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GEOPEKO LIMITED

KING ISLAND

REPORT No. KI/75/3

**OPEN FILE**

PROGRESS REPORT ON THE EXPLORATION  
OF THE GRASSY GRANITE CONTACT ZONE

by

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**MICROFILMED**

KING ISLAND

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Topographical base map showing Drill Hole Location and Interpreted Geology.

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INTRODUCTION

The Grassy Granite, together with its contact environment, covers an area of approximately 68sq.km. in the extreme south east of King Island. Geologically the area consists of a sequence of pelitic and calcareous sediments of Cambrian age overlain by volcanics, the whole sequence being intruded a granitic stock of assumed Devonian age.

The area of interest is held by King Island Scheelite Limited under Exploration Licence 15.66, covering 100sq.km, which includes a series of Mineral Leases around the actual zone.

Prior to the acquisition of K.I.S. Ltd by Peko-Wallsend Ltd, exploration had been concentrated in two areas, Investigator 6 and Investigator 2. In addition to auger drilling of these areas a total of 18 diamond drill holes were completed. (3 at Investigator 2, 12 at Investigator 6 and 3 scout holes).

Geopeko Limited initially concentrated its efforts on No.3 O/B, and the area around the Bold Head granite. Also there was conducted a large regional exploration programme through out the island, with some additional work being carried out at Investigator 6.

Between 1971 and the end of 1972 exploration of the Grassy granite contact was accelerated with one gemco rig operating full time in this area. A number of 'C' horizon tungsten anomalies were located and diamond drilled. Arising from this work the following problems were encountered:-  
A thick volcanic cover was found to mask the underlying mine series rocks in some areas.  
Strong soil geochemical anomalies were shown to have as their source thin garnet horizons with only minor mineralization.  
Detrital scheelite was shown to be present in the overlying sands thus throwing into doubt the validity of the results of some of the geochemical soil sampling.

To overcome these problems, and taking into account the extent of the granite contact (about 11km) to be tested, it was decided to carry out a percussion drilling programme preceded by auger drilling to delineate the mine series. The percussion drilling consisted of a series of 30 scout holes at 200m intervals.

Five main areas of interest were encountered, although minor scheelite was intersected in many holes. These were Investigators 2, 21, 23, 24 and 3.

The Grassy granite contact zone has been divided into a series of prospects based on geology and geochemistry. Initially the contact was split into 3 broad areas which have been subsequently further divided on the basis of auger drilling and percussion drilling results.

The areas are designated in sequence from the south as follows:-

- |                     |   |
|---------------------|---|
| Southern E.L. 15/66 | From the south coast to the southern limit of the consolidated lease at Millers' Block.   |
| Investigator 24     | The southern portion of Millers' Block Lease No.'s 469 P/M and 471 P/M covering the area around percussion drill hole 50 (tungsten mineralization).   |
| Investigator 2      | The northern portion of Millers' Block Lease No.'s 470 P/M and 472 P/M covering the areas round the 'C' horizon tungsten geochemical anomaly and percussion drill hole 5.                       |
| Investigator 21     | The southern portion of Merritts' block (G22) covering the area round the percussion drill holes 7 and 33. (tungsten mineralization).   |
| Investigator 22     | The northern portion of Merritts' Block (G22) covering the areas round the 'C' horizon tungsten geochemical anomaly.  |
| Investigator 3      | Morris's Block (G8) and the western portion of Perry's Block (G9) covering the 'C' horizon tungsten geochemical anomaly and the mineralization intersected in percussion drill holes 20 and 21. |
| Investigator 23     | The eastern portion of Perry's Block (G9) covering the areas around percussion drill holes 24 and 25 (tungsten mineralization).   |
| Investigator 18     | The area lying between the Loop Road and the Wharf Road and surrounding diamond drill hole INV. 6-4 which intersected scheelite mineralization at depth.  |
| Investigator 6      | The area between the Wharf Road and the Open Cut. Covers a number of 'C' horizon geochemical anomalies.   |
| Northern Contact    | The area north of 565500 N approximately. This covers the long northern arm of volcanics.   |

SUMMARY

In December 1971 an auger drilling programme was commenced on Integrated Survey Grid in the Investigator 3 area and later extended to cover the whole contact area. Two areas of anomalous C horizon tungsten values were delineated (Investigators 3 and 6/4).

Diamond drilling in the areas of the 'C' horizon geochemical anomalies showed the anomalies to be due to concentration of scheelite in the weathered profile. The source of the scheelite was thinly banded calcite garnet pyroxene hornfels containing minor amounts of scheelite.

In March 1973 a percussion drilling programme consisting of 30 holes was commenced to test the distribution and mineralization of the mine series rocks within the Grassy granite contact aureole from southern Investigator 2 in the south to Investigator 6 in the east.

Percussion drilling was undertaken to overcome two main problems, the thick volcanic cover adjacent to the granite and the strong C'horizon geochemical anomalies caused by weathering of thin mineralized beds.

Drilling was carried out at 200m intervals with the aim location a resource of open cut potential and of a similar size to No.1 or No.2 orebodies. No.1 orebody has a strike length of approximately 500m.

The holes averaged 91.76m in depth, the rigs capacity being 164.59m, and were successful in testing the upper portion of the mine series sequence between Investigator 24 - Investigator 3 and in Investigator 6 west.

A total of 6 areas of significant scheelite mineralization were located by the percussion drill. Diamond drilling at Investigator 21 has shown that the mine series sequence is thicker than originally interpreted from field mapping. Detailed auger drilling of this area had not been carried out prior to the percussion drilling programme and the area is one of very sparse outcrop.

The following geological points have been obtained from the exploration to date:-

- The stratigraphy of the mine series varies considerably round the granite contact.
- Thick marble beds occur at various locations within the mine series sequence.

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- Podded units are known to occur at Investigators 21 and 2. From their relative positions within the lower mine series it is probable that these were not intersected in the percussion drill holes.
  - The Investigator 21 mineral body occurs in an area where a definite shelf is present in the granite contact.
  - It is now possible to delineate a number of major faults around the granite contact, as at Investigators 24 and 3.
  - Spotted hornfelsed pelitic sediments similar to the underlying siltstone and shale sequence have been shown to occur within the upper volcanics.
  - The area of magnetic 'low' within the Grassy granite is interpreted as being due to a concentration of quartz feldspar porphyry dykes within the granite.
  - In some areas (Investigators 24, 3 and 18) the occurrence of mineralization appears to be related to faults.

Significant mineralization was encountered at Investigators 24, 2, 21, 22, 3 and 23, which were, with the exception of Investigator 21, shown by follow up diamond drilling to be due to thin (<1m) bands of mineralized garnet skarn occurring within finely banded units.

At Investigator 21 a small W, Mo deposit was located within the upper mine series. In this area the strike is approximately north-south and the mine series dip east at about 20°. This deposit contains a probable resource of 200,000 tonnes at 0.47% WO<sub>3</sub> and 0.14% Mo.

Although no drilling was carried out specifically to test the Investigator 18 mineralization percussion holes 25 - 29 showed that a thick volcanic cover is present throughout.

A programme for further exploration of the granite contact is presented. This programme involves:-

- |                          |  |
|--------------------------|--|
| Detailed gravity surveys | - To locate further shelves in the granite contact, similar to that occurring at Investigator 2. (Prior to percussion drilling).   |
| Detailed auger drilling  | - To define the base of the mine series and delineate faults. (Prior to percussion drilling).  |
| Diamond drilling         | - To define stratigraphy in southern E.L. 15/66 and western INV. 3 area, and to test the podded units in the lower mine series at Investigator 21. (Prior to percussion drilling). |

- Percussion drilling - To test southern E.L. 15/66 and the lower mine series rocks in the area of known geology. Location of holes may vary depending on the results of the above sections.
- Additional diamond drilling - Drilling of two precollar diamond drill holes to test the extent of the mineralization encountered at Investigator 18.

CONCLUSIONS

- 1) Geologically the Grassy and Bold Head contact aureoles are the most favourable areas for economic scheelite deposition encountered on King Island.
- 2) Mine series rocks occur in all areas of the Grassy Granite contact as far south as 561500N (south Investigator 24), and possibly occur further south under extensive sand deposits.
- 3) Throughout the entire contact area the mine series rocks dip in towards the granite at angles varying from  $20^{\circ}$  -  $35^{\circ}$ .
- 4) Anomalous tungsten concentrations occur in various carbonate rich horizons within the mine series.
- 5) Faulting on all scales is common within the contact aureole and in some areas (Investigator 3) is thought to have major control on mineral deposition.
- 6) Localization of mineralization in the Grassy granite aureole appears to be due to 3 main factors:-
  - a) Suitable host rocks, carbonate rich mine series rocks. (especially podded varieties).
  - b) Faulting as at Investigators 3, 18 and 24 and at Bold Head Orebody.
  - c) Shelf like structures in the granite contact as at Investigator 21 and Bold Head Orebody.
- 7) A small deposit of scheelite (Probable Resource' 200,000 tonnes at 0.47%  $WO_3$  and 0.14% Mo) occurs at Investigator 21.
- 8) The 1973 - 74 scout percussion drilling programme, while defining the distribution of mine series around the contact zone has tested only the upper portion of the mine series.
- 9) As shown by follow up drilling at Investigator 21 a thick disturbed carbonate rich horizon lies within the mine series below the portion tested by the scout percussion drilling programme. This horizon could logically be expected to occur in a similar position at Investigators 2, 22 and 24.
- 10) No large near surface resource of scheelite or molybdenite occurs in the Grassy granite contact aureole west of No.1 O/B.
- 11) The work carried out to date has indicated that ore grade mineralization can occur within the mine series rocks. The lower portion of these rocks has not been satisfactorily tested.
- 12) The results of the follow up diamond drilling programme have shown that percussion drilling is an extremely sensitive method of testing for scheelite mineralization within the Grassy Granite contact aureole.

RECOMMENDATIONS

- 1) It is recommended that further exploration is carried out around the Grassy granite contact to test the lower portions of the mine series sequence, especially in the eastern contact area where potential host rocks are known to occur.
- 2) That a detailed precision gravity survey be undertaken on traverses over the contact zone to locate, if possible, shelves or cusps in the granite contact.
- 3) The auger drilling programme be continued to define in detail; the mine series/quartzite boundary in the Eastern area, and the distribution of mine series in the Northern contact and Investigator 23 area. Faulting to be located as accurately as possible. This programme along with recommendation number 4 should be carried out during the winter, and will provide definitive information for percussion drilling in the summer.
- 4) Diamond drilling of three drill holes as below:-
  - a. One stratigraphic hole to determine the geology of that portion of Southern E.L. 15/66 in which mine series are suspected.  
Location:- approximately 560900N 213400E.  
Depth :- 200 metres.
  - b. One hole at 213750E on the Investigator 21 base line to test for mineralization in the potential host rocks of the lower mine series adjacent to the granite contact.  
Location:- 563000N 213750E.  
Depth :- 200 metres.
  - c. One stratigraphic hole to determine the mine series sequence and quartzite boundary in the western INV.3 area.  
Location:- north of P.D.H. 19. 564600N 215200E.  
Depth :- 150m approximately.
- 5) That a second percussion drilling programme carried out by a truck mounted rig capable of drilling to about 250m. The percussion holes be located as follows:-
 

|                     |     |         |         |
|---------------------|-----|---------|---------|
| Southern E.L. 15/66 | (1) | 559600N | 213400E |
|                     | (2) | 560200N | 213700E |
|                     | (3) | 561300N | 213500E |
| Investigator 24     | (1) | 561800N | 213500E |
|                     | (2) | 562200N | 213500E |
| Investigator 2      |     | 562600N | 213600E |

|                 |     |         |         |
|-----------------|-----|---------|---------|
| Investigator 22 | (1) | 563500N | 213950E |
|                 | (2) | 564000N | 214300E |
| Investigator 3  | (1) | 564400N | 214700E |
|                 | (2) | 564700N | 215150E |
| Investigator 23 |     | 565000N | 216100E |
| Investigator 18 |     | 564900N | 217600E |

This is a total of 12 P.D.H.'s.

- 6) The location of the 12 P.D.H.'s to be altered depending on the results of the following:-
- (a) gravity surveys - for cusps in the contact.
  - (b) auger drilling - for mine series contacts and major fault locations.
  - (c) diamond drilling - for stratigraphy as to most favourable host rocks and definition of the podded carbonate units.
- 7) Two precollared D.D.H.'s be drilled to test the extent of mineralization intersected in D.D.H. INV. 6-4. (194 - 203m, 8m @ 0.56%  $WO_3$ ) at INV. 18.

ACTION SHEET

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### EXPLORATION HISTORY

Various attempts have been made to explore the contact environment of the Grassy granite since the discovery of scheelite on the beach at Grassy Bay in 1910. Until 1953 the majority of the work consisted of various gouges, adits and pits around the contact by various prospectors, with three short diamond drill holes being completed in the Forestry block (INV.18) by K.I.S. in 1947. Between 1953 and 1955 a total of 15 diamond drill holes were completed by K.I.S. in two areas of interest (Investigator 2 and 6) before difficulties of tenure caused a cessation of exploration.

In 1968 following a recommendation by P.J. Anthony (Senior geologist K.I.S.) diamond drilling recommenced within the contact area with holes being drilled in the Investigators 3, 6, 18 and Tank Hill areas as well as at Bold Head. Drilling around the Grassy granite area ceased in August 1968 during the drilling of D.D.H. 220 to allow detailed diamond drilling of the mineralization encountered at Bold Head (No.3 O/B).

Geochemical sampling was continued in two areas of the contact (Investigators 2 and 6) where mine series rocks had been recognized during the regional mapping programme. Reports were presented by W. Arendt and N.R. Kinnane on these areas covering all work up to 1968.

Further geochemical sampling was carried out in the Investigator 6 area to define the tungsten geochemical anomalies encountered in that area and a total of 189 auger holes were drilled (138 by hand auger). This work together with a proposal for diamond drilling was detailed in a report by J.J. Gresham in November 1970. The diamond drilling proposed was carried out in 1971 with no mineralization being encountered.

In 1971 an auger drilling programme was initiated on Integrated Survey Grid in the Investigator 3 area. This survey was extended in 1972 to cover the entire granite contact from the Wharf Road to the southern limit of Millers' block. At the same time auger drilling was carried out to the east of the Wharf Road in the Investigator 6 area, on old mine grid, to complete the definition of this prospect. Following the acquisition of the area south of Millers' block in 1973 the drilling was extended to cover the whole contact area. The auger drilling was commenced with a series of wide spaced lines across the contact zone and provided a broad definition of the geology within the Grassy granite contact aureole.

'C' horizon geochemical sampling carried out with this auger drilling programme defined two areas of anomalous tungsten and molybdenum associated with mine series rocks. These were located at Investigator 3 (1830ppm W and 80ppm Mo peak value) and Investigator 6 (anomaly 4, 4150ppm W and 1250ppm Mo peak value).

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Diamond drilling of these anomalies was carried out between June and December 1972 with three holes being drilled in each prospect. Although all drill holes intersected mine series rocks with significant marble horizons it was shown that the source of the 'C' horizon anomalies was in both cases, thin (3m) pyroxene garnet skarn horizons containing minor mineralization.

As a result of the diamond drilling it was evident that simple bedrock auger drilling followed by diamond drilling of the anomalous areas was not a suitable method for testing such a large area of mine series, especially when it was considered that orebodies could exist within the mine series without having any surface geochemical expression. This is due to the fact that the mineralization occurs within limestone horizons as part of a replacement skarn phenomenon and this may only occur in the deeper portions of the limestones nearer the granite while only unreplaced marble occurs in outcrop.

Also previous work had shown that throughout very large areas of the contact a thick unconformable cover of volcanics overlies the mine series allowing only a very minor part of the sequence to outcrop. Attempts to drill through the volcanics using auger drill rig met with little success.

For these reasons a less expensive method of sampling which retained a high degree of precision was required to test the mine series, and rotary percussion drilling was considered to fulfil the necessary requirements.

A programme of scout rotary percussion drilling was carried out between March 1973 and March 1974. This programme consisted of a series of 30 percussion drill holes spaced at 200m intervals around the granite contact.

The holes outlined the geology and structure of the rocks in the Grassy granite aureole much more closely than had been obtained by surface mapping (largely float mapping) and auger drilling. A number of holes intersected scheelite mineralization, values over 100ppm being regarded as significant, and in a number of cases this mineralization was clearly related to previously defined 'C' horizon anomalies.

The areas with significant scheelite mineralization were followed up by precollared diamond drilling to obtain representative samples of the mineralized horizons. This follow up work was carried out at 50m spacing round the initial percussion hole on the assumption that if the mineralization did not extend at least 50m laterally it was of insufficient extent to comprise an economic deposit.

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The follow up diamond drilling consisted of twenty diamond drill holes located in areas where percussion drilling encountered mineralization. With the exception of Investigators 21 and 24 the mineralization was shown to be minor and restricted to thin garnet bands (up to 10-50cm) in banded biotite pyroxene garnet calcite hornfels units.

Of the twenty holes, two were drilled at Investigator 24, two at Investigator 2, nine at Investigator 21, one at Investigator 22, three at Investigator 3 and three at Investigator 23.

The diamond drilling at Investigator 21 defined a mineralized garnet skarn horizon with an estimated ('probable') resource of 200,000 at 0.47% WO<sub>3</sub> and 0.14% Mo.

Summary of exploration to date:

- a) Base map compilation on I.S.G. from aerial photographs. scale 1:5000 & 1:12000.
- b) Regional photo controlled geological mapping at approximate scales of 1:12000 and 1:5000.
- c) A regional 'C' horizon geochemical soil sampling programme consisting of 335 gemco holes totalling 2019.4m of drilling.
- d) Detailed bedrock geochemical soil sampling on the Investigators 2, 3 and 6 grids.
- e) Diamond drilling of a total of 17 diamond drill holes at Investigator 6 (1952/3 - 12, 1970 - 2, 1972/3 - 3).
- f) Diamond drilling of 3 diamond drill holes at Investigator 2 (1952/3).
- g) Diamond drilling of 4 diamond drill holes at Investigator 3 (1968 - 1, 1972/3 - 3).
- h) Diamond drilling of 5 diamond drill holes at Investigator 18 (1947 - 3, 1968 - 1, 1972/3 - 1).
- i) Diamond drilling of 1 scout diamond drill hole at Tank Hill (1952/53).
- j) Scout rotary percussion drilling consisting of 62 holes around the contact aureole between Investigator 2 and Investigator 6.
- k) Scout diamond drilling of 3 precollared drill holes close to the granite to test for deeply buried mine series.
- l) Follow up diamond drilling of areas of mineralization located by the scout percussion drilling programme:- Investigator 24 - two holes, Investigator 2 - two holes, Investigator 21 - nine holes, Investigator 22 - one hole, Investigator 3 - three holes and Investigator 23 - three holes.

GEOPHYSICS

During 1973 a low level airborne aeromagnetic survey was carried out over south east King Island for King Island Scheelite (1947) Ltd. This survey delineated both the Grassy and Bold Head granites, the volcanics and also the Grassy River fault.

The area was also covered by the airborne magnetic and radiometric survey carried out over most of King Island in February 1973 by Canadian Aero Services on behalf of Geopeko Limited.

No meaningful results were obtained from the radiometric survey.

The 1973 magnetic survey located three additional anomalies, (anomalies 7, 10 and 12) two of which were interpreted as possible granite rocks and ground magnetic traverses were carried out to locate these anomalies.

Magnetic anomaly No.7 is a moderate sized ovoid shaped magnetic high the source of which is interpreted by L.A. Richardson as occurring at a shallow depth. The majority of the anomaly lies off the south coast at Red Hut. The landward part of the high has been located by ground magnetic traverses and diamond drilling of this anomaly should be completed this financial year.

The anomaly lies close to the inferred location of the mine series rocks in this area.

Magnetic anomaly No.10 is a broad circular shaped magnetic high the source of which is interpreted to occur at a moderate depth. This anomaly is located within the underlying siltstones and shales about 1600m north of the granite contact. Auger drilling and percussion drilling encountered only pyritic siltstones and shales, interpreted as belonging to the underlying Siltstone - Quartzite Group.

Magnetic Anomaly No.12 is an elongate magnetic low which occurs as a wedge driven into the Grassy granite from the south west. Auger drilling and percussion drilling of this area encountered Grassy granite and quartz feldspar porphyry. The magnetic low is thought to be due to a concentration of these quartz feldspar porphyries within the granite.

Ground magnetics have been carried out over most of the prospects round the granite aureole. Ground magnetics are a suitable tool for locating the volcanic contacts and have been used in Investigator 6 to delineate faults where these offset the volcanics.

A series of test lines of gravity have been carried out over the granite contact using both barometer and survey control for the levels. This is being evaluated at present but it would appear that barometer control is unsuitable on King Island due to the large fluctuations caused by the wind gusts. It should be noted here that this survey was carried out under the best weather conditions obtainable on King Island.

Dependent on the results of the traverse along the levelled line at Investigator 21 it is possible that further gravity work may be carried out along surveyed and levelled lines to define the sub-surface shape of the granite contact.

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GEOCHEMISTRY

Geochemical sampling has been one of the main exploration tools employed on the Grassy granite contact, with varying success.

Although since 1971 only bedrock 'C' horizon geochemical sampling has been carried out quite considerable amounts of hand augering was done over the Investigator 6 area prior to that date.

A large percentage of the data obtained from the hand auger programme in this area is of dubious value due to two major factors. The Investigator 6 area has dunal sand cover of varying depth and only a percentage of hand augering was successful in penetrating this cover. The dunal sands contain significant amounts of detrital scheelite grains and other heavy minerals which when encountered in auger drilling can give spurious anomalies.

Geochemical results obtained from the jacro/gemco drilling programme when taken en masse can be used, on the basis of their zinc and copper results, to distinguish between weathered mine series and quartzites.

Used in conjunction with the rock chips, and information from diamond drilling, 'C' horizon geochemistry has enabled a broad outline of the geology to be made.

This 'C' zone geochemistry defined a series of anomalies (Investigators 2, 3, 6/4 and 22) which have been tested by diamond and percussion drilling. In all cases these anomalies were due to concentration of scheelite in the weathered profile of a lightly mineralized pyroxene garnet calcite horizon.

Investigator 21 a mineralized body containing a 'probable' ore resource of 200,000 tonnes at 0.47%  $WO_3$  gave a 'C' zone geochemical anomaly of only 100 ppm W, much less than the ones described above where peak values of 250, 1830, 4150 and 1260 ppm W respectively were recorded. This is due to the fact that the mineral body at Investigator 21 does not reach the surface, only the unreplaced marble does.

