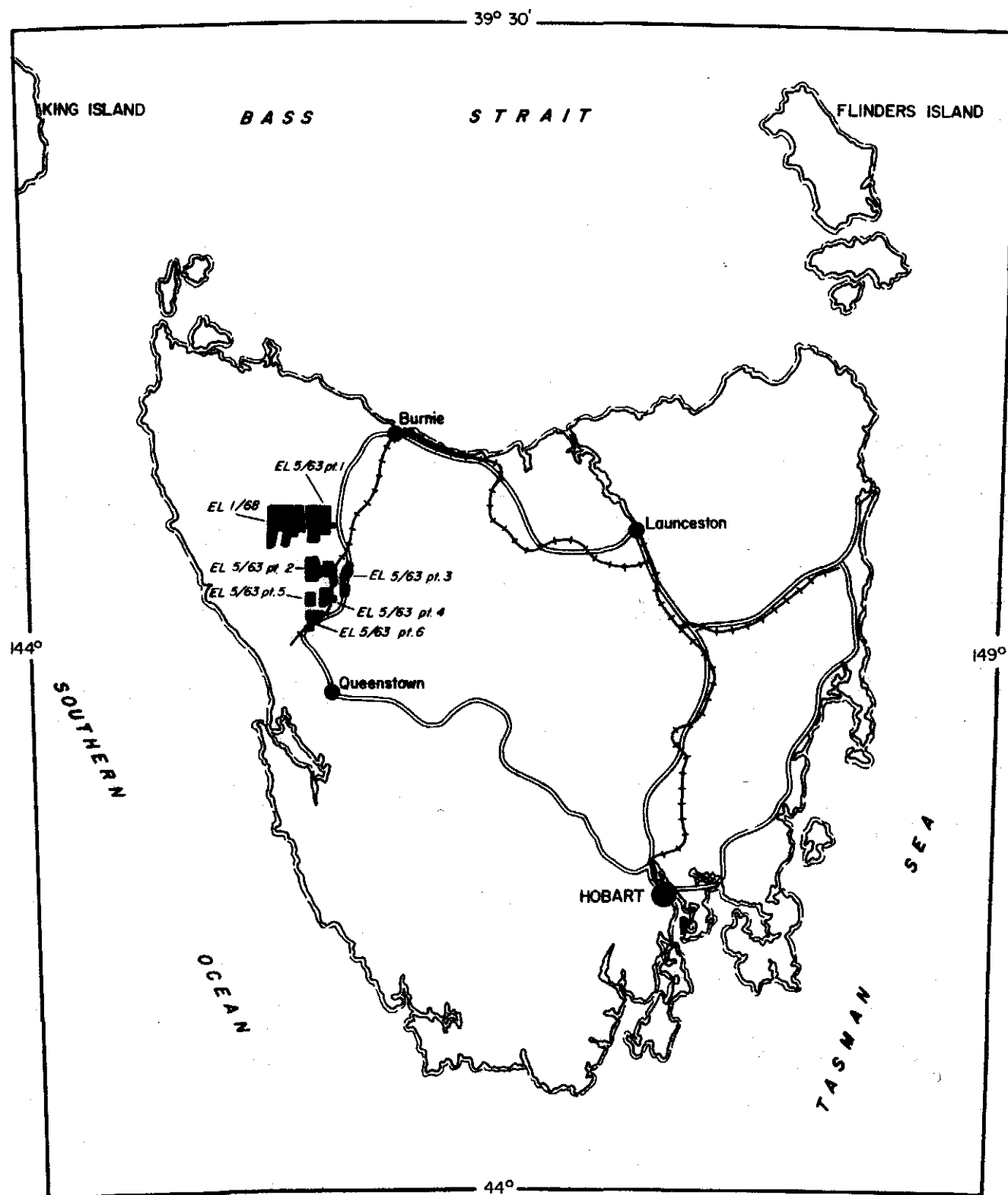
FROM 75m TO 90m

DATE 18/3/83

PAGE 6 OF 1

[illegible]

PAGE 7 OF 7



0 50 100 150 200 250 300 KM
1 : 2 500 000

- Major roads
- Major railways
- Major towns
- Comstaff lease areas

5 cm

COMSTAFF PROPRIETARY LIMITED

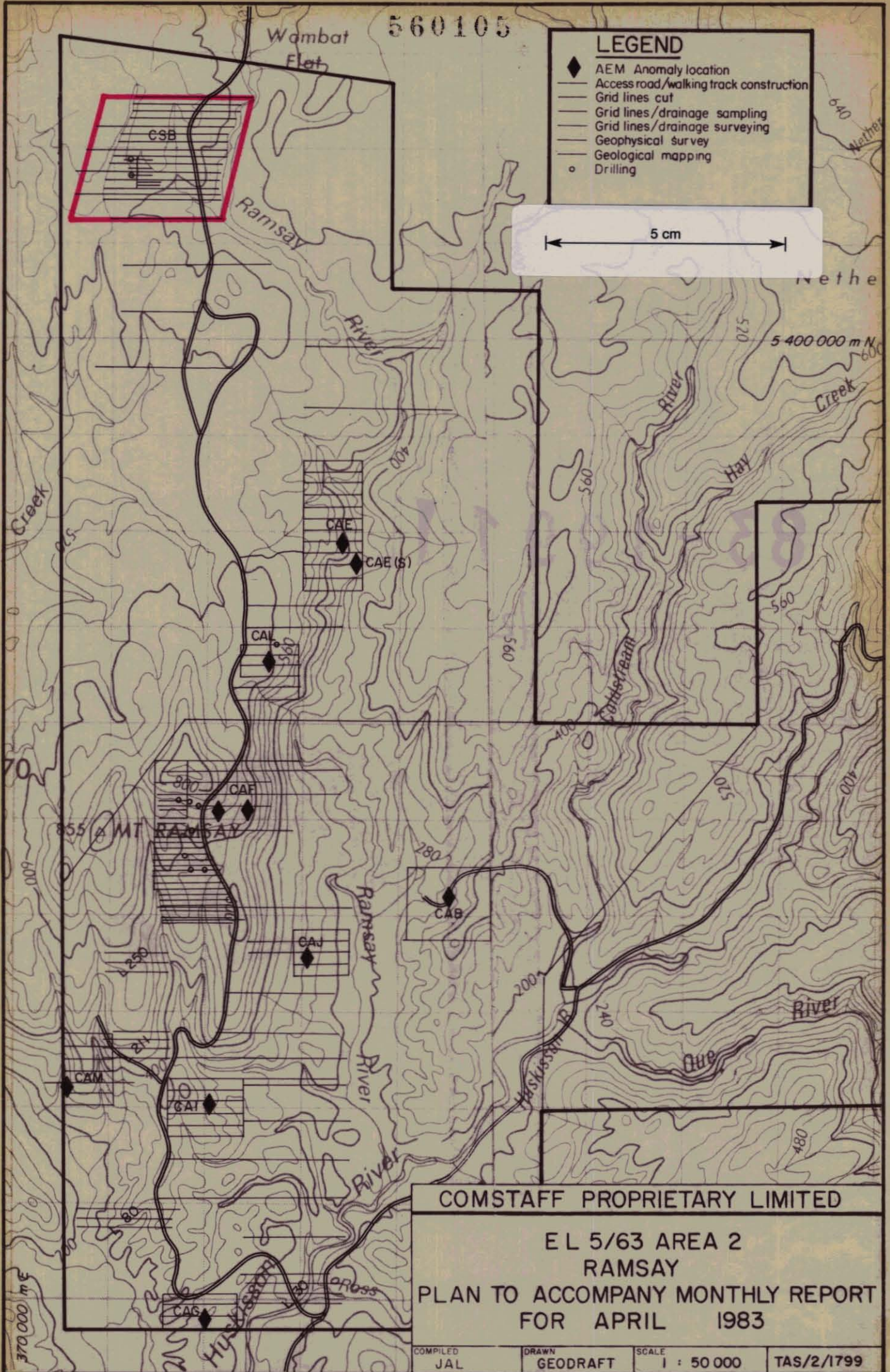
**LOCATION OF COMSTAFF LEASES
IN TASMANIA**

560105

LEGEND

- ◆ AEM Anomaly location
- Access road/walking track construction
- Grid lines cut
- Grid lines/drainage sampling
- Grid lines/drainage surveying
- Geophysical survey
- Geological mapping
- Drilling

5 cm



COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA 2
RAMSAY

PLAN TO ACCOMPANY MONTHLY REPORT
FOR APRIL 1983

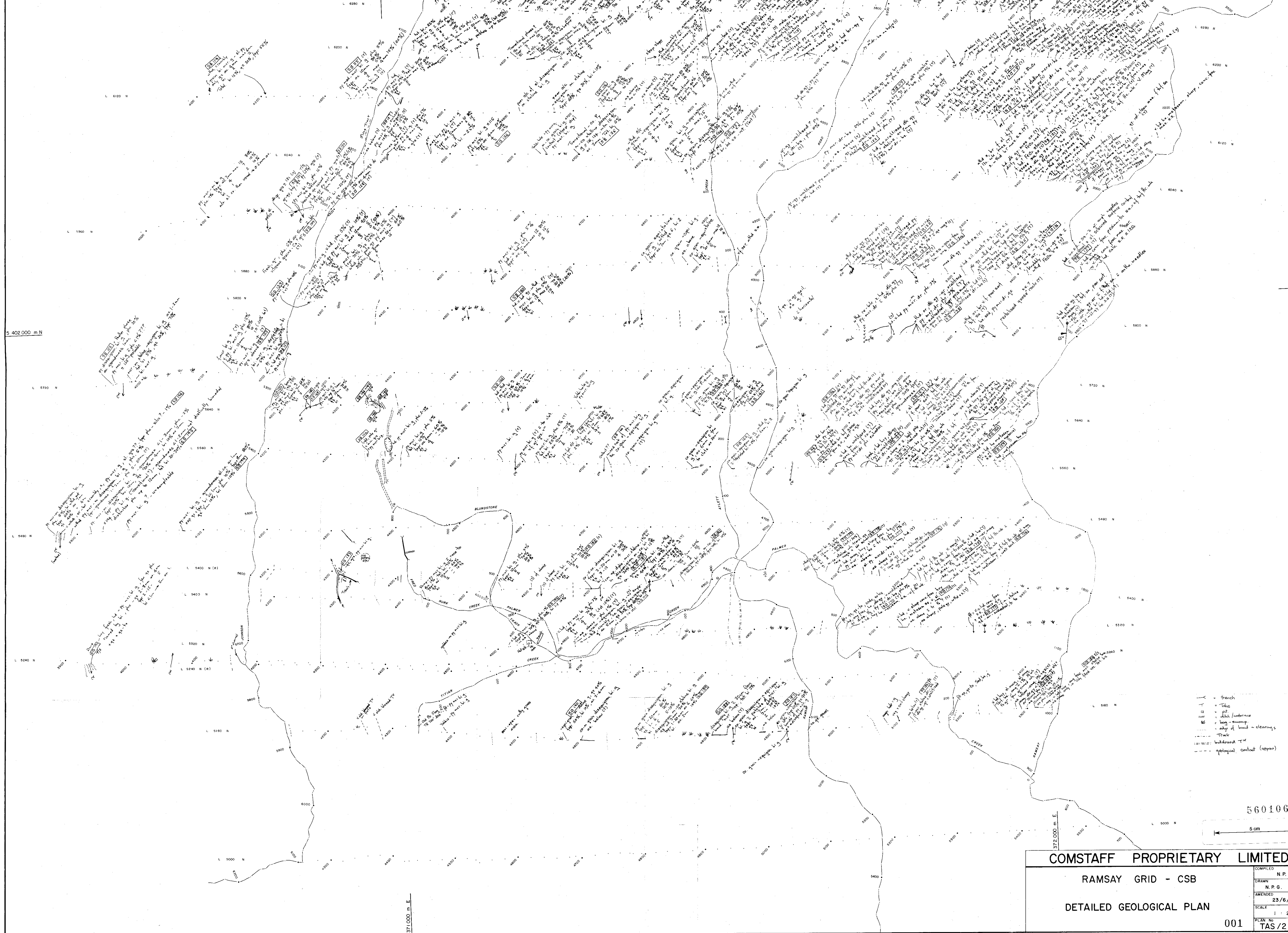
COMPILED
JAL

DRAWN
GEODRAFT

SCALE
1 : 50 000

TAS/2/1799

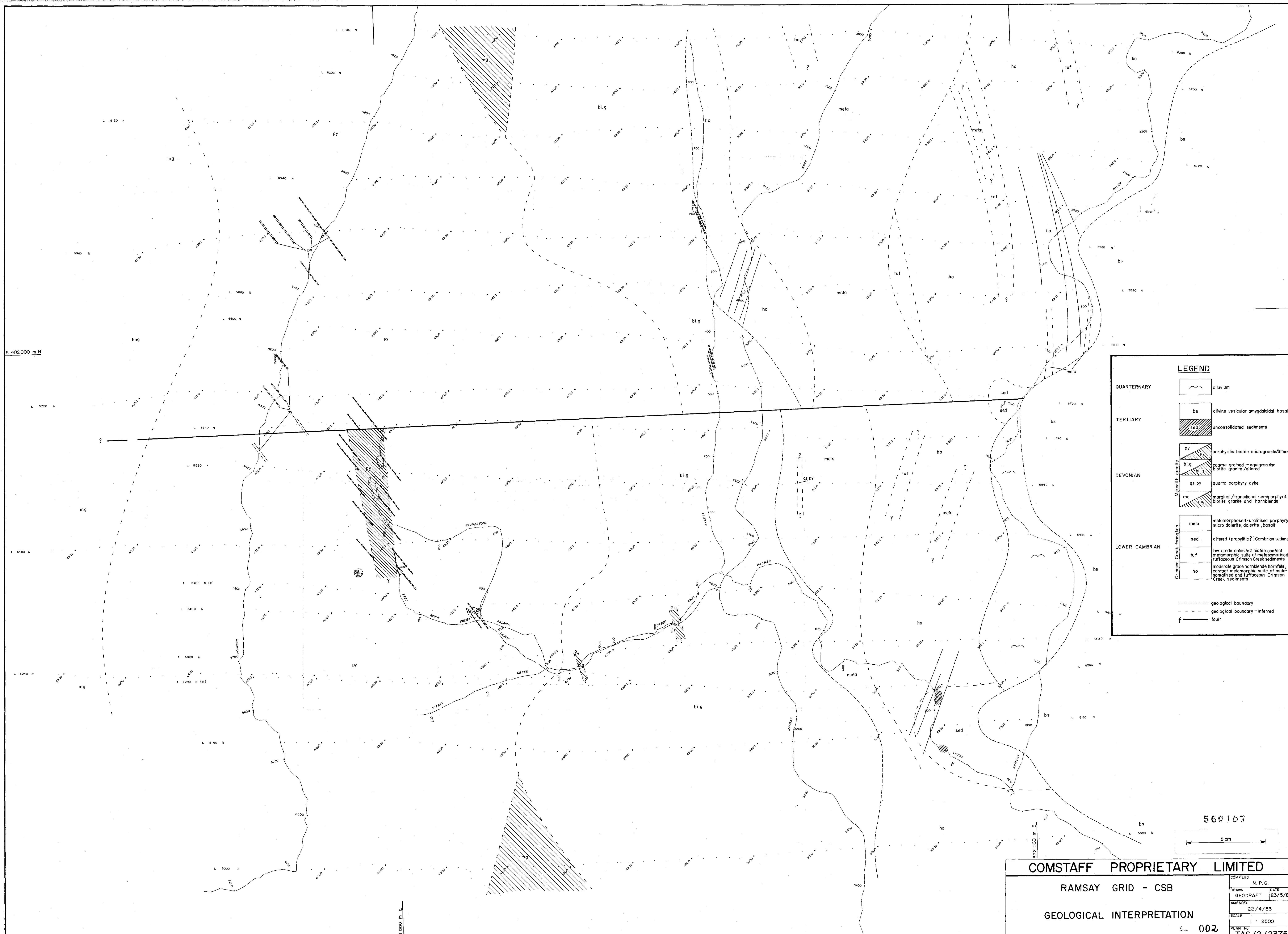
5 402 000 m N



560106

5 cm

COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB	
DETAILED GEOLOGICAL PLAN	
COMPILED N.P.G.	DATE 21/1/81
DRAWN N.P.G.	23/6/82
AMENDED	SCALE 1 : 2500
PLAN NO. TAS/2/2366	001



LEGEND

QUATERNARY	alluvium
TERTIARY	bs olivine vesicular amygdaloidal basalt
	unconsolidated sediments
DEVONIAN	py porphyritic biotite microgranite/alterd
	bi.g coarse grained ~equigranular biotite granite/alterd
	qz.py quartz porphyry dyke
	mg marginal/transitional semiporphyritic biotite granite and hornblende
LOWER CAMBRIAN	meta metamorphosed-uraltised porphyry, micro dolerite, dolerite, basalt
	sed alterd (propylitic?) Cambrian sediments
	tuf low grade chlorite biotite contact metamorphic suite of metasomatised tuffaceous Crimon Creek sediments
	ho moderate grade hornblende hornfels, contact metamorphic suite of meta-somatised and tuffaceous Crimon Creek sediments

----- geological boundary
- - - - - geological boundary - inferred
f - - - - - fault

560107

5 cm

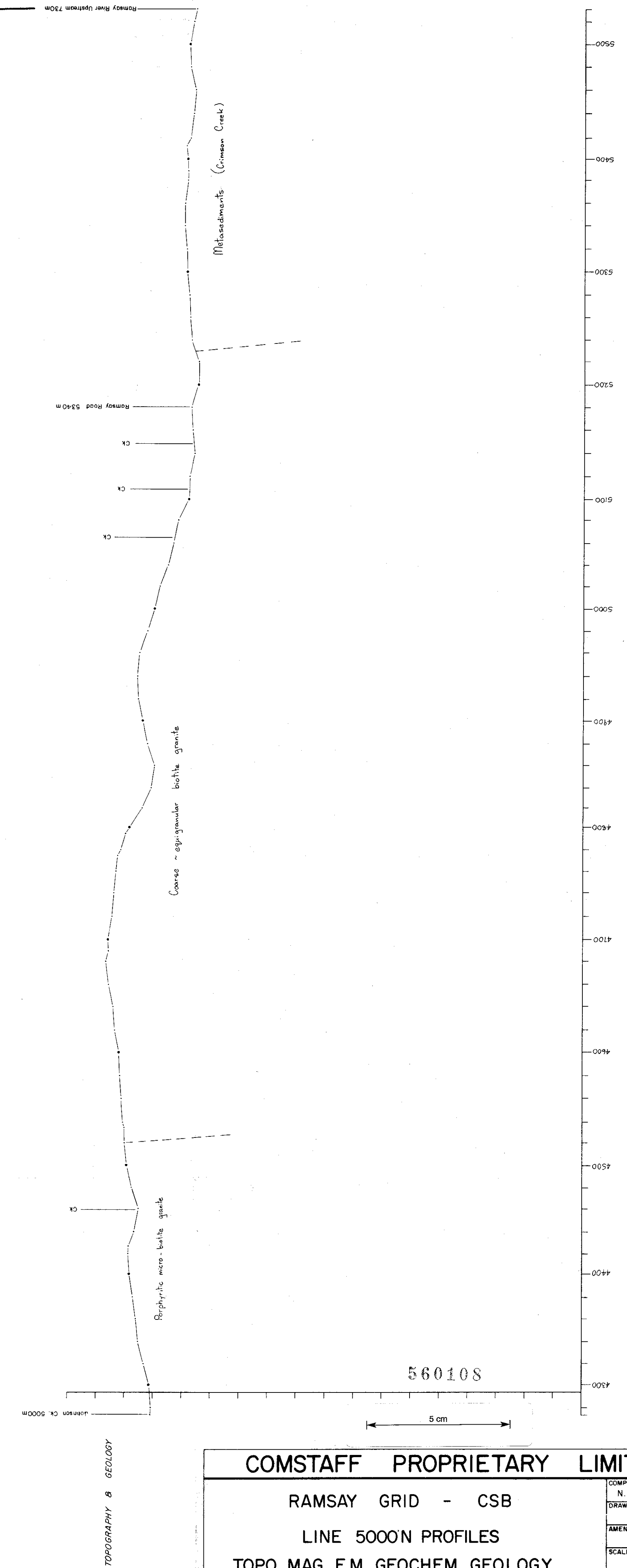
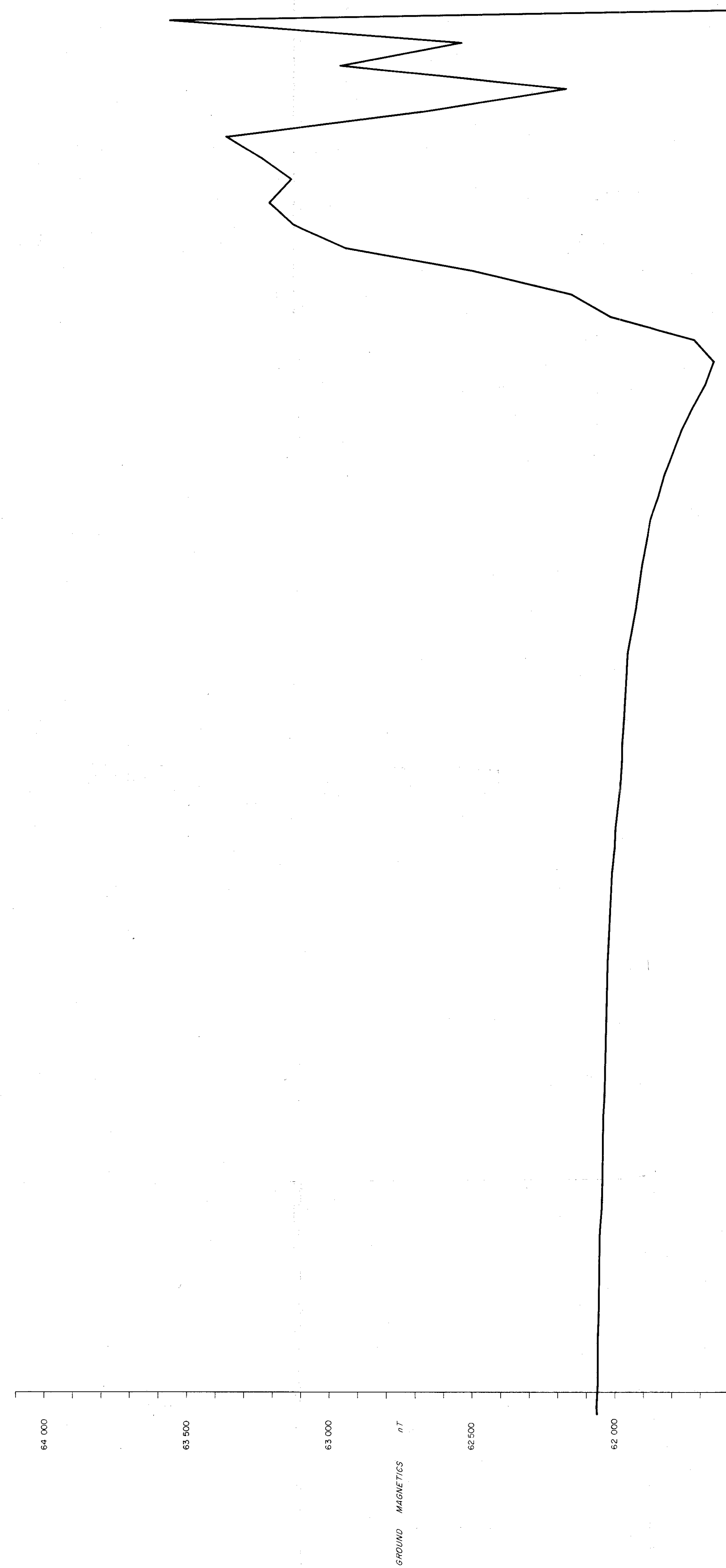
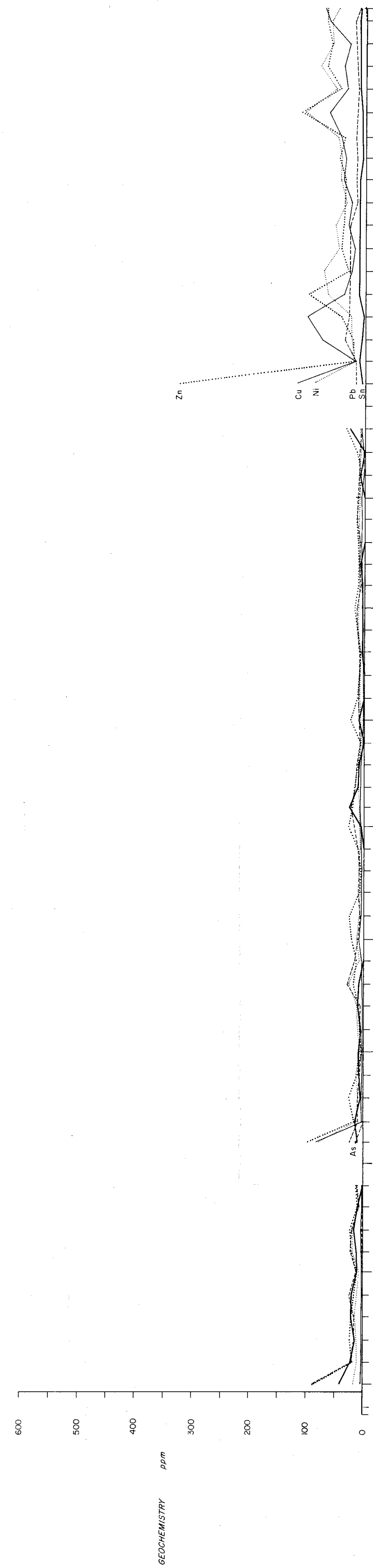
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB

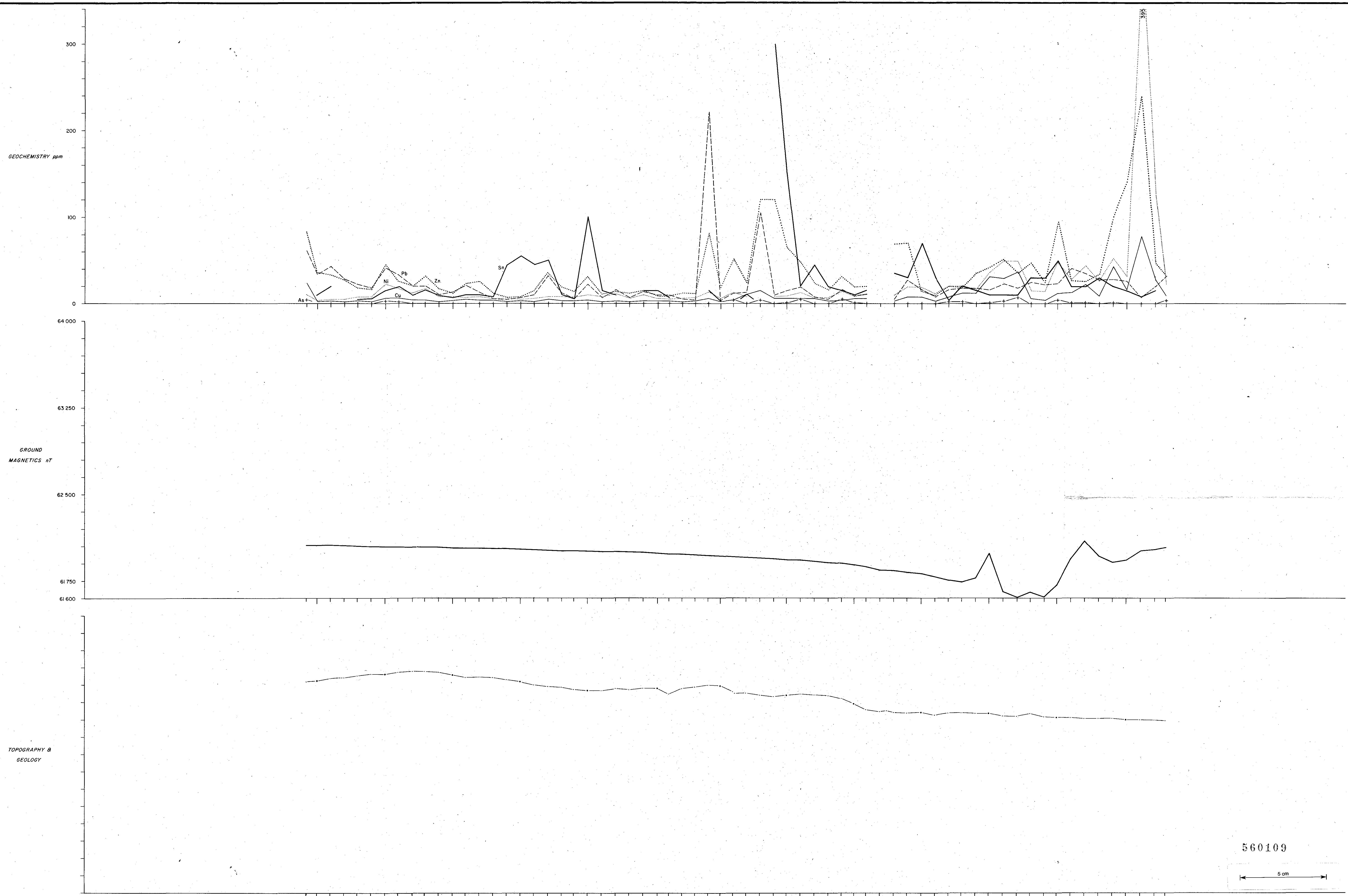
GEOLOGICAL INTERPRETATION

COMPILED	N. P. G.
DRAWN	GEODRAFT
DATE	23/5/81
AMENDED	22/4/83
SCALE	1 : 2500
PLAN No	TAS/2/2375

002



COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB	
LINE 5000N PROFILES	
TOPO, MAG, E.M., GEOCHEM, GEOLOGY	
003	
COMPILED N.P.G. & GEODRAFT	DATE 19/5/81
DRAWN	AMENDED
SCALE 1 : 2500	PLAN NO TAS/2/2584



COMSTAFF PROPRIETARY LIMITED		COMSTAFF PROPRIETARY LIMITED	
LEASE No.	EL 5/63	COMPILED	N. P. GREEN
AREA	2	DRAWN	GEODRAFT
AMENDMENTS	8	DATE	MAY 1983
1 25/3/83	9	SCALE	1 : 2500
2	10	REF No.	TAS/2/2585
3	11		
4	12		
5	13		
6	14		
7			

RAMSAY GRID - CSB

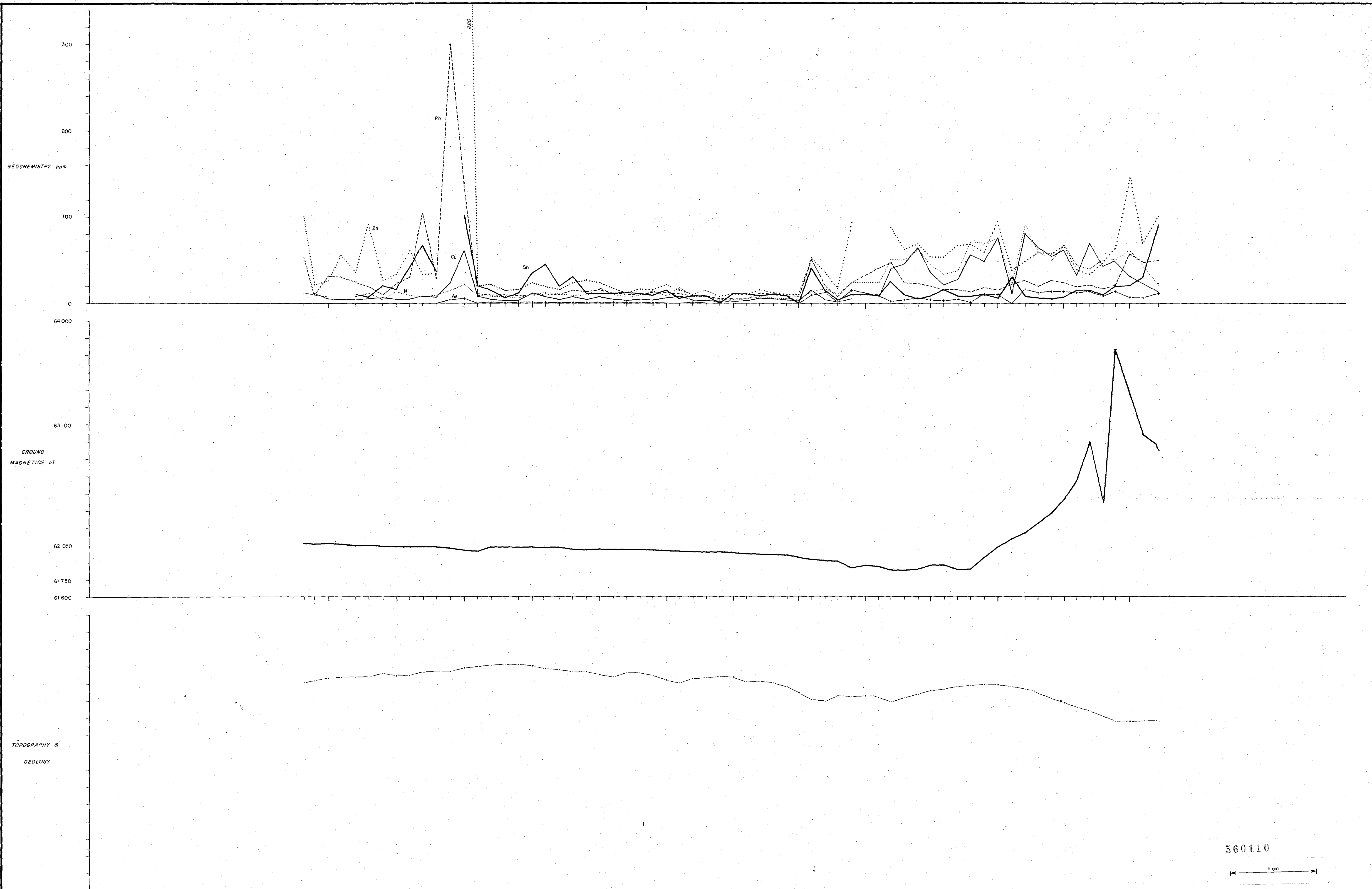
COMPOSITE SECTION OF LINE 5240 N

TOPO, MAG, GEOCHEMISTRY, GEOLOGY

004

83-1991

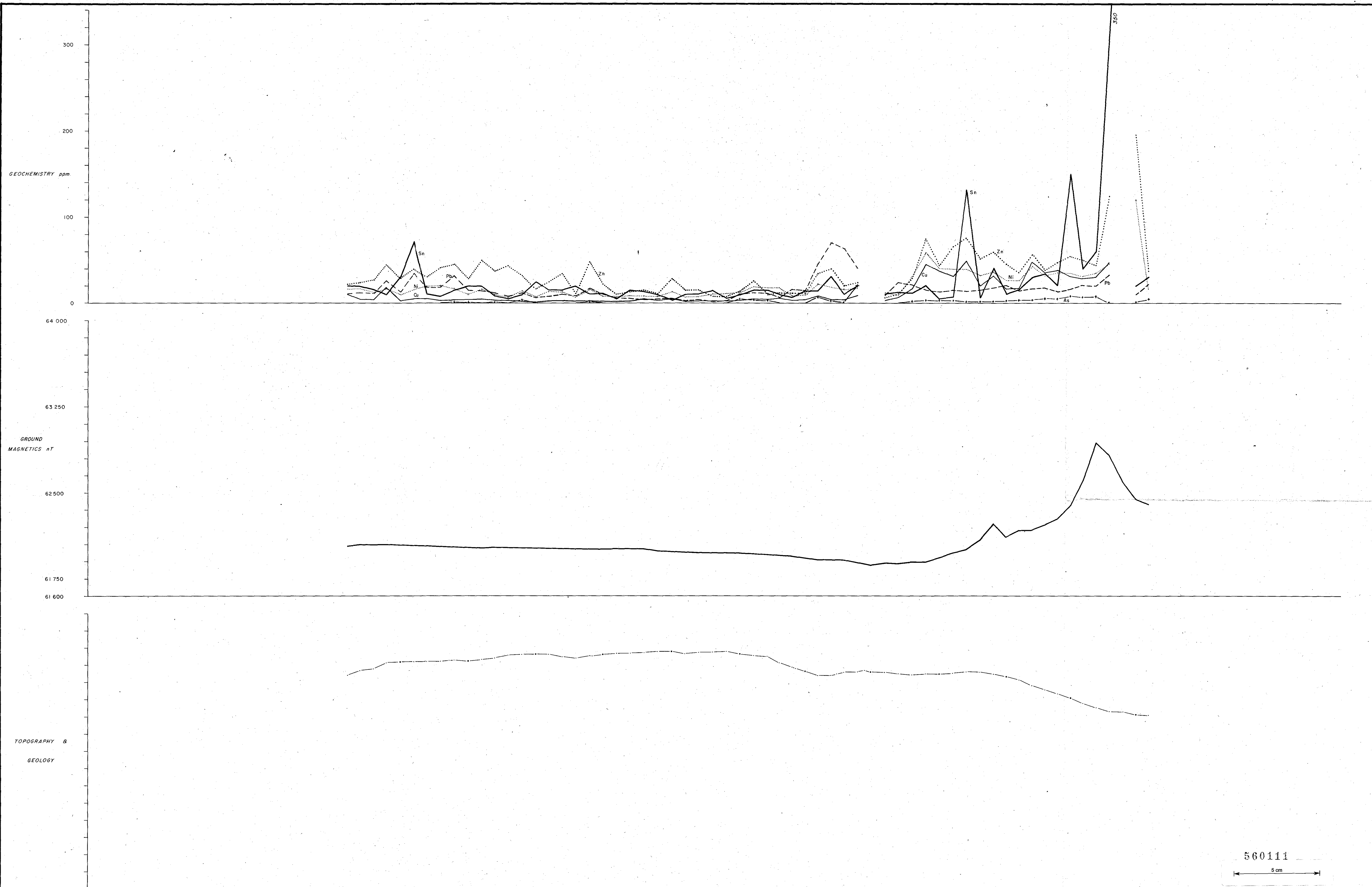
1/2



COMSTAFF PROPRIETARY LIMITED			
LEAD No.	EL 5/63	DRAWN	N. P. GREEN
AREA	2	DATE	MAY 1983
AMENDMENTS	8	SCALE	1 : 2500
1	25/3/83	RET No.	TAS/2/2586
2			
3			
4			
5			
6			
7			

