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GEOPEKO LIMITED

KING ISLAND

REPORT No. KI/74/5

FINAL REPORT ON THE MINERAL POTENTIAL

OF EXPLORATION LICENCE 20/73.

by

S. GRIEVE BROWN

KING ISLAND

JUNE, 1974.

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LIST OF PLANS

EL 20/73 Location Map.

E.L. 20/73 Geological Map. scale 1" to 1 mile ,

E.L. 20/73 Aeromagnetic Contour and Geological Plan. scale 1:25000 .

E.L. 20/73 Radiometric Contour Plan. scale 1:25000 .

Magnetic Anomaly 2 / Inv. 19 Geological Plan. scale 1:5000 .

Magnetic Anomaly 2 / Inv. 19 Geochemical Results Zinc. scale 1:5000 .

Magnetic Anomaly 2 / Inv. 19 Geochemical Results Lead. scale 1:5000 .

Total Geochemical Results. scale 1:5000 .

Reconnaissance Traverse Magnetic Anomaly 2. scale 1:10000 .

FOR COLOUR GEOLOGICAL PLAN SEE
DRAW IN ROOM FOLDER ?

INTRODUCTION

Exploration Licence 20/73 covers 18 square miles in the Whistler Point area of north west King Island. This Licence was granted to King Island Scheelite on the 25th of November 1973 and was left to expire on the 24th of April 1974.

The licence area has previously been held by Naracoopa Rutile Limited under E.L. 14/66 and subsequently by Bassmin under both E.L's 54/70 and 11/72.

The area was secured by King Island Scheelite to gain tenure over Magnetic Anomaly 2, and the western portion of the Investigator 19 Lead-Zinc prospect which is located near the western boundary of E.L. 5/69.

The geology and evaluation of the Investigator 19 lead zinc prospect will be reported on in the final report on E.L. 5/69.

This report details the work carried out by the Company within this Exploration Licence and provides an assessment of its economic potential.

SUMMARY

The assessment of the mineral potential of Exploration Licence 20/73 has involved the following exploration methods.

- Base map compilation from aerial photographs scale 1:12000.
- Regional photo controlled geological mapping at an approximate scale 1:12000.
- An airborne radiometric and aeromagnetic survey over a portion of the E.L.
- Ground magnetic traverses over magnetic anomaly No. 2.
- Bedrock geochemical / geological sampling across magnetic anomaly 2 consisting of 166.11 metres of auger drilling in 11 holes.
- Detailed bedrock geochemical / geological sampling on the western extension of the Investigator 19 grid consisting of 86.86 metres of auger drilling in 9 holes.

From geological and geochemical work in the Investigator 19 / Magnetic anomaly 2 area there is good evidence to assume that the olivine basalt plug within the E.L. is not associated with the lead/zinc mineralization in E.L. 5/69.

There is no field evidence for suitable host rocks occurring within the licence area and no anomalous values were obtained from geochemical sampling.

CONCLUSIONS

1. The mineralization associated with the Investigator 19 lead-zinc prospect does not extend westward into E.L. 20/73, nor does it appear associated with the olivine basalt plug (magnetic anomaly No. 2).
2. From bedrock soil geochemistry, the olivine basalt plug at magnetic anomaly 2 does not appear to have any associated mineralization.
3. Geologically the environment in the licence area appears unfavourable for mineral deposits. The granite and mica schists encountered in the field can not be expected to be good host rocks for mineralization. It is therefore considered unlikely that any economically significant mineralization will occur within the licence area.
4. The West Coast Granitic Complex is thought unlikely to be a source for tin mineralization. This follows from a study undertaken by Gresham and Cottam 1971.
5. Minor heavy minerals are known to be present in the overlying sands but testing by Naracoopa Rutile Limited, when the area was held under E.L. 14/66, failed to prove any economic pockets. However the details of that exploration programme are not known to Geopeko Limited.

