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GEOPEKO
(A DIVISION OF PEKO-WALLSEND OPERATIONS LTD)

EXPLORATION LICENCE 27/76 ELLIOTT BAY, TASMANIA

FINAL REPORT ON EXPLORATION OF AREAS TO BE RELINQUISHED FROM EL 27/76 IN JANUARY 1985

OPEN FILE

Compiled by: W HERRMANN
JANUARY, 1985

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1. INTRODUCTION

This report presents details and results of all mineral exploration carried out during the previous five years, in those parts which are to be relinquished from Exploration Licence 27/76 on 17/1/85.

Figure 1 illustrates the location of EL 27/76 at Elliott Bay in SW Tasmania. Figure 2 shows the proposed reduction in area.

This report also includes a summary of mineral exploration carried out and reported on by Geopeko prior to January 1980. This previous work is fully detailed in numerous cited progress reports which are now in "Open File" at Tasmanian Department of Mines.

2. SUMMARY

Mineral exploration programmes in EL 27/76, Elliott Bay, have been conducted by Geopeko each summer since the 1976-77 season.

Exploration objectives have been threefold and are listed here in decreasing order of interest and exploration effort:

i) Discovery of a volcanic hosted massive sulphide deposit of the Rosebery type containing a minimum of 10 million tonnes ore with grade of around 20% combined lead and zinc and significant silicon, silver and gold. Exploration methods have been based on systematic geological mapping of Cambrian acid volcanic sequences (correllable with the Mt Read volcanics) with stream sediment geochemical sampling, extensive systematic C-Horizon geochemical sampling, Induced Polarization, Electromagnetic, Magnetic and Gravity geophysical surveying followed by limited diamond drill testing of selected targets.

ii) Discovery of a "disseminated-fumarolic" acid volcanic hosted gold resource in the size range 5-10 million tonnes carrying 5-15 g/t gold. Exploration methods have been based upon gold analysis of -80 mesh fraction of stream sediments followed up by panned concentrate sediment and bank sampling, C-Horizon power auger and B-Horizon hand auger sampling to define anomalous zones. (Most detailed follow-up work on gold anomalies has been concentrated in the area south of Wart Hill which is to be retained in EL 27/76).

iii) The lowest priority objective has been discovery of tin-tungsten bearing deposits of two types

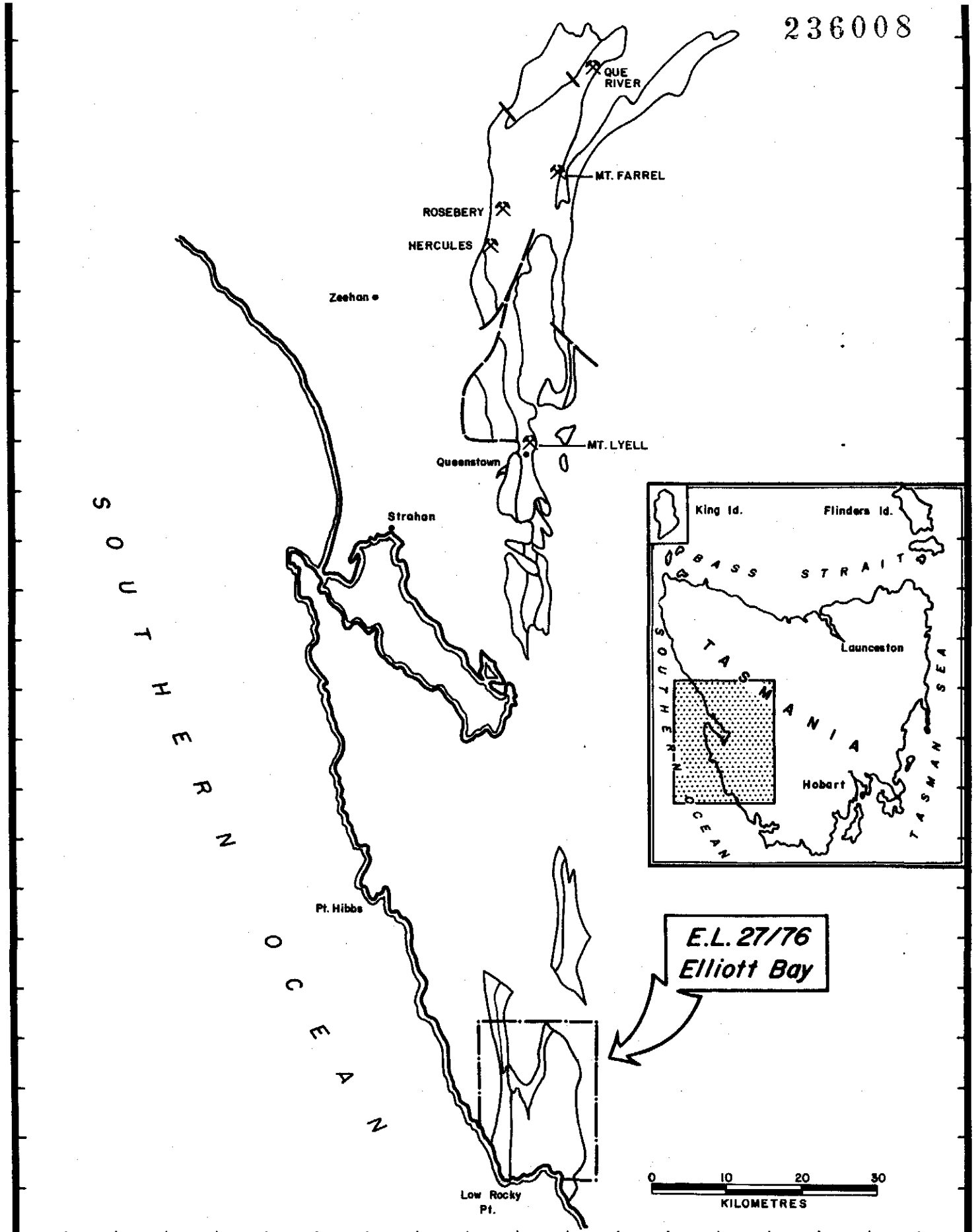
(a) Scheelite bearing "chemical sediments" of Mittersill type within acid volcanic sequences.

(b) Tin-tungsten bearing magnetic skarns associated with Cambrian granitic bodies.

Exploration has involved ground follow up of airborne magnetic anomalies with magnetics, C-Horizon sampling and limited diamond drilling as well as panned concentrate stream sampling.

This report, in respect of those parts which are due to be relinquished from El 27/76 only, summarizes the results of exploration carried out by Geopeko prior to summer 1979/80 and provides full details and results of work since that date.

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LEGEND: MT. READ VOLCANICS

- Tyndal Group & Correlates
- Central Belt
- Western Sequence

5 cm

DATE: 11/5/82
GEOL: R.R.L
DWN: R.J.Tog
CHKD:

GEOPEKO
A DIVISION OF PEKO-WALLSEND

Figure 1

E.L.27/76 ELLIOTT BAY LOCALITY MAP

EL 27/76

AREA TO BE RENEWED
Approx. 125 sq km

AREA TO BE RELINQUISHED

SCALE 1 : 100000

Kilometres 2 1 0 2 4 6 8 10 12 Kilometres

S/1921/78

S/1763/75

a TASMAP publication

INDEX TO ADJOINING MAPS

	CAPE SORELL 7913	FRANKLIN 8013
SOUTHERN OCEAN	SPERO 7912	OLGA 8012
		PORT DAVEY 8011

GN
TN
MN
GRID CONVERGENCE 1.2°
GRID/MAGNETIC ANGLE 11.6°

UE NORTH, GRID NORTH AND MAGNETIC
RTH ARE SHOWN DIAGRAMMATICALLY
R THE CENTRE OF THE MAP. MAGNETIC
RTH IS CORRECT FOR 1978 AND MOVES
STERLY BY 0.1° IN ABOUT THREE YEARS

SHEET 7912
SPERO
TASMANIA
EDITION 1 1978

GOVERNMENT PRINTER TASMANIA

PRODUCED by the Survey Branch, Lands Department, Hobart, 1975.
NOMENCLATURE: Topographic names on this map have been approved by the Nomenclature Board of Tasmania.
MAP ACCURACY: the average accuracy of this map is ± 25 metres in the horizontal position of well defined detail and ± 5 metres in elevation.
MAP RELIABILITY: Topographic information shown on this map is correct to 1975.
ROAD CLASSIFICATION: Roads are classified according to their intended function as part of the national road system.
The representation of a road or track on this map is no evidence of the exist nce of a right of way.

GRID REFERENCE

TO GIVE A UNIQUE REFERENCE ON THIS SHEET TO NEAREST 100 METRES

IGNORE the SMALLER figures of any grid number; these are for finding the full co-ordinates. Use ONLY the LARGER figures of the grid number, e.g. 378000

SAMPLE POINT: 368 △ Mt Osmund

1. Quote this 1 : 100000 map sheet:	8012			
2. Locate first VERTICAL grid line to LEFT of point and read LARGE figures labelling the line either in the top or bottom margin, or on the line itself:		80		
3. Estimate tenths from grid line to point:			4	
4. Locate first HORIZONTAL grid line BELOW point and read LARGE figures labelling the line in either the left or right margin, or on the line itself:				53
5. Estimate tenths from grid line to point:				3
SAMPLE REFERENCE:	8012-	80	4	533

CROWN COPYRIGHT RESERVED.

5 cm

Built-up area; National route marker
Principal road and highway; Cutting
Secondary road; Embankment
Minor road; Road bridge
Vehicular track
Road distance in kilometres
Railway, multiple track; Station; Railway bridge
Railway, single track; Railway tunnel
Light railway or tramway
Power transmission line

FIGURE 2

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	SPERO 7912	OLGA 8012	WEDGE 8112
SOUTHERN OCEAN		PORT DAVEY 8011	OLD RIVER 8111

OLGA
SHEET 8012
TASMANIA
EDITION 2

ERNMENT PRINTER TASMANIA

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3. TENURE

Exploration Licence 27/76 of 329km^2, situated in the Elliott Bay area of South-western Tasmania, was granted to Geopeko on 17/1/1977. Field work by Geopeko was commenced during March 1977.

The exploration licence is entirely within the Southwest Conservation Area.

Under the conditions governing exploration licences (introduced on 1/7/82) EL 27/76 must be reduced to no greater than 125km^2 by 17/1/85 and will expire on 17/1/88 (Figure 2).

Geopeko retains 100% equity in the licence but at this date is negotiating a joint venture whereby Amoco Minerals Aust. Ltd will take over management of the retained portion of the licence.

4. EARLY WORK - Summary of Exploration by Geopeko conducted prior to January 1980

Full details of the exploration work, summarized here, are contained in the cited Progress Reports which are available on "Open File" at Department of Mines, Rosny Park, Tasmania.

4.1 1976-77 SUMMER SEASON

Field work was carried out during the period 19/3/77 to 7/4/77 from a temporary camp established near the Lewis River.

References: STRICKLAND, C.D.; Sept. 1978 — Progress Report EL 27/76 (2 vol.) 1976-77 and 1977-78 Field Seasons

DEAKIN, R.; Sept. 1977. — Geophysical Progress Report EL 27/76

The work included:

- Stream sediment sampling and reconnaissance geological mapping over approx. 50km^2 of southern part of licence. -80 fraction of sediments analysed for Cu, Pb, Zn, Ag, Mn, Fe, Sn, Ba.

- Reconnaissance gridding, mapping, C-Horizon geochemical sampling (-80 # fraction for Cu, Pb, Zn, Ag, Mn, Fe, Sn, Ba) VLF-EM, S.P., gradient IP/Res at previously known Pender's Copper Prospect (redesignated Voyager 1)
  * (not included in area to be relinquished)

- Reconnaissance gridding, geology, C-Horizon geochem., VLF-EM and Magnetics over previously known Lewis River Prospect (re-designated Voyager 2) which is a vein like occurrence of quartz-carbonate with traces of py-cpy-sp.
  * (not included in area to be relinquished)

- Single line of VLF-EM and Magnetics over Geoex (1975) Airborne EM (AEM) Anomaly No. 3 (redesignated Voyager 3). Disseminated and vein py, ga, cpy, (malachite) mineralization observed at previously known Drake Creek and Barrel Creek prospect on coastline to south.

- Two reconnaissance lines VLF-EM and Magnetics over Geoex AEM anomaly No. 18 (redesignated Voyager 4). Minor pyrite veining observed but anomaly not accurately located. No further work recommended.

- Four reconnaissance grid lines over Geoex Airborne Magnetic anomaly (designated Voyager 5) adjacent to NW contact of Low Rocky Point granite body. VLF-EM and Magnetic coverage.

- Single traverse VLF-EM and Magnetics over Geoex Airborne Magnetic anomaly designated Voyager 6, at northern contact of Low Rocky Point granite.

- Two reconnaissance lines VLF-EM over Geoex AEM Anomaly No. 7 (redesignated Voyager 11) within Low Rocky Point Granite. No anomalous response detected.

4.2 1977-78 SUMMER SEASON

Fieldwork during the 1977-78 summer was concentrated on assessment of the most favourable areas (notably Voyagers 1, 2, 3) identified during the previous summer.

References:

STRICKLAND, C.D.; Sept. 1978	Progress Report on EL 27/76 (2 vols) 1976-77 and 1977-78 Field Seasons
MUDGE, S.T.; Sept. 1978	Induced Polarization and Magnetometer Surveys, Voyager 1 and 5. Elliott Bay, Tas.
MUDGE, S.T.; Aug. 1978	Geophysical Surveys, Voyager 2 Elliott Bay, Tas.
MUDGE, S.T.; Aug. 1978	Induced Polarization Survey, Voyager 3, Elliott Bay, Tas.
BURLINSON, K; May, 1979	Tin at Elliott Bay, Tasmania EL 27/76. The 1978 Field Programme.

The work, pertaining to the area to be relinquished from EL 27/76, included the following:

- Voyager 1 Area (incorporating Voyager 5)
  * (only partly within area to be relinquished)
  More extensive gridding and continuation/infill of C-Horizon geochem and mapping. Additional VLF-EM on selected lines, 50m Dipole IP and ground Magnetics on 200m line spacings. Results indicated that chargeable zones of mineralization at Pender's Prospect were of insignificant dimensions. Magnetics defined a northerly trending series of anomalies close to the granite contact suggesting strataform mineralization (?) but geochemical results were disappointing.

- Voyager 3

  Two east-west lines approx. 5km in length and 400m apart were pegged across the plains from north of Cowrie Beach to the Little Rocky River. A shorter line traversed the area just north of the coast between Cowrie Beach and Barrell Creek.

  C-Horizon geochemical sampling at 50m intervals along the lines indicated patchy Cu, Pb, Zn anomalies. Dipole IP and magnetics indicated several weak near surface anomalies. There was some spatial association between geochem Pb/Zn and IP anomalies in the Cowrie Beach-Barrel Creek area.

- Voyager 8

  A programme of augering, pitting, trenching and panned concentrate sampling was carried out to determine the source of stream tin

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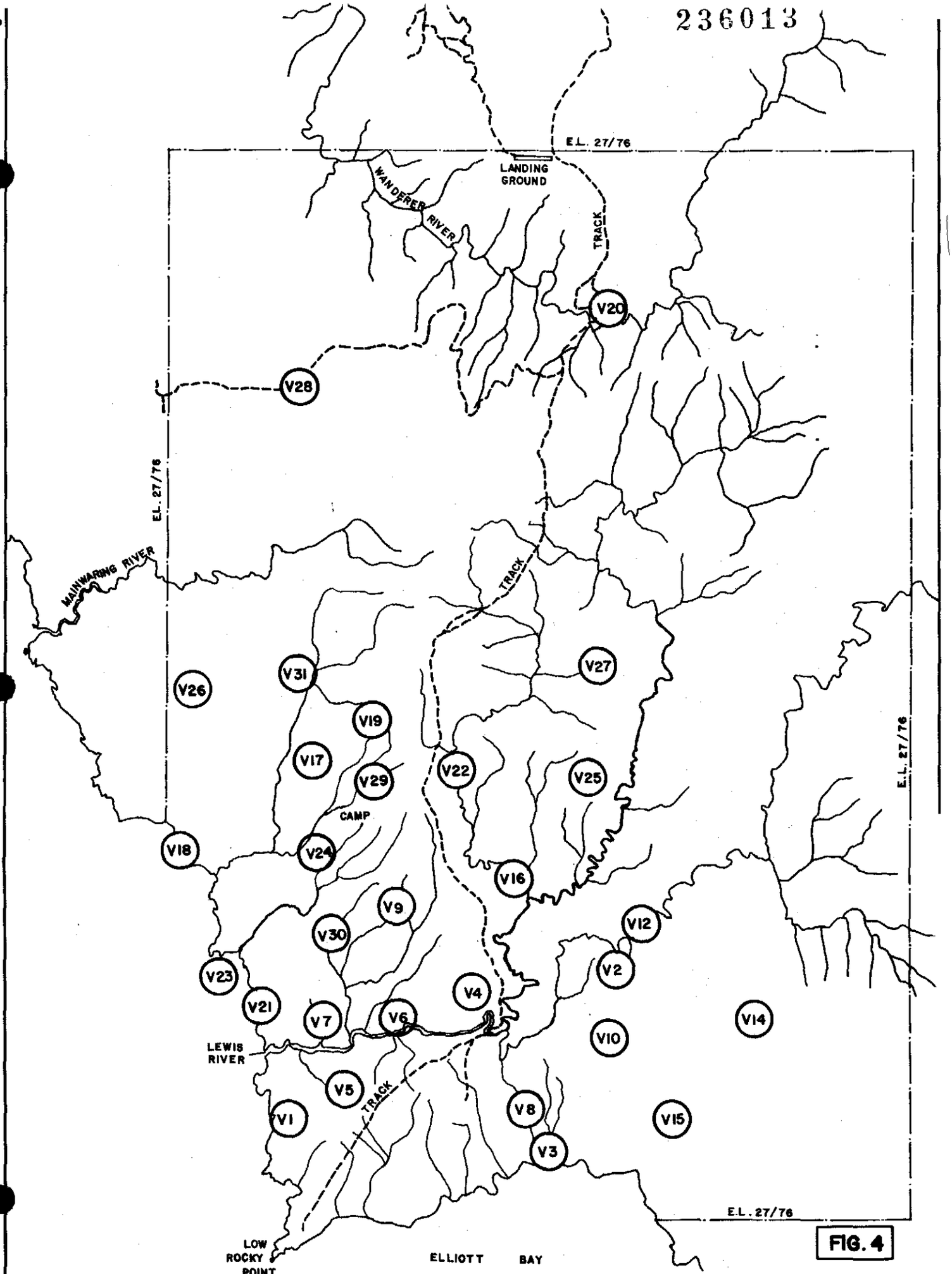


FIG. 4

ELLIOTT BAY
E.L. 27/76
VOYAGER LOCATION MAP
SCALE 1:100,000

anomalies in the area north of Voyager 3. It was concluded that the tin was derived from extensive, surficial, (Recent) alluvial deposits of sand and quartzite pebbles carrying an estimated average grade of 1ppm Sn. It was speculated that the source of the tin (and the pebble deposits) could be derived from Pre-Cambrian basement rocks to the east of EL 27/76.

4.3 1978-79 SUMMER SEASON

Field work during the 1978-79 summer season pertaining to the area to be relinquished from EL 27/76 included extension of regional reconnaissance north of the Lewis River and prospect evaluation programmes of the Voyager 1, 3, 5 and 10 prospects.

Details are presented in the following "open file" reports:

STRICKLAND, C.D.; Sept. 1979	Progress Report EL 27/76 Regional Evaluation, 1978-79 Season
STRICKLAND, C.D.; Oct. 1979	Progress Report EL 27/76 Voyager 1 and Voyager 5 Prospects 1978-79 Season.
MUDGE, S.T.; Mar. 1979	Induced Polarization Survey Voyager 10, Elliott Bay, Tas.
MUDGE, S.T.; Apr. 1979	Induced Polarization and Electromagnetic Surveys, Voyager 3, Elliott Bay, Tas.
MUDGE, S.T.; June 1979	Progress Report on Reconnaissance Geophysics, EL 27/76, Tas.

Results of this work are summarized below:-

- Reconnaissance geological mapping and stream sediment geochemical sampling was extended northwards to cover an additional 30km^2 area covering the Waterloo Creek drainage system and tributaries of the Hudson and Lewis Rivers south of AMG 5251000N and west of AMG 386000E. -80# fractions of stream sediments were analysed for Cu, Pb, Zn only. No especially significant anomalies were defined in the area to be relinquished.

- Ground follow-up of Geoex (1975) Airborne EM anomalies using VLF-EM was carried out on several anomalies in the Lewis-Hudson River area. The only one to fall within the area now to be relinquished was AEM 45 (at AMG 383400E/5248600N). A significant VLF-EM response was indicated at the plotted position of AEM 45 but follow-up dipole IP failed to detect any significant anomaly.

Voyager 1-5 Area:

* Most of the Voyager 1-5 grid area falls outside the area to be relinquished (refer to Plan No. KT 27/76 VI-2 of Strickland, October 1979).

At Voyager 5, two short (30m) diamond drill holes were drilled adjacent and into the granite contact on line 12000N (approximating AMG 5243000N) in order to test the Voyager 5 coincident Magnetic-IP anomaly and assess the nature of the granite contact.

Both holes (V5 DDH1, V5 DDH2) intersected minor disseminated magnetite (pyrite) in silicified chloritic acid pyroclastics adjacent to the granite contact which was interpreted to be an intrusive contact.

Base metal, silver, gold and tin-tungsten values of core were all extremely low.

Voyager 3 Area:

A grid of 0.7 x 0.8 km area with east-west lines at 100m spacings was established over the area of geochemical anomalies outlined by reconnaissance geochem/geophysical traverses of the 1977-78 season.

C-Horizon sampling (at 25m intervals) indicated two principal North west trending Pb-Zn anomalies. Geophysical techniques used were 50m dipole IP, VLF-EM, Turam and S.P. It was found that the geochemical anomalies were coincident with VLF-EM trends and that weak-moderate chargeability anomalies were associated with the eastern geochemical anomaly.

Two short (30m AQ) diamond drill holes were targetted on Cu-Zn and Pb-Zn peaks within the western geochemical trend coincident with linear VLF-EM anomaly (Voyager 3, DDH's 1 and 2).

The holes intersected tuffaceous siltstone-greywackes and crystal tuffs with isolated narrow veinlets of py-ga-sp. Highest grade recorded was 1 metre at 0.34% Pb, 0.66% Zn and 4 g/t Ag.

It was concluded that the short drill holes represented inadequate tests of the anomalies but that the dominantly tuffaceous-sedimentary sequence constituted a favourable host for stratiform massive sulphide mineralization and was likely to extend for several kilometres to the north.

For details of Voyager 3 exploration of 1978-79 summer refer to:

STRICKLAND, C.D.; June 1980	Progress Report EL 27/76 Voyager 3 Prospect

and

MUDGE, S.T.; April 1979	Induced Polarization & EM Surveys Voyager 3, Elliott Bay, Tas.

Voyager 10:

This prospect is located approximately 3km north of Big Beach and was originally defined as an area of about 1km^2 which had shown anomalous Pb, Zn stream geochemistry in the 1977 regional reconnaissance.

Subsequent work in the 1978-79 and 1979-80 summer field season included:

- Gridding of area 0.8 x 1.2km with east-west lines at 200m spacings.
- Geological mapping at 1:2,500 scale.
- "C-Horizon" (power and hand auger) geochemical sampling and analysis of -80 fraction for Cu, Pb, Zn.
- Geophysical surveys utilizing Dipole IP, S.P. and ground Magnetics.

For details of these surveys refer to:

STRICKLAND, C.D.; June, 1980	Progress Report EL 27/76 Voyager 10 Prospect
MUDGE, S.T.; March, 1979	Induced Polarization Survey Voyager 10, Elliott Bay, Tas.

and the following plans enclosed with this (1985) report:

Plan No. 5311 S/B Voyager 10, Profiles of Total Magnetic Intensity
Plan No. TS 27/76 V10-10 Voyager 10 Summary Map

* Only the eastern half of this grid (east of 10700E) falls within the area to be relinquished.

The results of soil geochemical sampling indicated discontinuous north-south trending Pb-Zn anomalies in the central part of the grid. However, the results were critically sensitive to the different depths of sampling obtained by power auger and hand auger techniques in open accessible country and densely forested areas respectively.

No significant IP, SP or magnetic features were associated with the geochemical anomalies. Due to poor exposure the geological situation is not well known. Rocks on the grid are dominated by "a variety of rhyolitic pyroclastics comprising vitric, crystal and lithic tuff types".

It is apparent that the volcano-sedimentary sequences of siltstones, greywackes and tuffs of Voyager 2-3 areas are not present at Voyager 10.

No further work was carried out beyond the 1979-80 season.

5. RECENT WORK Full Details of Exploration from 1979-80 Summer Season to the Present

It will be evident from Section 4 that prior to the 1979-80 season most exploration activity in EL 27/76 had been confined to the southern part of the licence (south of the Lewis River).

The work had progressed from initial reconnaissance on known mineral occurrences, airborne geophysical anomalies (magnetic and electromagnetic) and collection of regional geological and stream geochemical data to the detailed evaluation of some promising anomalies. In fact, after the first season, systematic regional exploration of the licence progressed very slowly due to the emphasis on prospect work.

This situation was remedied in the 1979-80 season when all of the remaining reasonably accessible (unforested) Pre-Ordovician country in the eastern part of the licence was covered by reconnaissance mapping and stream geochemical sampling. Similar advances were achieved in the western part north of the Lewis River. The mapping and stream sediment sampling of the Mainwaring River drainage during the 1980-81 season effectively completed the regional reconnaissance work over all of the prospective Cambrian volcanic sequences.

This allowed an improved understanding of the geological environment and the subdivision of the volcanic units as outlined in Section 5.2 of this report.

Subsequent to the identification of zones of hydrothermal alteration in the Wart Hill area and extensive gold drainage anomalies to the west and south of Wart Hill in early 1980, most of the company's exploration effort was directed to detailed evaluation of prospect grids in this central south-western part which is to be retained under the reduced EL 27/76.

No work has been carried out in the parts to be relinquished since the summer season of 1981-82.

5.1 EXPLORATION TARGET

The principal exploration target has been (and remains) the discovery of a massive base metal sulphide deposit of the Rosebery type containing a minimum of 10 million tonnes of ore with a grade of around 20% combined lead and zinc and significant silver and gold.

Exploration methods have been based upon systematic detailed geological mapping, C-Horizon geochemical sampling and IP geophysical surveys, localized gravity and electromagnetic geophysical surveys and limited diamond drilling of selected targets.

A secondary objective has been the discovery of a "disseminated-fumarolic" gold resource in the size range 5-10 million tonnes carrying 5-15 g/t gold. Exploration methods have been based on gold analysis of -80 fraction stream sediments followed by panned concentrate stream and bank sampling to define anomalous zones.

C-Horizon power auger and B-Horizon hand auger geochemical sampling has been used to define diamond drilling targets.

A third exploration objective, which has waned considerably in importance since the first few season's work, has been the discovery of tin-tungsten bearing deposits of two types:

(i) Scheelite bearing "chemical sediments" of Mittersill type within the acid volcanic sequences

(ii) Tin-tungsten bearing magnetic skarns associated with Cambrian granite bodies.

Exploration has depended mainly on ground follow-up of airborne magnetic anomalies with magnetics and C-Horizon geochemical sampling and limited short diamond drilling.

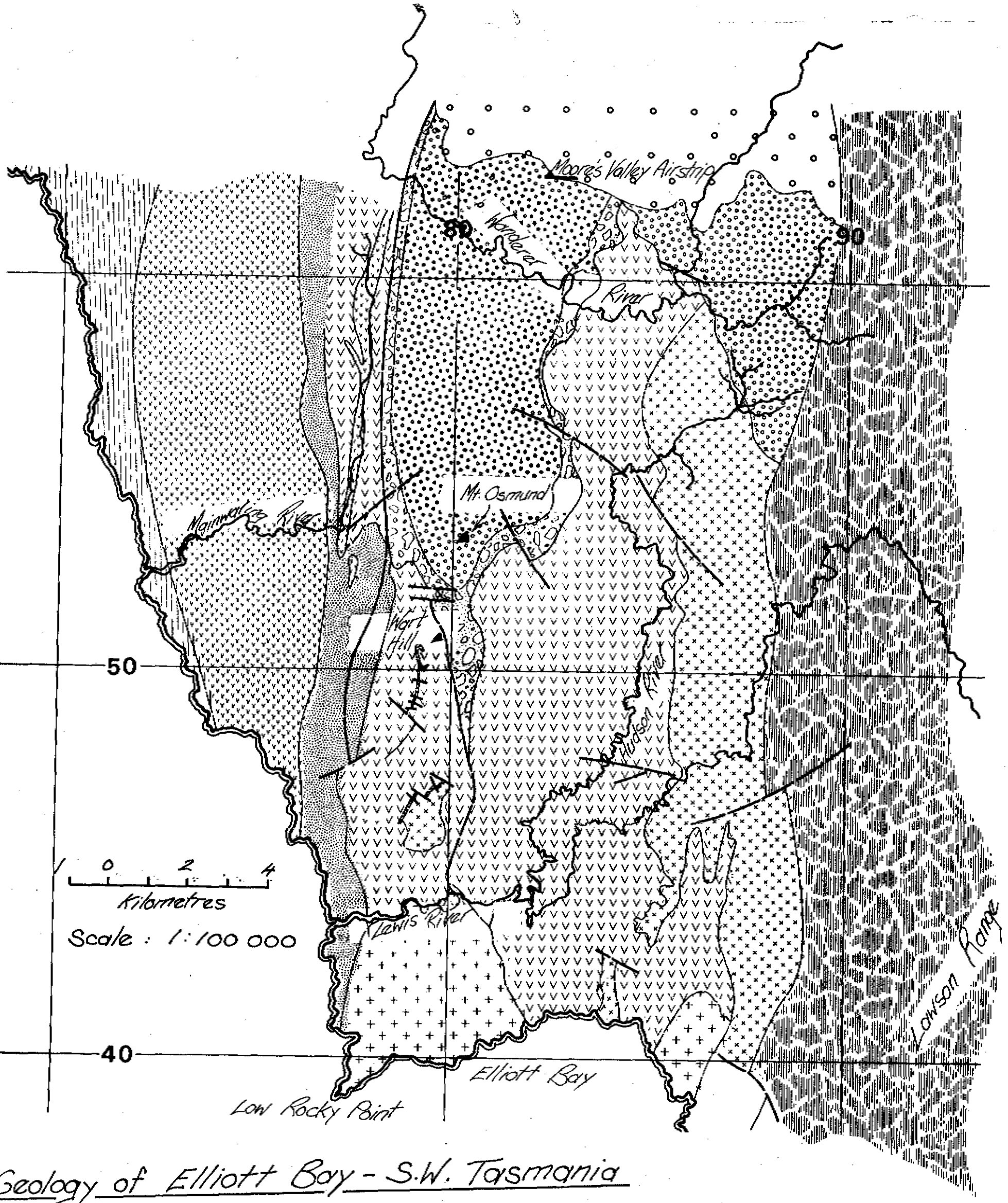
5.2 REGIONAL GEOLOGY (Refer to Fig. 3)

The major rock units in EL 27/76 are:

AGE	NAME/DESCRIPTION	THICKNESS
Tertiary:	Macquarie Beds/unconsolidated gravels	
Ordovician:	Owen Group/Conglomerate and quartzite	∿900
Cambrian:	Tyndal Gp Correlates/volcanic epiclastics, siltstones	100-150m
	Dundal Gp Correlates/greywackes, shales	>1000m
	Mainwaring Group/argillaceous slates, basic tuffaceous shales, dolomites basic lavas and tuffs.	∿2500m
	Western Sequence/acid volc. epiclastics, shales	∿1500m
	Lewis River Volcanics/acid volcanics, intrusives and granites	∿7000m
Precambrian:	Arthur Group/metaquartzite, schist.	

The current geological interpretation has the Precambrian meta-sediments as multiply deformed basement to the east. The Cambrian Lewis River volcanics (equivalent to the Mt Read volcanics) are in unconformable or possibly faulted contact with the basement. Internal structure within the volcanics is not well known due to the homogeneity of many of the lithotypes and the layering obliterating effect of strong cleavage. However (on the basis of rare sedimentary facings) it appears that the unit generally dips and youngs westward and passes transitionally upward into the Mainwaring Group which in turn is probably overlain by the Dundas Group in the west.

The late Cambrian Tyndal Group correlates pass conformably upward into the Ordovician Owen Group clastics and are confined to a large northerly plunging synclinal structure in the northern and central part of the SL.



Geology of Elliott Bay - S.W. Tasmania

Tertiary		unconsolidated gravel
Ordovician		conglomerate, sandstone
L. Cambrian (Tyndal Equiv.)		coarse epiclastics, carb. siltstones
C (Dundas Equiv.)		turbiditic greywacke-shale
a m (Mainwaring)		Basic volcanics, shale, dolomite
b (Western Seq.)		epiclastic and argillaceous sediments
r i a n (Lewis River Volcanics)		rhyolitic volcanics, minor sediments
		granite
		micro-granite (porphyritic)
L. Prot. (Tyennan)		Metaquartzite/ metapelite

5 cm

Figure 3

2360019

The Tyndal Group rests unconformably on Lewis River volcanics on the southern and eastern sides of the syncline but may be partly faulted against the volcanics on the western limb.

Flat lying unconsolidated siliceous gravels and sands of Tertiary age unconformably overly the older rocks in the far north east of the EL.

LEWIS RIVER VOLCANICS:

These are considered equivalent to Corbetts' (1981) "Central Lava Belt" subdivision of the Mt Read volcanics.

The Lewis River volcanics consist predominantly of rhyolitic pyroclastics and lavas. Though the lack of marker horizons has hampered the establishment of a detailed stratigraphy the group has been broadly subdivided as follows, progressing from the (probably basal) east to (upper) west:

Elliott Point Porphyry: a massive, coarse-grained quartz-feldspar-biotite porphyry of rhyolitic composition; mostly high level intrusive with possible local extrusive phases. 1000-2000m thick.

Hudson River Pyroclastics: predominantly chlorite rich dacitic-rhyolitic tuffs and minor lavas with horizons of tuffaceous greywacke-siltstone. Mapped boundary with Wart Hill Pyroclastics is quite arbitrary as the lithological distinctions are nebulous and slight. Thickness 800-5000m.

Wanderer River Tuffs: Rhyolitic quartz biotite crystal and crystal-lithic tuffs. Characteristically of pale pink colour due to "hematite" alteration of biotite. 0-1200m thickness.

Wart Hill Pyroclastics: Dominantly pale cream-greenish, cleaved rhyolitic quartz crystal tuffs, lithic tuffs agglomerates and lavas characteristically with abundant sericite in the sheared ground mass. Chloritic types are locally present. Three siliceous clastic horizons consisting of micaceous sandstone and pebbly conglomerate and several grey shale horizons are interbedded with the volcanics. The upper contact with basal shales and acid volcanic epiclastics of the "Western Sequence" appears to be essentially conformable and somewhat transitional.

Granites: Two granite plutons, the Low Rocky Point and the Little Rocky River intrude Lewis River volcanics in the south east and south west

coastal parts of the EL. A smaller porphyritic granite body occurs north of the Lewis River about 4km south of Wart Hill. Radiometric dating suggests a late Cambrian age of emplacement (407 my). They generally show similar deformation and appear to be of comparable composition to the acid volcanic rocks they intrude.

WESTERN SEQUENCE:

This group of dominantly sedimentary rocks is considered equivalent to Corbetts' (1981) "Western Sequence" subdivision of the Mt Read volcanics.

The basal part appears to rest unconformably on the Wart Hill Pyroclastics and consists of coarse pebbly acid volcanic epiclastic sediments and "tuffs" with lesser bedded tuffaceous sandstone units. These gradually are succeeded by finer grained sandstones and tuffaceous siltstones and pass upward into dominantly grey to black argillaceous shales with minor tuffaceous siltstones. The upper argillaceous section has been informally called Sassy Creek Argillite and was originally (Large 1981) included in the Mainwaring Group. The Penders' Tuffs which interfinger with Sassy Creek Argillites in the coastal section south of Sassy Creek are dominantly foliated quartz-feldspar crystal tuffs and although probably time equivalent to the Western Sequence represent the waning stages of acid volcanism.

MAINWARING GROUP:

The Western Sequence-Mainwaring Group contact seems to be essentially conformable and transitional with the upper parts of the Sassy Creek Argillite unit becoming increasingly greenish and chloritic until it gives way westward to basic tuffaceous shales, basaltic tuffs, lithic pyroclastics, pillow lavas, thick flows and possible intrusive equivalents. Minor thin dolomite horizons and cherty shales are interbedded with the basic volcanic rocks.

DUNDAS ? GROUP:

Greywackes and shales outrcropping along the coast southward from the Shank are considered to be correlates of the Dundas Group. The contact between Dundas? Group rocks and the Mainwaring Group is not exposed on the coast and their relationship remains uncertain.

TYNDAL GROUP CORRELATES:

This is a thin sequence composed dominantly of coarse (reworked acid volcanic) epiclastics at the base passing up through thick bedded "tuffaceous" sandstones to thinly laminated siltstones and black shales. (Lithologically it is similar to a condensed and less deformed western

sequence). The unit rests unconformably on the Lewis River Volcanics but appears to pass more or less conformably upward into the Ordovician siliceous conglomerates and sandstones in the core of the Mt Osmond Syncline.

The Tyndal Correlates and overlying sediments have been considered essentially unprospective for the target mineralization types.

5.3 REGIONAL STREAM GEOCHEMISTRY

Stream sediment samples were collected at approximately 200m intervals along all major streams and immediately above confluences of minor tributaries over the dominantly open heathy country over the Lewis River Volcanics. In the less accessible heavily forested areas of such as the Mainwaring Group samples were collected at about 400m intervals along major streams and rivers with tributaries sampled only immediately above confluences.

-80 mesh fractions of samples were analysed as follows:

1976-77 Season	Cu, Pb, Zn, Ag, Mn, Fe by AAS method. Ba, Sn by Emission Spectrography ES2 and ES3. Selected Sn, W by XRF at ACS Laboratories (Adelaide).
1978-79 Season	Cu, Pb, Zn by AAS at ACS Laboratories (Adelaide)
1979-80 Season	Cu, Pb, Zn, Fe by AAS Sn, W by XRF Au by Carbon Rod AAS at ALS Laboratories (Brisbane)
1980-81 Season (Mainwaring R.)	Cu, Pb, Zn, Fe, Mn, Ag by AAS (A1) Sn, W by XRF Au by Carbon Rod AAS (RG50) at ANALABS (Burnie, Tas.)

Analytical results are plotted on 1:1000 scale plans numbered as follows:

Cu, Pb, Zn:	KT 27/76-2B, 3B, 4B, 5B, 6B, 7B and 8B
Sn, W, Fe:	KT 27/76-2E, 3E, 4E, 5E, 6E, 7E and 8E
Au	KT 27/76-2H, 3H, 4H, 5H, 6H and 7H.

Cu, Pb, Zn, Ag, Mn, Fe and Au (Mainwaring River only) KT 27/76-3P

* Panned concentrate drainage sampling was restricted to the area east of AMG 377000E on SHEET KT 27/76-5 is in the area to be retained under the reduced EL 27/76.

5.4 DETAILED PROSPECT EVALUATION

5.4.1 Voyager 3

In Section 4 of this report, details of exploration in the Voyager 3 are up to the end of the 1978-79 season, were summarized.

No work was carried out during the 1979-80 season. During the 1980-81 field season a two phase program was carried out with the objectives of:

(i) Drill testing of best IP/geochem target on the grid

(ii) Re-mapping of coastal geology of Elliott Bay (proper) and northward to the Lewis River.

The full details of this work were reported by Wilson et al, 1981, and their findings are faithfully reproduced below:

5.4.1 A The Geology of the Southern Part of the Hudson River Volcanics

by: Paul Heithersay

i) Introduction

The southern part of the Hudson River Volcanics were re-examined with the primary objective of assessing their potential as host rocks for stratabound Cu-Pb-Zn-Ag-Au mineralization of 'Rosebery' style. Particular attention was given to the relationship between the sedimentary units which had been mapped on the coastline and again on the Voyager 2 grid, some 3-4kms further north. The investigation took the form of a geological mapping and a rock chip sampling programme. As part of this study the Voyager 3 grid and coastal sections were mapped at 1:2,500 scale and the area between the Lewis River and Elliott Bay was mapped at 1:10,000 scale on the enlarged aerial photos (Plan Nos. KT 27/76-8A, KT 27/76-V3-2(b)).

ii) *Generalised Stratigraphy of the Coastal Section*

Before discussing stratigraphy the point should be made that the area has been subject to several phases of deformation. This complexity makes definite conclusions about the true vertical stratigraphy difficult to make. However, graded bedding and rare cross-stratifaction in the sediments indicate that the consistently west dipping sequence also faces to the west.