When compared to the original geochemistry results from the Bold Head (Investigator 1) area it is apparent that if 'A' lens had not sub outcropped to give the high geochemical reading then it is possible that the values of up to 100 ppm W obtained above 'B' lens might have been disregarded in favour of the Investigator 2 area where values of 250 ppm were present.

A series of trial surveys were carried out over the Investigator 3, 6 and 21 areas to determine the suitability of biogeochemistry in this area.

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The results of these trials were not encouraging due to the fact that only young shallow rooted ti-tree is found in areas of intensive farming. The areas of gum and wattle tend to be the areas of dunal sand and this sand contains concentrations of scheelite in its heavy mineral fraction.

## GEOLOGY

### 1) Regional Geology

The Grassy Granite and its associated metamorphic aureole lie in the extreme south east of King Island within a thick sequence of Precamborian Siltstones and shales.

The siltstones and shales which, form the higher south eastern portion of the island, have a dominant north south strike and generally dip to the east. At least three fold axis are known to occur in this unit.

Overlying these rocks is a thin (approximately 200m) sequence of dolomitic siltstones, shales and tilloid, the Grassy Group. This sequence which has been tentatively correlated with the early Cambrian or late Proterozoic Carbine Group at Dundas and the Smithton and Jane dolomites on the Tasmanian Mainland. The 'mine series' rocks consisting of contact metamorphosed and metasomatized carbonate rich sediments are assumed, on the basis of present evidence, to be the lateral equivalents of the Grassy Group.

The mine series rocks, and the lateral equivalents, are overlain by a thick (+2500m) volcanic sequence of picritic and spilitic lavas, tuffs and agglomerates with interbedded pelitic sediments. This sequence becomes more pelitic and less volcanic rich to the south west.

The sediments were intruded during late Devonian - early Carboniferous times by two granitic bodies, the Grassy Granodiorite and the Bold Head Adamellite. These two bodies have been tentatively correlated with the tin/tungsten bearing granites of the Aberfoyle and Story's Creek district of Tasmania.

The granites and surrounding sediments are intruded by a series of quartz feldspar porphyries which are probably late stage activity related to the granite emplacement.

### 2) The Contact Area

The rock types can be broken down into four broad units stratigraphically arranged as follows:-

- Upper Volcanics. A sequence of volcanics with interbedded pelitic sediments.
- Mine Series. Clastic and carbonate rocks with interbedded 'volcanic' horizons. These rocks are hornfelsed in proximity to the Grassy granite.
- Quartzites. Quartzites, spotted shales and siltstones frequently interbedded. The metamorphosed equivalents of the siltstone shale sequence.
- Granite. The above three units are bounded to the south and east by the Grassy Granodiorite.

### The Upper Volcanics

This unit contains a large variety of rock types of both volcanic and sedimentary origin. Although biotite quartz hornfels are present throughout, from No.1 orebody to the south coast, the sediments only become a major unit from the Investigator 3 area west and south. These sediments are in hand specimen very similar in appearance to the quartzites underlying the mine series even showing the typical spotted texture associated with these rocks.

In this section these two rock units can be differentiated by the presence of haematite in the sediments associated with the upper volcanics.

The upper volcanics lie unconformably on top of the mine series rocks and in some areas overlap onto the underlying quartzites.

In the south east of the contact aureole, that area originally held under E.L. 13/73 the biotite quartz hornfels becomes dominant and at the present time is interpreted as overlying the mine series which sub-outcrop much further west than is the case further north.

### The Mine Series

This unit can be broken down into two broad sections: The upper mine series, which are generally a finely bedded sequence, and the lower mine series which contains significant amounts of podded units and is more disturbed in appearance. However there is a lack of data about the lower mine series.

At least two marble horizons are known to occur in the mine series at Investigator 21 and Investigator 6.

It is difficult to correlate the mine series between percussion holes due partly to the effect of a series of faults which strike approximately at right angles to the granite contact. These are best defined at Investigator 6 where a series of faults have been interpreted from early diamond drilling results.

It would appear that some of these faults may have been contemporaneous with deposition of the mine series as the adjacent blocks appear stratigraphically different as in western Investigator 6 where large thicknesses of marble up to 30m, were encountered in a hole adjacent to a section in which the mine series is only 50m thick and contained only 10m of marble.

Scheelite and molybdenite mineralization is, with the exception of Investigator 18, confined to the mine series rocks and is localized within them in garnet rich horizons. These occur either as skarn horizons associated with the thicker marble beds or as narrow beds in banded biotite pyroxene garnet calcite horizons where the garnets form at the contact between the marble and pyroxene hornfels bands.

U23

Within the mine series a number of minor intrusive volcanic units occur. These are medium grained massive actinolite rocks which occur as sill like structures between the mine series horizons.

### Quartzites

This unit is the metamorphic equivalent of the Precambrian siltstone and shale sequence which forms the bulk of south east King Island.

In fresh core they comprise a sequence of pyrite rich light grey quartzites with some very fine grey black pyrite rich siltstone horizons.

The dominant spotted texture is most obvious in weathered rocks.

### The Granite

The Grassy Granite has intrusive relationships to the surrounding sediments and has been shown by age dating (McDougal and Leggo) to be of Lower Carboniferous age.

Examination of thin sections and chemical analysis has shown that this intrusion should be more correctly termed the Grassy granodiorite.

The Granodiorite is interpreted as the source of the tungsten mineralization in the metamorphosed calcareous rocks of the mine series and drilling in the centre of the granite itself has shown tungsten values up to 140 ppm W.

The dip of the granite contact although generally an outwards dip varies quite considerably and a shelving effect is known at Investigator 21 where the subsurface contact is roughly horizontal over a distance of about 150m.

A similar situation occurs at Bold Head mine and it is considered likely that it may be one of the causes of the occurrence of the mineral bodies at these points.

### Other Rock Types

Only two other rock types are encountered in the area.

The quartz feldspar porphyries, occur as long narrow dyke like bodies cutting both the sediments and the granite. These dykes appear, at least in some cases, to occur within fault zones probably by intrusion along existing lines of weakness.

The tertiary limestones, occur only in the south west where a thick cover of dunal material masks the rocks. This limestone commonly consists of recemented shell fragments.

Massive milky quartz is abundant as float in localized areas, (e.g. Investigator 24) and is in all probability derived from fault and joint fillings within the granite and the sediments.

Due to its resistance to weathering compared to the mine series rock it forms a higher percentage of the float in the area.

AUGER DRILLING

Auger drilling has been carried out extensively round the Grassy granite contact with varying success.

With the exception of some early hand auger drilling carried out at Investigator 6 all auger drilling has been with gemco or jacro rigs and has been bedrock drilling carried out with the dual purpose of providing rock chips for geological mapping as well as geochemical samples.

The early auger drilling was carried out over the Investigator 6 area on extensions of the old mine grid and in the eastern contact area on irregularly spaced east west lines controlled from aerial photographs

With the production of 1:5000 scale maps of the whole Grassy granite area on Integrated Survey Grid it was decided in 1971 to commence drilling on this grid system in the Investigator 3 area. This drilling was extended to a complete regional drilling programme in 1972 and survey control points and major base lines have been established throughout the contact area as required.

Drilling at Investigator 6 was continued on old mine grid and the position 218000E (I.S.G.) was taken as the change over point to I.S.G. grid. This line lies very close to the wharf road and has since been shown to coincide with a major fault which is the geological boundary of the Investigator 6 area.

A total of 840 holes (571~~m~~) have been drilled in the regional programme and a broad definition of the geology and geochemistry of the rock types around the Grassy granite have been obtained. The programme is continuing in areas where more detail is required and also in southern E.L. 15/66 to define the geology under the thick sand cover.

To date a total of 9 areas with anomalous geochemical tungsten values have been recorded within the mine series rocks by gemco auger drilling.

PERCUSSION DRILLING

The percussion drilling programme was carried out between March 1973 and March 1974 by Intairdrill (Australia) Pty using a Schramm KT42HA drill rig. The rig was truck mounted and was equipped with a 20ft tower and powered by two 250 p.s.i. compressors of 425 c.f.m. A third 250 p.s.i. compressor was used in the latter part of the programme. The rig was capable of moving over almost all of the area of interest under its own power. During winter, access was attained by using supplies of Marsden Matting (pierced steel planking) to lay a track over the more boggy areas.

The programme consisted of two distinct phases, the first of which consisted of a series of 31 scout holes drilled at 200m intervals around the granite contact from the grid co-ordinate 562000N in the south west to just east of the Wharf road in the east. Drilling was carried out within a 500m wide zone adjacent to the granite contact to delineate the geology and also to test for any viable near surface mineralization of possible open cut potential.

The scout drilling gave extremely good geological information which allowed division of the upper mine series into its major units and also located nine areas reporting small intersections of scheelite and molybdenite mineralization. It should be noted here that the rig was limited to a maximum depth of 540ft (164.59m) which restricted the portion of the mine series tested to only the uppermost horizons.

Careful logging of the rock chips has shown that it is possible to correlate broadly between most of the holes and a much better understanding of the geology and structure of the mine series has been obtained.

Initially it was proposed to follow up the scheelite mineralization intersected in the scout holes by percussion drilling at 50m intervals around the discovery hole. The follow up programme commenced with percussion hole No.7 (Investigator 21) as that was the best accessible site at that time of year, August, when ground conditions were extremely wet.

Although the first follow up percussion drill hole, No.32 drilled 50m south of P.D.H. No.7 did not encounter any mineralization, P.D.H. 33 drilled 50m east of No.7, encountered good scheelite and molybdenite over a width of 7m in andradite granite skarn. It was then obvious that diamond drilling of the intersection was required to provide accurate information on intersection width and grade and it was decided in future to precollar diamond drill holes to slightly above the anticipated mineral horizon using the percussion drill and to test the actual horizon with diamond drilling thus reducing the overall number of drill holes (percussion and diamond) to test the prospects.

The precollaring of diamond drill holes to test the mineralization at the various prospects was the second phase of the percussion drilling programme. Also included was the precollaring of stratigraphic diamond drill holes in areas where very thick volcanic cover was known to occur. Precollaring was of benefit in saving both time and cost as the diamond drill was able to commence drilling in hard rock without the necessity of casing and at the same time the diamond drill footage required was considerably reduced. (Details of this work are reported under the separate prospects).

The follow up diamond drilling has shown that percussion drilling is an extremely sensitive method of testing for scheelite mineralization as it was found that even very narrow mineralized horizons were located by this method of sampling. For geological information this method is, of course, less accurate than diamond drilling but sufficient detail is attained to enable a good geological picture to be produced with only a small number of stratigraphic diamond drill holes to provide the necessary structure and fine detail for correlation.

On completion, the various drilling programmes had shown that no major near surface tungsten deposit occurs within the upper mine series rocks of the contact aureole.

028

PROSPECTS

INVESTIGATOR 6

The Investigator 6 area (Western Mineralization) extends from the western end of No.1. Orebody to the Wharf Road, and constitutes the area previously known as Eastern Investigator 6.

Geologically the area consists of mine series rocks striking east-west and dipping south into the granite at angles of about 40° and overlain unconformably by varying thicknesses of upper volcanics. Underlying the mine series are the quartzites, the metamorphosed equivalent of the eastern siltstone and shale sequence. The whole area is transected by a number of north west-south east trending faults which displace the sequence in a north south direction.

This area which is a westward extension of the No.1. Orebody sequence, has been under examination since the 1940's and has been subjected to active exploration since 1953. Although only one percussion hole (P.D.H. 30) was drilled in the extreme west of this area a description of the work carried out to date is included here for the sake of completeness.

Work carried out till 1970 includes 14 diamond drill holes about 100 gemco auger holes and about 240 hand auger holes. The area is heavily timbered and very hilly. Gemco drilling was confined mainly to seven north south tracks cut by bulldozer.

Although a number of areas of anomalous tungsten were obtained from the auger drilling, the validity of much of the geochemical data obtained from hand augering is questioned as a large portion of the area is overlain by thick horizons of dunal sand which contain detrital scheelite. Detrital scheelite is common throughout the sand deposits of the island and values up to 1460ppm W have been obtained within such deposits.

Although most of the diamond drill holes at Investigator 6 intersected mine series rocks with large marble horizons, the only significant mineralization encountered was in D.D.H. 122 in the extreme west end of the open cut, and in the anomaly 4 area in the extreme west of this prospect.

Reports on the work carried out up to November 1970 have been presented by W. Ardennt (1969) and J.J. Gresham (1970).

029

Following on from the recommendations included in J.J. Greshams report in November 1970 two diamond drill holes D.D.H.'s INV. 6-1, 2 were drilled to test a tungsten geochemical anomaly No.2.

D.D.H.'s INV. 6-1 and 6-2 drilled to test anomaly 2 (peak 150ppm W) and its down dip extension encountered typical carbonate rich mine series with only minor mineralization. The highest value recorded being 0.34%  $WO_3$  between 85.50 and 86.00m in banded biotite pyroxene garnet hornfels (D.D.H. INV. 6-1). As the hole was drilled only 15.24m (50ft) south of the peak of anomaly 2 the mineralization is considered not to be related to the surface geochemical anomaly as this would imply a much greater dip in the area than was known to be the case. The most likely explanation for the anomaly is that it is derived from the heavy mineral portion of the sands. This is made even more likely since the anomaly was based on hand auger drilling.

D.D.H. INV. 6-2 drilled 106.68m (350ft) south of the first hole failed to intersect any significant mineralization, suggesting that the small band of mineralization encountered in the D.D.H. INV. 6-1 is of limited extent.

With the commencement of the regional auger drilling programme in 1972 a series of east-west lines were dozed (on old mine grid) through the ti-tree in the western portion of the grid and gemco auger drilling to bedrock was carried out. This programme of 'C' horizon geochemical sampling outlined a large area of anomalous tungsten and molybdenite values (peak 4150ppm W and 1250ppm Mo) occurring in garnet rich mine series (anomaly4).

Since the auger drilling had provided a good knowledge of the bedrock geology, and since this anomaly was the largest recorded outside of the Bold Head area, three diamond drill holes were proposed to test this occurrence (D.D.H. INV. 6/4, 2 and 3).

The D.D.H.'s holes were drilled between September and December 1972 and, although all intersected mine series rocks, only D.D.H. INV. 6/4-2 drilled close to the main anomaly encountered mineralization (41.50 - 42.00 0.5m @ 1.65%  $WO_3$  and 0.16% Mo). The mineralization occurs in a thin pyroxene garnet skarn directly overlying the quartzites and is considered certain to be the source of the geochemical anomaly.

Similar results were obtained from the drilling carried out at Investigator 3, where a 'C' horizon geochemical anomaly with a peak of 1830ppm W and 80ppm Mo was shown to be due to a thin pyroxene garnet skarn with minor mineralization (2m @ 0.14%  $WO_3$  and 0.10% Mo).

030

The geochemical results and follow up diamond drilling at Investigator 6 and 3 showed that some method of testing the mine series at depth on a regional scale was required in preference to the slow and expensive methods then in use. Hence the percussion drilling programme.

It is considered that sufficient exploration has been carried out in the Investigator 6 area to state that no economic resource occurs within the area.

**INVESTIGATOR 18**

This prospect, which lies in an area of very thick volcanic cover is contained within blocks G25 (Sartori's), G24 (Burgess) G23 (K.I.S.) and the Forestry Block (K.I.S.).

The geology of the area is only sparsely known due to the thick volcanic cover which overlaps onto the siltstones and shales for the most part.

Initial prospecting was carried out in the 1940's when traces of scheelite were found in the volcanics in the Forestry block area. The mineralization occurred in a narrow southeast-northwest striking zone. Shafts and adits were sunk into the volcanics but no significant mineralization was found.

In 1947 three short diamond drill holes were drilled along the line of adits by K.I.S. Limited but no mine series was intersected. It should be noted that neither the core nor the original drill logs for these holes (called A, B and C) are now available. The drill logs appearing in the 'Preliminary Report Investigator 6 Area' by W. Arendt, are transcripts of verbal reports made by the driller, seven years after they were drilled.

One further diamond drill hole D.D.H. 220 was commenced to the west of the mineralized zone but this hole was terminated at a depth of 126.5m in volcanics when diamond drilling at Bold Head intersected the ore horizons, thus shifting the priorities.

It was not until 1972 that any further work was carried out in this area when D.D.H. INV. 6-4 was drilled. This hole cored a deep series of disturbed and apparently remobilized volcanics with some irregular horizons of mine series between. Mineralization was present both in the volcanics, as large scheelite crystals, and in the mine series rocks, as finely disseminated scheelite grains. An intersection of 3m at 0.52%  $WO_3$  and 0.01% Mo was recorded between 194.0m and 202.0m.

The lower part of the hole from 273.7m to 336.2m was drilled through a fine grained aplite containing large amounts of pyrite.

It is considered that the mineralization tested in all the above programmes is restricted to a narrow zone of disturbed volcanics and mine series, within a major fault zone running north west - south east, sub parallel to the Grassy River fault. East of this fault zone at about 217300E a second apparent fault zone is, intruded by quartz feldspar porphyry. This fault has an upthrow to the east to expose a thin strip of mine series from under the volcanic cover.

It is probable that undisturbed mine series occur at depth under the volcanics on either side of the fault zone near D.D.H. 6-4. It is possible that any mine series occurring in this area will be mineralized and would be the source for the mineralization in the fault zone.

Five scout percussion drill holes and two scout diamond drill holes (precollared) were drilled in this area during the percussion drilling programme (P.D.H. 25, 26, 27, 28 and 29 and D.D.H.'s E.L. 15/66 and 15/66-3).

The percussion holes showed a thick volcanic cover. In the western portion this completely masks the mine series and overlaps onto the underlying quartzites while in the east mine series was intersected at the base of P.D.H. 27 at 158.5m (520'). It was not possible to test the mine series further as the maximum depth of the rig was 164.5m (540'). In the extreme east of the INV. 18 area the granite occurs further north and in P.D.H. 29 at 217350 E volcanics were shown to directly overlie granite at a depth of 123m (420').

The eastern boundary of Investigator 18 is marked by a major fault which must displace both the volcanics and the granite as P.D.H. 30 drilled at Investigator 6, just 150m east, and on the same northing as P.D.H. 29 encountered only 63.5m of volcanics overlying a thick carbonate mine series sequence, in excess of 100m thick.

Two scout diamond drill holes D.D.H. E.L. 15/66-1 and 3 were drilled in the eastern portion of Investigator 18 in late 1973 - early 1974.

D.D.H. E.L. 15/66-1 drilled at 564450 N, was precollared to 158.83m and intersected upper volcanics with minor quartz feldspar porphyry before entering granite at 265.01m.

This hole showed the dip of the granite contact to be much shallower than previously thought and for this reason the second scout diamond drill hole was located at 564700 N, and closer to P.D.H. 27 which had intersected mine series at depth.

D.D.H. E.L. 15/66-2 was precollared to 152.4m and intersected a sequence of upper volcanics and hornfelsed upper pelitic sediments to 213.5m at which point the hole was suspended. This hole is expected to be completed during the current financial year.

From the above it can be seen that although there is a lack of data on the occurrence of the mine series in Investigator 18 there are at present two areas of potential: the fault zone where 3m @ 0.52%  $WO_3$  was intersected in D.D.H. INV. 6-4, and the eastern sector where carbonate rich mine series rocks were encountered in P.D.H. 27. Testing of the eastern area will be carried out by continuing D.D.H. E.L. 15/66-3 this financial year.

## INVESTIGATOR 23

The area designated Investigator 23 is a small area of complex geology lying between Investigators 3 and 18.

A thick volcanic / upper sediment sequence outcrops at the surface overlying the mine series rocks which occur at depth. The area is separated from Investigator 3, where the mine series rocks occur at the surface, by a major fault with an apparent vertical throw of about 120m.

Surface mapping and bedrock auger drilling has not been entirely successful in this area due to the large amounts of sediments interbedded with the upper volcanics. One other problem is that the mine series, where it outcrops in the north, is about 900m away from the granite and has not been highly metamorphosed or metasomatized. In weathered chips the mine series are almost indistinguishable from some of the underlying siltstones and shales as well as from the upper pelitic sediments.

Only broad spaced gemco drilling was carried out prior to the percussion drilling programme, although D.D.H. 218 was drilled by K.I.S. in 1969 following recommendations by P.J. Anthony. This hole encountered mine series rocks under a cover of about 70m of volcanics and pelitic sediments.

Three scout percussion drill holes were drilled in this area during the scout drilling programme. (P.D.H.'s 22, 23 and 24). However correlation between these holes and D.D.H. 218 is extremely tenuous and may not be valid.

Although all the holes intersected 'mine series' rocks only P.D.H. 23 intersected significant amounts of scheelite (20ft > 100ppm W) in a marble rich horizon. This hole intersected granite at 126.5m.

Three precollared diamond drill holes D.D.H. INV. 23-1, 2 and 3 were drilled at 50m intervals respectively south, east and west of P.D.H. 23 to test the extent of this mineralization. Both D.D.H.'s INV. 23-1 and 2 intersected only upper volcanics and hornfelsed upper pelitic sediments prior to intersecting granite at 110 and 115m respectively. D.D.H. INV. 23-3 intersected an upper volcanic, upper siltstone sequence containing two horizons of mine series rocks, 79.35 - 84.34 (mine series very mixed unit with garnet, pyroxene, biotite and marble) and 91.93 - 92.80m (mine series with bands of marble).

034

It is considered possible that the mineralization at Investigator 23 is contained in carbonate rich horizons within the upper pelitic siltstones.

This would appear to be confirmed by the depth of volcanics overlying the mine series in P.D.H. 24 (111.25m) and D.D.H. 218 (70m) both of which were drilled in positions up dip from P.D.H. 23.

## INVESTIGATOR 3

This area which extends west from about 215900E to the Red Hut consists geologically of east-west striking mine series rocks which dip south at angles of about 23° into the granite intrusion. These rocks are overlain in the south by a narrow strip of upper volcanics with minor sediment horizons.

In the west of this area the mine series rocks change strike to north-south and becomes the Investigator 22 area. The eastern limit of Investigator 3 is defined by a major north-west-south east striking fault which has a marked down throw on the east.

Although mapping carried out by King Island Scheelite in 1968 showed the presence of mine series rocks no geochemistry was carried out until 1970 when gemco auger drilling commenced on Integrated Survey Grid (I.S.G.) One diamond drill hole D.D.H. 218 was drilled in 1968 just to the west of the Investigator 23 area and intersected mine series rocks beneath a thick volcanic cover.

Between 1971 and 1973 a total of 239 gemco holes were drilled at Investigator 3 for geology and geochemistry. This programme outlined an extensive area of anomalous tungsten and molybdenum values (up to 1830ppm W and 80ppm Mo) lying in the west of the area and bounded on the west by a major fault.