RAMSAY GRID - CSB
COMPOSITE SECTION OF LINE 5480 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

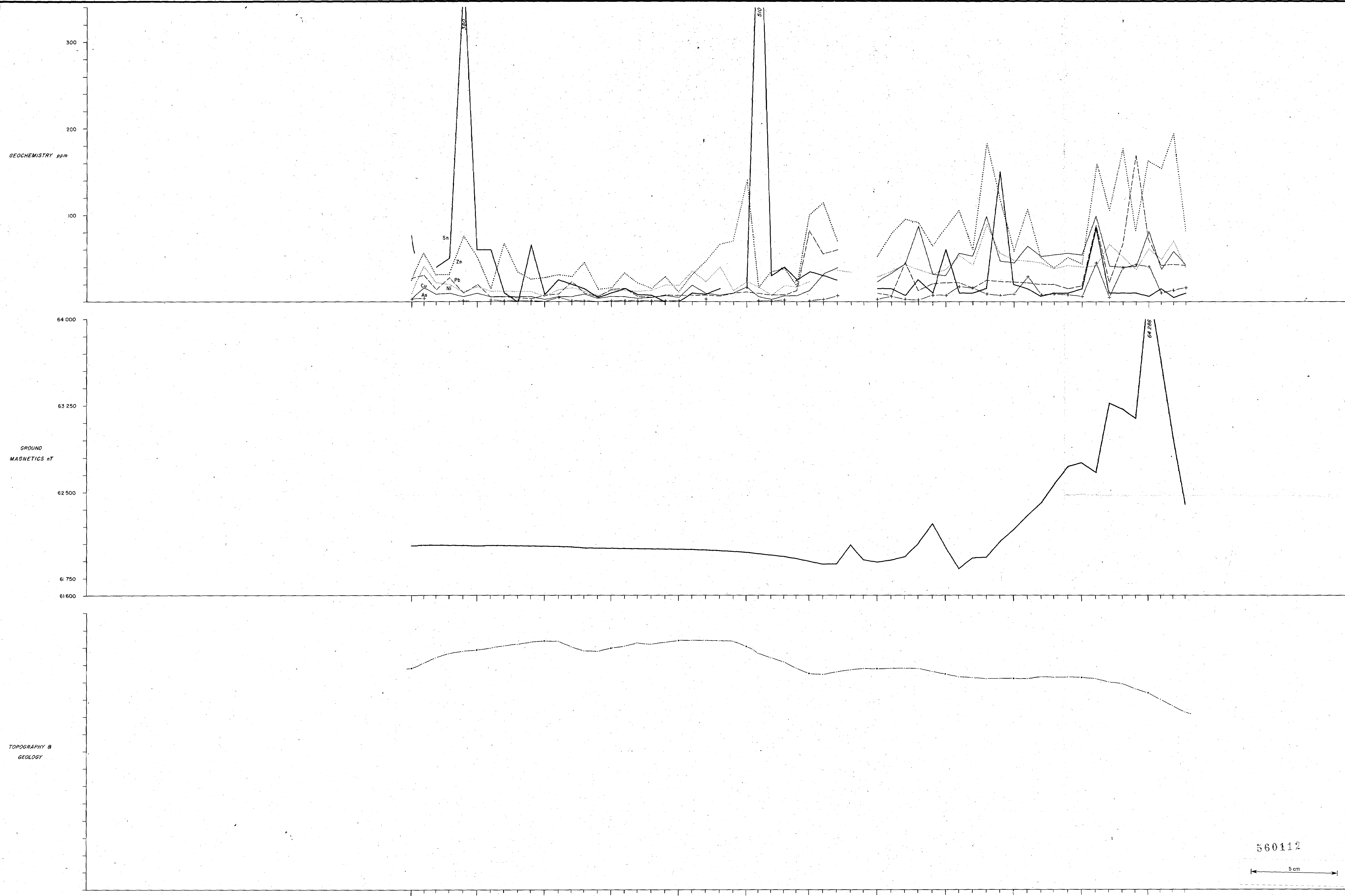
83-1991 1/2 nns



COMSTAFF PROPRIETARY LIMITED			
LEASE NO.	EL 5/63	COMPILED	N. P. GREEN
AREA	2	DRAWN	GEOGRAPH
AMENDMENTS		DATE	MAY 1983
1	25/3/83	SCALE	1 : 2500
2		REF. NO.	TAS/2/2587
3			
4			
5			
6			
7			

RAMSAY GRID - CSB
COMPOSITE SECTION OF LINE 5720 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

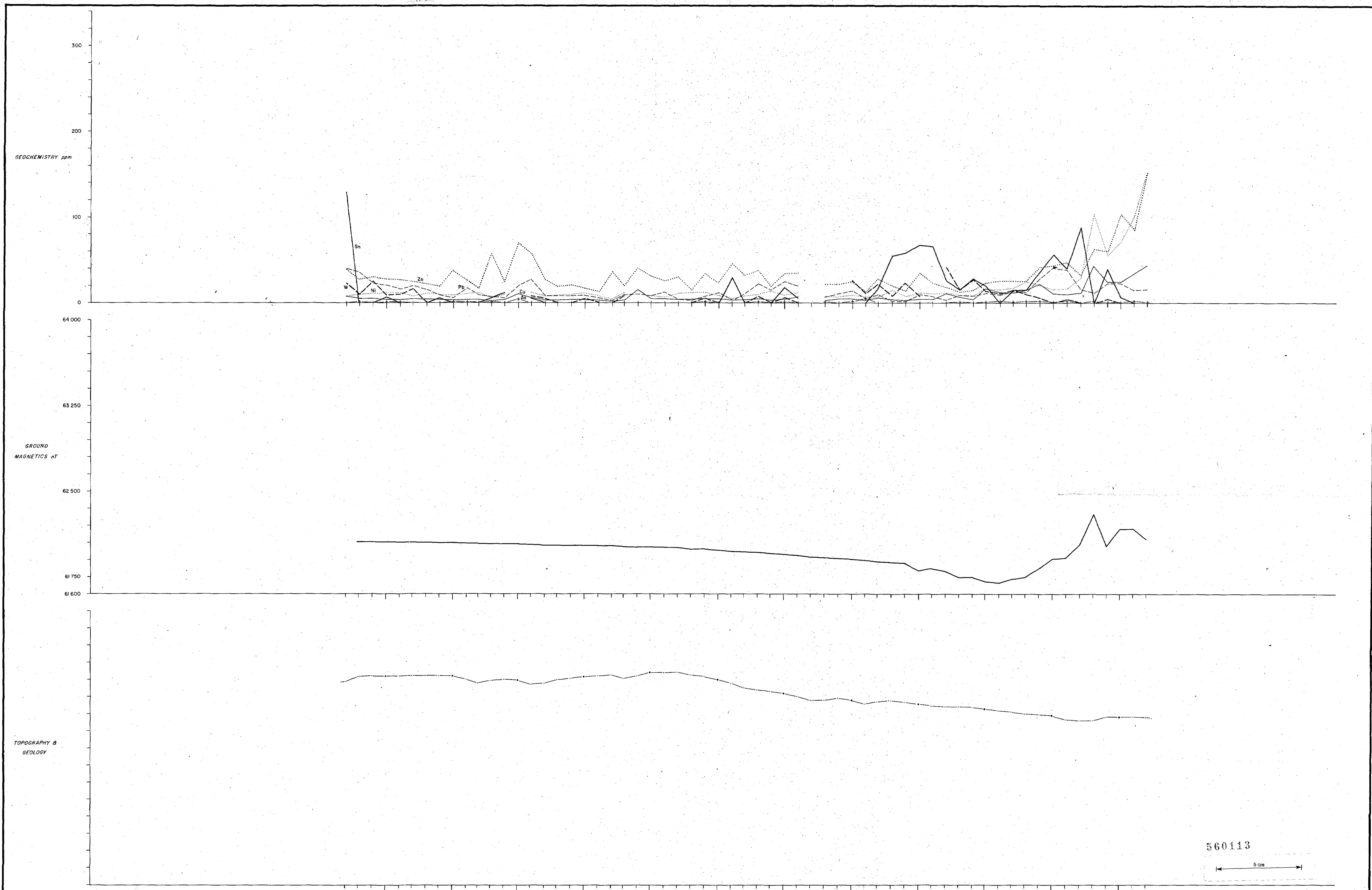
83-1991-1/2 C 006



COMSTAFF PROPRIETARY LIMITED	
LEASE No. EL 5/63	COMPILED N. P. GREEN
AREA 2	DRAWN GEODRAFT
AMENDMENTS 1 25/3/83 8 2 9 3 10 4 11 5 12 6 13 7 14	DATE MAY 1983
	SCALE 1 : 2500
	REF No. TAS/2/2588

RAMSAY GRID - CSB
COMPOSITE SECTION OF LINE 5960 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

83-1991 12 007

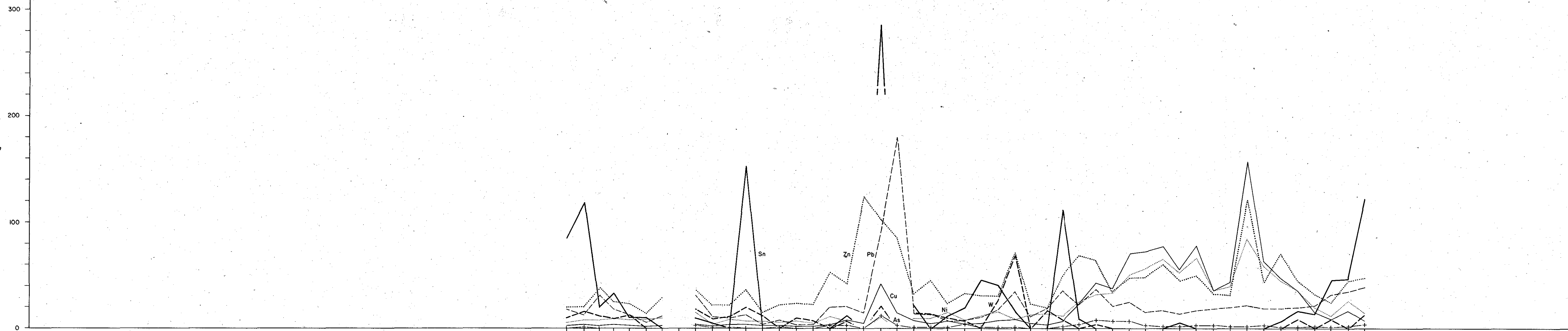


COMSTAFF PROPRIETARY LIMITED			
LEASE NO.	EL 5/63	COMPILED	N. P. GREEN
AREA	2	DRAWN	GEODRAFT
AMENDMENTS	8	DATE	MAY 1983
1	9	SCALE	1 : 2500
2	10	REF. NO.	TAS/2/3223
3	11		
4	12		
5	13		
6	14		
7			

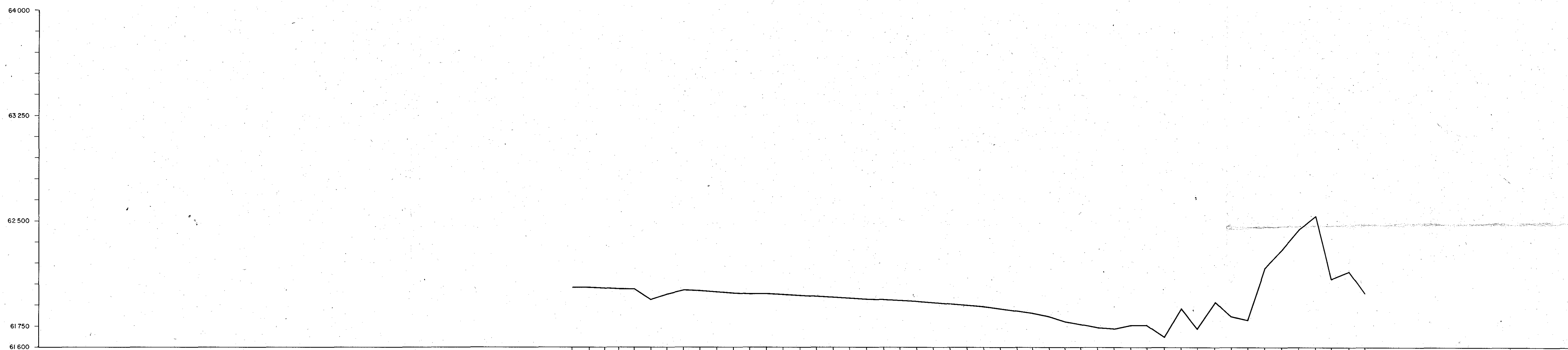
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COMPOSITE SECTION OF LINE 5160 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

83-1991 12 008

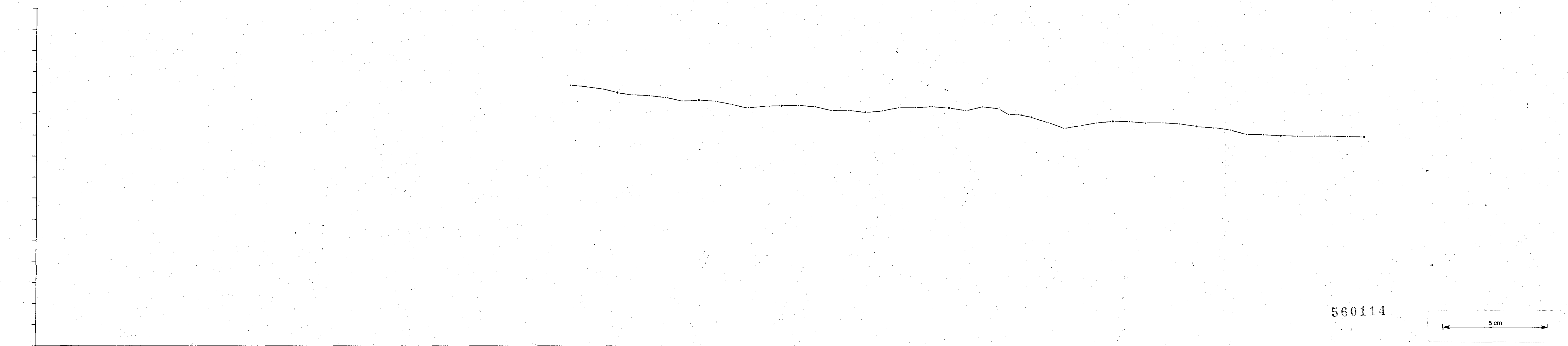
GEOCHEMISTRY ppm



GROUND
MAGNETICS nT



TOPOGRAPHY &
GEOLOGY

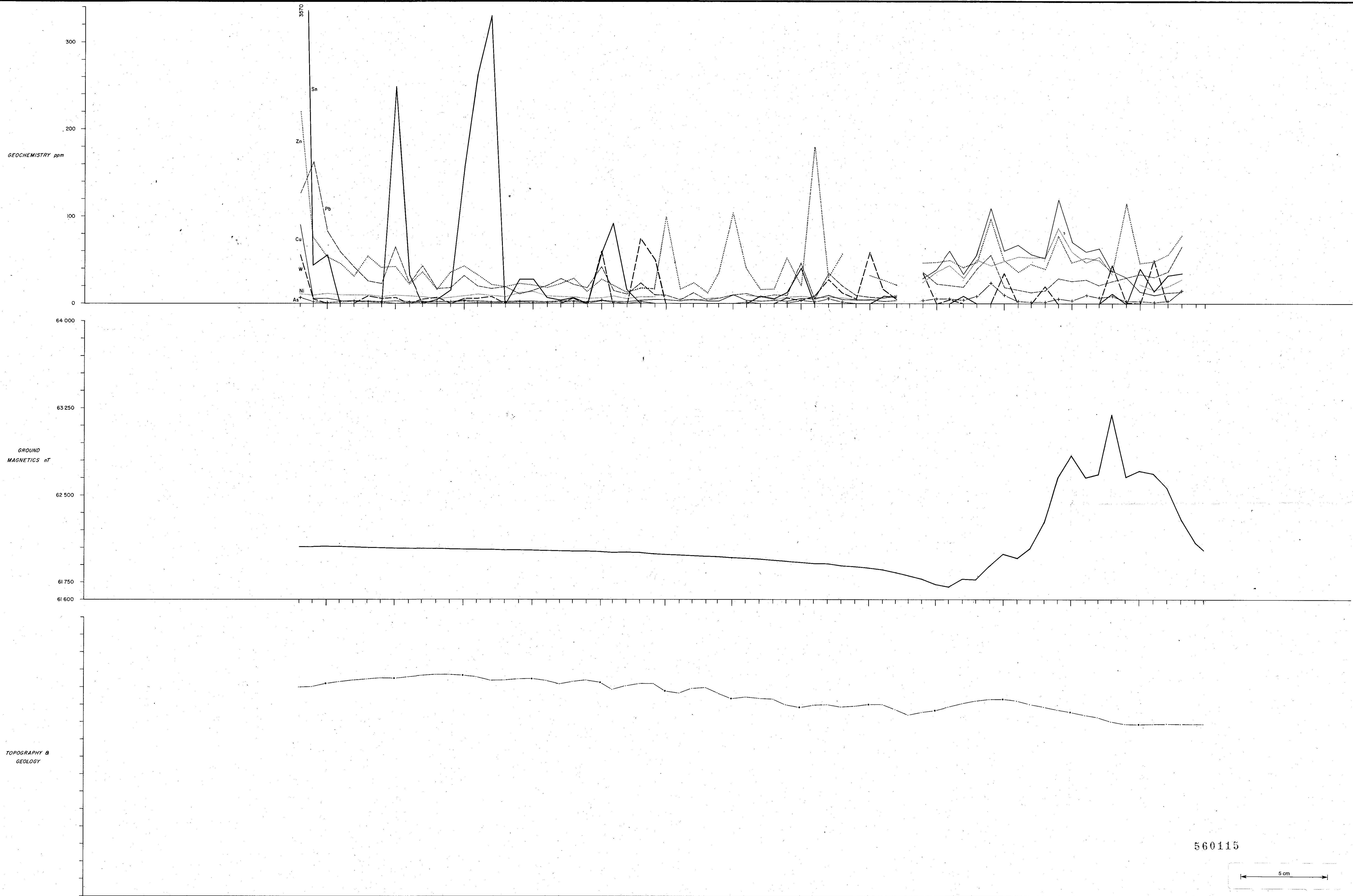


560114

5 cm

COMSTAFF PROPRIETARY LIMITED		
PROJECT No. EL 5/63	RAMSAY GRID - CSB COMPOSITE SECTION OF LINE 5320 N TOPO, MAG, GEOCHEMISTRY, GEOLOGY	COMPILED N. P. GREEN
AREA 2		DRAWN GEODRAFT
AMENDMENTS 1. 8 2. 9 3. 10 4. 11 5. 12 6. 13 7. 14	DATE MAY 1983	SCALE 1 : 2500
		REF No TAS/2/3224

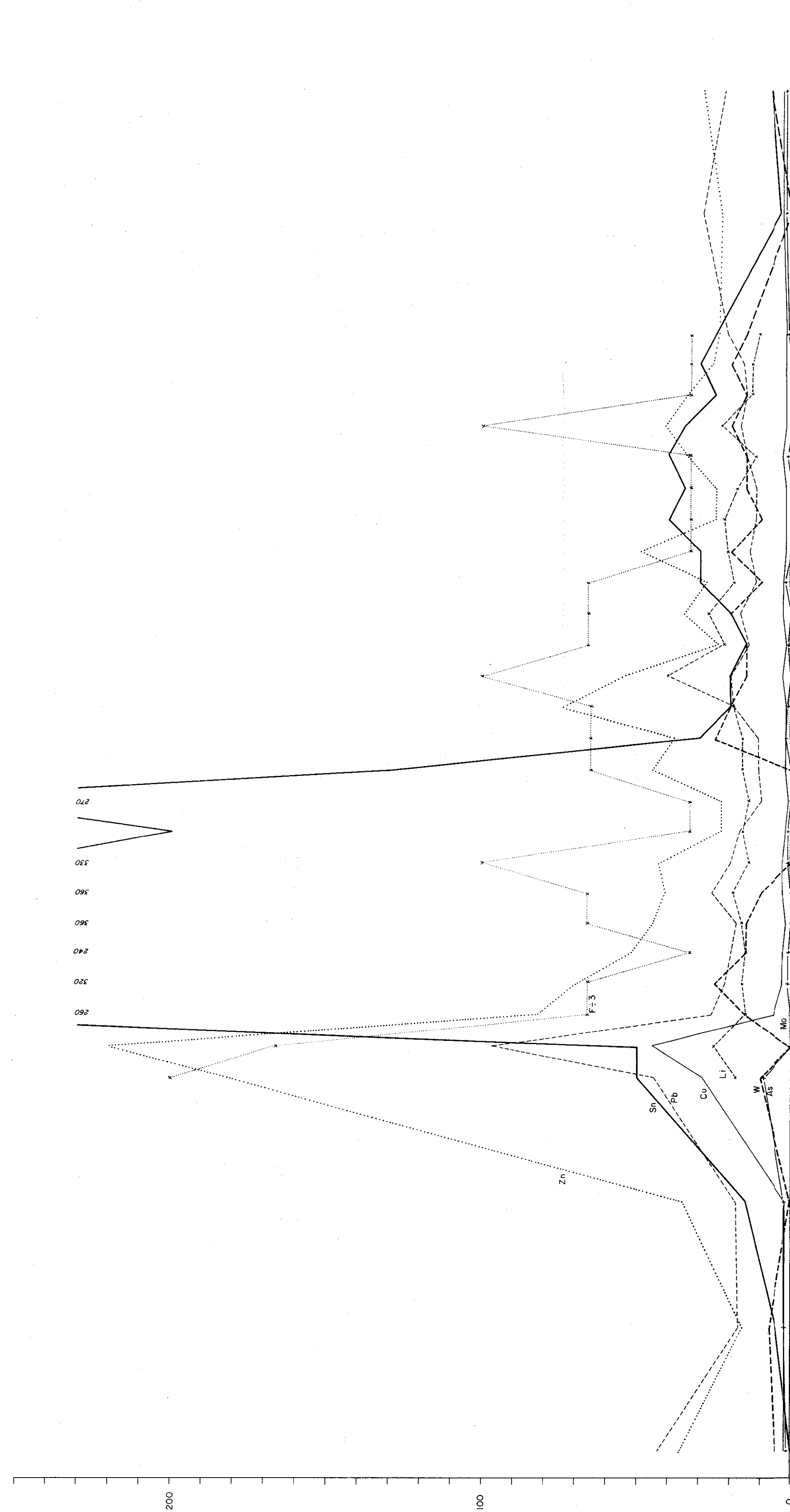
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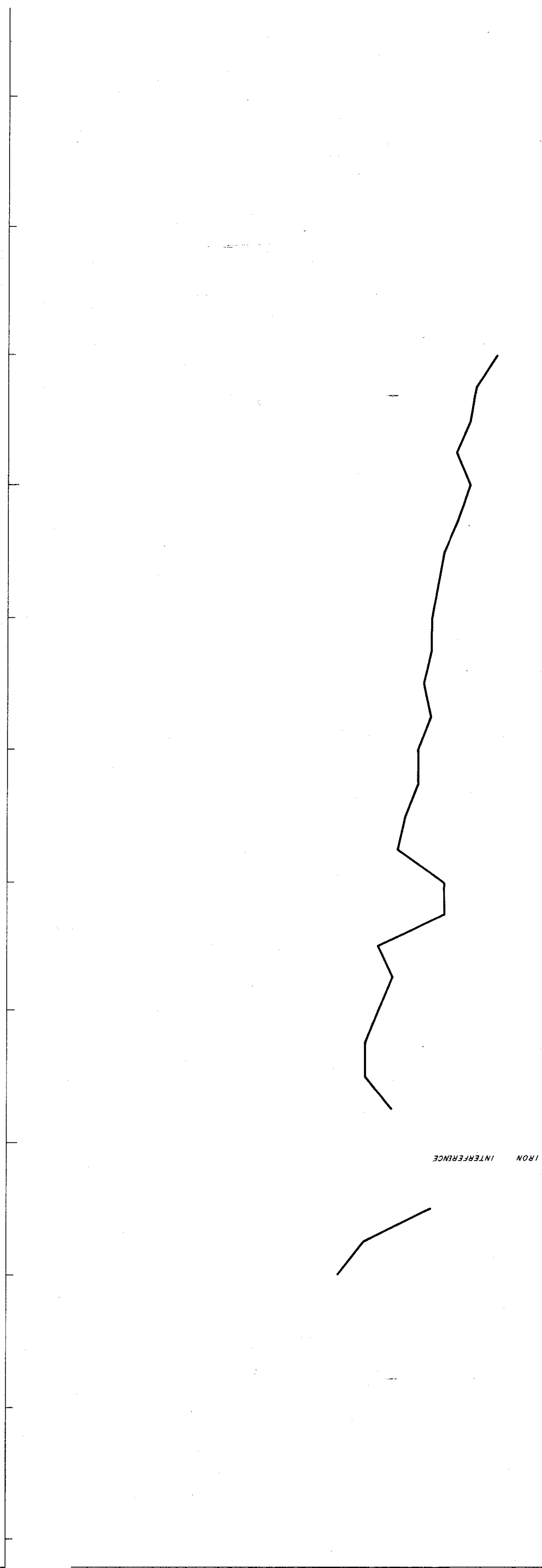
COMSTAFF PROPRIETARY LIMITED		
LEASE No. EL 5/63	COMPILED N. P. GREEN	
AREA 2	DRAWN GEODRAFT	
AMENDMENTS 1 8 2 9 3 10 4 11 5 12 6 13 7 14	DATE MAY 1983	
	SCALE 1 : 2500	
	REF No. TAS/2/3225	

RAMSAY GRID - CSB
COMPOSITE SECTION OF LINE 5400 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

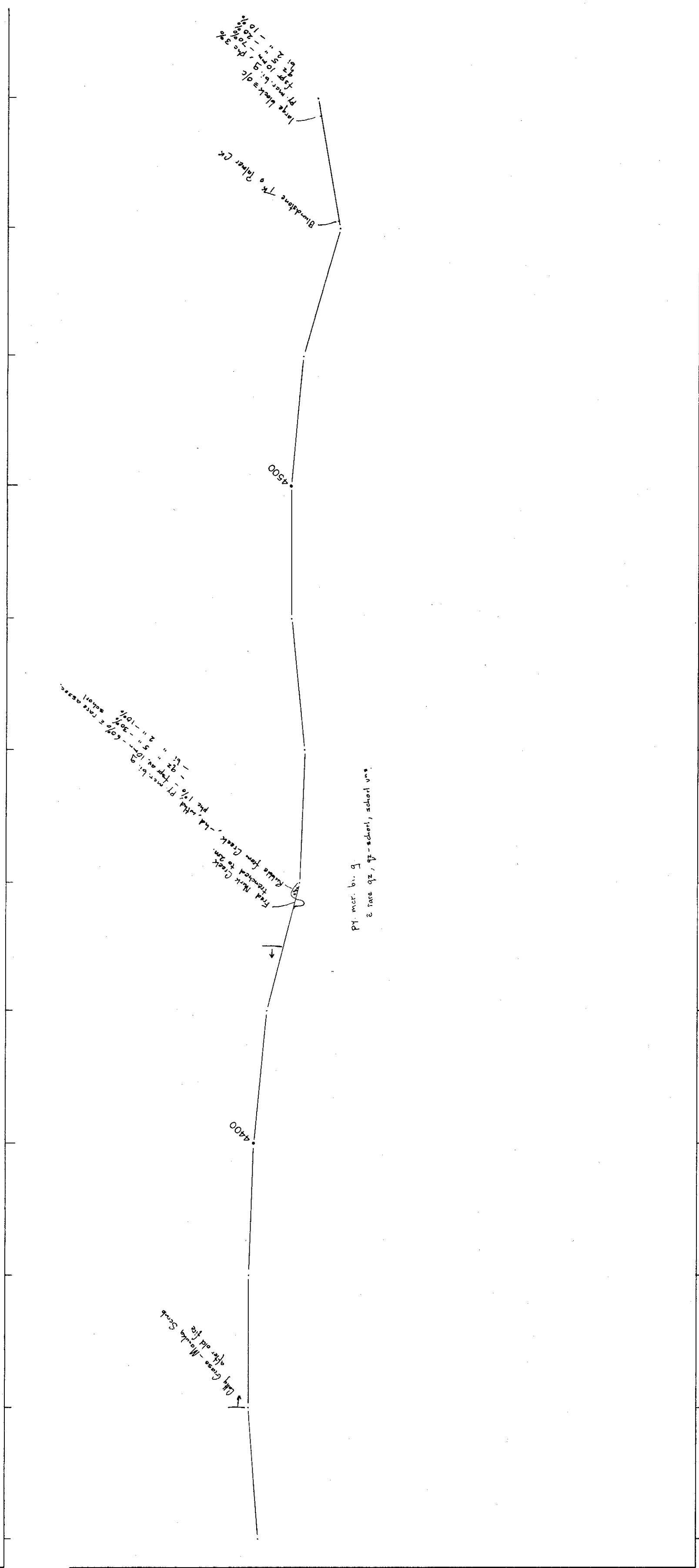
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GEOCHEMISTRY



MAGNETICS



TOPOGRAPHY

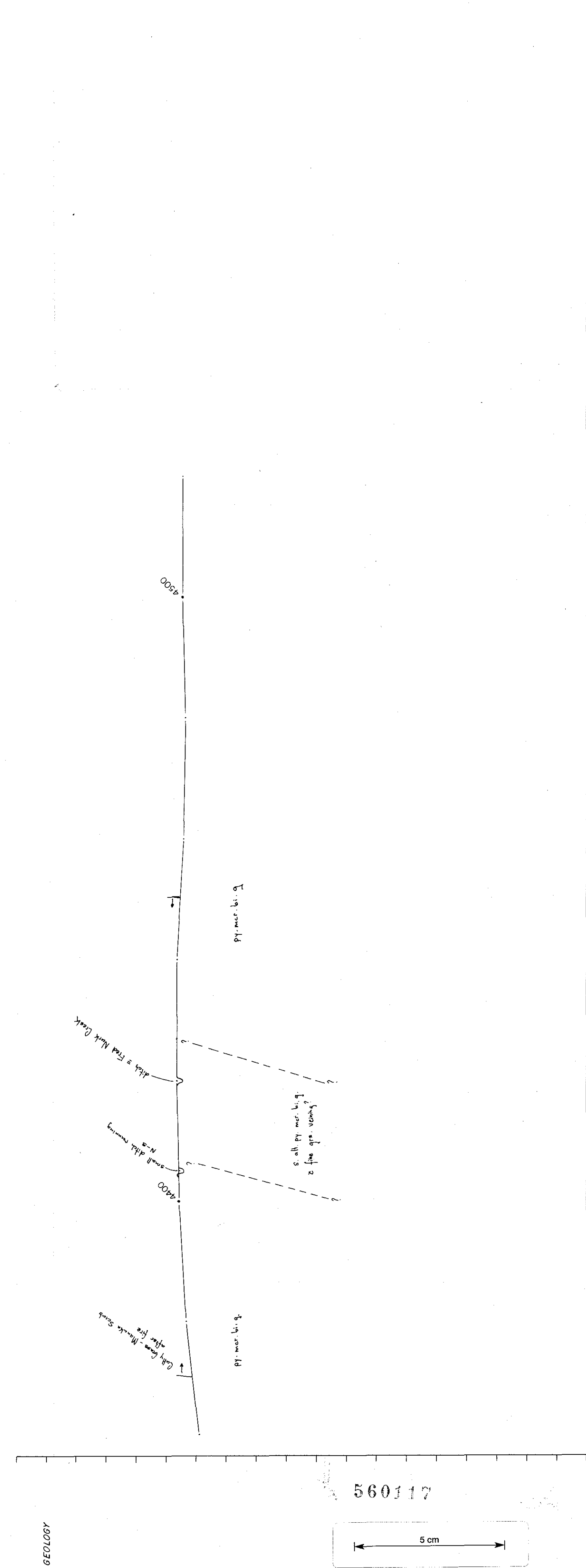
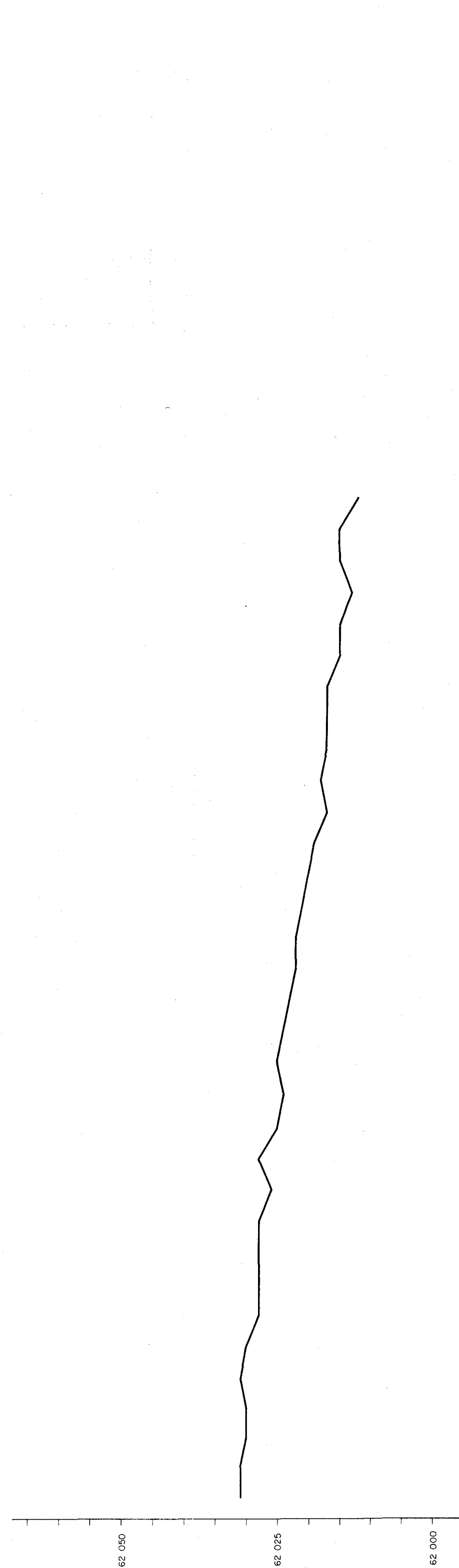
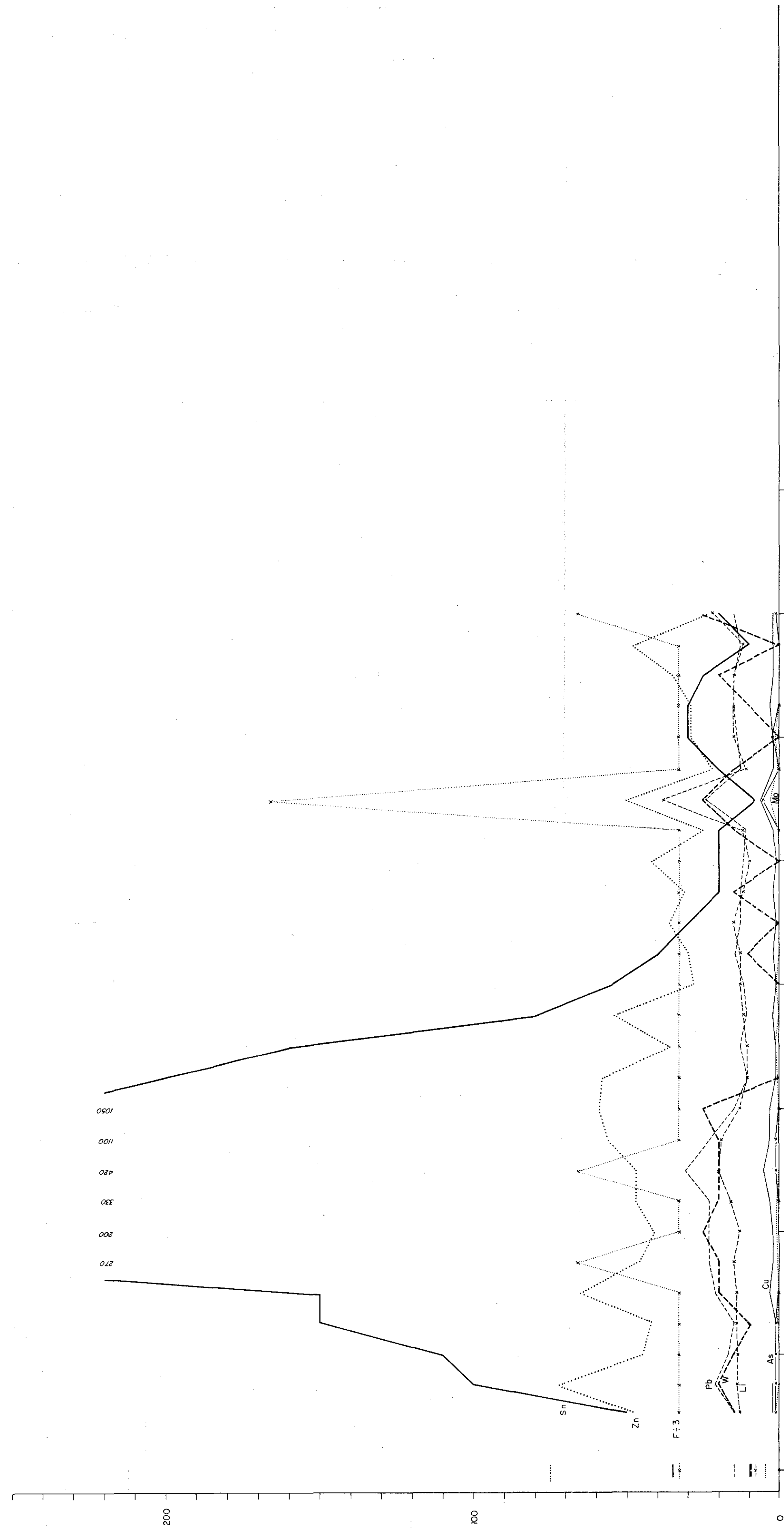
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB (MINE AREA)
COMPOSITE SECTION OF LINE 5400 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

COMPILED	GEOGRAPHY
DRAWN	DATE
GEOGRAPHY	7/1/83
AMENDED	
SCALE	1 : 500
	TAS/2/3175

560116

5 cm

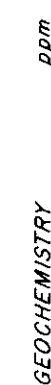


TOPOGRAPHY & GEOLOGY

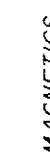
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB (MINE AREA)
COMPOSITE SECTION OF LINE 5400 N(R)
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

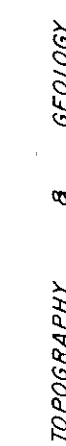
COMPILED	GEOGRAPHY
DRAWN	DATE
GEOGRAPHY	7/1/83
AMENDED	
SCALE	1 : 500
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GEOCHEMISTRY



2.