An arbitrary base to the Hudson River Volcanics is taken to be the Elliott Point Porphyry. Within the porphyry, xenoliths of altered volcanics were recognised, suggesting that the porphyry may represent a sub-volcanic intrusion genetically related to the overlying acid pyroclastics and lavas. Veins of quartz, chlorite with pyrite and minor chalcopyrite were noted in outcrops of the porphyry on the coast.

Immediately overlying the porphyry is a conspicuous fine grained to coarse grained chloritic quartz crystal tuff. Manganese and iron

staining are common in the tuffs as are fractures coated with malachite. Grain size changes frequently with visible gradational boundaries indicating rapid facies changes.

A sharp contact marks the volcanic/sediment interface. The base of the sedimentary sequence is a fine to medium grained sandstone. The rocks are generally finely laminated with graded bedding being common. Minor current features include scour and fill structures and trough cross-stratification. Dewatering structures were also noted.

The sequence shows an overall fining upwards so that very fined grained siltstones predominate at the top of the sequence with some minor tuff beds intercalated. The sediments are generally arenaceous with no argillaceous beds occurring in the sequence, the sand grains are angular to well rounded.

This type of sediment is consistent with a moderate to high energy depocentre with allowed winnowing and reworking to occur. An acid pyroclastic terrain as a source is most likely for these sediments.

A gradational contact with the overlying pyroclastics marks the top of the sequence. These pyroclastics are lithologically different to those enocuntered below the sediment pile. They are generally more felsic, show a greater variation in grain size and range in composition from fine grained quartz feldspar crystal tuffs to lithic tuffs. They have a variable chlorite content which occurs as thin wisps in the groundmass. Malachite is again seen in fractures. Some outcrops develop a limonitic cappig while others exhibit fine veinlets of pyrite and galena.

Two 4m wide basic dykes occur near the western end of the sequence.

Complex isoclinal folding is displayed in the pyroclastics near Barrel Creek. Jointing further complicates the picture. The small scale isoclinal folds have an axial plane which trend 165°/85W. However, at least one other cleavage is superimposed on this trend. Large scale closures are rarely seen. The overall impression is that the sequence dips consistently to the west. There is only minor repetition of strata, as indicated by the consistent facings. The indicated vergence from small scale folds and bedding-cleavage relationships indicates a syncline closing to the west and an anticline to the east.

iii) Geology of the Voyager 3 Grid

The Voyager 3 grid was remapped at 1:2,500 scale (Plan NO. KT 27/76-V3-2b). Outcrop was extremely poor so correlation was found impossible. The rock types consisted mainly of felsic fine to medium grained quartz feldspar crystal tuff and felsic vitric tuffs. On the western side of the grid the pyroclastics were conspicuously sericitic. The only possible volcaniclastic sediment was mapped in the north western corner of the grid. It is quite clear that the sequence of sediments that outcrop on the coast do not extend through the V3 grid.

iv) Geology of the Area between Voyager 3 and the Lewis River

The region north of Voyager 3 to the Lewis Rier was reconnaissance mapped at 1:10,000. The area is largely obscured by Tertiary gravels and conglomerates from the Tertiary peneplain surface (Plan No. KT 27/76-8A).

The pyroclastics are similar to those encountered on the Voyager 3 grid but are distinctly more chloritic and more schistose in the area south of the Voyager 10 grid. Outcrop is again insufficient to correlate along strike.

The sediment/volcanic interface was picked up 1km north of Voyager 3. The boundary is sharp, being marked by a fine grained white siltstone with graded sandstone interbeds on one side and a generally iron stained chloritic quartz crystal tuff on the other. This interface can be traced confidently northwards to the Voyager 2 area. These sediments are very similar in nature to those described from the coastal section. Graded bedding was the main criteria used for differentiating reworked pyroclastics from primary pyroclastics.

The main structure is a fairly open syncline plunging to the north. This was established by reversal of dip and facing criteria. Several strip/slip faults offset the sediment/volcanic boundary and such faulting may account for the disappearance of sediments on the Voyager 3 grid. On an outcrop scale 2 cleavages can be seen, the main one being at 165/80W and the more subordinate one trending at 190/80-85W.

5.4.1 B **Voyager 3**

by Paul Wilson

i) Introduction and Previous Work

The Voyager 3 grid covers an area of 700m by 900m of low lying southerly sloping button grass plan adjacent to the Elliott Bay coastline to the south of the EL (Figure 5). Sporadic Cu and Pb mineralization was recorded from coastal outcrops in the course of regional mapping during the 1976-77 field season. Two areas of particular interest were recognised near Barrell Creek, one of which has been referred to as the Drakes Creek Prospect in earlier reports.

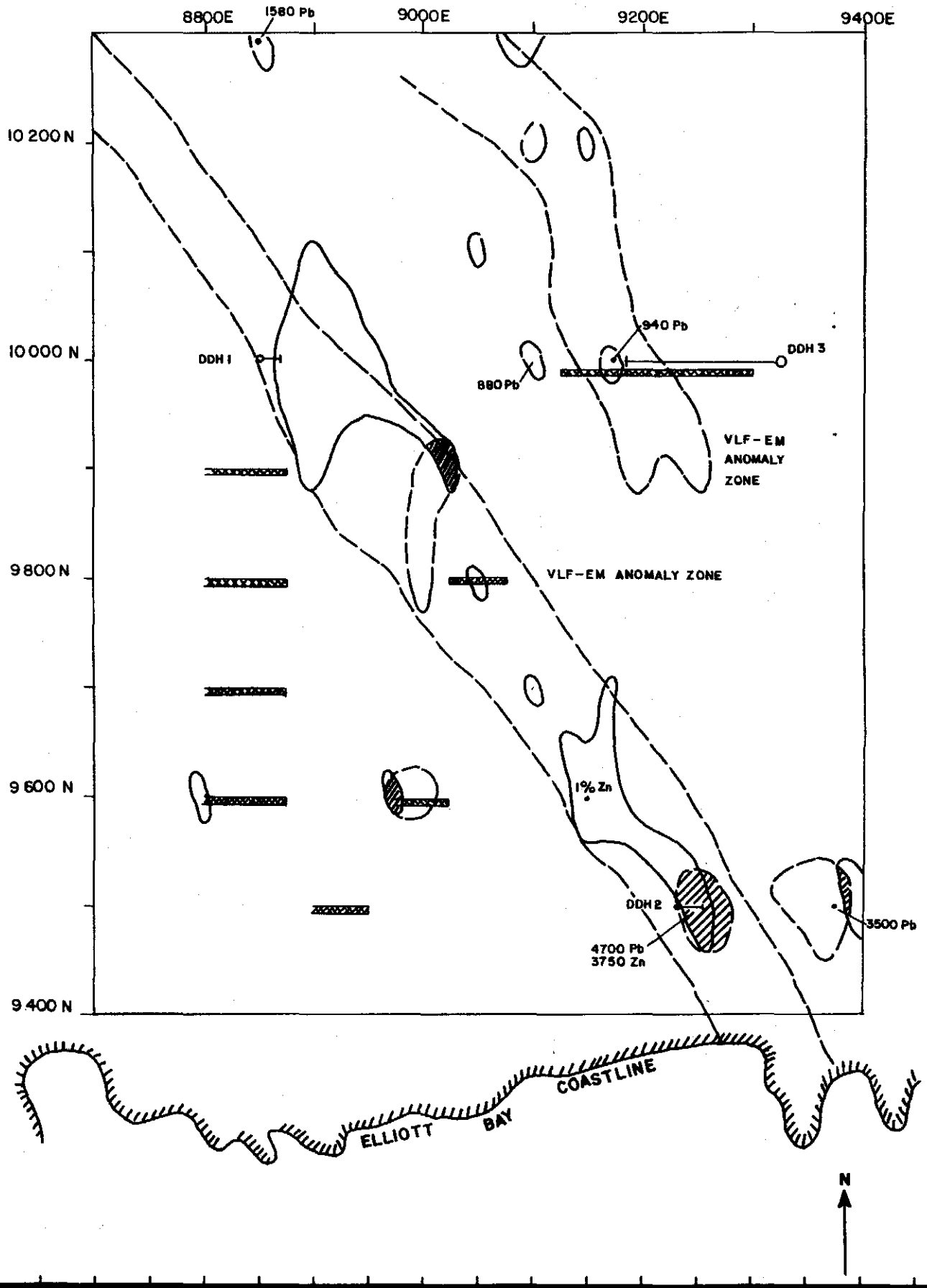
In 1977-1978 a grid was surveyed over the area representing the northerly strike extension of this mineralization.

Subsequent exploration of the grid between the years 1977 and 1979 included C horizon geochemistry, IP, SP and VLF-EM geophysical surveys and the drilling of two shallow diamond drill holes. This work is comprehensively reported by Mudge (1979) and by Strickland (1978, 1980) and is summarised in Figure 5.

The Voyager 3 area represents the southern extremity of the Hudson River Volcanics. Outcrop on the grid area is virtually absent but the presence of a thick sequence of fine arenaceous sediments is inferred

025

236026



LEGEND:

- ZINC ANOMALY (>1000ppm)
- LEAD " (>800ppm)
- AREAS OF COINCIDENT Pb-Zn geochemistry.
- I P ANOMALY

5 cm

DATE: 10/81
GEOL: P.W.
DWN: M.vdS.
CHKD: PW

GEOPEKO

Scale: 1:5000 FIG: 5

E.L 27/76 ELLIOTT BAY TAS.
VOYAGER 3
GRID EXPLORATION SUMMARY MAP

from the continuous coastal outcrops. As a consequence the geological control is very poor and explanation of the anomalous geochemical and geophysical patterns is inconclusive. For this reason the 1980-1981 field program was designed for a two-fold purpose.

1. To drill a 200m hole on the best IP/geochem anomaly, and;

2. To map the coastal geology of Elliott Bay and extend this inland to include the Voyager 3 grid and northwards towards Voyager 10 (this work has been detailed in the preceding section 5.4.1 A).

ii) Geophysics

One line of Dipole-dipole IP with 50m line spacings was completed on line 10,000N to further define a drilling target over the chargeable zone which was outlined by the broader survey. A well defined chargeability anomaly was located between 9225E and 9300E, and the pseudosection of apparent chargeability suggested a likely source dipping to the east (Fig. 6). This anomaly is displaced 100m to the east of the Pb (Zn) soil anomaly which indicates the two anomalies may be unrelated (see Fig. 7).

iii) Drilling

Drill hole DDH V3/3 was collared at 9325E on line 10000N and drilled at -45° to the west on the assumption of the easterly dipping chargeable zone. The hole was drilled to a final depth of 201.10m and intersected a varied sequence of fine to medium grained crystal tuffs, chloritic vitric tuffs and flow banded dacitic and rhyolitic lavas (Plan No. TS 27/76-V3-13).

Bedding-cleavage relationships in the core indicate the hole was drilled in the same direction as the dip of bedding and cleavage. Although the core was not oriented, this observation is consistent with the observed 75°-85° dip of the cleavage to the west as observed in coastal and outcrops on the grid. Furthermore, the down dip drilling accounts for the poor drilling conditions with the core constantly breaking and wedging in the core barrel which resulted in short runs and breakage of the core.

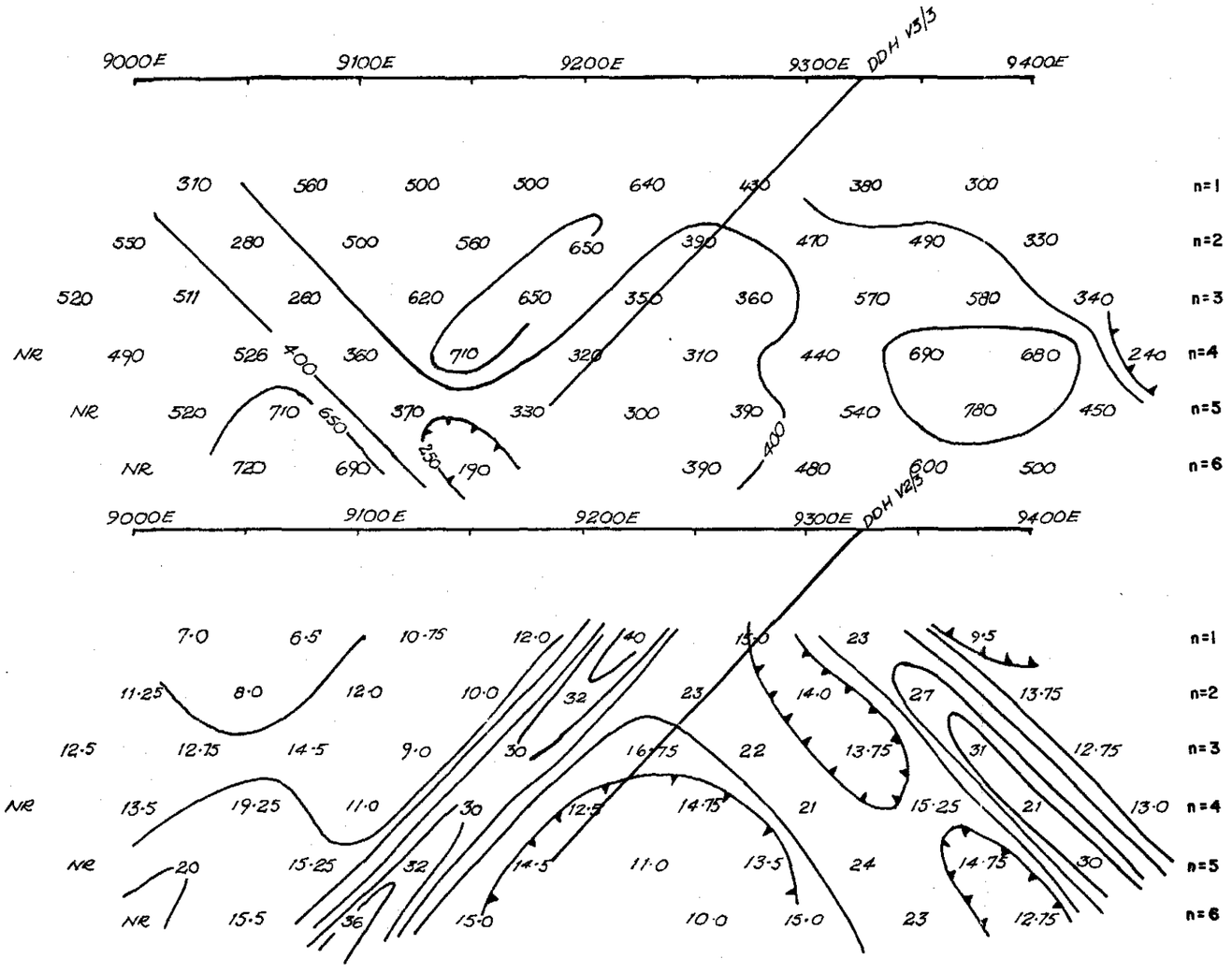
The sense of minor folding and the steeper angle of cleavage with respect to bedding indicate the hole penetrated the eastern limb of a synformal structure with its axis to the west of the collar.

Mineralization was ubiquitous throughout the hole as 1-3% disseminated pyrite in crystal tuffs and 'vein' pyrite along cleavage and fractures. Galena, chalcopyrite and sphalerite were observed along the margins of minor quartz veinlets in the interval 22m-102m.

Analytical results from samples of halved core are presented in Appendix 1 and summarised diagrammatically in Plan 3. The highest value of 1.28% Zn was recorded in the chlorite rich 'andesitic tuff' which furnished a value of 0.37% Zn over an apparent width of 8m (102-110m).

027

236028



Apparent Resistivity (Ohm·m)

Contour Interval Logarithmic

Apparent Chargeability (mV/v)

Contour Interval 5m v/v

Note : Chargeability plotted is slice with mean delay time of 910mS.

PSEUDOSECTION OF APPARENT CHARGEABILITY AND RESISTIVITY

VOYAGER 3 . ELLIOTT BAY . TASMANIA . LINE 10000N

Obs J.S. M.I.
Rx SCINTREX IPR·8
Tx HUNTEC 2·5 kW

5 cm

GEOPEKO LIMITED
DEVONPORT

Scale: 1:2500

FIGURE : 6

DATE: DEC 88
GEOL:
DWN: JC
CHKD: JS

ELLIOTT BAY, TASMANIA.
VOYAGER 3

LEGEND:

8900mE 9000mE 9100mE 9200mE 9300mE 9400mE

ZINC

LEAD

1000 ppm
800
600
400
200
0

(a) LEAD-ZINC (C-HORIZON) SOIL GEOCHEMISTRY.

DDH V3/3

Zone of 7m at 0·44% Zn peak value of 1·28% Zn/1m

DDH V3/3

9000mE 9300mE

(b) PSEUDOSECTION OF APPARENT RESISTIVITY (Ohm.m)
Contour Interval Logarithmic

Zone with c 2-5% diss. and vein sulphide (py)

650

400

DDH V3/3

9000mE 9300mE

(c) PSEUDOSECTION OF APPARENT CHARGEABILITY (mV/V)
Contour Interval 5mV/V

Zone with c 2-5% diss. and veined sulphides (py)

20

5 cm

236029

GEOPEKO
DEVONPORT BASE, TASMANIA

Scale: 1:2500

FIGURE: 7

DATE: 10/81
GEOL P.A.W.
DWN. R.TOG.
CHKD:

E.L.27/76 ELLIOTT BAY, TAS.
DDH V3/3
SUMMARY SECTION WITH INDUCED POLARITY AND GEOCHEMICAL PROFILES

iv) Conclusions and Recommendations for Additional Work

On the basis of the geochemistry it is unlikely that the hole explained the lead anomaly on line 10000N. This is hardly surprising given the easterly dip of the Hudson River Volcanics in this area. However, the 2-3% disseminated pyrite in the quartz crystal lapilli tuffs between 26-110m is likely to have been responsible for the chargeability anomaly. These findings do not negate the economic potential of the Hudson River Volcanics in Voyager 3 and surrounding area.

C Horizon Pb-Zn geochemistry on the Voyager 3 grid has a higher background and better anomaly contrast to the Voyager 19 area which is described in a later section. So far the best soil geochemistry on the southern part of the Voyager 3 grid remains untested.

On a more regional basis the volcanic/sediment interface north of the Voyager 3 grid is an excellent environment for 'Rosebery Style' distal Pb-Zn-Cu-Ag deposits. A rock chip sample collected from gossanous rocks at this contact returned a value of 900 ppm Cu.

The following work is recommended:

1. Excavate costeans across the main Pb-Zn-(Cu) soil anomalies on Voyager 3 to relate the soil geochemistry to geology. Drill the most favourable target which develops.

2. Grid the area of arenaceous sediments to the north of Voyager 3 and collect C horizon soil samples at a close density across the inferred contact.

* **1985 Compiler's Note:** Wilson's recommendations (above) have not been implemented.

5.4.2 **Voyager 6**

(from: Large, 1981)

Voyager 6 designates an airborne magnetic anomaly located on sheet 7 immediately south of the Lewis River at 380300E, 5243800N. In March 1980 a small grid of 4.7 line kilometres was placed over the anomaly with follow-up geological mapping, ground magnetics and VLF-EM.

Geology

The magnetic anomaly is located on the contact of the Low Rocky Point Granite and the Wart Hill Pyroclastics (see Pln KT 27/76-7A).

A tongue of granite about 100m wide extends north for about 600m from the main granite body across the Lewis River. The magnetic anomaly is located on the concave, western side of this granite tongue. Pyroclastics intruded by the granite are dominantly chloritic quartz-feldspar crystal tuffs, with minor lithic tuffs and vitric tuffs.

Mineralization

1. On the eastern contact of the granite tongue, exposures in the Lewis River reveal intense iron staining, limonite development and oxidized pyrite boxworks in narrow zones within the pyroclastics. Two oxidized samples of altered tuff containing boxworks after sulphides (KR6861 and KR6862) returned anomalous values of Cu, Pb, Ag and Au (see following table).

   A further sample of pisolitic orange soil (KR 6863) adjacent to the mineralized outcrops returned 640ppm Cu, 7200ppm Pb and 780ppm Zn. These anomalous samples suggest a potential zone of Cu-Au-Ag mineralization along the eastern contact of the granite tongue.

2. On the western side of the granite tongue at 380400E, 524130N a 2-3m wide zone of quartz breccia carrying patches of hematite, magnetite, pyrite and chlorite outcrops on the southern bank of the Lewis River. An adit, now collapsed, has been driven into the south bank of the River in this vicinity. Three rock chip samples of the quartz breccia (KR 6865, 6866 and 6869) returned no anomalous geochemical values.

SAMPLE NO	ROCK TYPE	Cu ppm	Pb ppm	Zn ppm	Fe %	Ag ppm	Au ppb	Sn ppm	W ppm	Ba ppm
KR 6861	gossanous tuff	0.14%	430	45	40.0	3	740	(5	(10	80
KR 6862	Fe st. quartz	300	95	60	3.20	1	85	(5	(10	360
KR 6863	laterite soil	640	0.72%	780	40.0	3	15	(5	(10	390
KR 6864	granite	5	20	30	2.80	(1	15	(5	(10	350
KR 6865	chl-py breccia	10	10	15	2.80	1	140	(5	(10	60
KR 6866	mag-quartz breccia	10	20	30	44.0	1	10	(5	(10	50
KR 6867	chlorite tuff	20	15	80	4.80	1	10	(5	(10	600
KR 6868	qfxt	5	15	30	1.16	1	10	(5	(10	600
KR 6869	hematite quartz breccia	5	10	20	3.20	1	50	(5	(10	20

Geophysics

1. Ground magnetics was completed on four lines crossing the anomaly, and a traverse was made along the Lewis River to close the anomaly to the north. Profiles and contours are plotted on plans 5301S/B and 5302S/B. The magnetic anomaly has an elipsoidal shape about 300m long and 150m wide with a peak of 1300nT above background. The peak of the anomaly sits approximately over the granite contact. Computer modelling by the Geopeko geophysical section indicates that on line 10100N the anomaly could be caused by a 10m wide zone carrying 10-15% magnetite occurring between 10268E and 10278E at a depth of 7m below surface and dipping 70° to the west (J Sumpton pers. comm). The outcrop of magnetite bearing quartz breccia in the Lewis River is most probably the northern end of the causative body.

2. VLF-EM was completed over the grid and revealed a weak to moderate conductor striking roughly north-south between 10000E and 10100E, lying 200m west of the magnetic anomaly.

Soil Geochemistry

Hand auger soil samples were collected from depths varying from 20cm to 100cm at 25m intervals along line 10100N. Profiles for Cu, Pb, Zn, Fe, W and Sn are plotted on plan TS 27/76 V6-3. Tertiary gravels form a thin veneer over much of the grid and it is doubtful that the soil samples collected are from sufficient depth. No significantly anomalous values were returned.

Conclusion

The magnetic anomaly at Voyager 6 can be explained by a narrow (<10m side) dyke-like body of 10-15% magnetite along the western contact of a granite tongue intruding the acid pyroclastics. The potential of this zone for base metal mineralization is limited. Anomalous values of Cu, Pb and Au within pyroclastics on the western side of the granite tongue are more encouraging and require follow-up work.

Forward Programme

1. Extension of the grid east and south to cover the contact on the eastern side of the granite. Followed by detailed mapping and soil geochemistry - preferably with the Jacro rig.

2. Extension of the grid to cover the airborne EM anomaly number 11, which is located about 1km south-east along the granite contact from the mineralized outcrops at Voyager 6. Moving coil Turam plus Jacro soil sampling is needed over the AEM 11 grid.

* **1985 Compiler's Note:** The above recommendations have not been implemented.

5.4.3 Voyager 14

(from: Large, 1981)

Voyager 14 prospect is an aeromagnetic anomaly centre on approx. AMG co-ords 387700E/5244500N which was identified by the 1975 Geoex airborne magnetic-electromagnetic survey of the Lewis River Area.

On the aeromagnetic total intensity contour plan the anomaly shows up as a narrow ellipse about 1.5km long elongated in a NNE direction aand having a magnitude of about 80 gammas above background.

The anomaly is situated in an area of thick vegetation dominated by Bauera and Banksia with belts of manuka and myrtle along major watercourses.

Geophysics

In order to locate the anomaly on the ground it was necessary to cut lines for traversing by magnetometer. A 1500m north-south baseline (347°M) was cut and flagged at 50m intervals, through the approximate centre of the aeromagnetic anomaly and two short cross lines (400m and 200m) were established east-west across major magnetic peaks. The approximate location of the reconnaissance lines is shown on accompanying Figure 8 at 1:10,000 scale.

Total magnetic-field intensities were measured at 12.5m intervals along the base line using a Geometrics G-816 proton precession magnetometer, wih the sensor elevated 2.5m above ground level.

A narrow 'spiky' anomaly of +600 gammas with a corresponding 'low' on the north side was recorded at 9800N and a slightly broader, +2200 gamma anomaly was found at 10300 - 10375N.

Apart from these peaks, the magnetic profile was relatively 'flat'.

To further investigate these peaks short cross-lines were cut east-west along 9800N and 10325N.

Magnetic profiles are shown on accompanying Plan No. 5157 S/B.

The peak at 10325N was found to fade to background within 50m either side of the baseline. Profile of line 9800N shows finds irregular pattern with the peak at 10000E again accompanied by a sharp negative anomaly.

Geology

Rocks encountered on the reconnaissance lines are varieties of coarse grained quartz-feldspar-biotite porphyry. Rocks from the vicinities of the anomalous magnetic peaks are considerably more chloritic than the typical Elliott Point Porphyry, contain small disseminated grains of magnetite and slight magnetism is detectable using a pencil magnet.

The magnetite should equally be:-

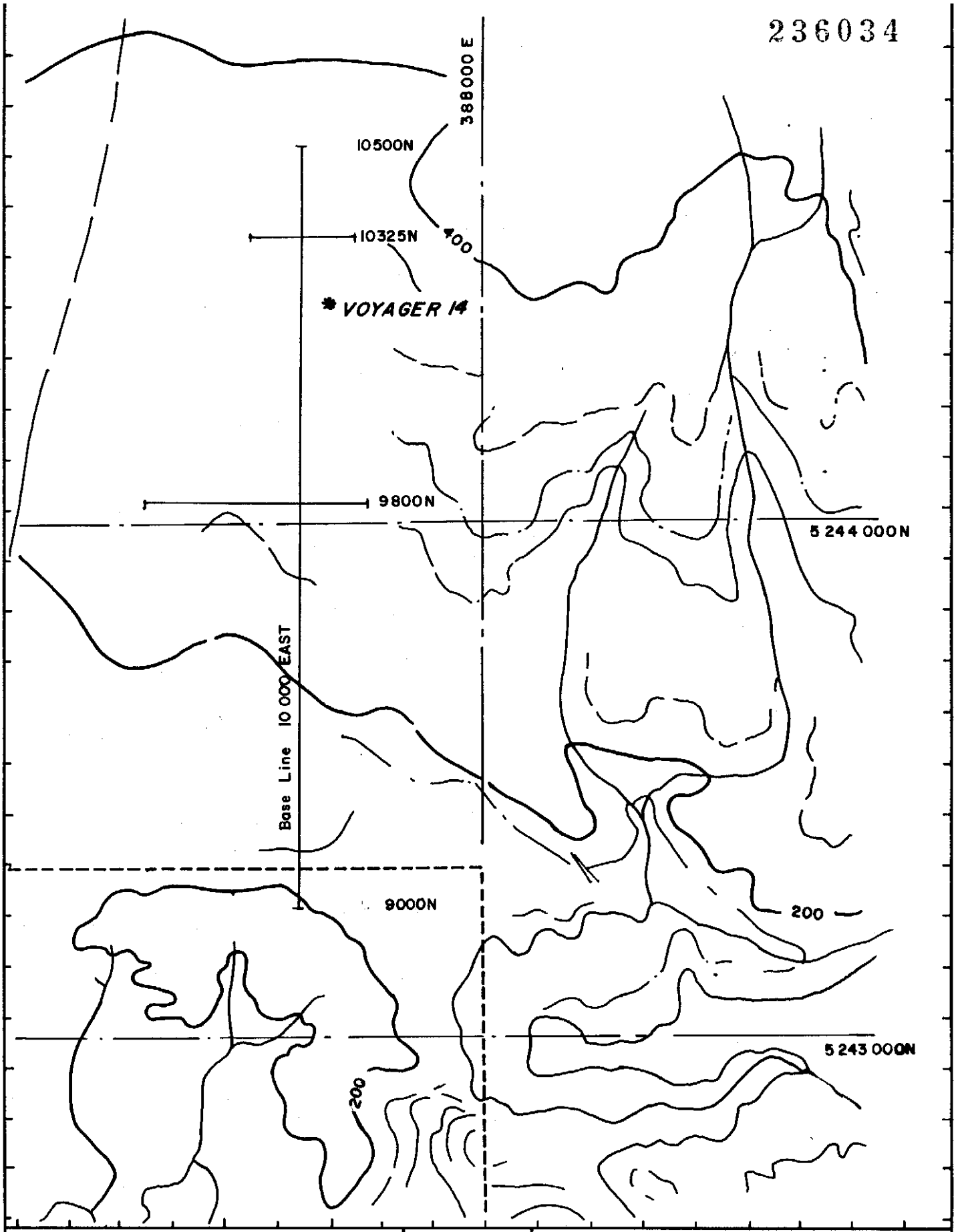
- an accessory phase of primary crystallization
- related to chloritization of the porphyry
- or a 'syngenetic' component in a pyroclastic equivalent of the porphyry.

Geochemistry

Shortage of time did not permit collection of soil samples over the reconnaissance lines.

Conclusions

The form of the aeromagnetic contours bears little relationship to the spiky anomalies encountered on the ground.



GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

GORDON

0 200 400 metres

SCALE 1:10000

GEOLOGIST

MAP REF.

DATE 6/80

DRAWN

CHECKED

VOYAGER 14 — LOCATION SKETCH SHOWING MAGNETIC TRAVERSES

PROJECT

FIGURE 8.

5 cm

It is possible that the large peak, centred on 10325N has strike extension in a NW-SE or NE-SW direction; the latter case would correspond to the orientation of the aeromagnetic anomaly.

The geological setting within the porphyry does not recommend this anomaly. It seems that the peaks observed on the ground reflect shallow magnetic zones of small dimension, apparently related to local patches of disseminated magnetite. It may be that several high magnetic peaks on the ground are 'seen' as a single larger anomaly by the airborne magnetometer.

Forward Programme

No further work is planned on the prospect.

5.4.4 Voyager 15

Voyager 15 designates a small aeromagnetic anomaly centred on approx. AMG coordinates 386400E/5242400N which was identified by the 1975 Geoex airborne magnetic-electromagnetic survey of the Lewis River area.

(See Plan Numbers TS 27/76 4I and TS 27/76 6I).

The anomaly appears to lie within volcanics adjacent to the northern margin of the Little Rocky River granite pluton.

No ground follow up of the anomaly has been undertaken.

5.4.5 A Voyager 16

(from: Large, 1981)

Voyager 16 designates an airborne magnetic anomaly and area of Pb-Zn drainage geochemistry within Hudson River pyroclastics on sheet 6 at approximately 382500E 5247500N. Old workings have been reported in the area by BHP but their exact location is not known.

Reconnaissance mapping of the area was carried out in March 1980 (see plan KT 27/76-6). Pyroclastics in the region of the anomaly are dominantly chloritic rhyolitic crystal and crystal-lithic tuffs with horizons of feldspar porphyries (lavas?). Epidote alteration of the tuffs was noted in some outcrops.

About 700m upstream from the junction of Waterloo Creek with the Hudson River, outcrops of chloritic rhyolite agglomerates occur on the bank of Waterloo Creek. These agglomerates dip at 80° west and from photo interpretation appear to lie on the western flank of a major anticlinal structure which transgresses the magnetic anomaly. No magnetic rocks were mapped in the vicinity of the anomaly.

Forward Programme

The anomalous stream geochemistry, and report of old workings in the area of the large magnetic anomaly warrants further investigation. The presence of coarse fragmental volcanics is encouraging for volcanogenic mineralization.

It is proposed to place a reconnaissance grid with 200m spaced lines over an area of 1300 x 1200m covering the anomalous stream geochemistry and magneics. C-Horizon soil sampling and magnetics is proposed with ffollow-up, if required, by IP.

5.4.5 B **Voyager 16**

(from: Wilson et al 1981)

i) Introduction

Voyager 16 defines a large circular aeromagnetic anomaly situated immediately to the north of the confluence of the Hudson River with Waterloo Creek. Coincident with this anomaly is an area of anomalies Pb-Zn stream geochemistry. Reconnaissance mapping in the vicinity of Voyager 16 during the 1980 field season led to recognition of chlorite alteration in a sequence of rhyolitic agglomerates (Large, 1981). On these three counts the area was given a priority rating due to its recognition as a potential environment for stratiform Cu-Pb-Zn mineralization.

Field work during the 1980/1981 field season was conducted under contract to the Poltock Bros. A N-S 1.2km long base line was surveyed across the area. Geological mapping, soil sampling and a magnetic survey were completed along four 400m spaced E-W cross lines. The findings of this work are summarised in this section nd for a more detailed account the reader is referred to the report by Poltock (1981).

ii) Geology

Topography on the gridded area is undulating and well incised and consequently outcrop is good. The dominant rock types are a variable sequence of rhyolitic pyroclastics which strike in a N-S direction and dip steeply to the west (Plan No. EL 27/76-V16-3).

Seven distinct lithologies were recognised (Poltock 1981). A sequence of vitric tuffs with phenocrystic quartz and feldspar (porphyritic lavas?) crop out on the eastern margin of the grid. They are overlain by a +/- 200m succession of crystal tuffs which differ from the underlying rocks in their greater crystal component, occasional lithic fragments and local chloritic alteration.

A thick sequence +/- 300m of pink-orange weathering porphyritic lavas comprise the dominant lithology and outcrop in the central part of the grid. Interbedded with this unit are bands of fine to medium grained siltstones which display gradational contacts with the ryolite. Lithic bearing crystal tuffs are exposed in Waterloo Creek on the west of the

base line. The lithic fragments are of pink rhyolite and reach 5cm in size and are enclosed in a weakly chloritic matrix.

Marking the western most boundary of the grid is a poorly exposed sequence of chloritic, quartz-feldspar, crystal, lapilli-tuffs which contain narrow lenticular bands of basic to intermediate volcanics. Outcrop of this sequence is confined to the southwest portion of the grid and is obscured to the north by cover of Tertiary gravels.

iii) Geochemistry

156 C-Horizon soil samples were collected by power auger at 25m intervals along the four grid lines. The thick covering of Tertiary gravels made C horizon sampling ineffective over the north-western part of the grid. All the samples were analysed for Cu, Pb, Zn, Ag, Fe and Mn and two major anomalous areas were outlined and are worthy of note.

The first anomaly occurs in the south-western part of the grid and corresponds to an area of poorly outcropping quartz-feldspar crystal tuffs and is associated with a broad low order magnetic anomaly. Here a broad zone of anomalous Pb/Zn geochemistry, with a maximum value of 1950 ppm Pb and 760 ppm Zn, has locally coincident values of Cu, Fe and Mn.

On line 10000N a small Pb-Zn anomaly is centred on station 10150E and has a maximum value of 1150 ppm Pb and 2850 ppm Zn. It is open to the west because of the Tertiary gravel cover (Plan No. EL 27/76-V16-9 and Figure 9).

15 panned stream sediment samples were collected to assess the gold potential of the area. Gold was visually observed in four of the panned concentrates but correlation between visible gold and assay esult was poor. The best value of 6.93 ppm Au was recorded in a stream which drains the area of anomalous soil geochemistry on line 8800N. All the panned concentrates returned high zinc values in the range 27-3300ppm but had no relationship with the Zn anomalies observed in the C-Horizon geochemistry.

iv) Geophysics

Total field magnetic intensities were recorded at 12.5m intervals along the grid lines, the profiles are presented in Plans EL 27/76-V16-6 to 9. Two anomalies can be recognised, the main one occurs on lines 9200N and 9600N between stations 10200-10600E. Weaker and more 'spikey' magnetic anomalies are present on all lines to the west of the base line and culminate in a broad anomaly on line 10000N between 9800E and 9500E.

It appears likely that these westerly magnetic anomalies can be explained by outcropping geological features. The chlorite-magnetite alteration described by Poltock (1981) is restricted to a small area west of the base line on 9200N and may be the cause of the two minor magnetic anomalies centred on 9700E and 9925E respectively (see Fig. 9).

In general there is little coincidence between magnetics and geochemistry. The relief on the Voyager 16 gridded area suggests that the source of the magnetic anomaly lies at depth. This is somewhat

037

236038

9 400mE | 9 600mE | 9 800mE | 10 000mE | 10 200mE | 10 400mE | 10 600mE | 10 800mE

10 000mN

9 600mN

9 200mN

8 800mN

TN

2850ppm Zn
1150ppm Pb
Pb/Zn

NO SOIL GEOCHEMISTRY

DENOTES LIMIT OF GEOCHEMICAL COVERAGE DUE TO TERTIARY GRAVELS

Drainage

Drainage

1-2 COLOURS
NO GOLD ASSAY

Zn

Pb/Zn

Pb/Zn/Ag/Fe

693 ppm Au
4-5 COLOURS

2·65 ppm Au

0·48 ppm Au

Cu/Fe

Mn/Fe

Pb/Zn GEOCHEMISTY

10 000mE
BASE LINE

PROSPECTING SUMMARY MAP AREAS OF ANOMALOUS MAGNETICS (200nT) ▨
SOIL GEOCHEMISTRY AND ANOMALOUS GOLD IN PANNED CONCENTRATES

5 cm

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DEVONPORT BASE, TASMANIA

Scale 1:5000

FIG: 9

E.L.27/76 ELLIOTT BAY, TAS.
VOYAGER 16

DATE 10/81
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DWN R.TOG
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reinforced by the continuity of the geology across and beyond the area of the magnetic anomaly.

v) Conclusions

Additional work is warranted at Voyager 16 particularly in the south-west of the grid to explain the Cu-Pb-Zn-Fe +/- Au geochemistry. Infill gridding and soil sampling is recommended.

At this stage the magnetic anomaly on the eastern part Voyager 16 appears to be similar and possibly genetically related to the Voyager 9 magnetic anomaly. Any further work should await the outcome of the proposed drilling at Voyager 9.

5.4.5 C **Voyager 16**

(from: Poltock, 1981)

Introduction

The V.16 grid was planned to cover two airborne magnetic anomalies, a zone of dominantly Zn-80# stream geochem anomalies and previously reported old prospects.

The grid is located north of the junction of Waterloo Creek and the Hudson River in Cambrian dominantly acid volcanics with Tertiary gravel cover.

Field work was carried out in period Feb 19 - March 3, a total of 12 days in which the grid was pegged (theodolite used to survey base line and turn off side lines), soil sampled, magnetometered and geologically mapped. Fifteen stream pan concentrate samples were also collected in conjunction with reconnaissance mapping.

The grid consists of 4 lines each 1350m long at 400m spacing running true 090° see Plan 8, a total of 5.4 line km with a central BL at 10000E.

"C" Horizon soil samples were taken at 25m intervals using a power auger. Soils were poorly developed, .5m being deeper than average. Rock chip samples were taken in lieu of soils in areas of total outcrop. Tertiary gravel cover up to 20m thick (?) precluded sampling in some sections of the grid (see TS 27/76-V16-9) however "Jackro" augering would penetrate these gravels and sands, although topography is generally steep the main gravel areas are confined to flat hill tops (see Sections TS 27/76-V16-6, 7, 8 and 9).

Geological mapping was carried out in cojunction with soil augering along grid lines, no attempt was made to map between the lines, but stream traverses in Waterloo Creek and Hudson River were made to get a more complete idea of the local geology. Rock samples were collected in the streams and on the grid.

Magnetometory using a Geometrics Proton G816 were recorded along grid lines at 12.5m intervals.

Pan concentrates - these were collected mainly in tributaries of Waterloo Creek in the grid area, and a small stream draining the eastern side of the grid.

Visible gold counts were recorded.

Geology

The grid covers a sequence of dominantly acid volcanics with minor, fine grained sediments. These have previously been included in the Hudson River Pyroclastics. The volcanics are dominantly rhyolitic vitric tuffs - crystal tuffs, the latter are chloritic, some tending to be lithic which are characterized by the presence of epidote.

The rocks strike N-S, the individual units will be described from E-W assuming a W. facing. However no evidence for this was seen, dips are usually greater than 80°, facings may be located in the fine-medium grained tuffaceous sediments at the Waterloo-Hudson junction.

Stratigraphy Hudson River Pyroclastics:

1. Vitric tuff - scattered quartz feldspar phenocrysts in a dark grey green vitric groundmass. Some have a blocky outcrop pattern and texture suggesting that they may be lavas. This unit outcrops to the E. of lines 88 - 92N, 96 - 100N just extending onto it. There is some evidence that these tuffs-lavas may form the E. flank of the major magnetic anomaly.