Since this anomaly contained the highest 'C' horizon tungsten values recorded to that time outside of Investigator 1 (Bold Head orebody) a line of three diamond drill holes were proposed to test the prospect. Drilling was commenced in June 1972 and mine series rocks including a pyroxene garnet horizon were intersected in all three holes (D.D.H. INV. 3-1, 2 and 3). These holes were terminated in a thick biotite quartz hornfels rich in zoisite which may possibly be the equivalent of the quartzites in the open cut. Although the source of the anomaly was shown to be due to minor mineralization in the pyroxene garnet unit no increase in mineralization was encountered down dip towards the granite and therefore no further diamond drill holes were proposed.

During the scout percussion drilling programme holes 16, 18, 19, 20A, 21 and 21A were drilled in the Investigator 3 area. All holes tested the upper portion of the mine series but quartzites were not intersected in any of the holes. Three holes (P.D.H.'s 17, 19 and 21A) intersected granite.

036

Although most of the holes intersected thick (up to 20m thick) marble horizons only minor garnet rich skarns were encountered. It is possible to correlate broadly between the holes using the middle volcanics as a marker horizon.

Anomalous tungsten values were recorded in Hole 19 (83.82 - 85.34, > 100ppm W) in marble with garnet horizons, in Hole 21 (32.00 - 36.58, >100ppm W) in a banded biotite pyroxene garnet hornfels, and in D.D.H. 214 (114.30 - 117.35, 100ppm) in a biotite pyroxene calcite hornfels adjacent to the granite contact.

Follow up drilling consisted of three short precollared diamond drill holes located 50m east, west and north respectively of percussion hole 21A (D.D.H. 3-4, 5 and 6). These holes all intersected finely banded mine series with some minor garnet bands. Minor scheelite was present in all three holes. It is considered most likely that the mineralization encountered in P.D.H. 21A and P.D.H. 21 is due to these fine mineralized garnet horizons. Again, these results show how extremely sensitive percussion drilling is in determining tungsten mineralization within the mine series.

It is considered that the area containing the anomalous 'C' horizon geochemical tungsten values in the eastern portion of Investigator 3 is in all probability an upfaulted block with only the lowest portion of the mine series being present. This area is bounded to the west by a possible fault at about 215600E, the surface expression of which is considered to be long northern tongue of granite outcropping in this area.

This would account for the rather abrupt cut off of the anomalous tungsten geochemical values in the west.

Since neither the percussion drilling nor the diamond drilling programme have intersected the base of the mine series east of 215600E at least one drill hole is required to define the nature of the mine series below the level sampled to date.

037

2 EASTERN

western

**THE EASTERN CONTACT**

Prior to the completion of the scout percussion drilling programme in March 1974 four prospects (Investigators 2, 21, 22 and 24) lying in the north eastern portion of the granite aureole, were included under the designation Investigator 2.

Geologically the area consists of mine series rocks, striking approximately north-south and dipping east at about 27°, overlain by an irregular volcanic / sediment sequence. The whole area is bounded to the east by the granite intrusion.

The first work carried out in this area was the drilling of three diamond drill holes D.D.H. No. 149, 150 and 160 in 1956/57. These holes were drilled just north of the Millers Block - Merritts Block boundary. Although documentation of these holes is poor, they showed the presence of garnet bearing mine series rocks in the area.

Between 1967 - 1969 geological mapping and bedrock auger drilling was carried out. This work was covered in a report by N.R. Kinnora, July 1969 in which it was concluded that sufficient encouragement had been obtained to require further work.

Until 1972, with the commencement of the bedrock auger drilling programme on I.S.G. around the whole granite aureole, only minor geological mapping was carried out. The majority of the work previous to this had been carried out in the northern portion of the island.

It became evident from the early results obtained in the 1972 auger drilling programme that in Merritts Block the previous auger drilling had not been extended far enough west to test the majority of the mine series rock. In the Millers Block the new drilling basically substantiated the earlier work.

It was possible to draw up a geological interpretation plan based on bedrock chips which greatly simplified the structure of this portion of the contact by removing a number of previously inferred faults which were based partly on correlation of the upper pelitic sediments with the mine series.

Two areas of anomalous tungsten results were outlined by the auger drilling programme, Investigator 2 north (250ppm W) and Investigator 22 (1260ppm W and 10ppm Mo).

Auger drilling in this area was suspended for the duration of the percussion drilling programme and has only recently been recommenced to define the western limit of the mine series, in the Investigator 24, 2, 21 and 22 areas.

The percussion drilling programme in this area confirmed the interpretation obtained from the 1972 auger drilling and has given a broad picture of the detailed geology within the upper mine series.

It has been possible to correlate between a large number of the percussion drill holes using the middle volcanics and the upper marble horizon as markers. This has shown that with the exception of the fault indicated by bedrock auger drilling, and confirmed by the percussion drilling, in the north of the Investigator 24 area no major faults giving considerable offsets are likely to be present.

The percussion drilling has also shown that quite large facies changes are possible within the mine series.

Anomalous tungsten values (>100ppm) were obtained in 6 holes:- P.D.H. 3 (56.39 - 57.91m) and P.D.H. 50 (21.34 - 39.62m) in Investigator 24; P.D.H. 4 (13.72 - 15.24m) and P.D.H. 14 (24.33 - 30.48m) in Investigator 27. No anomalous results were recorded at Investigator 22 area due mainly to drilling problems which restricted the depth of the holes.

Follow up drilling in the form of precollared diamond drill holes was carried out on these areas of mineralization and is reported under the separate prospects.

Investigator 2

This area, with the exception of Investigator 6, has been subjected to the most exploration work of all the prospects being worked off and on since 1956.

The geology consists of north-south striking and easterly dipping mine series with a thin volcanic / upper sediment cover adjacent to the granite.

The evidence from auger drilling suggested the area had the same geology as Investigator 21. Anomalous tungsten and molybdenum (peak 250ppm W) values were located by bedrock auger drilling in the locality of 213600 E 562500 N.

A total of four scout percussion drill holes were completed at Investigator 2, (P.D.H.'s 4, 5, 6 and 17).

Visible molybdenite and scheelite were intersected in P.D.H. 5 between 51.81m - 57.91m and it was decided to drill P.D.H. 17 at a point 75m east of this hole to ascertain the local dip which was found to be approximately 23° east. P.D.H. 17 was drilled close to the granite and large numbers of aplitic and granitic dykes were encountered one of which appears to have cut out the marble horizon which contained the mineralization in P.D.H. 5.

Two precollar diamond drill holes were located 50m north and south of P.D.H. 5 to test the extent and grade of the mineralization in the marble horizon.

Both these holes (D.D.H. INV. 2-1 and 2) encountered banded garnetiferous mine series with minor scheelite and molybdenite occurring at similar depths to the mineralization in P.D.H. 5. Although the intersections of scheelite mineralization are of sufficient grade to substantiate the mineralization in P.D.H. 5, they are not of economic significance. It is considered that the mineralized horizon encountered in Investigator 2 is the lateral equivalent of the mineralized skarn horizon encountered in Investigator 21.

On the basis of the information obtained by the detailed diamond drilling carried out at Investigator 21, it is considered that D.D.H. INV. 2-1 and 2 tested only a minor portion of the upper mine series and not the lower mine series rocks, which, in Investigator 21, contain a large podded calcite garnet unit.

It is considered therefore that considerable potential for economic mineralization still exists within the mine series rocks at Investigator 2 and further exploration is required before this area is relinquished.

This area is covered by lease No's. 469 - 472 P/M due to expire in 1981.

Investigator 21

The Investigator 21 area, prior to the commencement of the scout percussion drilling programme, had been subjected to regional mapping and broadly spaced gemco auger drilling. This had allowed a broad definition of the geology of the area to be made. One low anomalous geochemical result (100ppm W) had been recorded.

Anomalous tungsten values, associated with good visible scheelite, were encountered in P.D.H. 7 during the initial scout drilling programme. The local dip of the mine series was later ascertained by later P.D.H. 14 which was drilled 50m due west of P.D.H. 7. This second hole showed the dip to be about 25° east, and although it encountered impure marble there was only very minor scheelite at the same stratigraphic horizon intersected in P.D.H. 7.

Further drilling was not carried out until the scout drilling had been completed and the follow up percussion and diamond drilling commenced. P.D.H. 32A, drilled 50m south of P.D.H. 7, encountered no scheelite but P.D.H. 33 drilled 50m east of P.D.H. 7 intersected garnet skarn with visible scheelite and molybdenite in significant quantities.

It was then decided to drill D.D.H. INV. 21-1 adjacent to P.D.H. 33 to test the grade of mineralization and provide the detailed geology of the deposit. Percussion drilling of 3 holes P.D.H. 34, 35 and 36 as precollar holes for diamond drilling was carried out to depths just above the anticipated depth of the mineralized horizon.

Diamond drill hole INV. 21-1 intersected a narrow (4.2m) garnet skarn occurring within a marble horizon. The skarn contained good scheelite and much higher molybdenite than is normally present in the Grassy ore bodies. The intersection was 4m at 0.53% WO<sub>3</sub> and 0.13% Mo.

Diamond drilling to test the extent of the mineralization continued with the drilling of D.D.H.'s INV. 21-2 (50m east), D.D.H. INV. 21-3 (180m north east), and D.D.H. INV. 21-4 (50m south), all of which intersected the mineralized horizon and recorded the following results.

|                  |      |    |                       |           |
|------------------|------|----|-----------------------|-----------|
| D.D.H. INV. 21-2 | 3.0m | at | 0.54% WO <sub>3</sub> | 0.19% Mo. |
| 21-3             | 1.0m | at | 0.07% WO <sub>3</sub> | 0.02% Mo. |
| 21-4             | 4.5m | at | 0.40% WO <sub>3</sub> | 0.14% Mo. |

Further exploration at this prospect was not carried out until all other mineralized areas intersected in the scout programme had been tested, after which a further four precollared drill holes were completed, D.D.H. INV. 21-5, 21-6, 21-7 and 21-8.

041

Of these holes only D.D.H. INV. 21-5 and 21-8 recorded mineralization of note.

D.D.H. INV. 21-5 2.0m at 0.40%  $WO_3$  and 0.10% Mo.

D.D.H. INV. 21-8 2.5m at 0.07%  $WO_3$

The other two holes intersected banded mine series but did not encounter any significant mineralization. The marble horizon, although intersected at the expected depth, did not contain garnet skarn.

Late in 1974 D.D.H. INV. 21-9 was drilled at 213600 E (250m east of D.D.H. INV. 21-1) to test the lower portion of the mine series.

The hole was drilled to a depth of 152.40m and intersected the underlying quartzites. The mine series rocks contained a large amount of marble and podding was apparent over the first 80m of the hole.

Between 38.74m and 81.50m a podded calcite garnet hornfels was encountered which is similar in appearance to the p.g.h. in the Open Cut although there is distinctly less pyroxene in the INV. 21 unit. The podded unit is considered to be a potential host rock and diamond drilling is considered to be warranted to test the unit closer to the granite contact.

042

Investigator 24

Auger drilling carried out in this area prior to percussion drilling had outlined the basic geology similar to that occurring along the rest of the western contact, with upper volcanics adjacent to the granite and mine series outcropping further west. Two major faults had been delineated one in the north striking north east - south west, with the down throw on the southern side and one in the extreme south, (close to the site of P.D.H. 50) which strikes north west-south east and involves a major down throw on the southern side. The large down throw means that the major rock type south of this area is hornfelsed upper pelitic hornfels, and the mine series, if present, would be suboutcropping further to the west. This area is designated southern E.L. 15/66.

The southern fault has been indicated by auger drilling to have displaced the granite and in the field large amounts of white quartz are scattered on the surface in the vicinity of the indicated fault.

Weakly anomalous geochemical tungsten values were recorded in this area during auger drilling.

A total of four scout percussion drill holes have been drilled in this area, (P.D.H.'s 1, 2, 3 and 50). The first three holes were drilled with a small diameter hammer and only P.D.H. 3 attained any real depth intersected mine series throughout with scheelite being present between 21.34 - 39.62m.

Follow up work consisted of two diamond drill holes INV. 24-1 and 2. D.D.H. INV. 24-1 drilled 50m due east of P.D.H. 50 was terminated at 74.68m having passed through a disturbed sequence of volcanics upper pelitic sediments and possible mine series rocks. No mineralization was encountered although the mineral horizon should have been intersected at about 50m based on the normal mine series dips in eastern granite contact area.

D.D.H. INV. 24-2 was drilled about 3m west of the position of P.D.H. 50 to verify the mineralization and to clarify the geology. The hole was drilled to a depth of 201.78m in mine series rocks and intersected ore grade scheelite between 14.28m and 15.72m in a leached pyroxene garnet skarn. The upper portion of the mine series is extremely disturbed and heavily altered, with large amounts of sulphides occurring between 13.60 - 14.28m. The lower portion of the mine series, which is finely banded, is much less disturbed and the bedding to core axis angles are similar to those expected. None of the thick podded units encountered in the lower mine series at Investigator 21 were intersected and it is possible that D.D.H. INV. 24 - 2 only tested the upper mine series rocks. The hole has been left cased for possible extension.

043

It is considered from the above drilling results, the presence of large amounts of silica float, and the offset of the granite contact established by auger drilling, that a major fault striking north west-south east dipping to the south west exists in this area. It is possible that the mineralization encountered in P.D.H. 50 and D.D.H. INV. 24-2 are related to mineralization associated with the fault zone and not a continuous skarn horizon. From Diamond drill hole D.D.H. INV. 24-1 it is apparent that the granite contact must be considerably steeper than at Investigator 21 and it is possible that there may exist a 'shelf' in the granite contact at depth.

Although the mineralization encountered to date is not indicative of an economic scheelite deposit, it is considered that the INV. 24 area is likely to be part of the same mine series sequence which occurs at Investigator 21. There is still potential for economic mineralization within the mine series at depth, an area which has not been tested.

044

Investigator 22

A total of 7 percussion drill holes were located in this area P.D.H.'s 9, 10, 11, 12, 13, 15 and 15A, most of which had difficulty in attaining reasonable depth due to ground conditions and high water flows. With the exception of holes 15 and 15A the holes penetrated the overlying volcanic / sediment sequence and intersected mine series.

Percussion drill hole 11 was planned to test the source of the geochemical ('C' horizon) anomaly outlined by the auger drilling programme but this hole was terminated at 71.62m by broken ground and high water flows.

Follow up drilling in this area consisted of P.D.H. 49 and D.D.H. E.L. 15/66-2. P.D.H. 49 was drilled close to the granite contact in block G23 to determine the dip of the granite in this area. The hole passed through an upper volcanics / upper pelitic sediment sequence to a depth of 99.06m before intersecting the Grassy granite.

D.D.H. E.L. 15/66-2 precollared to 155.44m was drilled between P.D.H.'s 13 and 49 and intersected a typical banded mine series sequence with minor garnet rich horizons before intersecting the Grassy granite at 232.55m. Minor scheelite mineralization was present between 227.99 - 223.77m and 229.58 - 232.55m in a banded biotite pyroxene garnet hornfels.

During January - February 1975 D.D.H. INV. 22-1 was drilled to test the source of the 1260ppm W 'C' horizon geochemical anomaly. This hole intersected the typical upper mine series sequence of banded calcite rich hornfels, containing various garnetiferous horizons, before entering the Grassy granite at 201.36m. Garnet skarn horizons were intersected between 124.22m - 127.54m, 144.17 - 147.83m and 175.26 - 201.36m, the lowest horizon being a banded pyroxene biotite garnet calcite hornfels rather similar in appearance to the banded footwall beds in No.1 Orebody. Minor scheelite was recorded in these horizons. On the basis of bedding to core angles, and the general dip in the area, the uppermost pyroxene garnet skarn has been interpreted as the source of the geochemical anomaly.

Although no economic mineralization was encountered in D.D.H. INV. 22-1, only the upper most portion of the mine series has been tested, as has been the case throughout the contact zone.

By correlation with the known geology in the adjacent Investigator 21 area it is suggested that the untested lower portion of the mine series consists of a considerable thickness of potential host rocks.

045

SOUTHERN E.L. 15/66

The area designated southern E.L. 15/66 is that portion of the eastern granite contact lying south of Miller's block leases.

The area was initially held by Naracoopa Rutile until 1973, when King Island Scheelite obtained Exploration Licence 13/73 covering the area.

Exploration here is difficult due to an extremely thick dunal sand cover, and to date only bedrock auger drilling and reconnaissance mapping has been carried out.

The area lies south of the fault encountered in southern INV. 24 which has a major down throw on the southern side so so that the only rock types occurring at the surface south of the fault are hornfelsed upper pelitic sediments which form a north south trending topographic ridge. The rocks are also mapped in contact with the granite on the coast at Red Hut.

On the basis of the present evidence it is suggested that the quartz biotite hornfelses, (which contain haemitite) are the southern extension of the upper pelitic sediments, encountered at Investigators 22, 21 and 24. The upper volcanics, if present, would probably exist as fine beds within the sediments.

To the west of the ridge of hornfelsed siltstones the ground level falls away very steeply and the sand cover increases to about 25m. Drilling in this area has produced rock chips which are probably weathered mine series, and scheelite has been recovered in some panned samples.

It is considered possible that the steep slope previously interpreted as a fault scarp could be due to weathering of carbonate rich mine series rocks in contact with the harder overlying siliceous sediments. If the mine series do occur here they would be a considerable distance from the granite and would have been subjected to less contact metamorphic effects.

A suitable geological/geochemical target for diamond drilling will be defined by the present bedrock auger drilling in the near future.

Magnetic Anomaly No.7 which lies to the west of Red Hut under thick dunal cover has been interpreted, on the basis of aeromagnetics and ground magnetic traverses, as a possible granite stock. This anomaly is being drilled at the present time and results are expected in the near future.

If this anomaly is due to a granite stock then it would occur close to the probable position of the mine series according to the current interpretation.

046

THE NORTHERN CONTACT AREA

The area covers the extensive northern limb of volcanics extending northward from Tank Hill where the television relay station is sited.

Exploration here has been limited because of its apparent low potential due to its location over 1500m from the Granite contact.

The area was covered by regional mapping in the early 1960's and one diamond drill hole D.D.H. 214 was drilled in the forestry section south east of Tank Hill. This hole intersected a thick sequence of very slightly hornfelsed mine series rocks underlying the upper volcanic sequence. The hole terminated at 931 feet (283.77m) in siltstones. Granites were not developed and no scheelite or molybdenite were present.

It is apparent from examination of the cores from this hole, that although the rocks show some signs of contact metamorphism they are little affected by metasomation.

Auger drilling carried out during 1972 - 74 indicated that the hornfelsed pelitic sediments encountered in this area are in part members of the upper pelitic sediments rather than the underlying siltstones and shales which they were originally correlated with.

It is interpreted on the basis of field mapping and auger drilling that the long north west trending 'finger' of volcanics in this area is due to a down faulted block of volcanics.

Probable mine series rocks showing very weak hornfelsing outcrop in the eastern portion of this area and these are interpreted as the up dip extension of the mine series rocks encountered in the Investigator 23 area.

It is unlikely that the northern contact area contains any economic mineral deposits within the mine series due to the distance from the granite contact. However, the occurrence of mine series under a relatively thin (130m) cover of volcanics and upper sediments means that percussion drilling, if carried out here, could help to define the mine series distribution in Investigators 18 and 23 where the volcanic cover is much thicker.

*S. G. Brown*

S. GRIEVE BROWN  
Geologist

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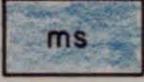
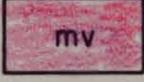
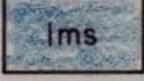
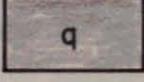
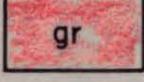
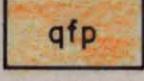
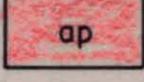
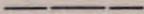
## ABBREVIATIONS

MICROFILMED

- 1) Upper Pelitic Sediments
- us upper pelitic sediments.  
 bqh biotite quartz hornfels.  
 qbh quartz biotite hornfels.
- 2) Upper Volcanics
- uv upper volcanics.
- 3) Mine Series
- ms (m/s) mine series undifferentiated.  
 bh biotite hornfels.  
 bph biotite pyroxene hornfels.  
 bpch biotite pyroxene calcite hornfels.  
 bpgb biotite pyroxene garnet hornfels.  
 bpgch biotite pyroxene garnet calcite hornfels.  
 ch marble.  
 gh garnet skarn.  
 gch garnet calcite hornfels.  
 ph pyroxene hornfels.  
 pgh pyroxene garnet hornfels.  
 pgch pyroxene garnet calcite hornfels.  
 pgbh pyroxene garnet biotite hornfels.  
 pbch pyroxene biotite calcite hornfels.
- 4) Middle Volcanics
- mv middle volcanics.
- 5) Quartzites
- q quartzites and siltstones.
- 6) Granite etc.
- gr granodionite.  
 ap aplite.  
 qfp quartz feldspar porphyry.
- 7) Miscellaneous
- sch scheelite.  
 tr trace.  
 wz weathered zone.