RECOMMENDATIONS

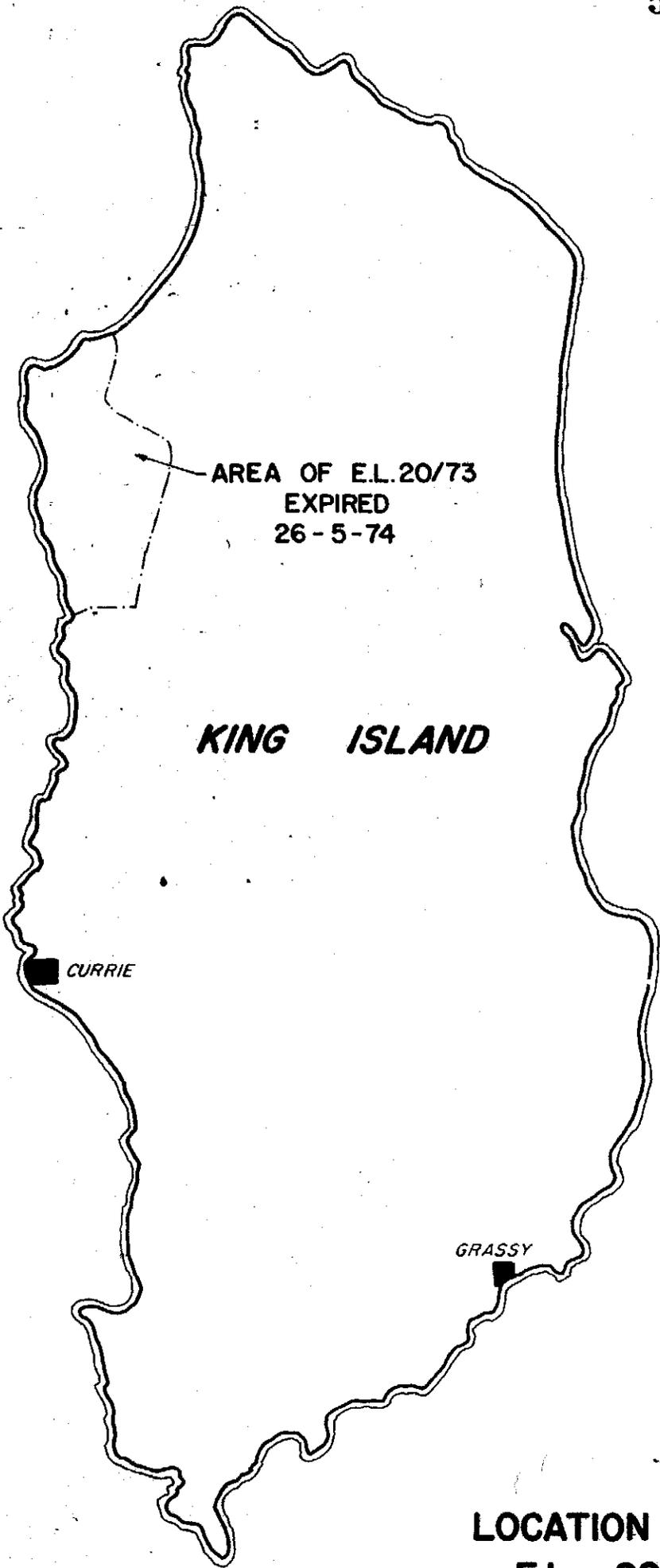
1. It is recommended that no further work be carried out on the Exploration Licence and that it be left to expire.

ACTION SHEET

Exploration Licence 20/73 was relinquished on the
26th May 1974.

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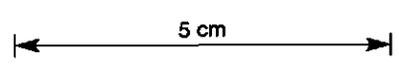
AREA OF E.L. 20/73
EXPIRED
26-5-74

KING ISLAND

CURRIE

GRASSY

**LOCATION MAP
E.L. 20/73**



GEOPHYSICS

During February 1973 an airborne radiometric and magnetic survey of the areas held by King Island Scheelite was carried out by Canadian Aero Services for Geopeko Limited. The survey which overflowed the edges of the area covered by E.L. 20/73 (then held by Bassmin) located an intense magnetic anomaly (Anomaly 2) lying in the extreme south east. After the Company was granted E.L. 20/73 a ground magnetometer survey was carried out to locate the anomaly which was subsequently shown to be an intense magnetic high, circular in shape, with a peak of 2150 gammas.

Auger drilling proved the source to be due to a magnetite rich olivine basalt plug.

GEOLOGY

Geological mapping was carried out on an approximate scale of 1:12000 on photo controlled regional base maps obtained from 1967 aerial photos using the slotted template method of photo laydown. The entire licence area is covered by 2 of these sheets.

Apart from a narrow coastal section very little structural information is available due to the almost complete lack of outcrop in the interior. Thick sand cover with marked recent dunal development close to the coast is present over a large part of the Exploration Licence. Calcrete and consolidated sand layers are present in some areas.

The dominant rock type through-out is the West Coast Granite with minor amounts of mica schists occurring in the extreme east.

The West Coast Granite consists of a series of granitic rocks, namely adamellites, granodiorite, and porphyritic biotite granite as well as granitized sediments and is known locally as the West Coast Granitic Complex.

The granite is well exposed in outcrops along the whole length of the coastline within the licence and is usually weakly foliated, light grey medium grained and is composed principally of granular quartz and feldspar. Lenticular xenoliths of basic material commonly occur within the granite.

Thin sections made of these rocks show evidence of deformation in the undulose extinction of quartz and the bending of micas. The age is considered to be Precambrian with 715 million years regarded as the minimum age of emplacement based on potassium argon dating of the micas in the granites (McDougall and Leggo).

The mica schists are (presumed) Precambrian schists consisting of quartz-muscovite-chlorite assemblages derived by greenschist facies metamorphism of a fine grained silty quartz sandstone. Since these rocks are not exposed in outcrop and are only encountered in auger drill holes their structure is not known. There is some evidence, from inspection of the aeromagnetic contours, that these rocks strike approximately north - south and dip steeply to the east.

011

The olivine basalt plug (magnetic anomaly No. 2) of presumed Tertiary age is intruded into granite and consists of fine serpentized olivine crystals in a matrix of microcrystalline pyroxene, hornblende, volcanic glass and clouds of dispersed magnetite.

Recent fossiliferous limestone and ironstained (limonitic) consolidated sands occur as layers within the dunes.

ECONOMIC GEOLOGY

There is no known economic mineralization within the licence area. Minor Pb / Zn mineralization associated with quartz veins occurs in E.L. 5/69 adjacent to the E.L. boundary in the south east. This occurrence (Investigator 19) is described in the final report on E.L. 5/69.

Visible galena and sphalerite occur in quartz veins transecting the mica schists (as seen in auger cuttings) and it is considered that the mineralization is probably derived from the syngenetic sulphides occurring within the mica schists themselves. Petrographic examination of a thin section of the mica schist show traces of sphalerite and galena as well as pyrite confined to a single layer about 15 mm wide. No disruption of the layer is visible and there is no evidence that the sulphides have been introduced.