9

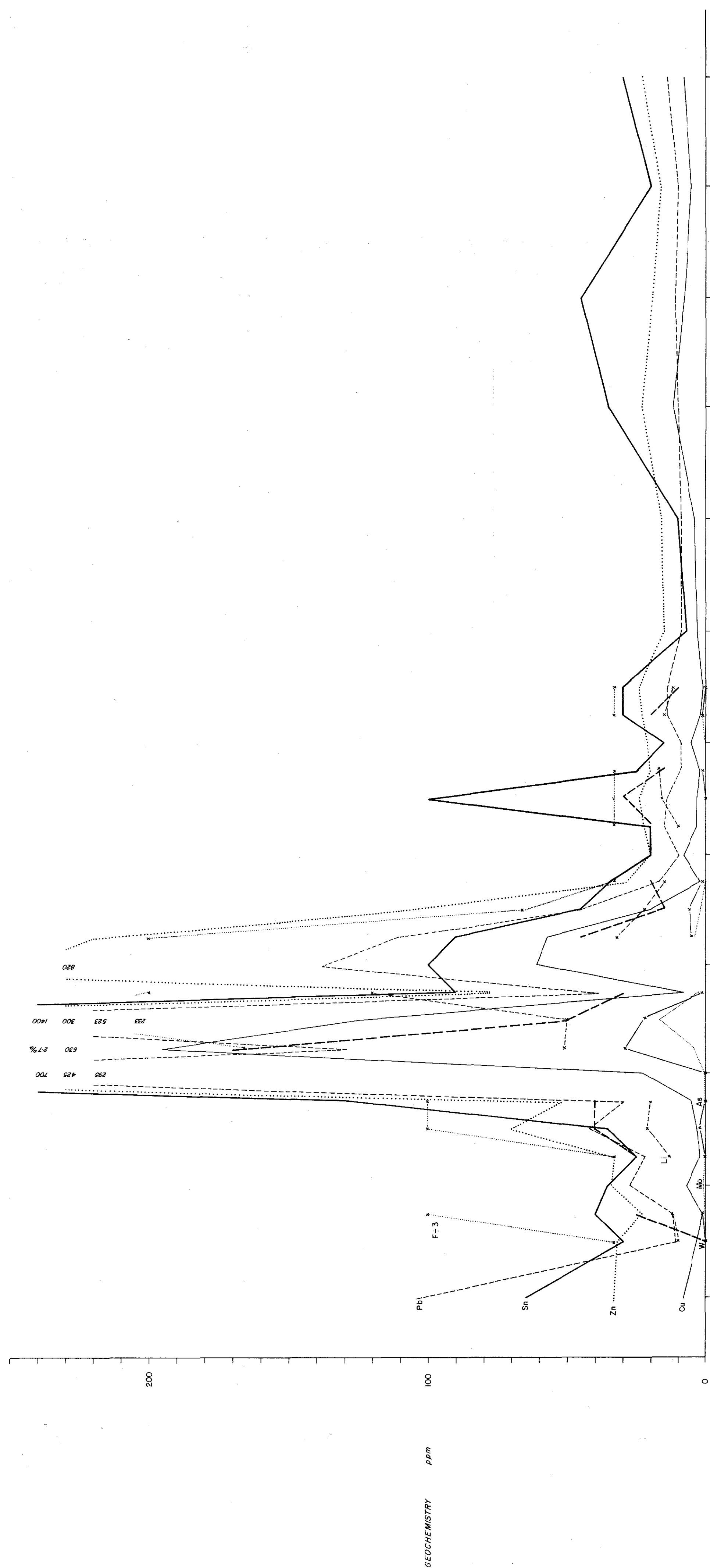
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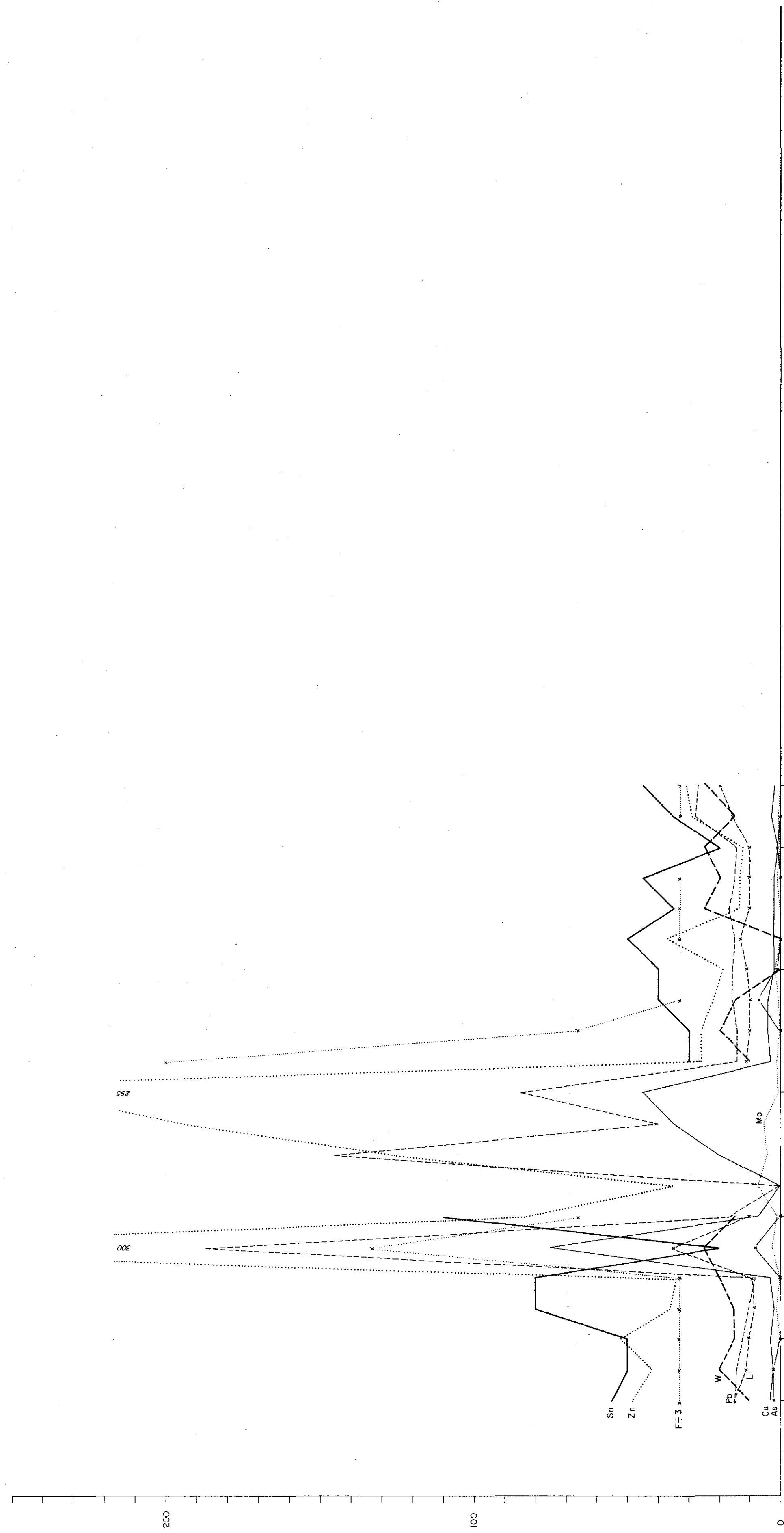
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB (MINE AREA)
COMPOSITE SECTION OF LINE 5440 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

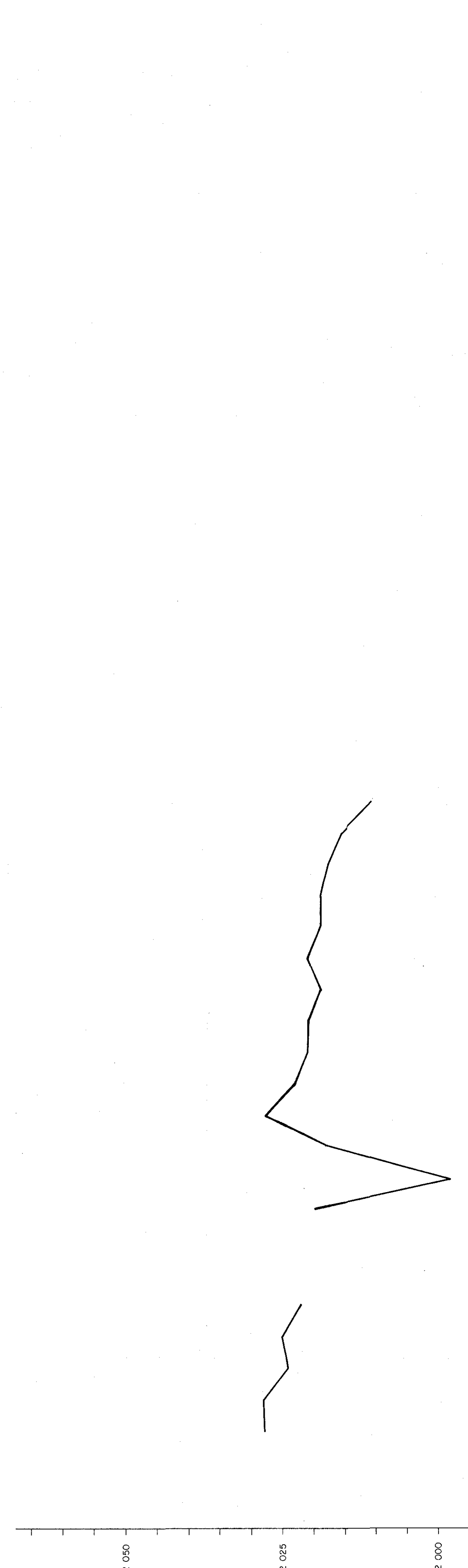
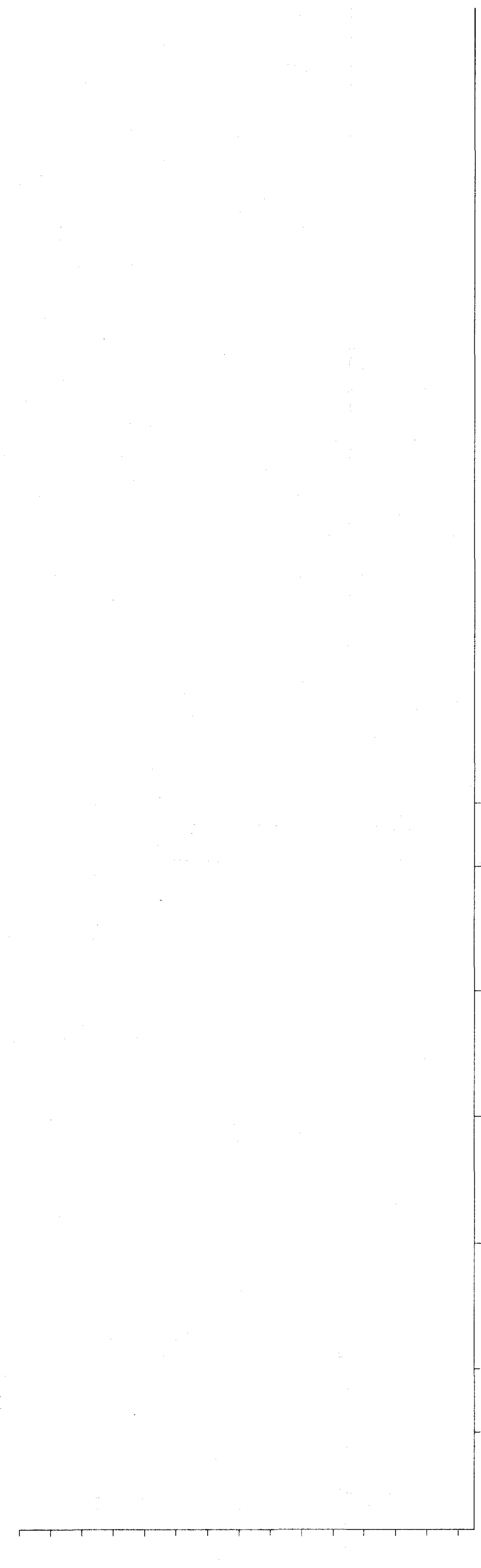
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COMPILED	
GEODRAFT	
DRAWN GEODRAFT	DATE 7/1/83
AMENDED	
SCALE 1 : 500	
TAS/2/3173	

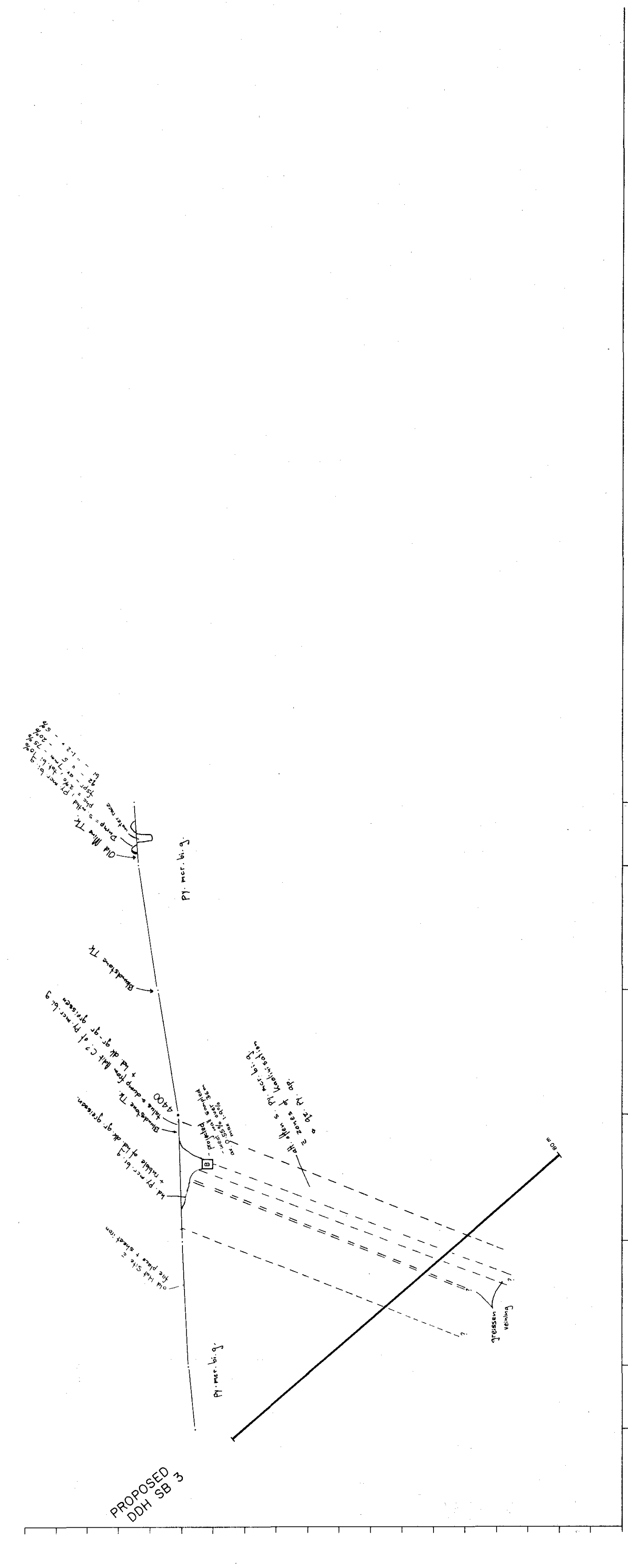




GEOCHEMISTRY



MAGNETICS



TOPOGRAPHY & GEOLOGY

560120

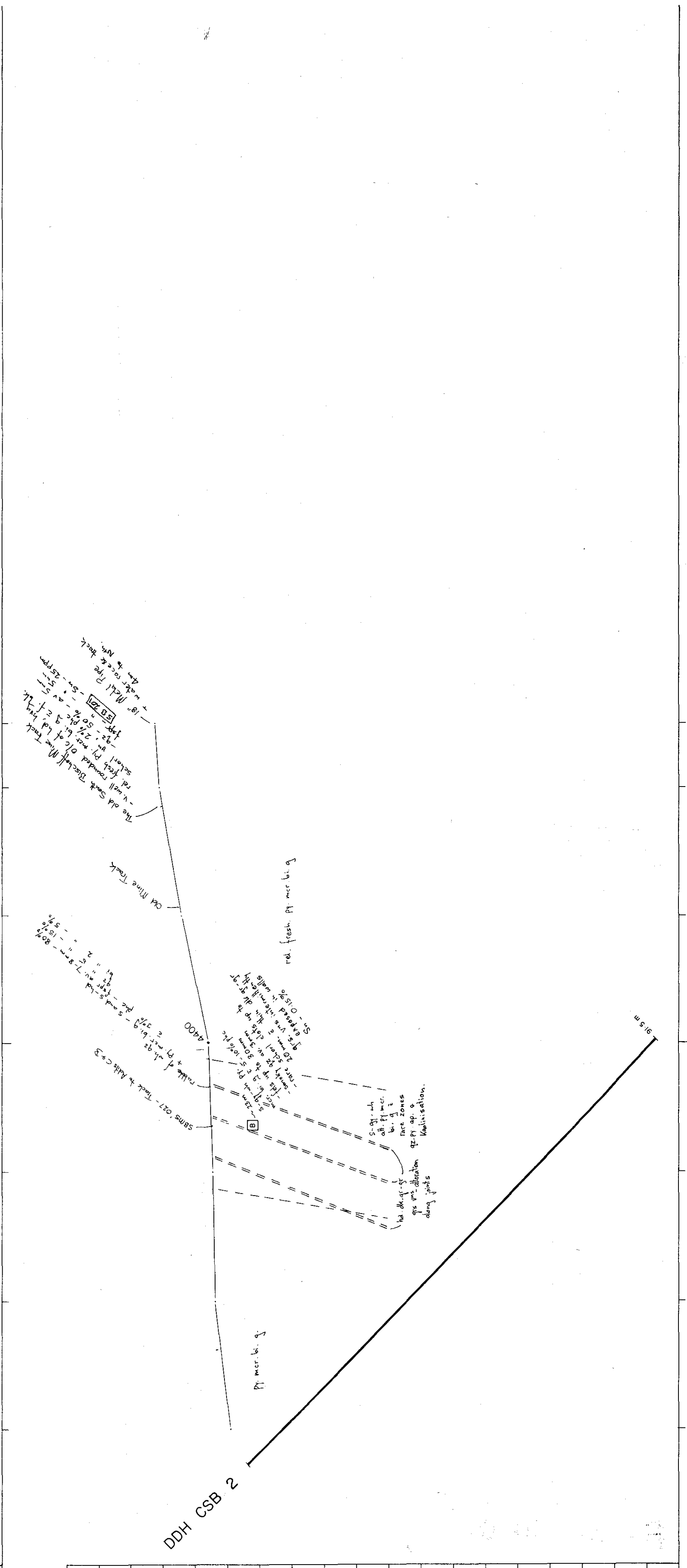
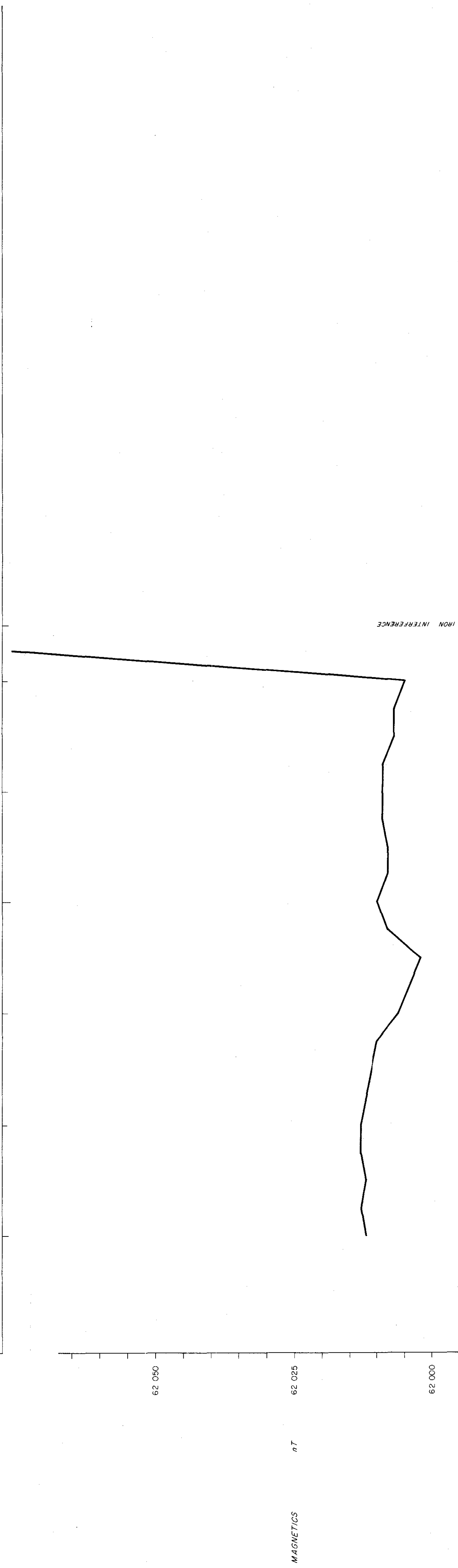
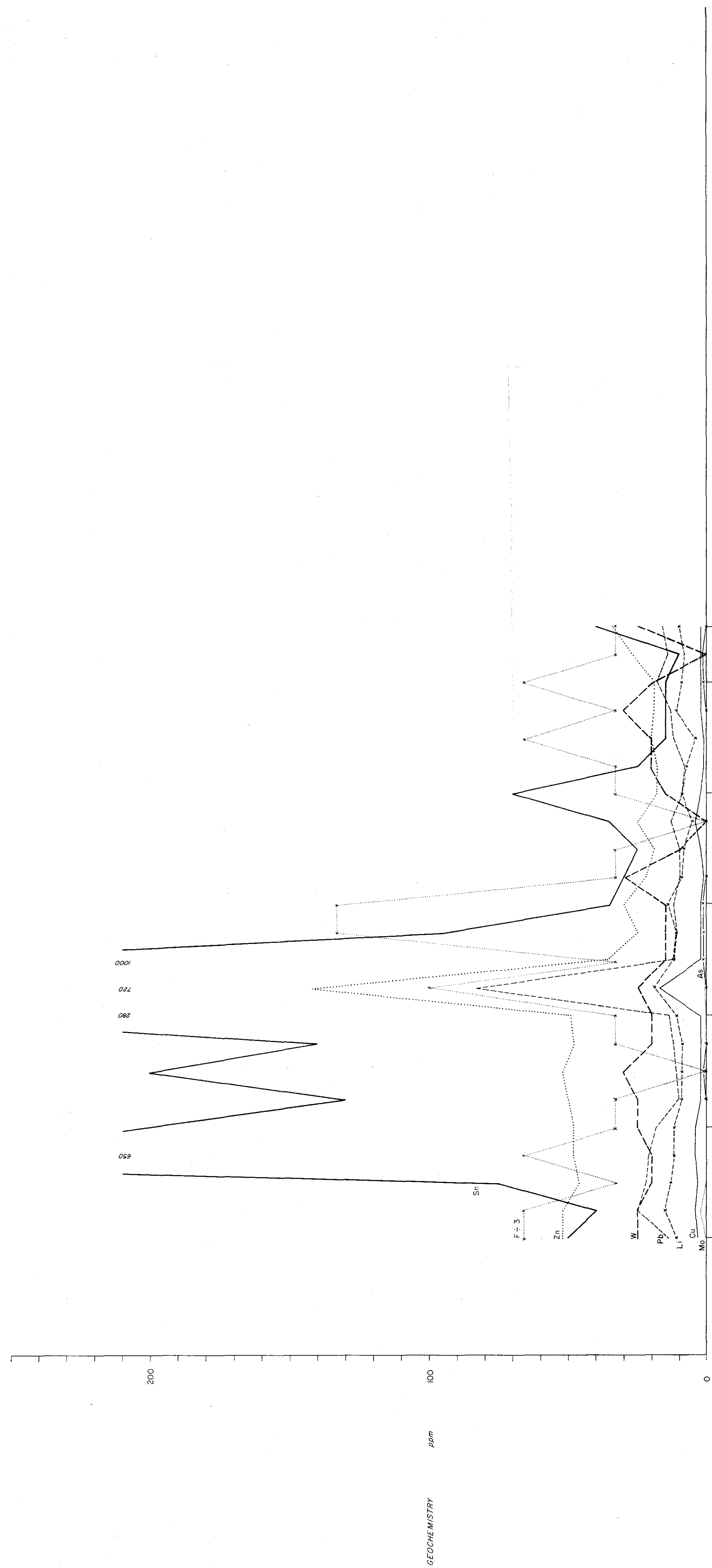
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID-CSB (MINE AREA) 015