OPEN FILE

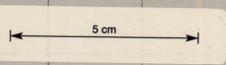
GRASSY GRANITE AREA-GEOLOGICAL LEGEND-

|   |   |
|---|---|
|    | Upper pelitic sediments                         |
|    | Upper volcanics                                 |
|    | Upper mine series                               |
|   | Middle volcanics                                |
|  | Lower mine series                               |
|  | Quartzites and siltstones                       |
|  | Grassy granite                                  |
|  | Quartz feldspar porphyry                        |
|  | Aplite  |
|  | Geological boundary                             |
|  | Fault   |
|  | Limit of metamorphic effect (Bold Head granite) |



5562500N  
5562000N

← 500m →



|                               |                   |       |
|-------------------------------|-------------------|-------|
|                               | GEOPEKO LIMITED   |       |
|                               | KING ISLAND GROUP |       |
|                               | SCALE: 1:20,000   | No. K |
|                               | 537052 1936       |       |
| REGIONAL GEOLOGICAL MAP       |                   |       |
| SHOWING LOCATION OF PROSPECTS |                   |       |
| 75-1079 (vol. 2/3)            |                   |       |
| DATE: March 1975              |                   |       |
| GEOLOGIST: SGB                |                   |       |
| DRAWN: OS                     |                   |       |
| CHECKED: MCR                  |                   |       |



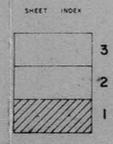
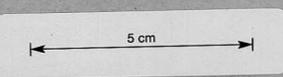
39 05  
40 05  
40 05  
40 05  
43 05

E  
F  
G

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

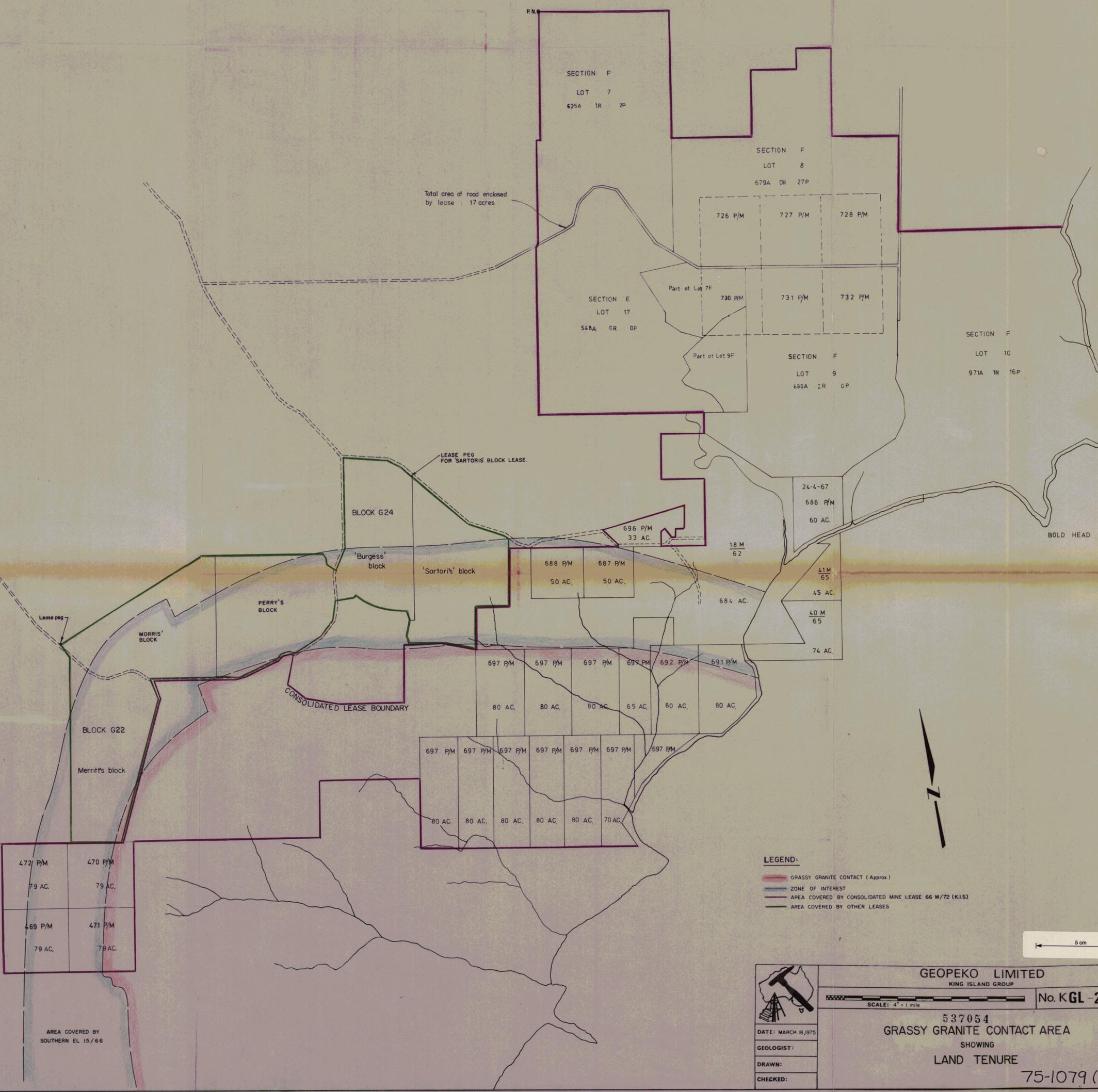
- Percussion Drill Hole
- Gravel Hole
- Road
- E.L. Boundary
- Boundary of area covered by larger scale map

FLIGHT ALTITUDE 92 METRES  
 FLIGHT INTERVAL TRAVERSE 200 METRES TIE LINE 4 KILOMETRES  
 CONTOUR INTERVAL TOTAL MAGNETIC INTENSITY 5 GAMMAS  
 CONTOUR INTERVAL TOTAL COUNT 25 CFS  
 PROJECTION INTEGRATED CO-ORD SYSTEM  
 SURVEYED AND COMPILED MARCH - MAY 1973  
 A.S.C. PROJECT NO. 7302



AIRBORNE GEOPHYSICAL SURVEY  
 KING ISLAND TASMANIA  
 GEOPEKO LIMITED  
**TOTAL MAGNETIC INTENSITY**  
 REGIONAL FIELD REMOVED  
 SCALE 1:25,000  
 KILOMETRES  
 DRAWN AND COMPILED BY AERO SERVICE (AUSTRALIA) PTY. LTD.  
 CANBERRA, N.S.W.

75-1079  
 (Vol. 2/3)  
 537053  
 1987



Total area of road enclosed by lease : 17 acres

LEASE PEG FOR SARTORI'S BLOCK LEASE.

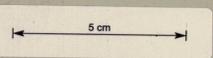
Lease peg

CONSOLIDATED LEASE BOUNDARY

|         |         |
|---------|---------|
| 472 P/M | 470 P/M |
| 79 AC.  | 79 AC.  |
| 469 P/M | 471 P/M |
| 79 AC.  | 79 AC.  |

AREA COVERED BY SOUTHERN EL 15/66

- LEGEND:**
- GRASSY GRANITE CONTACT (Approx.)
  - ZONE OF INTEREST
  - AREA COVERED BY CONSOLIDATED MINE LEASE 66 M/72 (KLS)
  - AREA COVERED BY OTHER LEASES



|                      |                             |
|----------------------|-----------------------------|
|                      | <b>GEOPEKO LIMITED</b>      |
|                      | KING ISLAND GROUP           |
|                      | <b>No. KGL-2</b>            |
| DATE: MARCH 18, 1975 | 537054                      |
| GEOLOGIST:           | GRASSY GRANITE CONTACT AREA |
| DRAWN:               | SHOWING                     |
| CHECKED:             | LAND TENURE                 |
|                      | 1985                        |
|                      | 75-1079 (Vol. 2/3)          |



213000 E 214000 E 215000 E 216000 E

562000 N 561000 N 560000 N 559000 N 558000 N

AREA CONTAINING LOW ANOMALOUS TUNGSTEN GEOCHEMICAL VALUES.

SAND

SPOTTED HORNFELS OUTCROPS

SPOTTED HORNFELS FLATERS

SPOTTED HORNFELS OUTCROPS

SPOTTED HORNFELS OUTCROPS

6000' OUTCROPS OF SPOTTED HORNFELS

GRANITE OUTCROPS

GRANITE OUTCROPS

GRANITE OUTCROPS

DDH MA 7-1

MAGNETIC ANOMALY No. 7  
(Volcanic breccia under thick sand cover)

BASS STRAIT

NOTE:

- Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
- Level Datum is mean low water ordinary spring (R.A.N.) as established by H.M.A.S. Talleroak, 1949.
- Compiled from aerial photographs, Tasmanian Lands Dept.

5 cm



DATE: JUNE, 1974  
GEOLOGIST: S.G.B.  
DRAWN: R.F.  
CHECKED: M.C.R.

537055

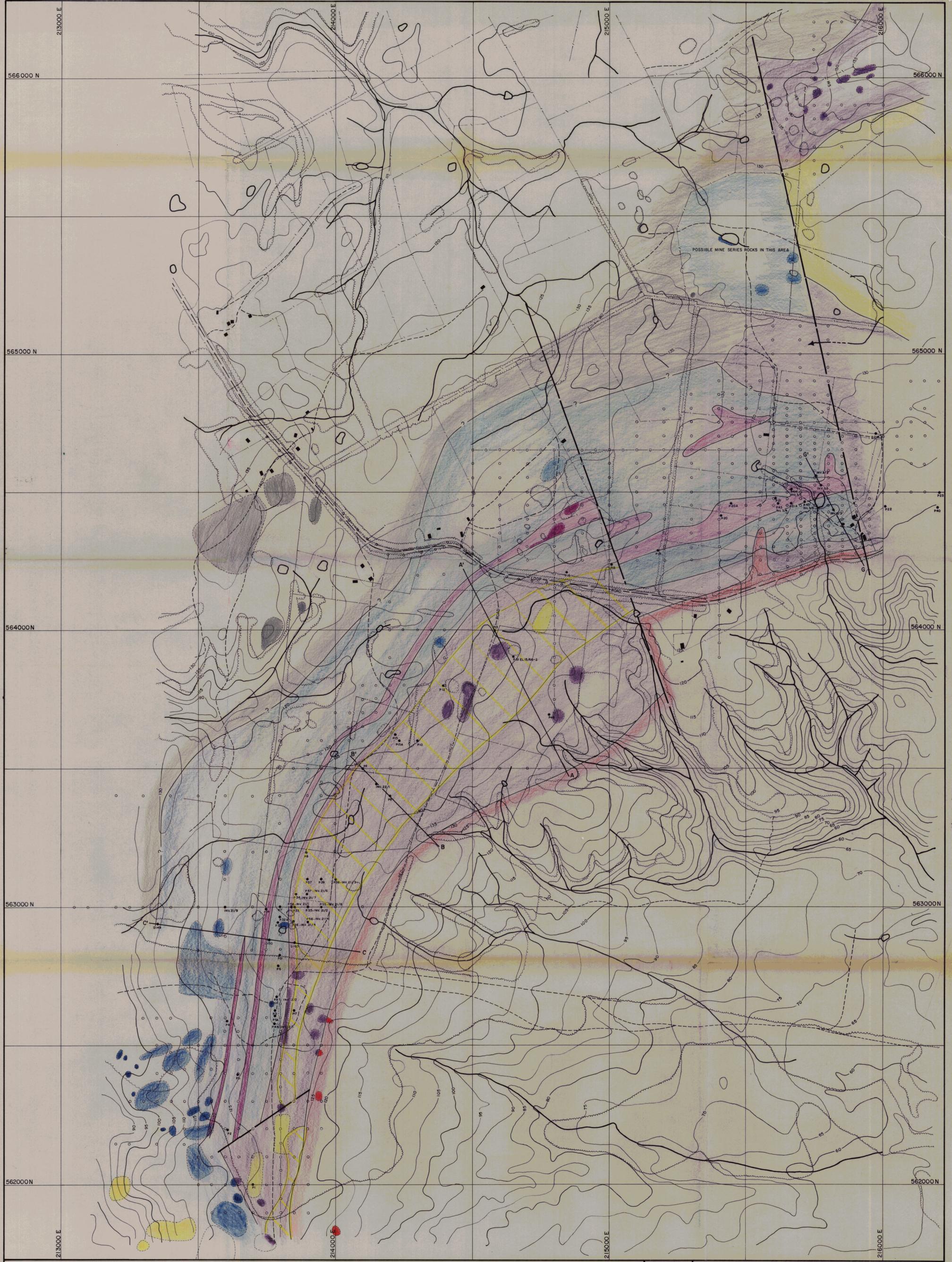
GEOPEKO LIMITED 75-1079  
KING ISLAND GROUP VOL. 2/3

SCALE: 1:5000

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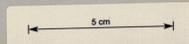
TOPOGRAPHICAL BASE MAP  
SHOWING  
DRILL HOLE LOCATIONS  
AND  
INTERPRETED GEOLOGY

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



**NOTE:**

1. Co-ordinate system is the integrated co-ordinate system based on Australian Geospatial Datum.
2. Level Datum is mean low water ordinary spring (R.A.N.) as established by H.M.A.S. Tallarook, 1949.
3. Compiled from aerial photographs, Tasmanian Lands Dept.



DATE: JUNE, 1974  
 GEOLOGIST: S.G.B.  
 DRAWN: R.F.  
 CHECKED: M.C.R.

537056 GEOPEKO LIMITED 75-1079 (VOL. 2/3)  
 KING ISLAND GROUP

SCALE: 1:5000

No. K F 4 1983

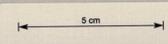
**TOPOGRAPHICAL BASE MAP  
 SHOWING  
 DRILL HOLE LOCATIONS  
 AND  
 INTERPRETED GEOLOGY**

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



Note: Investigator's Area: Survey - old mine grid, see separate maps.

- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. Level Datum is mean low water ordinary spring (R.A.N.) as established by H.M.A.S. Talarack, 1949.
  3. Compiled from aerial photographs, Tasmanian Lands Dept.



DATE: JUNE, 1974  
 GEOLOGIST: SGB  
 DRAWN: R.F.  
 CHECKED: M.C.R.

537057 GEOPEKO LIMITED 75-1079 (vol. 2/3)  
 KING ISLAND GROUP

SCALE: 1:5000

TOPOGRAPHICAL BASE MAP SHOWING DRILL HOLE LOCATIONS AND INTERPRETED GEOLOGY

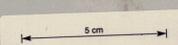
No. KF5 1990

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



NOTE:

1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
2. Level Datum is mean low water ordinary spring (M.L.W.O.S.) as established by H.M.A.S. Tallarook, 1949.
3. Compiled from aerial photographs, Tasmanian Lands Dept.



DATE: JUNE, 1974  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D.  
 CHECKED: M.C.R.

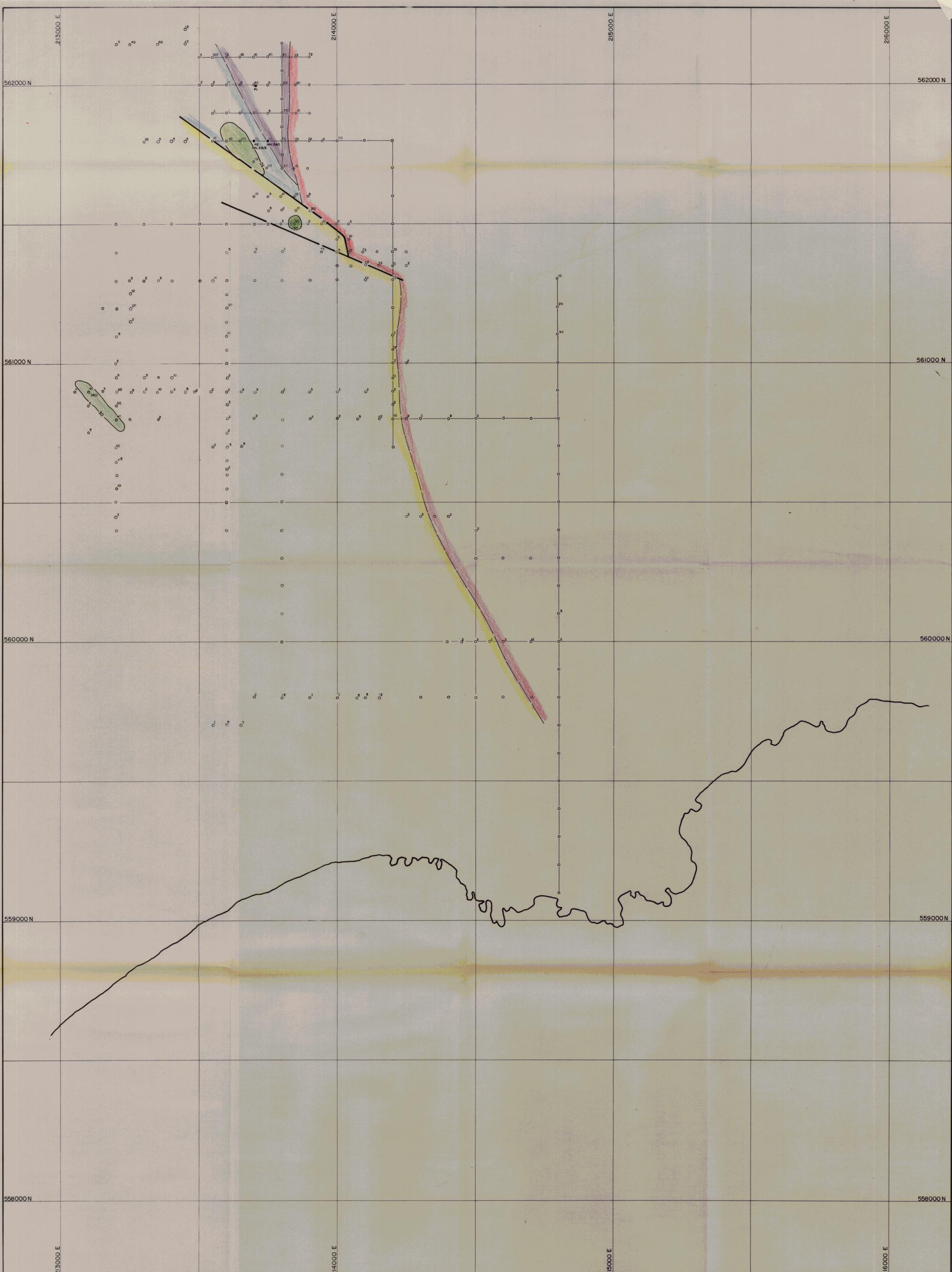
537058 GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP VOL. 2/3

SCALE: 1:5000

No. KFB 1991

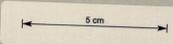
TOPOGRAPHICAL BASE MAP  
 SHOWING  
 DRILL HOLE LOCATIONS  
 AND  
 INTERPRETED GEOLOGY

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



NOTE:

1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
2. 20 Tungsten Geochemistry result p.p.m.
3. (20) Molybdenum Geochemistry result p.p.m.
4. -320- Tungsten Geochemical contour.
5. Molybdenum values  $\leq$  20 p.p.m. not plotted.



DATE: MARCH, 1975  
 GEOLOGIST: S. G. B.  
 DRAWN: K. D. / O. S.  
 CHECKED: M. C. R.

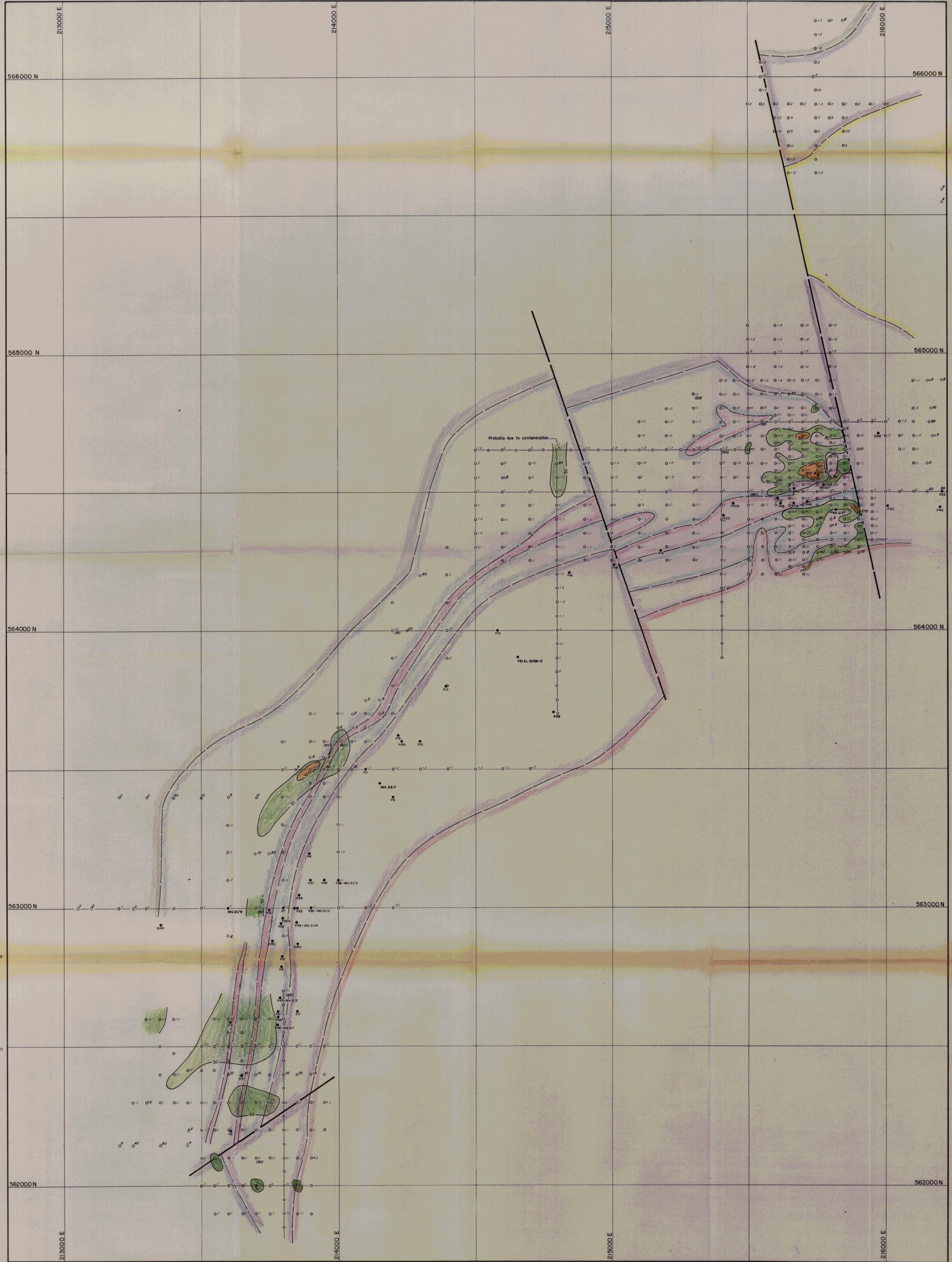
75-1079 VOL. 2/3 GEOPEKO LIMITED 537059  
 KING ISLAND GROUP

SCALE: 1 : 5000

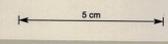
GEOCHEMICAL BASE MAP  
 SHOWING  
 TUNGSTEN AND MOLYBDENUM  
 GEOCHEMICAL RESULTS

No. KF7-A 1992

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 20 Tungsten Geochemistry result p.p.m.
  3. (20) Molybdenum Geochemistry result p.p.m.
  4. -320- Tungsten Geochemical contour.
  5. Molybdenum values < 20 p.p.m. not plotted.



537060 GEOPEKO LIMITED  
KING ISLAND GROUP

DATE: MARCH, 1975  
GEOLOGIST: S.G.B.  
DRAWN: K.D./O.S.  
CHECKED: M.C.R.