The low geochemical values for Pb and Zn encountered in the mica schist and the lack of any suitable host rocks make it unlikely that this occurrence possesses any economic significance.

Bedrock geochemical sampling of the olivine basalt and the surrounding contact granite was carried out by auger drilling (11 holes, 166.11 metres of drilling) with no significant values being recorded for any of the elements assayed (Pb, Zn, Cu, Co, Ni, Cr, V and As).

Considerable attention was given to the possibility that the mineralization at Investigator 19 may be associated with the olivine basalt plug which occurs in close proximity. It was reasoned that if this was the case the mineral potential of the contact areas of the other basalt plugs in northern King Island would be considerably increased.

Auger drilling to the west of Investigator 19 showed a very rapid drop-off in anomalous Pb / Zn values away from the contact between the mica schists and the granite. The anomalous Pb / Zn values appeared to be confined to a particular unit in the mica schists, a chlorite muscovite zone. No anomalous geochemical trends were recorded in the granite and it is considered that the mineralization at Investigator 19 is derived from within the mica schist unit and is in no way related to the olivine basalt plug intruded into the granite at magnetic anomaly 2.

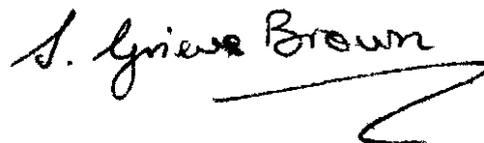
013

Similar results were obtained from the basalt plugs tested elsewhere in the north of the Island and it is concluded that these plugs have no associated mineralization.

In 1971 an assessment of the tin bearing potential of the King Island granites was carried out, by J. J. Gresham and P. Cottam, which concluded that the West Coast granites were geochemically outside the parameters obtained by analysis of most of the tin bearing granites of the world.

Although Geopeko Limited has not carried out any testing of the dunal areas for heavy mineral deposits, the licence area was previously held by Naracoopa Rutile Limited (E.L. 14/66) for four years and auger drilling for beach sands comprised the majority of the work undertaken. This programme failed to locate an economic deposit, however it is possible that minor pockets of heavy minerals may exist within the area.

GEOPEKO LIMITED



S. Grieve Brown
GEOLOGIST.

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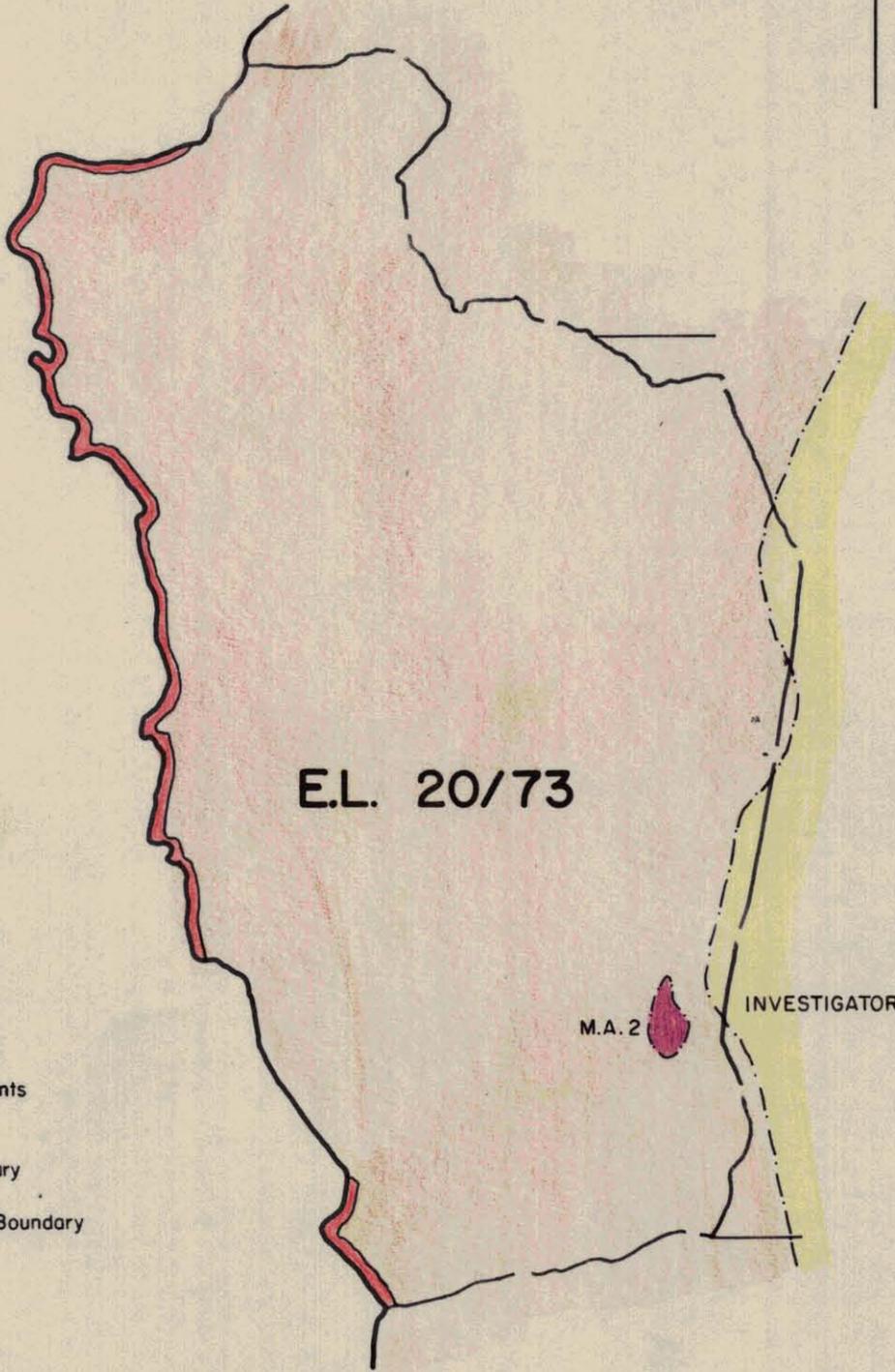
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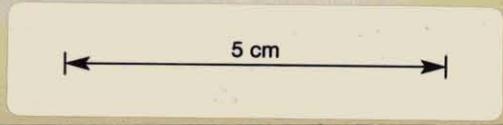
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- LEGEND**
-  Basalt
 -  Granite
 -  Metasediments
 -  E.L. Boundary
 -  Geological Boundary