COMPOSITE SECTION OF LINE 5500 N

TOPO, MAG, GEOCHEMISTRY, GEOLOGY

COMPILED	GEOGRAFT
DRAWN	DATE
GEOGRAFT	7/1/83
AMENDED	
SCALE	1 : 500
TAS/2/3171	



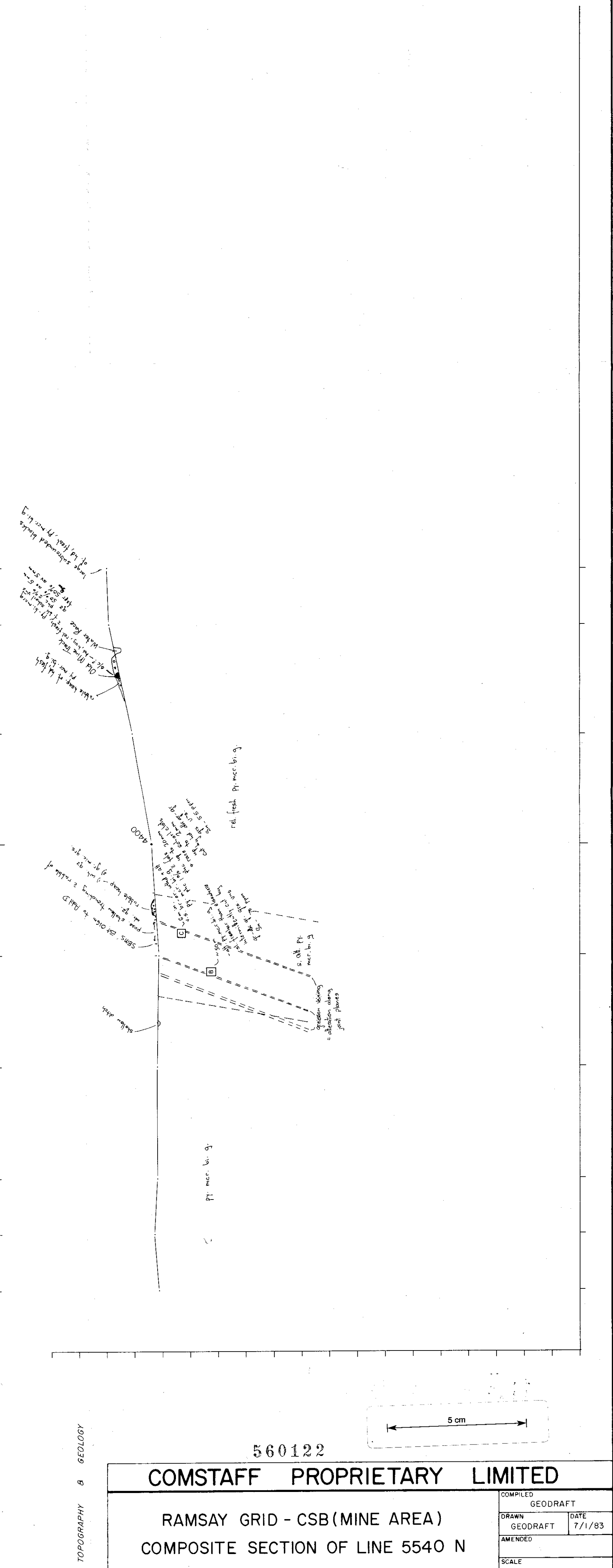
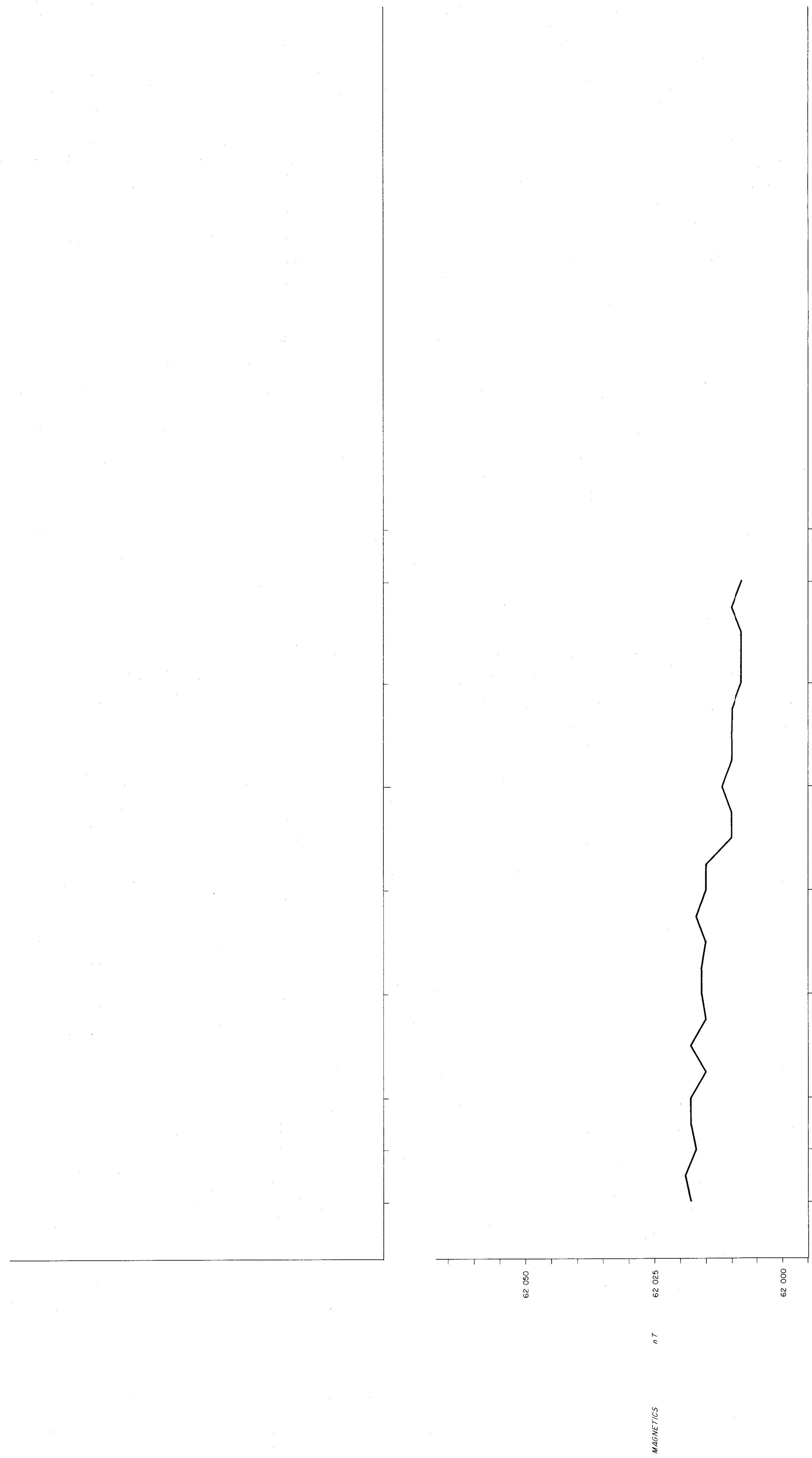
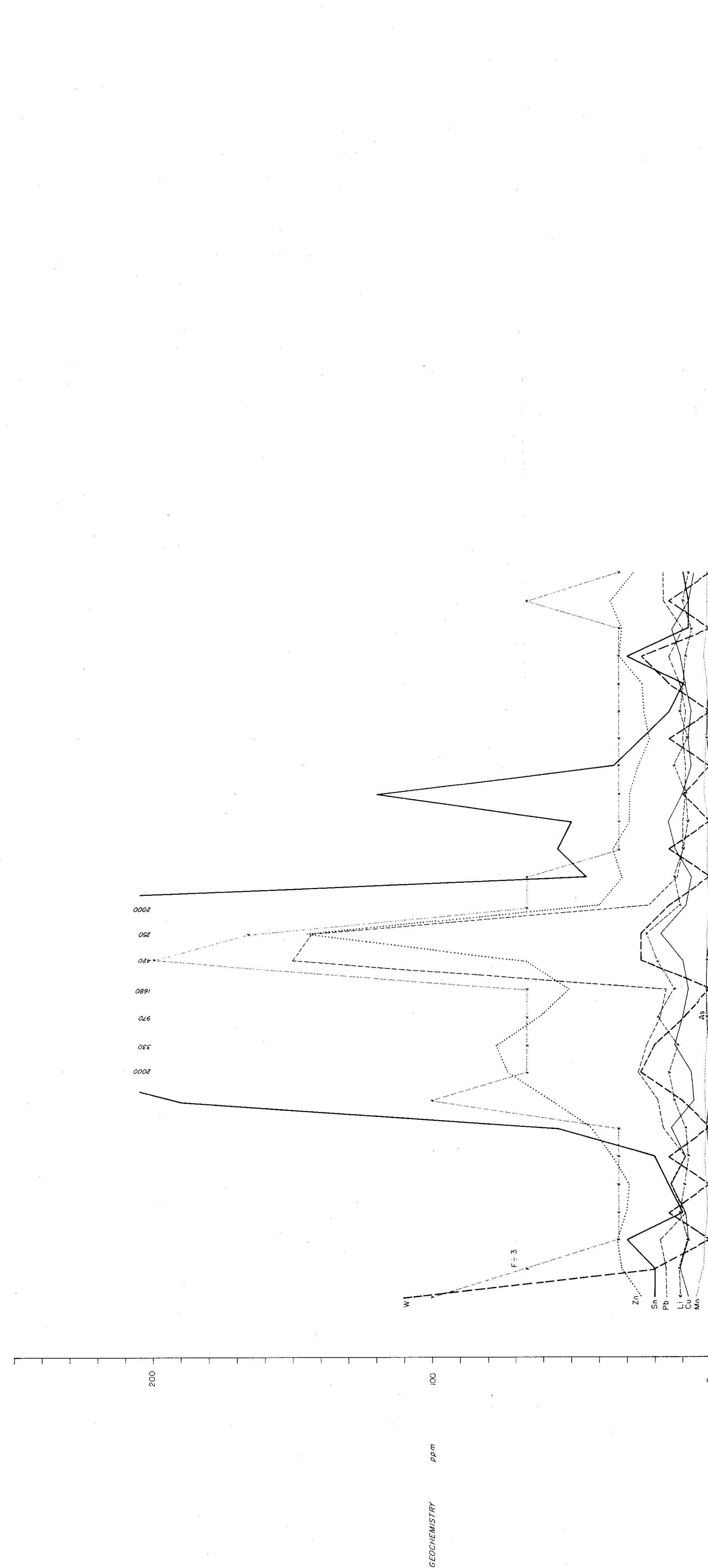
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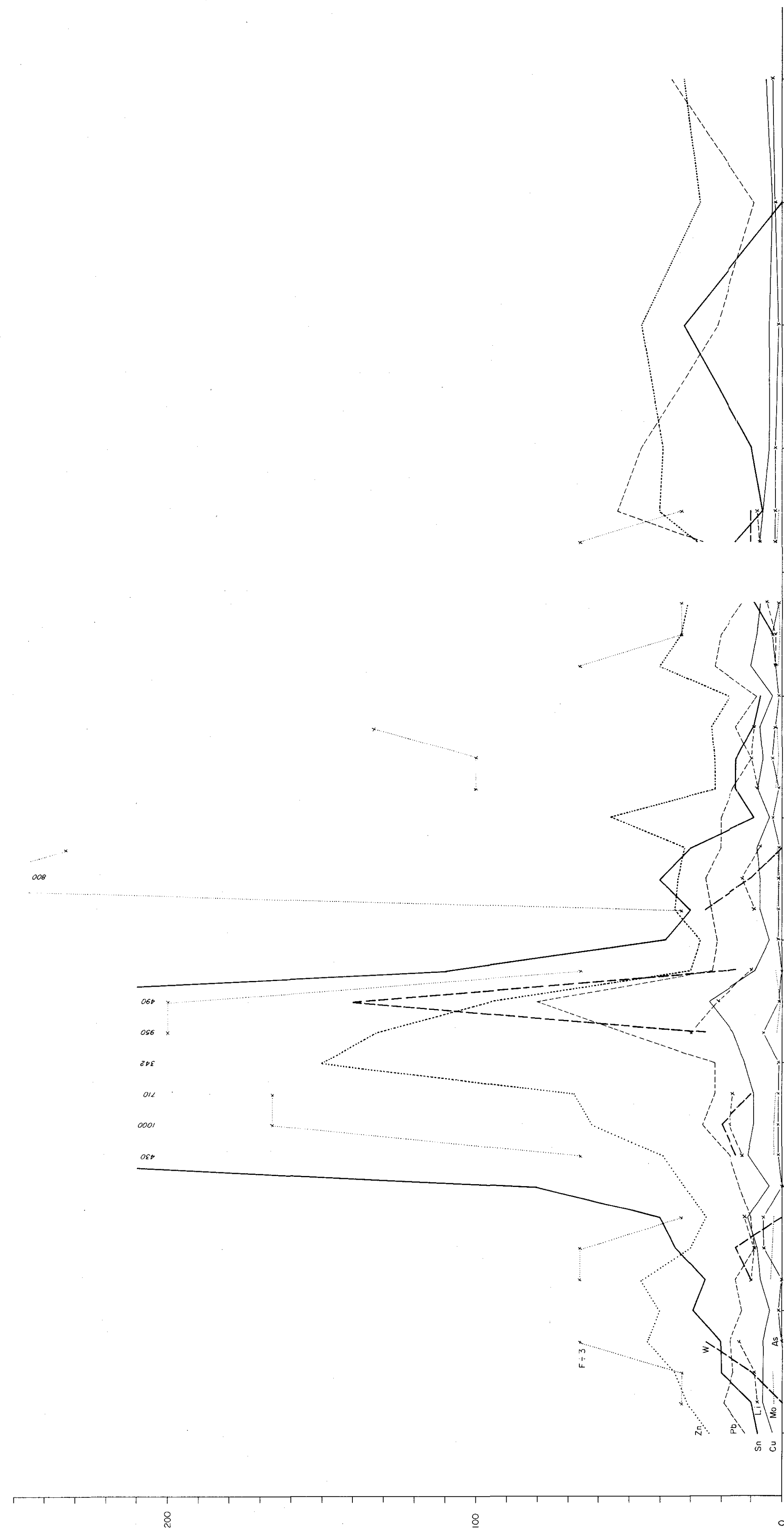
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID-CSB(MINE AREA)
COMPOSITE SECTION OF LINE 5520 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

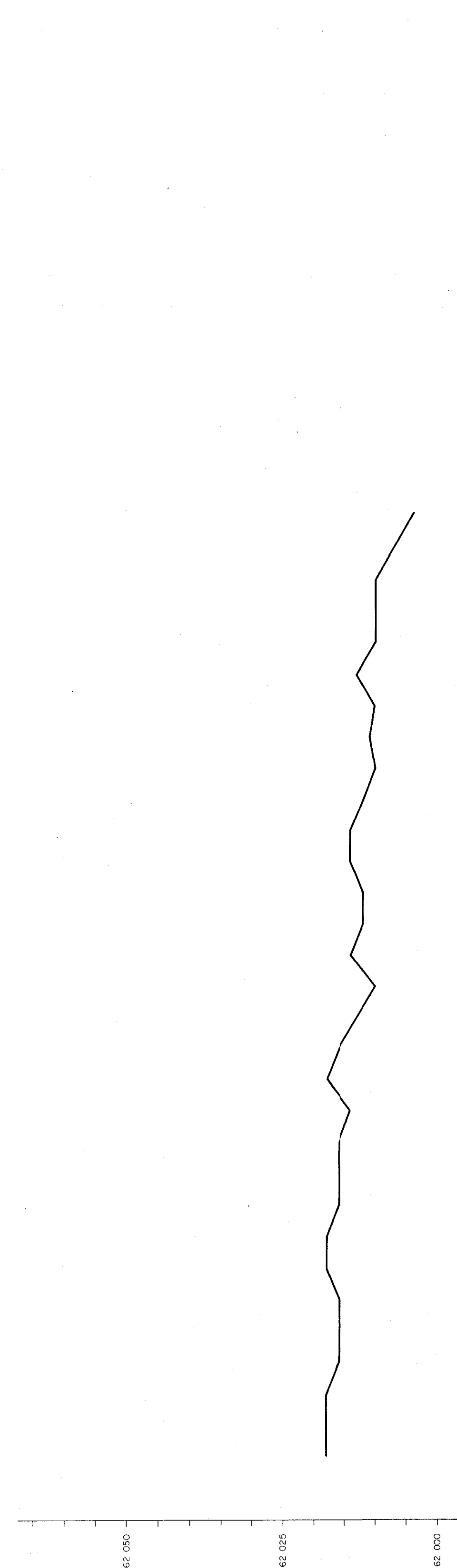
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COMPILED	GEOGRAPHY
DRAWN	DATE
GEOGRAPHY	7/1/83
AMENDED	
SCALE	1 : 500
PLAN NO.	TAS/2/3170

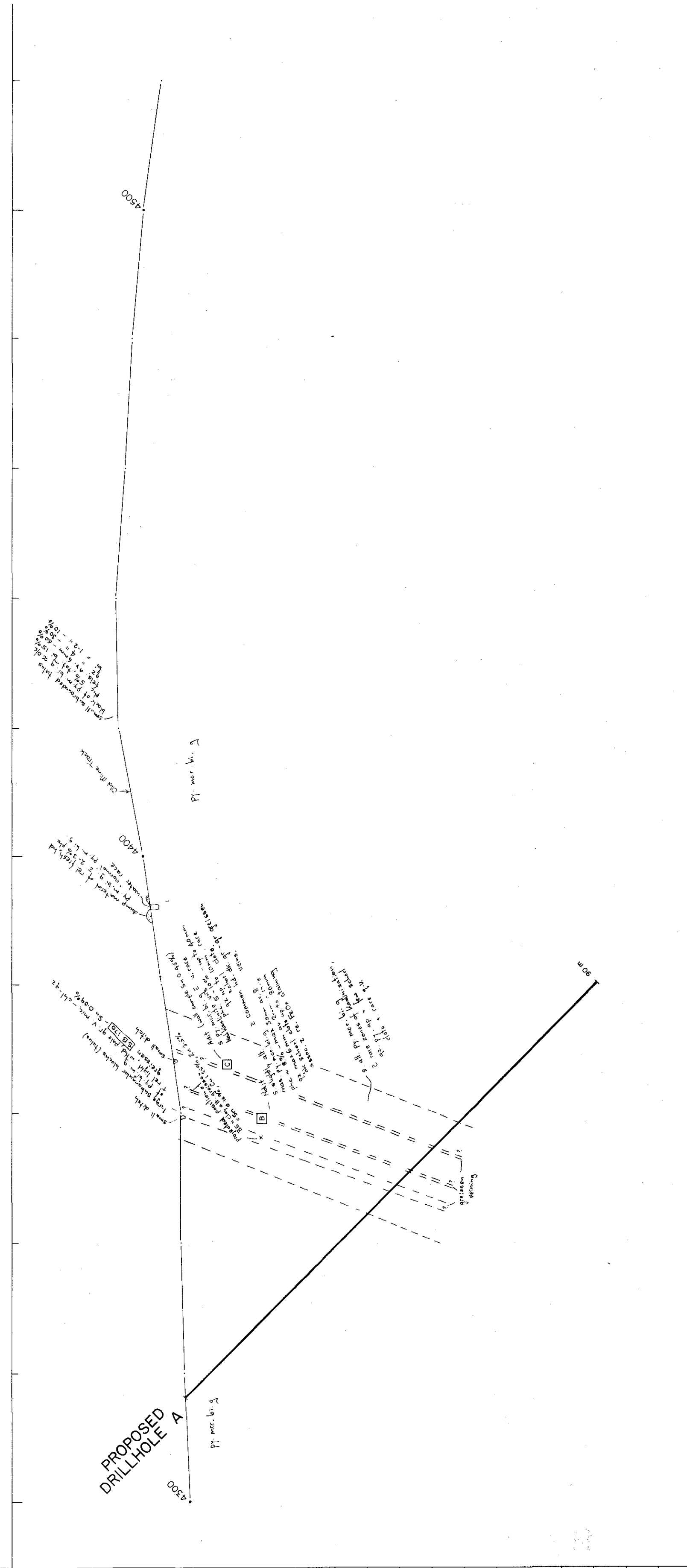




GEOCHEMISTRY ppm

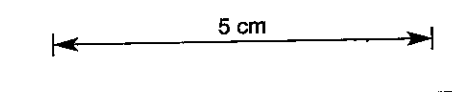


MAGNETICS nT



TOPOGRAPHY & GEOLOGY

560123

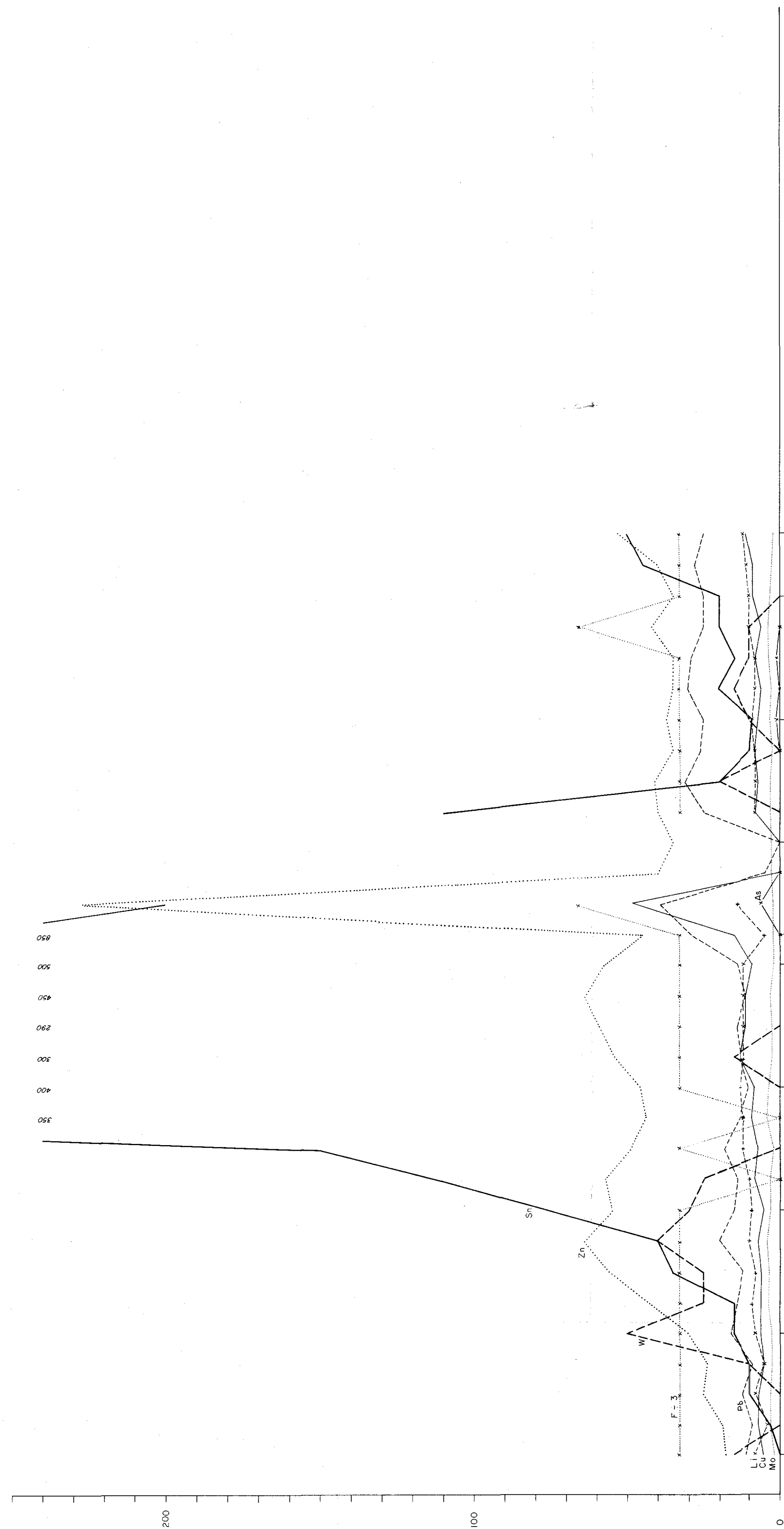


COMSTAFF PROPRIETARY LIMITED

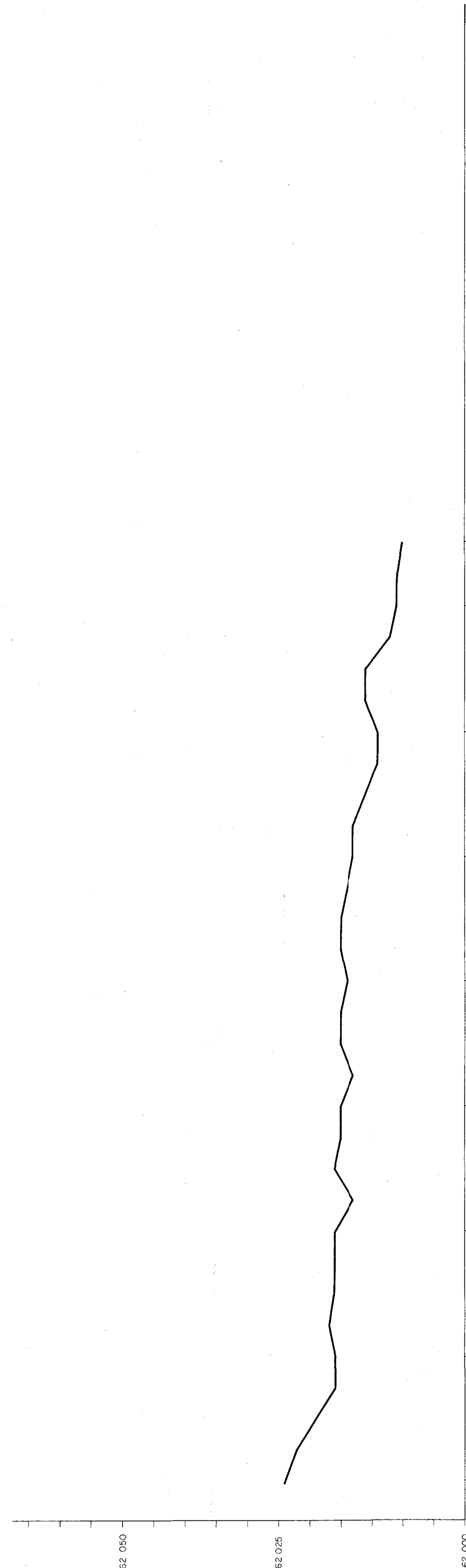
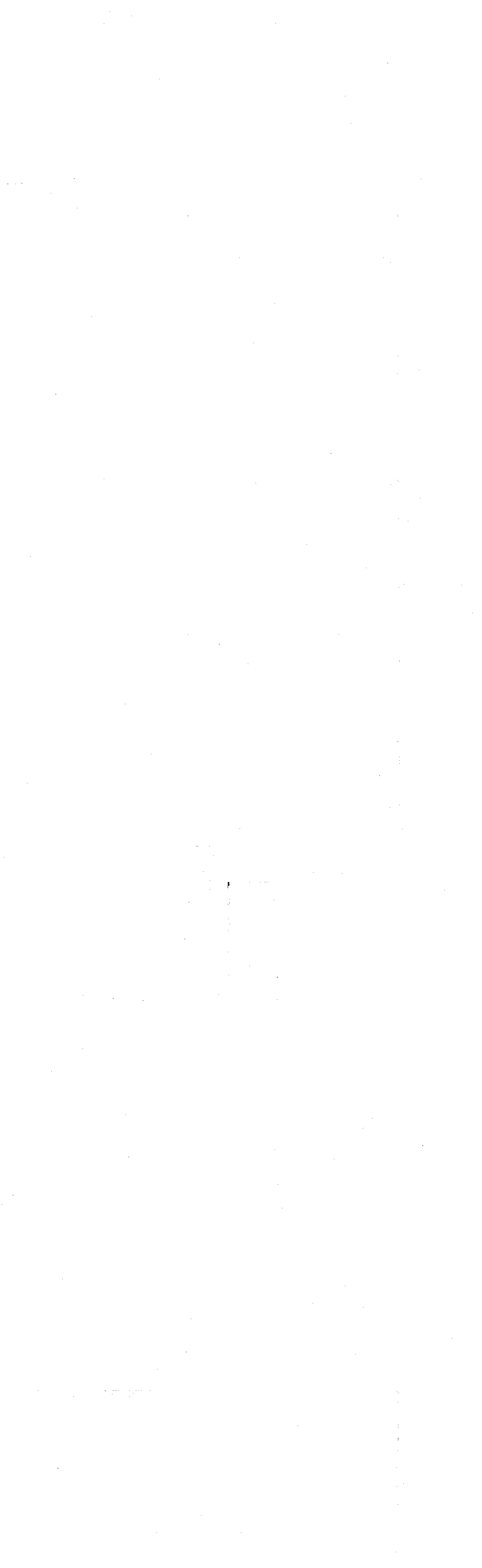
RAMSAY GRID - CSB (MINE AREA)
COMPOSITE SECTION OF LINE 5560 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

COMPILED	GEOGRAPHY
DRAWN	DATE
GEOGRAPHY	7/1/83
AMENDED	6/4/83
SCALE	1 : 500
PLAN NO.	TAS/2/3168

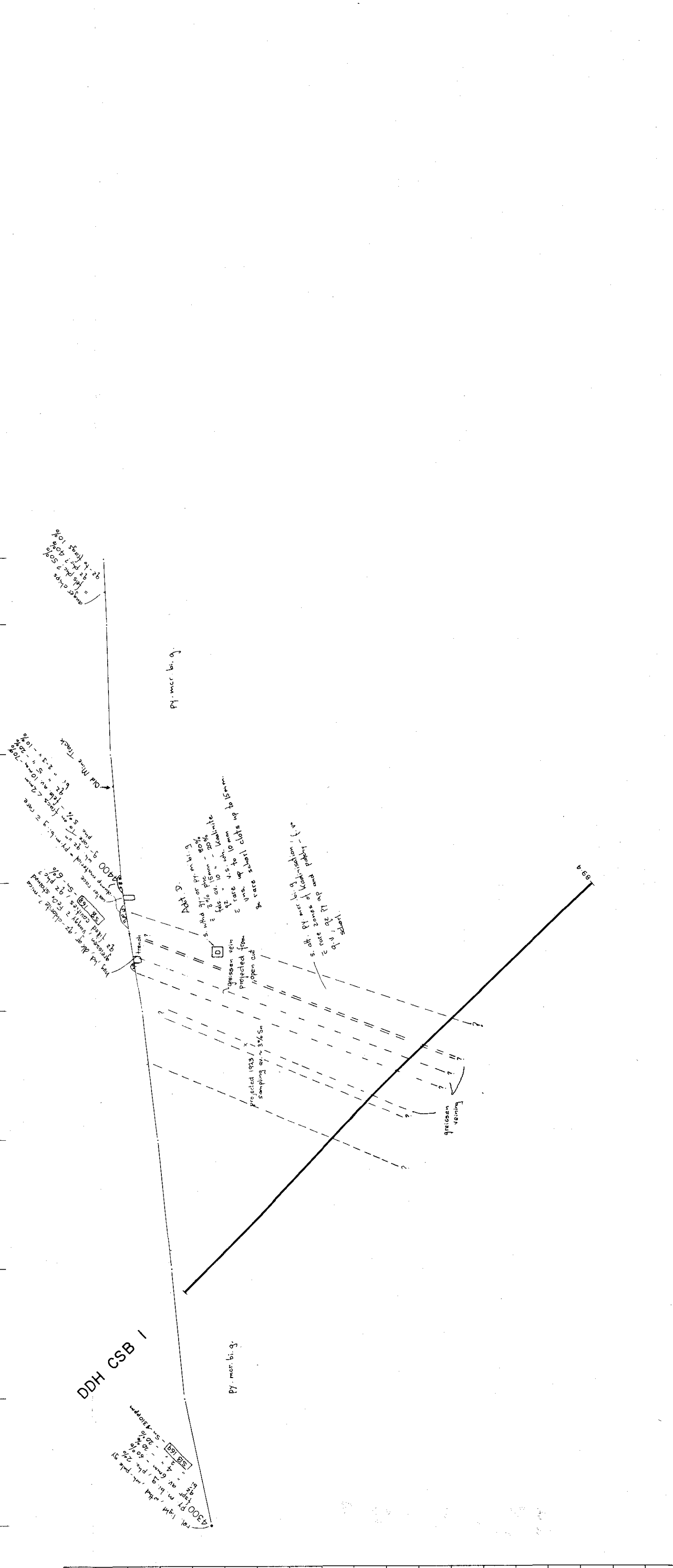
018



GEOCHEMISTRY ppm



MAGNETICS nT



TOPOGRAPHY & GEOLOGY

560124	
COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB (MINE AREA)	
COMPOSITE SECTION OF LINE 5600 N	
TOPO, MAG, GEOCHEMISTRY, GEOLOGY	
019	TAS/2/3167

MICROFILMED

QAC

D of M	A.O.	C.G.	E.O.	D.S.M.E.
Received		- 9 JUN 1983		
Answered		E & L		
DEPT. OF MINES				
REF. No. 5006/83				

PROJECT NAME:

COMSTAFF PROPRIETARY LIMITED

TITLE:

STAGE REPORT ON THE SOUTHBISCHOFF MINE AREA (CSB) EL 5/63PART 2VOLUME II

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

Burnie Sheet SK 55 /3

Metric Co-ordinate 539750mN/372500mE

COMMODITY/IES:

Tin, Tungsten, Copper, Lead, Zinc

TEXT PAGES NO:

37

PLAN NOS:

See List of Plans

TABLE NOS:

1 and 2 Figures

APPENDICES:

5

AUTHOR/S:

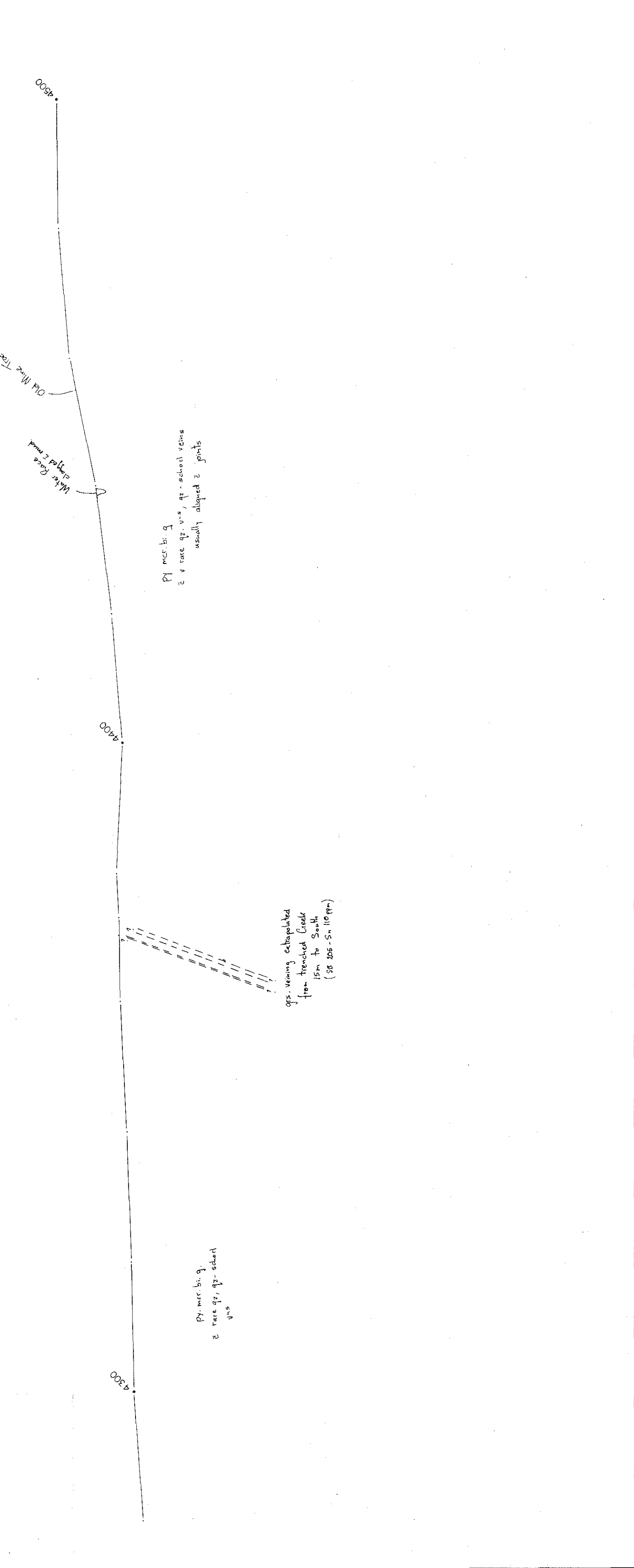
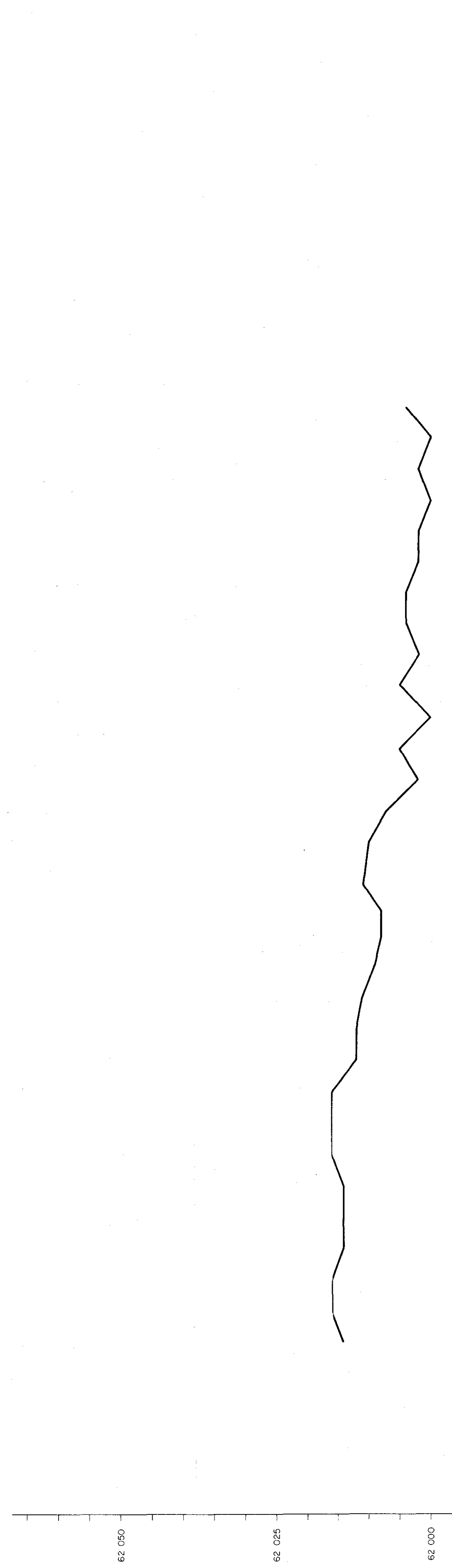
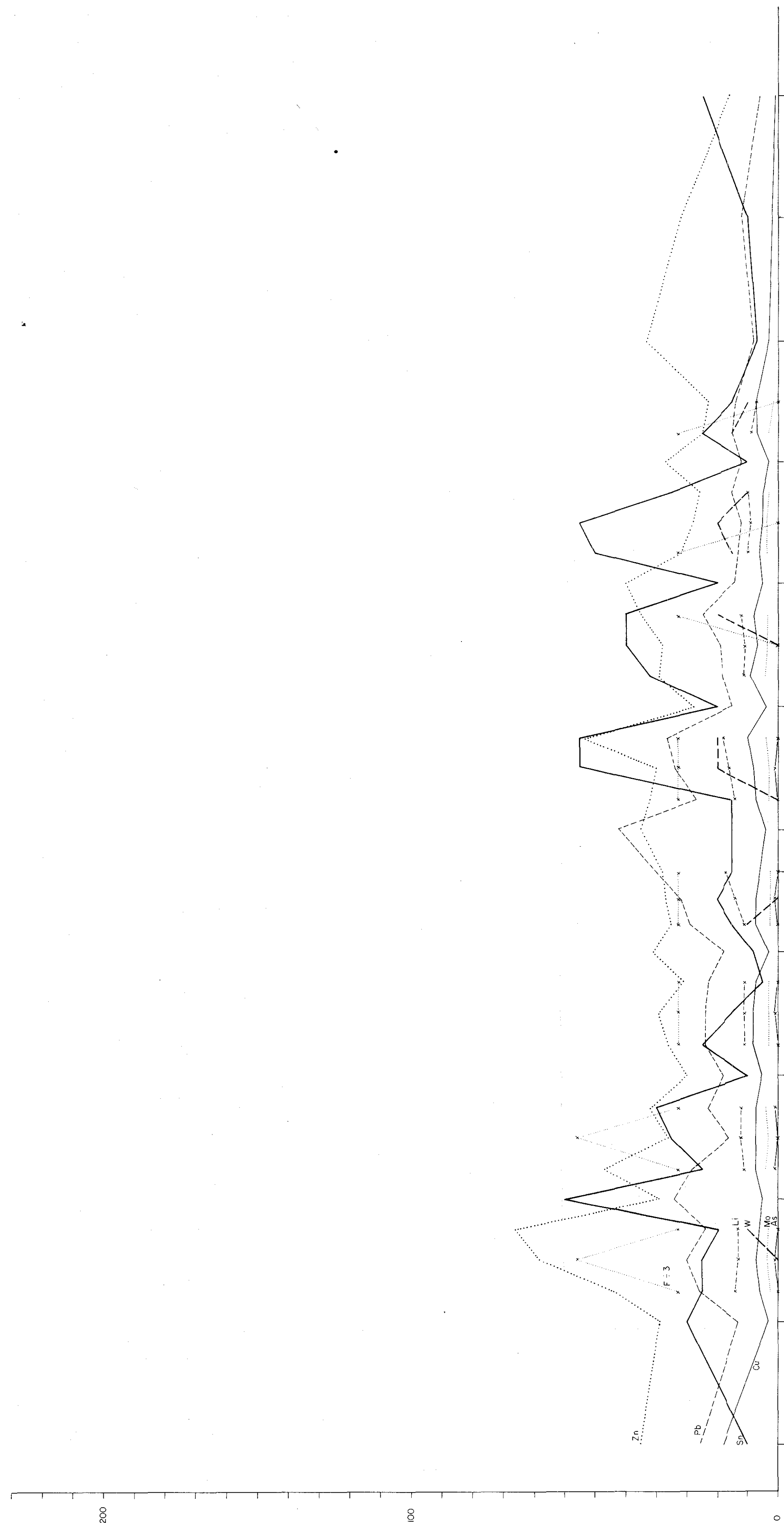
N P Green