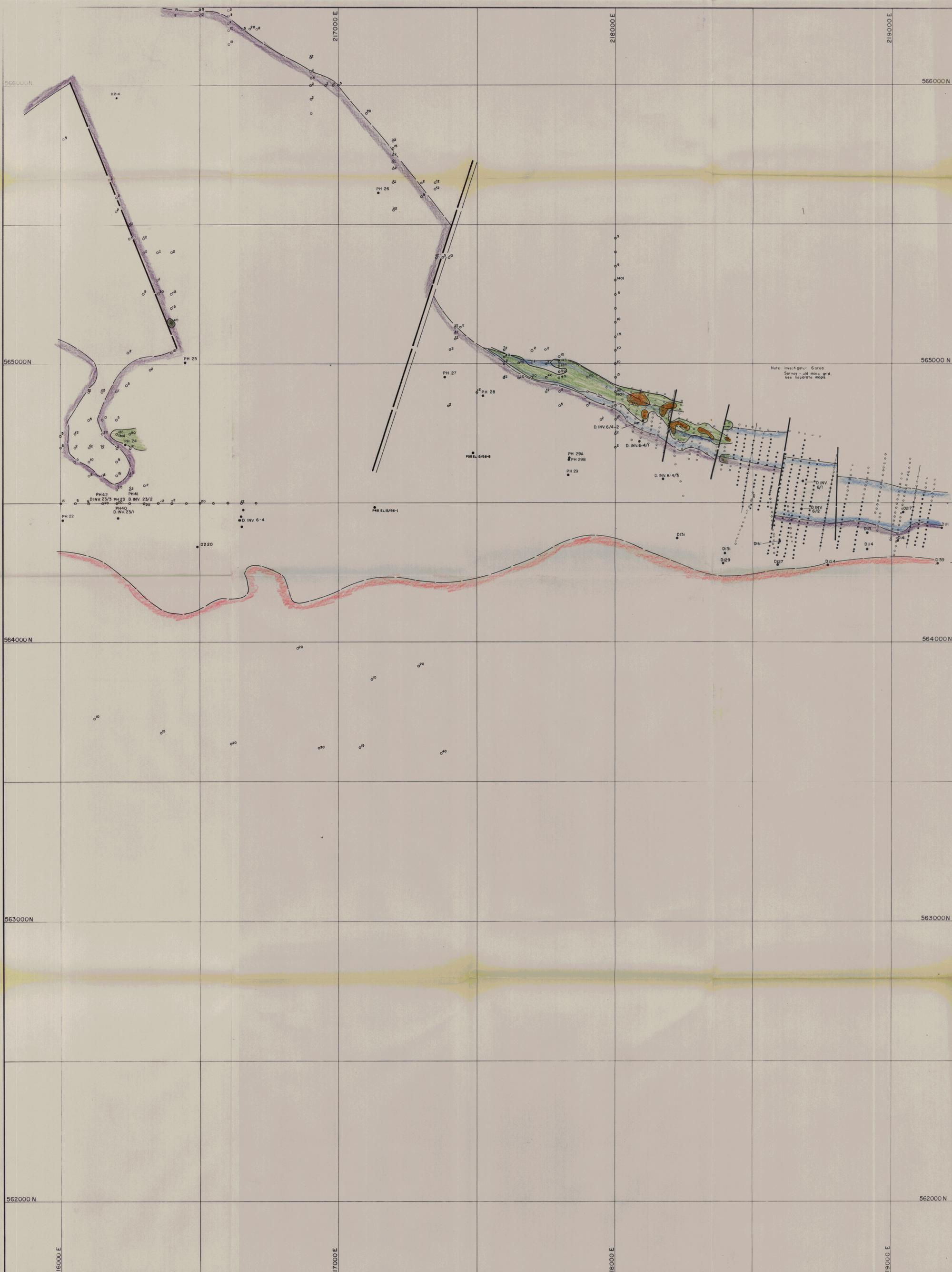
75-1079  
VOL. 2/3

No. KF4-A 1993

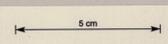
SCALE: 1:5000

GEOCHEMICAL BASE MAP  
SHOWING  
TUNGSTEN AND MOLYBDENUM  
GEOCHEMICAL RESULTS

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 20 Tungsten Geochemistry result p.p.m.
  3. (20) Molybdenum Geochemistry result p.p.m.
  4. -320- Tungsten Geochemical contour.
  5. Molybdenum values < 20 p.p.m. not plotted.



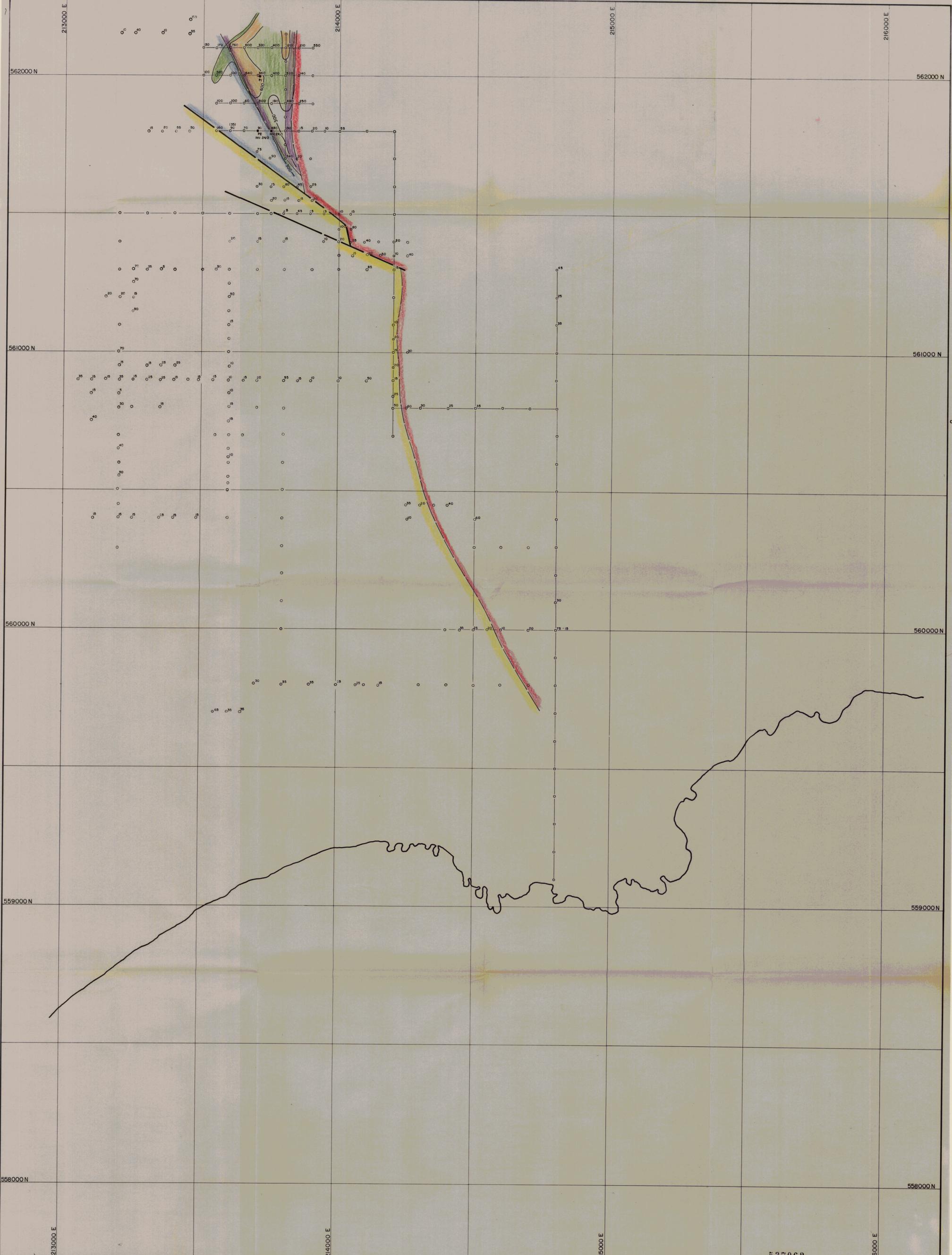
DATE MARCH/1975  
 GEOLOGIST SGB  
 DRAWN K.D./G.S.  
 CHECKED M.C.R.

537061 GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP VOL. 2/3  
 No. KF5-A 1894

SCALE: 1:5000

GEOCHEMICAL BASE MAP  
 SHOWING  
 TUNGSTEN AND MOLYBDENUM  
 GEOCHEMICAL RESULTS

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |

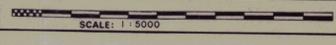


- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 200 Nickel Geochemistry result p.p.m.
  3. -300- Nickel Geochemical Contour

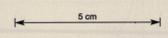


DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./O.S.  
 CHECKED: M.C.R.

GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP VOL. 2/3



GEOCHEMICAL BASE MAP  
 SHOWING  
 NICKEL GEOCHEMICAL RESULTS



No. KF7-B 1995

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |

537062

216000 E

558000 N

559000 N

560000 N

561000 N

562000 N

213000 E

214000 E

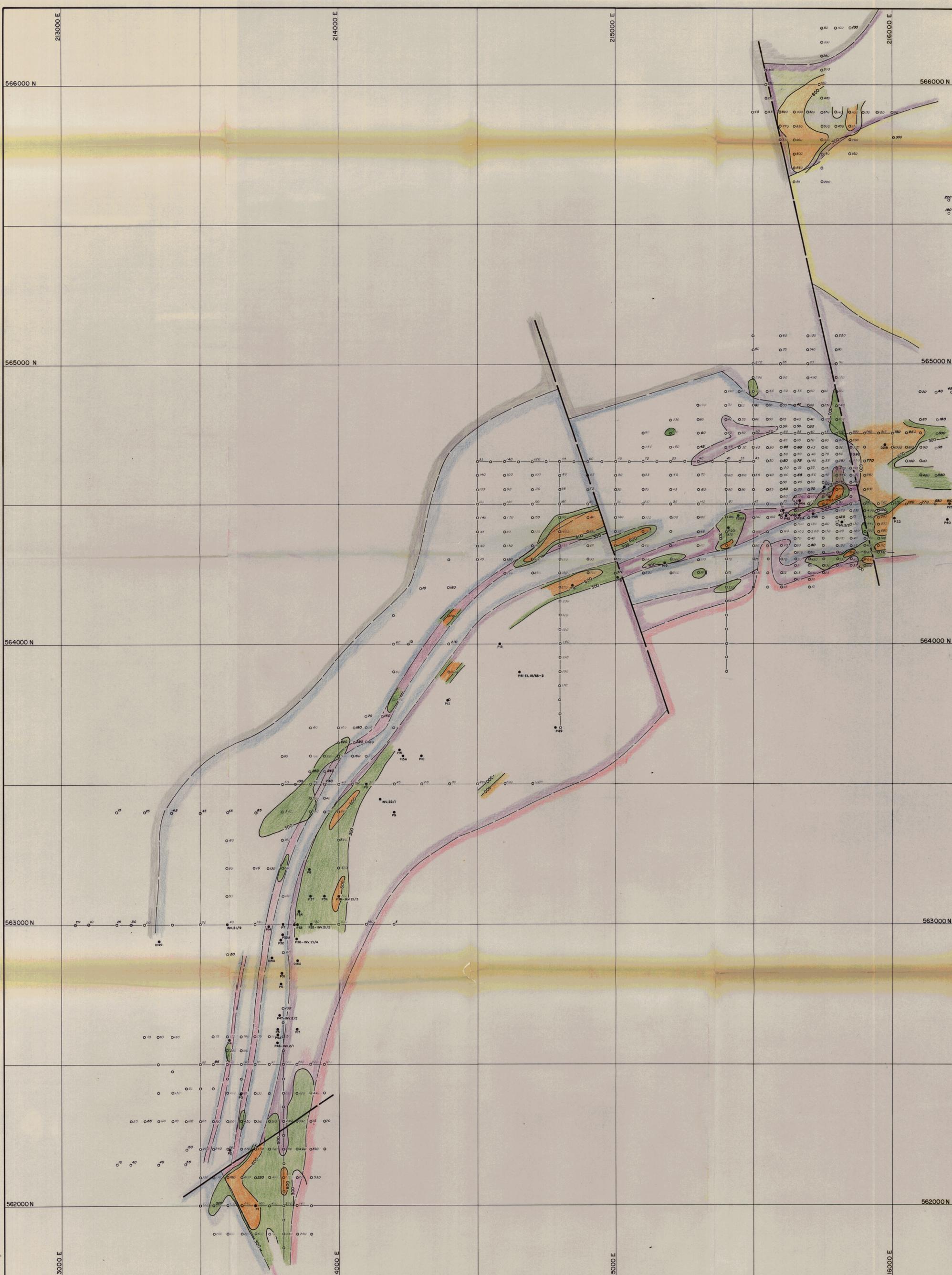
215000 E

216000 E

213000 E

214000 E

215000 E



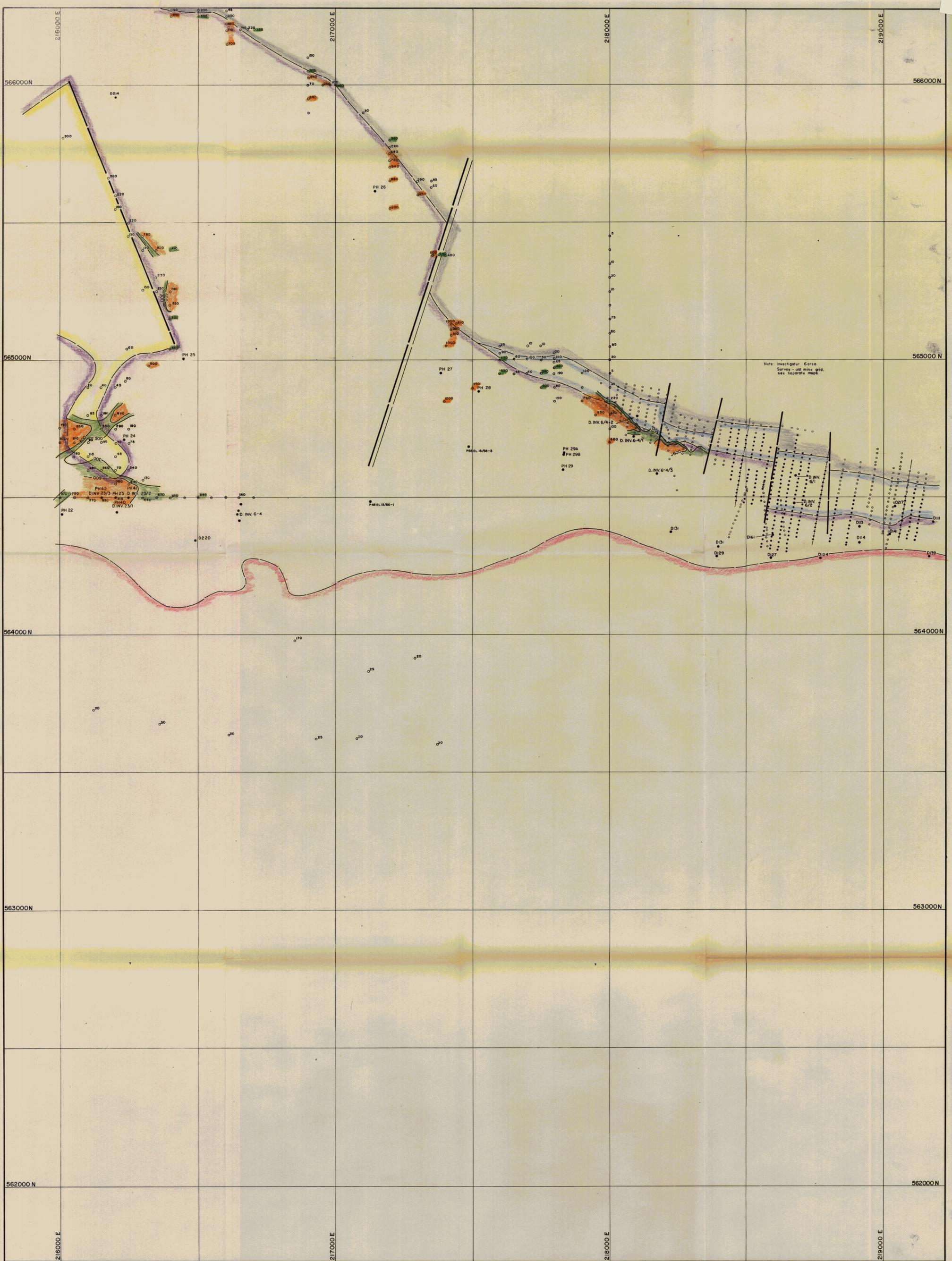
- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 200 Nickel Geochemistry result p.p.m.
  3. -300- Nickel Geochemical contour.

  
 DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./O.S.  
 CHECKED: M.C.R.

537063 GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP  
 No. KF4-B 1996  
 SCALE: 1:5000  
**GEOCHEMICAL BASE MAP  
 SHOWING  
 NICKEL GEOCHEMICAL RESULTS**

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |

5 cm



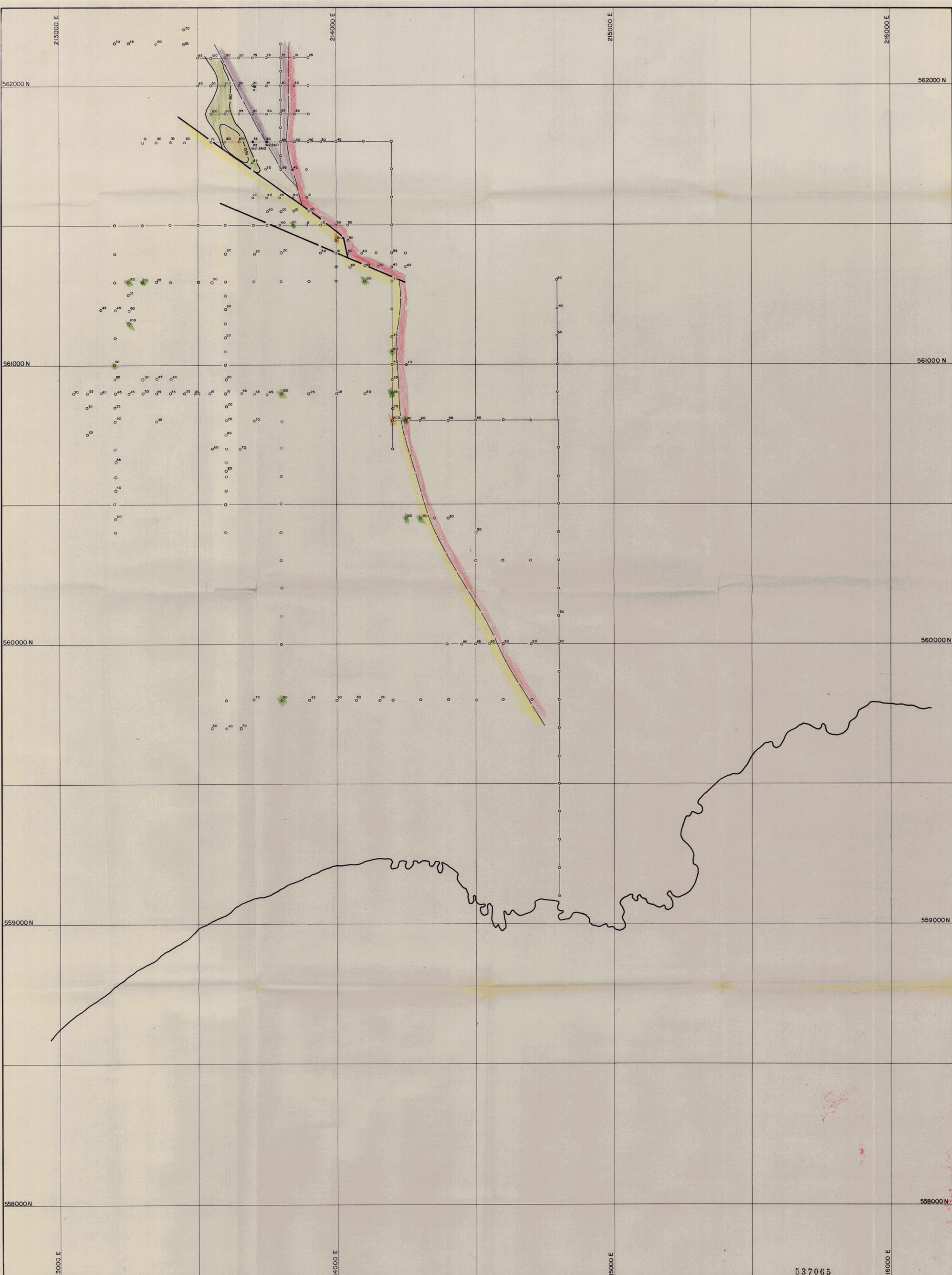
Note: Investigator's Area  
Survey - old mine grid,  
see separate maps.

- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 200 - Nickel Geochemistry result p.p.m.
  3. -300- Nickel Geochemical contour.

  
 DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./O.S.  
 CHECKED: M.C.R.

537064 GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP VOL. 2/3  
 No. KF5-B 1997  
 SCALE: 1:5000  
**GEOCHEMICAL BASE MAP  
 SHOWING  
 NICKEL GEOCHEMICAL RESULTS**  
 5 cm

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



537065

- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 100 Zinc Geochemistry result p.p.m.
  3. -160- Zinc Geochemical contour.

DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./O.S.  
 CHECKED: M.C.R.