**E.L. 20/73
GEOLOGICAL INTERPRETATION MAP**

SCALE 1" = 1 mile





**MAGNETIC CONTOUR PLAN
SHOWING LOCATION OF AUGER DRILL HOLES**

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- Percussion Drill Hole
- Gemco Hole
- Roads
- Boundary E.L.
- Boundaries of areas covered by larger scale maps

FLIGHT ALTITUDE 92 METRES
 FLIGHT INTERVAL 200 METRES
 CONTOUR INTERVAL 5 GAMMAS
 TOTAL MAGNETIC INTENSITY TOTAL COUNT
 INTEGRATED CO-ORD SYSTEM MARCH - MAY 1973
 A.S.C. PROJECT NO. 7502

3	3
2	2
1	1

AIRBORNE GEOPHYSICAL SURVEY
 KING ISLAND
 TASMANIA
 GEDPEKO LIMITED
 TOTAL MAGNETIC INTENSITY
 REGIONAL FIELD REMOVED
 SCALE 1:25,000
 KILOMETRES
 0 1 2 3
 0 500 1000
 0 500 1000
 74-1027
 DRAWN AND COMPILED BY GERO SERVICE (AUSTRALIA) LTD
 CANBERRA, N.S.W.

2301



39 365
39 405
39 445
39 485

142 00E
142 30E
143 00E
143 30E
144 00E
144 30E
144 60E

FLIGHT ALTITUDE 92 METRES
 TRAVERSE 200 METRES TIE LINE 4 KILOMETRES
 CONTOUR INTERVAL 5 GAMMAS
 TOTAL MAGNETIC INTENSITY 25 GCS
 TOTAL COUNT
 PROJECTION INTEGRATED CO-ORD SYSTEM
 SURVEYED AND COMPILED MARCH - MAY 1973
 A.S.C. PROJECT NO. 7502



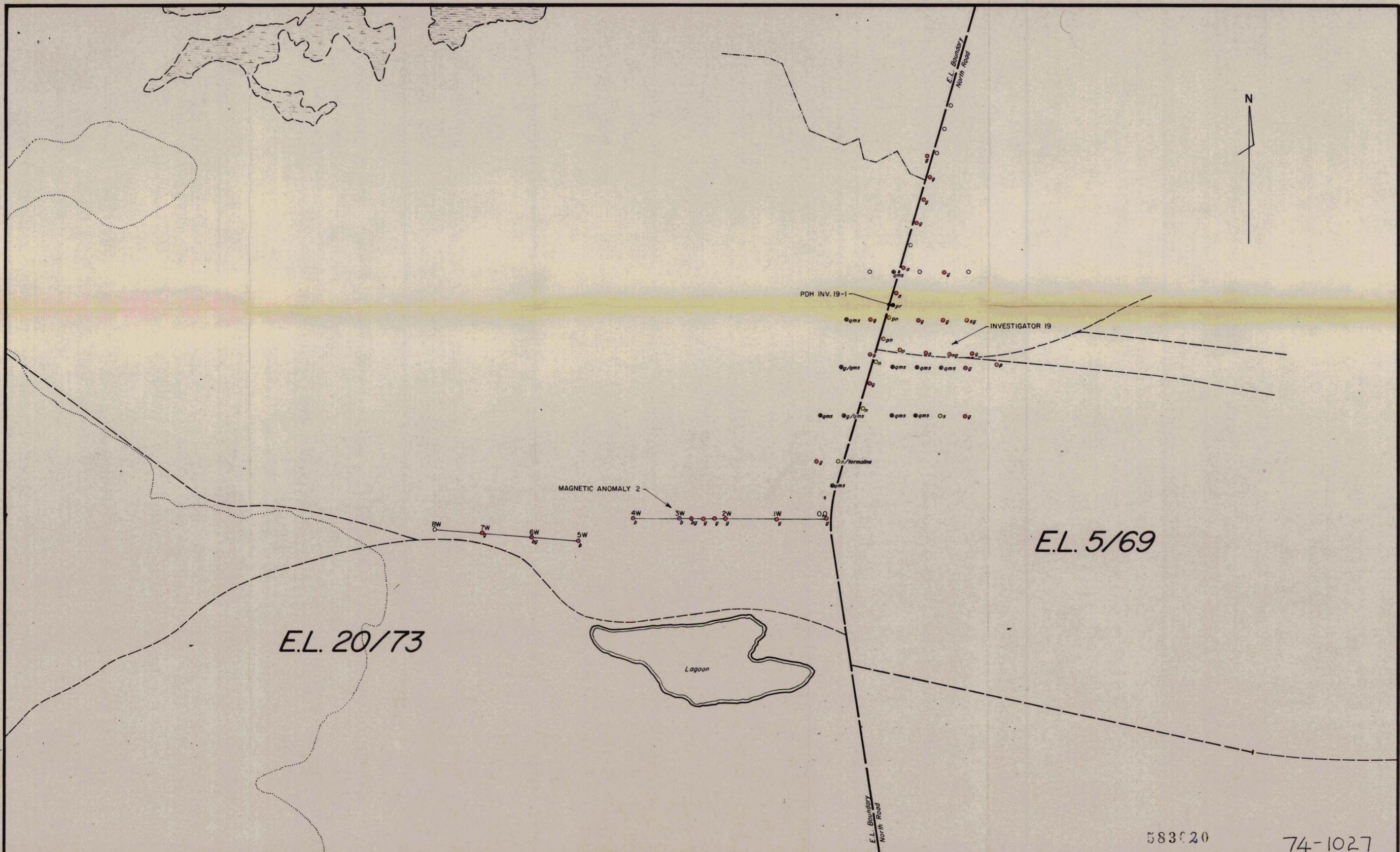
AIRBORNE GEOPHYSICAL SURVEY 74-1027
 KING ISLAND
 TASMANIA
 GEOPEKO LIMITED
 TOTAL COUNT