2. Crystal tuffs - this rocktype is similar to the above unit but has a greater crystal component, groundmass is vitric, the quartz feldspar proportions vary. Locally there are minor liths with associated epidote. Typically the rocks are chloritic, weathering more readily and developing better soil profiles.

3. Rhyolitic tuffs/lavas - these rocks are the dominating feature of the grid area, outcrop is good, soils sparingly developed. They are typically pink-orange with scattered quartz - feldspar phenocrysts in a vitric groundmass with scattered small pyrite cubes.

4. Siliceous siltstones - tuffaceous wackes, this unit of fine-medium grained sediments occurs within the above rhyolitic unit. Complex gradational contacts between the two can be seen a few metres down stream from the Hudson-Waterloo junction. In this locality the sediments reach maximum thickness of 100m. There is evidence for local small scale folding south of line 88N, to the north the unit becomes less prominent. However, blocks of angular float occur east of the BL between 96-100N.

5. Crystal lithic tuffs, these are best exposed in Waterloo Creek between line 88-92N, the contact with the rhyolites can be located to the south in the Hudson River Plan 9. Liths are rounded <5cm diameter, usually composed of pink rhyolite, they are scattered and set in a slightly chloritic crystal tuff groundmass. The unit is characterized by the presence of epidote quartz nodules or segregations, often associated with pink albitization?

6. Basic - intermediate volcanics, these outcrop in Waterloo Creek upstream of line 92N, and on line 92N 9750E, forming a minor part of the sequence in small lenticular outcrops <2m thick. The rocks are dark grey-green, chloritic, flecked with fine chloritized phenocrysts, and contain minor magnetite. They are associated with fine dark grey siliceous siltstones and rhyolitic tuffs.

7. Chloritic feldspar - quartz crystal tuff - this unit outcrops poorly in the S.W. of the grid and is obscured to the north by gravel cover. From the soil and pan concentrate geochemistry this rock type is the most prospective.

Tertiary Gravels and Sands:

These sediments extensively overlie the Cambrian sequence in the N.W. sector of the grid with scattered remnants remaining on hill tops elsewhere see Plan 9. The gravels are composed of quartz, quartzite cobbles derived from the Pre-Cambrian, pink Ordovician quartzite forming minor component.

Mineralization in the grid area is limited

- chlorite magnetite alteration which locally outcrops 92N/9925E in rhyolitic tuffs. The alteration is confined to cleavage surfaces.

- minor fine pyrite cubes in orange-pink rhyolite.

Shallow pits 0.3m deep in ferruginous Tertiary gravels (9980N/9940E) was the only sign of prospecting. The workings reported by BHP weren't located.

Soil Geochemistry

No statistics have been applied to the data, which is limited due to Tertiary gravel cover, and a mixture of soil and rock chip sampling.

From the data available two main anomalous zones can be recognized.

(a) Line 88-92N/9300-9800E, peaking at 88N/9400-475E
Cu 590 ppm
Pb 1950 ppm, Ag 2.5 ppm
Zn 760

In this area outcrop is generally poor, the geology is apparently dominated by chloritic feldspar quartz crystal tuffs with possible minor basic-intermediate volcanics? Soils with higher values tend to be deeper than average 0.5-1.0m, reflecting the soft chloritic nature of the bedrock. This soil anomaly may be associated with the broad magnetic anomaly (see Plan 11a).

(b) 92N/10325E here a single anomalous sample occurs
Cu 25 ppm
Pb 100 ppm, Ag 2.0 ppm
Zn 225

Outcrop is lacking, the location probably occurs just E. of the chloritic crystal tuff contact with the rhyolite. Although this is a single sample anomaly it is followed to the E by an elevated Zn background.

(c) 100N/10125 - 225E. This anomaly is open to the W, where bedrock is obscured by gravels. The peak values are:

Cu 20 ppm
Pb 1150 ppm
Zn 2850 ppm

At this location a thin layer of angular quartz float overlies fine grained chloritic undifferentiated Cambrian tuffs? Immediately west scattered blocks of fine siliceous siltstone occurs. A weak but distinct magnetic anomaly coincides with the soil geochem.

Stream Geochemistry - Pan Concentrates:

Again no statistics have been applied, only 15 samples were collected. Zinc is the most prominent element, a range of 27-3300ppm with half the samples >590 ppm.

Stream Zn bears little relationship to the Cu Pb Zn soil anomalies, the highest stream values 1000-3300 ppm may be associated with the fine siliceous silts - tuffaceous greywacke?

Gold and silver values in the sediments peaked at 6.93 ppm 4.00 ppm respectively, in a small stream draining lithic epidote tuffs and chloritic tuffs with associated Cu Pb Zn Ag soil anomaly on line 88N.

A second gold anomaly occurs at the junction of a small stream draining the E. edge of the grid and the Hudson River, here 0.48 and 2.65 ppm recorded.

Correlation between visual gold pan counts and the analysis -

TD 6216	4-5 colours	6.93ppm
TD 6212-3	-	.48, 2.65 ppm
TD 6202,09,15	1-2	-

Magnetics:

Within the grid area there are two main magnetic anomalies, the grid adequately covering the airborne anomalies.

Discussion of the data which is plotted on profiles will be confined to surface evidence of magnetic rock types.

This is limited to -92/9925E chloritic magnetite alteration
-92N 9675-9725 possible chloritic
basic - intermediate volcanic lenses?

5.4.5 D **Voyager 16**

(from: Wilson et al, 1982)
(by: R J Perring)

(i) Introduction - Previous Work

The Voyager 16 prospect is situated immediately to the north of the confluence of the Hudson River with Waterloo Creek. The prospect defines a relatively strong circular aeromagnetic anomaly. Coincident with this anomaly is an area of anomalous Pb-Zn stream geochemistry. Reconnaissance mapping in the vicinity of Voyager 16 during the 1980 field season led to recognition of chloritic alteration in a sequence of rhyolitic agglomerates (large, 1981).

Field work in the 1980/81 season was conducted under contract to the Poltock Bros. Geological mapping, soil sampling and a magnetic survey were completed along four 400m spaced E-W lines (Figs. 9, 10).

A broad zone of anomalous Pb/Zn soil geochemistry and magnetics on the western end of line 8800N was selected for detailed follow up field work in the 1981/82 season. One kilometre E-W lines, centred around 8800N 9500E, were pegged to the north and south of the anomalous zone, (see Fig. 10). This involved 3.5km of gridding. These lines were sampled for soil geochemistry, mapped geologically, and surveyed for magnetics and VLF-EM. Streams draining the gridding area were also sampled. This report presents the results of all follow up field work completed in the 1981/82 field season in the area delineated in Figure 10.

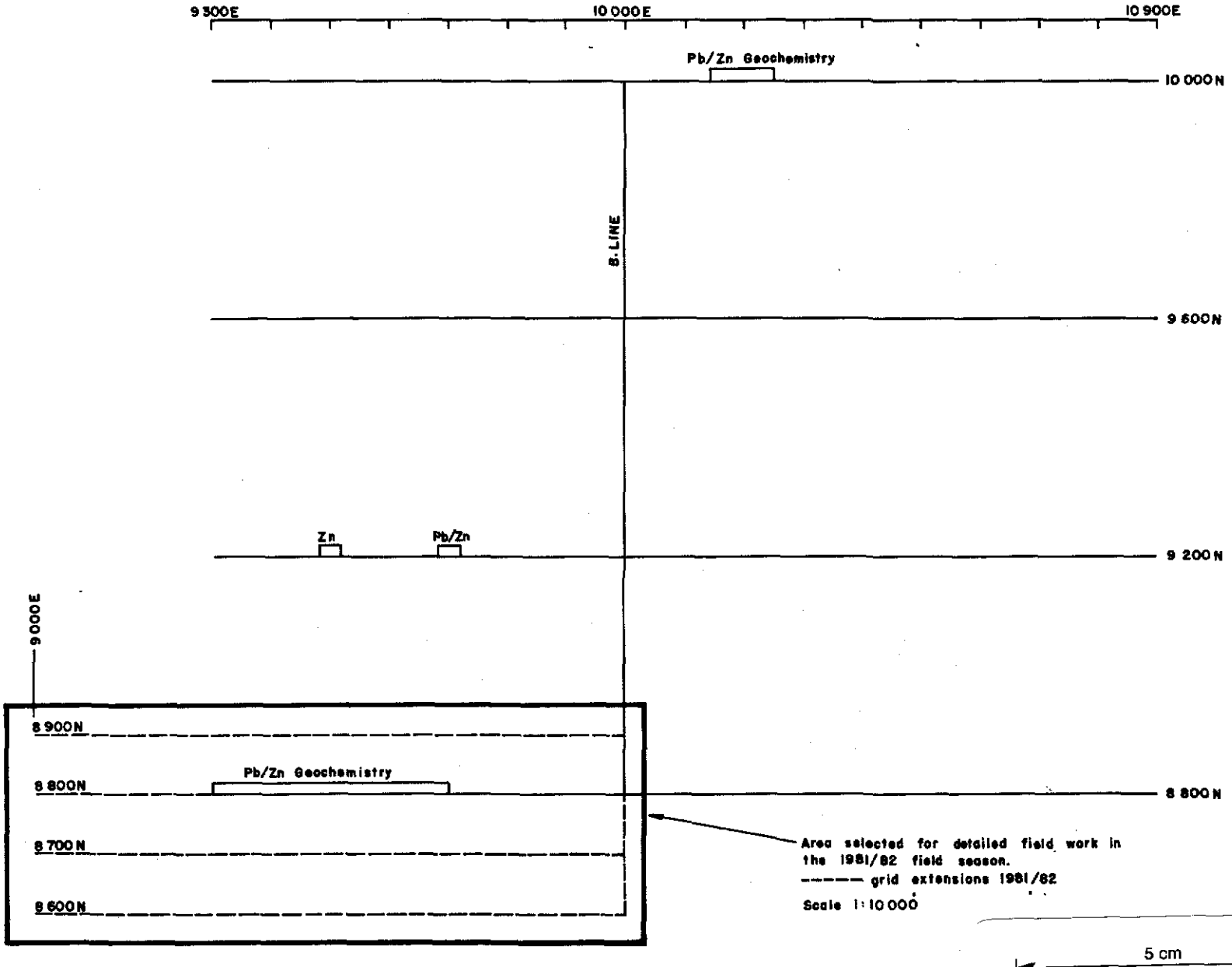
(ii) Geology

Outcrop in the western half of the gridded area is very poor due to the gently easterly sloping topography, and surface cover of quartz rubble. The eastern half of the area is well incised and there is some scattered outcrop. Voyager 16 encompasses a sequence of rhyolitic crystal lithic tuffs within the Hudson River Volcanics, which strike from 170°m to 180°m and dip to the west at between 70° to 80°. Two very steep easterly dips were also recorded. The rocks are generally poorly cleaved probably due to their high crystal content. A widely spaced fracture cleavage strikes between 150° and 180°m and dips steeply to the west at 80°. Cuttings from auger holes indicate the subcropping tuffs are all moderately chloritic whereas outcropping tuffs are mildly chloritic and appear to have been leached of their iron and magnesium.

A thick unit of ropy quartz porphyritic lava overlies the tuffs to the east of the gridded area. Five similar tuffaceous lithologies can be recognized in the field and have been differentiated on varying amounts of quartz and feldspar crystal, lithic fragments, and grain size. The sequence generally fines upward to the west. Details of each, rock type working up the sequence are given below:

Quartz Crystal Tuff:

A grey brown weathering rock with good outcrop to the east of Waterloo Creek. This lithology is coarse grained, massive, and contains between



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VOYAGER 16
RECONAISSANCE GRID SURVEYED 1980/81
BY POLTOCK BROS.

Fig. 10

40 vol% and 55 vol% equigranular subhedral phenocrystic quartz crystal. Some outcrops contain minor phenocrystic feldspar. The fine grained quartzo feldspathic groundmass exhibits weak pervasive chlorite alteration and patchy epidote alteration.

Feldspar Quartz Lithic Crystal Tuff:

A medium grained sequence of crystal lithic tuffs with variable amounts of quartz and feldspar crystal and rhyolitic fragments. The sequence generally grades upwards through a quartz crystal tuff with one metre interbeds of light grey tuffaceous shale through quartz feldspar lithic crystal tuffs to feldspar quartz lithic crystal tuffs near the top. Phenocryst content varies from 50 to 60 vol % and lithic fragment content from 5 to 10 vol %. Lithic fragments consist of rhyolitic tuffs and lavas, subrounded to subangular, and up to 2cm in diameter. Beds containing lithic fragments are generally poorly sorted. Minor epidote and more commonly weak chlorite alteration occurs throughout the sequence.

Quartz Feldspar Crystal Tuff:

A light grey weathering rock, conspicuous in the field due to the prominence of up to 10 vol % black manganese? wisps from 1mm to long. Equal amounts of quartz and feldspar crystal constitute approximately 30 vol % of the rock. Feldspar crystals are always more rounded and better sorted than quartz crystals. The matrix is fine grained and predominantly feldspathic.

Feldspar Quartz Crystal Tuff:

A medium grained sequence of fedlspar quartz crystal tuff and minor lithic crystal tuff. The lithologies are dominantly feldspathic with up to 55 vol % feldspar crystal and between 15-20% quartz crystal. The sequence becomes finer grained near the top.

Quartz Crystal Tuff:

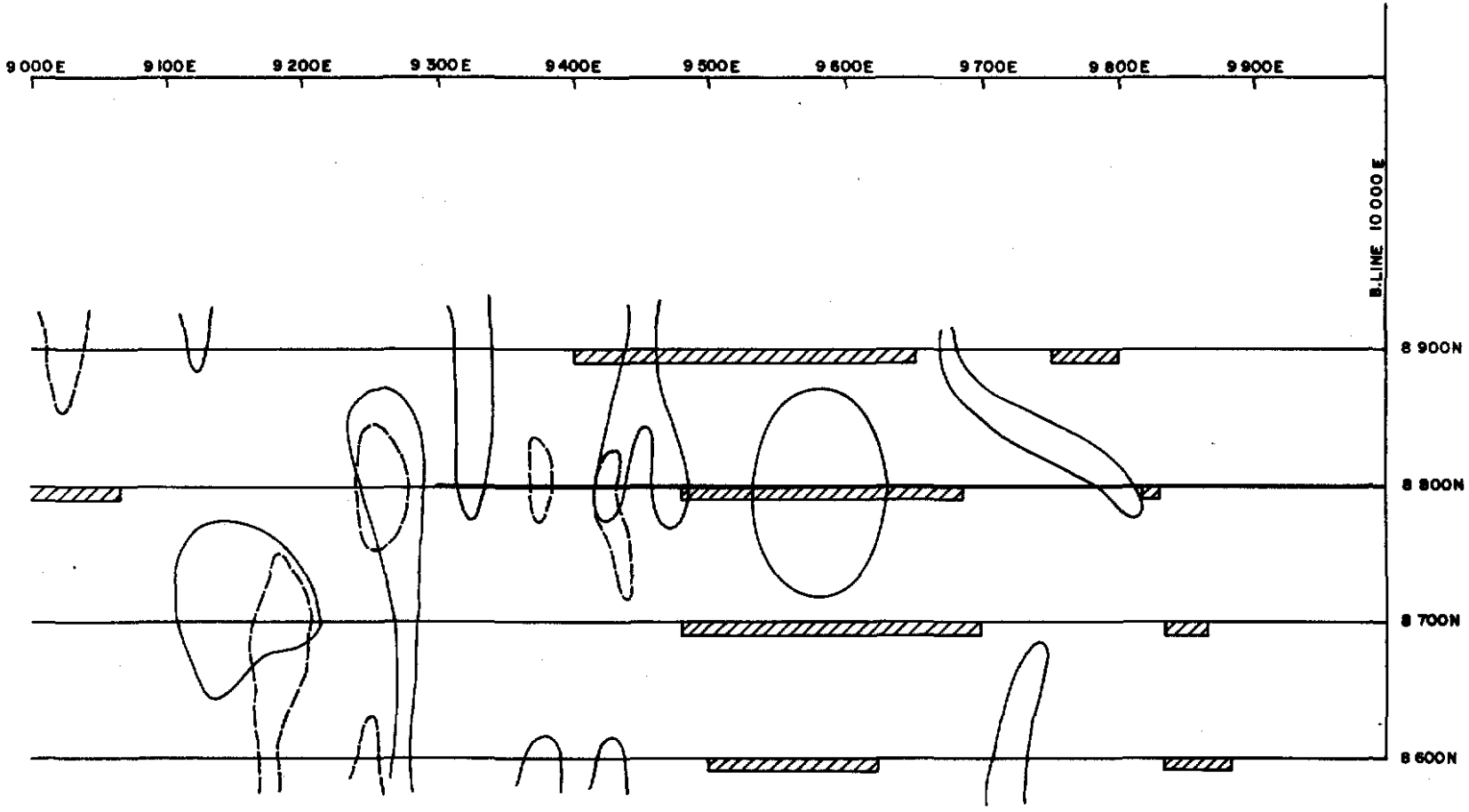
A grey brown weathering rock with very poor outcrop. The lithology is fine grained and contains up to 5% quartz crystal and minor feldspar crystal. Chips from auger holes are dark green with chlorite although outcrops exhibit little or no chlorite alteration resulting from surface leaching of iron and magnesium.

Quartz Veining:

Two styles of quartz veining occur in the western half of the gridded area where there is almost no outcrop of volcanics.

a) Massive steeply dipping veins of milky quartz up to 50cm wide and up to 5 metres long. These veins have an orientation almost identical to major photo lineaments and are most likely fault controlled. The veins are oblique to cleavage by 20°.

b) Narrow (10mm), steeply dipping quartz chlorite veins which form irregular network systems and appear to be controlled by joints and fractures unrelated to regional scale faulting or cleavage.



Line pegged & sampled for soil geochemistry & magnetics Poltock Bros. 1980/81 field season.

Lines pegged & sampled for soil geochemistry, magnetics & VLF-EM 1981/82 field season to better define geochemical & magnetic anomalies indicated from 1980/81 field seasons work.

Anomalous magnetics (>200nT)

Pb soil geochemistry >400 ppm

Zn soil geochemistry >400 ppm

SCALE 1:5000

5 cm

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VOYAGER 16

PROSPECTING SUMMARY MAP

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Fig. 11

(iii) Geochemistry

C Horizon Soil Sampling:

One hundred and sixty two (162) C Horizon soil samples were taken on the grid, 29 of which were taken by the Poltock Brothers during the 1980-81 field season. Samples were taken using a power auger at 25 metre intervals along the four grid lines. The -80 mesh fraction was analysed by AAS for Cu, Pb, Zn, Ag, Fe and Mn.

Results have been contoured for lead and zinc and are presented at a scale of 1:2,500. A number of base metal soil anomalies have been outlined (see Fig. 11). The statistics of lead-zinc C horizon soil geochemistry are given in Table 16.1. Cumulative graphs were plotted from this data and background and threshold levels determined.

The following conclusions can be made:

a) Zinc background is 155ppm and threshold 820ppm assuming there is only one population. This gives three anomalies all of which occur in the western half of the grid. The strongest anomaly, centred on 8700N 9200E peaks at 930ppm Zn and has strong coincident lead geochemistry.

b) Lead background is 43ppm and threshold 500ppm. This gives four anomalies all of which occur in the western half of the grid where there is poor outcrop. The strongest anomaly, centred on 8800N 9425E peaks at 1950ppm Pb and has coincident zinc geochemistry (760ppm Zn).

c) Almost all lead-zinc soil anomalies occur over tuff in the upper part of the Voyager 16 sequence while the magnetic anomalies fall lower in the sequence.

d) In the western half of the gridded area, the sites of C Horizon samples which assayed less than 100ppm Zn correlate well with low quartz rubble mounds and ridges. This suggests a sampling problem.

Stream Sediment and Panned Concentrate Samples:

Stream sediment and panned concentrate samples were collected from five streams which drain through the gridded area and analysed for gold by Analabs using a fire assay - AAS technique. All streams except Waterloo Creek have a source within or just outside the grid area. Sample locations, and analytical results are presented with geology on Plan No. TS 27/76-V16-10. Four of the pan concentrate samples contained between 2 and 5 grains of visible fine gold. Although pan concentrate analytical results for gold were as high as 23.6ppm when the concentration factor was taken into account the sediments contained between 10 and 50ppb Au are not considered anomalous.

TABLE 16.1

236048

VOYAGER 16 - STATISTICS OF LEAD AND ZINC C HORIZON SOIL GEOCHEMISTRY

	LEAD				ZINC		
Class	Frequency	%Frequency	Σ% F		Frequency	%Frequency	%F
0 -50ppm	106	65.43	100		47	29.01	100
51 -100ppm	20	12.35	34.58		28	17.28	71.01
101-150ppm	12	7.41	22.23		14	8.64	53.73
151-200ppm	6	3.70	14.82		15	9.26	45.09
201-250ppm	3	1.85	11.12		15	9.26	35.83
251-300ppm	3	1.85	9.27		10	6.17	26.57
301-350ppm	3	1.85	7.42		6	3.70	20.40
351-400ppm	2	1.24	5.53		5	3.09	16.70
401-450ppm	3	1.85	4.33		2	1.24	13.61
451-500ppm	0	0.0	2.48		6	3.70	12.37
501-550ppm	0	0.0	2.48		2	1.24	8.67
551-600ppm	0	0.0	2.48		2	1.20	7.43
601-650ppm	0	0.0	2.48		0	0.0	6.19
651-700ppm	0	0.0	2.48		2	1.24	6.19
701-750ppm	0	0.0	2.48		1	0.62	4.95
751-800ppm	0	0.0	2.48		4	2.47	4.95
751-800ppm	0	0.0	2.48		4	2.47	4.33
801-850ppm	0	0.0	2.48		0	0.0	1.86
851-900ppm	0	0.0	2.48		1	0.62	1.86
901-950ppm	2	1.24	2.48		2	1.24	1.24
951-1000ppm	1	0.62	1.24				
1901-1950ppm	1	0.62	0.62				

162 C Horizon Soil Samples

048

236049

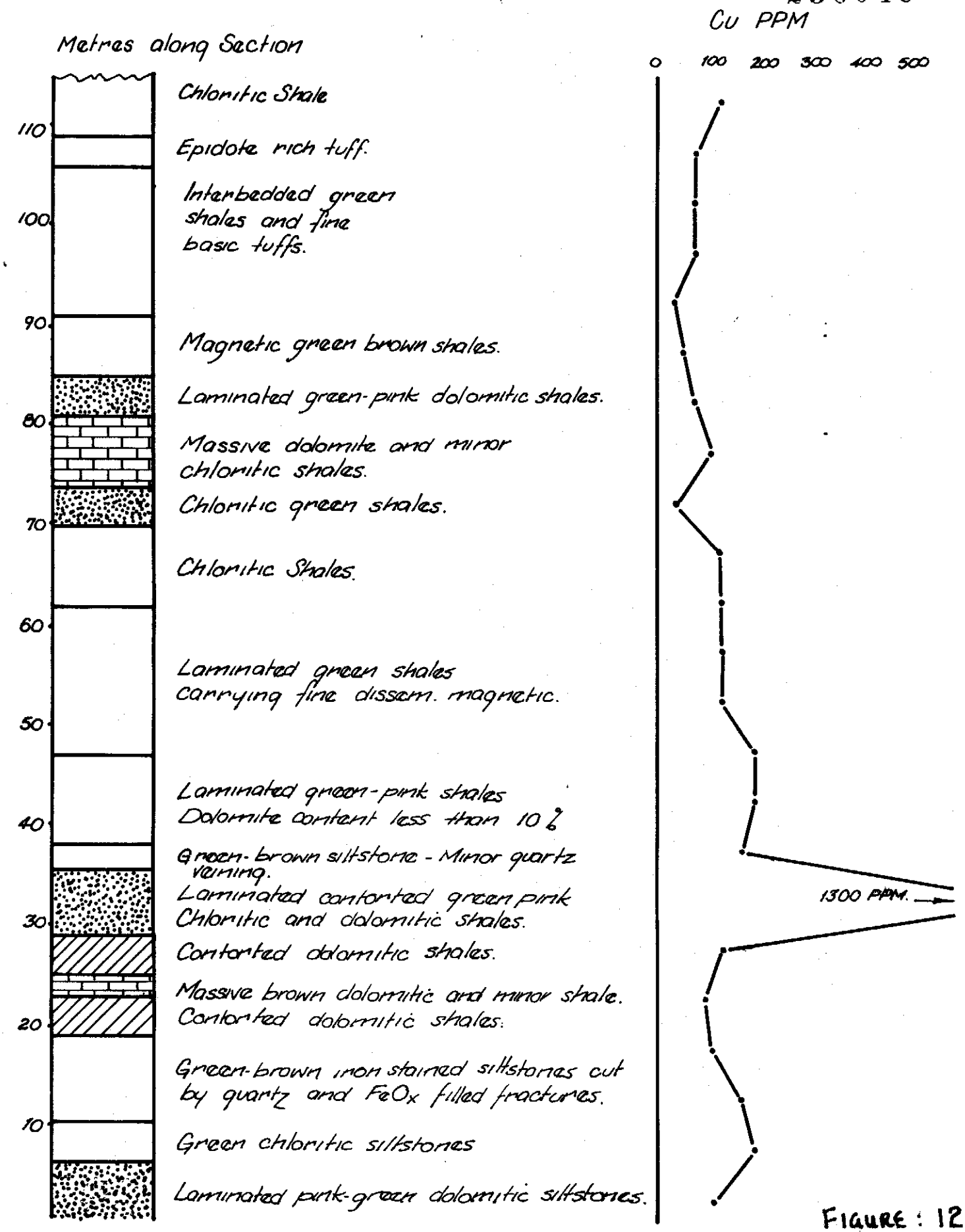


FIGURE : 12

DEVONPORT TAS.

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EL 27/76 ELLIOTT BAY

Nov80 C.D.S. J.C. VOYAGER 23

STRATIGRAPHIC SECTION AND ROCK CHIP COPPER VALUES

Forward Programme

It is proposed to place a 1200m x 1200m grid over the central portion of the anomalous zone with E-W grid lines separated by 200m. Geological mapping, soil sampling and ground EM surveys are proposed on the grid.

5.4.8 B **Voyager 26**

(from: Wilson, 1981)

i) Introduction

Voyager 26 defines an area of anomalous airborne EM and magnetics centred on AMG 375500E, 5251500N and which were located as a result of the 1975 Geoex Survey. The anomalies are located in an economically favourable stratigraphic position being on strike to the copper-mineralization which was observed in a dolomitic horizon at Copper Creek on the coast (Voyager 18).

Voyager 26 was graded as priority number 6 for the field season (Large, 1981) with gridding, soil sampling, mapping, magnetics and ground EM technique as the recommended follow up procedures.

The area falls within the densely forested area immediately south of the Mainwaring River approximately equidistant between Wart Hill and the coast. The ground work was conducted by a contract team and a summary of this work follows. For further details the reader is referred to Poltock (1981).

ii) Geology of the Voyage 26 Grid

An area of approximately 800 x 1000m was gridded by way of 3x400m spaced grid lines. The grid is located at the contact between basic volcanics with siltstones and black pyritic shales which are assigned to the Veridian Point Volcanics of the Mainwaring Group (Large, 1981).

Although outcrop on the grid is generally poor the soil type, magnetic and geochemical characteristics have enabled the recognition of 3 distinct lithotypes (Plan No. TS 27/76-V26-2).

Basic volcanics - these are prevalent on the eastern part of the grid and contain minor magnetite and quartz-epidote veining. They were not seen in outcrop.

Black chloritic phyllites

Phyllites - with possible carbonates and basic volcanics, recognised on the basis of a clay soil and vegetation cover.

No stratigraphy was discernable, the rocks are strongly cleaved and probably dip steeply to the west. Mineralization was observed in brown

phyllites associated with blocks of hematitic chert on the northern line of the grid (100N/10021E KR 8440).

iii) Geochemistry

127 C-Horizon soil samples were collected by power auger at 25m intervals. The -80 mesh fraction was analysed for Cu, Pb, Zn, Ag, Fe, Mn, Sn and W. Due to the 200m wide grid line spacing the values are not contourable and the results are presented in profile format (Plans TS 27/76-V26-3 to 5). Background and threshold values for Cu, Pb and Zn are reported to be 100ppm/340ppm, 12ppm/20ppm and 80ppm/170ppm respectively.

iv) Geophysics

Total magnetic field intensities were measured at 12.5m centres along the three grid lines. The results distinguish a broad area of generally flat 'undulating' magnetics west of line 10300 from an area of higher magnetic intensity to the east. This 200-300m wide zone marking the eastern edge of the grid is typified by steep and sharp magnetic gradient and reversals and is probably indicative of basic volcanics. It forms the western margin of the main aeromagnetic linear which extends through the Mainwaring Group.

A moving source turam EM survey commenced but had to be cancelled due to instrument problems.

v) Conclusions

The previous work conducted over coastal outcrops of this stratigraphic sequence especially at Veridian Point (Voyager 23) shows that copper values in chloritic shales, dolomites and basic tuffs average about 150ppm with local concentrations of up to 1300ppm in dolomitc lithologies (Large, 1981). Values of up to 0.98% Cu have been recorded in rock chip samples at Voyager 18.

Mapping on the grid has shown it unlikely that a thick sequence of dolomite is present in the Voyager 26 area.

It is unlikely that the Voyager 26 grid was placed over the wrong area but the follow-up EM survey should be completed prior to any decision being made to downgrade the area.

* **1985 Compiler's Note:** Recommendation for EM survey has not been implemented.

5.4.8 C **Voyager 26 Grid**

(from: Poltock, 1981)

Voyager 26 grid is located approximately 1.6km SSW of the Mainwaring helipad. Access to the area is only practically attained by helicopter, a landing pad cleared at 100N/10125E.

The grid was designed to cover A.E.M. anomalies 51-53 which lie immediately west of the main magnetic anomaly on basic volcanics, in a sequence dominated by phyllites with minor basics and possible carbonates.

Work was accomplished in the period Feb. 1 - Feb. 18, a total of twelve field days in which the access track from the Mainwaring camp, helipad clearing, grid line cutting, soil sampling, geological mapping and proton magnetics were completed. An M.S.T. (turam) survey was initiated but the instrument malfunctioned after having only read line 100N.

Line cutting initially involved clearing a 1.6km access track due south from the Mainwaring camp to the N.E. corner of the grid. The grid lines were then cut from this point of origin - a total of 3350m, three lines running 090° True, at 400m spacing connected by a central base line. Lines were marked with bush stakes and flagging tape.

A total of 127 dominantly "C" horizon soil samples were collected using a power auger. Soil profiles were generally poorly developed; bedrock encountered in the first 0.5m.

Geological mapping and rock sampling was carried out in conjunction with the soil augering. Outcrop on the grid is extremely poor but bedrock is only obscured by a thin mantle of organic soils. No attempt was made to map between the grid lines, due to thick vegetation and lack of outcrop.

The area is topographically flat, streams of any consequences are limited to the N.W. sector of the grid, the headwaters of a system flowing north to the Mainwaring: exposure is quite good in these streams but due to time limitation wasn't mapped.

Proton magnetics read along lines at 12.5m spacing using a Geometrics G 816 with a remote sensor.

Geology

Regionally the grid is located in a sequence dominated by phyllites with minor basics and possible carbonate horizons. These units overlie a thick sequence of fine-medium grained basic volcanics (Plan No. TS 27/76-V26-2).

Further north in the Mainwaring river this stratigraphic position is occupied by black pyritic shales, quartzose tuffaceous wackes, and basic volcanics. It seems likely that a facies change occurs and in the grid area these units are replaced by phyllites which occur further west in the Mainwaring.

At V26 the sequence strikes N-S, only one bedding observed 350° .80° (100N/9525E), all sediments probably dip steeply west. A well developed cleavage is the most prominent feature in the phyllites and may be sub parallel to the bedding.

It is difficult to split the area into different stratigraphic units, there being a repetition of rock types throughout, with the exception of the basic volcanics which are at the greatest development in the N.E. sector.

There are essentially three main rock types:

- basic volcanics, fine-medium grained, with minor magnetite and quartz epidote veining;

- chloritic to black phyllites, these may contain occasional greywackes and basic volcanic lenses. At 100N/10012E blocks of hematitic chert occur which would be locally derived but weren't seen outcropping;

- clay soil unit/phyllites with carbonates and basic volcanics these characterized by soil type, subtle magnetic anomalies, above background Cu values and supporting heavy rainforest. Nowhere were carbonates or volcanics seen outcropping. However, similar phyllites in the Mainwaring contain thin brecciated carbonate bands which weather readily.

- In addition to the above types a single outcrop of deeply weathered medium grained basic - probably gabbro - occurs at 96N/9500E.

Mineralization in the above units in the grid areas was limited to

i) patchy magnetite in basic volcanics 100N/10575E (KR 8436) and 100N/10325E (KR 8439)

ii) pyrite-fine disseminated in cream-brown phyllites associated with blocks of pyritic hematitic chert at 100N/10012E (KR 8440).

iii) minor sulphide fragments? occurring in soils at 100N/10400E (KR 8438), 96N/9775E (KR 8446) the latter associated with ZN 150ppm in soils.

Soil Geochemistry

The grid area was suited to "C" Horizon soil geochemistry, generally soil profiles were poorly developed, bedrock only covered by thin soils.

Soil types can be broadly grouped:

(a) skeletal soils on basics and phyllites in well drained, slightly elevated areas.

(b) organic muds with fine angular quartz gravels up to 2m thick overlying unweathered bedrock, restricted to areas of swampy drainage supporting baera-teatree scrub.

(c) deep orange-yellow brown clay soils up to 2m deep, these on slightly elevated well drained areas supporting heavy rainforest with relatively open understory.

Background and anomalous values were calculated for Cu Pb Zn, see Table, these elements profiled. (Plans TS 27/76-V26-3 to 5).

TABLE

Background - Anomalous levels Cu Pb Zn

n = 127 all values ppm

	Cu	Pb	Zn
Background	100	10-14	80
Anomalous	>339	>20	>179

Copper and zinc anomalies predominate, these are sometimes associated but frequently separate to just overlapping. Several samples taken at 100N/10012E and 10590E draining from the grid are give no indication of Cu Zn Pb soil anomalies (anomalous levels calculated for the Mainwaring stream data), this may be due to their limited drainage area to the south.

Copper values are consistently greater than background on the clay soil unit. This may be a combination of factors,

- anomalous bedrock
- greater element build up in the well developed soil profiles.

Five copper anomalies occur, all on line 100N, peaking at 580ppm, all are single sample peaks.

Zinc values reach a maximum of 475 ppm 110N/9625E, 355ppm 92N/9700E - four other weaker anomalies occur - all are isolated single sample peaks occuring on phyllites.

Anomalous lead is restricted to two locations

100N/9625E 50 ppm 96N/1000E 485 ppm, 1ppm Ag

At both locations black phyllites occur. Scattered values of 20 ppm occur on phyllites and deep clay soils.

Magnetics

From the magnetic survey V.26 can be divided into two main zones (see Plans TS 27/76-V26-3 to 5):

(i) N.E. sector, this is a zone of active magnetics associated with basic volcanics with minor magnetite. The magnetic profiles are characterized by sharp gradients and reversals.

(ii) in the remainder of the grid anomalies are more subtle, gradients slight, above a background of 63000 nT suggesting a weakly magnetic stratigraphic unit. There is a consistent association with the clay soil unit.

5.4.9 Voyager 36

Voyager 36 designates an area on the Mainwaring River near the western Boundary of EL 27/76. The anomaly was defined by two stream sediment samples from tributaries of the Mainwaring River which contained moderately anomalous levels of copper, zinc and iron (refer to Plan No. Ts 27/76-3P).

No follow up work has been carried out.

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236058

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EXPLORATION LICENCE 27/76 ELLIOTT BAY, TASMANIA

FINAL REPORT ON EXPLORATION OF AREAS TO BE RELINQUISHED FROM EL 27/76 IN JANUARY 1985

Volume 2

M...ED

Compiled by: W HERRMANN
JANUARY, 1985

OPEN FILE

SOUTHERN OCEAN

ELLIOT BAY

Lewis R.

Hudson R.

1E 2S 3N 4N 5N 1W 2W 3W 4W 5W 6S

REFERENCE

SURVEY SPECIFICATIONS –

HELICOPTER	Bell Jetranger 206B VH-BLR
E.M. SYSTEM	McPhar M40 dual frequency sequential transmission 340 Hz and 1070 Hz
MAGNETOMETER	Geometrics G803 proton precession (reading accuracy ± 1 gamma)
DIURNAL RECORDER	Geometrics G806 proton precession magnetometer with Rustrack recorder and crystal clock
ALTIMETER	Bonzer radar
ANCILLIARY EQUIPMENT	Geoex intervalometer Century 444 analogue light beam recorder Geoex film digital recorder Vinten 16 mm ground tracking camera
READING INTERVAL	1.023 seconds
NOMINAL AIRCRAFT SPEED	90 knots (Mean reading spacing 47 metres)
NOMINAL AIRCRAFT SURVEY ALTITUDE	140 metres (E.M. bird 50 metres, Mag. bird 120 metres)

A
B
C
D
E

SYMBOLS SHOW LENGTH, SHAPE AND PEAK OF ANOMALY

Anomaly Shape
Recovered Fiducial
340 Hz Amplitude
Magnetic Anomaly Peak and Amplitude
Ratio - 340/1070 Hz
Line Number (At start of line)

CONDUCTIVE ZONE

SURFACE NOISE

DEFINITE, PROBABLE AND POSSIBLE CONDUCTOR AXIS

5 cm

LOCALITY MAP

T A S

Survey Area

236059

370

PLAN NO: TS 27/76-3I

GEOEX PTY LTD

THE BROKEN HILL PROPRIETARY COMPANY LIMITED

LEWIS RIVER AREA - TAS.

AIRBORNE ELECTROMAGNETIC ANOMALY MAP

SCALE 1:42 000

SCALE 500 0 500 1000 METRES

SURVEYED APRIL 1975		APPROVED J.E. HAIGH
DRAWN BY I.B.	PROJECT 7504	DWG. No 1

85-2329 (Vol 2)

SOUTHERN OCEAN

ELLIOT BAY

N

REFERENCE

SURVEY SPECIFICATIONS –

HELICOPTER	Bell Jetranger 206B VH-BLR
E.M. SYSTEM	McPhar H.400 dual frequency sequential transmission 340 Hz and 1070 Hz
MAGNETOMETER	Geometrics G.803 proton precession (reading accuracy ± 1 gamma)
DIURNAL RECORDER	Geometrics G.806 proton precession magnetometer with Rustrack recorder and crystal clock
ALTIMETER	Bonzer radar
ANCILLIARY EQUIPMENT	Geoex intervalometer Century 444 analogue light beam recorder Geoex film digital recorder Vinten 16 mm ground tracking camera
READING INTERVAL	1.023 seconds
NOMINAL AIRCRAFT SPEED	90 knots (Mean reading spacing 47 metres)
NOMINAL AIRCRAFT SURVEY ALTITUDE	140 metres (E.M. bird 50 metres, Mag. bird 120 metres)

Magnetic Low

Traverse Line

Line Number (At start of line)

CONTOUR INTERVAL 20 GAMMAS

5 cm

LOCALITY MAP

T A S

Survey Area

236060

PLAN No: 27/76 - 41

GEOEX PTY LTD

THE BROKEN HILL PROPRIETARY COMPANY LIMITED

LEWIS RIVER AREA – TAS

AEROMAGNETIC TOTAL INTENSITY CONTOURS

1: 42 000

SCALE 500 0 500 1000 METRES

SURVEYED APRIL 1975 | APPROVED J.E. HAIGH

DRAWN BY I.B.,N.B | PROJECT 7504 | DWG Nº 2

85-2329 (Vol 2)

A2-1328

Boundary

Wandering Group

Intermediate volcanics and sediments

Intermediate and basic volcanics

greywacke shales Dundas

siltstone cgl conglomerate and tuff

Ordovician quartzite and conglomerates

WANDERER

Frederick Hill 490

Moores Lookout

Table Top

Brown Hill

PRECAMBRIAN

North Broken Hills

coarse grained quartz – feldspar – biotite porphyry

Dolphin Ridge

South Broken Hills

Pass Hill

Review Hill

RANGE

Hudson

greywackes shales and tuffs

chloritic acid pyroclastics and sediments

Variables

Cambrian granite

Drakes Creek

Cowrie Beach

Big Beach

Granite Point

ELLIOTT BAY

The Popholes

Rocky River

Little Rocky River

Cambrian granite

Thwaerdown Bay

Creek

Dismal Swamp

Mt Jean Ridge

GIBLIN

Superficial residual quartz rubble

Qa Alluvium

Tg Unconsolidated Tertiary Gravel

10 O Ordovician "Owen" conglomerate/quartzite

CAMBRIAN

TYNDAL GROUP CORRELATES

3 Grey - black shale/ siltstone

Coarse rhyolitic epiclastics & sandstone

DUNDAS GROUP?