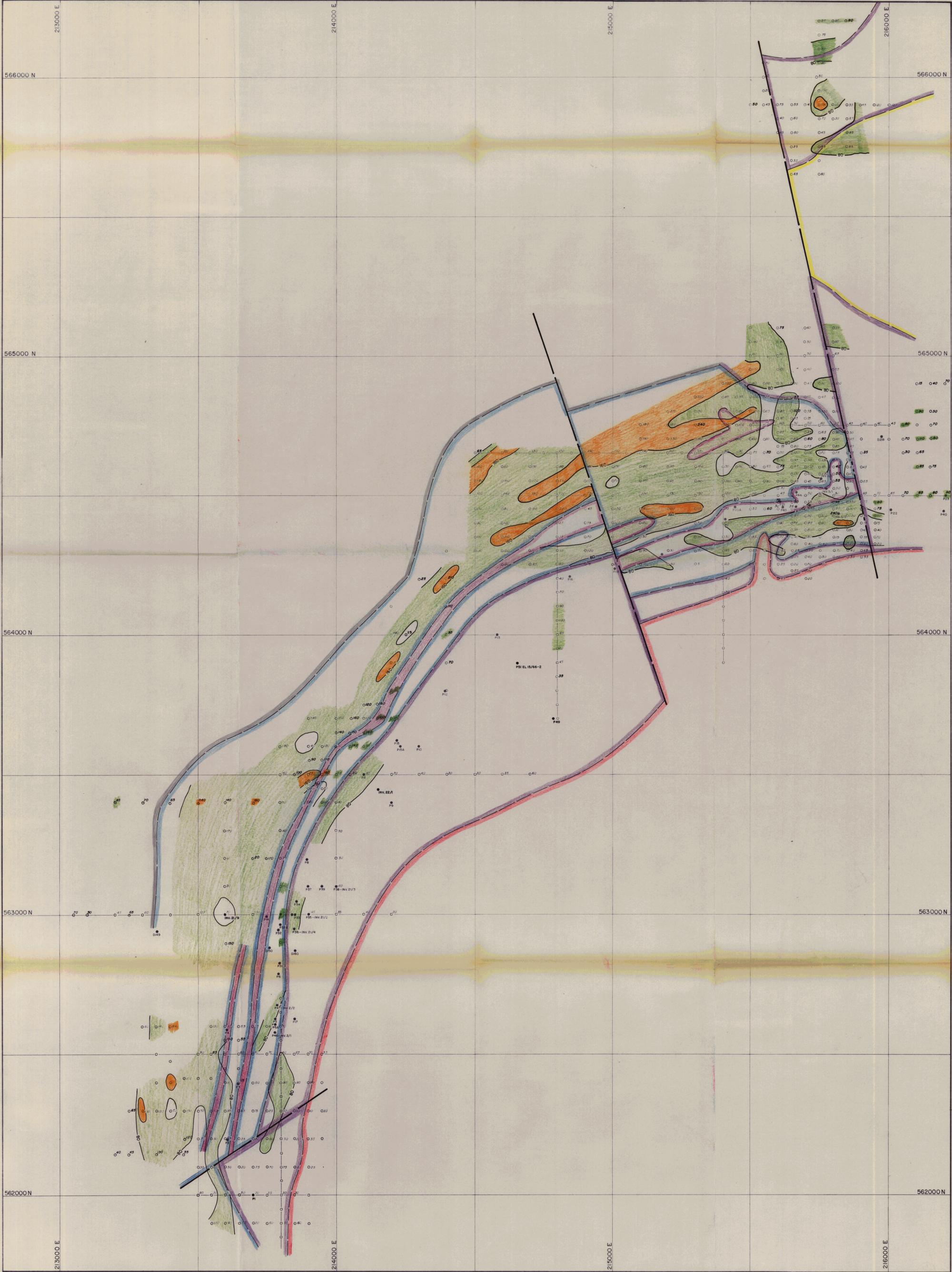
GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP VOL. 2/3  
 No. KF7-C 1998

SCALE: 1 : 5000

GEOCHEMICAL BASE MAP  
 SHOWING  
 ZINC GEOCHEMICAL RESULTS

5 cm

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 100 Zinc Geochemistry result p.p.m.
  3. -160- Zinc Geochemical contour.

  
 DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./O.S.  
 CHECKED: M.C.R.

537066 **GEOPEKO LIMITED** 75-1079  
 KING ISLAND GROUP VOL-213  
 No. K F4-C 1999

SCALE: 1:5000

**GEOCHEMICAL BASE MAP**  
 SHOWING  
**ZINC GEOCHEMICAL RESULTS**

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |

5 cm



- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 100 Zinc Geochemistry result p.p.m.
  3. -160- Zinc Geochemical contour.

DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./O.S.  
 CHECKED: M.C.R.

537067 **GEOPEKO LIMITED** 75-1079  
 KING ISLAND GROUP VOL. 2/3

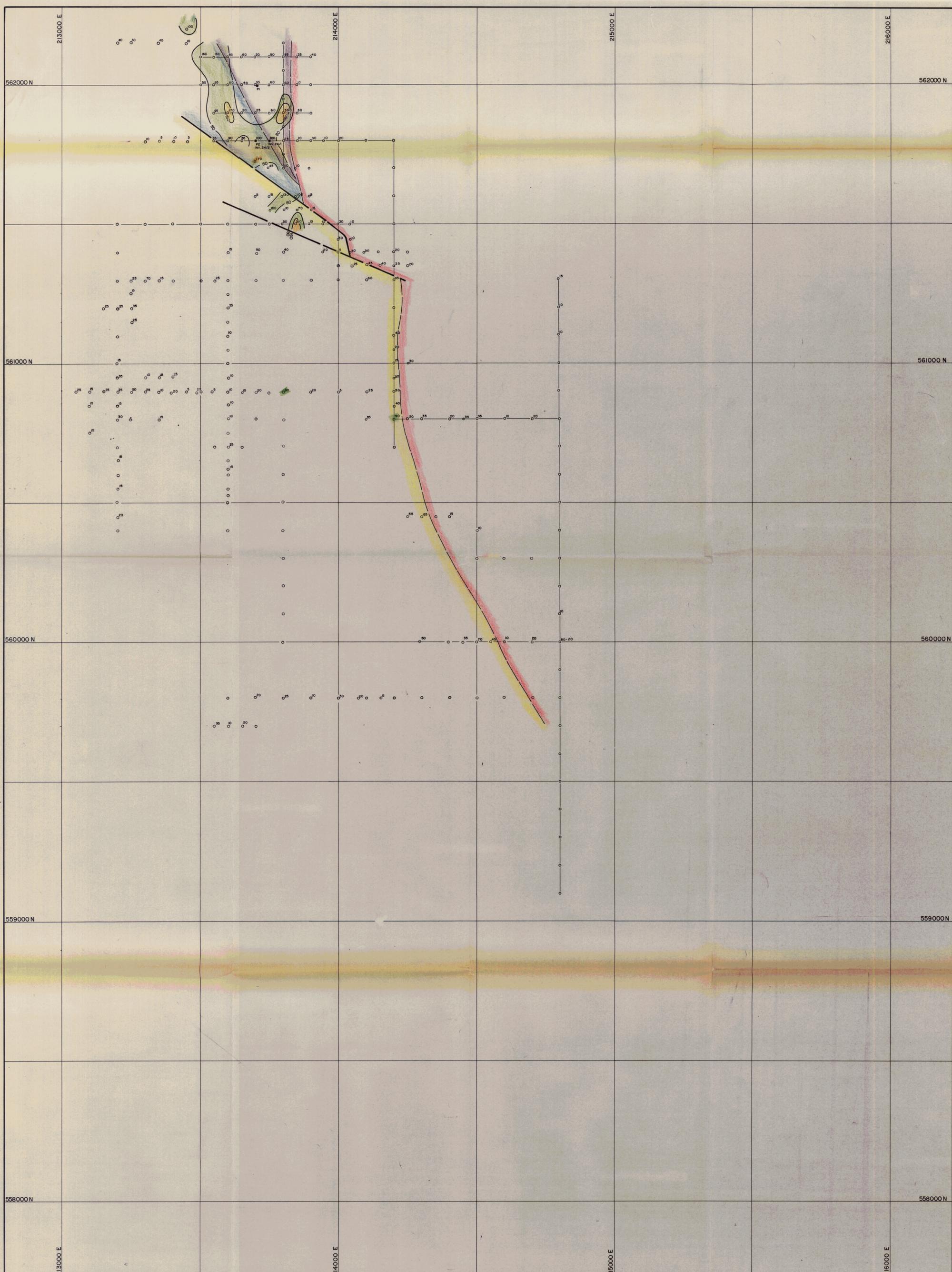
SCALE: 1:5000

**GEOCHEMICAL BASE MAP  
 SHOWING  
 ZINC GEOCHEMICAL RESULTS**

No. KF5-C 2000

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |

5 cm



- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 100 Copper Geochemistry result p.p.m.
  3. -160- Copper Geochemical contour.



537068 GEOPEKO LIMITED 75-1079  
KING ISLAND GROUP VOL. 2/3

SCALE: 1 : 5000

No. KF7-D 2001

DATE: MARCH, 1975  
GEOLOGIST: S.G.B.  
DRAWN: K.D./G.S.  
CHECKED: M.C.R.

GEOCHEMICAL BASE MAP  
SHOWING  
COPPER GEOCHEMICAL RESULTS

5 cm

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



537069  
 GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP VOL. 2/3

- NOTE:
1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.
  2. 100 Copper Geochemistry result p.p.m.
  3. -160- Copper Geochemical contour.



DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./O.S.  
 CHECKED: M.C.R.

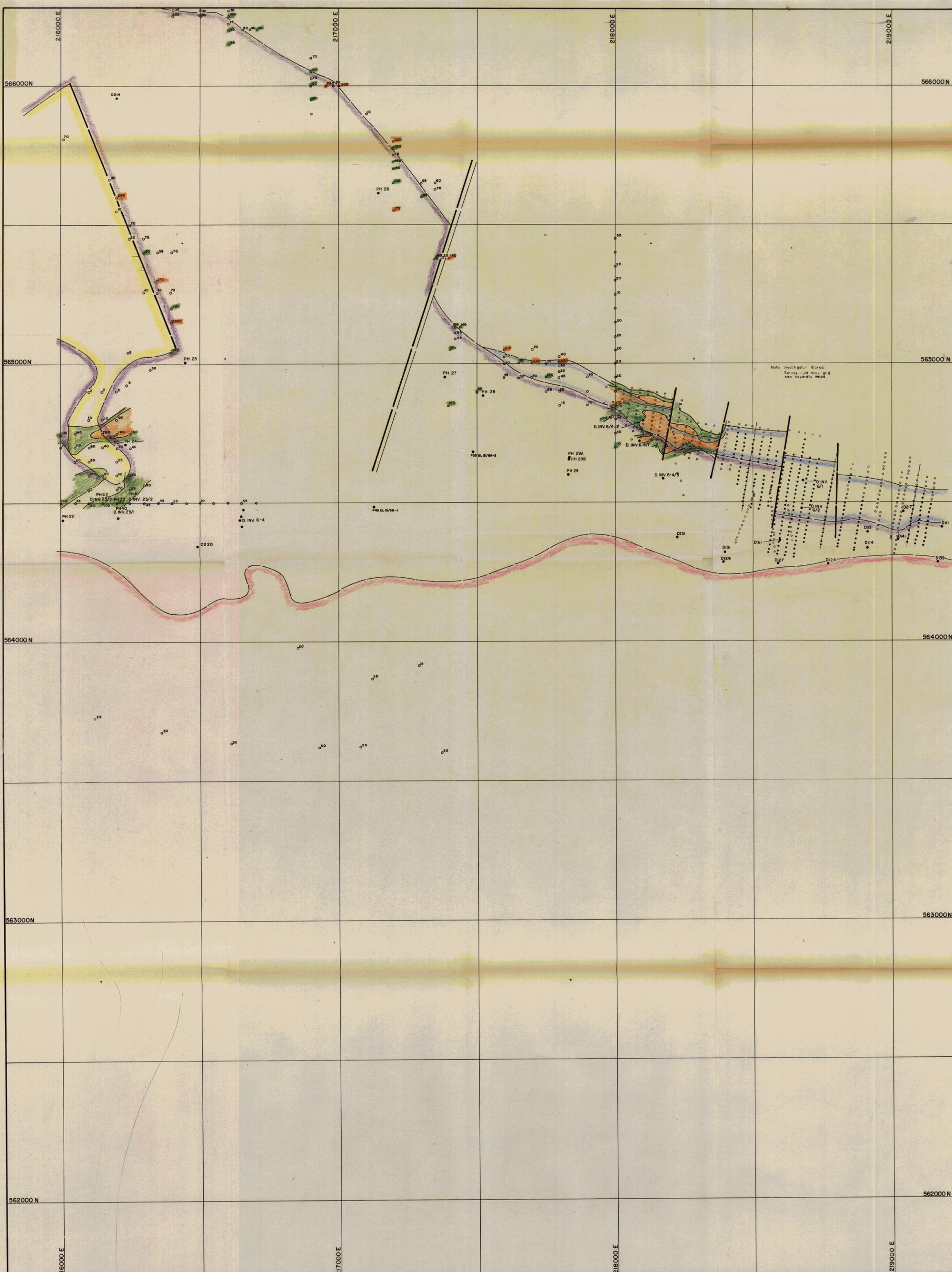
SCALE: 1:5000

GEOCHEMICAL BASE MAP  
 SHOWING  
 COPPER GEOCHEMICAL RESULTS

5 cm

No. KF4-D 2002

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



NOTE:  
 1. Co-ordinate system is the integrated co-ordinate system based on Australian Geodetic Datum.  
 2. 100 Copper Geochemistry result p.p.m.  
 3. -160- Copper Geochemical contour.



DATE: MARCH, 1975  
 GEOLOGIST: S.G.B.  
 DRAWN: K.D./G.S.  
 CHECKED: M.C.R.

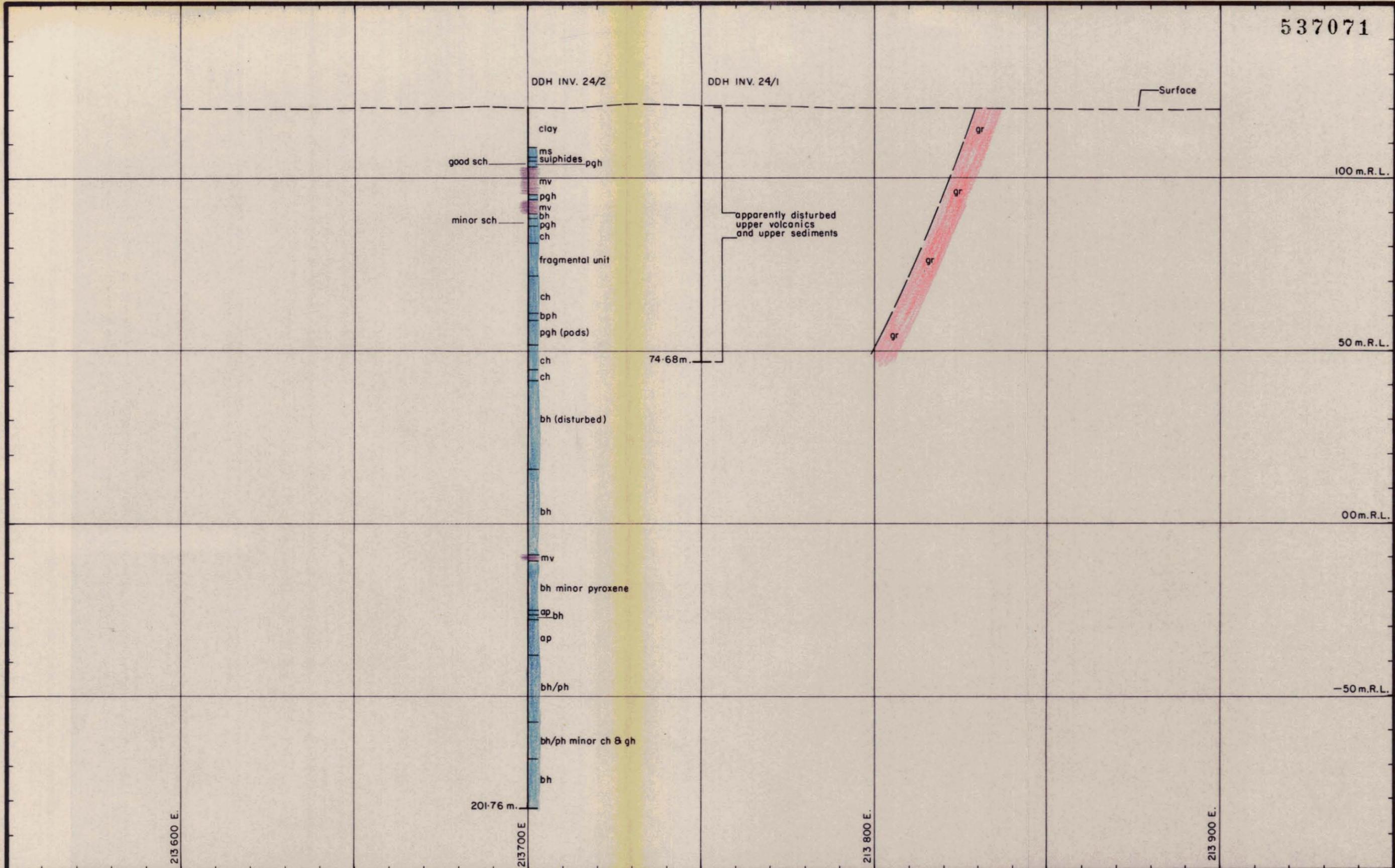
537070 GEOPEKO LIMITED 75-1079  
 KING ISLAND GROUP VOL. 2/3  
 No. KF5-D 2003

SCALE: 1:5000

GEOCHEMICAL BASE MAP  
 SHOWING  
 COPPER GEOCHEMICAL RESULTS

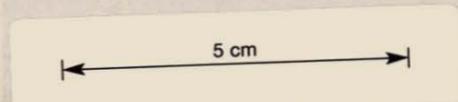
5 cm

|     |     |     |
|-----|-----|-----|
| KF1 | KF2 | KF3 |
| KF4 | KF5 | KF6 |
| KF7 | KF8 | KF9 |



LEGEND:

- 
- 
- 
- 



GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000

NO KGR-1

DATE: Mar75  
GEOL: SGB  
DWN: OS  
CHKD: MCR

INVESTIGATOR 24  
561800 N.  
CROSS SECTION

115

537072

150m. R. L.

PDH 46  
DDH INV. 2/1

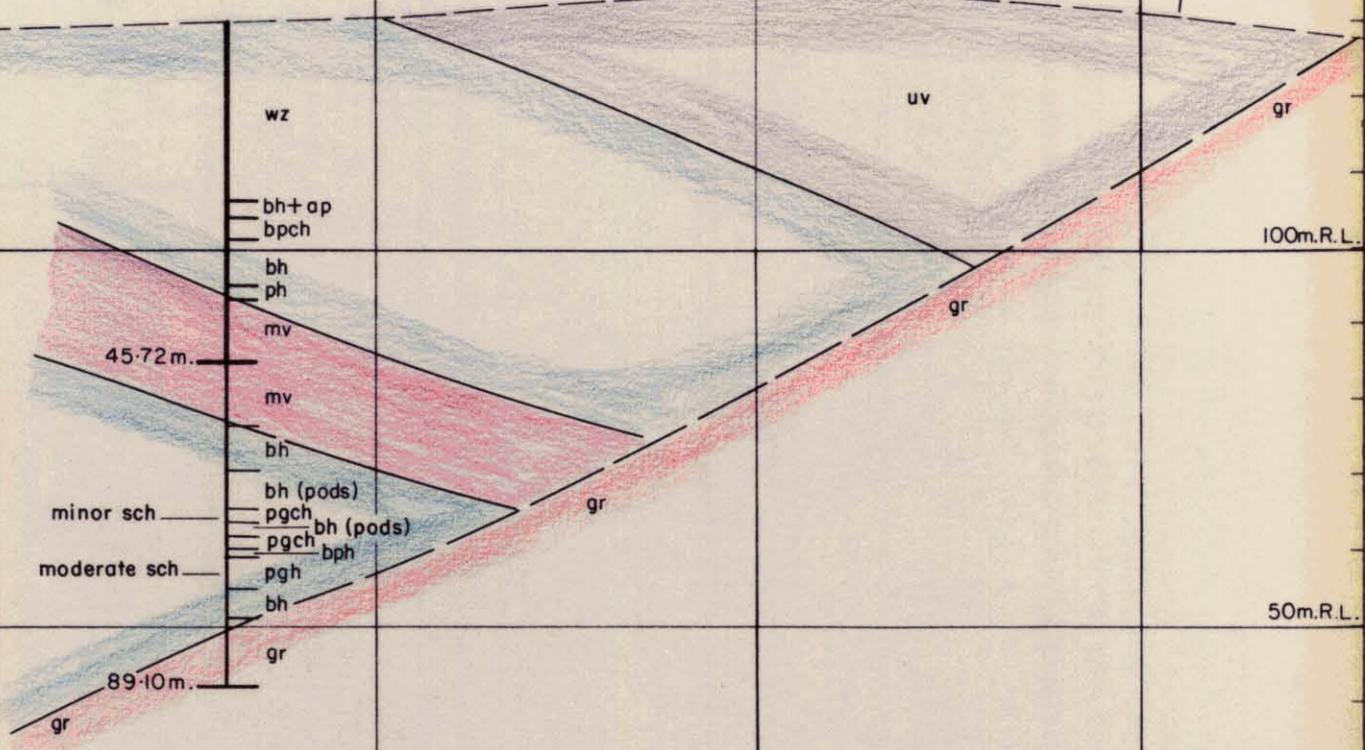
Surface

100m. R. L.

50m. R. L.

00m. R. L.

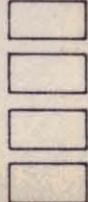
-50m. R. L.



213 800 E.

213 900 E.