FLOWN AND COMPILED BY AERO SERVICE (AUSTRALIA) PTY LTD
 CANBERRA, N.S.W.

2300

583019
 05/9 2300



E.L. 20/73

E.L. 5/69

MAGNETIC ANOMALY 2

PDH INV. 19-1

INVESTIGATOR 19

Lagoon

8W 7W 6W 5W

4W 3W 2W 1W 0W

583020

74-1027

LEGEND:

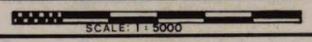
- Swamp
- Road - E.L. Boundary
- Road
- Track
- Drain
- Edge of Sand Dunes

- qms Quartz mica schist
- r Mica schist
- s Siliceous chert
- b Basalt
- n Quartz
- g Granite
- a Aplite
- p Pegmatite



DATE: NOV. 1973
 GEOLOGIST: S.G.B.
 DRAWN: K.D.
 CHECKED: M.C.R.

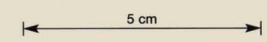
GEOPEKO LIMITED
 KING ISLAND GROUP

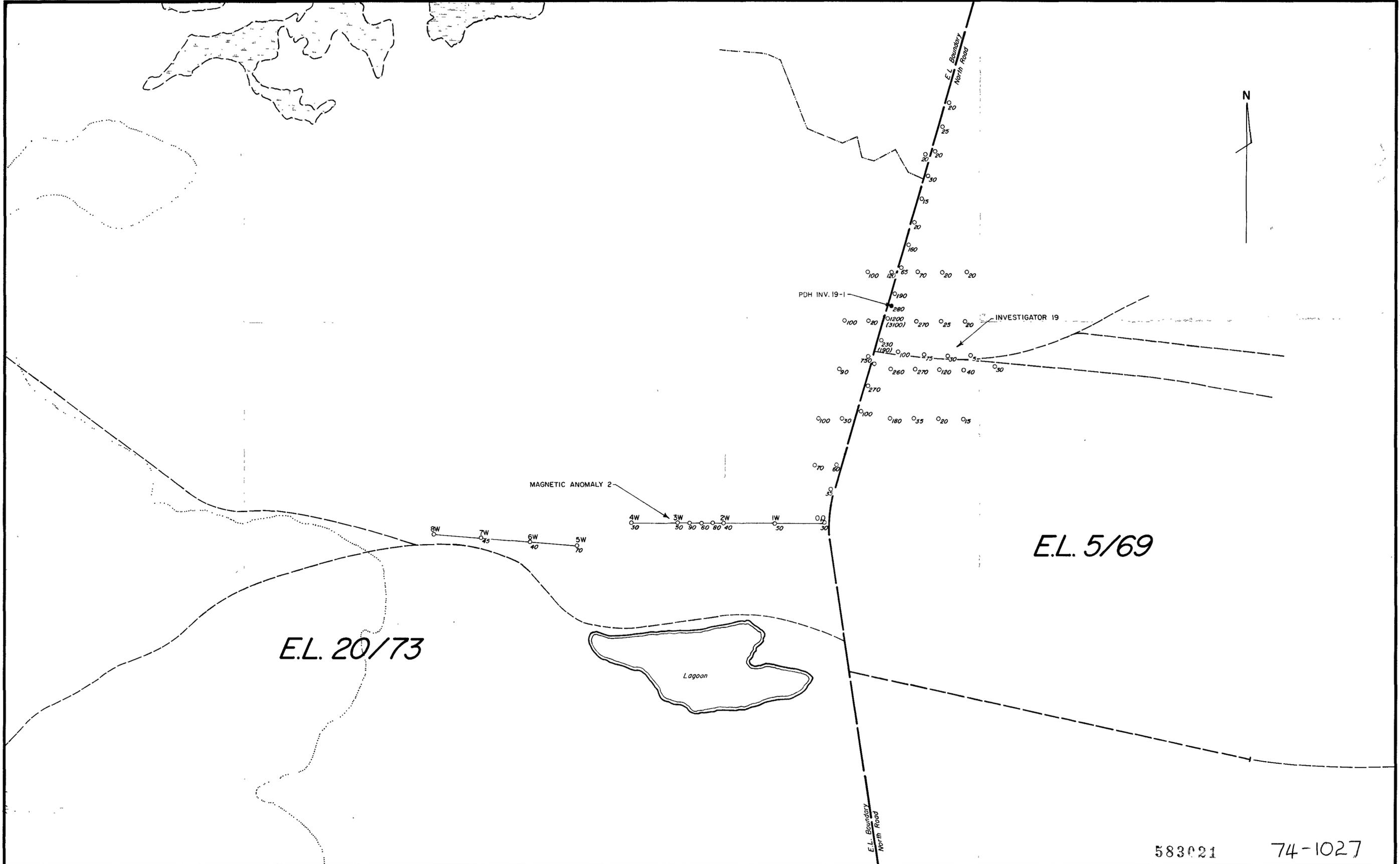


No. KI-19-8

INVESTIGATOR 19
 E.L. 5/69 and E.L. 20/73 2302
 GEOLOGY

05/9





E.L. 20/73

E.L. 5/69

Lagoon

MAGNETIC ANOMALY 2

PDH INV. 19-1