DATE:

20th March, 1983

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

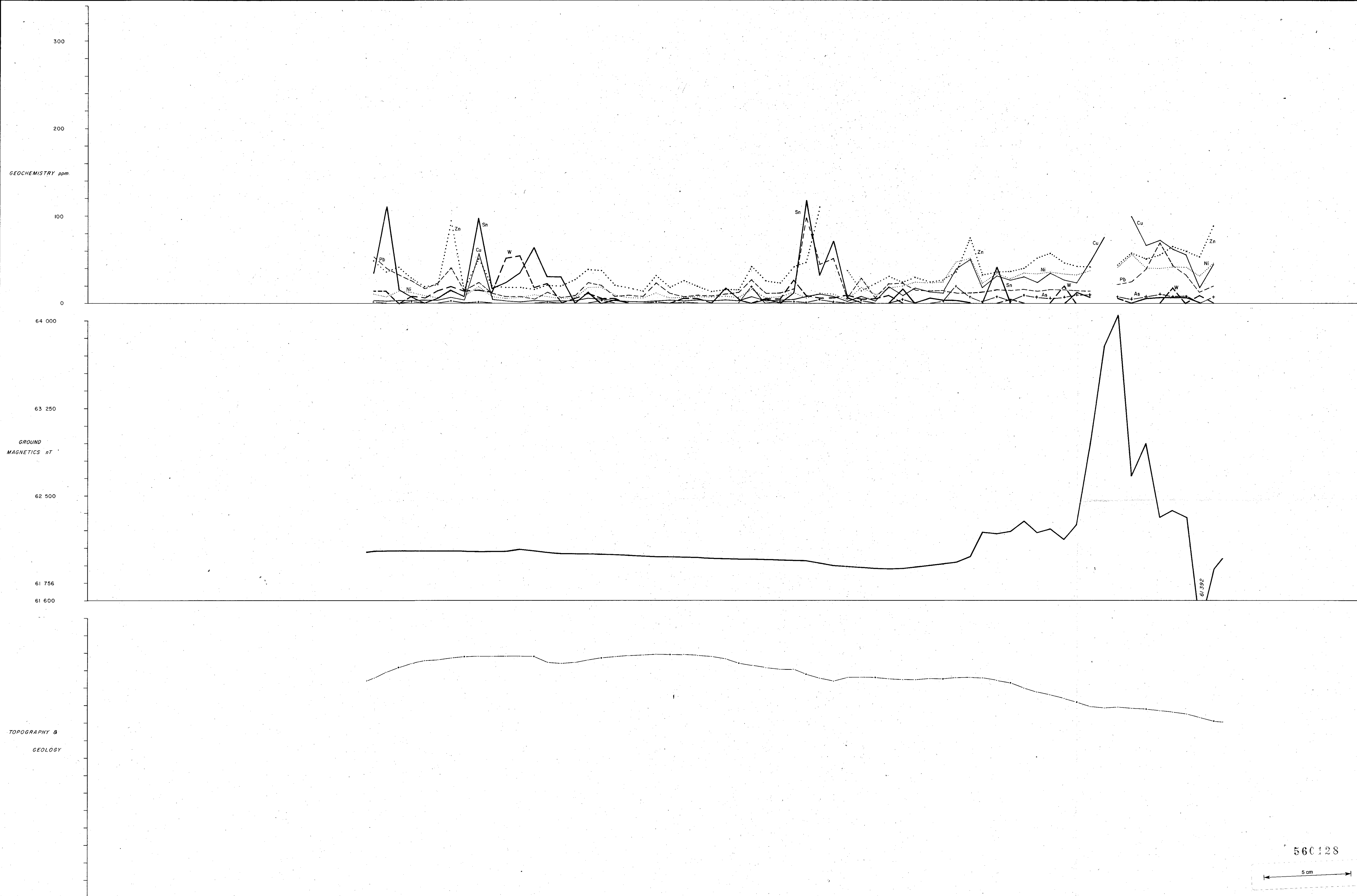


COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB (MINE AREA)
COMPOSITE SECTION OF LINE 5720 N
TOPO , MAG, GEOCHEMISTRY, GEOLOGY

0021

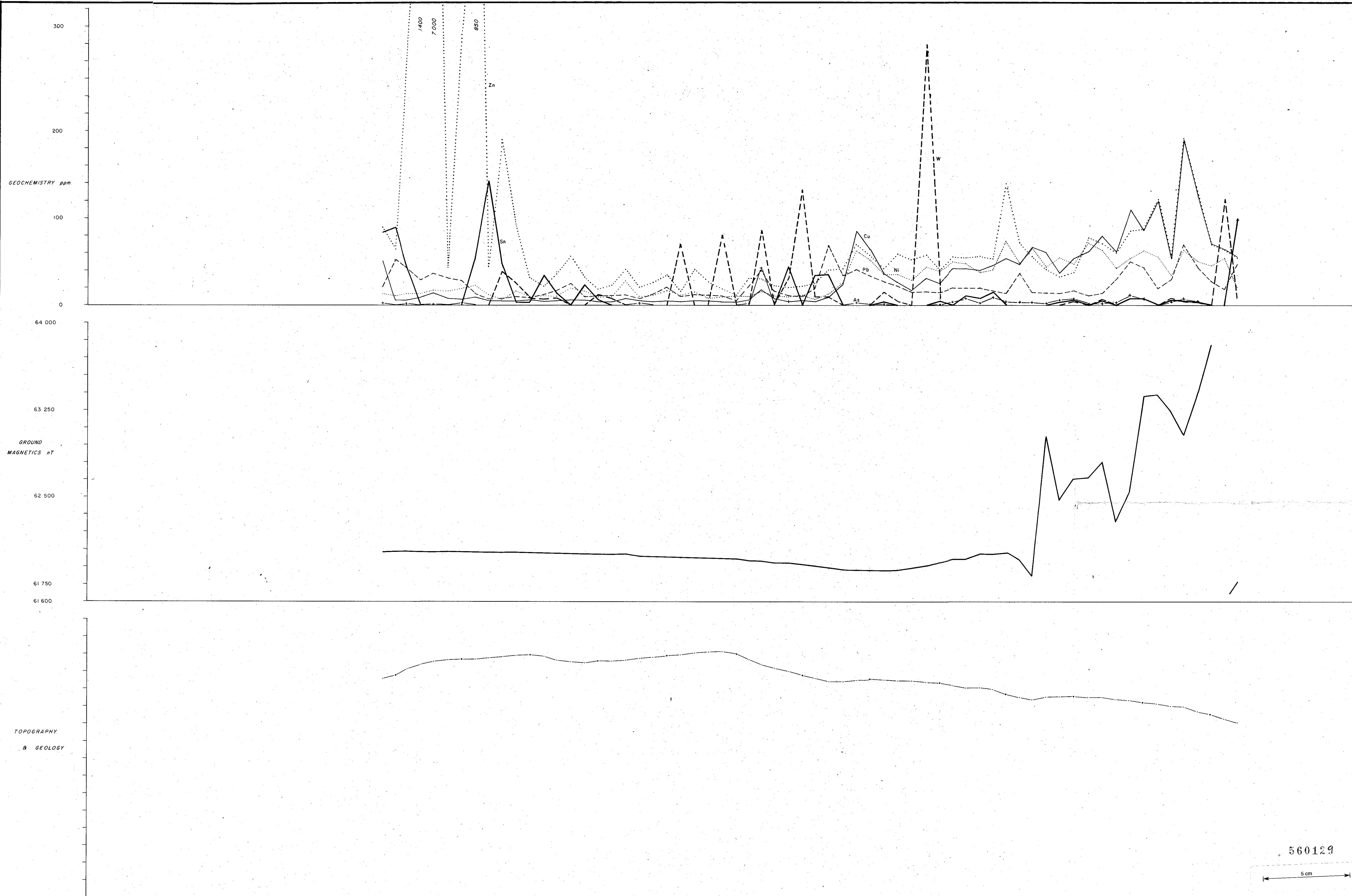
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DRAWN	DATE
GEOGRAPHY	7/1/83
AMENDED	
SCALE	1 : 500
PLAN NO.	TAS/2/3165



COMSTAFF PROPRIETARY LIMITED		COMPILED N. P. GREEN	
LEASE No. EL 5/63		DRAWN GEODRAFT	
AREA 2		DATE MAY 1983	
AMENDMENTS 1 8 2 9 3 10 4 11 5 12 6 13 7 14		SCALE 1 : 2500	
		REF No. TAS/2/3229	

RAMSAY GRID - CSB
COMPOSITE SECTION OF LINE 5800 N
TOPO MAG, GEOCHEMISTRY, GEOLOGY

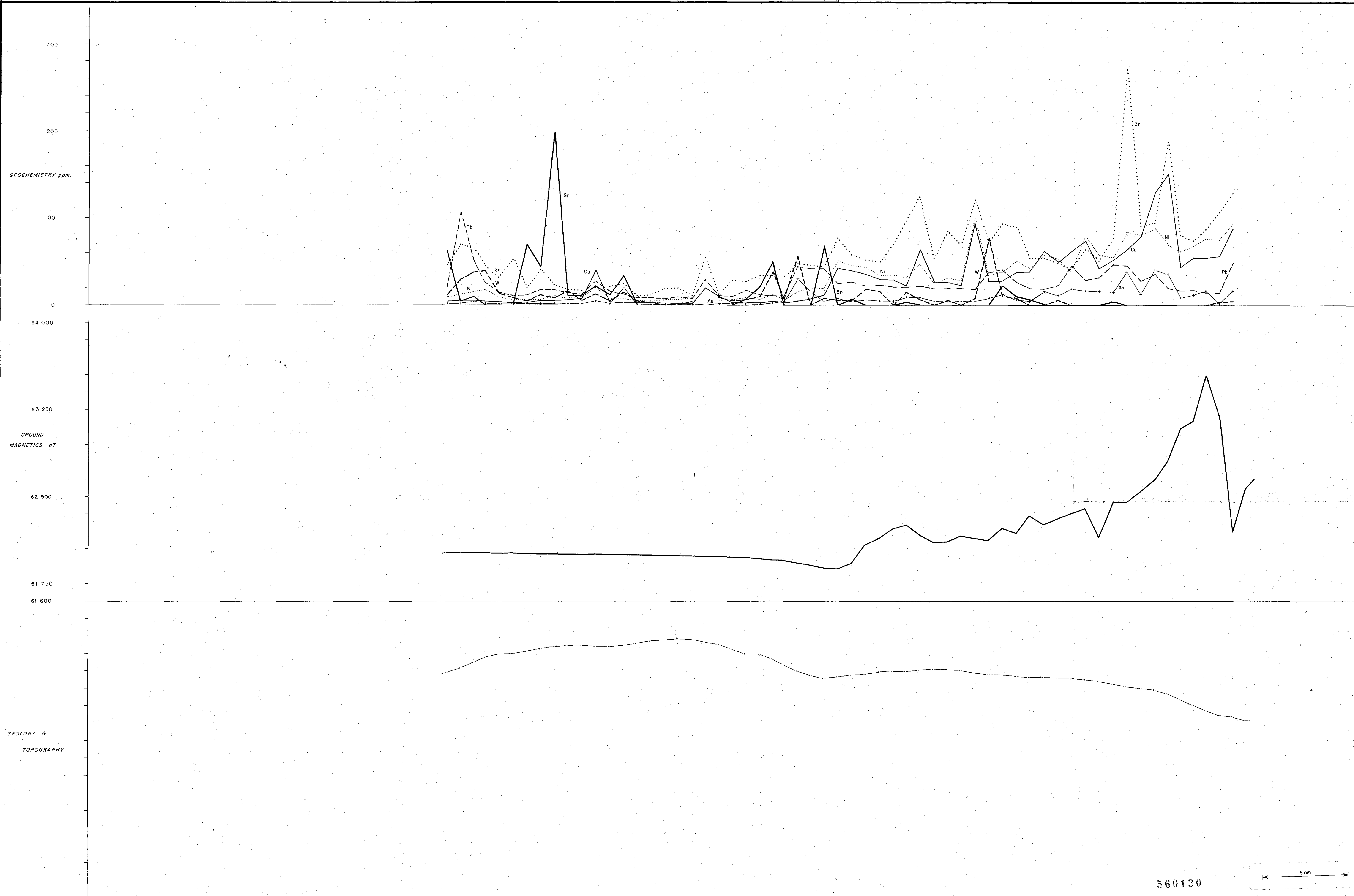
83-1001 022



COMSTAFF PROPRIETARY LIMITED	
LEASE NO. EL 5/63 AREA 2 AMENDMENTS 8 9 10 11 12 13 14	COMPILED N. P. GREEN DRAWN GEOGRAPHY DATE MAY 1983 SCALE 1 : 2500 REF. NO. TAS/2/3230

RAMSAY GRID - CSB
COMPOSITE SECTION OF LINE 5880 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

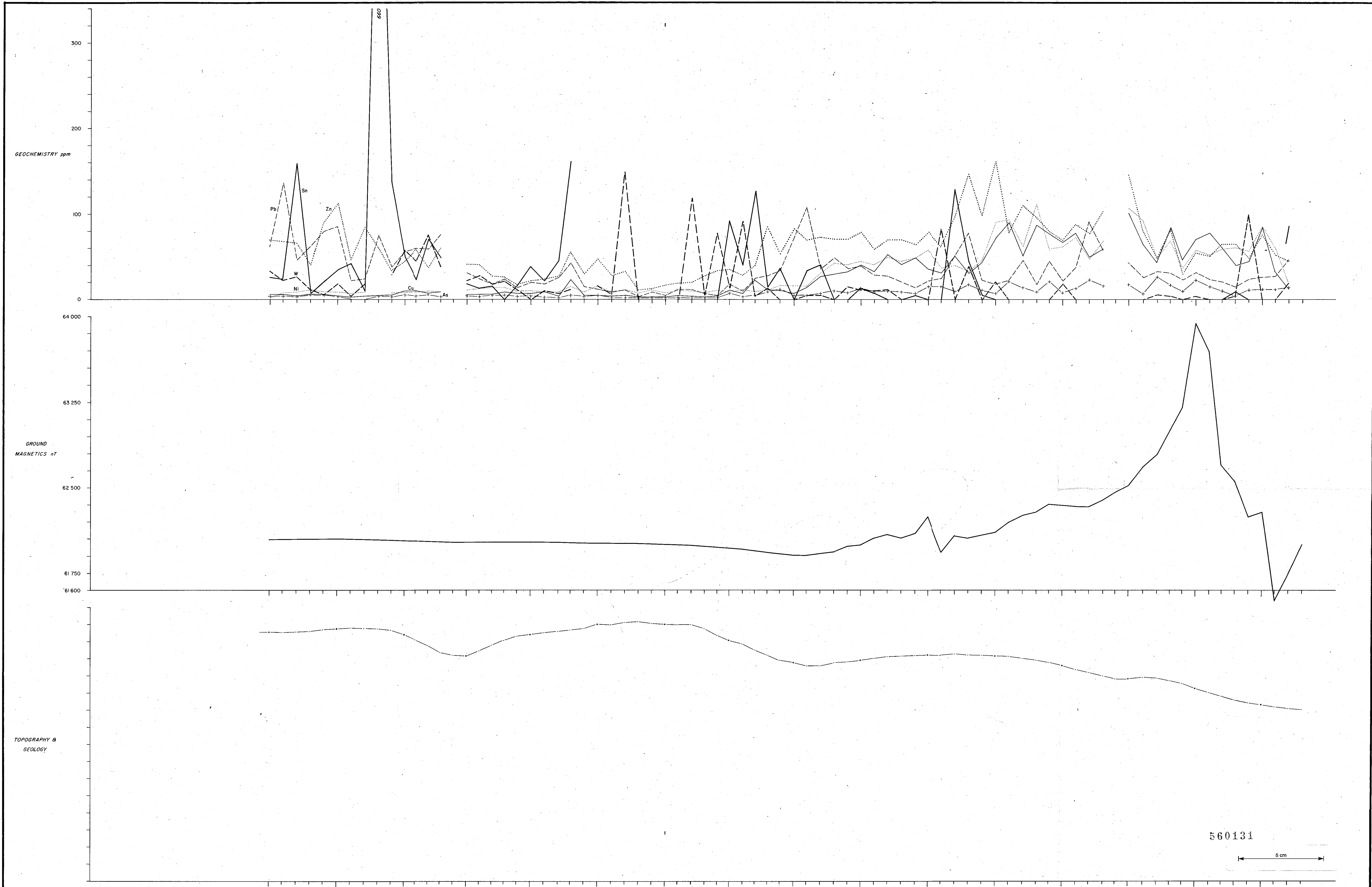
82-1991 212



COMSTAFF PROPRIETARY LIMITED		COMPILED N. P. GREEN	
LEASE No. EL 5/63		DRAWN GEODRAFT	
AREA 2		DATE MAY 1983	
AMENDMENTS		SCALE 1 : 2500	
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3	10		
4	11		
5	12		
6	13		
7	14		

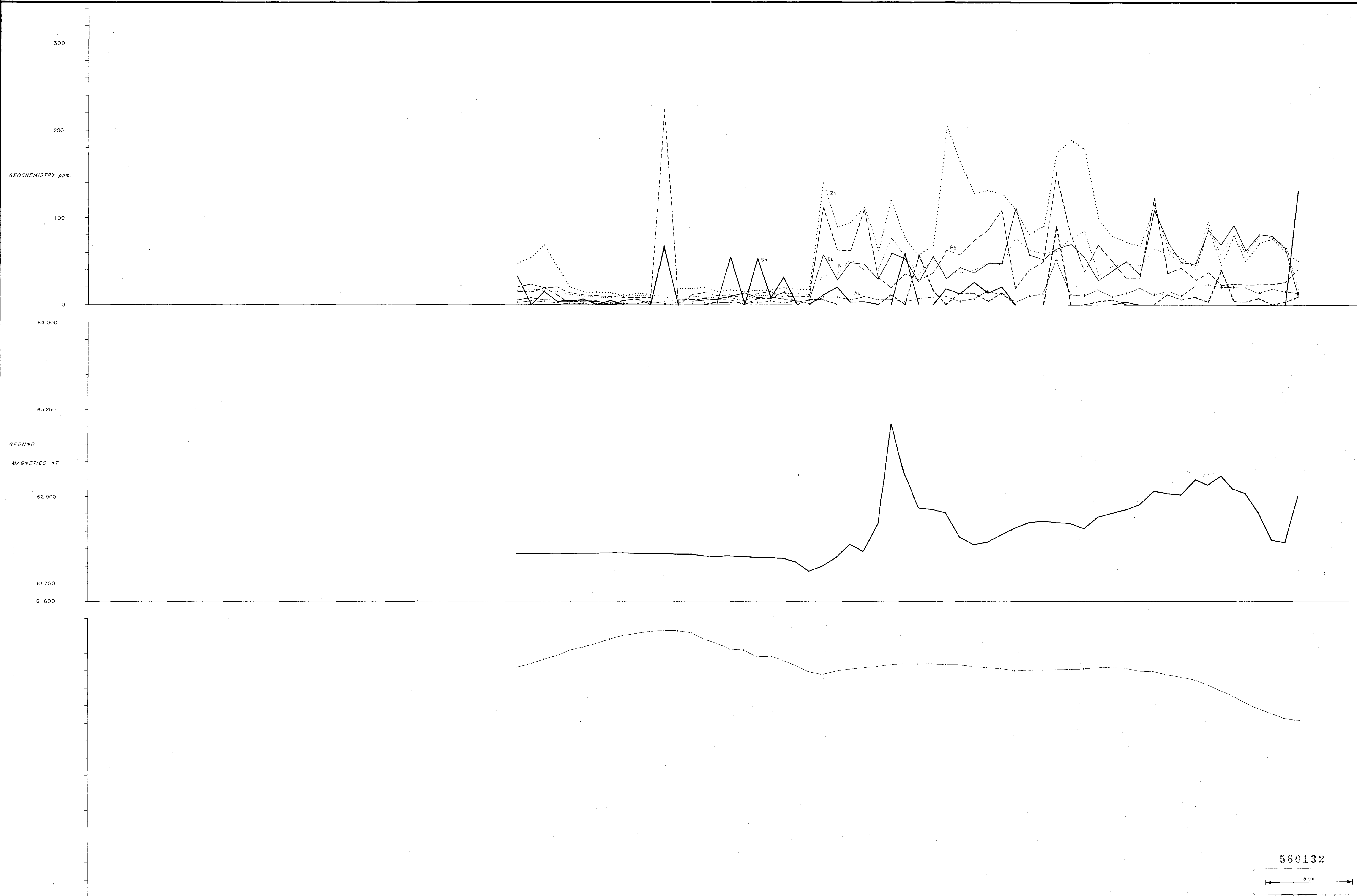
RAMSAY GRID - CSB
COMPOSITE SECTION OF LINE 6040 N
TOPO, MAG, GEOCHEMISTRY, GEOLOGY

83-1991



COMSTAFF PROPRIETARY LIMITED		
LEASE No EL 5/63	COMPILED N. P. GREEN	
AREA 2	DRAWN GEODRAFT	
AMENDMENTS 1 8 2 9 3 10 4 11 5 12 6 13 7 14	DATE MAY 1983	
	SCALE 1 : 2500	
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RAMSAY GRID - CSB COMPOSITE SECTION OF LINE 6120 N TOPO, MAG, GEOCHEMISTRY, GEOLOGY		

83-1001 212

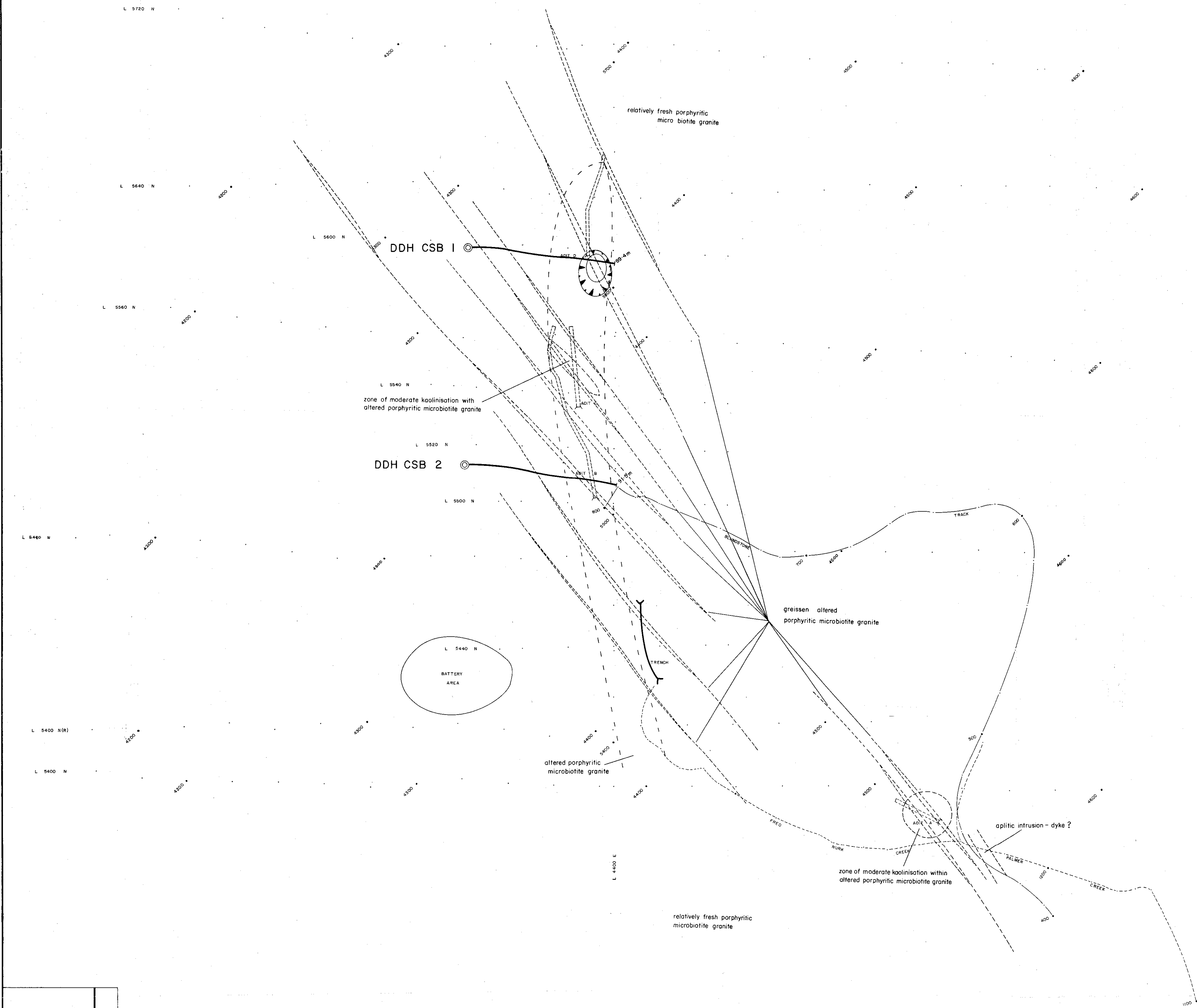


COMSTAFF PROPRIETARY LIMITED		COMPILED	
LEASE No. EL 5 / 63		N. P. GREEN	
AREA 2		DRAWN GEODRAFT	
AMENDMENTS		DATE 25 / 3 / 83	
1 8		SCALE 1 : 2500	
2 9		REF No. TAS/2/3234	
3 10			
4 11			
5 12			
6 13			
7 14			

RAMSAY GRID - CSB
 COMPOSITE SECTION OF LINE 6280N
 TOPO, MAG, GEOCHEMISTRY, GEOLOGY 026

85

5 402 000 m N



COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB	
PLAN OF SOUTH BISCHOFF MINE AREA	
GEOLOGICAL INTERPRETATION 027	
DATE	21/4/83
DRAWN	N. P. GREEN
CHECKED	
SCALE	1 : 1000
TAS/2/3114	

560133

5 cm

5 400 000 E

5 402.000 m N

371.000 m E

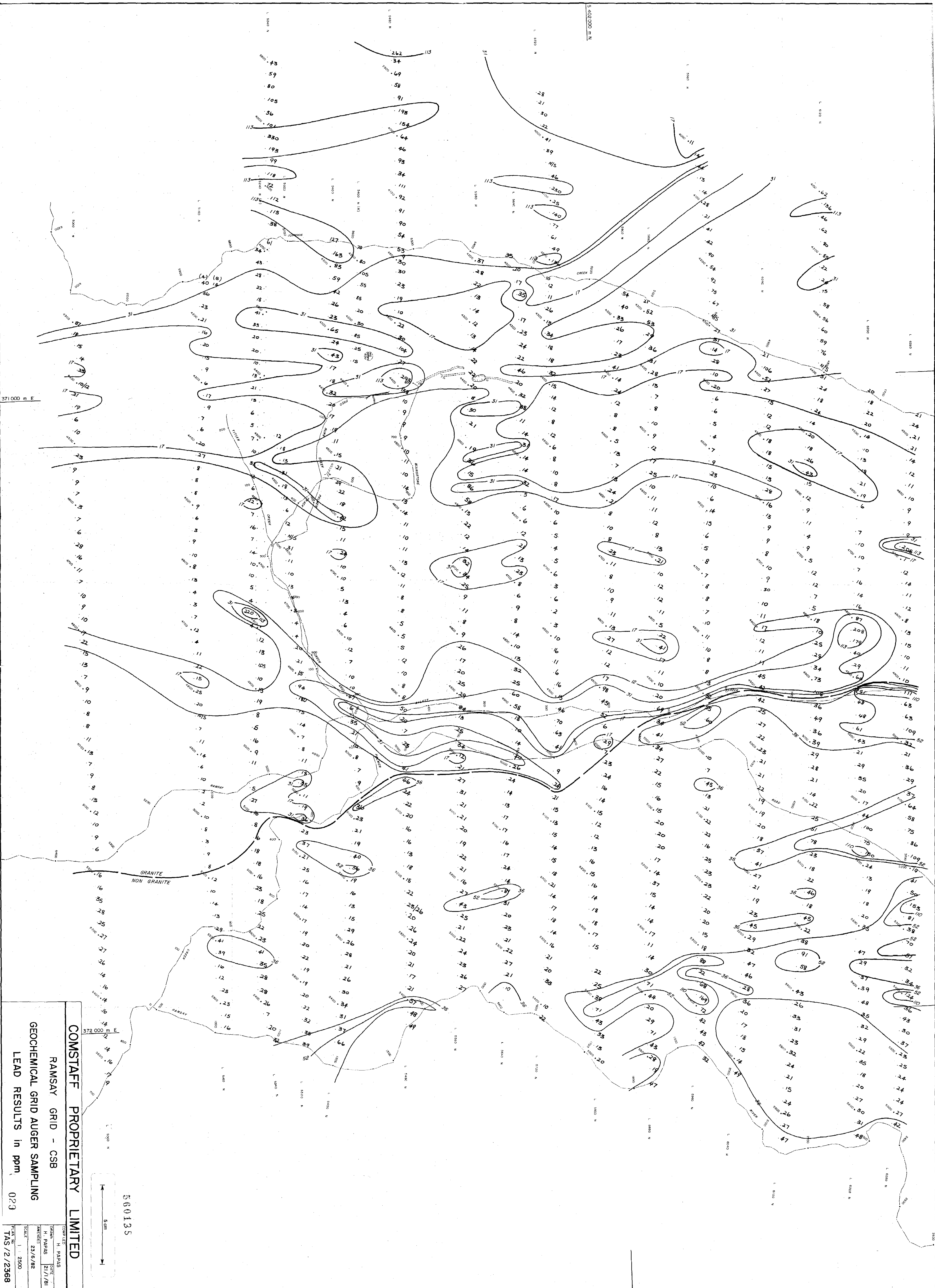
160134

5 cm

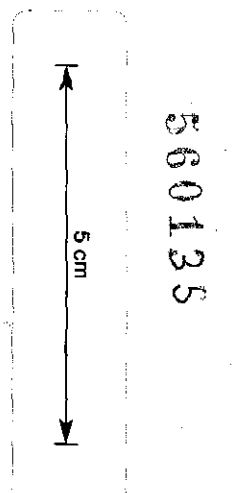
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB
GEOCHEMICAL GRID AUGER SAMPLING
COPPER RESULTS in ppm