LEGEND:



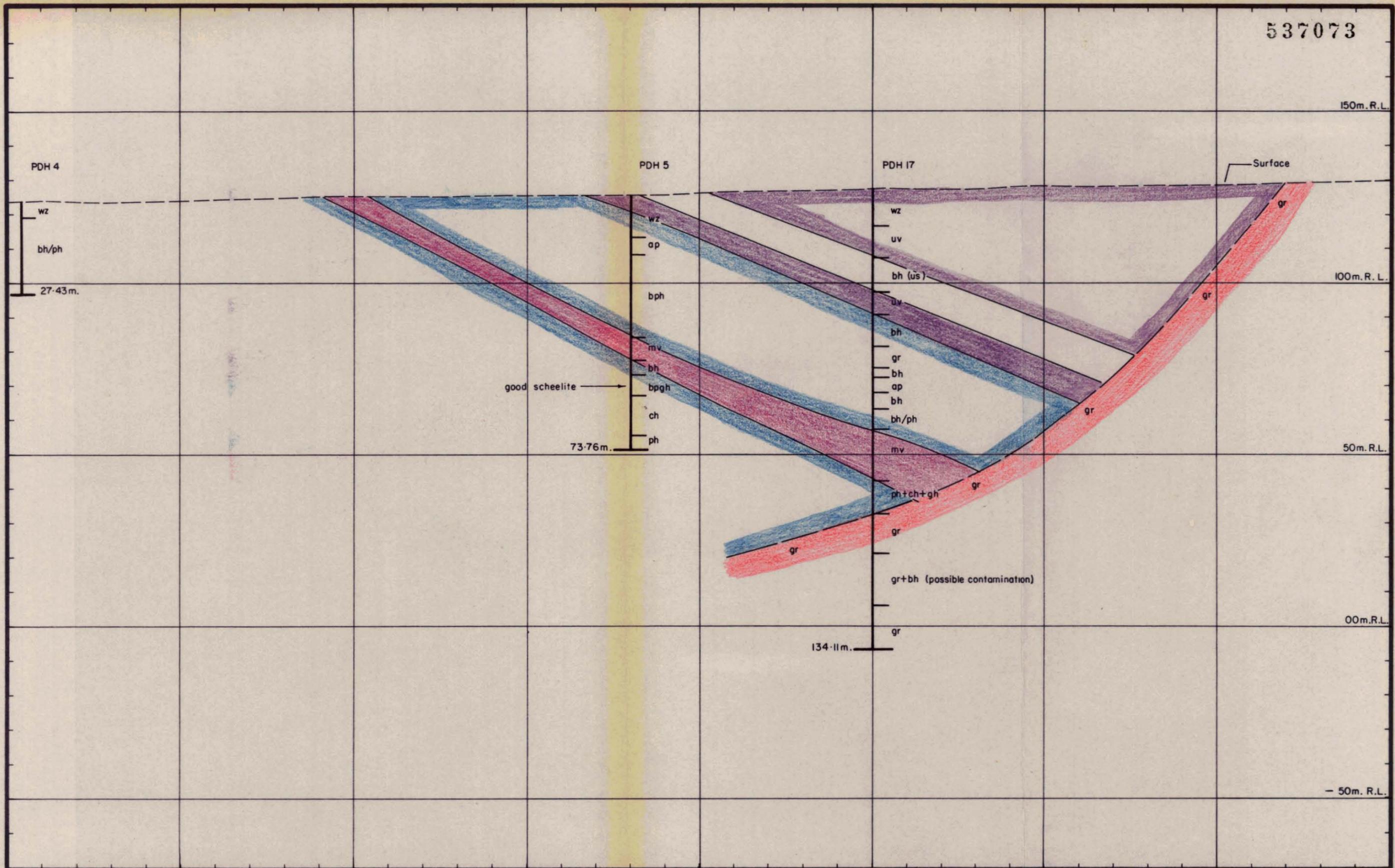
DATE: Mar 75  
 GEOL: SGB  
 DWN: OS  
 CHKD: MCR

GEOPEKO LIMITED  
KING ISLAND

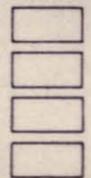
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No KGR-2

**INVESTIGATOR 2**  
**562 575 N.**  
**CROSS SECTION**



LEGEND:



5 cm



GEOPEKO LIMITED  
KING ISLAND

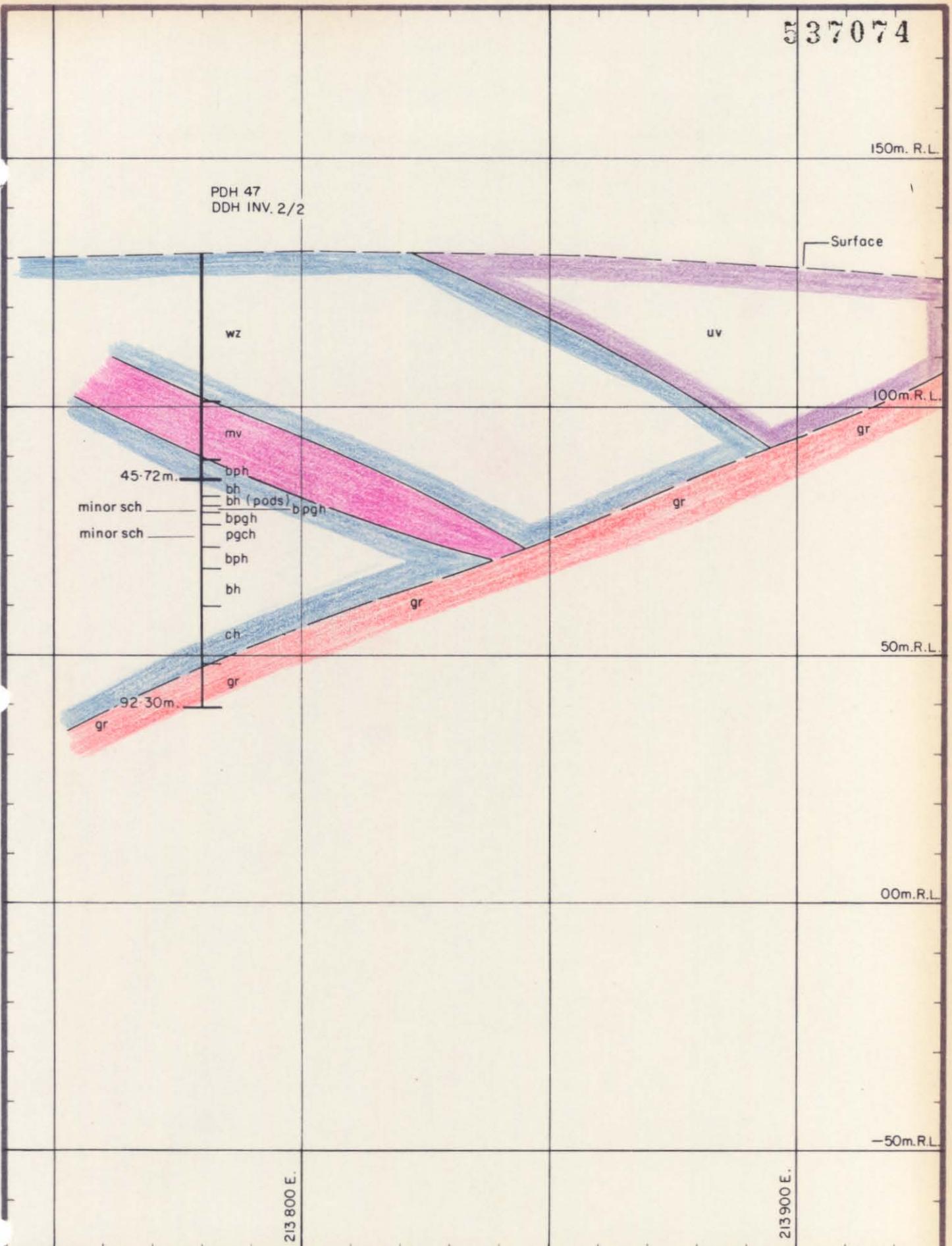
Scale: 1:1000      No KGR-3

DATE: Mar75  
 GEOL: SGB  
 DWN: OS  
 CHKD: MCR

**INVESTIGATOR 2**  
**562625 N.**  
**CROSS SECTION**

117

537074



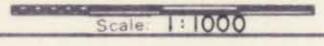
LEGEND:

- 
- 
- 
- 



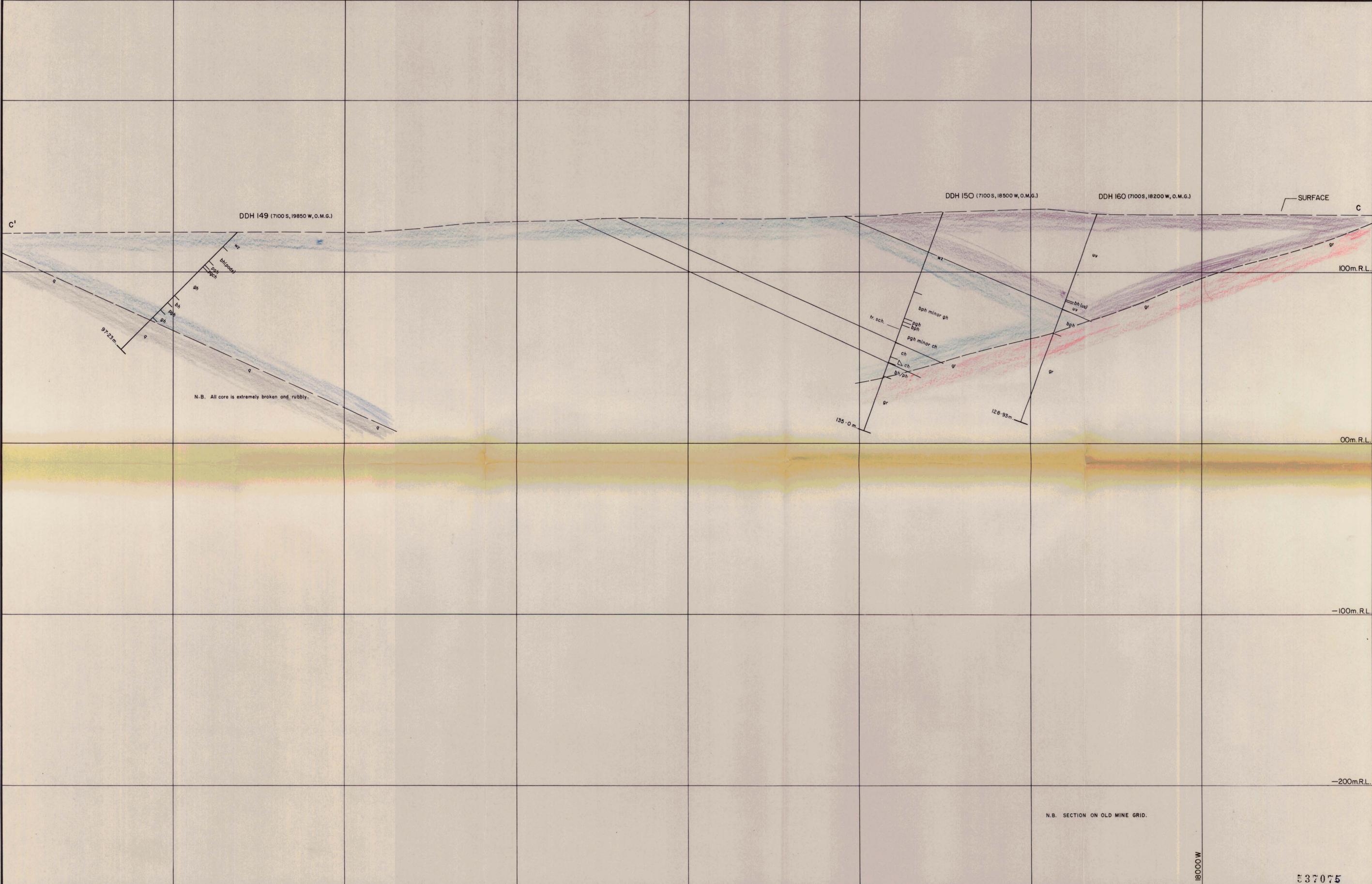
DATE Mar 75  
 GEOL SGB  
 DWN OS  
 CHKD MCR

GEOPEKO LIMITED  
 KING ISLAND

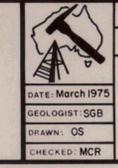
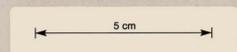


No KGR-4

INVESTIGATOR 2  
 562 675 N.  
 CROSS SECTION

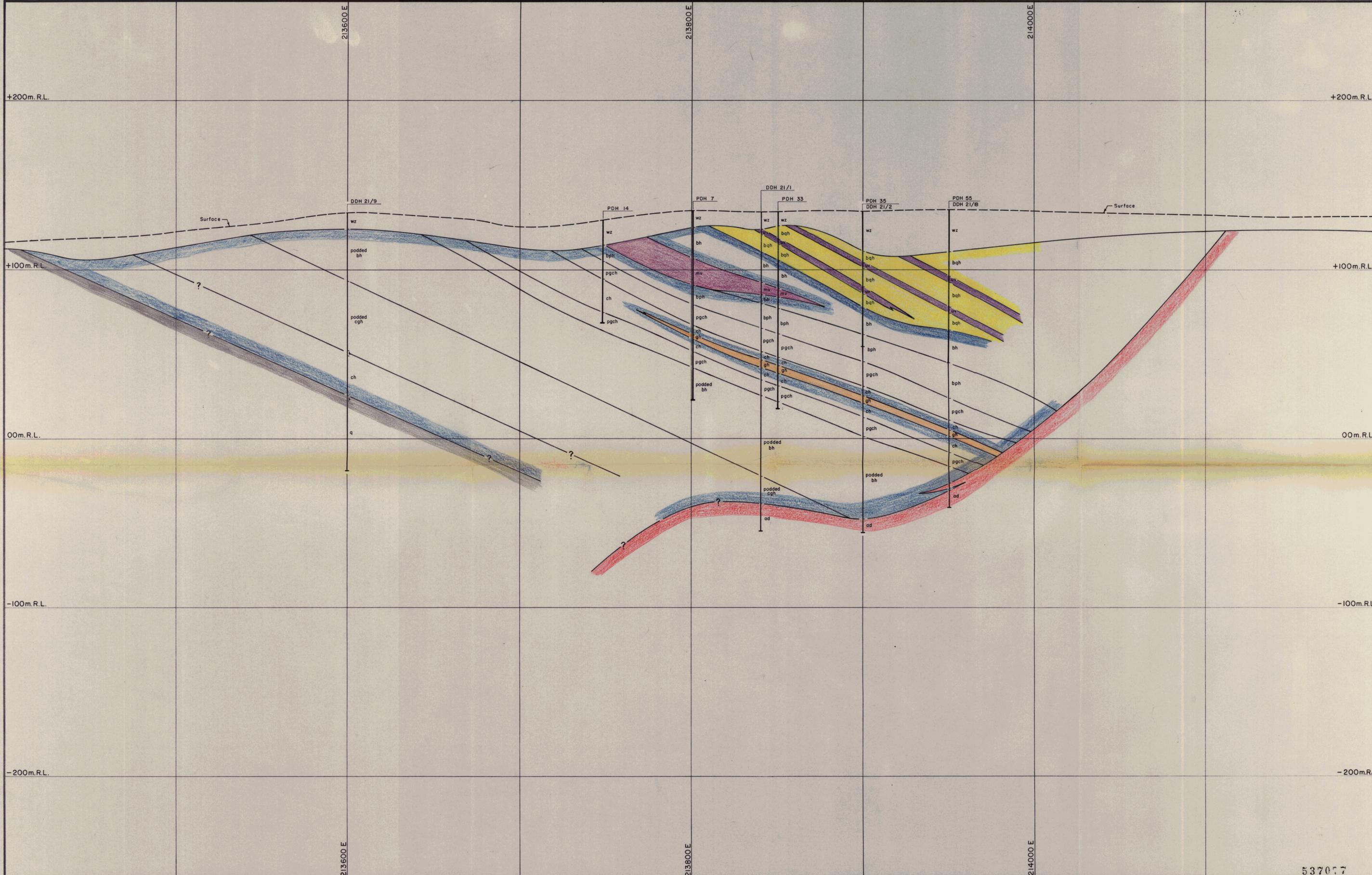


75-1079  
Vol. 3/3



|                                      |           |
|--------------------------------------|-----------|
| GEOPEKO LIMITED<br>KING ISLAND GROUP |           |
| SCALE: 1:1000                        | No. KGR-5 |
| CROSS SECTION C-C' 2004              |           |
| INVESTIGATOR 2                       |           |
| 7100 S (O.M.G.)                      |           |





**Legend:**

|     |                           |      |                                  |     |                                  |     |                       |
|-----|---------------------------|------|----------------------------------|-----|----------------------------------|-----|-----------------------|
| bah | Upper pelitic hornfels    | mv   | Middle metavolcanics             | bh  | Biotite hornfels (podded)        | wz  | Weathered zone        |
| uv  | Upper metavolcanics       | pgch | Pyroxene garnet calcite hornfels | cgh | Calcite garnet hornfels (podded) | PDH | Percussion Drill Hole |
| bh  | Biotite hornfels          | ch   | Marble                           | q   | Quartzite                        | DDH | Diamond Drill Hole    |
| bph | Biotite pyroxene hornfels | gh   | Skarn                            | ad  | Adamellite                       |     |                       |

Note: Surveyed on I.S.G. grid.

75-1079  
Vol. 3/3



537077

GEOPEKO LIMITED  
KING ISLAND GROUP

SCALE: 1:1000

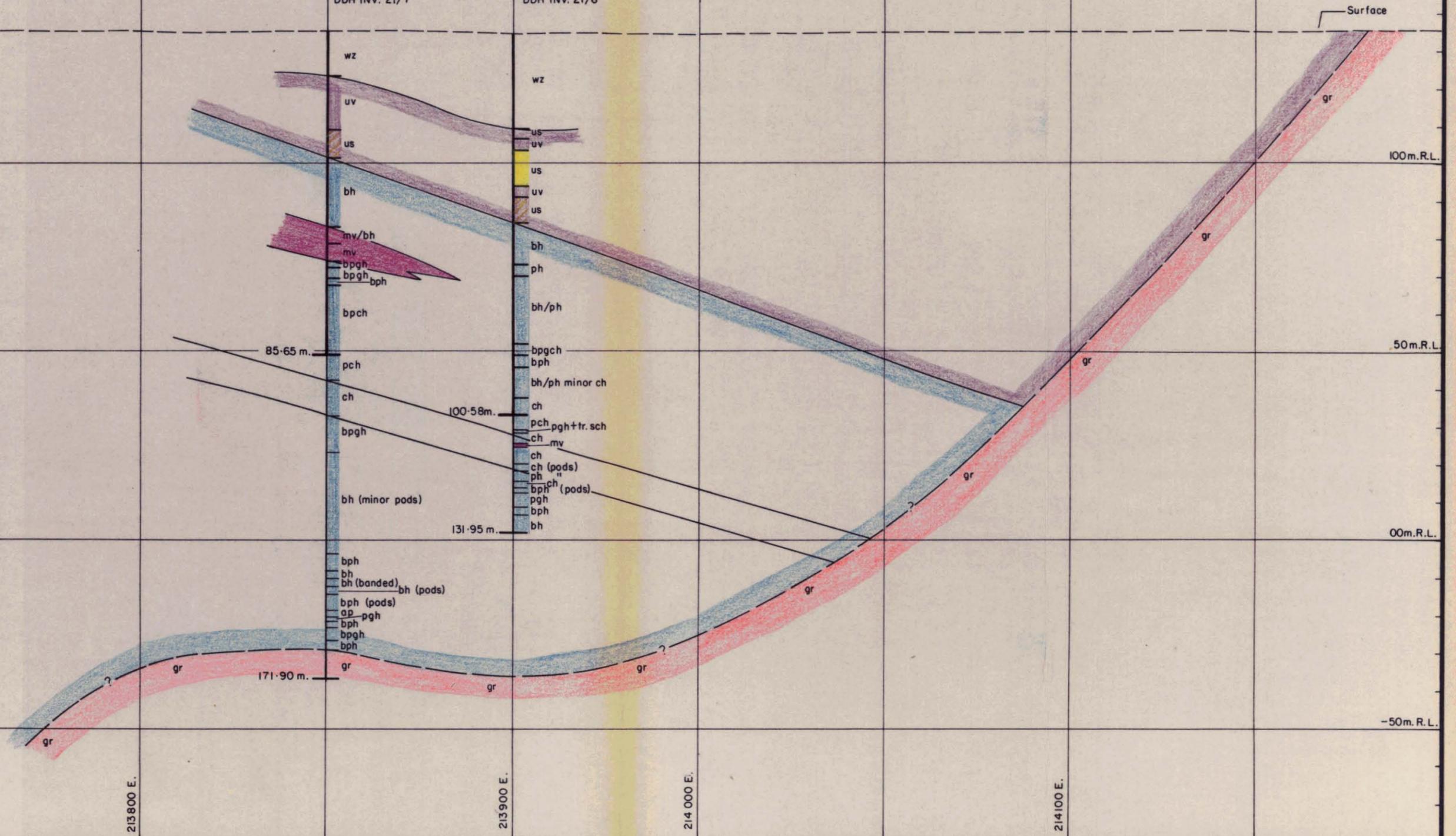
No. KGR-7

INVESTIGATOR 21 2005  
GEOLOGICAL CROSS SECTION  
563000 N

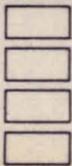
DATE: SEPT, 1974  
GEOLOGIST: S.G.B.  
DRAWN: R.F.  
CHECKED: M.C.R.