26 Greywacke, shale

MAINWARING GROUP

145 Andesitic - basaltic lava, breccia, tuff, tuffaceous shale

46 Dolomitic shale, dolomite

WESTERN VOLCANO - SEDIMENTARY SEQUENCE

52 Tuffaceous greywacke, sst, conglomerate Rhyolitic epiclastics

65 Argillaceous phyllite, siltstone, black slate

27 "Pender's Tuffs" Rhyolitic crystal tuff, minor sediment

Undifferentiated

WART HILL ACID PYROCLASTICS

48 Rhyolitic qtz phyric lava

30 Sericitic quartz crystal tuff lithic tuff, rhyolitic agglomerate

44 Chloritic quartz feldspar crystal lithic tuff

41 Variable highly chloritic (altered?) pyroclastics & f.g. lavas

46 Chloritic c.g. quartz phyric lava

47 Fine grained aphyric dacite lava

60 Quartz pebble conglomerate, micaceous sandstone, siltstone

65 Pyritic grey - black slate, siltstone

19 STONY CRK. PORPHYRITIC MICROGRANITE

WANDERER RIVER TUFF

38 Pink hematitic rhyolitic crystal/lithic tuff, lava

HUDSON RIVER PYROCLASTICS

40 Chloritic qtz feldspar crystal/ lithic tuff, rhyolitic qtz. biotite phyric lava

58 Shale, greywacke, fine tuffaceous sediment

ELLIOTT POINT PORPHYRY

22 Cse. grained qtz. feldspar - biotite porphyry probable sub-volcanic intrusive

CAMBRIAN GRANITES

19 Undifferentiated Granite

PRE C ARTHUR GROUP - Undifferentiated qtzt & meta-seds

Undifferentiated Acid Volcanics.

5 cm

DATE: OCT' 1980 UPDATE JUN 83

GEOLOGIST: R.R.L. W.H.

DRAWN: J. P. M.

CHECKED: RRL.

GEOPEKO

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236061

1000 750 500 250 0 1000 2000 3000

SCALE: 1:42 000

TS 27/76-6I

E.L. 27/76 ELLIOTT BAY, TASMANIA

INTERPRETATION GEOLOGY

COMBINATION OF FACT GEOLOGY AND PHOTO INTERPRETATION

372

85-2339 (vol 2)

374 000 E
375 000E
376000E
377 000 E
378 000 E
379 000 E
380 000 E
381 000 E
382000E

5 262 000 N
5 261000 N
5 260 000N
5 259 000 N
5 258 000 N
5 257 000 N

[redacted]

Conglomerate Lavas

Shales breccia or Pauite breccia

Silstone and sandstone

Conglomerate

Section line 5257500 N.

5 cm

236062
CEGREMCO

PLAN NO:
KT 23/76-1A

1:10 000 SCALE
GEOLOGICAL

373

85-2329 (Vol 2).

[redacted]

AIRFIELD

BOMBARDIER

383 000E 384 000E 385 000E 386 000E 387 000E 388 000E 389 000E 390 000E 391 000E

5 262 000 N

5 261 000 N

5 260 000 N

5 259 000 N

5 258 000 N

5 257 000 N

E 27/76 BOUNDARY

S 281 qbxvf lava

qtz, sst gravel

Ordivician ?

qtz sst pebbles + cobbles

S 280 sb chl xt

S 152 chl fqxt

gravel + boulders

coarse angular gravel + boulders

S 27 f

S 58

S 274

strongly foln ser (Ordivician?)

massive civd wte qtz

TERTIARY PERI-GLACIAL GRAVELS

civd qtz

b mg hem q gwc

folded pink qtz

civd qv, wte stzpre (erratics?)

fol ser chl qxt

strongly fol ser qxt

S 555 fg fq-astite

THICK BANKSIA SCRUB (NO O/C)

S 56 qfbp

S 43

600 700 800

NOTE:
- INTERPRETIVE ROCK BOUNDARY
- INTERPRETIVE UNCONFORMITY
- STRIKE TRENDS FROM AERIAL PHOTOGRAPHS
- FAULTS FROM AERIAL PHOTOGRAPHS

LEGEND

VOLCANIC ROCKS

lt	lithic tuff
xt	crystal tuff
vt	vitric tuff
vcc	crystal lithic tuff
agg	agglomerate rounded clasts 32 mm
fr	fragmental angular clasts 32 mm
ut	undifferentiated tuffs
tuff	tuff
qp	quartz porphyry
qfp	quartz feldspar porphyry
qfbp	quartz feldspar biotite porphyry
l	as a suffix denotes lava
lap	lapilli

PREFIXES (no prefix indicates acid composition)

a	acid
i	intermediate
rhy	rhyolite or rhyolitic
dac	dacite or dacitic
and	andesite or andesitic
b	basalt or basaltic
ba	basic

SEDIMENTARY ROCKS

sh	shale
st	siltstone
bksh	blackshale
sst	sandstone
qtz	quartzite
gwk	greywacke
ct	chert
lmst	limestone
dol	dolomite
bx	breccia
congl	conglomerate
vs	volcaniclastic sediment

METAMORPHIC ROCKS

phy	phyllite
sch	schist
gns	gneiss
hfs	hornefels
mb	marble

INTRUSIVE ROCKS

gr	granite
grd	granodiorite
ad	adamellite
dl	dolerite
lp/lamp	lamprophyre
bd	basic dyke
cz	calcite
pg	pegmatite
qv	quartz veins

STRUCTURAL AND TEXTURAL

p	porphyritic
civd	strongly cleaved
shd	sheared
ox	oxidized
sil	silicified
ten	tension
br	brecciated
sch	schistose
vug	vugular (vughy, vug)
cran	cranulated

MINERALOGICAL PREFIXES (only use if diagnostic)

sil	siliceous
chl	chloritic
ser	sericitic
cbn	carbonaceous
hem	hematitic
py	pyritic
hem_fem	hematitic
goss	gossanous
lim	limonitic
arg	argillic
feld	feldspathic
ep	epidote

GRAIN SIZE

fg	fine grained	0 – 3 mm fragments
mg	medium grained	3 – 10 mm fragments
cg	coarse grained	10 – 32 mm fragments
agg	agglomerate or vole breccia	> 32

AGE DESIGNATION PREFIXES

Q	Quaternary
T	Tertiary
J	Jurassic
TR	Triassic
P	Permian
D	Devonian
S	Silurian
O	Ordovician
C	Cambrian
PreC	Precambrian

STRUCTURAL

	outcrop
	float
	bedding
	strike/dip of flow layering in volcanic rocks or schistosity (metamorphic foliation)
	fault
	interpretive contact
	jointing
	cleavage
	fold axis
	vertical cleavage

STRATIGRAPHIC UNITS (Ages and Rock Types)

Qa QUATERNARY alluvium

19–70 Tg TERTIARY gravels and unconsolidated sediments

19–17 O ORDOVICIAN conglomerate and quartzite

CAMBRIAN

1. Tyndall Group Correlates

19–4 Gray shales and black shales

19–43 Reworked rhyolitic lithic tuffs and agglomerates

2. Dundas Group ?

19–26 Greywackes and shales

3. Mainwaring Group

a. Veridian Basic Volcanics

19–47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales

19–48 Dolomites and dolomitic shales

b. Sassy Creek Argillites

19–57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales

c. Pasders Tuffs

19–30 Rhyolitic crystal tuffs and minor chloritic sediments

d. Undifferentiated

19–51 Undifferentiated lithologies in the N.W. of the E.L. including intrusives, basic volcanics, siltstones, conglomerates and tuffs.

4. Lewis River Volcanics

a. Wart Hill Pyroclastics

19–29 Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and vitric tuffs

19–63 Quartz-pebble conglomerates quartzites and minor shales

19–67 Basic dykes and flows? intruding rhyolitic tuffs

19–10 Chlorite and/or sericite alteration of acid pyroclastics with 2–5 % pyrite

b. Wanderer River Tuff

19–25 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas

c. Hudson River Pyroclastics

19–40 Chloritic quartz-feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (Lewis ?)

19–58 Shales, greywackes and fine tuffaceous sediments

d. Elliott Point Porphyry

19–22 Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive

e. Cambrian Granites

19–19 Undifferentiated granite and granite porphyry

PRECAMBRIAN

19–55 Undifferentiated quartzites and meta sediments

DATE OCT 1980

GEOLOGIST: J.S.

DRAWN: D.B., J.P.M

CHECKED: R.R.L.

GEOPEKO LIMITED 236063

KING ISLAND GROUP

SCALE: 1:10,000

No. KT27/76-2A

E.L. 27/76

ELLIOTT BAY, TASMANIA

GEOLOGICAL MAP

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2).

374

5 cm



[redacted]

GEOLOGICAL INTERPRETATION

Permo-Carb

- Qa QUATERNARY alluvium
- Tg TERTIARY gravels and unconsolidated sediments
- O ORDOVICIAN conglomerate and quartzite

CAMBRIAN

1. Tyndall Group Correlates
   - Grey shales and black shales
   - Reworked rhyolitic lithic tuffs and agglomerates
2. Dundas Group ?
   - Greywackes and shales

5 cm

KEY

Cambrian

(i) Reworked acid tuffs, tuff sandstones & black siltstones
(ii) Quartz ± feldspar crystal tuffs & lavas. Lithic component minor
(iii) Basic volcanics, fine grained lavas, tuffaceous sediments and chloritic phyllites
(iv) Siltstones, black-grey pyritic
(v) Greywackes, quartz rich with black-red chert horizons
(vi) Phyllites with basic volcanic & carbonate lenses
(vii) Undifferentiated

a. Hadson River Pyroclastics
- Chloritic quartz-feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)
- Shales, greywackes and fine tuffaceous sediments

d. Elliott Point Porphyry
- Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive

c. Cambrian Granites
- Undifferentiated granite and granite porphyry

PRECAMBRIAN
- Undifferentiated, quartzites and meta sediments

DATE: Oct 80
GEOLOGIST: R.R.L. D.M.
DRAWN: D.B.
CHECKED: R.R.L.

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236064

SCALE: 1:10000

No. KT27/76-3A

E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP
375

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-3329 (Vol 2)



236065

LEGEND

VOLCANIC ROCKS

lt	lithic tuff
xt	crystal tuff
vt	vitric tuff
xlt	crystal lithic tuff
agg	agglomerate rounded clasts 32 mm
fr	fragmental angular clasts 32 mm
ut	undifferentiated tuffs
t	tuff
qp	quartz porphyry
qfp	quartz feldspar porphyry
qfbp	quartz feldspar biotite porphyry
l	as a suffix denotes lava
lap	lapilli

PREFIXES (no prefix indicates acid composition)

a	acid
i	intermediate
rhy	rhyolite or rhyolitic
dac	dacite or dacitic
and	andesite or andesitic
b	basalt or basaltic
ba	basic

SEDIMENTARY ROCKS

sh	shale
slt	siltstone
shch	shale/chert
sst	sandstone
qtz	quartzite
gwk	greywacke
ch	chert
lmst	limestone
dol	dolomite
bx	breccia
congl	conglomerate
vs	volcaniclastic sediment

METAMORPHIC ROCKS

phy	phyllite
sch	schist
gns	gneiss
hfs	hornfels
mb	marble

INTRUSIVE ROCKS

gr	granite
grd	granodiorite
od	adamellite
di	diorite
lp/lamp	lamprophyre
bd	basic dyke
ap	aplite
pg	pegmatite
qv	quartz veins

STRUCTURAL AND TEXTURAL

p	porphyritic
clvd	strongly cleaved
shd	sheared
as	oxidised
vns	veined
lam	laminated
bx	brecciated
vug	vuggy
vugs	vuggier (vugsy, vvg)
cren	crenulated

MINERALOGICAL PREFIXES
(only use if diagnostic)

sil	silicified
chl	chloritic
ser	sericitic
cal	calcareous
fe	ferruginous
py	pyritic
epm,hm	epidotic
qzss	quartzose
lim	limonitic
org	argillic
feld	feldspathic
ep	epidote

GRAIN SIZE

fg	fine grained 0 – 3 mm fragments
mg	medium grained 3 – 10 mm fragments
cg	coarse grained 10 – 32 mm fragments
ogg	agglomeratic or vols breccia > 32

AGE DESIGNATION PREFIXES

Q	Quaternary
T	Tertiary
J	Jurassic
TR	Triassic
P	Permian
D	Devonian
S	Silurian
O	Ordovician
€	Cambrian
Pre €	Precambrian

STRUCTURAL

	bedding
	flow layering in volcanic rocks (schistosity (metamorphic foliation))
	fault
	interpretive contact
	jointing
	cleavage
	fold axis
	vertical cleavage

GEOLOGICAL INTERPRETATION

Permit No.

Qo QUATERNARY alluvium

19–70 Tg TERTIARY gravels and unconsolidated sediments

19–17 O ORDOVICIAN conglomerate and quartzite

CAMBRIAN

3. Tyndall Group Correlates

19–4 Grey shales and black shales

19–43 Reworked rhyolitic lithic tuffs and agglomerates

2. Dundas Group ?

19–26 Greywackes and shales

3. Meiwering Group

a. Veridian Basic Volcanics

19–47 Andesitic to basaltic tuffs, lavas, agglomerates, breccias and tuffaceous shales

19–46 Dolomites and dolomitic shales

b. Sassy Creek Argillites

19–57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales

c. Penders Tuffs

19–30 Rhyolitic crystal tuffs and minor chloritic sediments

d. Undifferentiated

19–51 Undifferentiated lithologies in the N.W. of the E.L. include, intermediate to basic volcanics, siltstones, conglomerates and tuffs.

4. Lewis River Volcanics

a. Murl Hill Pyroclastics

19–29 Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and vitric tuffs

19–63 Quartzarbosite conglomerates quartzites and minor shales

19–67 Basic dykes and flows? intruding rhyolitic tuffs

19–10 Chlorite and/or sericite alteration of acid pyroclastics with 2–5 % pyrite

b. Wanderer River Tuff

19–23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas

c. Hudson River Pyroclastics

19–40 Chloritic quartz- feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)

19–58 Shales, greywackes and fine tuffaceous sediments

d. Elliott Point Porphyry

19–22 Coarse grained quartz- feldspar-biotite porphyry probably a sub-volcanic intrusive

e. Cambrian Granites

19–19 Undifferentiated granite and granite porphyry

PRECAMBRIAN

19–66 Undifferentiated quartzites and meta sediments

DATE: OCT '80
GEOLOGIST: J.S. W.H.
DRAWN: J.P.M.
CHECKED: R.R.L.

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SCALE: 1: 10,000

No. KT27/76-4 A

E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP
376

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

83-2339 (Vol 2)

374 000 E
375 000 E
376 000 E
377 000 E
5 250 000 N
5 249 000 N
5 248 000 N
5 247 000 N
5 246 000 N
5 245 000 N
E.L. 27/76 BOUNDARY
sh/gwk
gwk sh – good grading and turbidity features facing N east
gr sh/sandy sh
bs sh/f
bs f gr sh
bs f
bs t flava
interbedded bs t fgh minor lavas
massive bs lava
fg bs f /sh
massive bs lava minor bs f /sh
ast t lava sh
bs
bs f minor dol-qtz
dol/sh trace cpy
sequence 20 m wide of Fe st sh and dolomite
One dol bed is 0·5m thick and contains pods of qtz-dol ± sulphides.
One pod 1m long x 20cm wide contains 10% py and 0·2–0·5% Cu.
KR 5892, KR 5893 + KR 5894
bs t dol
bs f / dol ± py KR 5891
bs f / dol
dol/sh
bs f sh
bs f dol
bs lava
f-cg bs
dol zone / bs t
fg bs f
bs sh
mg bs t
fg bs t minor dol
fg bs t and
mg bs t andesitic minor dol
fg bs t andesitic dol
massive chl-ep basic lava-breccia lava KR 5889
chl sh
bs f
fg sh
bedded f-cg bs t
minor dol
dol-qtz horizon 5m wide ? interbedded shale. Minor dissem. py and malachite staining. KR 5886, KR 5887 + KR 5888
KR 5880 gr sh ± py horizon
KR 5882
clvd sh
CAMP
KR 5883
clvd sh/dol KR 5851
KR 5858 clvd sh sandy sh
KR 5852
KR 5885 bs ± f minor dol
KR 5855 blk sh
KR 5853 KR 5856 graphic sh
grn sh
gry grn sh
gry grn/brn sh
dfels
fg fxl
brn sh
blk sh
fxt
KR 5877 blk sh
KR 6877 brn sh
KR 6876 brn sh
ad sh
gr sh
sst sh
chl fxtd sh
cl
cly sh
crsn sh
brn-blk sh
trm mg qrt
fine Tg
mg qrt vnTe sl
Tg
KR 6390 chl fxt (dac.)

NOTE:
INTERPRETIVE ROCK BOUNDARY
INTERPRETIVE UNCONFORMITY
STRIKE TRENDS FROM AERIAL PHOTOGRAPHS
FAULTS FROM AERIAL PHOTOGRAPHS

236066

LEGEND

VOLCANIC ROCKS
lt lithic tuff
crt crystal tuff
vt vitric tuff
xlt crystal lithic tuff
vgg agglomerate rounded clasts 32 mm
fr fragmental angular clasts 32 mm
ut undifferentiated tuffs
t tuff
qp quartz porphyry
qfp quartz feldspar porphyry
qfbp quartz feldspar biotite porphyry
lava as suffix denotes lava
lap lapilli
PREFIXES (no prefix indicates acid composition)
b acid
i intermediate
rhy rhyolite or rhyolitic
dac dacite or dacitic
and andesite or andesitic
bas basalt or basaltic
bx basic

SEDIMENTARY ROCKS
sh shale
si siltstone
bksh blackshale
sst sandstone
qtz quartzite
gwk greywacke
cgl conglomerate
lmst limestone
dol dolomite
bx breccia
congl conglomerate
vs volcaniclastic sediment

METAMORPHIC ROCKS
phy phyllite
sch schist
gneiss gneiss
qtz quartzite
ms marble

INTRUSIVE ROCKS
gr granite
gd granodiorite
ad adamellite
di dolerite
lp/ramp lamprophyre
bd basic dyke
ad aplite
pg pegmatite
qv quartz veins

STRUCTURAL AND TEXTURAL
p porphyritic
clvd strongly cleaved
shd sheared
sh silicified
vns veined
ism laminated
bx brecciated
sch schistose
vug vuggular (vughy, vug)
crsn crenulated

MINERALOGICAL PREFIXES (only use if diagnostic)
sil siliceous
ser sericitic
cbn carbonaceous
fe ferruginous
py pyritic
hem, hm hematitic
goss gossanous
chl chloritic
arg argillic
fsp feldspathic
ep epidote

GRAIN SIZE
fg fine grained 0 – 3 mm fragments
mg medium grained 3 – 10 mm fragments
cg coarse grained 10 – 32 mm fragments
ogg agglomerate or volc. breccia > 32

AGE DESIGNATION PREFIXES
Q Quaternary
T Tertiary
J Jurassic
TR Triassic
P Permian
D Devonian
S Silurian
O Ordovician
C Cambrian
Pre C Precambrian

STRUCTURAL
outcrop
float
bedding
strike/dip of flow layering in volcanic rocks *schistosity (metamorphic) foliation
fault
intergrative contact
jointing
cleavage
fold axis
vertical cleavage

GEOLOGICAL INFORMATION
Map No.
Qa QUATERNARY alluvium
19–70 Tg TERTIARY gravels and unconsolidated sediments
19–17 O ORDOVICIAN conglomerate and quartzite
CAMBRIAN
Tentative Group Correlates
19–4 Grey shales and black shales
19–43 Reworked rhyolitic lithic tuffs and agglomerates
2 Dundas Group ?
19–26 Greywackes and shales
3. Mainwaring Group
a Varidon Basic Volcanics
19–47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales
19–46 Dasimites and dacitic to basic tuffs
b Sassy Creek Argillites
19–57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales
c Penders Tuffs
19–30 Rhyolitic crystal tuffs and minor chloritic sediments
d Undifferentiated
19–51 Undifferentiated lithologies in the N.W. of the E.L. include, intermediate to basic volcanics, siltstones, conglomerates and tuffs
4. Lewis River Volcanics
a Mount Hall Pyroclastics
19–29 Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and vitric tuffs
19–65 Quartz-pebble conglomerates quartzites and minor shales
19–67 Basic dykes and flows? intruding rhyolitic tuffs
19–110 Chlorite and/or sericite alteration of acid pyroclastics with 2 – 5% pyrite
b Meanderer River Tuff
19–23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas
c Hudson River Pyroclastics
19–40 Chloritic quartz-feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)
19–58 Shales, greywackes and fine tuffaceous sediments
d Elliott Point Porphyry
19–22 Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive
e Cambrian Granites
19–19 Undifferentiated granite and granite porphyry
PRECAMBRIAN
19–65 Undifferentiated quartzites and meta sediments

DATE: Oct. 1980
GEOLOGIST: R.E.L.
DRAWN: D.B., R.Tog.
CHECKED:

5 cm

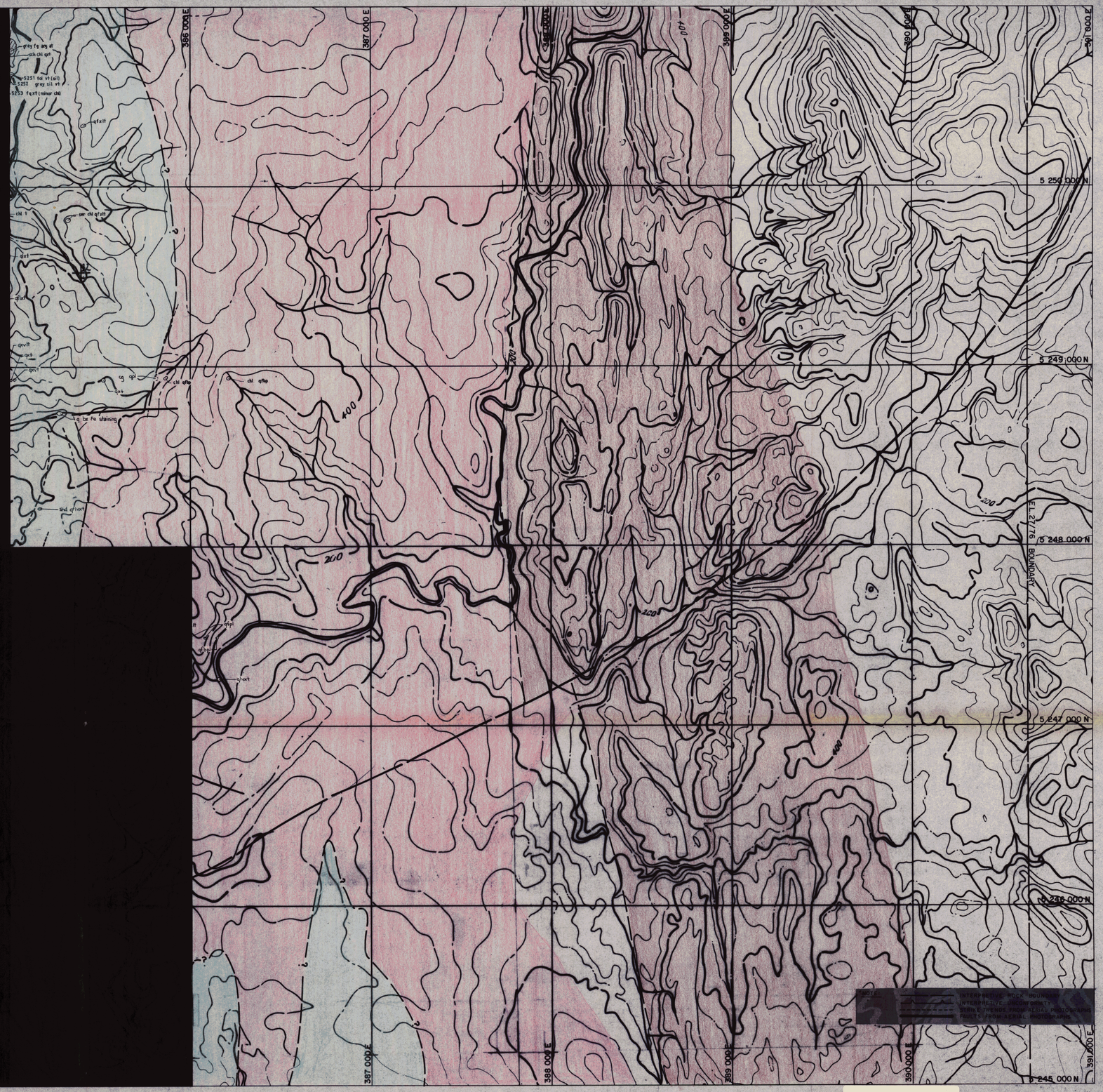
GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
SCALE: 1:10,000
No. KT27/76-5A

E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP
1981 UPDATE
377

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2)





LEGEND:

VOLCANIC ROCKS
- lt lithic tuff
- ct crystal tuff
- vt vitric tuff
- xtt crystal lithic tuff
- agg agglomerate rounded clasts 32 mm
- fr fragmental angular clasts 32 mm
- ut undifferentiated tuffs
- ? tuff
- qp quartz porphyry
- qfp quartz feldspar porphyry
- qfbp quartz feldspar biotite porphyry
- ( ) as a suffix denotes lava
- lap lapilli

PREFIXES (as prefix indicates acid composition)
- a acid
- i intermediate
- rhy rhyolite or rhyolitic
- dac dacite or dacitic
- and andesite or andesitic
- b basalt or basaltic
- ba basic

SEDIMENTARY ROCKS
- sh shale
- sl siltstone
- bksh blackshale
- sst sandstone
- qtz quartzite
- gwk greywacke
- ls limestone
- lmst limestone
- dol dolomite
- bx breccia
- cong conglomerate
- vs volcaniclastic sediment

METAMORPHIC ROCKS
- phy phyllite
- sch schist
- gns gneiss
- qtzs quartzite
- mb marble

INTRUSIVE ROCKS
- gr granite
- gd granodiorite
- ad adamellite
- dl dolerite
- lp/lamp lamprophyre
- bd basic dyke
- ap aplite
- pg pegmatite
- qv quartz veins

STRUCTURAL AND TEXTURAL
- p porphyritic
- clvd strongly cleaved
- shd sheared
- an anastomosing
- vns veined
- lam-m laminated
- bx brecciated
- sil silicified
- vug vuggy (vugs, vug)
- crys crystalline

MINERALOGICAL PREFIXES (only use if diagnostic)
- ol olivine
- chl chloritic
- ser sericitic
- cal calcareous
- fer ferruginous
- py pyritic
- hem hematitic
- gos gossanous
- lim limonitic
- arg argillic
- feld feldspathic
- ep epidote

GRAIN SIZE

fg	fine grained	0 – 3 mm fragments
mg	medium grained	3 – 10 mm fragments
cg	coarse grained	10 – 32 mm fragments
agg	agglomerate or vole breccia	> 32

AGE DESIGNATION PREFIXES
- Q Quaternary
- T Tertiary
- J Jurassic
- TR Triassic
- P Permian
- D Devonian
- S Silurian
- O Ordovician
- € Cambrian
- Pre € Precambrian

STRUCTURAL
- bedding
- strike/dip of flow layering in volcanic rocks
- or "schistosity (metamorphic foliation)
- fault
- intergrative contact
- jointing
- cleavage
- fold axis
- vertical cleavage

GEOLOGICAL INTERPRETATION

Map No.
- Qa QUATERNARY alluvium
- 19–70 Tg TERTIARY gravels and unconsolidated sediments
- 19–17 O ORDOVICIAN conglomerates and quartzites
- CAMBRIAN € ?
- 1. Tyndall Group Correlates
- 19–4 Grey shales and black shales
- 19–63 Reworked rhyolitic lithic tuffs and agglomerates
- 2. Dundas Group ?
- 19–26 Greywackes and shales
- 3. Mainwaring Group
- a. Veridian Basic Volcanics
- 19–47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales
- 19–46 Dolomites and dolomitic shales
- b. Sassy Creek Argillites
- 19–57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales
- c. Penders Tuffs
- 19–30 Rhyolitic crystal tuffs and minor siltstone sediments
- d. Undifferentiated
- 19–51 Undifferentiated lithologies in the N.W. of the area, including intermediate to basic volcanics, siltstones, conglomerates and tuffs.
- 4. Lewis River Volcanics
- a. Hurt Hill Pyroclastics
- 19–29 Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and vitric tuffs
- 19–63 Quartz-pebble conglomerates quartzites and minor shales
- 19–67 Basic dykes and flows? intruding rhyolitic tuffs
- 19–10 Chlorite and/or sericite alteration of acid pyroclastics with 2–5% pyrite
- b. Wanderer River Tuff
- 19–23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas
- c. Hudson River Pyroclastics
- 19–40 Chloritic quartz-feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)
- 19–58 Shales, greywackes and fine tuffaceous sediments
- d. Elliott Point Porphyry
- 19–22 Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive
- e. Cambrian Granites
- 19–19 Undifferentiated granite and granite porphyry
- PRECAMBRIAN
- 19–65 Undifferentiated quartzites and mafic sediments

5 cm

DATE: Oct 1980
GEOLOGIST: A.J.H.
DRAWN: D.G.
CHECKED: R.R.L.

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
236067

SCALE: 1" = 10,000

No. KT27/76-6A

E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP
378

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2)

[redacted]

374 000 E | 375 000 E | 376 000 E | 377 000 E | 378 000 E | 379 000 E | 380 000 E | 381 000 E | 382 000 E

5 244 000 N | 5 243 000 N | 5 242 000 N | 5 241 000 N | 5 240 000 N | 5 239 000 N

VOYAGER 6 | VOYAGER 5 | VOYAGER 11 | TRACK | BAMBARRA FR

NOTE:
- INTERPRETIVE ROCK BOUNDARY
- INTERPRETIVE UNCONFORMITY
- STRIKE TRENDS FROM AERIAL PHOTOGRAPHS
- FAULTS FROM AERIAL PHOTOGRAPHS

LEGEND:

VOLCANIC ROCKS
- lt lithic tuff
- ct crystal tuff
- vt vitric tuff
- xlt crystal lithic tuff
- cgltc conglomerate rounded clasts 32 mm
- fr fragmental angular clasts 32 mm
- ut undifferentiated tuffs
- t tuff
- qp quartz porphyry
- qfp quartz feldspar porphyry
- qfbp quartz feldspar biotite porphyry
- ( ) as a suffix denotes lava
- lap lapilli

PREFIXES (no prefix indicates acid composition)
- a acid
- i intermediate
- rhy rhyolite or rhyolitic
- dac dacite or dacitic
- and andesite or andesitic
- b basalt or basaltic
- bs basic

SEDIMENTARY ROCKS
- sh shale
- sl siltstone
- bhsh blackshale
- sst sandstone
- qtz quartzite
- gwk greywacke
- cgl conglomerate
- lmst limestone
- dol dolomite
- bx breccia
- congl conglomerate
- vs volcaniclastic sediment

METAMORPHIC ROCKS
- phy phyllite
- sch schist
- gne gneiss
- hfls hornfels
- mb marble

INTRUSIVE ROCKS
- gr granite
- gd granodiorite
- ad adamellite
- di dolerite
- lp/lamp lamprophyre
- bd basic dyke
- ep epilite
- pg pegmatite
- qv quartz veins

STRUCTURAL AND TEXTURAL
- p porphyritic
- clvd strongly cleaved
- shd sheared
- sil silicified
- ves vesicular
- lam laminated
- bx brecciated
- ash ashtuff
- vug vugular (vughy, vug)
- cren crenulated

MINERALOGICAL PREFIXES (only use if diagnostic)
- sil siliceous
- chl chloritic
- ser sericitic
- cbn carbonaceous
- fg ferruginous
- py pyritic
- hem,hm hematitic
- gass gassanous
- lim limonitic
- arg argillic
- feld feldspathic
- ep epidote

GRAIN SIZE
- fg fine grained 0 – 3 mm fragments
- mg medium grained 3 – 10 mm fragments
- cg coarse grained 10 – 32 mm fragments
- agg agglomerate or volc breccia > 32

AGE DESIGNATION PREFIXES
- Q Quaternary
- T Tertiary
- J Jurassic
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- P Permian
- D Devonian
- S Silurian
- O Ordovician
- C Cambrian
- Pre€ Precambrian

STRUCTURAL
- outcrop
- float
- bedding
- strike/dip of flow layering in volcanic rocks (schistosity (metamorphic foliation))
- fault
- intrgrative contact
- jointing
- cleavage
- fold axis
- vertical cleavage

GEOLOGICAL INTERPRETATION:

Qo QUATERNARY alluvium

19–70 Tg TERTIARY gravels and unconsolidated sediments

19–17 O ORDOVICIAN conglomerate and quartzite

CAMBRIAN
1. Tyndall Group Chloritoids
- 19–4 Grey shales and black shales
- 19–43 Reworked rhyolitic lithic tuffs and agglomerates

2. Dundas Group ?
- 19–26 Greywackes and shales

3. Mainwaring Group
a. Veridon Basic Volcanics
- 19–47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales
- 19–46 Dolomites and dolomitic shales

b. Sassy Creek Argillites
- 19–57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales

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d. Undifferentiated
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a. Wart Hill Pyroclastics
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- 19–63 Ongtr'pebble conglomerates quartzites and minor shales
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- 19–19 Undifferentiated granite and granite porphyry

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- 19–65 Undifferentiated quartzites and mete sediments

5 cm

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
236068

SCALE: 1:10,000

DATE: Oct 1980.
GEOLOGIST: EDS RLu
DRAWN: DS
CHECKED: RLu.

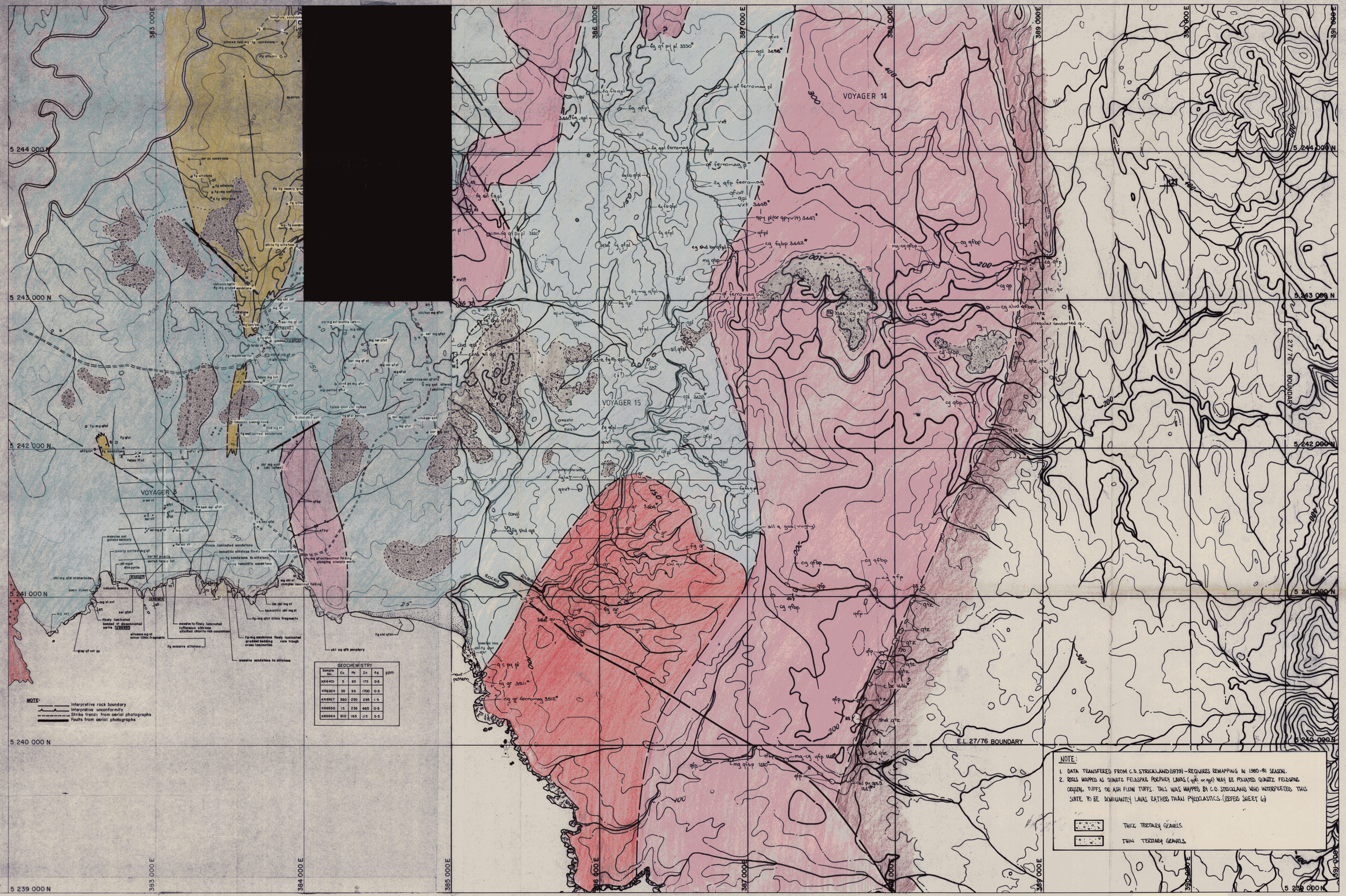
E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP

379

No. KT27/76-7A

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2)



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lt lithic tuff
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xtt crystal lithic tuff
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fr fragmental angular clasts 32 m
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t tuff
qp quartz porphyry
qfp quartz feldspar porphyry
qfbp quartz feldspar biotite porphyry
(as a suffix denotes lava
lap lapilli
PREFIXES (no prefix indicates acid composition)
b basic
int intermediate
rhy rhyolite or rhyolitic
dac dacite or dacitic
and andesite or andesitic
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ba basic

SEDIMENTARY ROCKS
sh shale
sl siltstone
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qtz quartzite
gwk greywacke
cgl conglomerate
ls limestone
dol dolomite
bx breccia
congl conglomerate
vs volcaniclastic sediment

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gd granodiorite
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lp/lamp lamprophyre
bd basic dyke
ap aplite
pg pegmatite
qv quartz veins

STRUCTURAL AND TEXTURAL
p porphyritic
clvd stronger cleaved
shd shadyd
ox oxidized
vns veined
lam laminated
bx brecciated
sch schistose
vug vugular (rughy, vug)
cren crenulated

MINERALOGICAL PREFIXES (only use if diagnostic)
ari siliceous
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ser sericitic
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hem,hm hematitic
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arg argillic
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float
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strike/dip of flow layering in volcanic rocks "schistosity (metamorphic foliation)
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cleavage
fold axis
vertical cleavage

GEOLOGICAL INTERPRETATION:
Qa QUATERNARY alluvium
Tg TERTIARY gravels and unconsolidated sediments
O ORDOVICIAN conglomerate and quartzite
CAMBRIAN
1. Tyndall Group Correlates
Grey shales and black shales
Reworked rhyolitic lithic tuffs and agglomerates
2 Dundas Group ?
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Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales
Dolomites and dolomitic shales
b. Sassy Creek Argillites
Phyllitic brown, grey shales, argillites, greywackes and minor black shales
c. Penders Tuffs
Rhyolitic crystal tuffs and minor chloritic sediments
d. Undifferentiated
Undifferentiated lithologies in the N.W. of the E.L. include, intermediate to basic volcanics, siltstones, conglomerates and tuffs.
4. Lewis River Volcanics
a. Wart Hill Pyroclastics
Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and vitric tuffs
Quartz-pebble conglomerates quartzites and minor shales
Basic dykes and flows? intruding rhyolitic tuffs
Chlorite and/or sericite alteration of acid pyroclastics with 2 – 5 % pyrite
b. Wanderer River Tuff
Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas
c. Hudson River Pyroclastics
Chloritic quartz - feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)
Shales, greywackes and fine tuffaceous sediments
d. Elliott Point Porphyry
Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive
e. Cambrian Granites
Undifferentiated granite and granite porphyry
PRECAMBRIAN
Undifferentiated quartzites and meta sediments

DATE: OCT 1980
GEOLOGIST: GOS PSH
DRAWN: DS, Rita
CHECKED: RM

5 cm
GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
236069
SCALE: 1:10,000
No. KT27/76-8 A

E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP
380

KT27/76 - 1	KT27/76 - 2
KT27/76 - 3	KT27/76 - 4
KT27/76 - 5	KT27/76 - 6
KT27/76 - 7	KT27/76 - 8

85-2359 (Vol 2)

ampling Results

LEGEND: 1980 Sampling

5 — Cu ppm
10 — Pb ppm
10 — Zn ppm

ANOMALOUS VALUES

Copper > 10 ppm (1980 Sampling)
Lead > 30 ppm
Zinc > 35 ppm

GEOPEKO LIMITED
KING ISLAND GROUP

236070

SCALE: 1:10,000

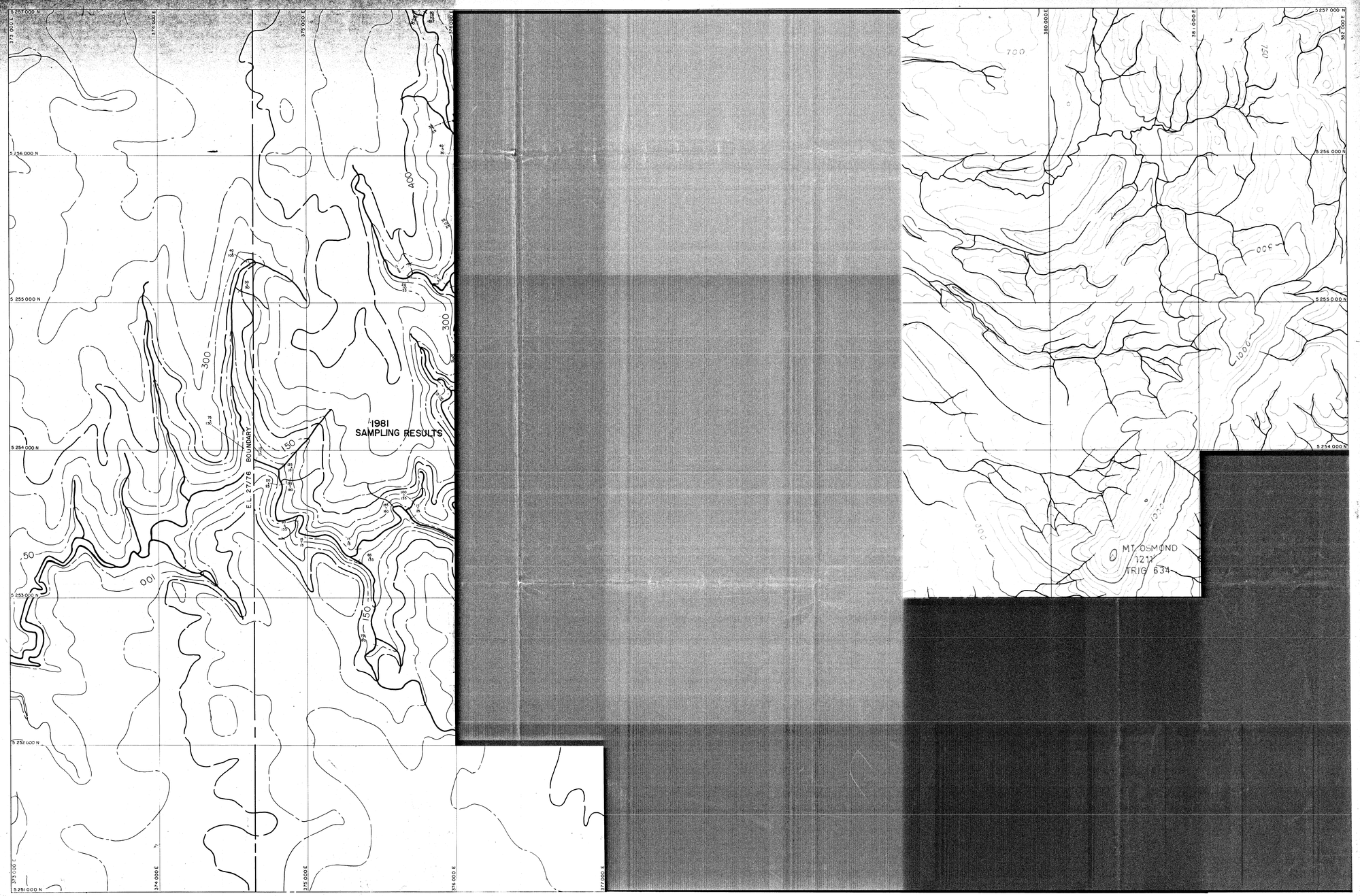
No. KT27/76-2B

E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD, ZINC

DATE: July 1977
GEOLOGIST:
DRAWN: L.G.
CHECKED: M.C.R.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2)



LEGEND: 1977-1979 Sampling

Cu ppm
Pb ppm
Zn ppm

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc HCL leach and HCL/HNO_3 leach in latter stages for 1 hour of 0·25g sample.