COMPILED:	H. PAPAS
DRAWN:	H. PAPAS
DATE:	21/1/81
AMENDED:	23/6/82
SCALE:	1 : 2500
PLAN NO:	TAS/2/2367



COMSTAFF PROPRIETARY LIMITED
RAMSAY GRID - CSB
GEOCHEMICAL GRID AUGER SAMPLING
LEAD RESULTS in ppm
023



560135

DATE: 23/6/82
BY: H. PAPPAS
TAS/2/2368

371000 m E

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB

GEOCHEMICAL GRID AUGER SAMPLING

ZINC RESULTS in ppm 030

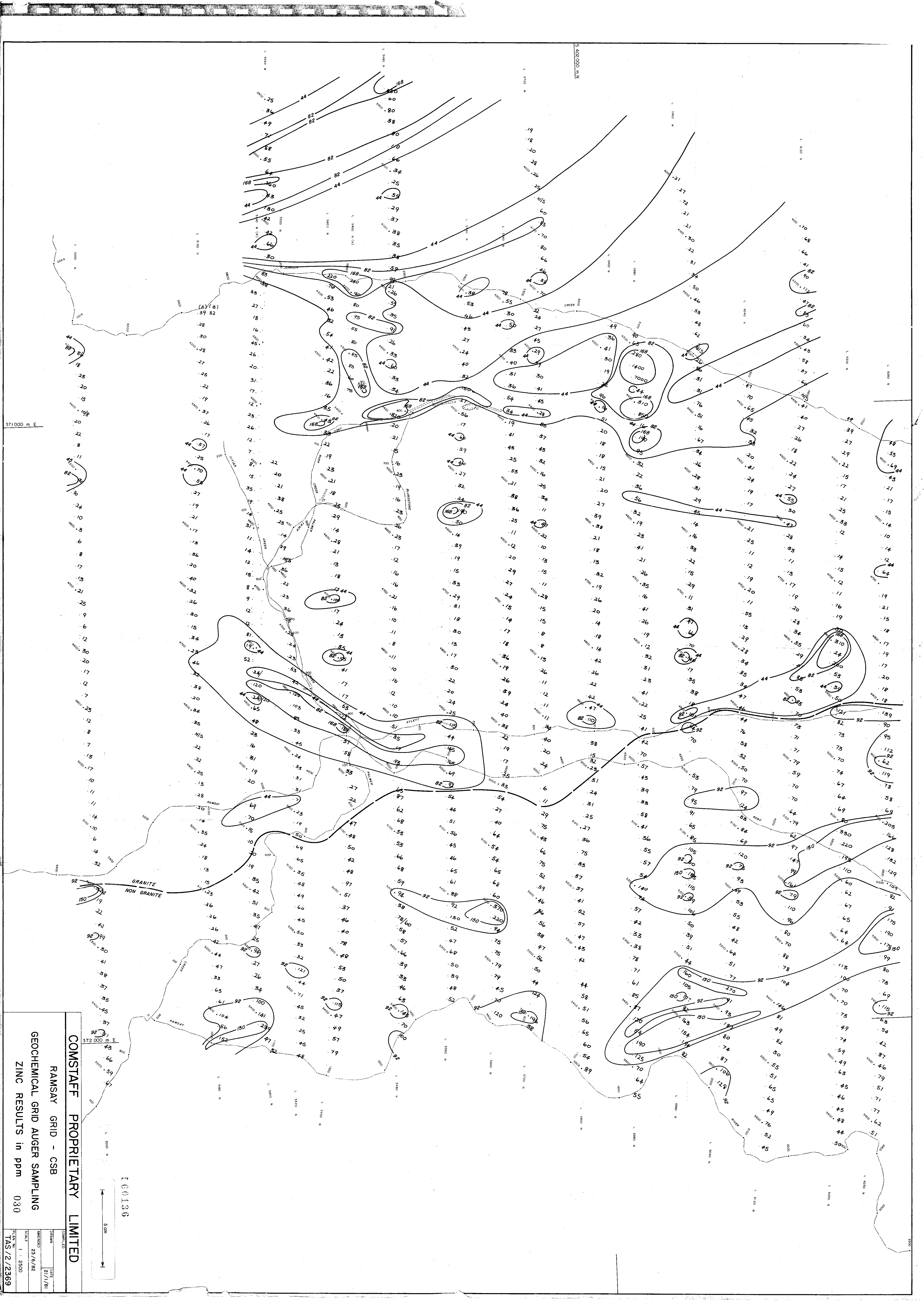
DATE

21/1/81

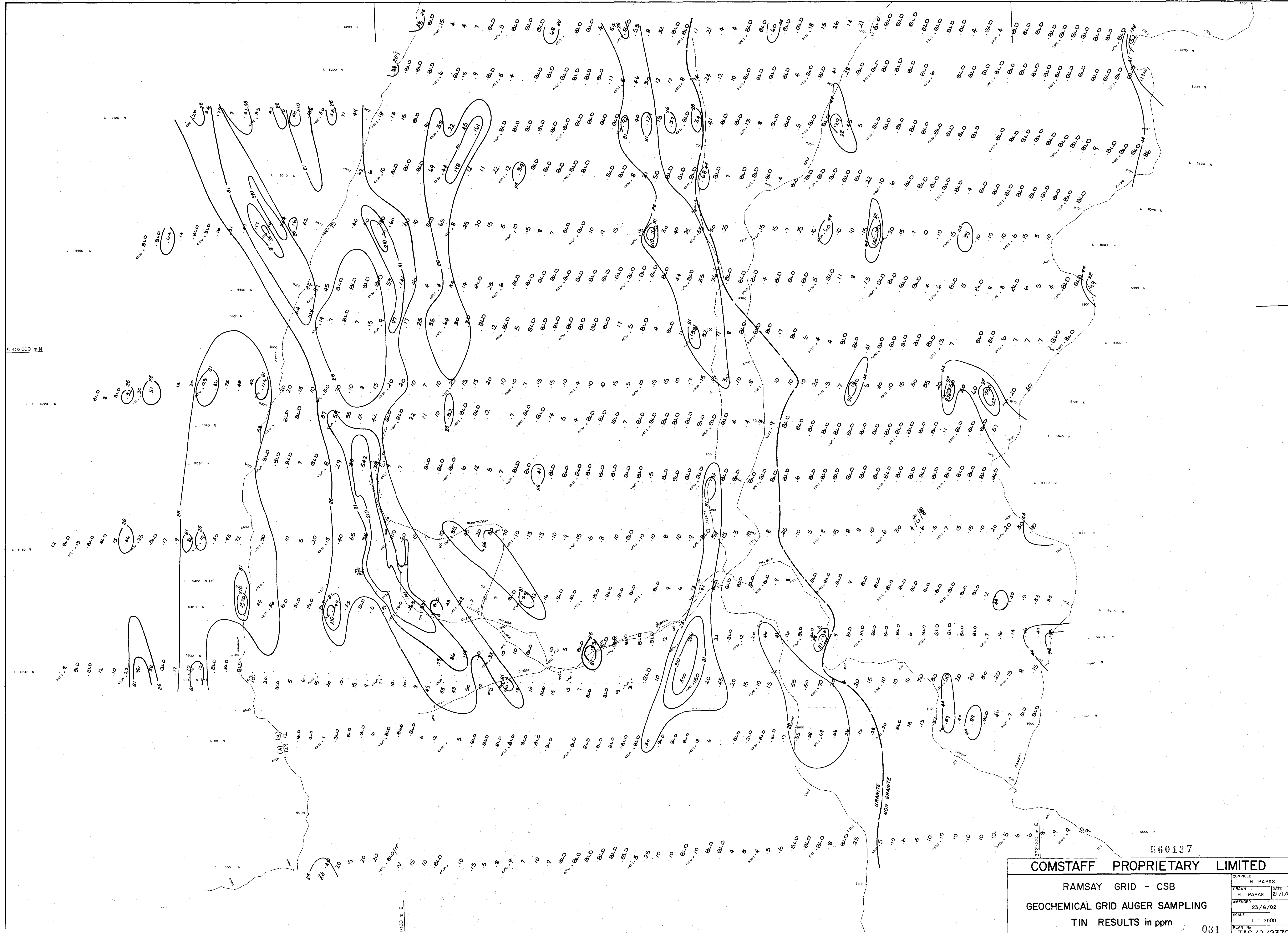
SCALE

1 : 2500

TAS/2/2369



5 402 000 m N



560137

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB

GEOCHEMICAL GRID AUGER SAMPLING

TIN RESULTS in ppm

COMPILED
H. PAPAS

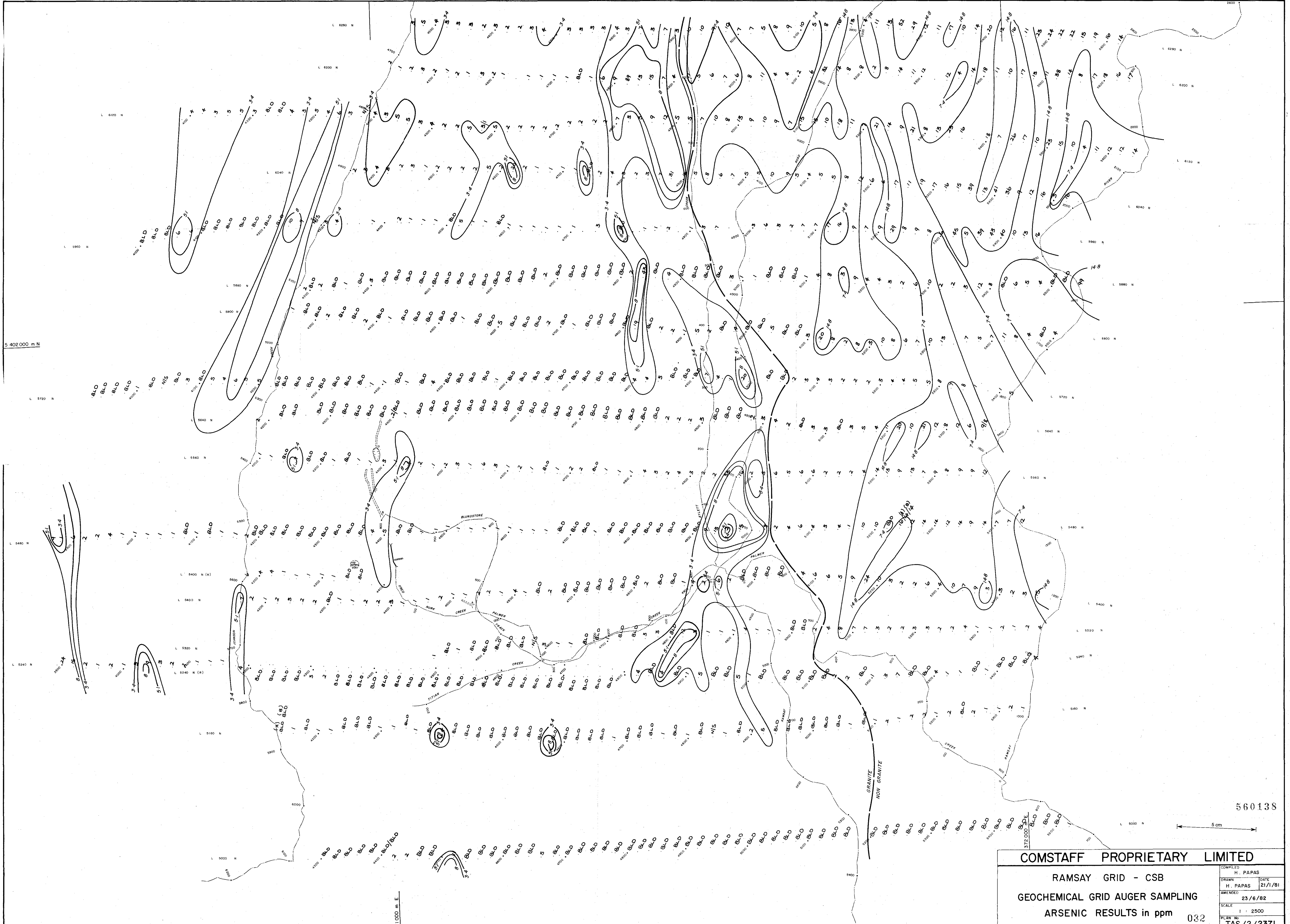
DRAWN
H. PAPAS

AMENDED
23/6/82

SCALE
1 : 2500

PLAN NO
TAS/2/2370

031



560138

5 cm

COMSTAFF PROPRIETARY LIMITED

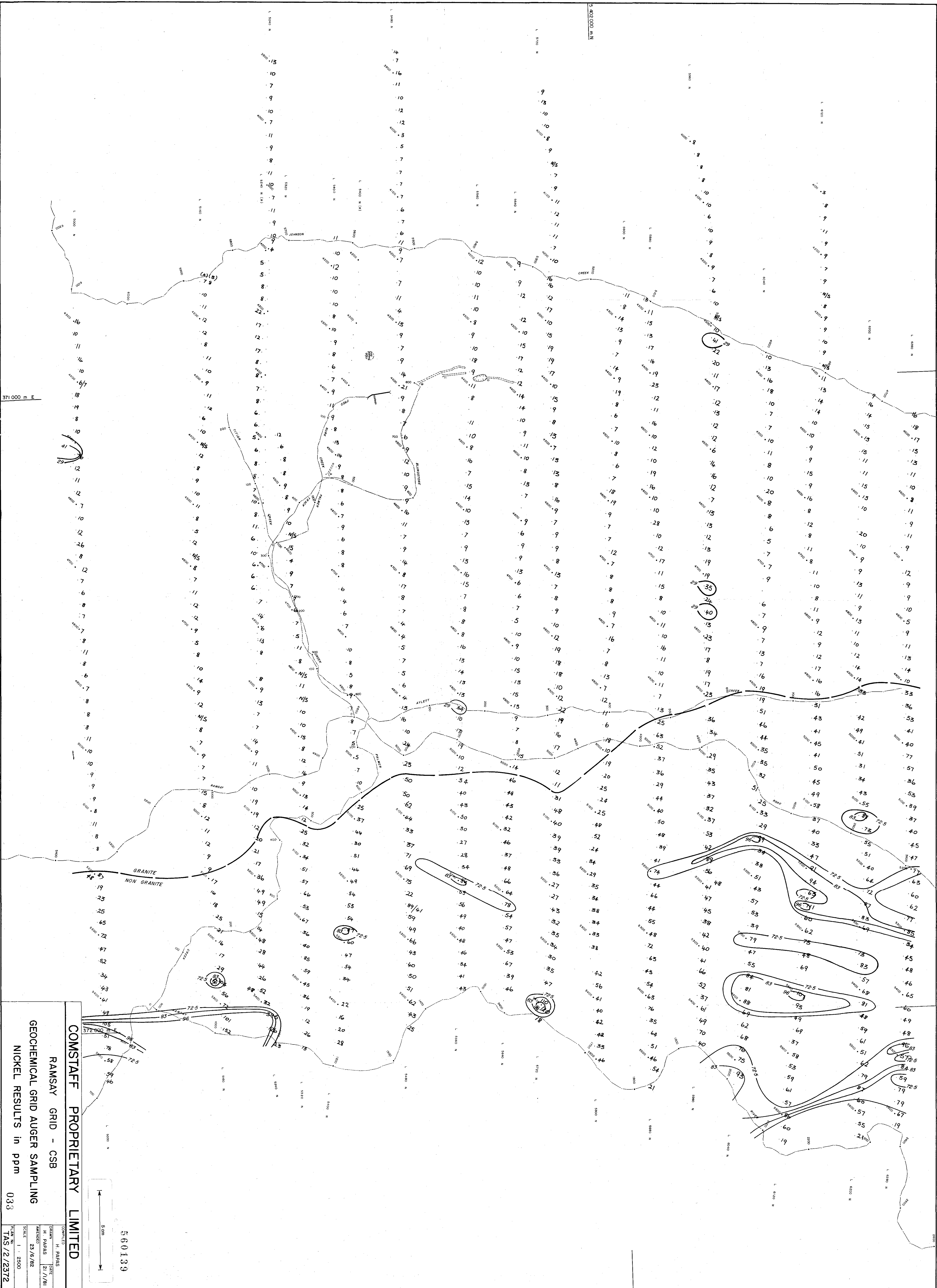
RAMSAY GRID - CSB

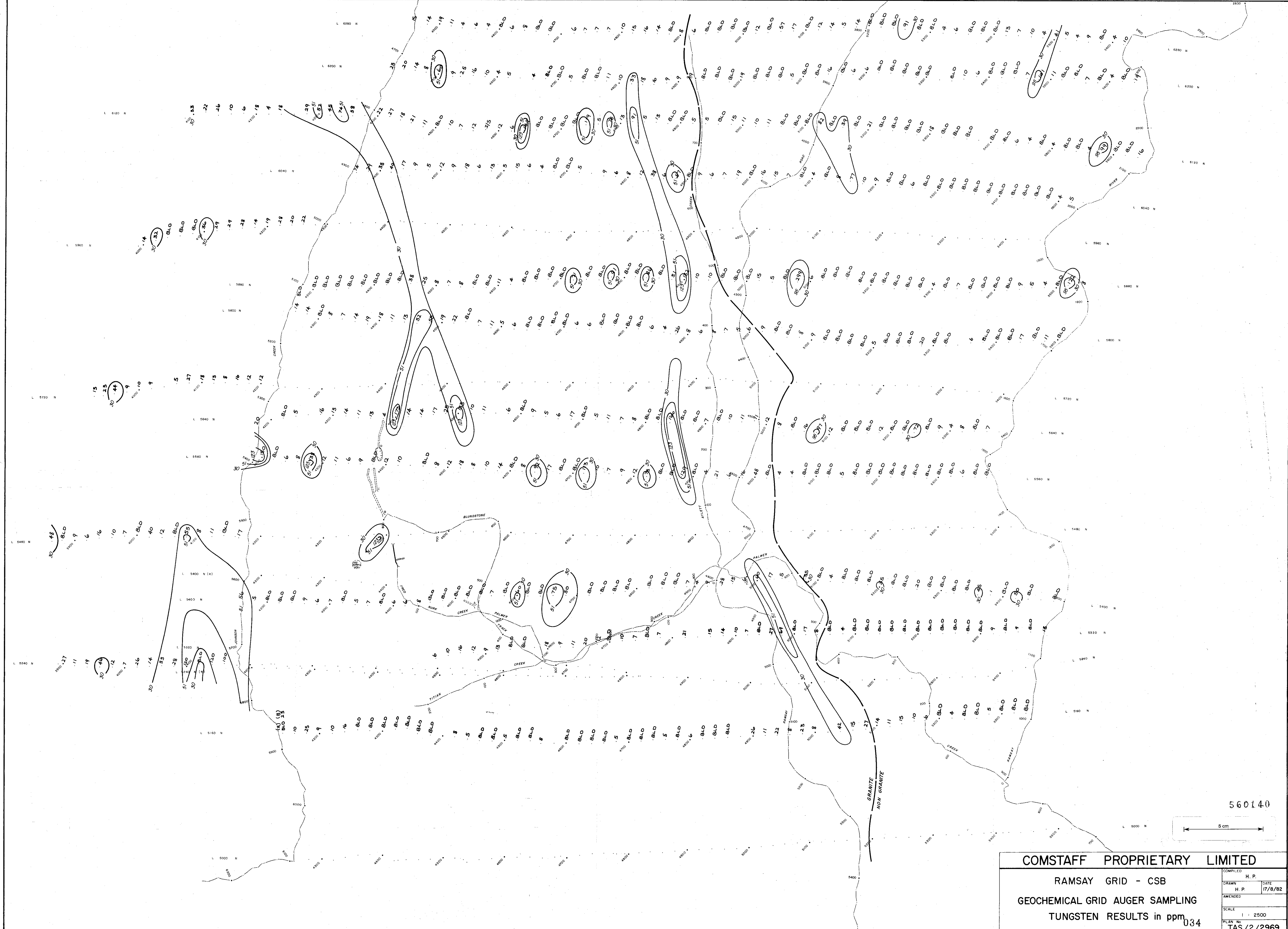
GEOCHEMICAL GRID AUGER SAMPLING

ARSENIC RESULTS in ppm

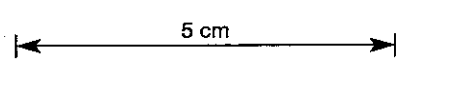
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COMPILED	H. PAPAS
DRAWN	H. PAPAS
DATE	21/1/81
AMENDED	23/6/82
SCALE	1 : 2500
PLAN No	TAS/2/2371

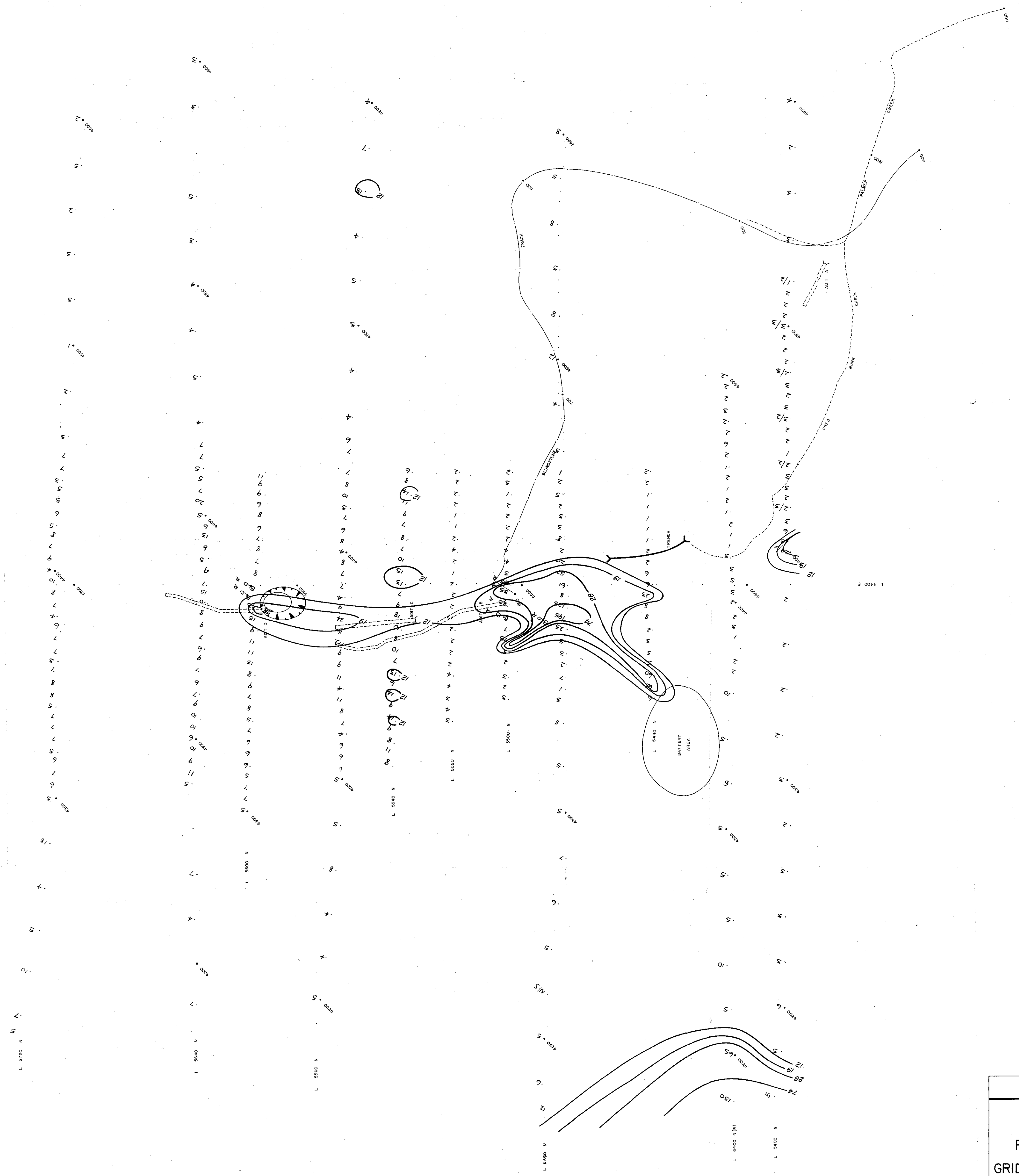




560140



COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB	
GEOCHEMICAL GRID AUGER SAMPLING	
TUNGSTEN RESULTS in ppm	
COMPILED	H. P.
DRAWN	H. P.
AMENDED	DATE
SCALE	1 : 2500
PLAN NO	TAS/2/2969



560141

5 cm

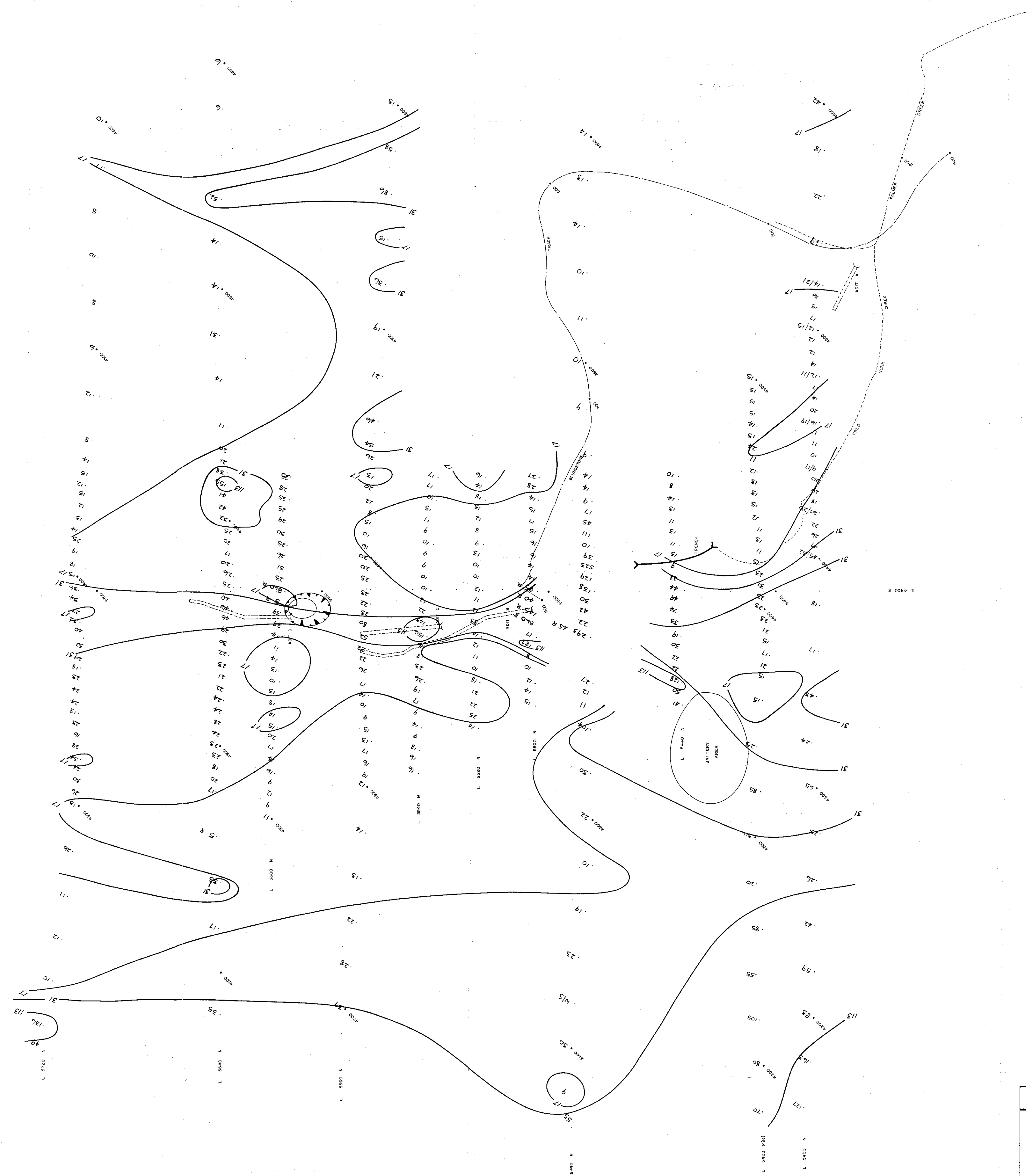
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB
 PLAN OF SOUTH BISCHOFF MINE AREA
 GRID AUGER SAMPLING RESULTS - COPPER

COMPILED	DATE
H. PAPAS	24/3/83
DRAWN	
H. PAPAS	
AMENDED	
SCALE	
1 : 1000	
PLAN No	
TAS/2/3116	

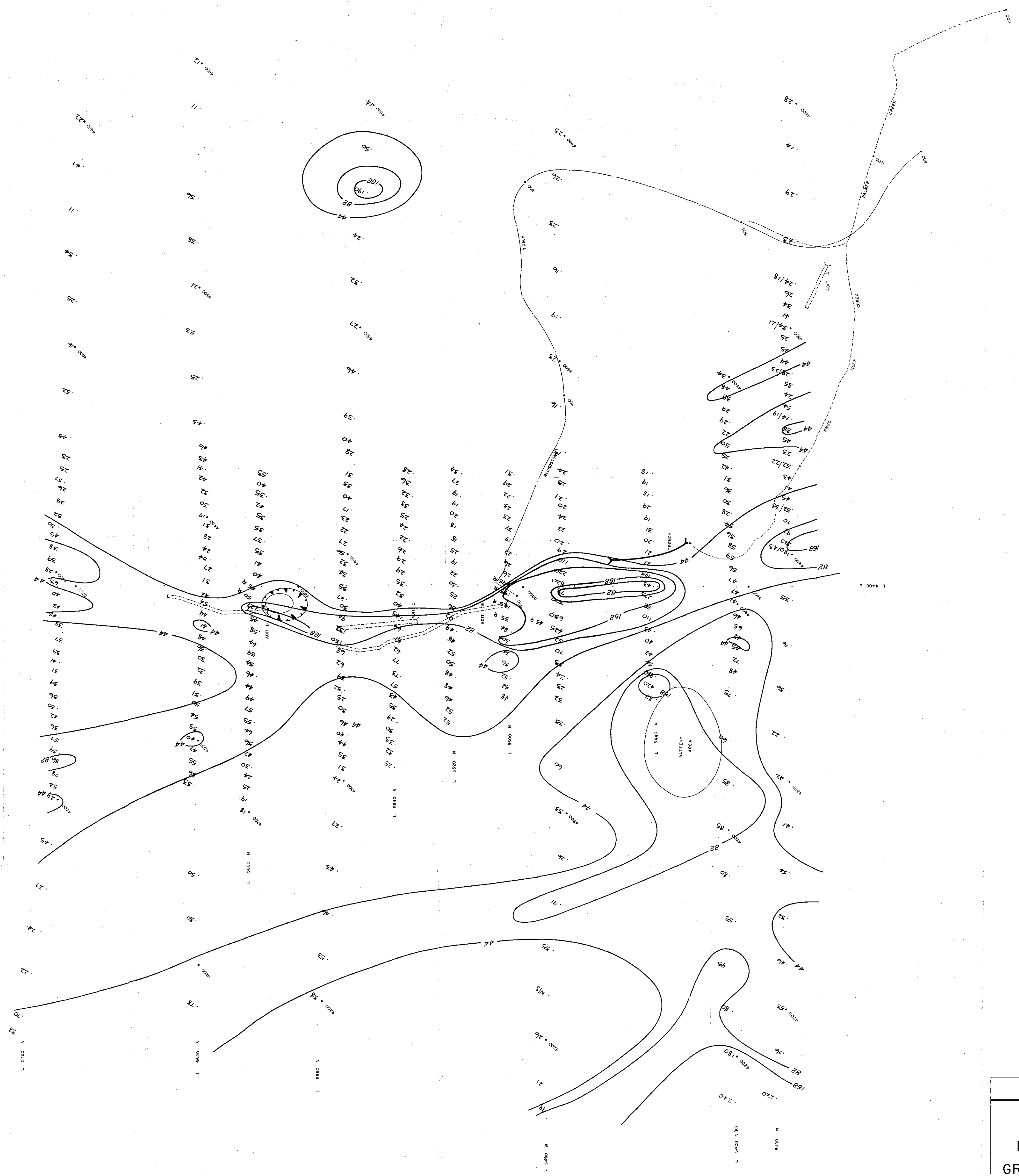
5 402 000 m N

371 000 m E



560142

COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB	
PLAN OF SOUTH BISCHOFF MINE AREA	
GRID AUGER SAMPLING RESULTS - LEAD	
036	
COMPILED H. PAPAS DATE 24/3/83 AMENDED SCALE 1 : 1000 PLAN No. TAS/2/3117	



560143

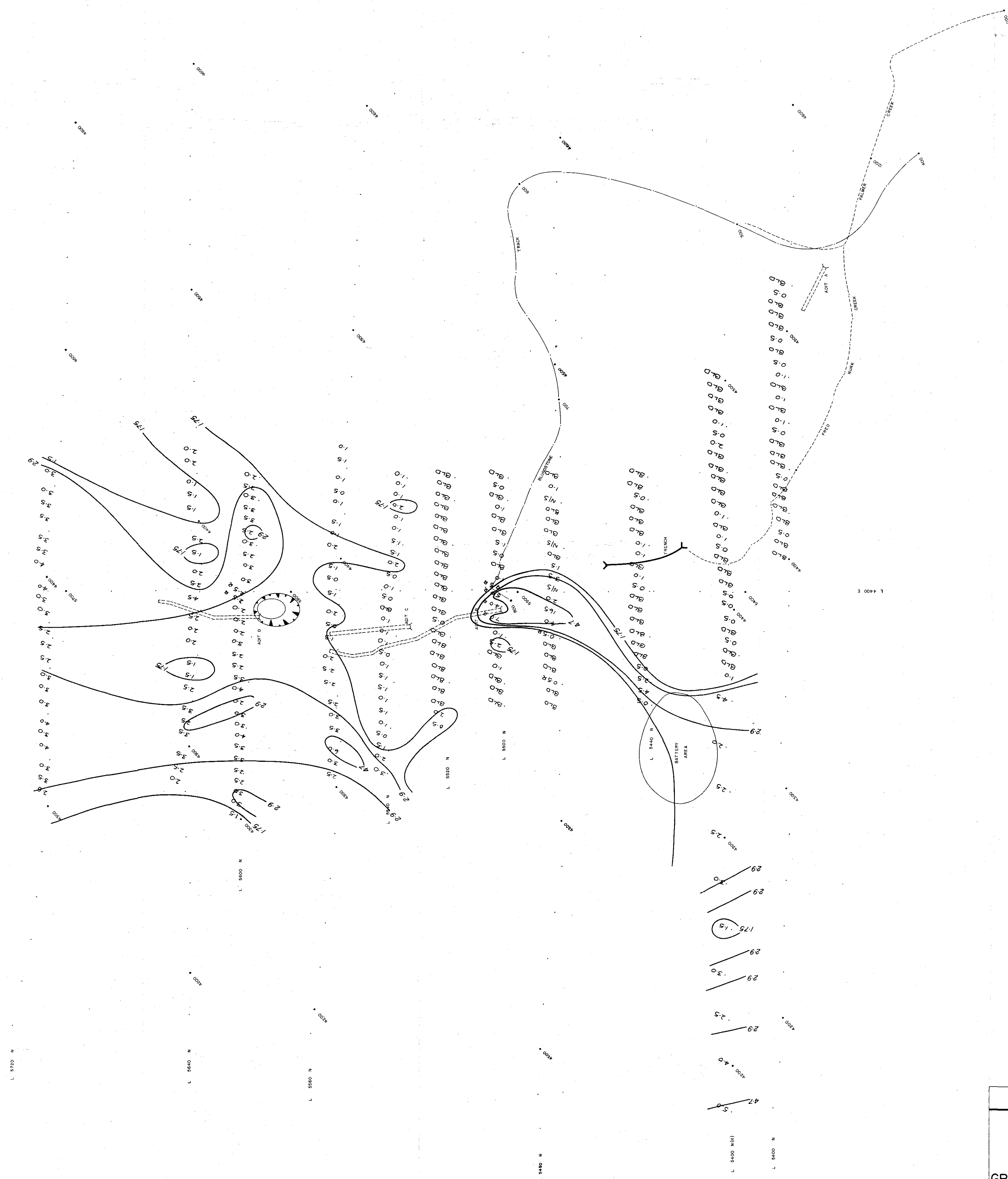
COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB	
PLAN OF SOUTH BISCHOFF MINE AREA	
GRID AUGER SAMPLING RESULTS - ZINC	
037	

COMPILED H. PAPAS DATE 24/3/83	SCALE 1 : 1000 PLAN No TAS/2/3118
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560141

COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB	
PLAN OF SOUTH BISCHOFF MINE AREA	
GRID AUGER SAMPLING RESULTS-TIN	
COMPLETED H. PAPAS DRAWN H. PAPAS AMENDED SCALE 1 : 1000 PLAN NO. TAS/2/3119	DATE 24/3/83 SCALE 1 : 1000 PLAN NO. TAS/2/3119



560147

COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB 041	
PLAN OF SOUTH BISCHOFF MINE AREA	
GRID AUGER SAMPLING RESULTS-MOLYBDENUM	
COMPILED H. PAPAS DRAWN H. PAPAS AMENDED SCALE 1 : 1000 PLAN No TAS /2 /3122	DATE 24/3/83 SCALE 1 : 1000 PLAN No TAS /2 /3122

5 402 000 m N

L 5720 W

L 5640 W

L 5660 N

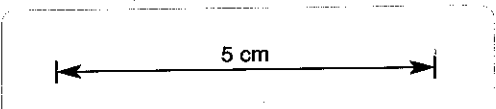
L 5460 W

L 5400 W

L 5400 N

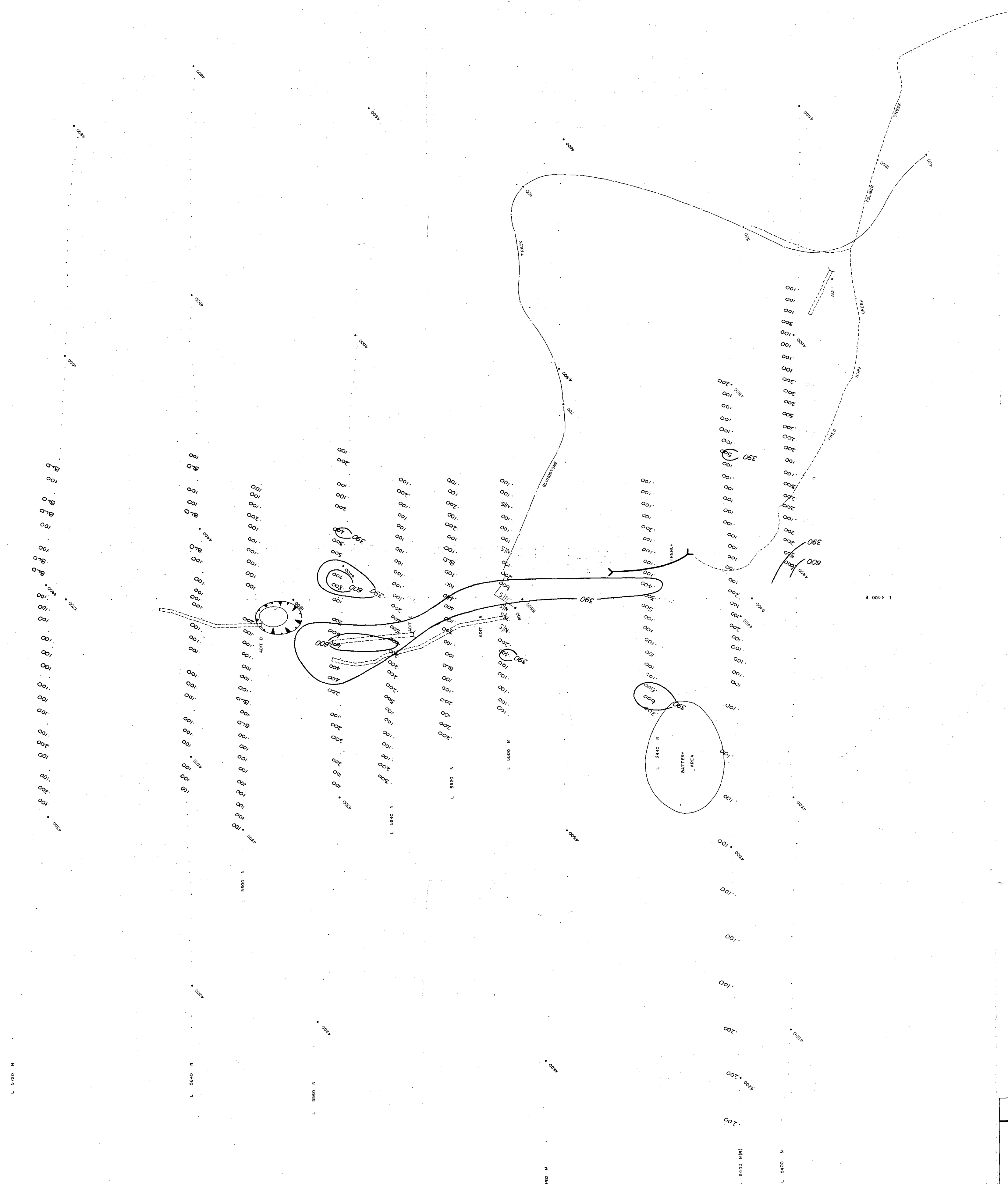
5 401 500 m N

560148



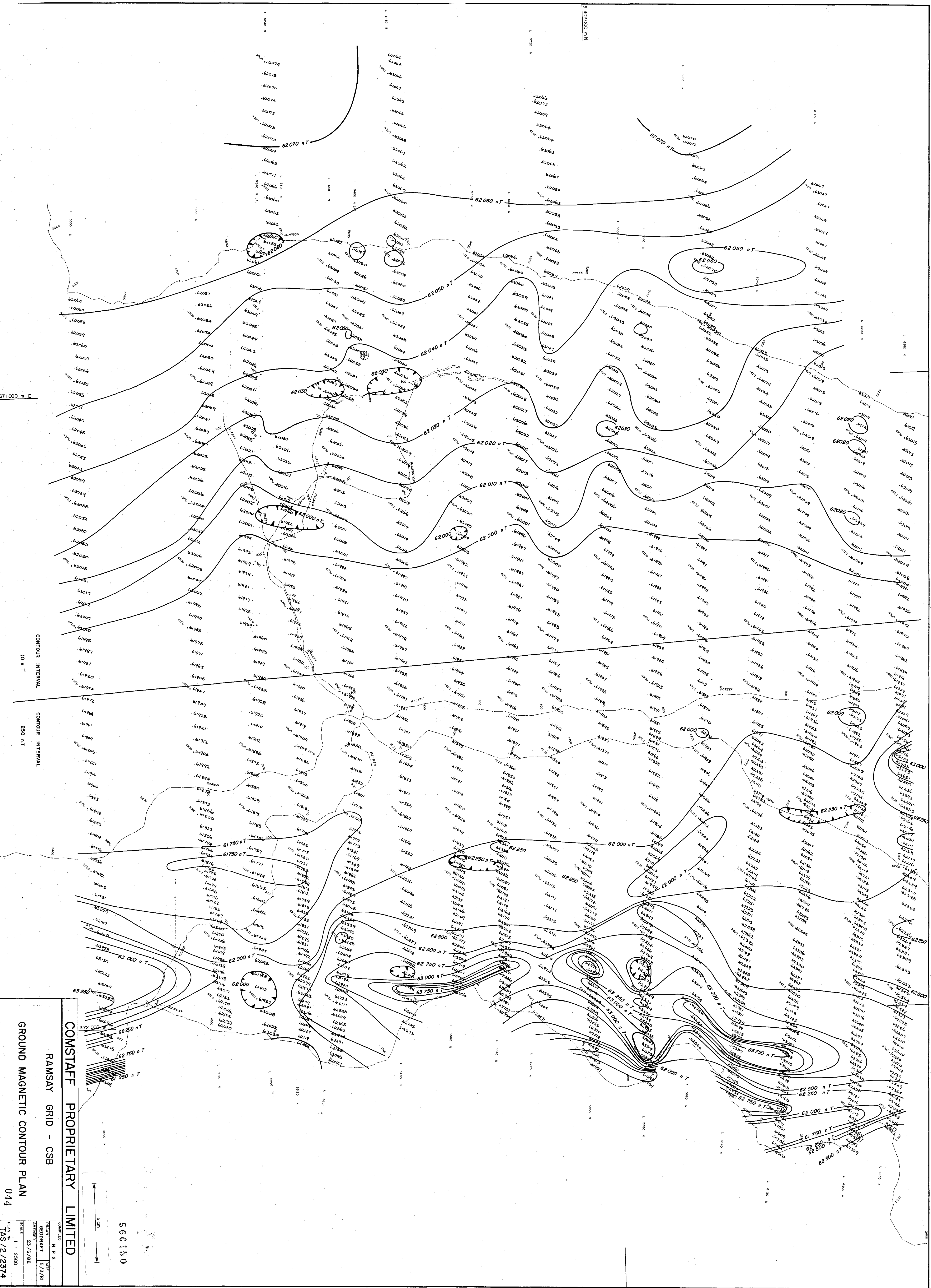
COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB 042	
PLAN OF SOUTH BISCHOFF MINE AREA	
GRID AUGER SAMPLING RESULTS - LITHIUM	
COMPILED H. PAPAS	DATE 24/3/83
DRAWN H. PAPAS	AMENDED
SCALE 1 : 1000	PLAN NO. TAS/2/3123