INVESTIGATOR 19

N

LEGEND:

- Swamp
- Road - E.L. Boundary
- Road
- Track
- Drain
- Edge of Sand Dunes

- Zinc (ppm)
- 0-20
 - 21-40
 - 41-60
 - 61-120
 - 121-180
 - > 180
 - (1200) Repeat Assay

DATE NOV. 1973
 GEOLOGIST: S.G.B.
 DRAWN: K.D.
 CHECKED: M.C.R.

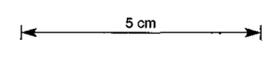
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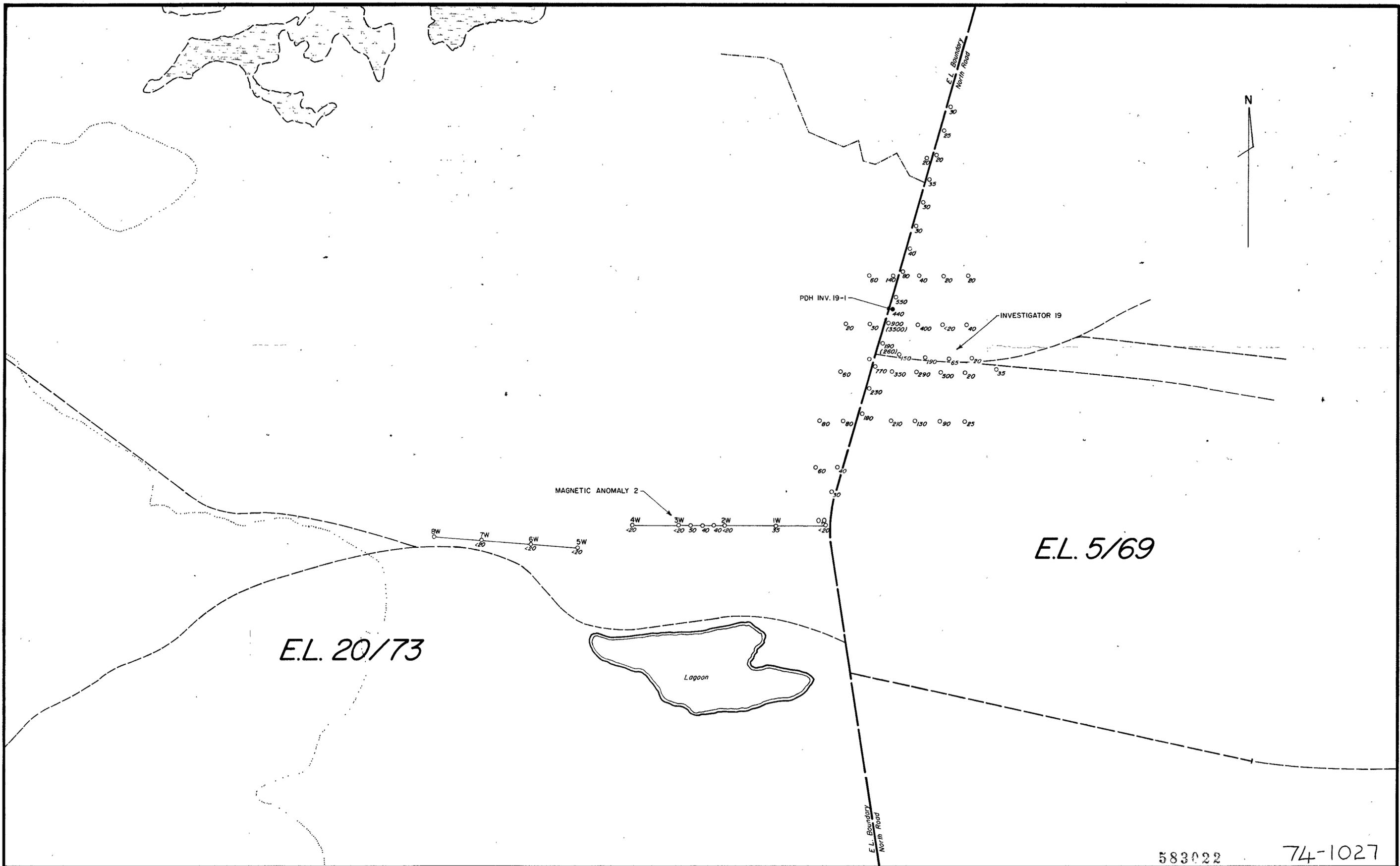
GEOPEKO LIMITED
 KING ISLAND GROUP

SCALE 1:5000 No. KI-19-6

INVESTIGATOR 19
 E.L. 5/69 and E.L. 20/73 2303
 ZINC GEOCHEMISTRY

Q5/9





E.L. 20/73

E.L. 5/69

Lagoon

LEGEND:

	Swamp	○ < 20	Lead (ppm)
	Road - E.L. Boundary	○ 20 - 40	
	Road	○ 41 - 80	
	Track	○ 81 - 120	
	Drain	○ 121 - 160	
	Edge of Sand Dunes	○ > 160	
		○ (1200) Repeat Assay	

DATE NOV 1973
GEOLOGIST. SGB.
DRAWN K.D.
CHECKED M.C.R.