A.C.S. Laboratories Pty LTD.

1980 Sampling

S Cu ppm
Pb ppm
Zn ppm

A.A.S. Analyses at A.L.S. Laboratories, Brisbane.

Anomalous Values – Drainage Samples :
(colour marked from sample location upstream to next location)

Copper ≥ 5 ppm (1977-79 Sampling)
≥ 10 ppm (1980 Sampling)
Lead ≥ 30 ppm (All Sampling)
Zinc ≥ 35 ppm (" ")

5 cm

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD. 236071

SCALE: 1:10 000

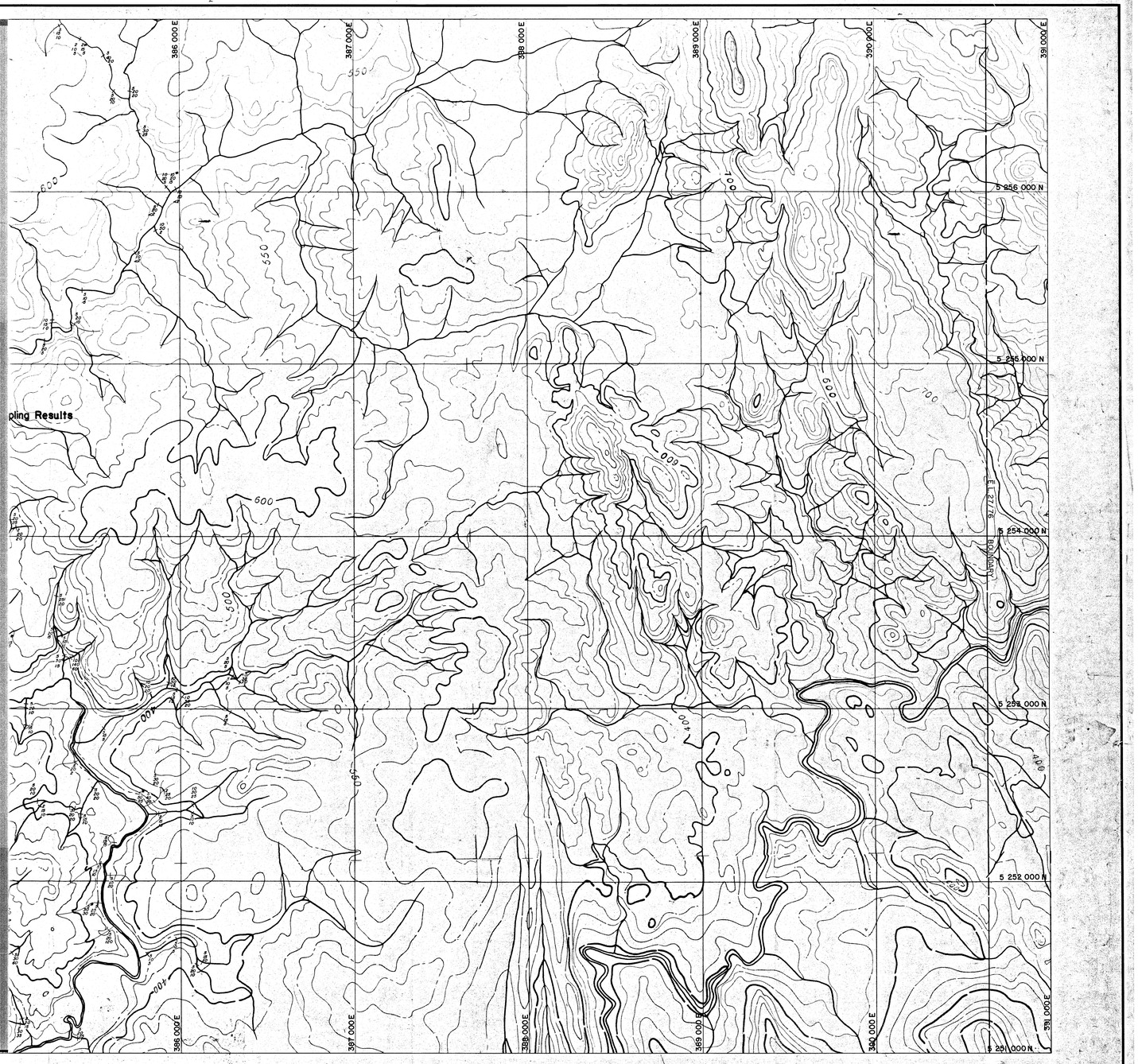
No. KT27/76-3B

E.L. 27/76 382
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC

DATE: AUG. 1979
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: C.D.S.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2)



LEGEND: 1977-79 Sampling

2 Cu ppm
50 Pb ppm
55 Zn ppm

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc HCL leach and HCL/HNO3 each in latter stages for 1 hour of 0.25g sample.

A.C.S. Laboratories Pty. LTD.

1980 Sampling

10 Cu ppm
45 Pb ppm
40 Zn ppm

A.A.S. Analyses at A.L.S. Laboratories, Brisbane.

Anomalous Values – Drainage Samples:
(colour marked from sample location upstream to next location)

Copper > 5 ppm (1977-79 Sampling)
10 ppm (1980 Sampling)

Lead > 30 ppm (All Sampling)

Zinc > 35 ppm (" ")

5 cm

DATE: Aug 1979
GEOLOGIST: C.D.S.
DRAWN: J. P. M.
CHECKED: CSR.

GEOPEKO 236072

SCALE: 1:10,000

No. KT27/76-4B

E.L. 27/76 383

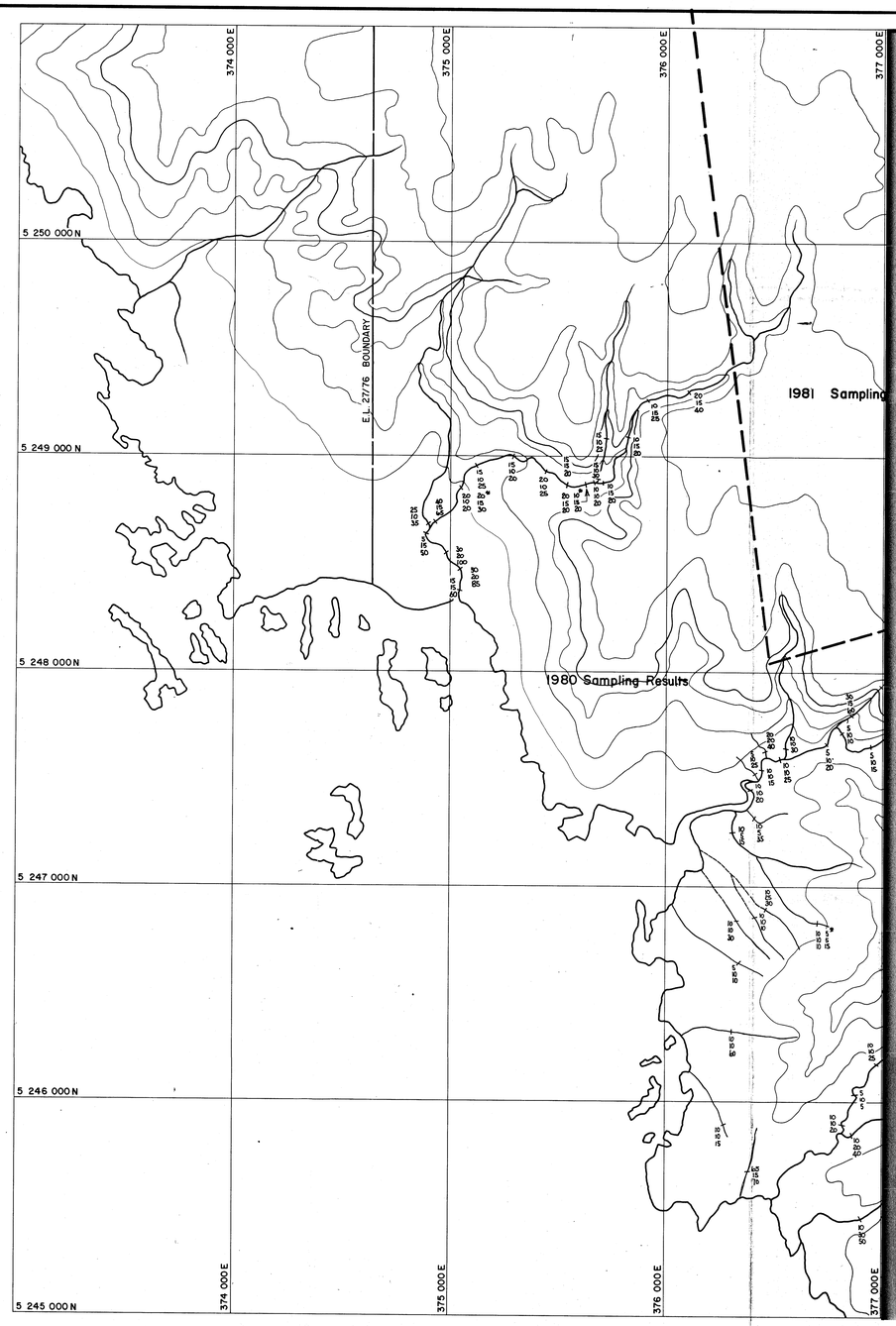
ELLIOTT BAY, TASMANIA

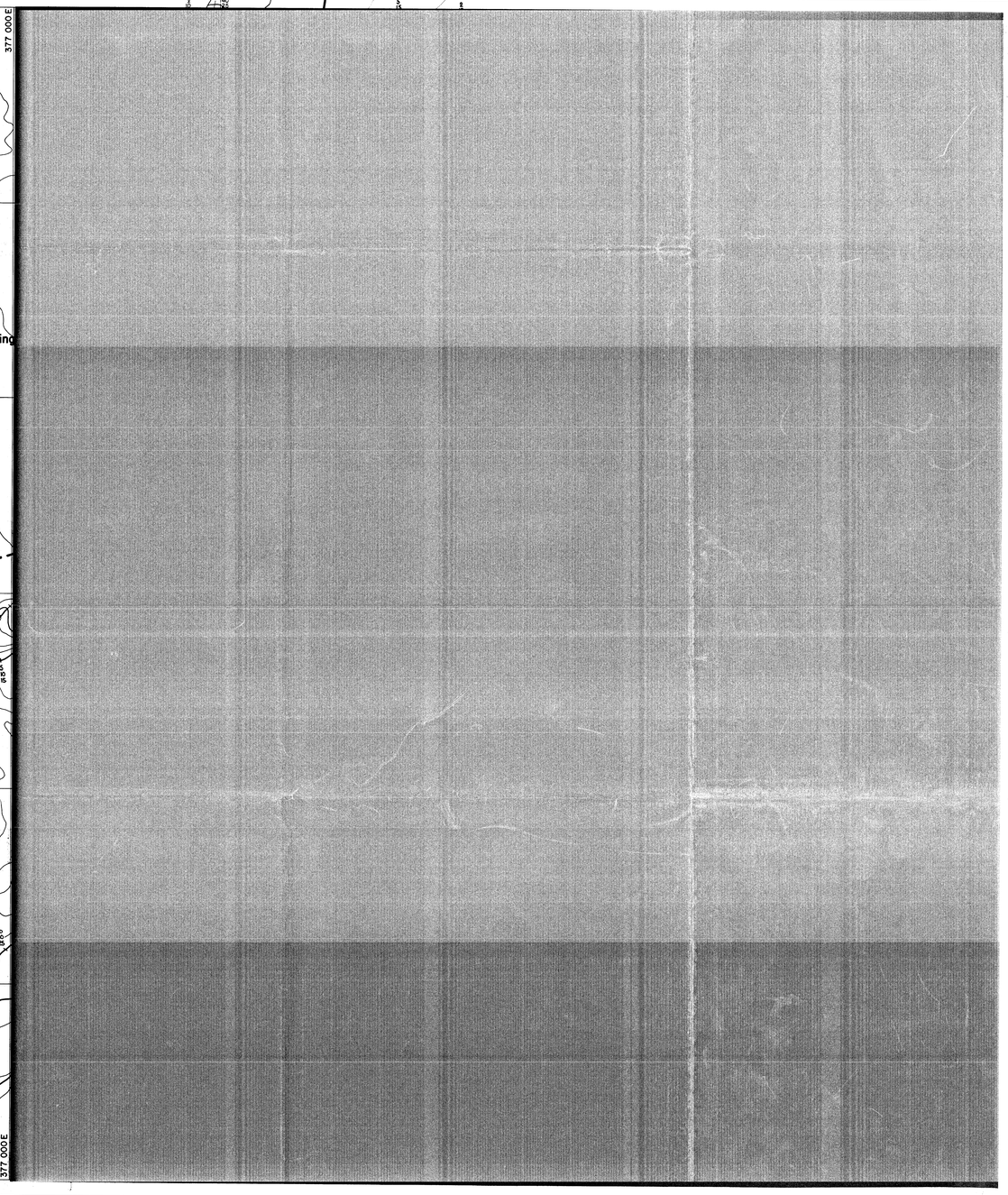
DRAINAGE GEOCHEMICAL RESULTS

COPPER, LEAD and ZINC

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (V612)





LEGEND: 1977-1979 Sampling

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc HCL leach and HCL/HNO3 leach in latter stages for 1 hour of 0.25g sample.
A.C.S. Laboratories Pty. LTD.

1980 Sampling

A. A. S. Analyses at A.L.S. Brisbane.

Anomalous Values - Drainage Samples:
(colour marked from sample location upstream to next location)

Copper	>	5 ppm (1977-79 Sampling)
	>	10 ppm (1980 Sampling)
Lead	>	30 ppm (all Sampling)
Zinc	>	35 ppm (all Sampling)

1983 UPDATE
Cu Pb Zn
DRAINAGE

5 cm

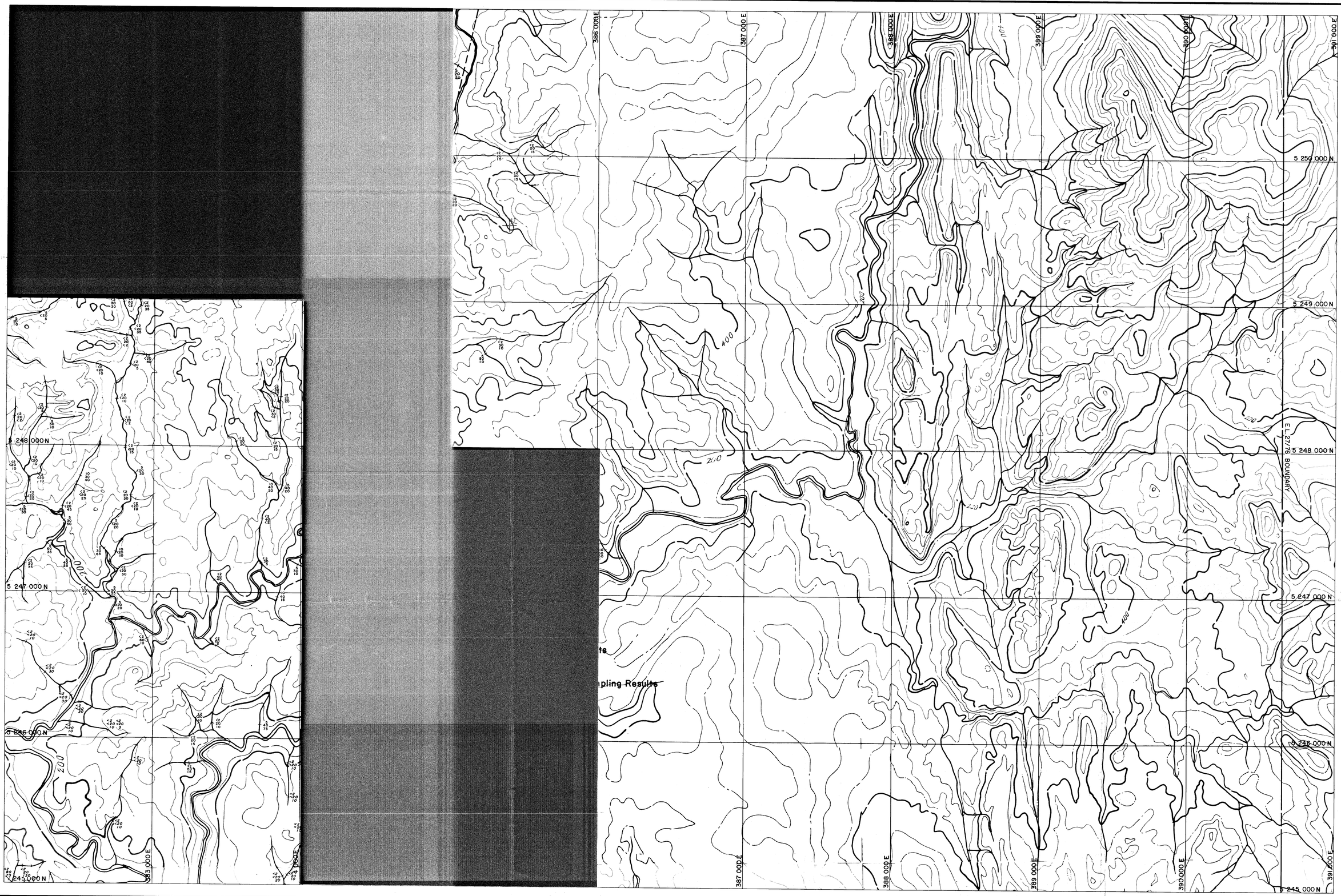
DATE: July 1978 Aug 1979
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED:

GEOPEKO
236073
SCALE: 1:10,000
No. KT27/76-5 B

Plan 10
384
E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC
-80 ✱

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2)



LEGEND: 1977-79 Sampling

d Cu ppm
60 Pb ppm
80 Zn ppm

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc. HCL leach and HCL/HNO3 leach in latter stages for 1 hour of 0.25g sample.

A.C.S. Laboratories Pty. LTD.

1980 Sampling

10 Cu ppm
30 Pb ppm
20 Zn ppm

A.A.S. Analyses at A.L.S. Laboratories, Brisbane.

Anomalous Values - Drainage Samples:
(colour marked from sample location upstream to next location)

Copper ≥ 5 ppm (1977-79 Sampling)
10 ppm (1980 Sampling)

Lead > 30 ppm (All Sampling)

Zinc > 35 ppm (" ")

5 cm

DATE: Jan 1978
Aug 1979

GEOLOGIST: C.D.S.

DRAWN: J.P.M.

CHECKED: C.D.S.

GEOPEKO 236074

SCALE: 1: 10,000

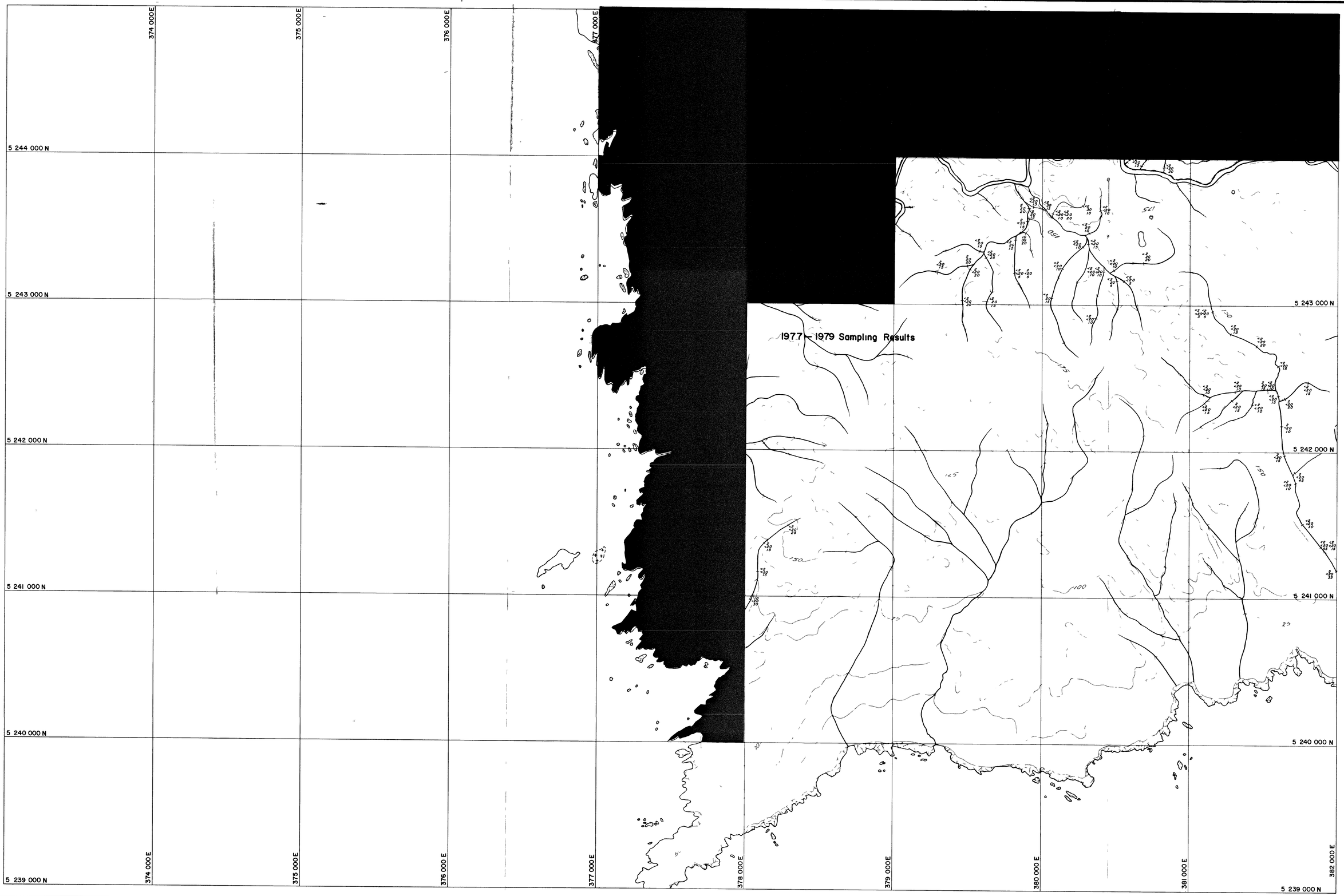
No. KT27/76-6B

E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC

385

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 2)



LEGEND 1977–1979 Sampling

Cu ppm
Pb ppm
Zn ppm

ANALYTICAL METHODS Cu Pb and Zn by AAS following conc HCL leach and HCL/HNO3 leach in latter stages for 1 hour of 0.25g sample
A C S Laboratories Pty LTD

1980 Sampling

Cu ppm
Pb " AAS. Analyses at A L S Laboratories, Brisbane
Zn

*Anomalous Values Drainage Samples
(colour marked from sample location upstream to next location)

Copper	>	5 ppm (1977–79 Sampling) 10 ppm (1980 Sampling)
Lead	>	30 ppm (All Sampling)
Zinc	>	35 ppm (")

NOTE
This map has been compiled from enlargements of the Tasmanian Lands Departments 1 15840 scale topographic machine plots

5 cm

DATE Jan 1978
GEOLOGIST C D S
DRAWN J P M
CHECKED CDS

GEOPEKO LIMITED
KING ISLAND GROUP
236075

SCALE 1 10,000

No KT27/76-7 B

E.L. 27/76 386
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC

KT27/76 1	KT27/76 2
KT27/76 3	KT27/76-4
KT27/76 5	KT27/76-6
KT27/76 7	KT27/76-8

83-3323 (Vol 2)

[redacted]

1977–1979 Sampling Results

E L 27/76 BOUNDARY

383 000 E
384 000 E
385 000 E
386 000 E
387 000 E
388 000 E
389 000 E
390 000 E
391 000 E

5 244 000 N
5 243 000 N
5 242 000 N
5 241 000 N
5 240 000 N
5 239 000 N

LEGEND 1977 1979 S mpl g

ANALYTICAL METHODS C Pb d Z by AAS f ll l g HCL l h d HCL/ HNO l h ltt tg f l h f O 25g mpl rp

A ml Vl D g S mpl (l mk d fom mpl l f pt m f tl t)

C pp > 5 ppm (1977–79 S mpl g) 10 ppm (1980 S mpl g)

L d > 30 ppm (All S mpl g)

Z > 35 ppm (All S mpl g)

NOTE Th mp h b mpld f m lrg m ns f th T m L d Dp rm t l 15840 l t pograph m h pl t

5 m

GEOPEKO LIMITED 236076
KING ISLAND GROUP

SCALE 10,000

No KT27/76-8B

DATE J 1978
GEOLOGIST C D S
DRAWN J P M
CHECKED C D S

EL 27/76 387
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC
85 2339 (Vol 2)

KT27/76 1	KT27/76 2
KT27/76 3	KT27/76 4
KT27/76 5	KT27/76 6
KT27/76 7	KT27/76 8

5 257 000 N

5 256 000 N

5 255 000 N

5 254 000 N

5 253 000 N

5 252 000 N

5 251 000 N

373 000 E

374 000 E

375 000 E

376 000 E

377 000 E

380 000 E

381 000 E

EL 27/76 BOUNDARY

MT OSMOND
1211
TRIG 634

Key
Cu Ag
Pb Mn
Zn Fe
Au

5 m

GEOPEKO
A DIVISION OF PEKO WALLSEND OPERATIONS LTD

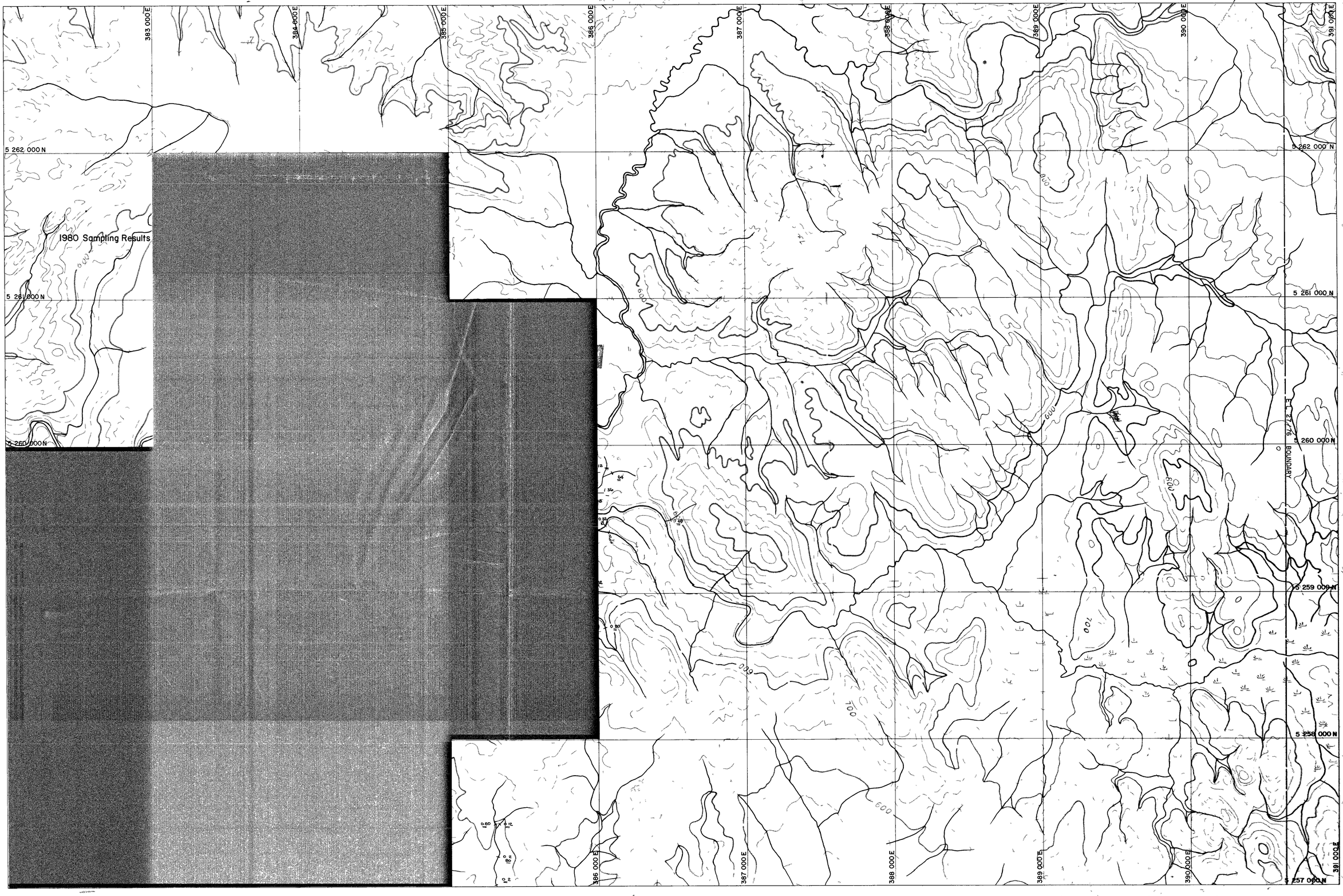
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No KT27/76-3P

EL 27/76
ELLIOTT BAY, TASMANIA
MAINWARING RIVER
-80# Stream sediment analysis

DATE FEB 1981
GEOLOGIST R.A.P.
DRAWN N.S.P.
CHECKED K.M.

KT27/76
KT27/76
KT27/76
K 27/76
KT27/76



LEGEND 1980 S mpl s

o 44 Fe % A A S
10 Sn ppm X R F
10 W ppm X R F
Anoly t A L S L b B l b ne

— Indicates TINo d6r TUNGSTEN b l lm t f detecti
te <5 and <10 p t ly

ANOMALOUS VALUES
S ≥ 20 ppm
W ≥ 20 ppm
F ≥ 07 %

GEOPEKO LIMITED
KING ISLAND GROUP
23607S

SCALE 1 10 000

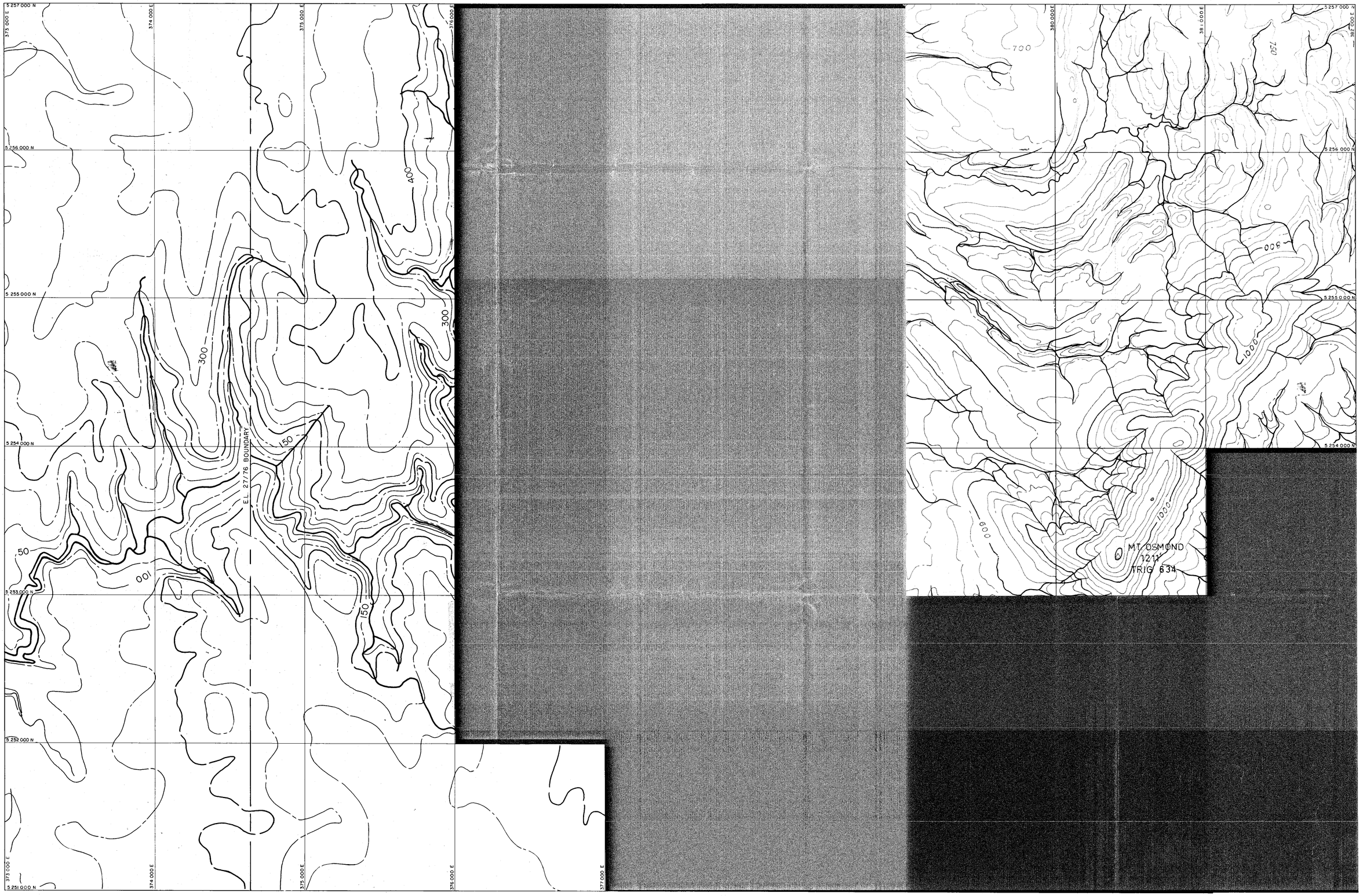
No. KT27/76-2E

E.L 27/76 389
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
IRON, TIN, TUNGSTEN

DATE July 1977
GEOLOGIST
DRAWN L G
CHECKED M.C.R

85-3339 (5 Vol)

KT27/76 1	KT27/76 2
KT27/76 3	KT27/76-4
KT27/76 5	KT27/76-6
KT27/76-7	KT27/76-8



LEGEND: 1980 Sampling

0·20	Fe %	A·A.S.	Analyses at A.L.S. Laboratories, Brisbane.
<5	Sn ppm	X.R.F.	
20	W	X.R.F.	