5 402 000 m N



COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB 043	
PLAN OF SOUTH BISCHOFF MINE AREA	
GRID AUGER SAMPLING RESULTS-FLUORINE	
COMPILED H. PAPAS	DATE 24/3/83
DRAWN H. PAPAS	AMENDED
SCALE 1 : 1000	PLAN NO. TAS/2/3124

60149

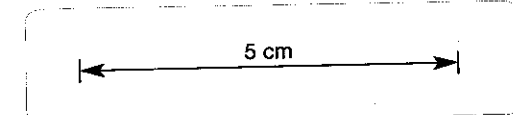


COMSTAFF PROPRIETARY LIMITED
RAMSAY GRID - CSB
GROUND MAGNETIC CONTOUR PLAN
560150
TAS/2/2374



371 000 m E

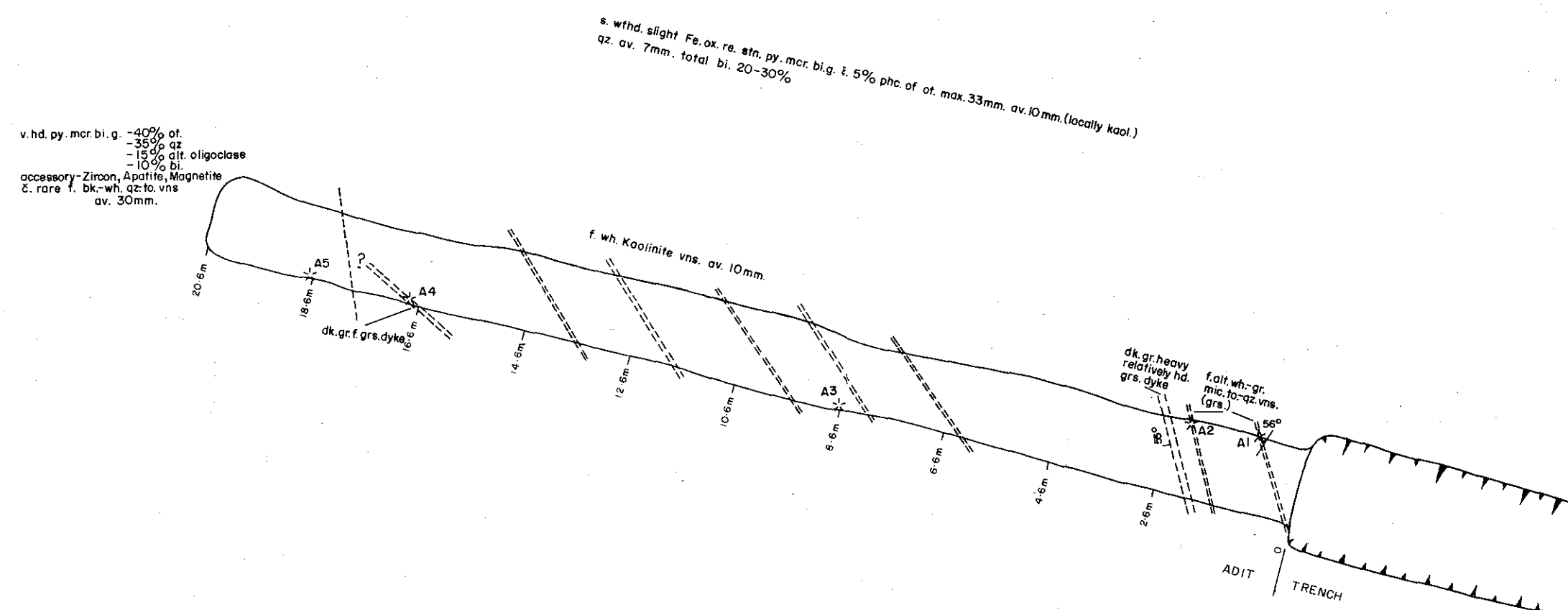
560151



COMSTAFF PROPRIETARY LIMITED

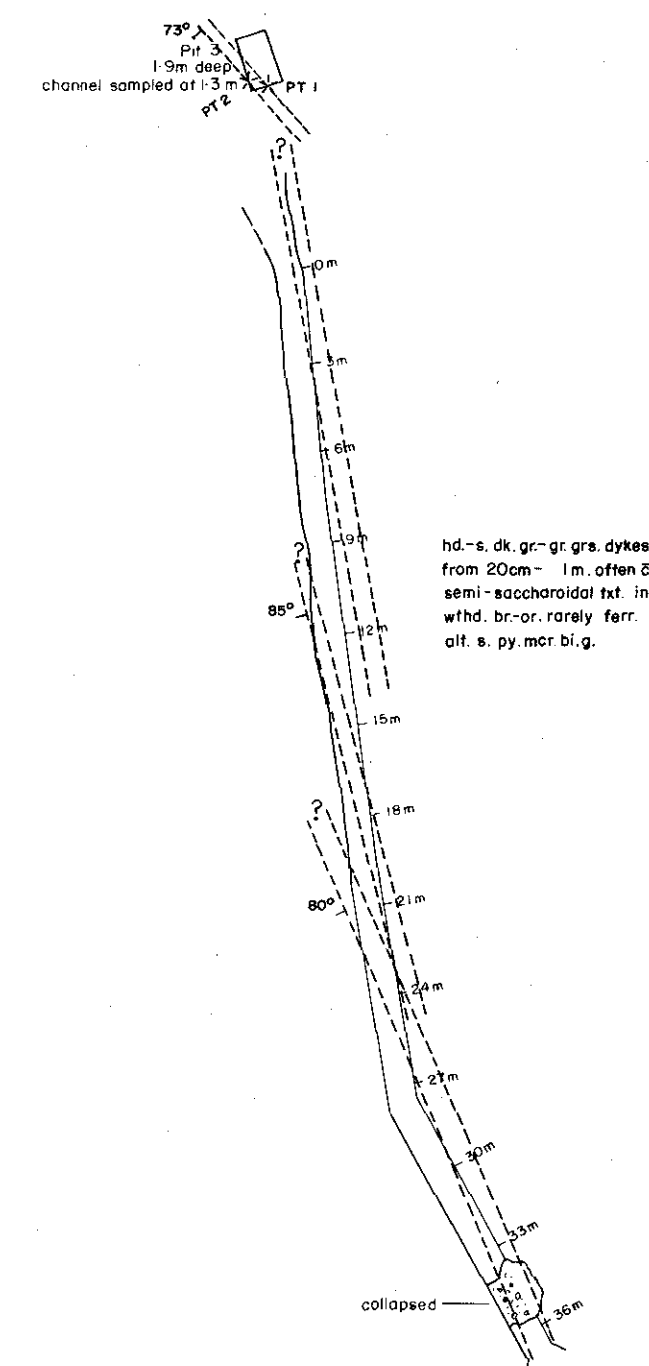
RAMSAY GRID - CSB
 PLAN OF SOUTH BISCHOFF MINE AREA
 GEOLOGICAL DETAILS 045

COMPILED	DATE
DRAWN	DATE
AMENDED	DATE
SCALE	1 : 1000
PLAN NO.	TAS/2/3113



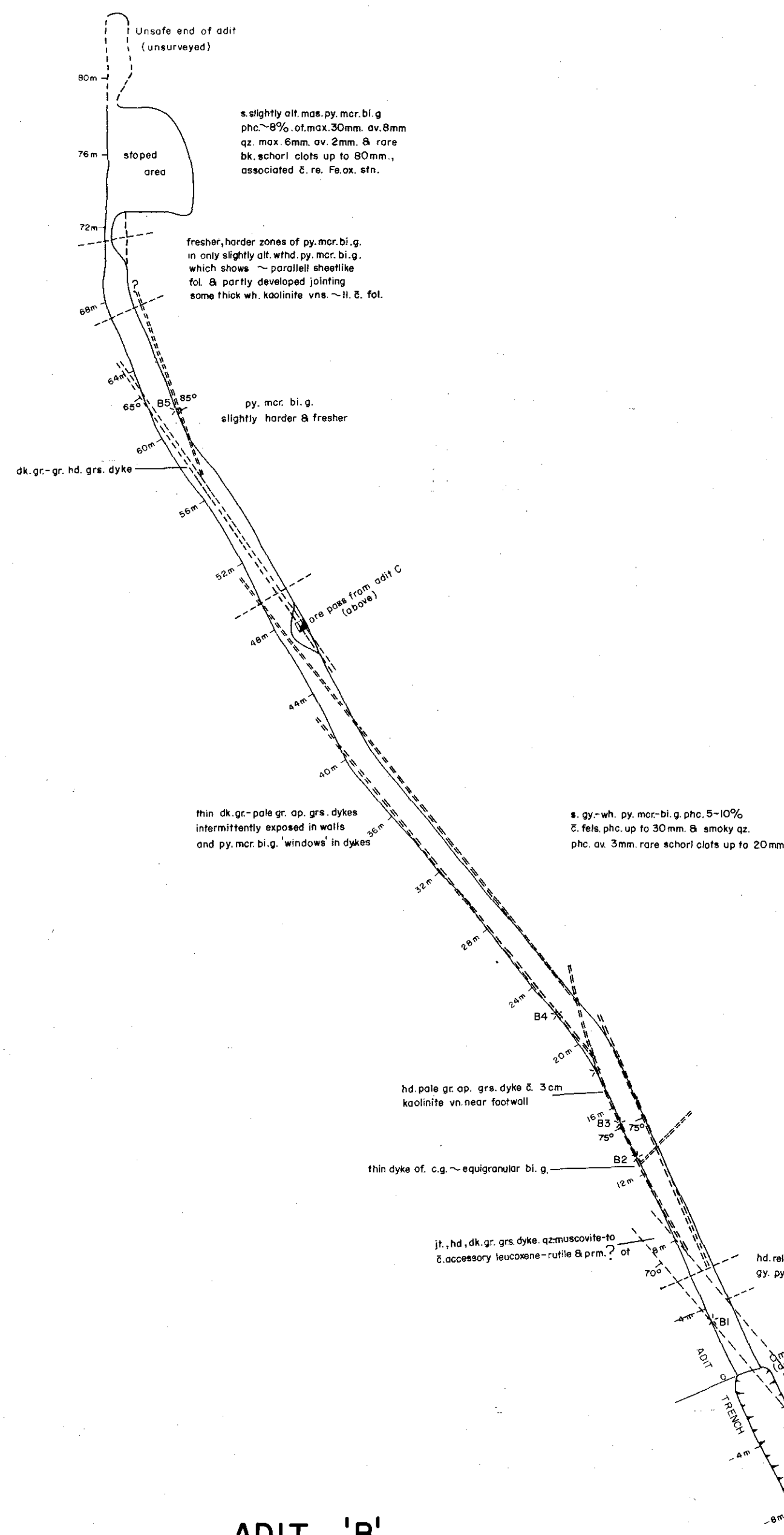
ADIT 'A'

SCALE - 1 : 100



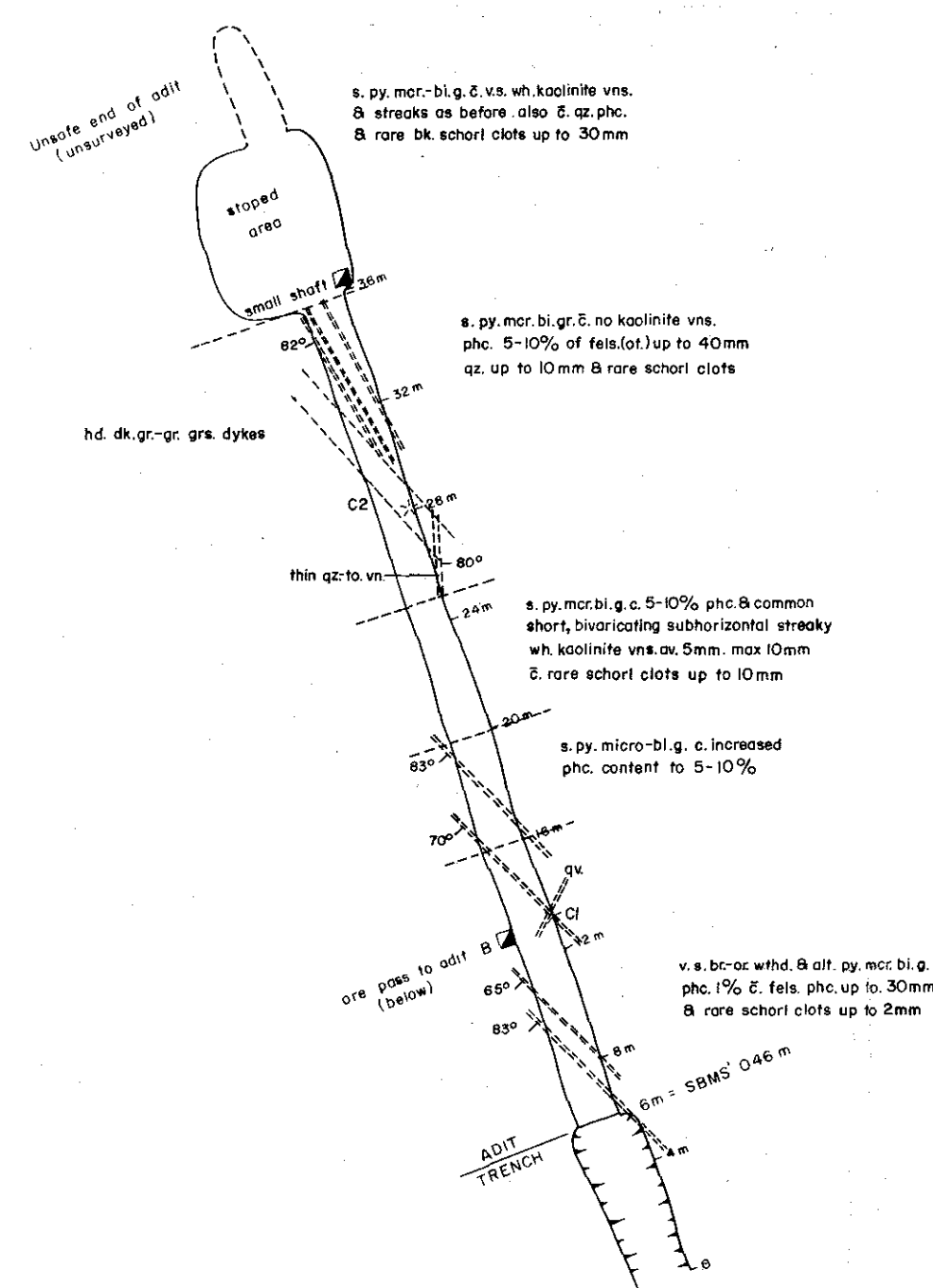
MAIN COSTEAN

SCALE - 1 : 250



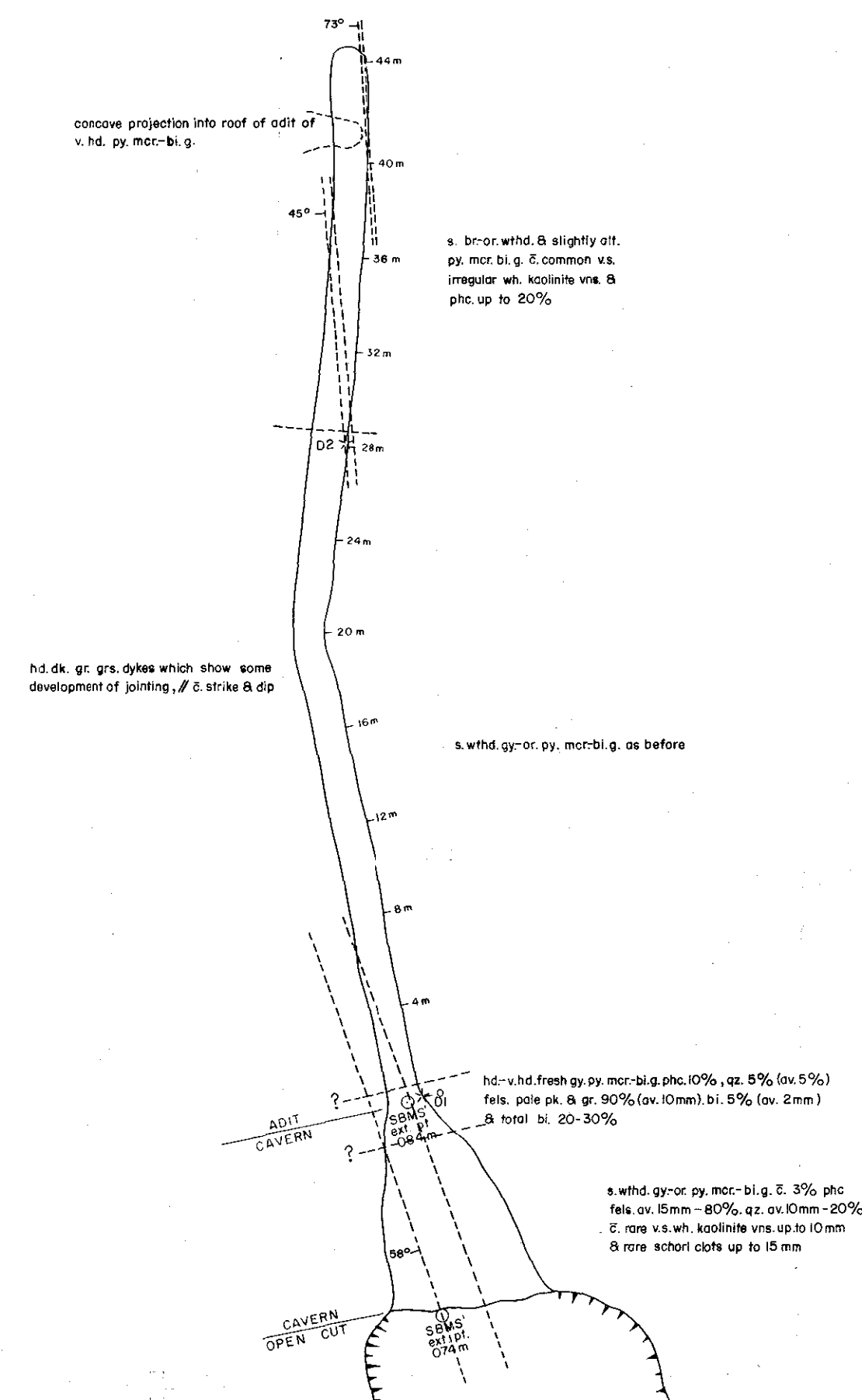
ADIT 'B'

SCALE - 1 : 250



ADIT 'C'

SCALE - 1 : 250



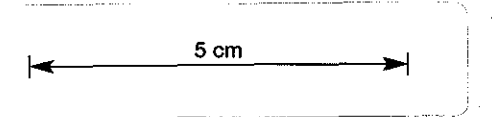
ADIT 'D'

SCALE - 1 : 250

FOR LOCATION OF THESE ADITS AND
 COSTEAN, SEE PLAN TAS/2/2365

☆ = ROCK SAMPLE LOCATION

560152



COMSTAFF PROPRIETARY LIMITED			
RAMSAY GRID - CSB			
SOUTH BISCHOFF MINE AREA, PLAN OF			
ADITS A, B, C, D & MAIN COSTEAN			
DETAILED GEOLOGICAL PLAN 046			
COMPILED	N. P. G.	DRAWN	DATE
GEOLOGICAL	29/5/81	AMENDED	
SCALE	AS SHOWN	PLAN NO.	TAS/2/2606

[illegible]

600 m

RAMSAY GRID - CSB
SECTION OF DRILLHOLE DDH CSB 1
GEOLOGICAL DETAILS 047

DRAWN GEODRAFT	COMPILED N.P. GREEN	SCALE 1 : 500	TAS/2/3210
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DDH CSB 1
(SECTION)

weathered porphyritic biotite microgranite

4400

4300

L 5600 N

650 m

fresh porphyritic biotite microgranite

slightly altered fractured porphyritic
biotite microgranite

greisen

fresh porphyritic biotite microgranite

greisen

E.O.H. 89.4 m

600 m

5 401 860 m N

DDH CSB 1
(PLAN)

5 401 850 m N

5 401 840 m N

370 900 m E

371 000 m E

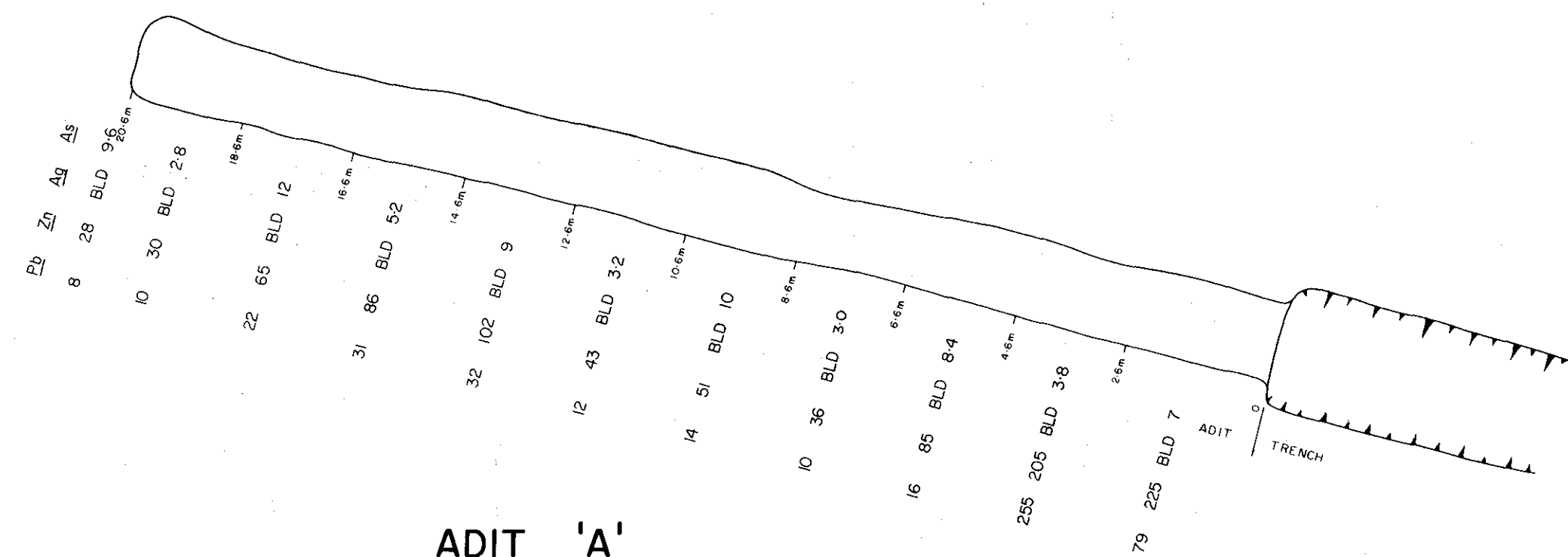
560154

5 cm

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB
SECTION OF DRILLHOLE DDH CSB 1
GEOLOGICAL INTERPRETATION

DRAWN GEODRAFT	COMPILED N.P. GREEN	SCALE 1 : 500	TAS/2/3221
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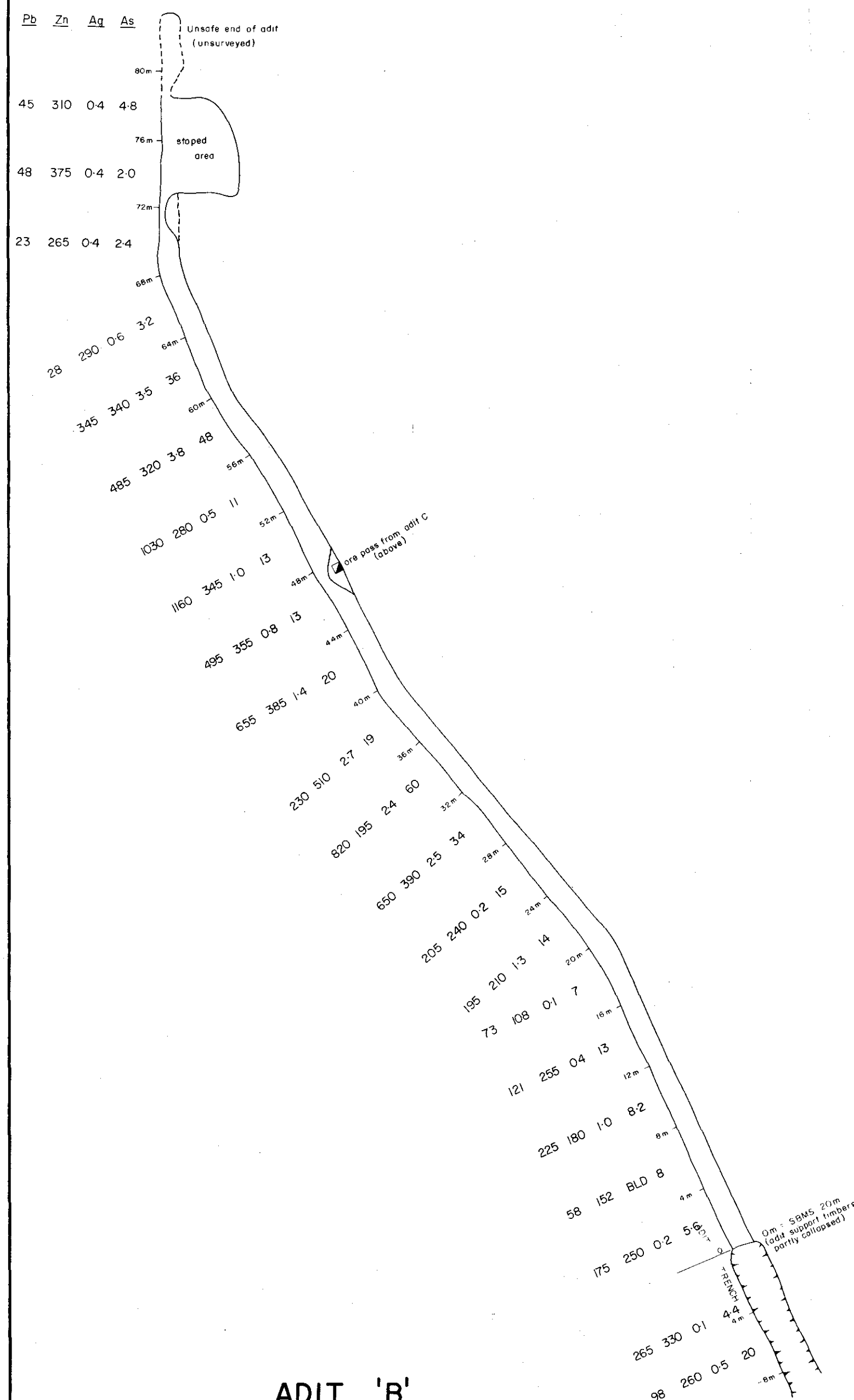
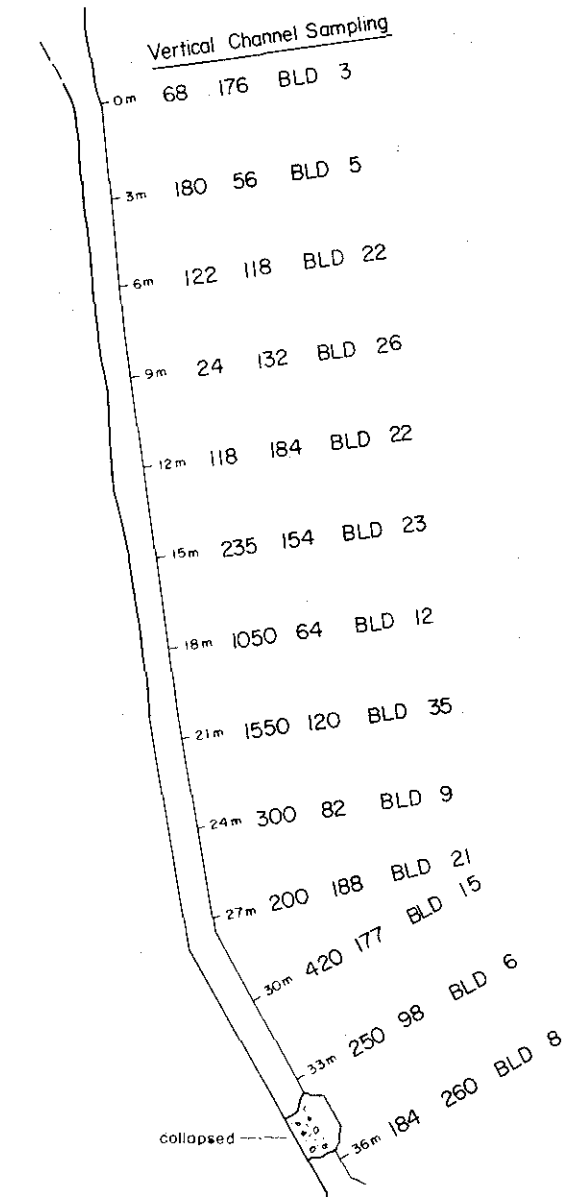
ADIT 'A'

SCALE - 1 : 100

MAIN COSTEAN

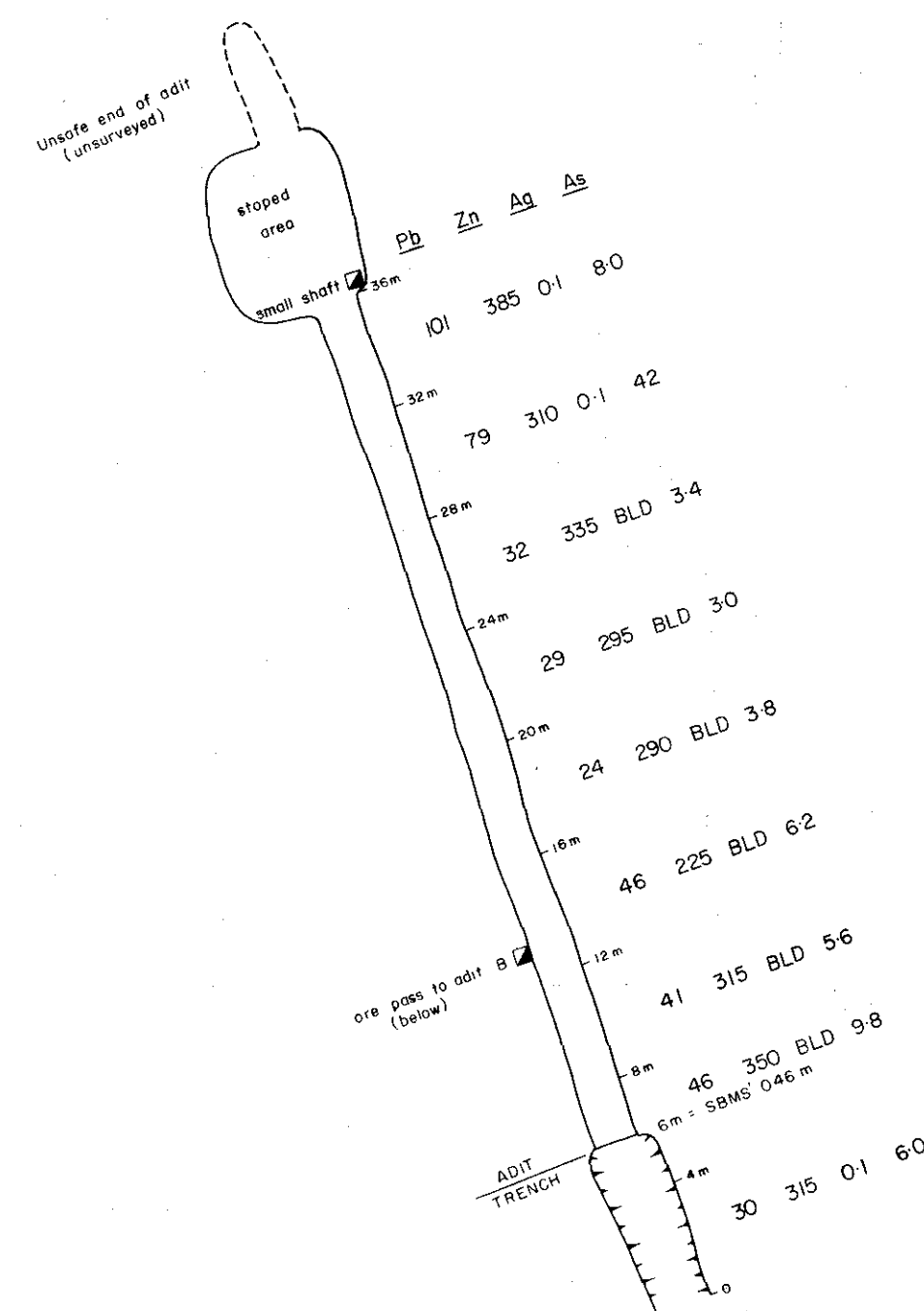
SCALE - 1 : 250

Pb	Zn	Ag	As
27	102	BLD	2
33	107	BLD	1
34	132	BLD	4
31	175	BLD	3



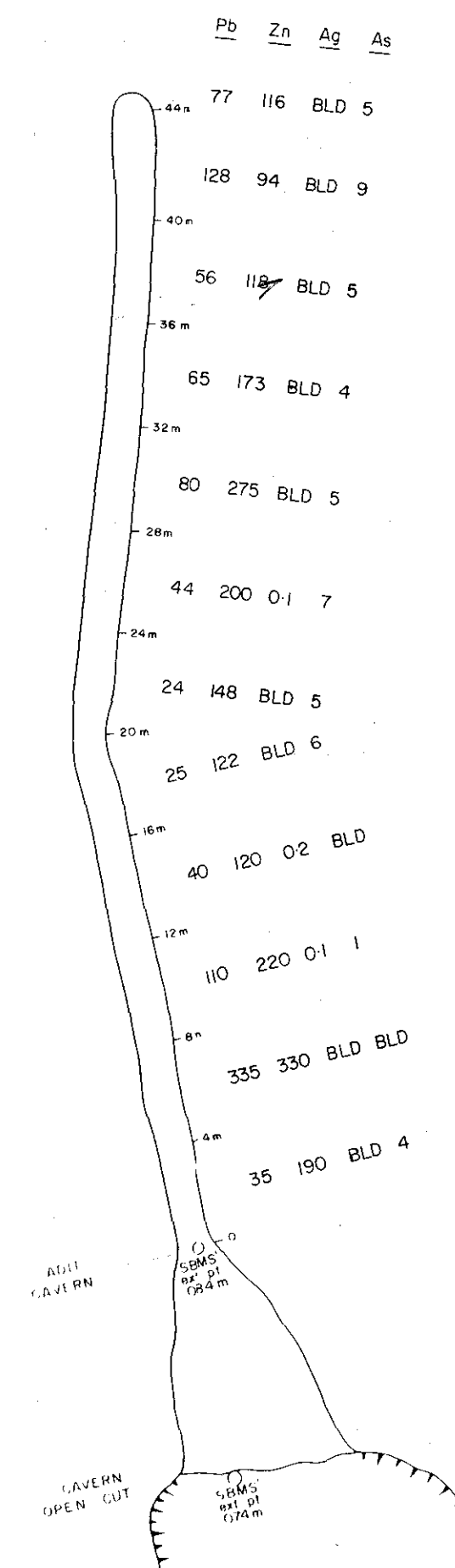
ADIT 'B'