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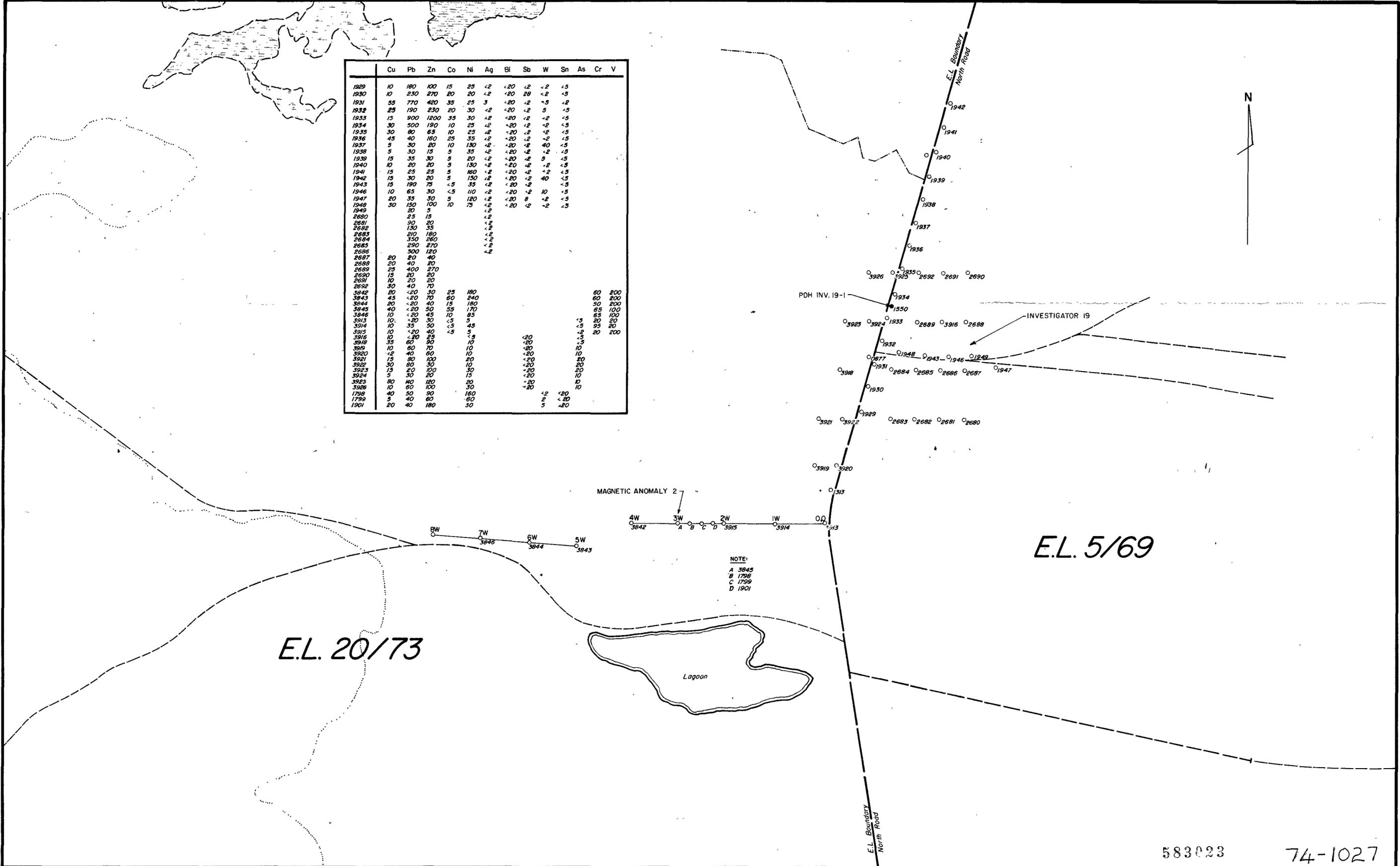
GEOPEKO LIMITED
KING ISLAND GROUP