ANOMALOUS VALUES

Sn > 20 ppm
W > 20 ppm
Fe > 0·7 %

5 cm

DATE: Oct 1980
GEOLOGIST: W.H.
DRAWN: D. GREEN
CHECKED:

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

236079

SCALE: 1:10 000

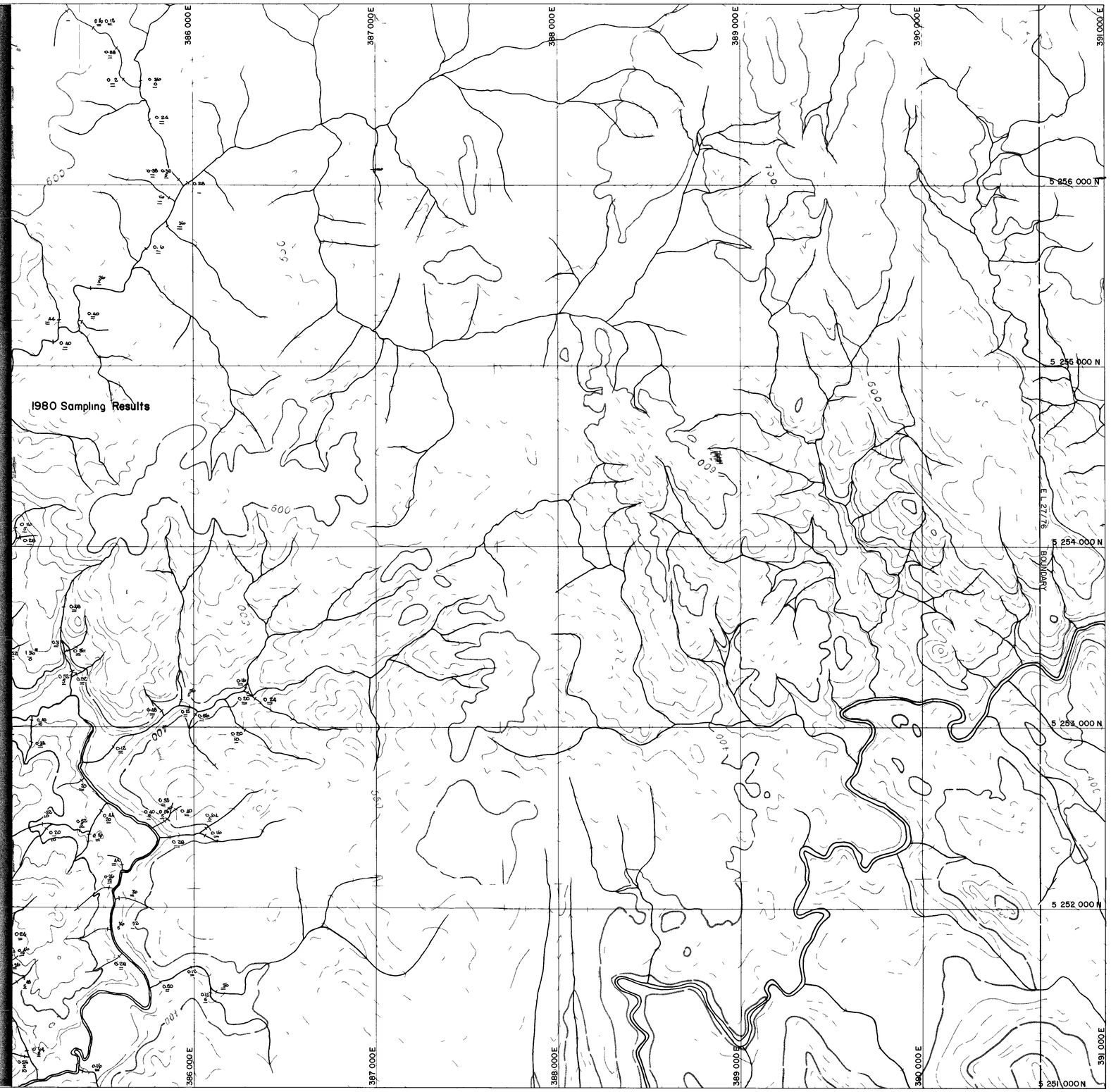
No. KT27/76-3E

E.L. 27/76 390
ELLIOTT BAY, TASMANIA

IRON, TIN, TUNGSTEN

85-3339 (Vol 3)

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



LEGEND

1980 S mpl g

0 28 — Fe % AAS
25 — Sn ppm XRF
20 — W ppm XRF
} A L S L b B b

ANOMALOUS VALUES
S > 20 ppm
W > 20 ppm
F > 0 7 /

5 m

DATE
GEOLOGIST
DRAWN
CHECKED

GEOPEKO
A DIVISION OF PEKO WALLSEND OPERATIONS LTD
23€080

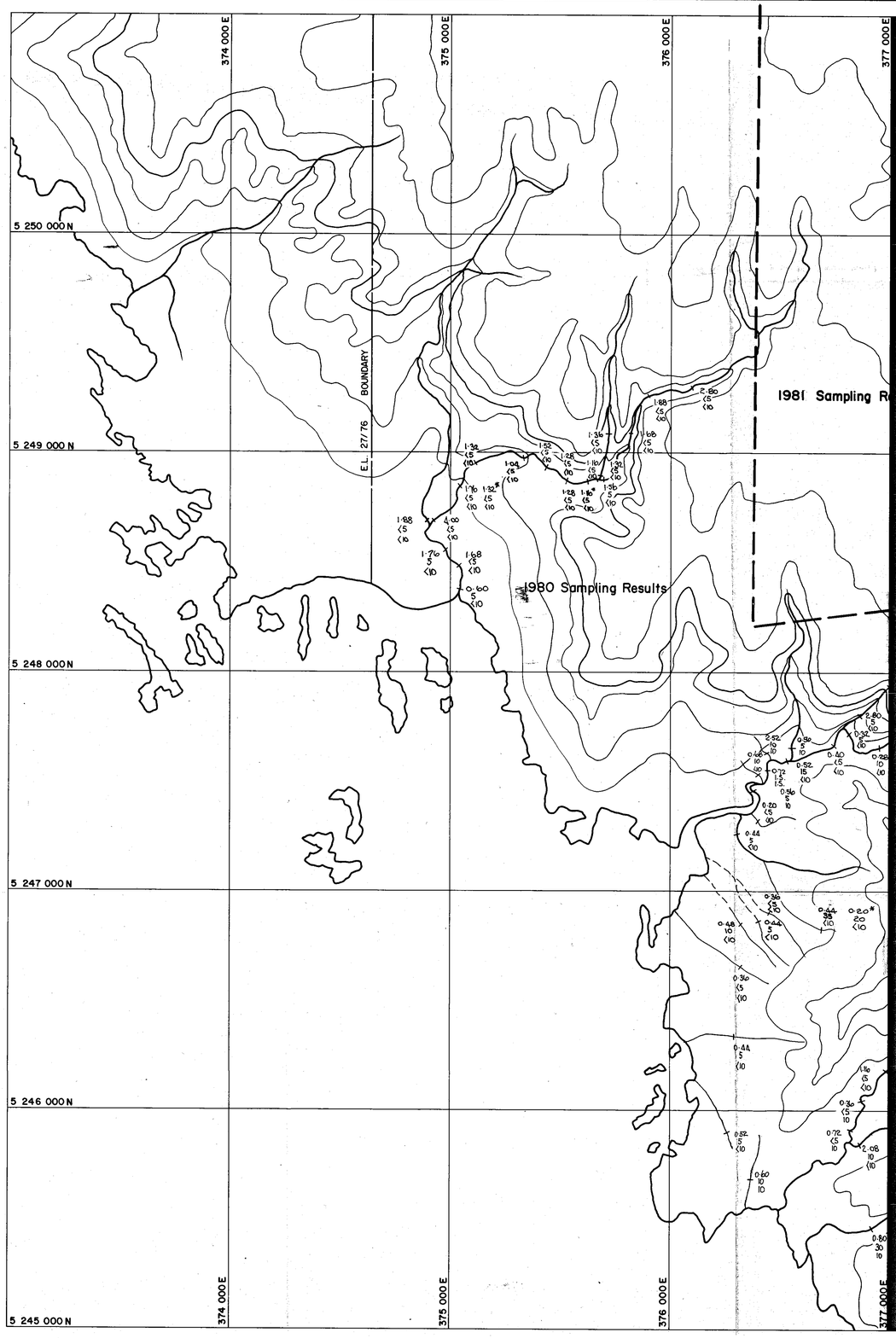
SCALE 1 10 000

No KT27/76-4E

391

EL 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
IRON , TIN , TUNGSTEN
85 2337 (Vol 2)

KT27/76 1	KT27/76 2
KT27/76 3	KT27/76-4
KT27/76 5	KT27/76 6
KT27/76 7	KT27/76 8



LEGEND: 1977-79 Sampling

300 1000 690* — 300 ppm Sn Emission Spectrography, original. 1000 ppm Sn Emission Spectrography, duplicate. 690* ppm Sn XRF analysis of original.

1980 Sampling

1·00 Fe A.A.S. / 10 Sn X.R.F / (10) W X.R.F. — A.L.S. Laboratories, Brisbane.

ANALYTICAL METHODS:
Sn determined by Emission Spectrography Scheme ES 2.
Sn* determined by XRF
A.C.S. Laboratories Pty LTD.

ANOMALOUS VALUES
Sn ≥ 20 ppm
W ≥ 20 ppm
Fe ≥ 0·7 %

350 / 20 — 1983 UPDATE Fe, Sn, W DRAINAGE

NOTE: This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots.

5 cm

GEOPEKO LIMITED
KING ISLAND GROUP
236081
SCALE: 1:10,000
No. KT27/76-5 E

DATE: June 1978
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: CMS

E.L. 27/76 392
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
IRON, TIN, TUNGSTEN

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

980 Sampling Results

1977–1979 Sampling Results

[redacted]

[redacted]

[redacted]

374 000 E | 375 000 E | 376 000 E | 377 000 E | 378 000 E | 379 000E | 380 000 E | 381 000E | 382 000 E

5 244 000 N
5 243 000 N
5 242 000 N
5 241 000 N
5 240 000 N
5 239 000 N

77-1979 Sampling Results

Insufficient sample for XRF analysis.

Original sample damaged, insufficient duplicate sample for Emission Spectrography or XRF analysis

LEGEND: 1977-1979 Sampling

300/1000/690* — 300 ppm Sn Emission Spectrography, original. 1000 ppm Sn Emission Spectrography, duplicate. 690* ppm Sn XRF analysis of original.

1980 Sampling

0.44 — Fe % — A.A.S.
<5 — Sn ppm — X.R.F
10 — W ppm — X.R.F
} A.L.S. Lab. Brisbane

ANALYTICAL METHODS:

Sn determined by Emission Spectrography Scheme ES2
Sn* determined by XRF

A.C.S. Laboratories Pty LTD.

ANOMALOUS VALUES

Sn > 20 ppm
W > 20 ppm
Fe > 0·7 %

NOTE:
This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots.

5 cm

DATE: June 1978
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: C.D.S.

GEOPEKO LIMITED 236083
KING ISLAND GROUP

SCALE: 1:10,000

No. KT27/76-7 E

E.L. 27/76 394

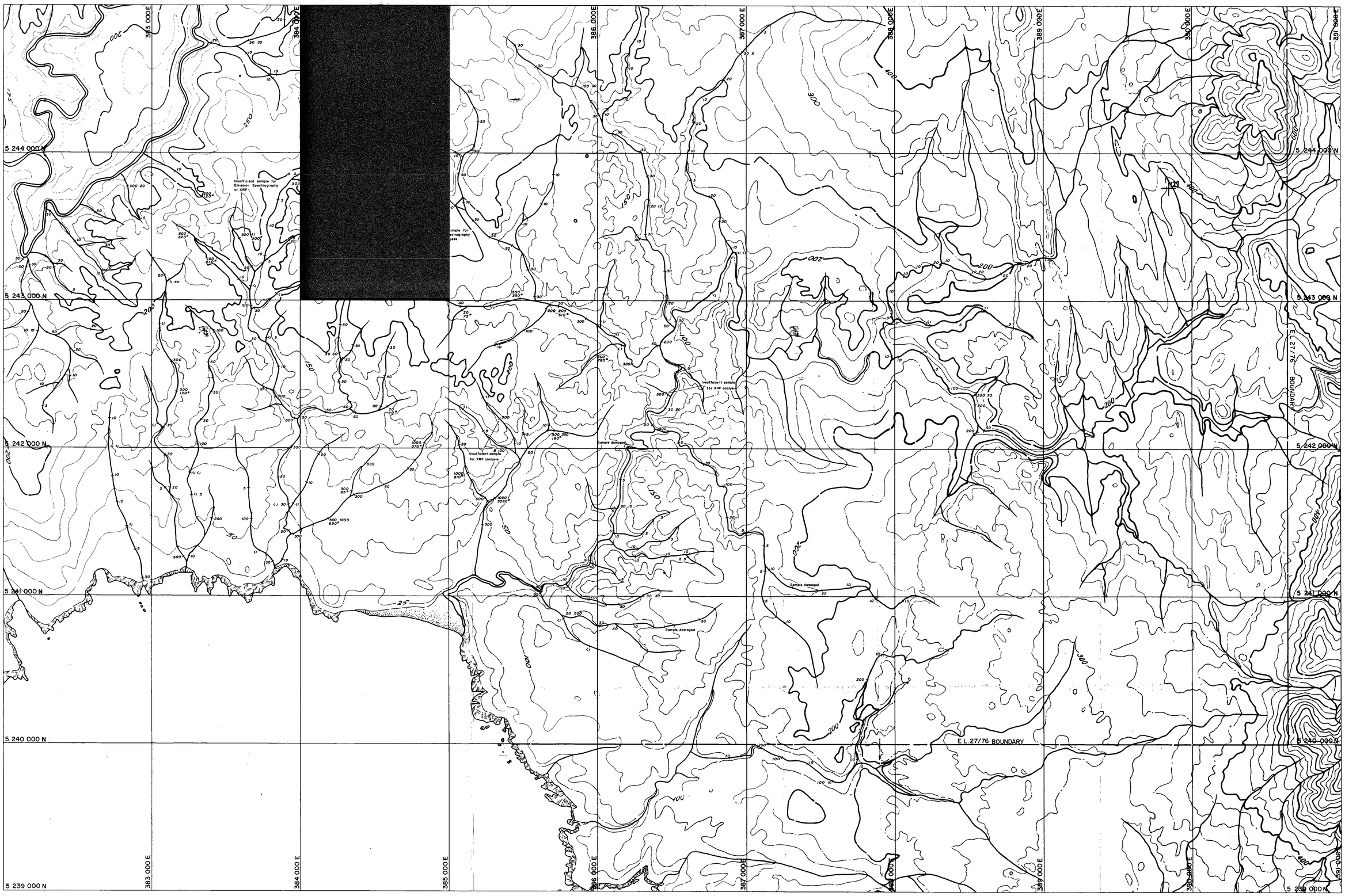
ELLIOTT BAY, TASMANIA

DRAINAGE GEOCHEMICAL RESULTS

IRON , TIN , TUNGSTEN

85-3239 (Vol 2)

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



LEGEND

300 1000 / 690* — 300 ppm Sn Emission Spectrography, original; 1000 ppm Sn Emission Spectrography, duplicate; 690 ppm Sn XRF analysis of original

ANALYTICAL METHODS

Sn determined by Emission Spectrography Scheme ES2
Sn determined by XRF

A C S Laboratories Pty LTD

NOTE

This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots.

GEOPEKO LIMITED
KING ISLAND GROUP
236084

SCALE: 1:10,000

No. KT27/76-8 E

E.L. 27/76 395
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
TIN

DATE June 1978
GEOLOGIST C D S
DRAWN J P M.
CHECKED:

KT27/76 - 1	KT27/76 - 2
KT27/76 - 3	KT27/76 - 4
KT27/76 - 5	KT27/76 - 6
KT27/76 - 7	KT27/76 - 8

83-3330 (Vol 2)

LEGEND:

/80 DRAINAGE SAMPLE RESULT IN PPB
10 DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40, PPB

GEOPEKO LIMITED
KING ISLAND GROUP

236085

SCALE 1:10,000

No. KT27/76-2 H

E.L. 27/76
ELLIOTT BAY, TASMANIA

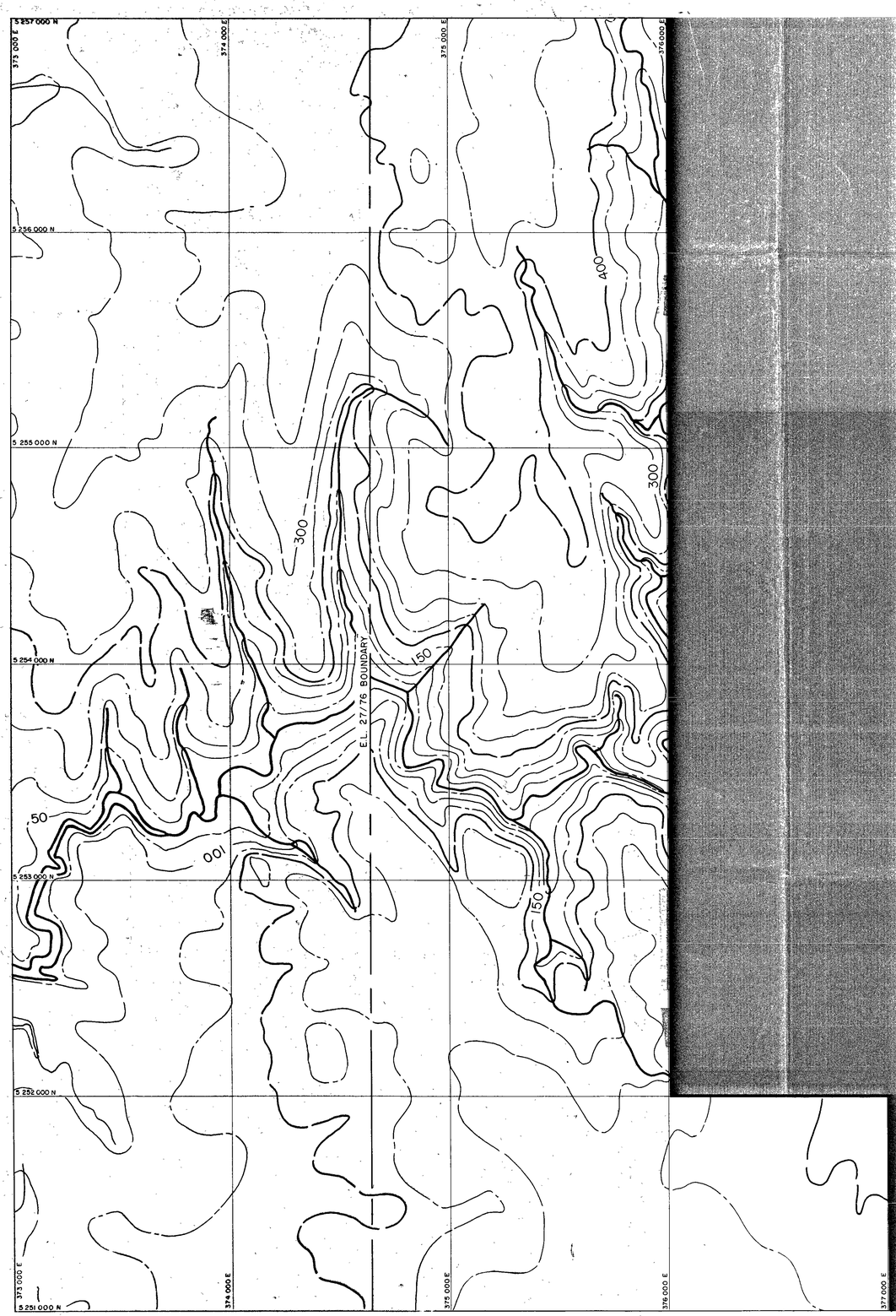
STREAM SEDIMENT GEOCHEMISTRY
Au — GOLD RESULTS
MINUS 80 MESH SAMPLING

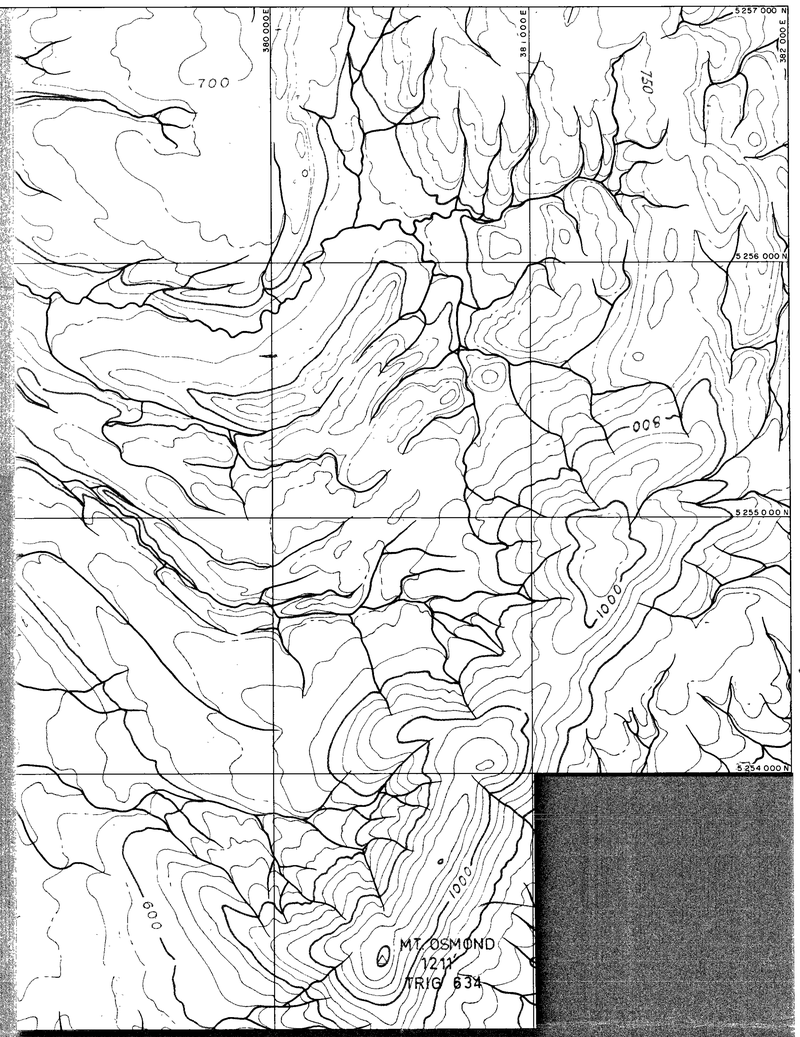
DATE: OCTOBER '80
GEOLOGIST: W.H.
DRAWN: G. BEEBE
CHECKED: RDL

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

5 cm

80-8227
(Vol 2)





LEGEND:

/ DRAINAGE SAMPLE RESULT IN PPB
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 ppb

5 cm

DATE: OCT. 1980
GEOLOGIST: W.H.
DRAWN: D. GREEN
CHECKED:

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

236086

SCALE: 1:10 000

No. KT27/76-3 H

E.L. 27/76
ELLIOTT BAY, TASMANIA

STREAM SEDIMENT GEOCHEMISTRY
Au GOLD RESULTS
MINUS 80 MESH SAMPLE

337

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85 233
(Vol 2)

236087

MICROFILMED

Dom | A.G. | C.G. | E.G. | Sec.
S. DIR. | 15 FEB 1985 | Records | E & IL
DEPT. OF MINES
R.E. No. 1599/85

GEOPEKO
(A DIVISION OF PEKO-WALLSEND OPERATIONS LTD)

EXPLORATION LICENCE 27/76
ELLIOTT BAY, TASMANIA

FINAL REPORT ON EXPLORATION OF AREAS TO BE RELINQUISHED FROM EL 27/76 IN JANUARY 1985

Volume 3

Compiled by: W HERRMANN
JANUARY, 1985

OPEN FILE



LEGEND:

40 / 10 DRAINAGE SAMPLE RESULT IN PPB.
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 PPb

5 cm

DATE Oct 1980
GEOLOGIST W.H.
DRAWN D. BEEBE
CHECKED RLL

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
236088

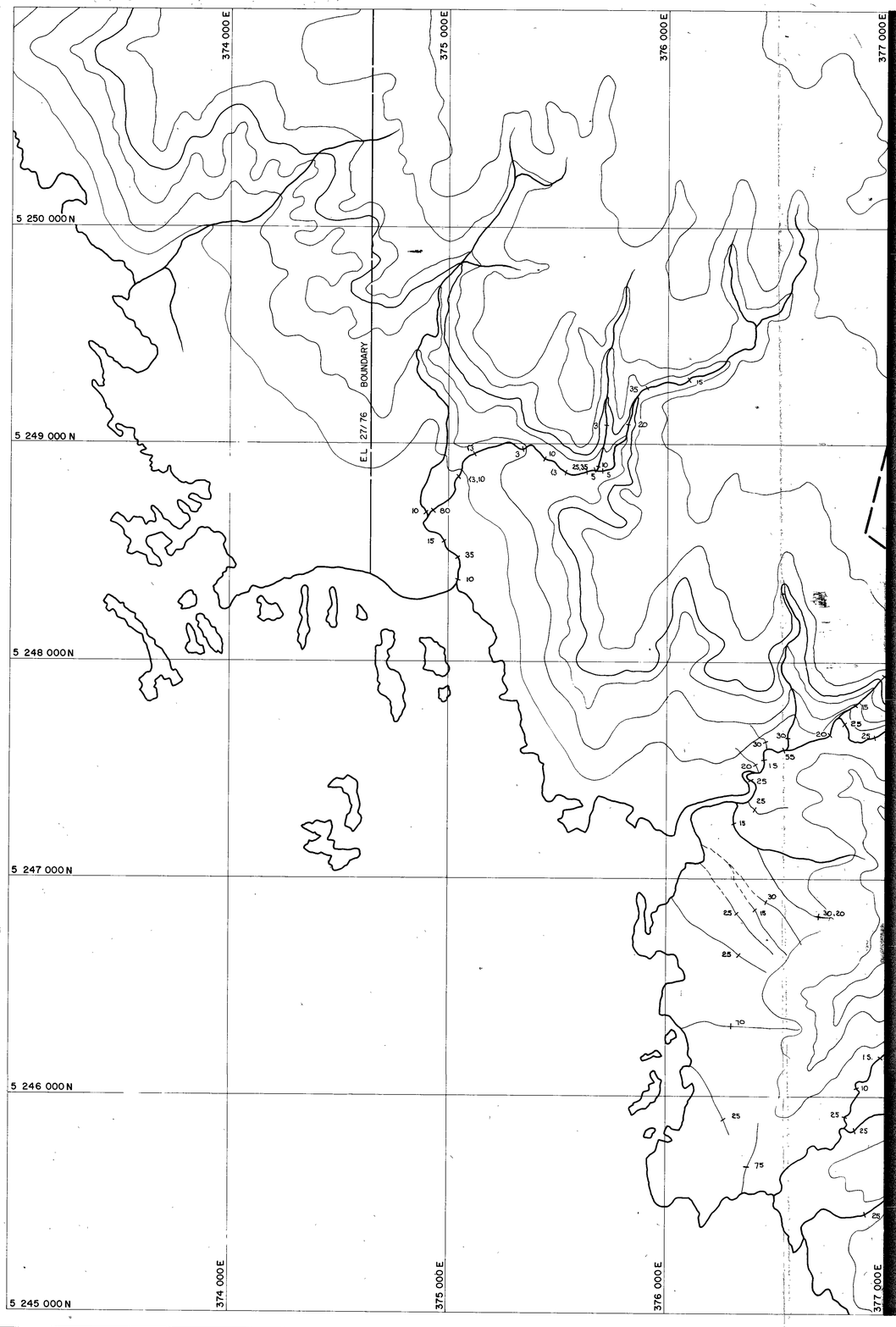
SCALE: 1 10,000

No. KT27/76-4-H

E.L. 27/76 398
ELLIOTT BAY, TASMANIA
STREAM SEDIMENT GEOCHEMISTRY
Au — GOLD RESULTS
MINUS 80 MESH SAMPLE

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 3)



LEGEND:

220 / 390 DRAINAGE SAMPLE RESULT IN PPB
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 ppb

5 cm

DATE OCT 1980
GEOLOGIST W.H.
DRAWN D. GREEN
CHECKED

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

236089

SCALE 1:10,000

No. KT27/76-5H

E.L. 27/76 393
ELLIOTT BAY, TASMANIA

STREAM SEDIMENT GEOCHEMISTRY
Au ___ GOLD RESULTS
MINUS 80 MESH SAMPLING

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

83-2339 (Vol 1)

386 000 E
387 000 E
388 000 E
389 000 E
390 000 E
391 000 E
5 250 000 N
5 249 000 N
5 248 000 N
5 247 000 N
5 246 000 N
5 245 000 N
E.L. 27/76 BOUNDARY
400
200

LEGEND:

85 / 140 DRAINAGE SAMPLE RESULT IN PPB
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 PPB

5 cm

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
236090

SCALE: 1 10,000

No. KT27/76-6 H

E.L. 27/76
ELLIOTT BAY, TASMANIA
STREAM SEDIMENT GEOCHEMISTRY
Au GOLD RESULTS
MINUS 80 MESH SAMPLING

DATE OCT. 1980
GEOLOGIST K.L.H.
DRAWN D. BEGGS
CHECKED

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2329 (Vol 3)

374 000 E
375 000 E
376 000 E
377 000 E
378 000 E
379 000 E
380 000 E
381 000 E
382 000 E
5 244 000 N
5 243 000 N
5 242 000 N
5 241 000 N
5 240 000 N
5 239 000 N

LEGEND:

25/30 DRAINAGE SAMPLE RESULT IN PPB.
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 ppb

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
236091

SCALE 1:10,000

No. KT27/76-7 H

DATE Oct. 1980
GEOLOGIST W.H.
DRAWN D. Breen
CHECKED

E.L. 27/76
401
ELLIOTT BAY, TASMANIA

STREAM SEDIMENT GEOCHEMISTRY
Au — GOLD RESULTS
MINUS 80 MESH SAMPLING

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

85-2337 (Vol 3)

8600 E | 8800 E | 9000 E 383000 mE AMG | 9200 E | 9400 E | 9600 E

10800 N

10600 N

10400 N

10200 N
5 242 000 N AMG

O ser xt

felsic mg qf xt

felsic xlt

lxt

mg xlt

felsic mg xt

felsic fg xt

clvcl felsic vt

brown altered scricitic vt

ser mg qf xt

felsic xt

10000 N

alt servt?

servt

servt?

Voyager 3 DDH 1
Co-ordinates-10000N, 8875E
Dip 60°
Bearing 090°
Depth 0-30·8m

ser vt?

Voyager 3 DDH3
Co-ordinates 10 000N, 9325E
Bearing 270° TN
Dip 45°
Depth 0-163·2m

xlt

9800 N

servt?

o servt?

felsic vt

mg poorly sorted qf xt

ser xlt

sil qfxt

felsic qfxt

sericitic vt

ser mg poorly sorted qfxt

fg qfxt

felsic vt

ser fg vxt minor sulphide boxworks

ser mg qfxt iron staining

9600 N

felsic mg poorly sorted xt.

grey mg poorly sorted xt.

ser mg xvt

felsic mg poorly sorted qfxt

brown altered? xvt

white brown altered? xvt

plevxt

clvd fg xvt

Voyager 3DDH2
Co-ordinates 9500N, 9235E
Dip 60°
Bearing 090° TN
Depth 0-30·7m

9400 N

massive xvt galena veins

mg poorly sorted qflxt prominent jointing

qxt-2m wide zone with py on cleavage surfaces

felsic qflxt andesitic frag 1·5cm banded

chl xlt bedded zone pyrite 10cm

white-grn ser rich lxt

lxt

mg xvt concretions

qfxt siliceous veins

felsic mg xvt

fg massive siltstone

1-3cm qtz vein with galena, chlorite (tension gash)

massive to finely laminated tuffaceous siltstone silicified chlorite rich concretions

finely laminated sst quartz veining

very hem sl and finely laminated sandstone

felsic qvxt interbed

hematitic sandstone

arg cg hematitic sandstone

grey fg lithic silt stone

fg-mg sandstone-finely laminated graded bedding trough crosslamination silicified rich layers and joints malachite staining

fgvt interfingers with xt in graded contact

small scale isoclinal folds axial plane 165/85w veinlets of galena

lim chl mg xt manganese staining limonite in fractures

A

B

basic dyke

agglomerate frag 73cm

chl mg qfxt vt interbeds

basic dyke

xlt strained qtz eyes

chl mgxt vt interbeds disseminated pyrite banding

lm wide quartz veining

poorly sorted felsic lxt flattened feldspar fragments rare disseminated sulphides hem rich lxt manganese coating

3m qtz vein containing minor py

siliceous mg xt some lithic fragments

ser qf xt vt interbeds

fine grained siltstone 2-10cm hem concretions malachite along cleavage planes preferred orientation

cg-fg finely lam sst.

grey siltstone with vt? interbeds

white grey fg sandstone to siltstone mg hem sandstone interbeds

massive fg sand stone

fg-mg qfxt some lithic fragments coaser grained interbeds

chl mg qfxt hematite? lathes throughout

mg ps qfxt-minor lithic fragments narrow chlorite rich fractures malachite in fractures

9200 N
5 241 000 m N

mg xt and xvt chl flakes

finely laminated, banded vt py disseminated on bedding planes

grey green ser qfxt prominent jointing

grey qf xvt minor py blebs

mg green grey xvt

COMPLEX ISOCLINAL FOLDING

COMPLEX ISOCLINAL FOLDING

236092

LEGEND:

- outcrop
- bedding
- cleavage
- jointing
- fold axis
- major lithological boundaries: sharp: gradational
- overturned bedding
- structual trend lines

5 cm

GN MN 12°06'

- Power auger hole
- Hand auger hole
- Grid position

85-233(V013)

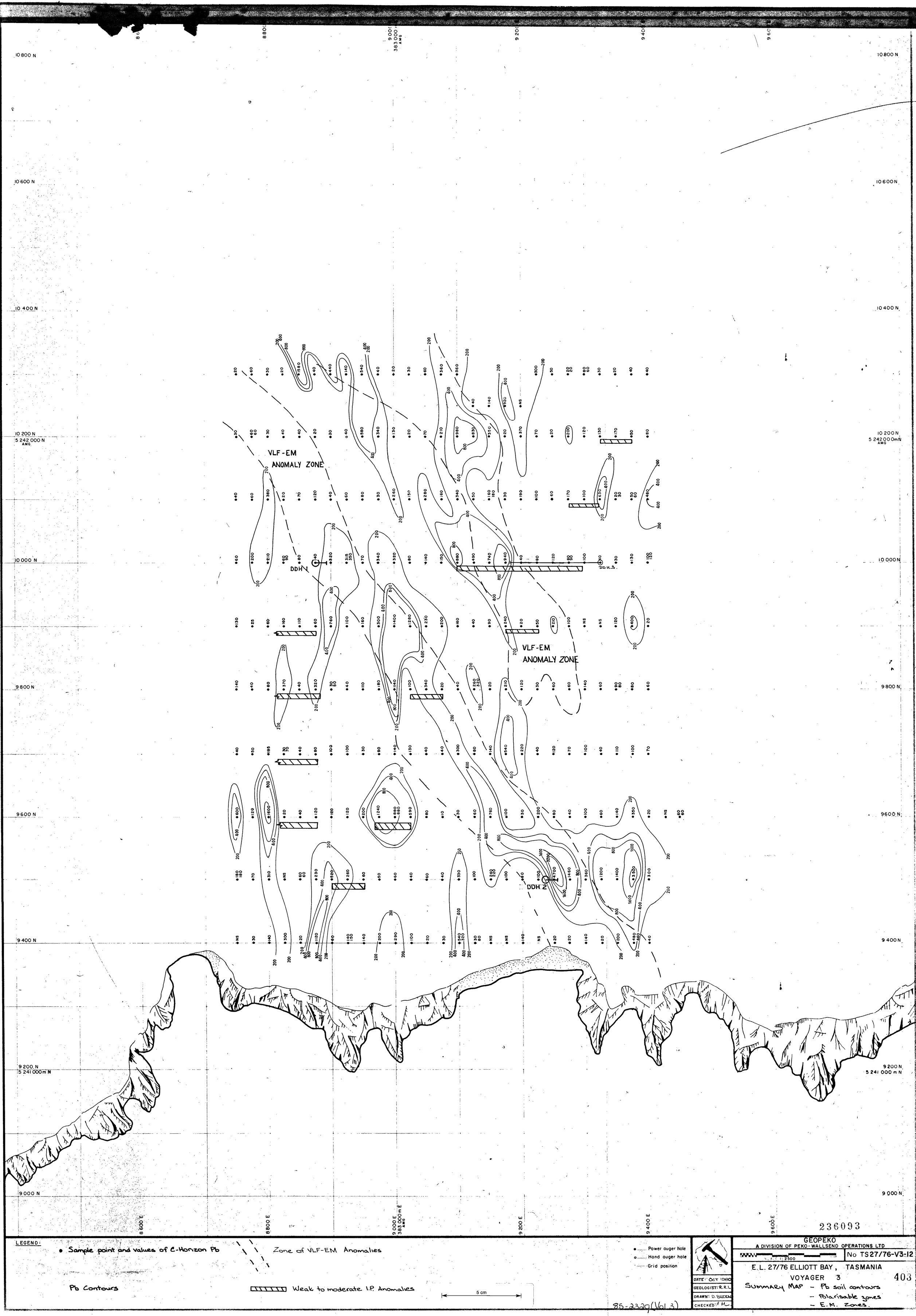
DATE JAN 1981
GEOLOGIST P.H.
DRAWN R.TOGNONI

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

No. TS27/76-V3-2(b)

E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 3
GEOLOGY

402



LEGEND:

- Sample point and values of C-Horizon Pb
- Pb Contours
- Zone of VLF-EM Anomalies
- Weak to moderate I.P. Anomalies
- 5 cm
- Power auger hole
- Hand auger hole
- Grid position

DATE: OCT 1980
GEOLOGIST: R.R.L.
DRAWN: D. BREEN
CHECKED: P.M.

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
1:2500
No TS27/76-V3-12

E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 3
403
SUMMARY MAP – Pb soil contours
– Polarisable zones
– E.M. Zones.

85-2329(Vol 3)

236093

LEAD

ZINC

Collar 9325E
DDH V3/3

no core

homogeneous fine grained
felsic tuff/siltstone

medium grained
quartz-feldspathic
crystal and lithic tuffs
2-3% pyrite

medium grained
quartzo-feldspathic
crystal tuffs

sphalerite 2mm wide quartz vein

sense of minor folding
in finer grained units

local reversal
of bedding-cleavage
relationship

chlorite rich tuffs
with sphalerite

chalcopyrite in fine grained
crystal tuff

chloritic breccia

galena sphalerite chalcopyrite
in minor quartz veinlets

chalcopyrite rich veinlet 2mm
thick cuts banding in quartz eye' tuff

brecciation at contact
possibly indicative of faulting

zone of intensive
quartz veining

spotted very fine
grained rhyolites

disseminated sphalerite.
and pyrite in laminated
chloritic vitric tuff

quartz veins
cutting spotted
vitric tuff/rhyolite

sequence of interbedded
porphyritic lavas, flow banded
rhyolites and fine grained tuffs

chlorite rich
brecciated
tuff lava

'glassy' rhyo-dacite
lava

porphyritic lava

quartz crystal tuff/lava

porphyritic lavas

flow banded
rhyolites

5-10% pyrite
disseminated and along
cleavages in interbedded
fine grained and vitric tuffs

banded rhyolites

pink grained poorly
sorted lithic tuff
c1-2% disseminated pyrite

E.O.H.
201-1m

LEGEND:
Zinc
Lead

C Horizon
Soil Geochemistry

Lead - Zinc ppm
(sampled 25m centres)

1000 900 800 700 600 500 400 300 200 100 0

LINE 10000mN

3500 3000 2500 2000 1500 1000 500 0 N.S. ppm

1500 1000 500 0 ppm

15 10 5 0 ppm

750 500 250 0 ppm

ZINC ppm

LEAD ppm

SILVER ppm

COPPER ppm

GEOCHEMICAL RESULTS
FROM 1m SAMPLES OF
HALF CORE

5 cm

236094

GEOPEKO

SCALE: 1:500

No. TS27/76-V3-13

DATE: JUNE 1981
GEOLOGIST: P.A.W
DRAWN: R.TOG
CHECKED: KO

E.L.27/76 ELLIOTT BAY
VOYAGER 3
PROFILE OF DDH V3/3
GEOLOGY AND GEOCHEMISTRY

404

85-2339 (Vol 3)

LEGEND:

Cu —— + —— + ——

Pb - - - - - - - - - -

Zn .....

W —— · —— · ——

Sn —— · —— · ——

Fe ————

Mag. Intensity —— · ——

MAGNETIC INTENSITY

TOTAL MAGNETIC INTENSITY

63 700
63 600
63 500
63 400
63 300
63 200
63 100
63 000

7·0%
6·0%
5·0%
4·0%
3·0%
2·0%
1·0%
0% Fe

100 ppm
75
50
25
0 Sn

10
0
W

40 ppm
30
20
10
0

10 000 E
10 100 E
10 200 E
10 300 E
10 275 E

VOYAGER 6 10100 N.

236095

5 cm

85-2329 (Vol 3)

LINE 10100 N.

405

DEVONPORT

Scale: 1:2500

No. TS 27/76 Vol

VOYAGER 6 C-HORIZON GEOCHEMICAL RESULTS Cu, Pb, Zn, W, Sn, Fe and TOTAL MAGNETIC INTENSITY PROFILES.

9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E | 10 500E

+30 +25 +20 +15 +10 +5 0 -5

LINE 10100N

+30 +25 +20 +15 +10 +5 0 -5 -10 -15

LINE 10000N

+15 +10 +5 0 -5 -10

LINE 9900N

+15 +10 +5 0 -5 -10 -15

LINE 9800N

+15 +10 +5 0 -5 -10 -15

LINE 9700N

9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E | 10 500E

9 500N | 9 600N | 9 700N | 9 800N | 9 900N | 10 000N | 10 100N

KEY INCLINATION —·—·—·—
QUADRATURE ----×----×----

+30 +25 +20 +15 +10 +5 0 -5 -10 -15 -20

BASE LINE
10 000E



NOTE: Transmitter used North West Cape.