SCALE - 1 : 250



ADIT 'C'

SCALE - 1 : 250



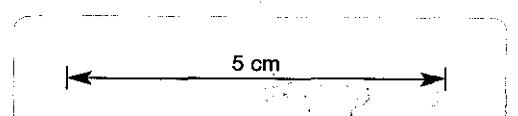
ADIT 'D'

SCALE - 1 : 250



FOR LOCATION OF THESE ADITS AND
COSTEAN, SEE PLAN TAS/2/2365

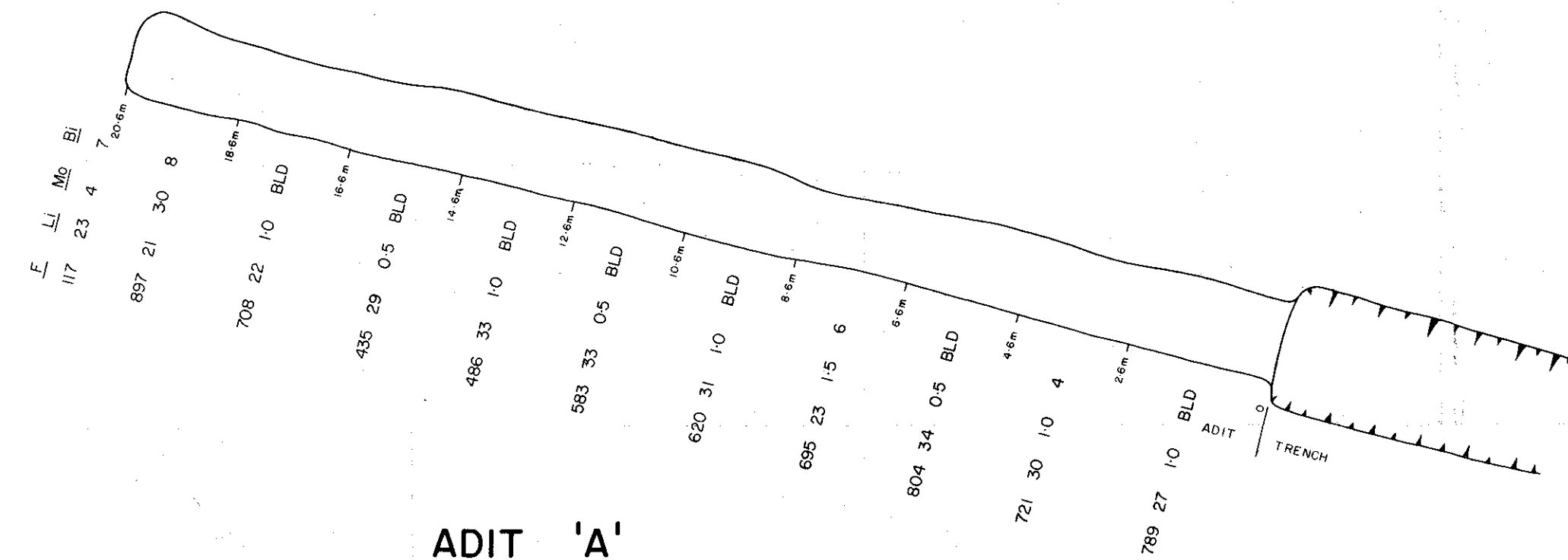
560155



COMSTAFF PROPRIETARY LIMITED

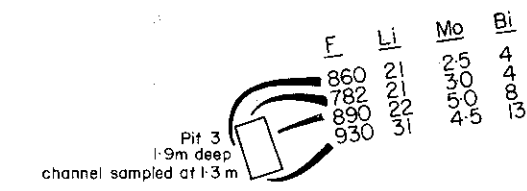
RAMSAY GRID - CSB 049
SOUTH BISCHOFF MINE AREA, PLAN OF
ADITS A,B,C,D & MAIN COSTEAN
GEOCHEM. SAMPLE RESULTS FOR Pb,Zn,Ag,As.

COMPILED	N.P.G.
DRAWN	DATE
GEO DRAFT	29/5/81
AMENDED	
SCALE	AS SHOWN
PLAN NO.	TAS/2/2608



ADIT 'A'

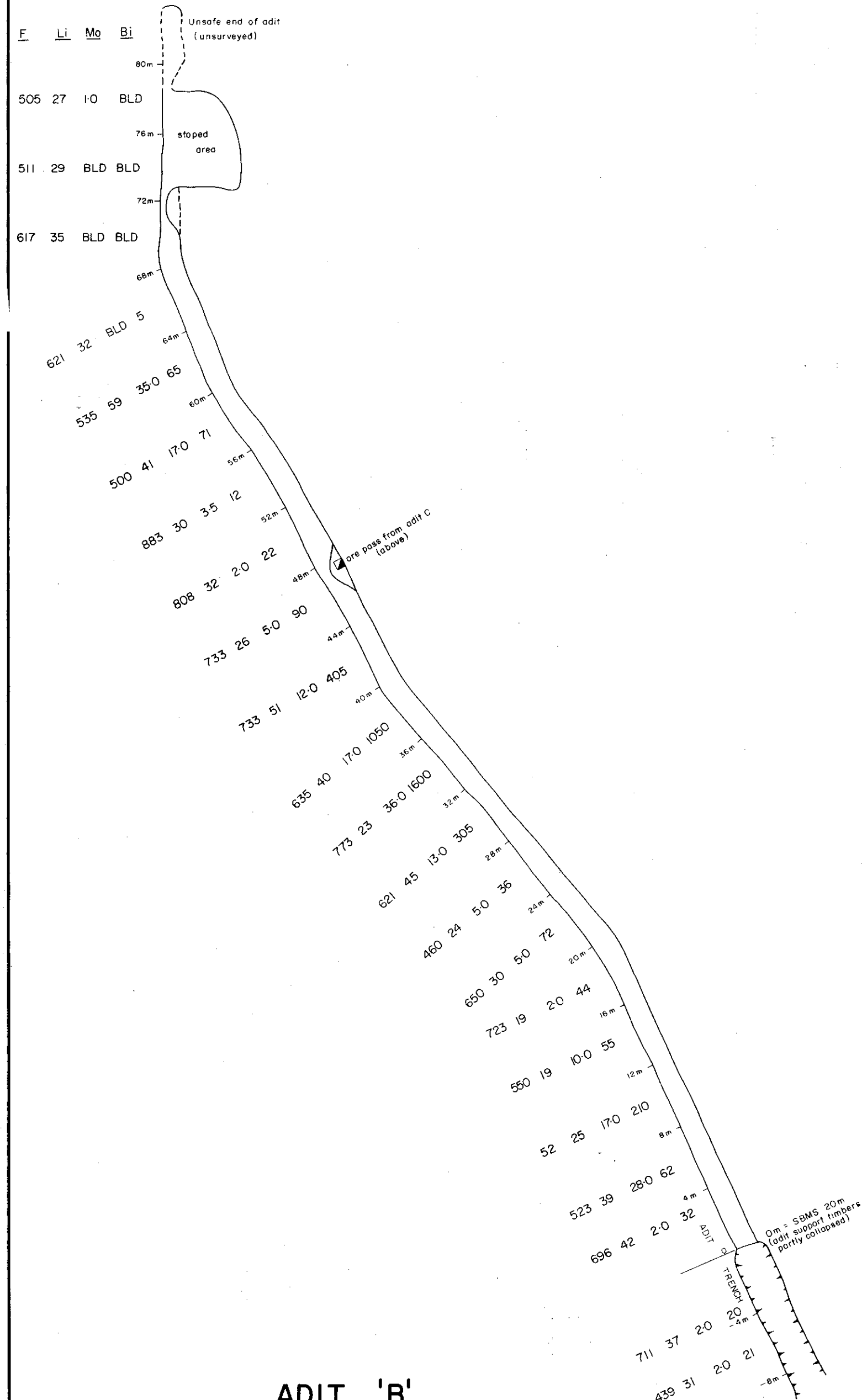
SCALE - 1:100



Vertical Channel Sampling

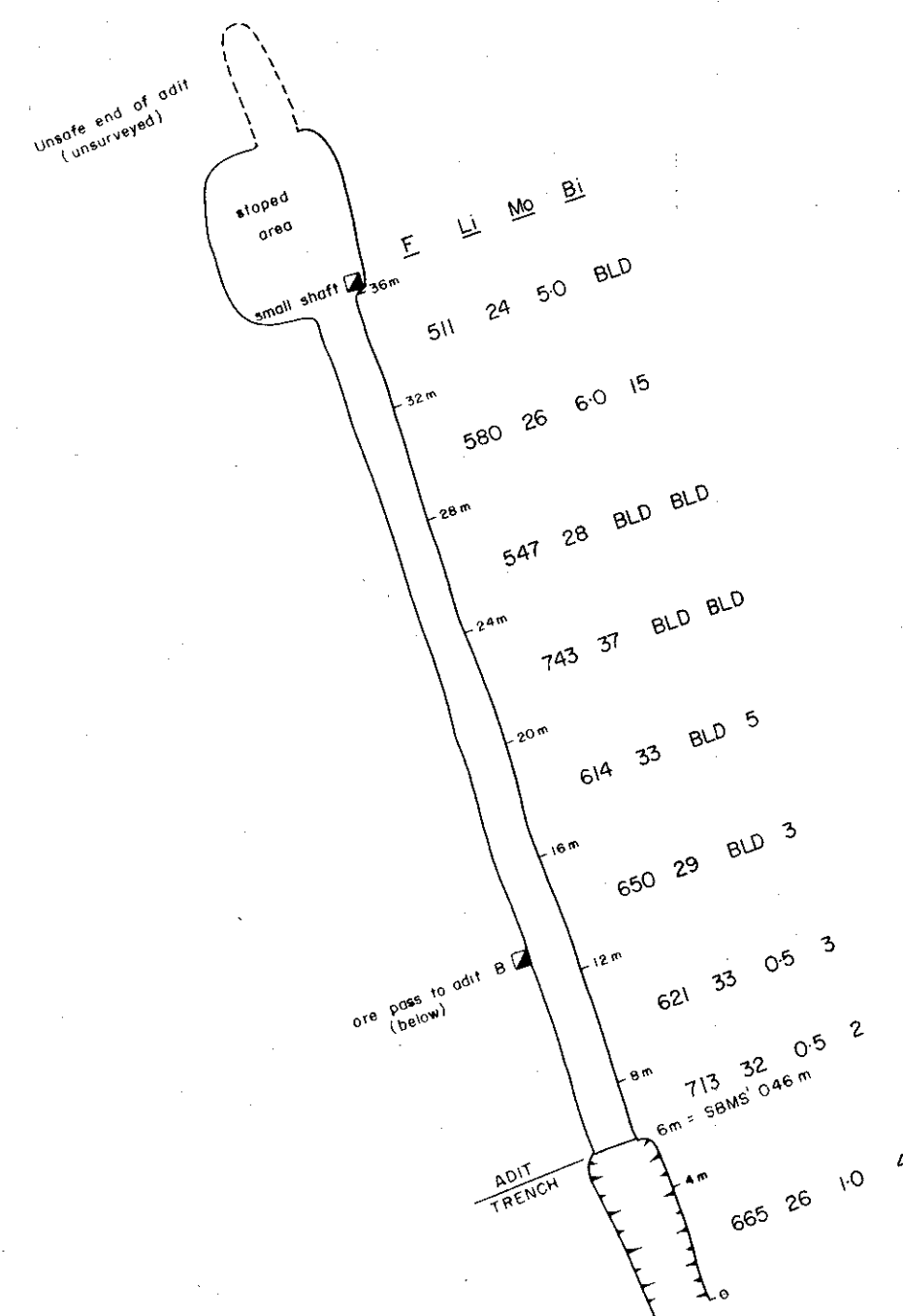
MAIN COSTEAN

SCALE - 1:250



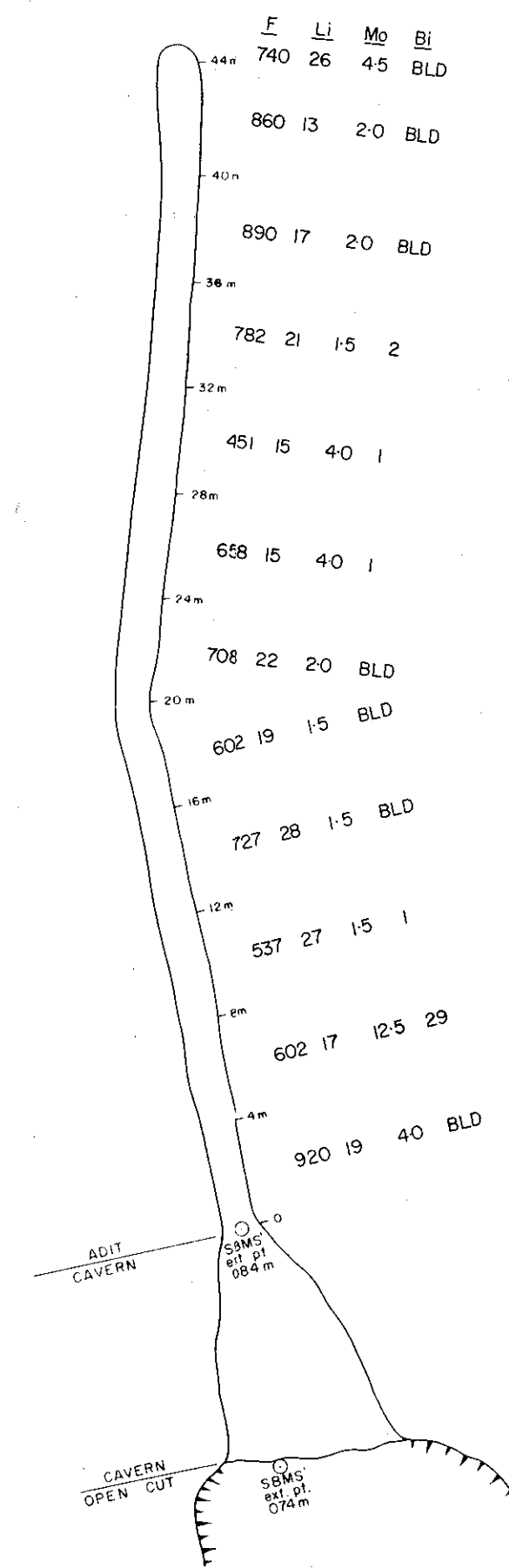
ADIT 'B'

SCALE - 1:250



ADIT 'C'

SCALE - 1:250



ADIT 'D'

SCALE - 1:250



FOR LOCATION OF THESE ADITS AND COSTEAN, SEE PLAN TAS/2/2365

560156



COMSTAFF PROPRIETARY LIMITED	
RAMSAY GRID - CSB 050	
SOUTH BISCHOFF MINE AREA, PLAN OF	
ADITS A,B,C,D & MAIN COSTEAN	
GEOCHEM. SAMPLE RESULTS FOR F, Li, Mo, Bi.	
COMPILED	N.P.G.
DRAWN	DATE
GEOGRAPHY	29/5/81
AMENDED	
SCALE	AS SHOWN
PLAN NO.	TAS/2/2609

DDH CSB 1
(SECTION)

L 5600 N

650 m

5 401 860 m N

DDH CSB 1
(PLAN)

5 401 850 m N

5 401 840 m N

370 900 m E

E.O.H. 89.4 m

371 000 m E

600 m

560157

5 cm

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB 051
SECTION OF DRILLHOLE DDH CSB 1
GEOCHEMICAL RESULTS FOR Sn/W/Cu²⁺

DRAWN GEODRAFT	COMPILED H. PAPAS	SCALE 1 : 500	TAS/2/32II
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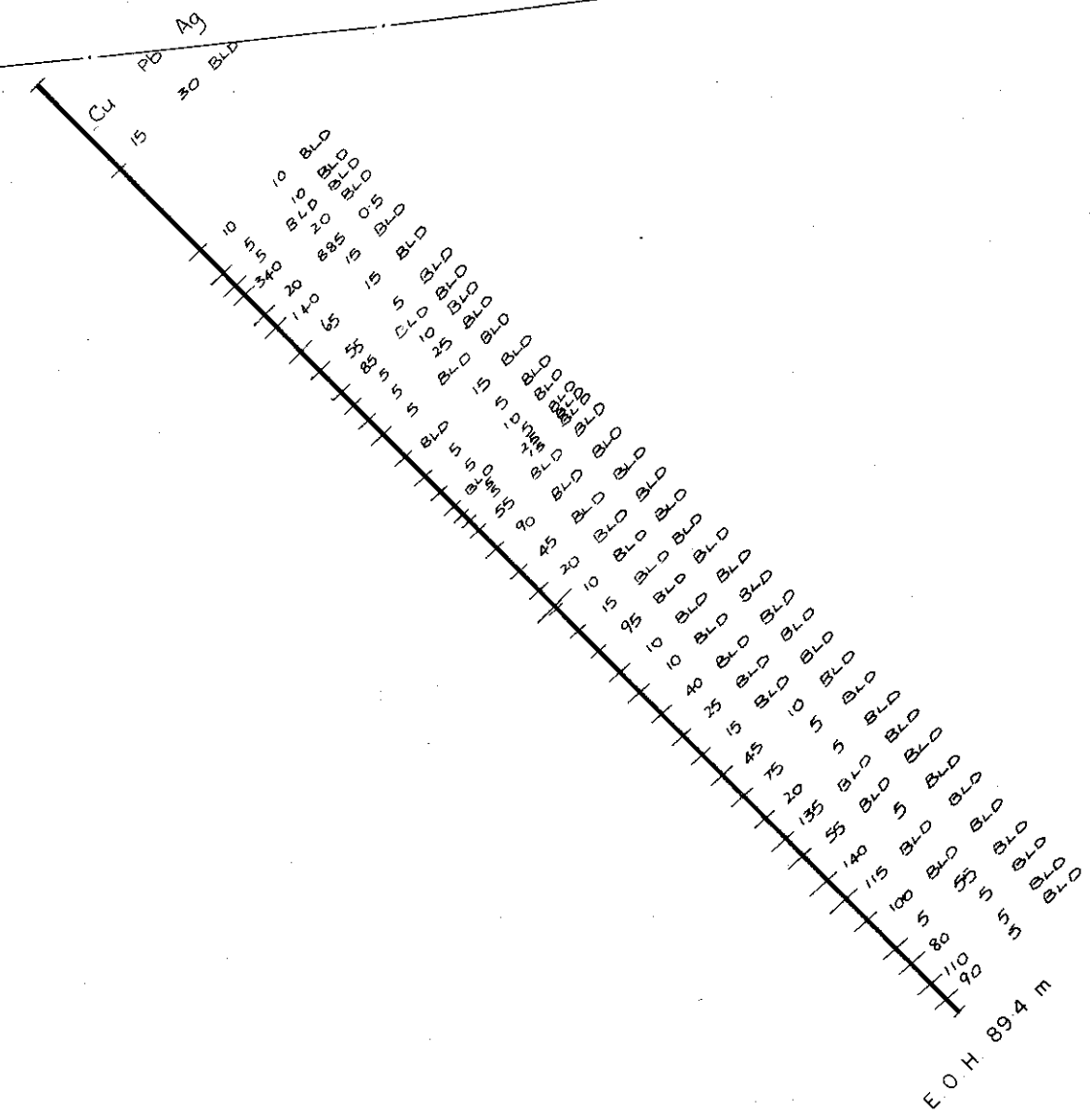
DDH CSB I
(SECTION)

4400

4300

L 5600 N

650 m



E.O.H. 894 m

600 m

5 401 860 m N

DDH CSB I
(PLAN)

5 401 850 m N

5 401 840 m N

370 900 m E

371 000 m E

560158

5 cm

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB 052
SECTION OF DRILLHOLE DDH CSB I
GEOCHEMICAL RESULTS FOR Cu/Pb/Ag

DRAWN: GEODRAFT, COMPILED: H. PAPAS, SCALE: 1:500, TAS/2/3212

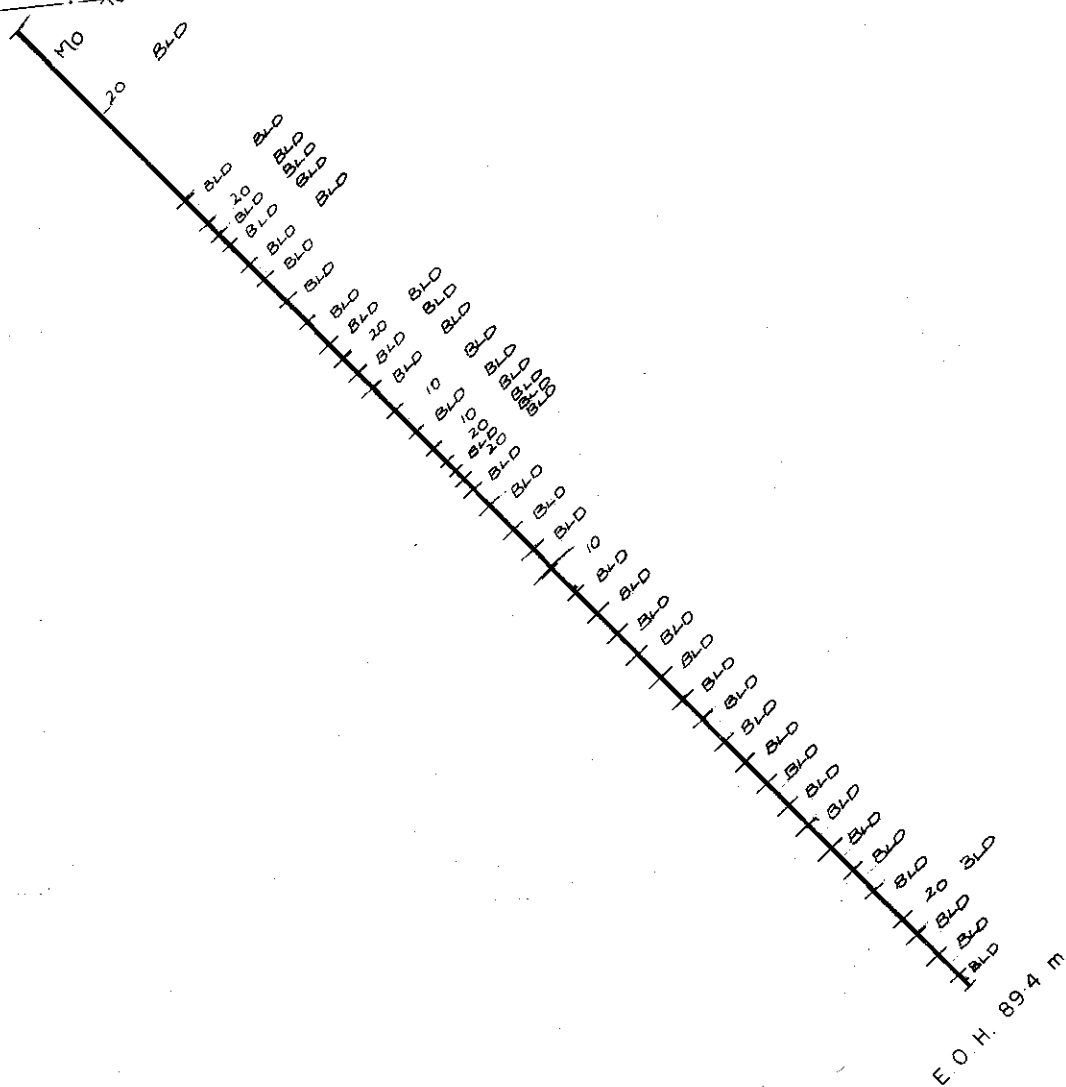
DDH CSB 1
(SECTION)

L 5600 N

4300

4400

650 m



5 401 860 m N

DDH CSB 1
(PLAN)

5 401 850 m N

5 401 840 m N

370 900 m E

371 000 m E

600 m

560159

5 cm

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB 053
SECTION OF DRILLHOLE DDH CSB 1
GEOCHEMICAL RESULTS FOR Mo/Ta/F

DRAWN GEODRAFT	COMPILED H. PAPAS	SCALE 1 : 500	TAS/2/3213
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650 m

600 m

DDH CSB 2
(PLAN)

5 401 750 m N

560160

5 cm

DRAWN
GEODRAFT

COMPILED
N. P. GREEN

SCALE : 500

TAS/2/3215

371 000 8 9

DDH CSB 2
(SECTION)

650 m

predominantly weathered porphyritic biotite microgranite altered/unaltered

4340

4400

greisen

fresh porphyritic
biotite microgranite

greisen

altered fractured
porphyritic biotite microgranite

fresh porphyritic biotite
microgranite

E.O.H. 91.5 m

600 m

5 401 760 m N

DDH CSB 2
(PLAN)

5 401 750 m N

370 900 m E

371 000 m E

560161

5 cm

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB 055
SECTION OF DRILLHOLE DDH CSB 2
GEOLOGICAL INTERPRETATION

DRAWN GEODRAFT	COMPILED N.P. GREEN	SCALE 1 : 500	TAS/2/3222
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DDH CSB 2
(SECTION)

650 m

600 m

4400

E.O.H. 91.5 m

5 401 760 m N

DDH CSB 2 ©
(PLAN)

5 401 750 m N

370 900 m E

371 000 m E

560162

COMSTAFF PROPRIETARY LIMITED

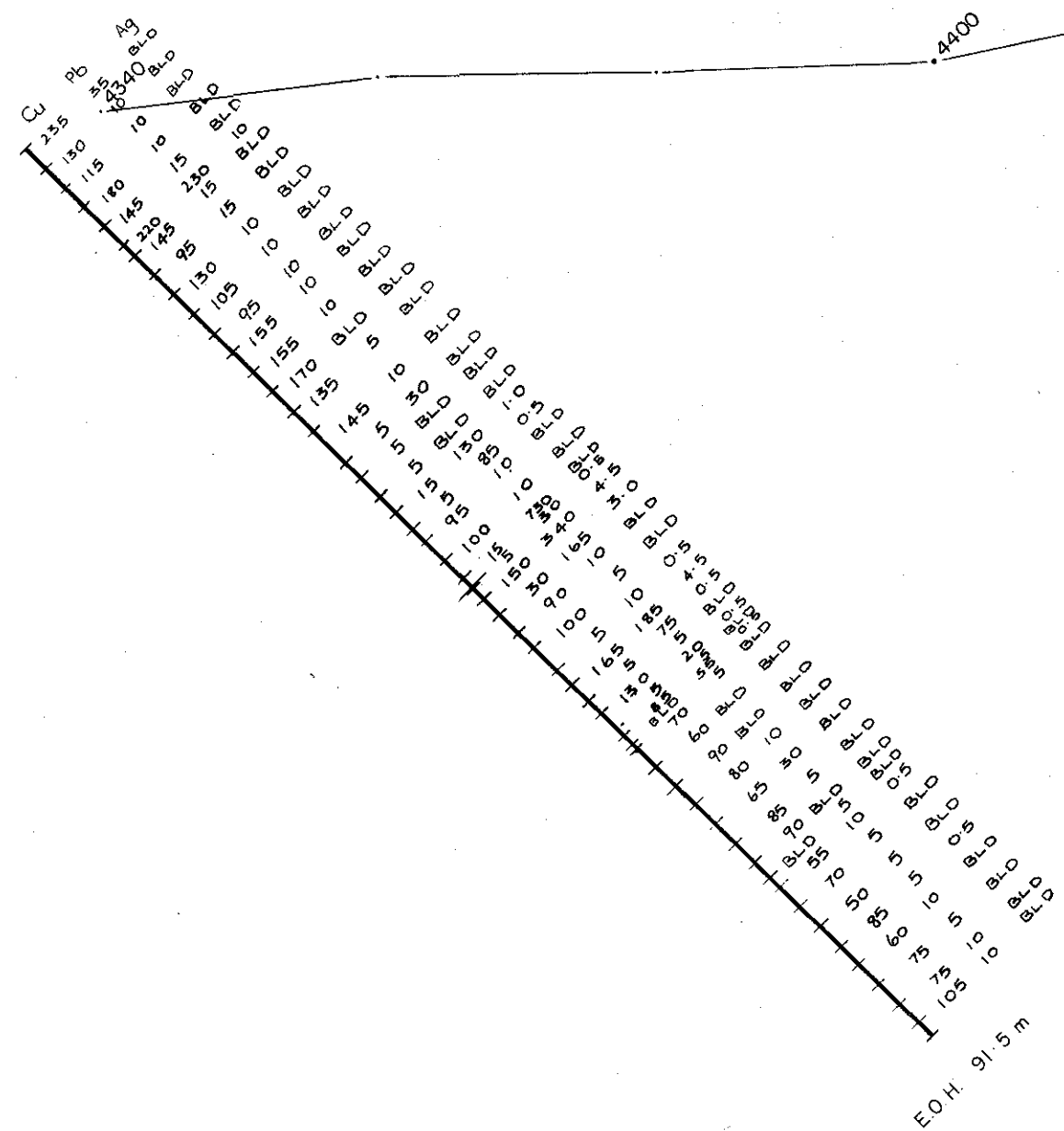
RAMSAY GRID - CSB 056
SECTION OF DRILLHOLE DDH CSB 2
GEOCHEMICAL RESULTS FOR Sn/W/Zn

DRAWN GEODRAFT	COMPILED H. PAPAS	SCALE 1 : 500	TAS/2/3216
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DDH CSB 2
(SECTION)

650 m

600 m



4400

E.O.H. 91.5 m

5 401 760 m N
DDH CSB 2
(PLAN)

5 401 750 m N

370 900 m E

371 000 m E

560163

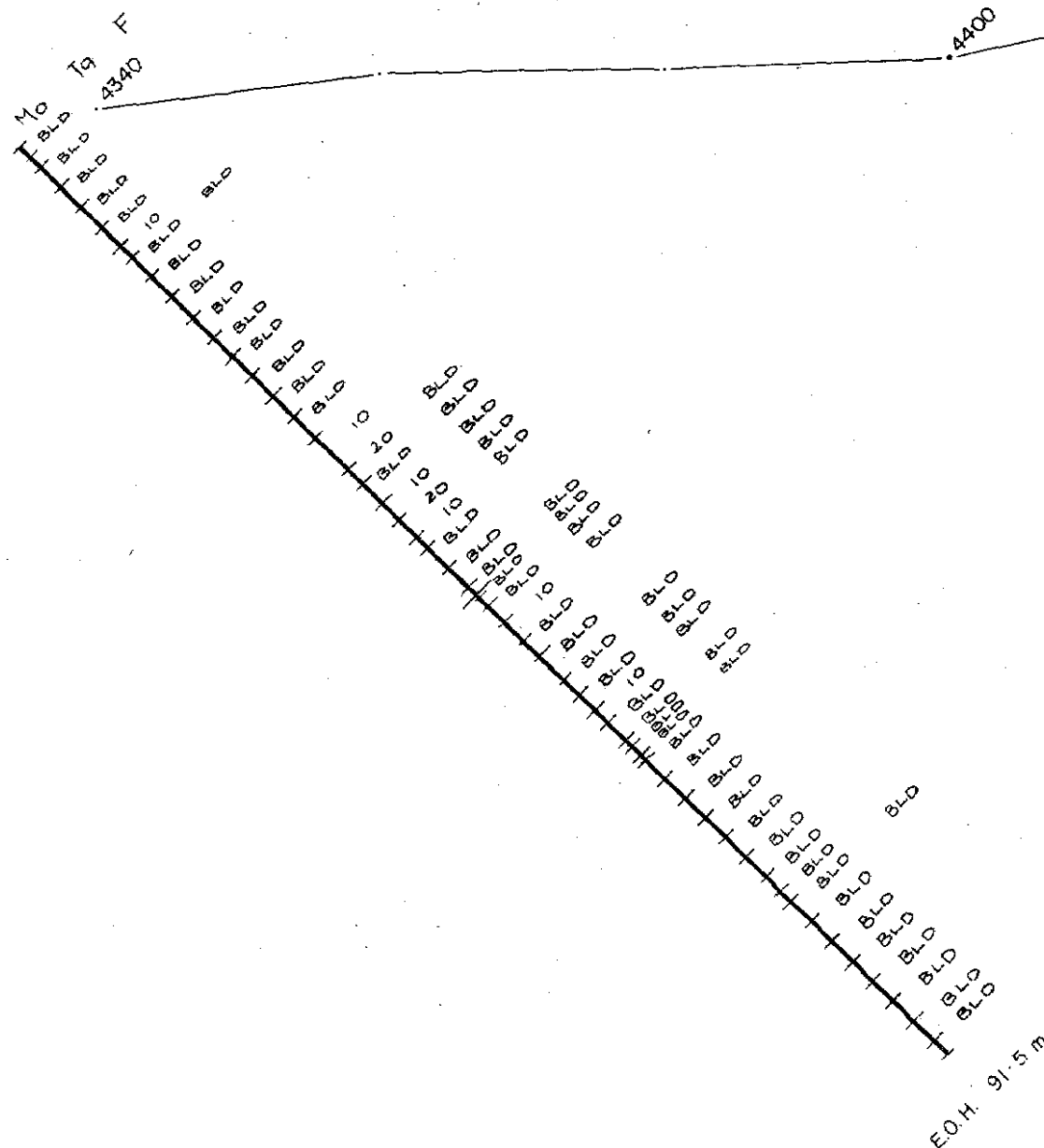
5 cm

COMSTAFF PROPRIETARY LIMITED			
RAMSAY GRID - CSB 057			
SECTION OF DRILLHOLE DDH CSB 2			
GEOCHEMICAL RESULTS FOR Cu/Pb/Ag			
DRAWN GEODRAFT	COMPILED H. PAPAS	SCALE 1 : 500	TAS/2/3217

DDH CSB 2
(SECTION)

650 m

600 m



5 401 750 m N

DDH CSB 2
(PLAN)

5 401 750 m N

370 900 m E

371 000 m E

560164

5cm

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CSB 058
SECTION OF DRILLHOLE DDH CSB 2
GEOCHEMICAL RESULTS FOR Mo/Ta/F

DRAWN GEODRAFT	COMPILED H. PAPAS	SCALE 1 : 500	TAS/2/3218
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