SCALE 1:5000 No. KI-19-7

INVESTIGATOR 19
E.L. 5/69 and E.L. 20/73 2304
LEAD GEOCHEMISTRY 95/9

5 cm

	Cu	Pb	Zn	Co	Ni	Ag	Bi	Sb	W	Sn	As	Cr	V
1929	10	180	100	15	25	<2	<20	<2	<2	<5			
1930	10	230	270	20	20	<2	<20	28	<2	<5			
1931	55	770	420	35	25	3	<20	<2	<5	<2			
1932	25	190	230	20	30	<2	<20	<2	5	<5			
1933	15	900	1200	35	30	<2	<20	<2	<2	<5			
1934	30	500	190	10	25	<2	<20	<2	<2	<5			
1935	30	80	65	10	25	<2	<20	<2	<2	<5			
1936	45	40	160	25	35	<2	<20	<2	<2	<5			
1937	5	30	20	10	130	<2	<20	<2	40	<5			
1938	5	30	15	5	35	<2	<20	<2	<2	<5			
1939	15	35	30	5	20	<2	<20	<2	5	<5			
1940	10	20	20	5	130	<2	<20	<2	<2	<5			
1941	15	25	25	5	160	<2	<20	<2	<2	<5			
1942	15	30	20	5	150	<2	<20	<2	40	<5			
1943	15	190	75	<5	35	<2	<20	<2	<2	<5			
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1947	20	35	30	5	120	<2	<20	8	<2	<5			
1948	30	130	100	10	75	<2	<20	<2	<2	<5			
1949		20	5			<2							
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2681		30	20			<2							
2682		130	35			<2							
2683		210	180			<2							
2684		350	260			<2							
2685		290	270			<2							
2686		300	120			<2							
2687	20	20	40										
2688	20	40	20										
2689	25	400	270										
2690	15	25	25										
2691	10	20	20										
2692	30	40	70										
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3846	10	<20	45	10	85					65	100		
3913	10	<20	30	<5	5					20	20		
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3918	35	60	50		10					<5			
3919	10	80	70		10					10			
3920	<2	40	60		10					10			
3921	15	80	100		20					20			
3922	30	80	30		10					20			
3923	15	20	100		30					20			
3924	5	30	20		15					10			
3925	80	40	120		20					10			
3926	10	60	100		30					10			
1798	40	50	90		180					<2	<20		
1799	5	40	60		<60					2	<20		
1901	20	40	180		30					5	<20		



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GEOPEKO LIMITED
KING ISLAND GROUP
No. KI-19-9

INVESTIGATOR 19
E.L. 5/69 and E.L. 20/73 2305
TOTAL GEOCHEMISTRY

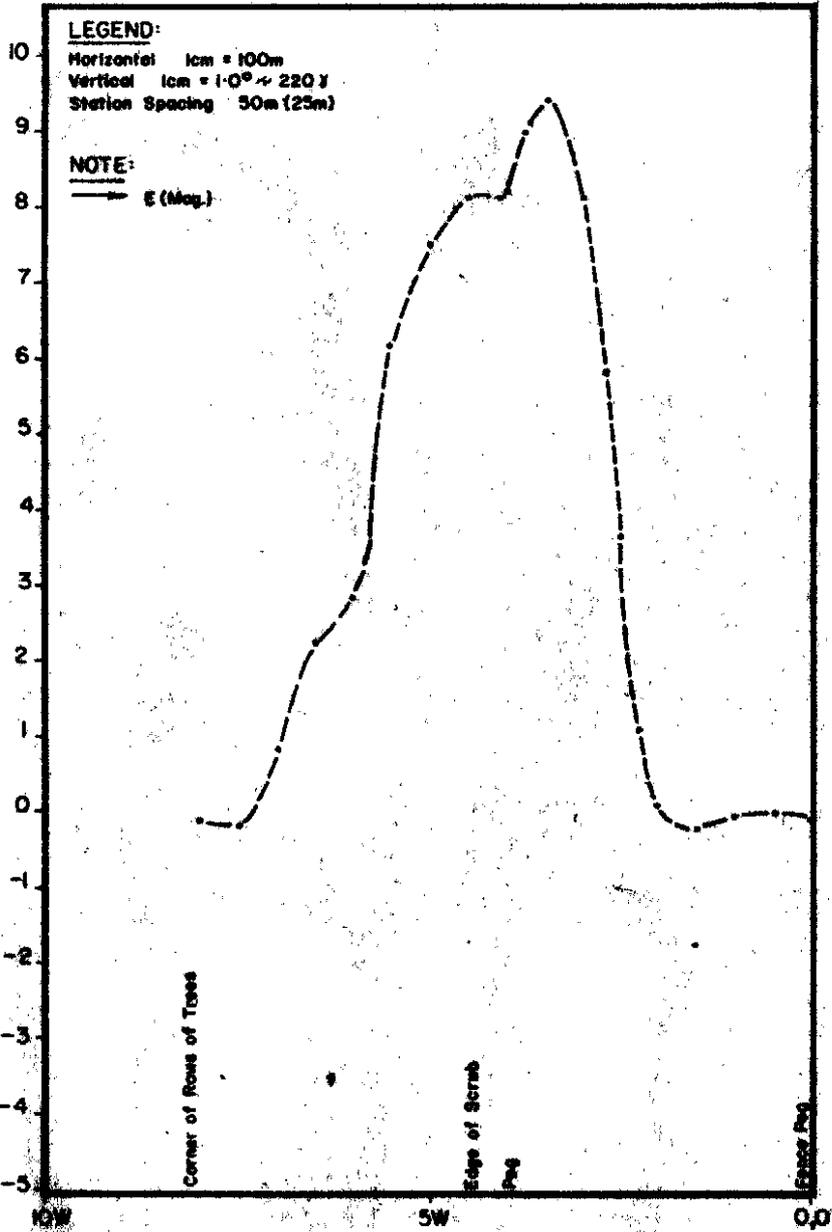
DATE NOV 1973
GEOLOGIST S.G.B.
DRAWN K.D.
CHECKED M.C.R.

SCALE 1:5000

5 cm

LEGEND:
 Swamp
 Road - E.L. Boundary
 Road
 Track
 Drain
 Edge of Sand Dunes

05/9



**RECONNAISSANCE TRAVERSE
 MAGNETIC ANOMALY 2**

5 cm

583024