5 cm

236096

GEOPEKO LTD. 406	Instrument	Geonics EM16	Datum	0%	Hor. Scale	1 : 2500	AREA	Elliott Bay Tasmania
Geophysical Surveys	Observer		Base Peg		Vert. Scale	1cm to 5%	PROSPECT	VOYAGER 6
Plan No. 5298 S/B 85-2329 (Vol 3)	Scale Fact		Date	Jan-Feb 1980	Cont. Int.		PLAN SHOWS	Profiles of VLF-EM

9 900E

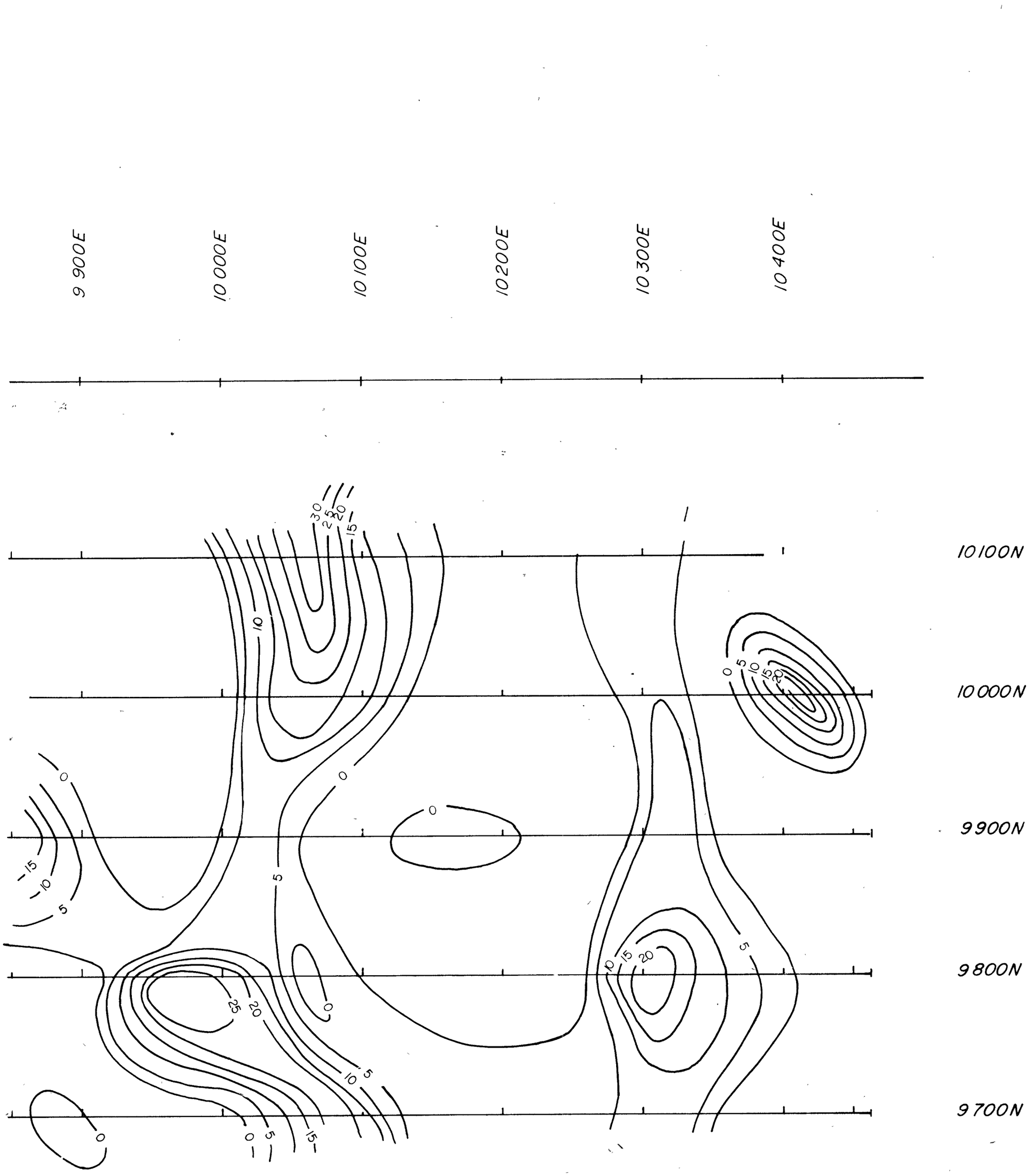
10 000E

10 100E

10200E

10 300E

10 400E



9 900E

10000E

10100E

10200E

10300E

10 400E

N MN

NWC

12°

52°

direction of readings

NOTE: Transmitter used North West Cape

5 cm

236097

GEOPEKO LTD Geophysical Surveys Plan No 5299 S/B	Geonics EM16		1:2500	AREA	Elliott Bay Tasmania
				PROSPECT	VOYAGER 6
		Jan-Feb '80	5%	PLAN SHOWS	Contours of Filtered In-phase VLF-EM

407

85-2329
(Vol 3)

9 800E | 9 900E | 10000E | 10100E | 10 200E | 10 300E | 10 400E | 10 500E

LEWIS RIVER

10 100N

10 000N

9 900N

9 800N

62900 63000 63100 62700 62800 63000 63100 63200 63300 63400 63300 63100 63000 64100 64000 63900 63800 63700 63600 63500 63400 63300 63200 63100 62600 62700 62800 62900

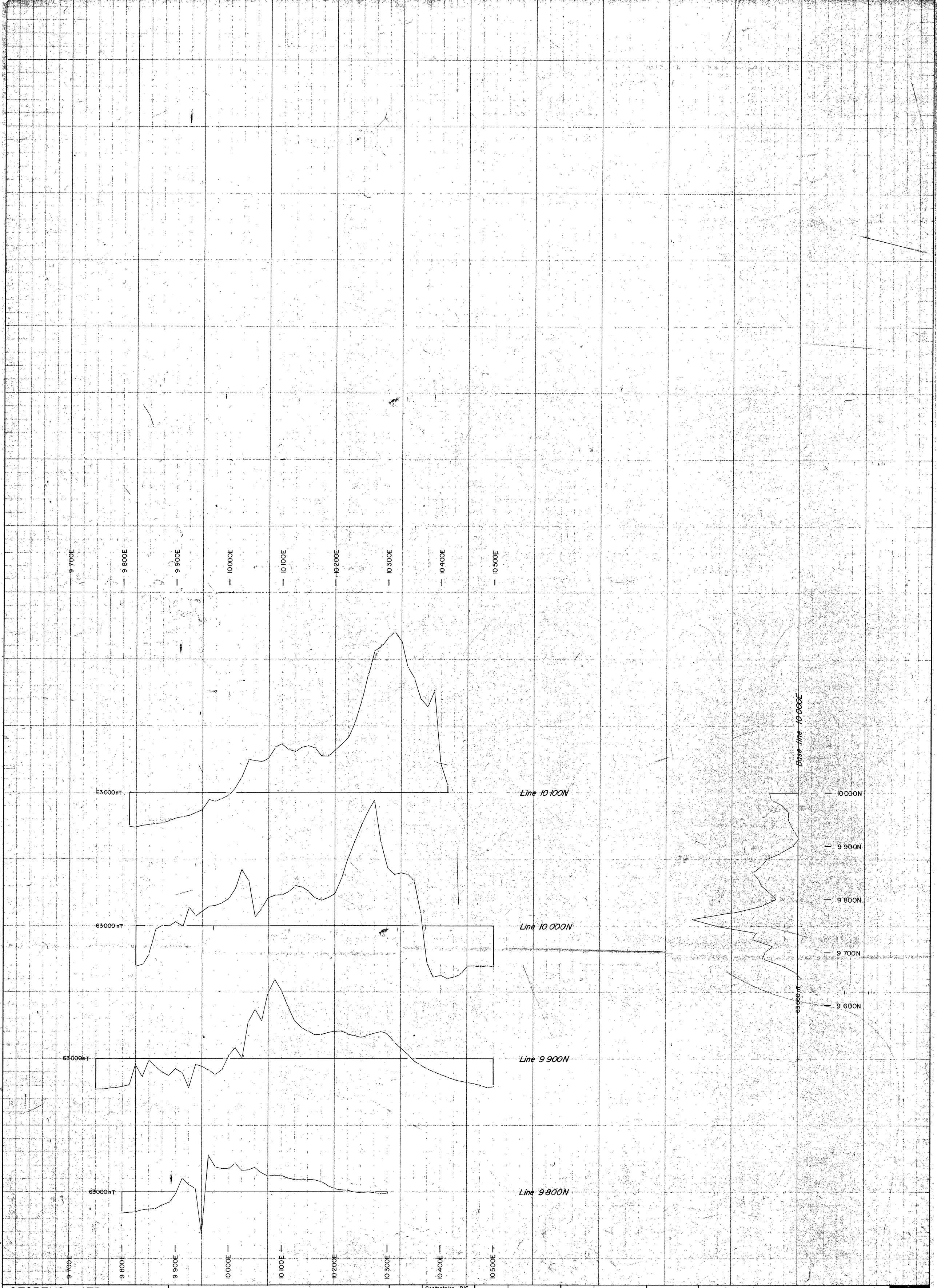
5 cm

236098

GEOPEKO LTD. 408	Instrument	Chemtron G6	Datum		Hor Scale	1:2500	AREA	Elliott Bay Tasmania
Geophysical Surveys	Observer		Base Peg		Vert Scale		PROSPECT	VOYAGER 6
Plan No. 5 300 S/B	Scale Fact		Date	Jan., Feb. 1980	Cont Int	100n.T.	PLAN SHOWS	Contours of Total Magnetic Intensity.

85-2329 (Vol 3)

408.



GEOPEKO LTD. 409	Instrument	Geometrics 816 Chemtron G6	Datum	63 000 nT	Hor Scale	1cm = 25m	AREA	Elliott Bay Tasmania 236099
Geophysical Surveys.	Observer.		Base Pag		Vert Scale	1cm = 100 nT	PROSPECT	VOYAGER 6
Plan No. 5301 S/B	Scale Fact		Date	Jan., Feb. 1980	Cont Int		PLAN SHOWS	Profiles of Total Magnetic Intensity

5 cm

85-2329 (Vol 3)

10 150E | 10 250E | 10 350E | 10 450E | 10 550E | 10 650E | 10 750E | 10 850E | 10 950E | 11 050E | 11 150E | 11 250E | 11 350E | 11 450E | 11 550E | 11 650E | 11 750E

62 800nT — 9 000N

62 800nT — 8 800N

62 800nT — 8 600N

62 800nT — 8 400N

62 800nT — 8 200N

10 150E | 10 250E | 10 350E | 10 450E | 10 550E | 10 650E | 10 750E | 10 850E | 10 950E | 11 050E | 11 150E | 11 250E | 11 350E | 11 450E | 11 550E | 11 650E | 11 750E

GEOPEKO - LTD.
Geophysical Surveys. 410
Plan No. 5311 S/B

236100

5 cm

Instrument	Chemtron G6 Geometrics 816	Datum	62 800nT	Hor Scale	1:2 500	AREA	Elliott Bay Tasmania
Observer		Base Reg		Vert Scale	-100nT to 1cm	PROSPECT	VOYAGER 10
Scale Fact		Date	Jan-Feb 1980	Cont Int		PLAN SHOWS	Profiles of Total Magnetic Intensity

85-2329 (Vol 3)

9200 N

9200 N Voyager 2 Grid

9000 N

8800 N

5 244 000 m N AMG

8600 N

8400 N

8200 N

8000 N

9800 E

10 000 E

10 200 E

10 400 E

10 600 E

386 000 mE AMG

10 800 E

11 000 E

11 200 E

11 400 E

10 350 E

LOW RESISTIVITIES EAST OF THIS LINE

LOW RESISTIVITIES

I.P. ANOMALY METAL FACTOR

MAGNETIC PROFILE 850ON

-500 -400 -300 nT -200 -100 0 +100 +200

ACID PYROCLASTICS

PYROCLASTICS

BOUNDARY OF THICK FOREST

PROBABLE AREA OF QUARTZ-FELDSPAR-PORPHYRY

LEGEND

20 ppm Pb original sample

20 20 20 ppm Pb repeat and check original sample

20 ppm Pb duplicate sample

ANALYTICAL METHOD

Pb by AAS

A C S Laboratories ADELAIDE

CONTOUR INTERVAL

0 – 100

100 – 200

200 – 500

500 – 1000

Power auger hole

Hand auger hole

Grid position

5 cm

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

1 : 2 500

No. TS 27/76-V10-10

EL 27/76 ELLIOTT BAY, TASMANIA

VOYAGER 10

SUMMARY MAP : Pb SOIL GEOCHEMISTRY

411

DATE: NOV 1980

GEOLOGIST P.R.L.

DRAWN D. BEGG

CHECKED

236101

85-2339 (V013)

9700E
9800E
9900E
10000E
10100E
10200E
10300E

LINE 10325N

2800 nT

LINE 9800N

2800nT

LINE 10000E

62 800nT

10500N
10250N
10000N
9750N
9500N
9250N

9700E
9800E
9900E
10000E
10100E
10200E
10300E

236102

GEOPEKO LTD. 412 Geophysical Surveys. Plan No. 5157 S/B						AREA	Elliott Bay Tasmania
	Instrument	Chemtron G6 Geometrics 816	Datum	62 800nT	Hor Scale	1: 2 500	PROSPECT. VOYAGER 14
5 cm	Observer		Base Pég.		Vert Scale	1cm to 100nT	PLAN SHOWS. Reconnaissance Geophysics Profiles of Total Magnetic Intensity.
	Scale Fact		Date	Jan-Feb 1980	Cont Int		

85-3329 (Vol 3)

GEOPEKO

A DIVISION OF PEKO-WALLSEND

SCALE: 1:5000

DATE: JUNE 1981

GEOL: P.A.WILSON

DRAWN: R.TOGNONI

CHKD: HW

ELLIOTT BAY, TASMANIA

VOYAGER 16 GRID

SOIL SAMPLE LOCATION

236103

413

TS 27/76-V16-1

GN MN

13°00'

5 cm

85-2329 (Vol 3)

382000 E.

383000 E.

384000 E.

5249000 N.

5248000 N.

5247000 N.

5246000 N.

Fine silic sed. or lava?

Basic pods < 2m.

Chl. mag.

Waterloo Ck.

River

Hudson

236104

5 cm

SCALE

100 0 100 300 500 800 Metres.

Scale 1 : 10,000.

KEY

Tertiary — Gravel-sand, qartz quartzite derived.

Undifferentiated ~ no outcrop.

Cambrian

(i) Siliceous silts, tuffaceous wackes.

(ii) Tuff crystal lithic (< 5c.m.) with epidote (rich nodules?)

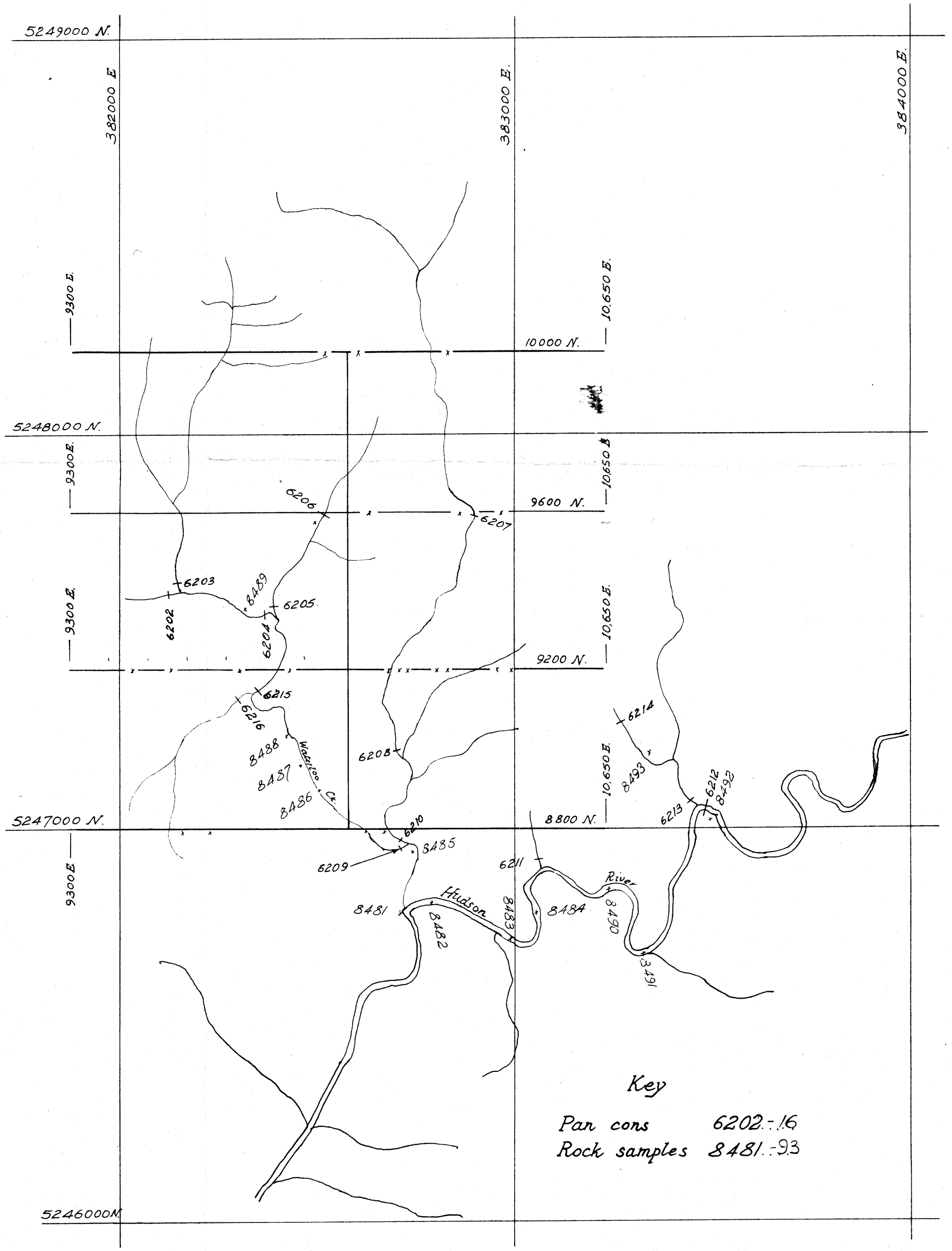
(iii) Tuff &/or rhyolite lava, quartz feldspar phenocrysts.

(iv) Tuff quartz ≤ felaspar crystal - chloritic, minor liths.

GEOPEKO EXPLORATION ~ E.L. 27/76

VOYAGER 16
RECONNAISSANCE GEOLOGY

Date FEB '81	E.L.27/76-V16-3
Compiled, R.A.P.	414
Drawn N.S.P.	
Checked R.A.P.	85-2329 (Vol 3)



Key

Pan cons 6202 - 16
Rock samples 8481 - 93

SCALE

100 0 100 200 300 400 600 800 Metres

Scale 1 : 10,000

5 cm

GEOPEKO EXPLORATION, E.L. 27/76.

VOYAGER 16, LOCATION PLAN.
Grid ~ Pan cons. ~ Rock samples.

Date FEB 1981.

Compiled R.A.P.

Drawn N.S.P.

Checked R.A.P.

E.L.27/76-V16-4

415

85-2329 (Vol 3)

382000 E.

383000 E.

5248000 N.

5247000 N.

Waterloe Ck.

HUDSON RIVER.

15 | .5
15 | 90
265 | 4600
x

5
10
1000 | x 30 3750
x

x | .5
5 | 70
290 | 3100
x

x | x
5 | 50
540 | 4100
x

x | 115 5500
10 | 70 625
x

.5 | 80 3650
x | 10 27 ft.

20 | 5
340 | 4
6.95 | 430 6100

x | x
10 | 60
585 | 2950
x

5 | .5
10 | 85
1750 | 5000
x

10 | x 115
65 | 4950
3300 | x

x | .5
10 | 90
730 | 3550
x

x | .5
10 | 155
355 | 4500
x

5 | x
5 | 80
640 | 7300
x

x | .5
10 | 65
590 | 3750
2.65

5 | x 95
15 | 4250
215 | .48

Key

Cu. Ag.
Pb. Mn.
Zn. Fe.
Au.

236105

Scale. ~ metres.

100 0 100 300 600 500

Scale 1:10,000.

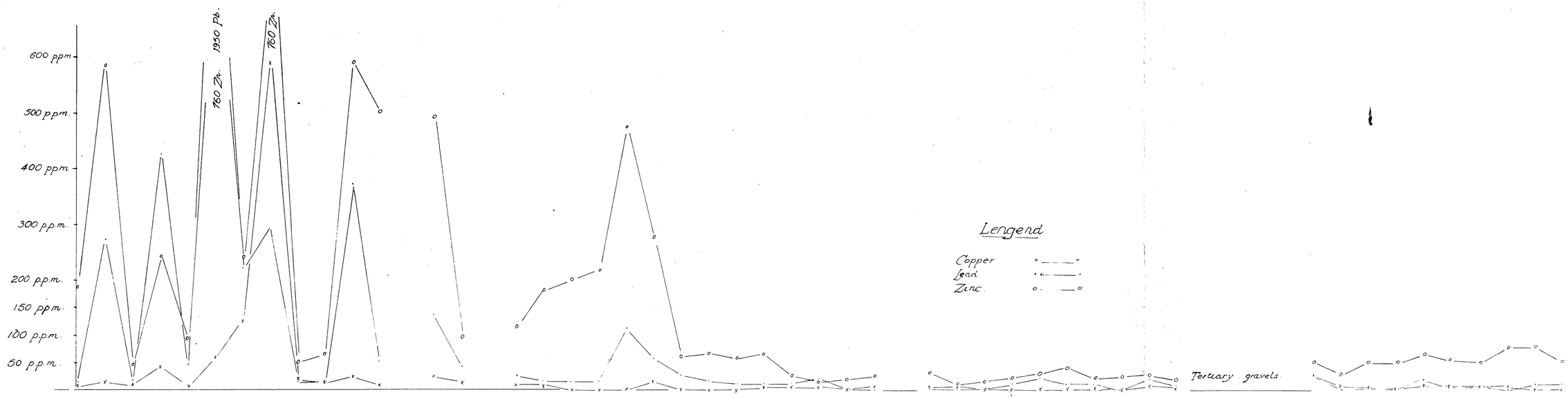
5 cm

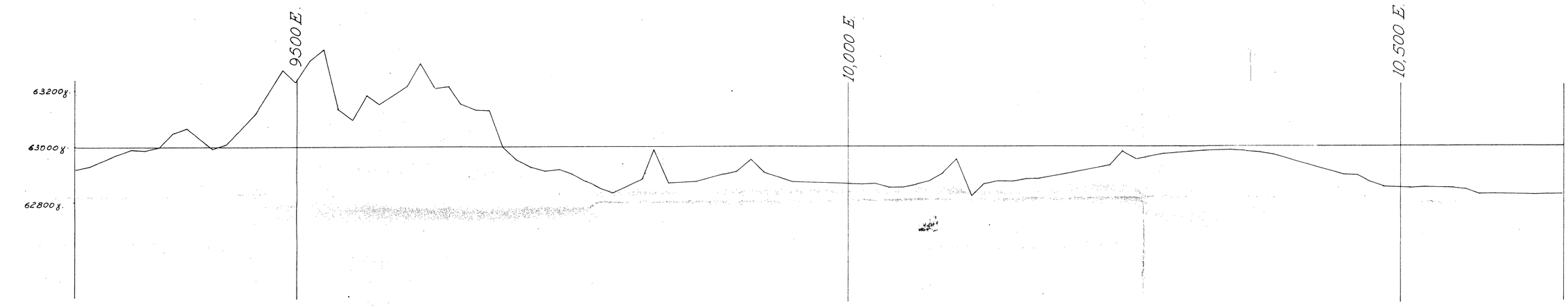
GEOPEKO EXP. E.L.27-76.

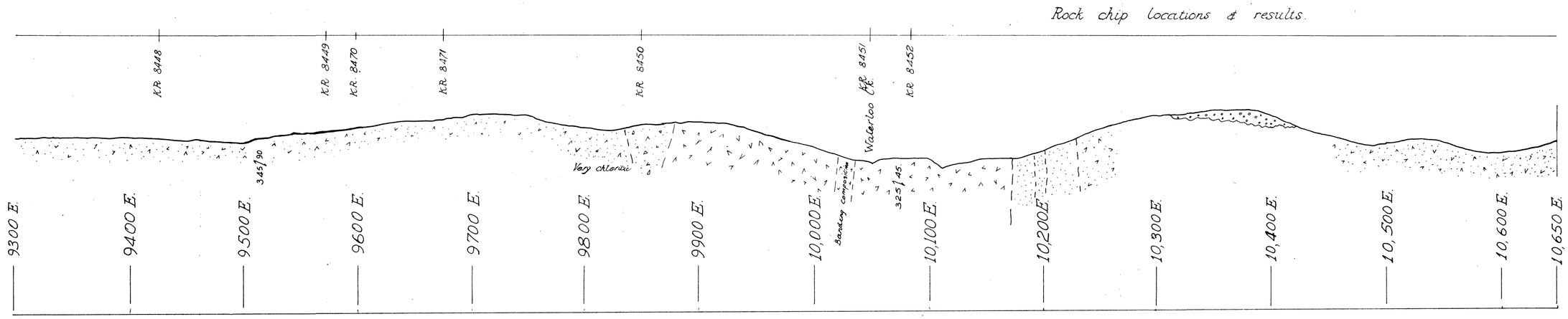
Voyager 16
Pan Con. Results

85-2329 (Vol 3)

Date Feb. 1981.	E.L.27/76-V16-5
Compiled R.A.P.	416
Drawn N.S.P.	Checked. R.A.P.







236106

Grid lines 270° ~ 090° True.

Undifferentiated ~ no outcrop

KEY

Tertiary — Gravel/sand quartz & quartzite derived

Cambrian
(i) Siliceous silts ~ tuffaceous wackes.
(ii) Tuff & rhyolite lava, quartz feldspar phenocrysts in vitric ground mass.
(iii) Tuff, crystal lithic (< 5c.m) with epidote (lith,-nodules?).
(iv) Tuff quartz ≥ feldspar crystal chloritic, minor liths

SCALE

50 0 100 200 Metres.

Scale 1:2500.

5 cm

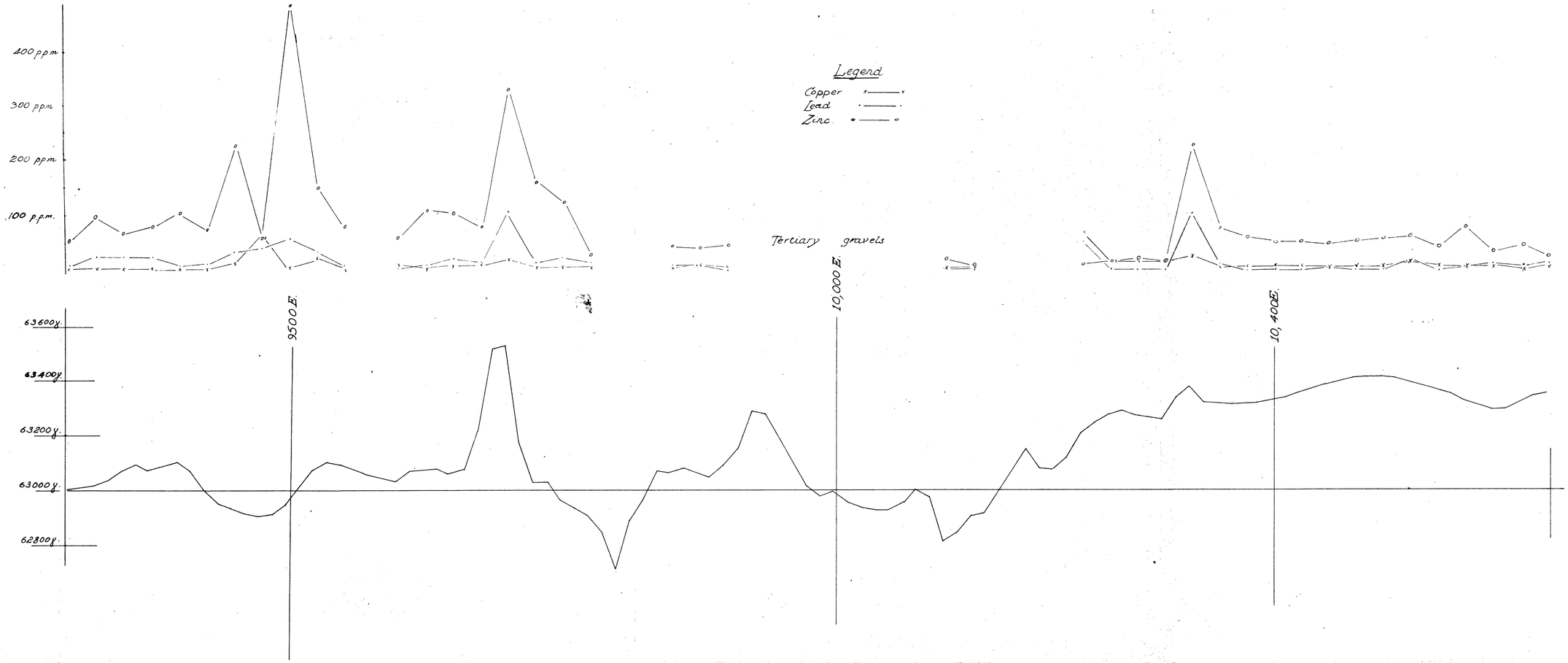
GEOPEKO EXPLORATION E.L. 27 76

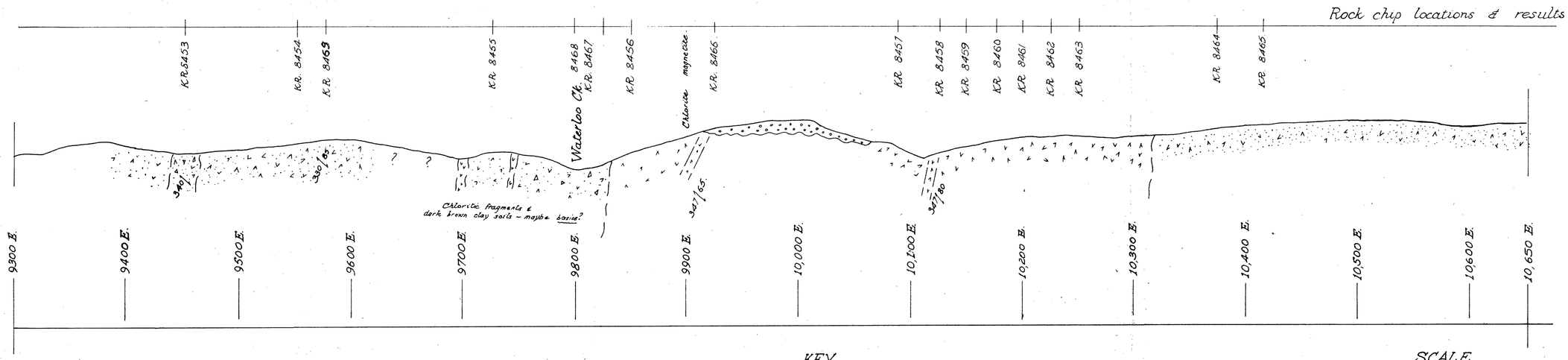
ELLIOTT BAY, TAS. 85-2329 (Vol 3)

VOYAGER 16 GRID ~ Line 8800 NORTH

Date FEB. 1981	E.L.27/76-V16-6
Compiled R.A.P.	
Drawn N.S.P.	
Checked R.P.F.	

417





Grid lines 270° ~ 090° True.

KEY

Tertiary — Gravel/sand quartz quartzite derived.

Cambrian (i) Tuff quartz ≥ feldspar crystal, generally chloritic, minor liths.

(ii) Tuff crystal lithic (<5c.m.) with epidote (lith - nodules?)

(iii) Tuff &/or rhyolite lava, quartz feldspar phenocrysts in vitric ground mass.

(iv) Basic fine grained chloritic lenses < 2 metres thick.

Undifferentiated ~ no outcrop.

SCALE.

50 0 100 200 Metres.

5 cm

Scale 1:2500.

236107

GEOPEKO EXPLORATION E L 27 76

ELLIOTT BAY, TAS. 85-2329 (Vol 3).

VOYAGER 16 GRID ~ Line 9200 North

Date FEB. 1981	EL 27/76-V16-7
Compiled R.A.P.	
Drawn N.S.P.	
Checked R.A.P.	418

9200 1/16

Legend

Copper ×——×
Lead ·——·
Zinc ○——○

Cu 5, Pb 20, Zn 55
Fe 35%, Mn 110 ppm

150 ppm
100 ppm
50 ppm

Tertiary gravels & sands

9700 E.
10000 E.
10,300 E.

63600 y.
63,400 y.
63200 y.
63000 y.

Rock chip locations & results

KR 8473
KR 8472
KR 8474
KR 8475
KR 8476

9300 E.
9400 E.
9500 E.
9600 E.
9700 E.
9800 E.
9900 E.
10,000 E.
10,100 E.
10,200 E.
10,300 E.
10,400 E.
10,500 E.
10,600 E.
10,650 E.

Volcanics deeply weathered under thin gravel cover.

Grid lines 270° ~ 090° True.

KEY

Recent — Angular quartz float
Tertiary — Gravel-sand, quartz quartzite derived
Cambrian (i) Tuff or rhyolite lava, quartz feldspar phenocrysts in vitric ground mass.
(ii) Tuff, quartz & feldspar crystal chloritic, minor liths.
Undifferentiated ~ no outcrop.

SCALE

50 0 100 200

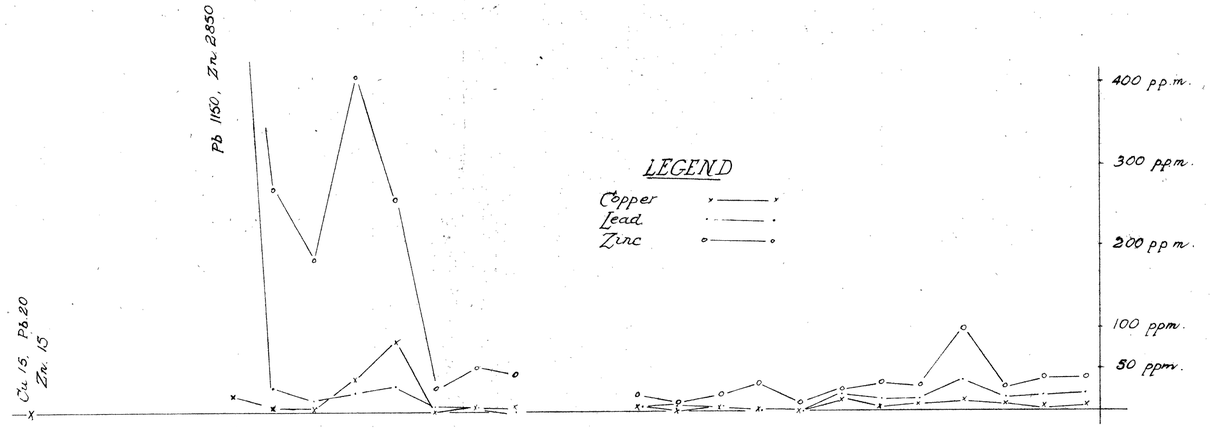
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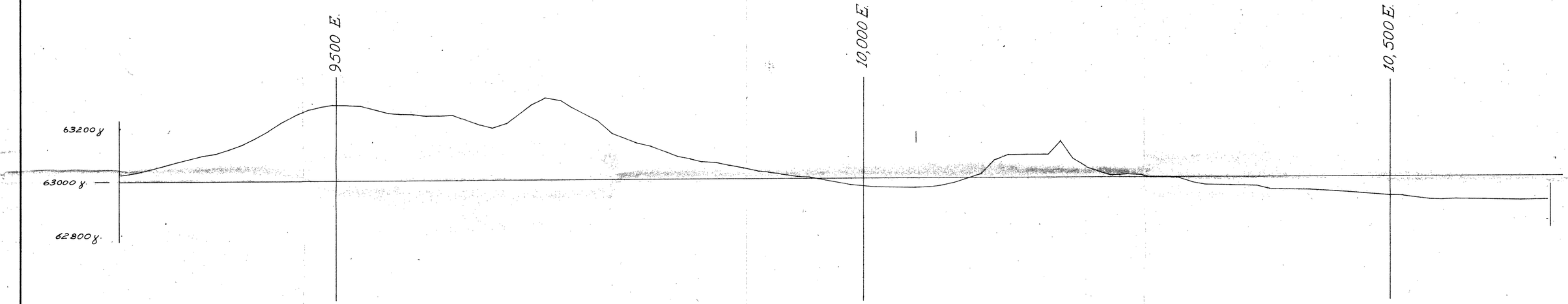
236108

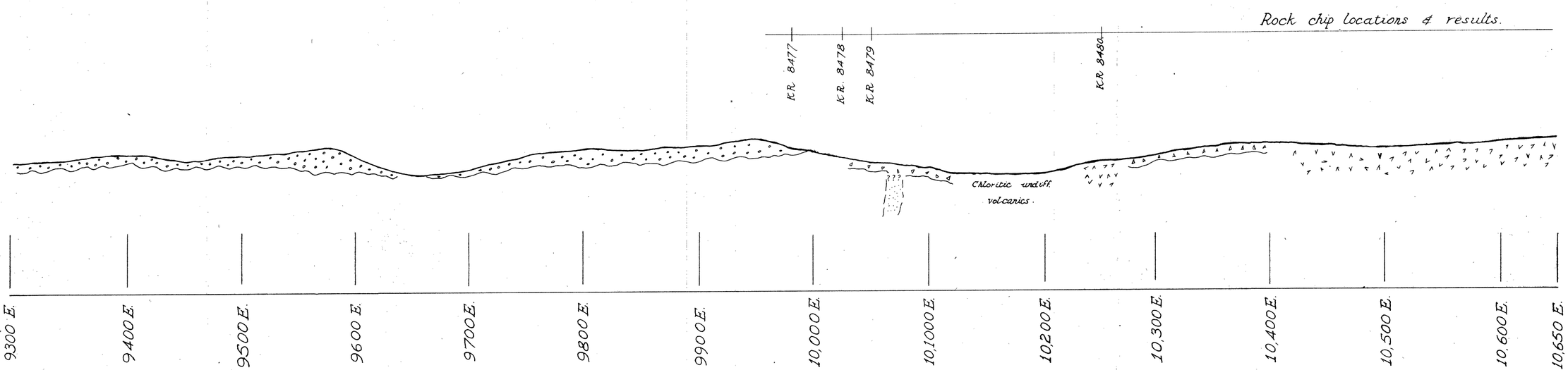
GEOPEKO EXPLORATION E.L. 27/76

ELLIOTT BAY, TAS. 85-2339 CV01 3.
VOYAGER 16 GRID ~ Line 9600 North

Date FEB. 1981	EL 27/76-V16-8
Compiled R.A.P.	
Drawn N.S.P.	419
Checked R.A.P.	







Grid lines 270° ~ 090° True.

KEY

RECENT Angular quartz float

TERTIARY Grav-sand quartz quartzite derived

CAMBRIAN Siliceous silts, tuffaceous wackes

Tuff & or rhyolite lava, quartz feldspar phenocrysts.

SCALE

50 0 50 100 200 300 Metres.

Scale 1:2500

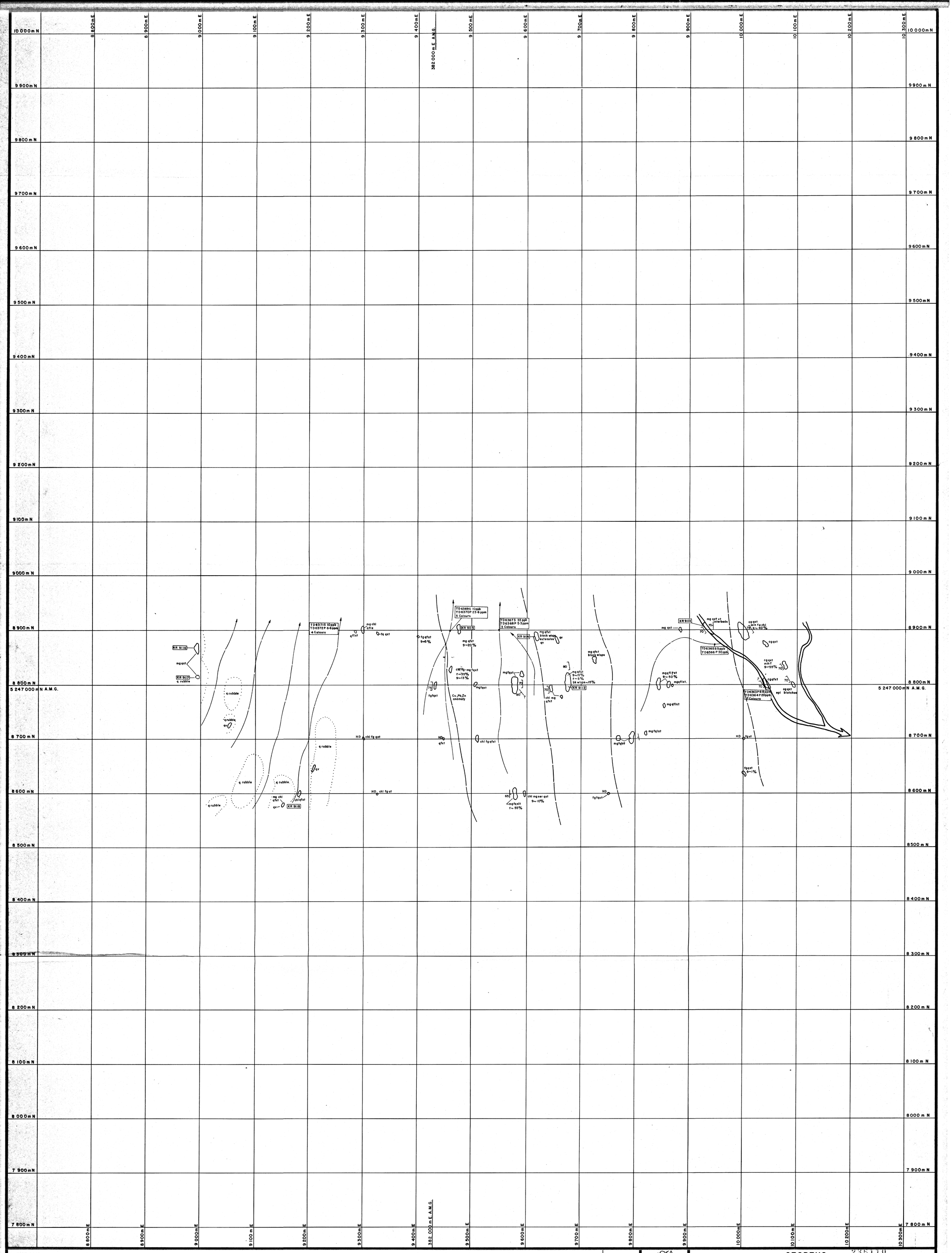
5 cm

GEOPEKO EXPLORATION E.L. 27 76

ELLIOTT BAY, TAS 85-2339 (Vol 3)

VOYAGER 16 GRID ~ Line 10,000 North

Date FEB. 1981.	E.L.27/76-V16-9
Compiled R.A.P.	236100
Drawn N.S.P.	420
Checked R.A.P.	



LEGEND :

CAMBRIAN HUDSON RIVER VOLCANICS

- Quartz crystal tuff, fine grained.
- Feldspar quartz crystal tuff, fine to medium grained.
- Quartz feldspar crystal tuff, medium grained.
- Feldspar quartz lithic crystal tuff, medium grained.
- Quartz crystal tuff, coarse grained

TD6371S / TD6372P — Drainage sample (sediment) / Drainage sample (pan concentrate) 4 Colours. Visible gold in pan concentrate.

Geological boundary

Cleavage

Bedding

Quartz veining

Boundary of quartz rubble.

Creek

Major water course

Minor water coarse

HD ○ Hand drill hole, Geology from cuttings

KR 9118 Outcrop sample site and number.

Outcrop.

5 cm

GN MN 13°00'

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD — DEVONPORT

236110

FILE No	TS 27/76-V16-10	PLAN No

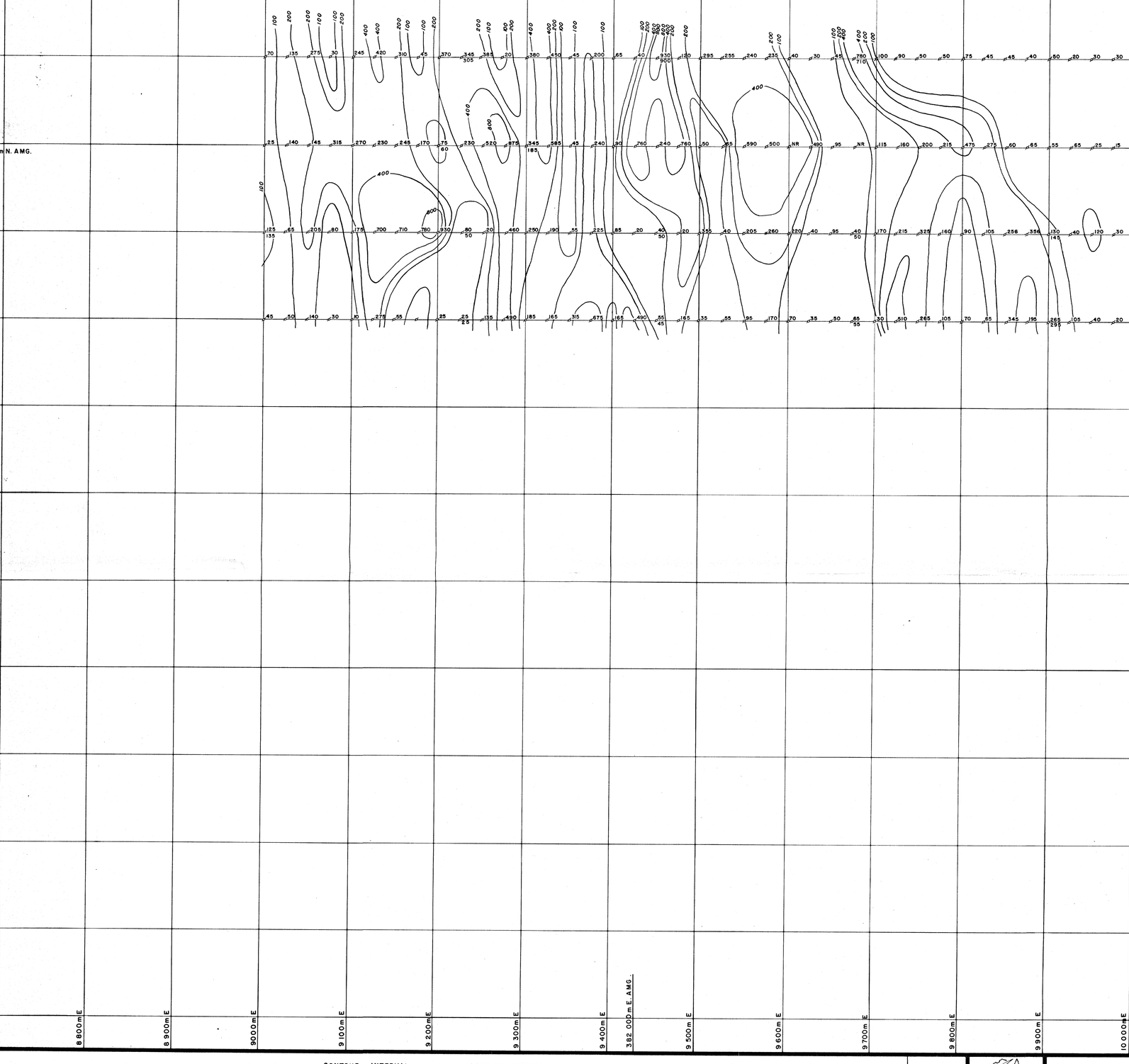
SCALE: 1:2500
DATE: 1-2-82
GEOL: R.J.P.
DRAWN: M.vdS.
CHECKED:

E.L. 27/76 ELLIOTT BAY TASMANIA
V16 GEOLOGICAL PLAN
AND GOLD PAN CONCENTRATE RESULTS

421

85-2320 (Vol 3)

421



LEGEND:

- Grid position
- Power auger
- Hand auger
- Power hand auger/mate

100 — Zinc ppm
95 — Duplicate Sample
Sample Position

NR No Result
NS No Sample
X Below Level of Detection

CONTOUR INTERVAL

- 100–199 ppm
- 200–399 ppm
- 400–799 ppm
- 800–1599ppm

ANALYTICAL METHOD

Code: Analabs 101

Perchloric acid digestion followed by AAS.

5 cm

GN MN

13° 00'

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD — DEVONPORT

236111

FILE No	TS 27/76-V16-12	PLAN No	

SCALE: 1:2500

DATE: FEB '82

GEOL: R.J.P.

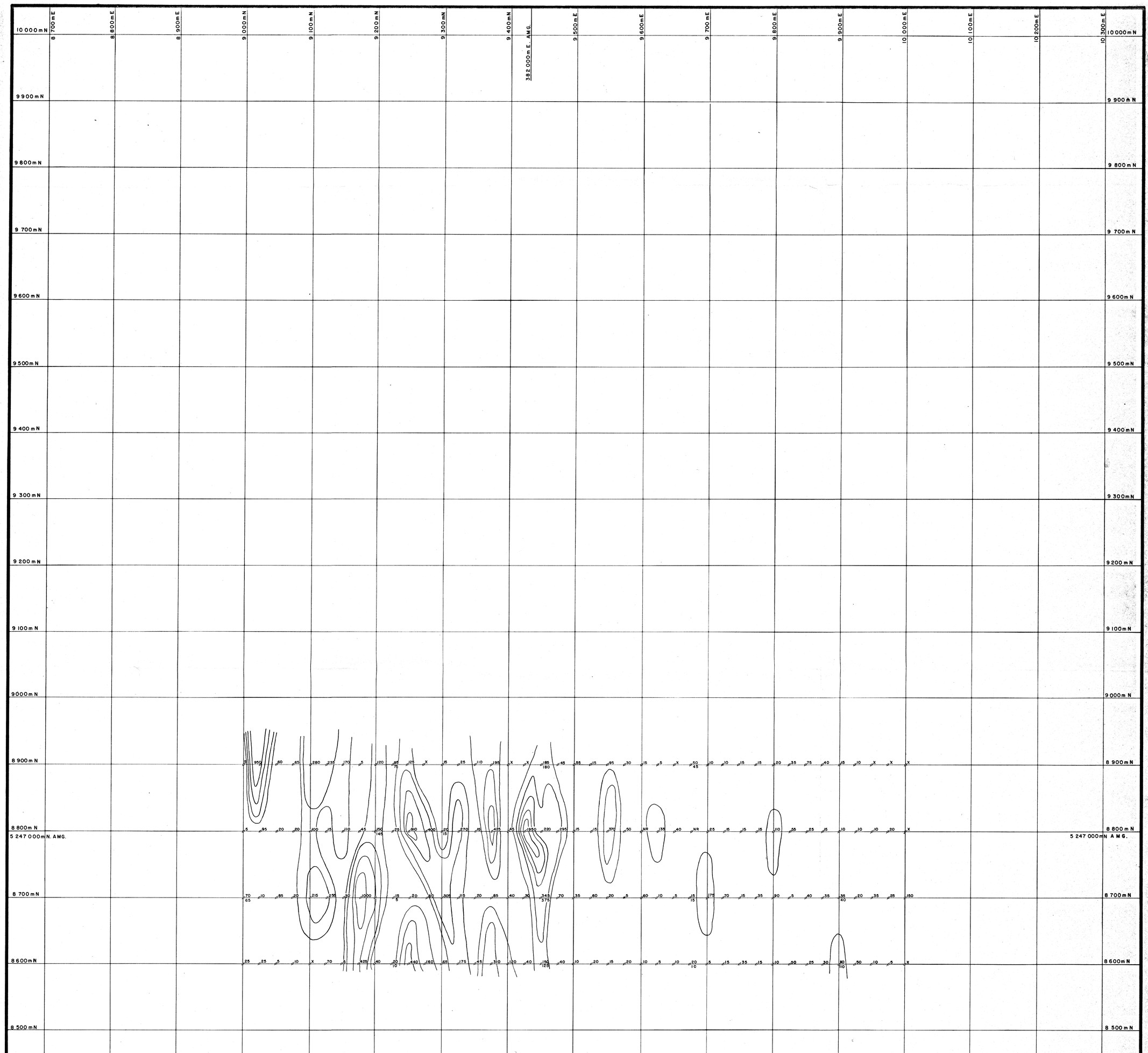
DRAWN: M.vdS

CHECKED:

E.L.27/76 ELLIOTT BAY TASMANIA
VOYAGER 16
C HORIZON SOIL GEOCHEMISTRY
ZINC CONTOURS

422

85-2330 (Vol 3)



LEGEND:

- Grid position
- Power auger
- Hand auger
- Power hand auger/mate

100 — Zinc ppm — Sample Position.
95 — Duplicate Sample.

NR No Result
NS No Sample
X Below Level of Detection

CONTOUR INTERVAL

- 100 - 199 ppm
- 200 - 399 ppm
- 400 - 799 ppm
- 800 - 1599 ppm
- > 1600

ANALYTICAL METHOD

Code: Analabs 101

Perchloric acid digestion followed by AAS.

5 cm

GN MN
13°00'

GEOPEKO 236112
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD — DEVONPORT

FILE No	TS 27/76-V16-13	PLAN No	

SCALE: 1:2500
DATE: FEB '82
GEOL: R.J.P.
DRAWN: M.vdS
CHECKED:

E.L.27/76 ELLIOTT BAY TASMANIA 423
VOYAGER 16
C HORIZON SOIL GEOCHEMISTRY
LEAD CONTOURS

85-339 (Vol 3)

8 700 m E | 8 800 m E | 8 900 m E | 9 000 m N | 9 100 m N | 9 200 m N | 9 300 mN | 9 400 m N | 382 000 m E. AMG. | 9 500 m E | 9 600 m E | 9 700 m E | 9 800 m E | 9 900 m E | 10 000 m E | 10 100 m E | 10 200 m E | 10 300 m E

10 000 m N

9 900 m N

9 800 m N

9 700 m N

9 600 m N

9 500 m N

9 400 m N

9 300 m N

9 200 m N

9 100 m N

9000 m N

8 900 m N: 7650 7549 7548 7547 7546 7545 7544 7543 7542 7541 7540 7539 7538 7537 7536 7535 7534 7533 7532 7531 7530 7529 7528 7527 7526 7525 7524 7523 7522 7521 7520 7519 7518 7517 7516 7515 7514 7513 7512 7511 7510 7509 7508 7507

8 800 m N: 6992 6993 6994 6995 6996 6997 6998 6999 7000 7501 7502 7503 7504 7505 9556 9557 9558 9559 9560 9561 9562 9563 9564 9565 9566 9567 9568 9569 9570 9571 9572 9573 9574 9575 9576 9577 9578 9579 9580 9581 9582 9583 9584

5 247 000 m N. AMG. — SAMPLED BY THE POLTOC BROTHERS 1980 – 1981. — 5 247 000 m N A M G.

8 700 m N: 6990 6989 6988 6987 6986 6985 6984 6983 6982 6981 16980 6979 6978 6977 6976 6975 6974 6973 6972 6971 16970 6969 6968 6967 6966 6965 6964 6963 6962 6961 16960 6959 6958 6957 6956 6955 6954 6953 6952 16950 6949 6948 6947 6946

8 600 m N: 16901 6902 6903 6904 16905 6906 6907 16908 16909 16910 16911 6912 6913 6914 6915 6916 6917 6918 6919 16920 16921 6922 6923 6924 6925 6926 6927 6928 6929 16930 16931 6932 6933 6934 6935 6936 6937 6938 6939 16940 16941 6942 6943 6944 16945

8 500 m N

8 400 m N

8 300 m N

8 200 m N

8 100 m N

8 000 m N

7 900 m N

7 800 m N

8 700 m E | 8 800 m E | 8 900 m E | 9000 m E | 9 100 m E | 9 200 m E | 9 300 m E | 9 400 m E | 382 000 m E. AMG. | 9 500 m E | 9 600 m E | 9 700 m E | 9 800 m E | 9 900 m E | 10 000 m E | 10 100 m E | 10 200 m E | 10 300 m E

LEGEND:

C Horizon Soil Samples.

16990 — Sample number & Position

Mate sampling

Samplers R.C., J.N.

5 cm

GN MN

13° 00'

SCALE: 1:2500

DATE: FEB '82

GEOL: R.J.P.

DRAWN: M.vdS

CHECKED:

GEOPEKO 236113

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD — DEVONPORT

FILE No TS 27/76-V16-14 PLAN No

E.L.27/76 ELLIOTT BAY TASMANIA

VOYAGER 16

SOIL SAMPLE LOCATION MAP

424

85-3830 (Vol 3)

8 700 mE | 8 800 mE | 8 900 mE | 9 000 mN | 9 100 mN | 9 200 mN | 9 300 mN | 9 400 mN | 382 000 mE AMG. | 9 500 mE | 9 600 mE | 9 700 mE | 9 800 mE | 9 900 mE | 10 000 mE | 10 100 mE | 10 200 mE | 10 300 mE

10 000 mN | 9 900 mN | 9 800 mN | 9 700 mN | 9 600 mN | 9 500 mN | 9 400 mN | 9 300 mN | 9 200 mN | 9 100 mN | 9000 mN | 8 900 mN | 8 800 mN | 8 700 mN | 8 600 mN | 8 500 mN | 8 400 mN | 8 300 mN | 8 200 mN | 8 100 mN | 8 000 mN | 7 900 mN | 7 800 mN

5 247 000 mN. AMG.

+10%
-10%
+10%
-10%
+10%
-10%

8700 mE | 8800 mE | 8900 mE | 9000 mE | 9100 mE | 9200 mE | 9300 mE | 9400 mE | 382 000 mE AMG. | 9500 mE | 9600 mE | 9700 mE | 9800 mE | 9900 mE | 10 000 mE | 10 100 mE | 10 200 mE | 10 300 mE

LEGEND

5 cm

GN MN
13° 00'

SCALE: 1:2500
DATE: 2/8/82
GEOL: R.J.P.
DRAWN: R.Tog.
CHECKED: RJP 2 Aug 82

GEOPEKO 236114
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD — DEVONPORT

FILE No | TS 27/76-V16-15 | PLAN No

E.L.27/76 ELLIOTT BAY TASMANIA
VOYAGER 16
VLF-EM PROFILES

425

85-3339 (V613)

DATA MANIPULATED USING FRASERS ALGORITHM

VLF — EM 30% 20% 10%

TOTAL MAGNETIC INTENSITY nT 0 100 200 300 400 500 600 700 800 900 1000 1100

ZINC ppm 0 250 500 750

LEAD ppm 0 250 500 750

IRON % 0 2·5 5·0 7·5

MANGANESE ppm 0 1000 2000 3000 4000

GEOLOGY

NO OUTCROP

RUBBLE

FINE GRAINED QUARTZ CRYSTAL TUFF

FINE TO MEDIUM GRAINED FELDSPAR QUARTZ CRYSTAL TUFF

MEDUM GRAINED QUARTZ FELDSPAR CRYSTAL TUFF

MEDIUM GRAINED FELDSPAR QUARTZ LITHIC CRYSTAL TUFF

COARSE GRAINED QUARTZ CRYSTAL TUFF.

8 700 N 8 800 N 8 900 N 9 000 N 9 100 N 9 200 N 9 300 N 9 400 N 9 500 N 9 600 N 9 700 N 9 800 N 9 900 N 10 000 N 10 100 N 10 200 N 10 300 N

LEGEND :

5 cm

SCALE: 1:2500

DATE: 9th JUNE 82.

GEOL: R.J.P.

DRAWN: M.vdS.

CHECKED: RJP 4-8-82

GEOPEKO 236115
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD — DEVONPORT

FILE No | TS 27/76-V16-16 | PLAN No

E.L. 27/76 ELLIOTT BAY TASMANIA 426
VOYAGER 16
GEOCHEMICAL AND GEOPHYSICAL PROFILES

85-2339 (Vol 3)

8 700 mE | 8 800 mE | 8 900 mE | 9 000 mN | 9 100 mN | 9 200 mN | 9 300 mN | 9 400 mN | 382 000 mE. AMG. | 9 500 mE | 9 600 mE | 9 700 mE | 9 800 mE | 9 900 mE | 10 000 mE | 10 100 mE | 10 200 mE | 10 300 mE | 10 000 mN

9 900 mN

9 800 mN

9 700 mN

9 600 mN

9 500 mN

9 400 mN

9 300 mN

9 200 mN

9 100 mN

9000 mN

8 900 mN

8 800 mN

5 247 000 mN. AMG.

8 700 mN

8 600 mN

8 500 mN

8 400 mN

8 300 mN

8 200 mN

8 100 mN

8 000 mN

7 900 mN

7 800 mN

8700 mE | 8800 mE | 8900 mE | 9000 mE | 9100 mE | 9200 mE | 9300 mE | 9400 mE | 382 000 mE. AMG. | 9500 mE | 9600 mE | 9700 mE | 9800 mE | 9900 mE | 10000 mE | 10100 mE | 10200 mE | 10300 mE | 7800 mN

LEGEND:

Contour interval 100nT

5 cm

GN MN

13°00'

SCALE: 1:2500

DATE: 10 June 82

GEOL: J Sumpton

DRAWN: M vdS

CHECKED: RJP 3 Aug 82

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD — DEVONPORT

236116

FILE No | TS 27/76-V16-17 | PLAN No

E.L.27/76 ELLIOTT BAY TASMANIA
VOYAGER 16
Contours of Total Magnetic Intensity

427

83-2339 (Vol 3)

376 000mN A.M.G.

10000 N
5 252 000mN A.M.G.

9600mN

9200 N

9500mE 9600mE 9700mE 9800mE 9900mE 10 000mE 10 100mE 10200 mE 10300mE 10400mE 10500mE 10600mE

10 000mN
5252000mN A.M.G.

9600mN

9200N

11751 11752 11753 11754 11755 11756 11757 11758 11759 11760 11761 11762 11763 11764 11765 11767 11768 11769 11770 11771 11772 11773 11774 11775 11776 11777 11778 11779 11780 11781 11782 11783 11784 11785 11786 11787 11788 11789 11790 11791 11792 11793 11794 11795

11796 11797 11798 11799 11800 11801 11802 11803 11804 11805 11806 11807 11808 11809 11810 11811 11812 11813 11814 11815 11816 11817 11818 11819 11820 11821 11822 11823 11824 11825 11826 11827 11828 11829 11830 11831 11832 11833 11834 11835 11836

11837 11838 11839 11840 11841 11842 11843 11844 11845 11846 11847 11848 11849 11850 11851 11852 11853 11854 11555 11556 11557 11558 11859 11860 11861 11862 11863 11864 11865 11866 11867 11868 11869 11870 11871 11872 11873 11874 11875 11876 11877

9500mE 9600mE 9700mE 9800mE 9900mE 10 000mE 10 100mE 10200mE 10300mE 10400mE 10500mE 10600mE

376 000mN
A.M.G.

GEOPEKO

A DIVISION OF PEKO WALLSEND

SCALE: 1:5000

DATE: SEPT '80

GEOL: P.A.WILSON

DRAWN: R.TOGNONI

CHECKED:

236117

VOYAGER 26
SAMPLE LOCATION MAP

5 cm

GN MN

13°00'

•Power Auger.

428

NO.TS 27/76-26-1

85-2329 (Vol 3)

T/D. 6201 25 / X / 15 / 20 / 8900

T/D. 6200 10 / 10 / 20 / 2·7%

10,000 N.

9500 E.

80

Creek

B.Line 10,000 E.

Creek

10600 E.

To Huon Pine Reserve ~ 1·6 Km.

9,600 N.

9500 E.

Gabbro

B.Line 9900 E.

10,500 E.

?

True North.
Grid North.

9200 N.

9500 E.

10500 E.

SCALE.

50 0 50 100 200 Mts.

Scale 1:2500

5 cm

KEY

Cambrian

(i) Phyllites grey-green.
dark grey to black.

(ii) Basic volcanics ~ fine grained.

(iii) Clay soils developed on phyllites, basics & carbonates?

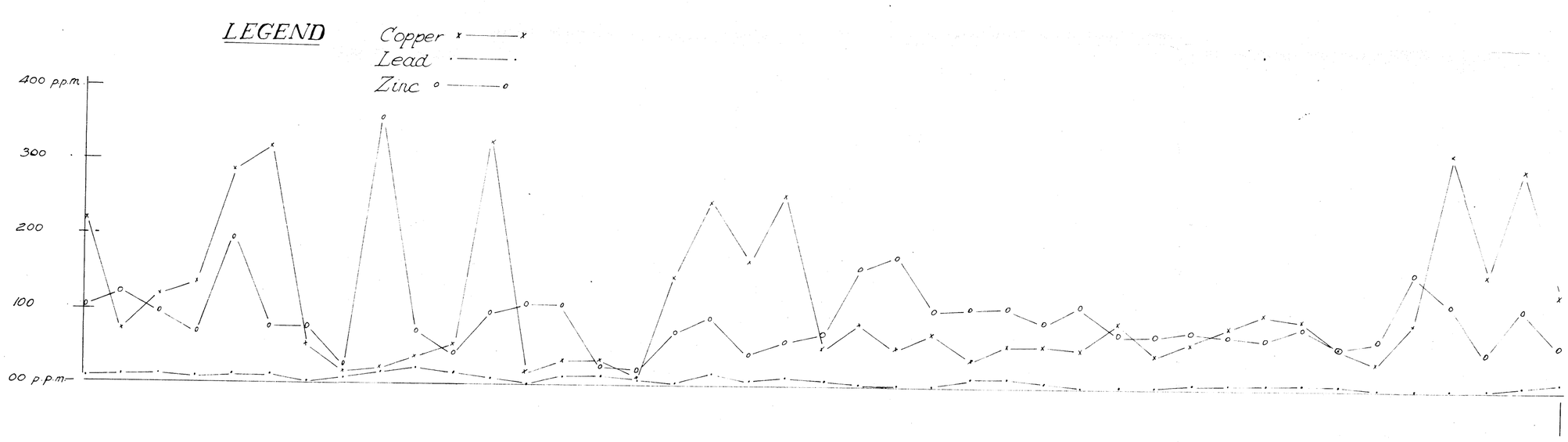
(iv) Quartz float

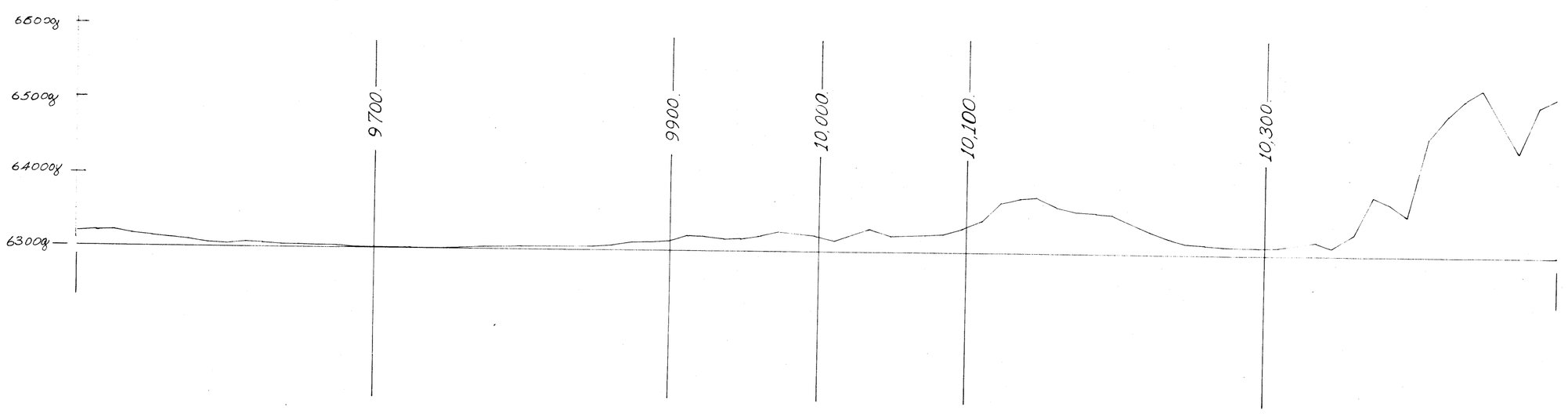
236118

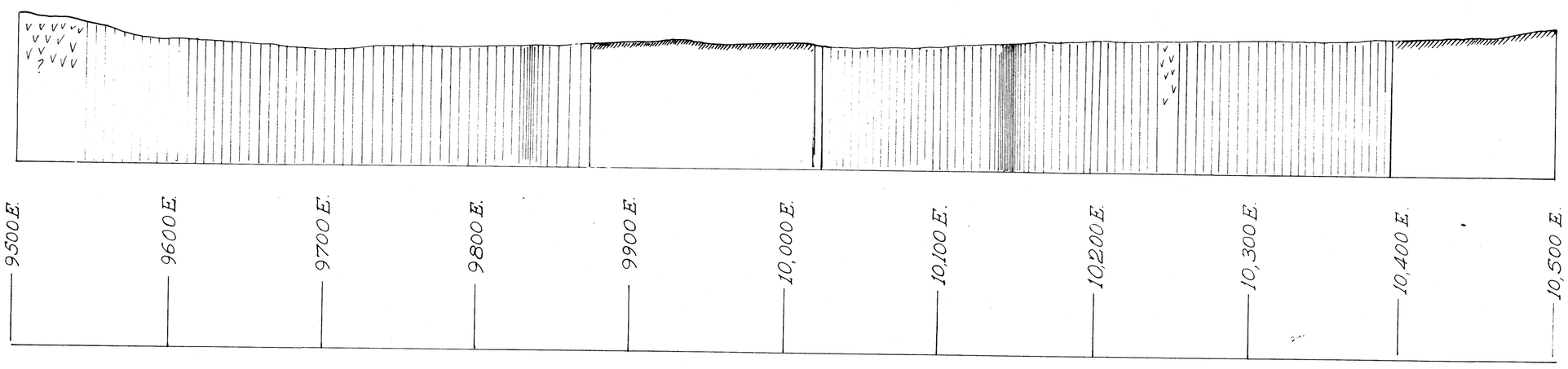
Vegetation Eucalyptus dominant with rain forest understory — Teetree, Banksia, Baera, cut grass thicket.

GEOPEKO EXP. EL. 27-76	
Voyager 26 ~ GEOLOGY	
Date Feb '81	TS 27/76-V26-2
Compiled R.A.P.	
Drawn N.S.P.	423
Checked R.A.P.	

85-2329 (Vol 3)







50 0 50 100 150 200 Metres.

SCALE 1:2500.

5 cm

Grid lines 270° - 090° True.

KEY

Cambrian — phyllites, green/grey
black

basic, fine grained

clay soils over phyllites with basics & carbonates?

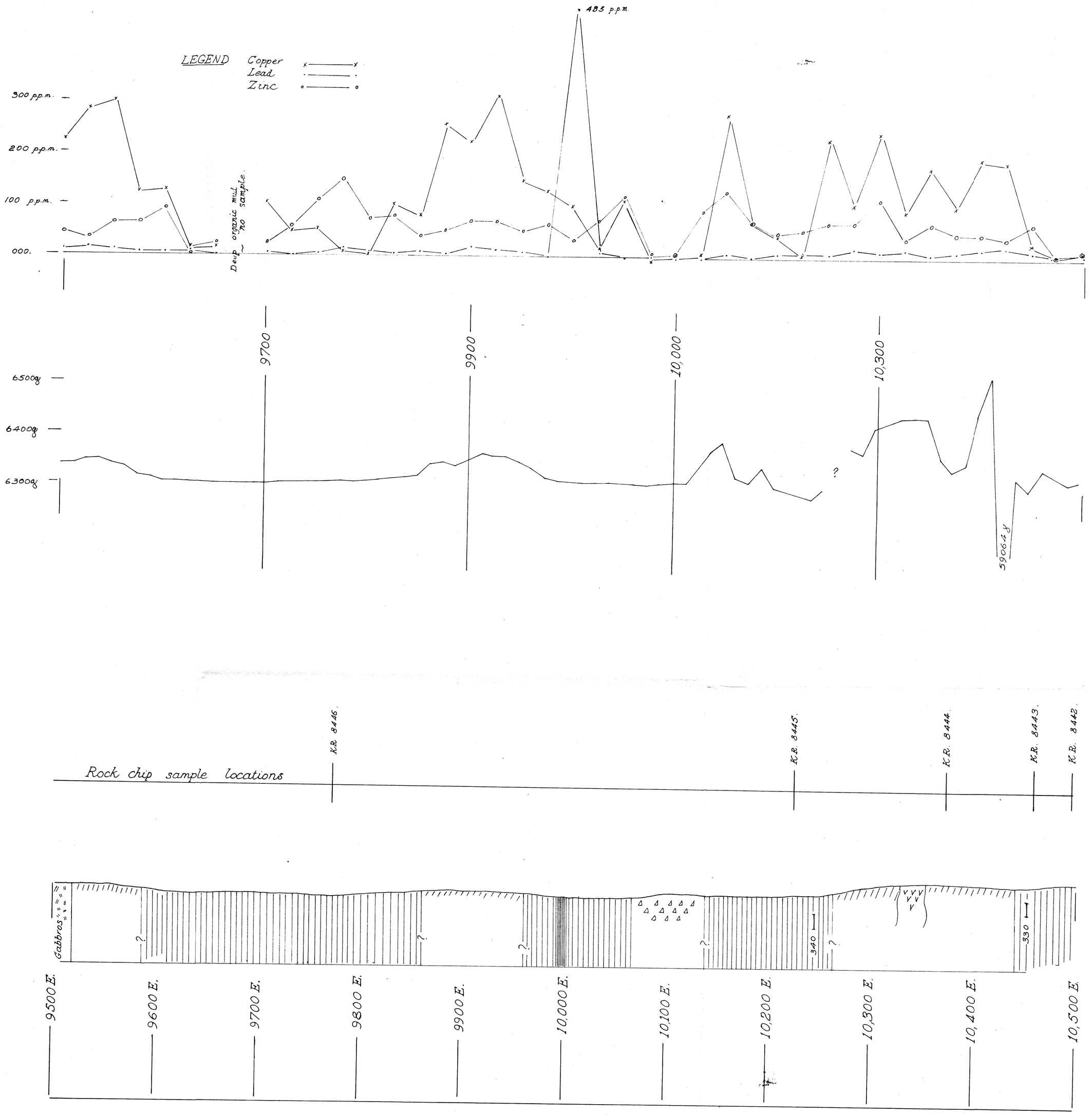
236119

GEOPEKO EXPLORATION E.L. 27/76

ELLIOTT BAY, TAS.
VOYAGER 26 GRID - Line 9200 North.

Date FEB. 1981.	TS 27/76-V26-3
Compiled R.A.P.	
Drawn N.S.P.	
Checked K.F.C.	430

85-2329 (V613).



KEY

CAMBRIAN Phyllites - green/grey

black

Basics - fine grained

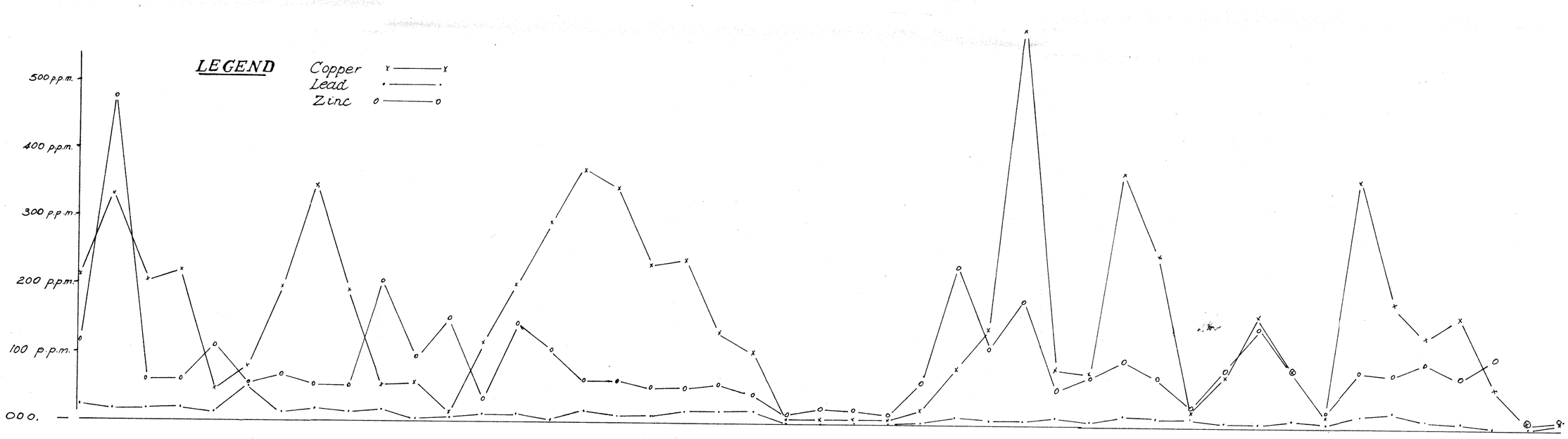
Clay soils over phyllites with basics & carbonates ?

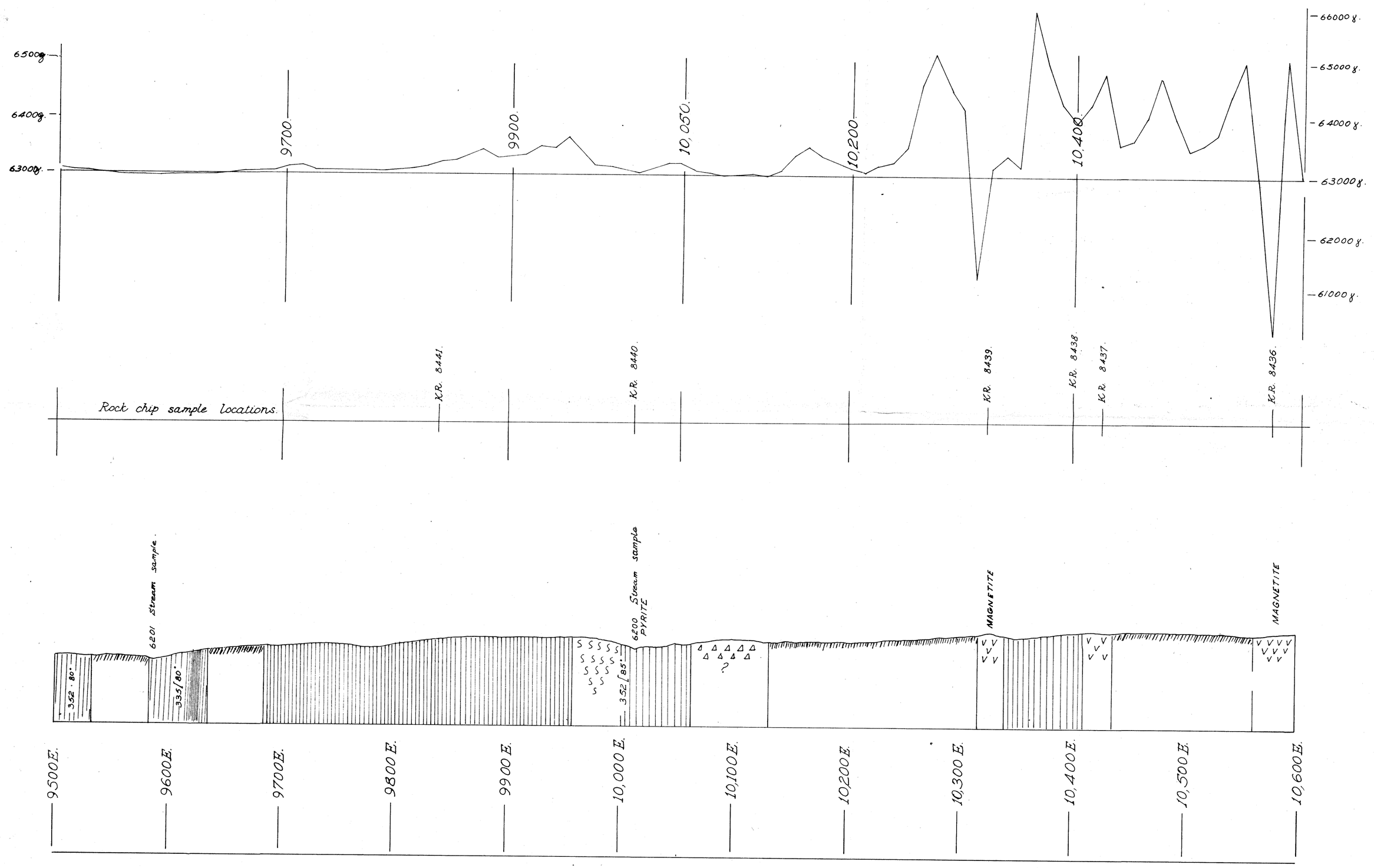
Quartz float.

236120

GEOPEKO EXPLORATION, E.L. 27/76	
ELLIOTT BAY, TAS.	
VOYAGER 26 GRID - Line 9600 North.	
Date FEB. 1981	TS 27/76-V26-4
Compiled R.A.P.	
Drawn N.S.P.	431
Checked R.A.P.	

85-2329 (Vol 3)





50 0 50 100 150 200 Metres.

SCALE 1:2500.

Grid lines 270°-090° True.

5 cm

KEY

CAMBRIAN
- Phyllites green/grey
- black
- Basics - fine grained volcanics
- Schists - talc?
- Clay soils over phyllites with basics & carbonates.
- Quartz float

236121

GEOPEKO EXPLORATION E.L. 27/76

ELLIOTT BAY, TAS.
VOYAGER 26 GRID - Line 10,000 North

Date FEB 1981.	TS 27/76-V26-5
Compiled R.A.P.	
Drawn N.S.P.	432
Checked R.A.P.	

85-2329 (Vol 3).