PDH 58  
DDH INV. 21/7

PDH 57  
DDH INV. 21/6



LEGEND:



GEOPEKO LIMITED  
KING ISLAND

Scale: 1: 1000

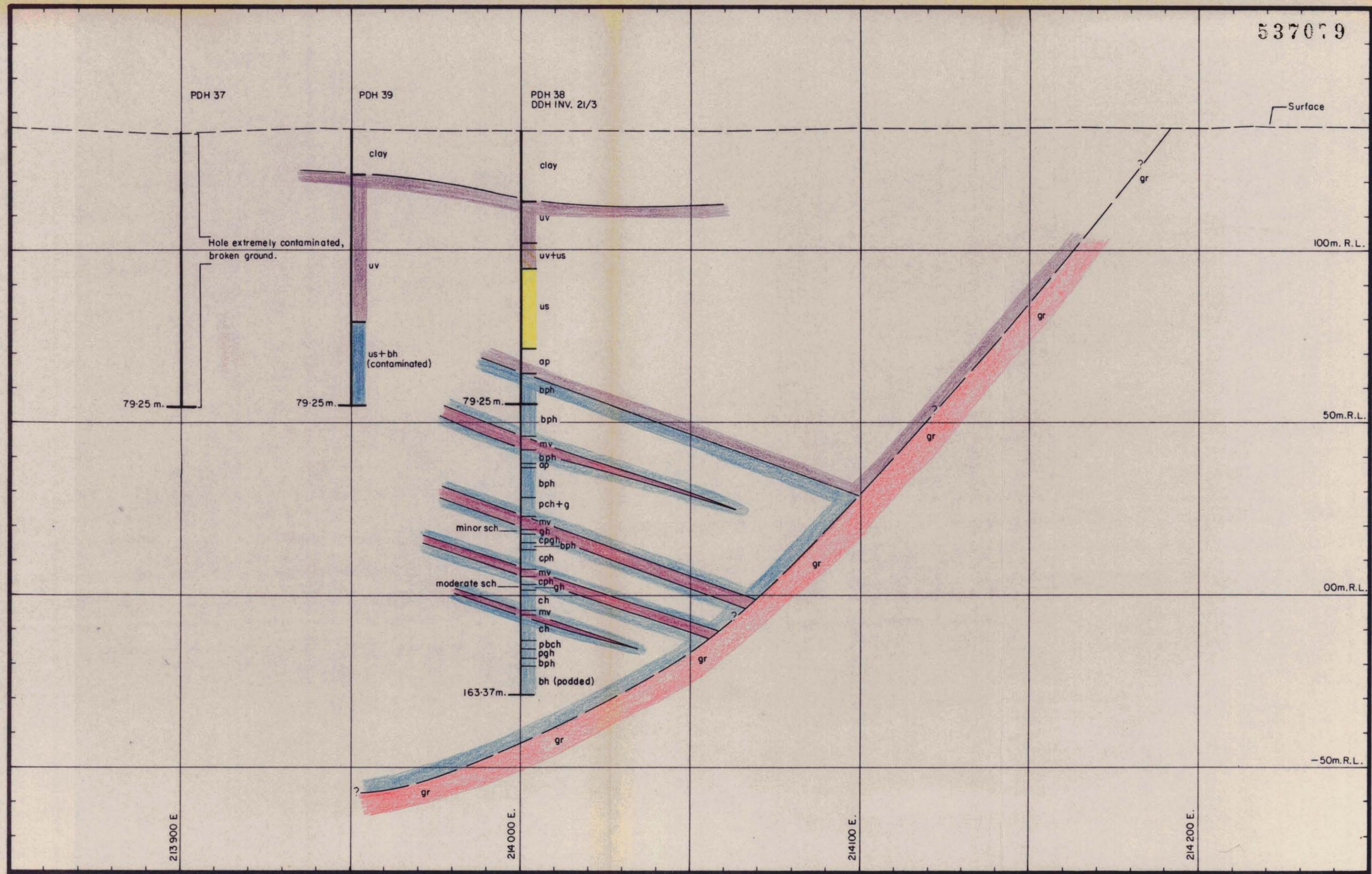
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DATE: Mar75  
 GEOL: SGB  
 DWN: OS  
 CHKD: MCR

INVESTIGATOR 21  
 563050 N.  
 CROSS SECTION

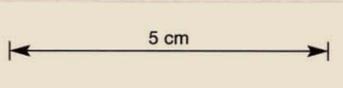
120

537079



LEGEND:

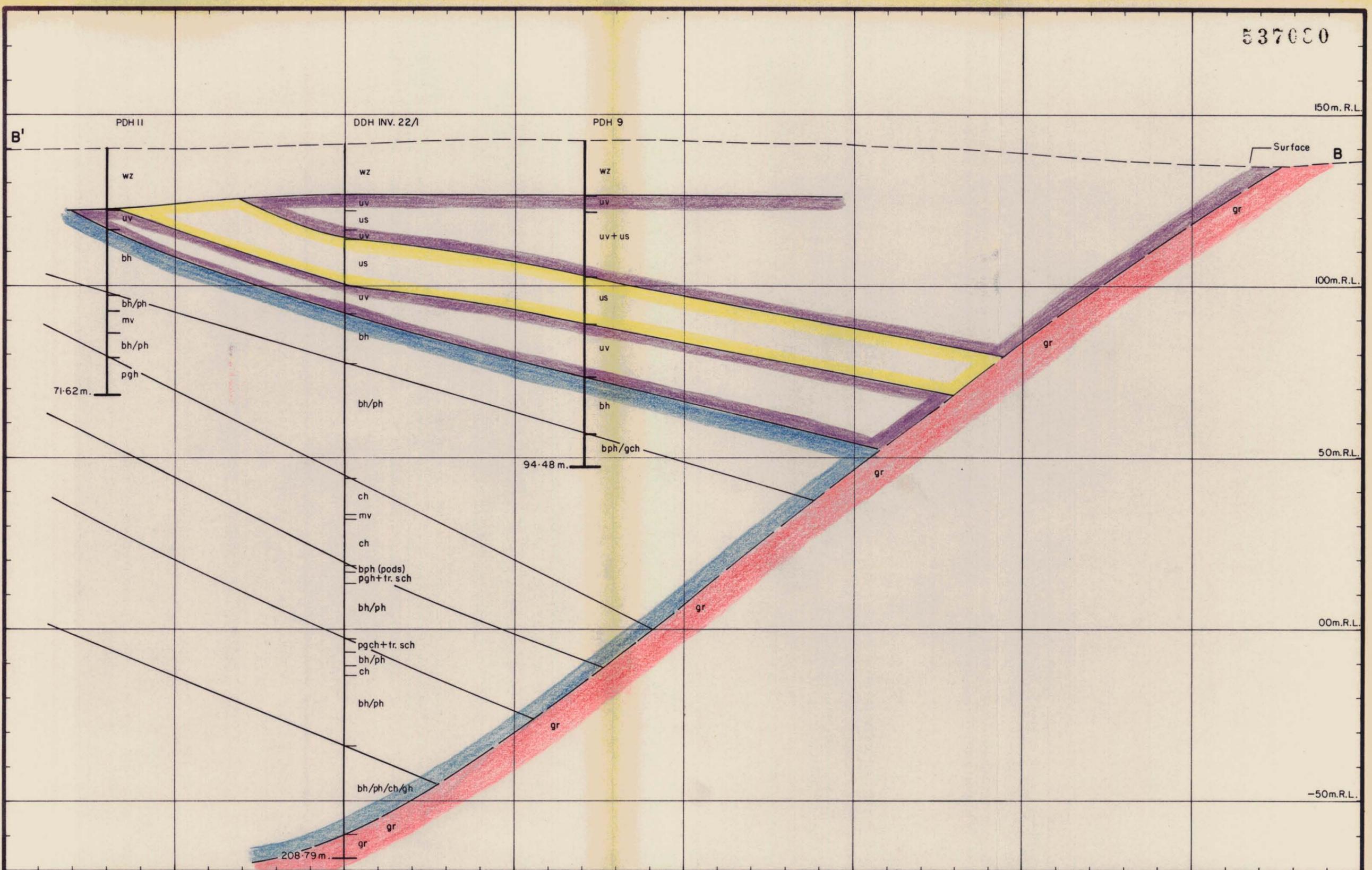
- 
- 
- 
- 



GEOPEKO LIMITED  
KING ISLAND  
Scale: 1:1000  
NR KGR-9

DATE: Mar 75  
GEOLOGIST: SGB  
DRAWN: OS  
CHECKED: MCR

INVESTIGATOR 21  
563 100 N.  
CROSS SECTION



LEGEND:

- 
- 
- 
- 

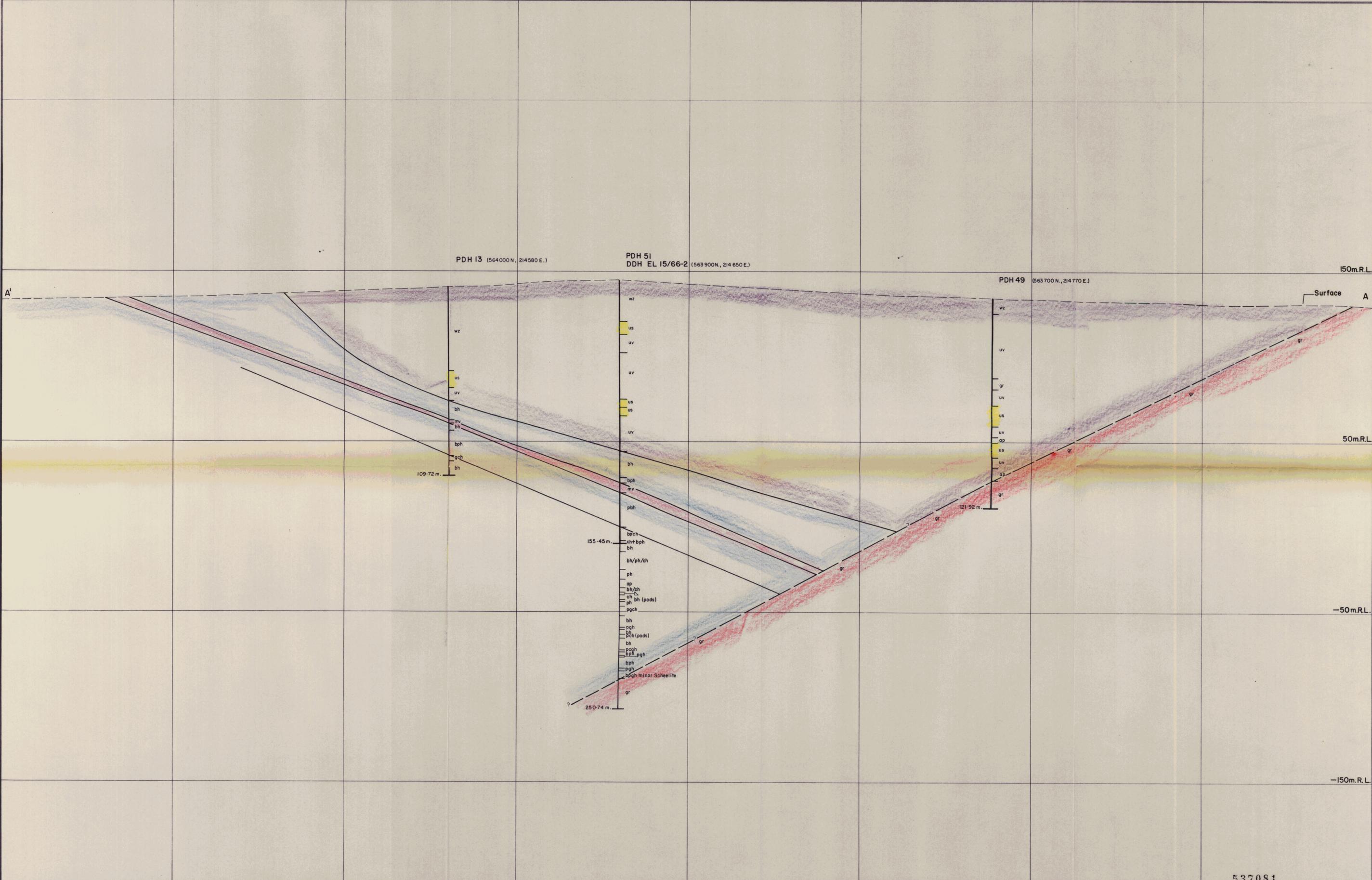
5 cm



DATE: Mar75  
 GEOL: SGB  
 DWN: OS  
 CHKD: MCR

GEOPEKO LIMITED  
 KING ISLAND  
 Scale: 1:1000  
 No KGR-10

**SECTION B-B'**  
**GEOLOGICAL CROSS SECTION**  
**THROUGH DDH INV.22/1,PDH 9&11**

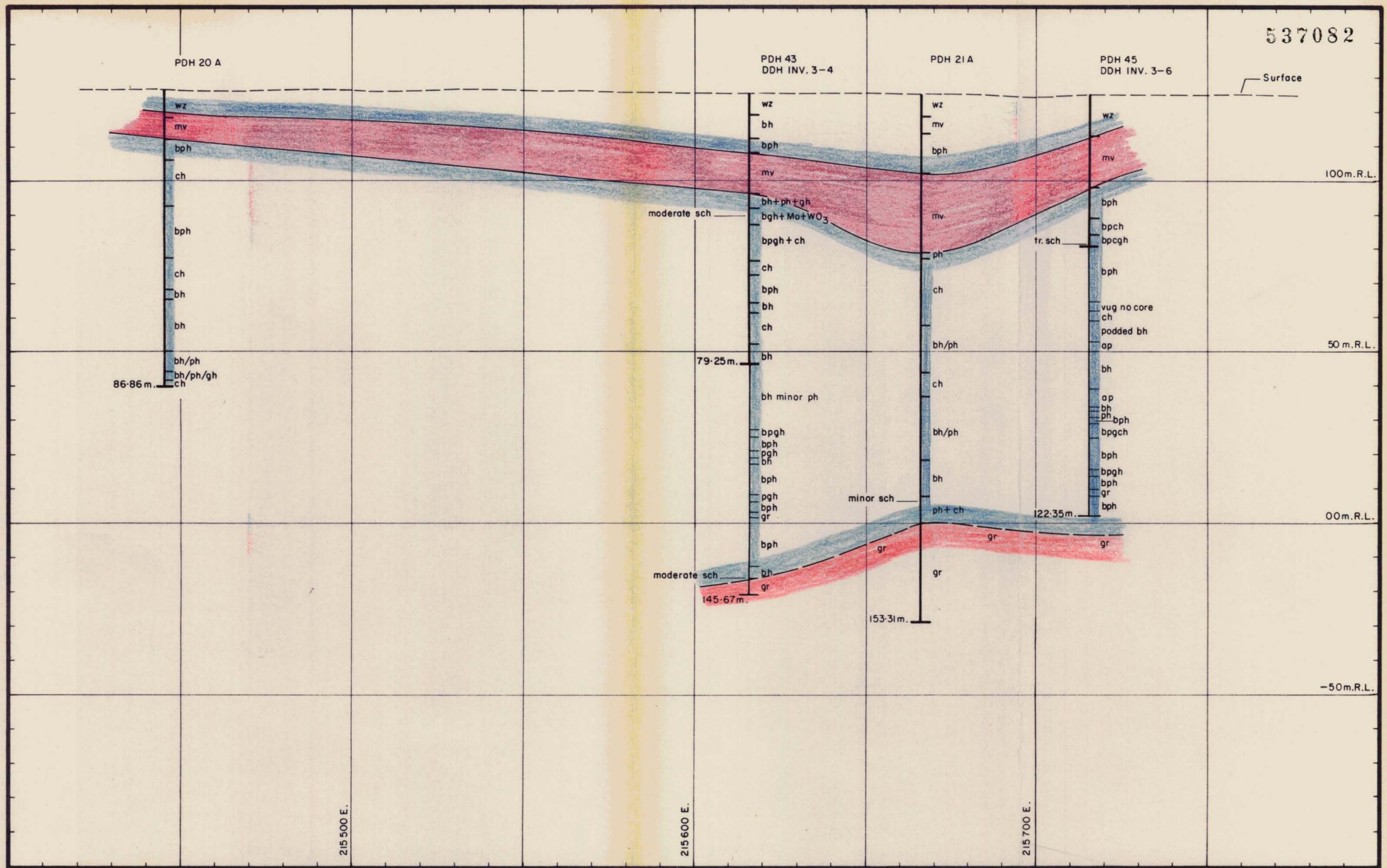


537081

75-1079  
Vol. 3/3

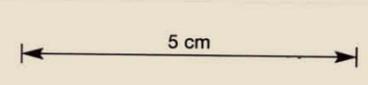


|   |  |            |
|---|--|------------|
|   | GEOPEKO LIMITED  |            |
|   | KING ISLAND GROUP  |            |
|   | SCALE: 1:1000  | No. KGR-II |
| DATE: March 75<br>GEOLOGIST: SGB<br>DRAWN: OS<br>CHECKED: MCR | SECTION A-A' 2006<br>GEOLOGICAL CROSS SECTION<br>THROUGH DDH EL 15/66-2, PDH 13 & PDH 49 |            |



LEGEND:

- 
- 
- 
- 



GEOPEKO LIMITED  
KING ISLAND  
Scale: 1:1000  
No KGR-12

DATE: Mar 75  
GEOLOGIST: SGB  
DRAWN: OS  
CHECKED: MCR

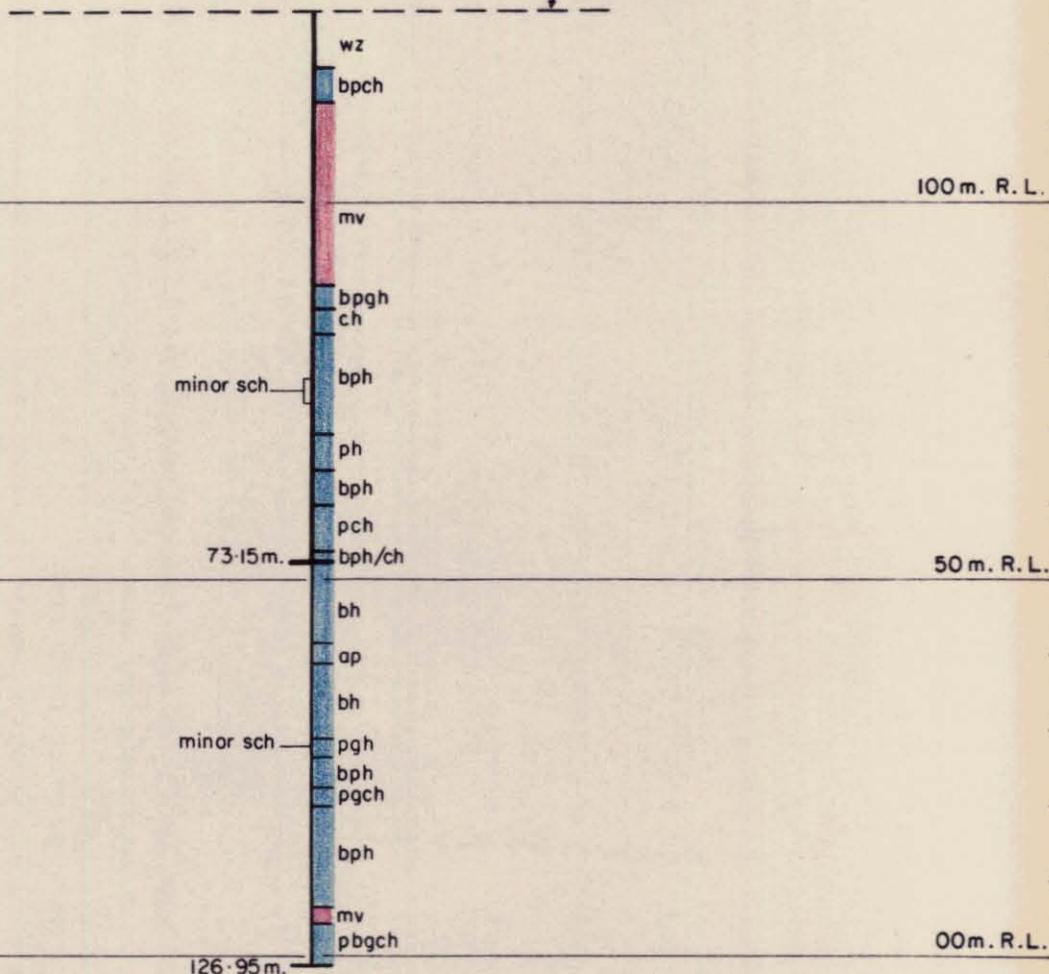
INVESTIGATOR 3  
564460 N.  
LONG SECTION

123

537083

PDH 44  
DDH INV. 3-5

Surface



COORDINATES: 564 510 N, 215 666 E.

LEGEND:



5 cm



GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000

No KGR-13

DATE: Mar 75

GEOL: SGB

DWN: OS

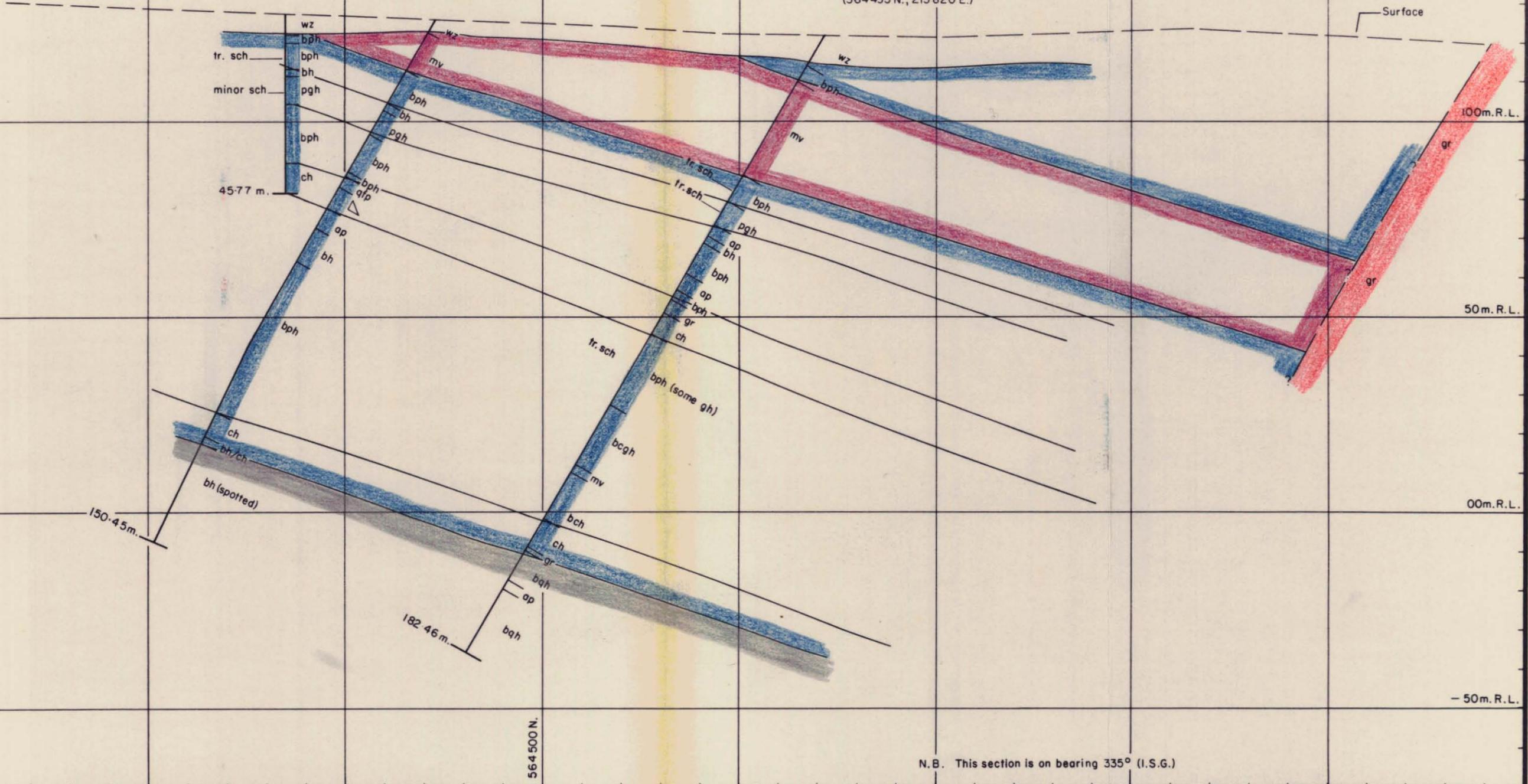
CHKD: MCR

GEOLOGICAL SECTION  
THROUGH DDH INV. 3-5

DDH INV. 3/2  
(564560 N., 215757 E.)

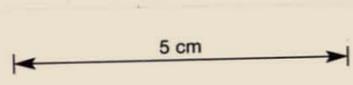
DDH INV. 3/1  
(564525 N., 215775 E.)

DDH INV. 3/3  
(564435 N., 215820 E.)



N.B. This section is on bearing 335° (I.S.G.)

LEGEND:



GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000 No. KGR-14

DATE: Mar75  
GEOL: SGB  
DWN: OS  
CHKD: MCR

**SECTION G-G'**  
**GEOLOGICAL CROSS SECTION**  
**THROUGH DDH's INV. 3/1, 2 and 3**

125

DDH 218

537085

Surface

100m. R.L.

wz

50m. R.L.

us

uv+us

00m. R.L.

uv

bh/ph

bh

-50m. R.L.

mv

ch

ch/ph

bh/ph

ch minor bh

bh

bh/ph

bh/ph+gh

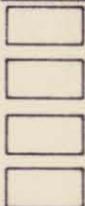
bh/ph

ph

bh

COORDINATES:  
564661 N., 216123 E.

LEGEND:



252.22 m.

5 cm



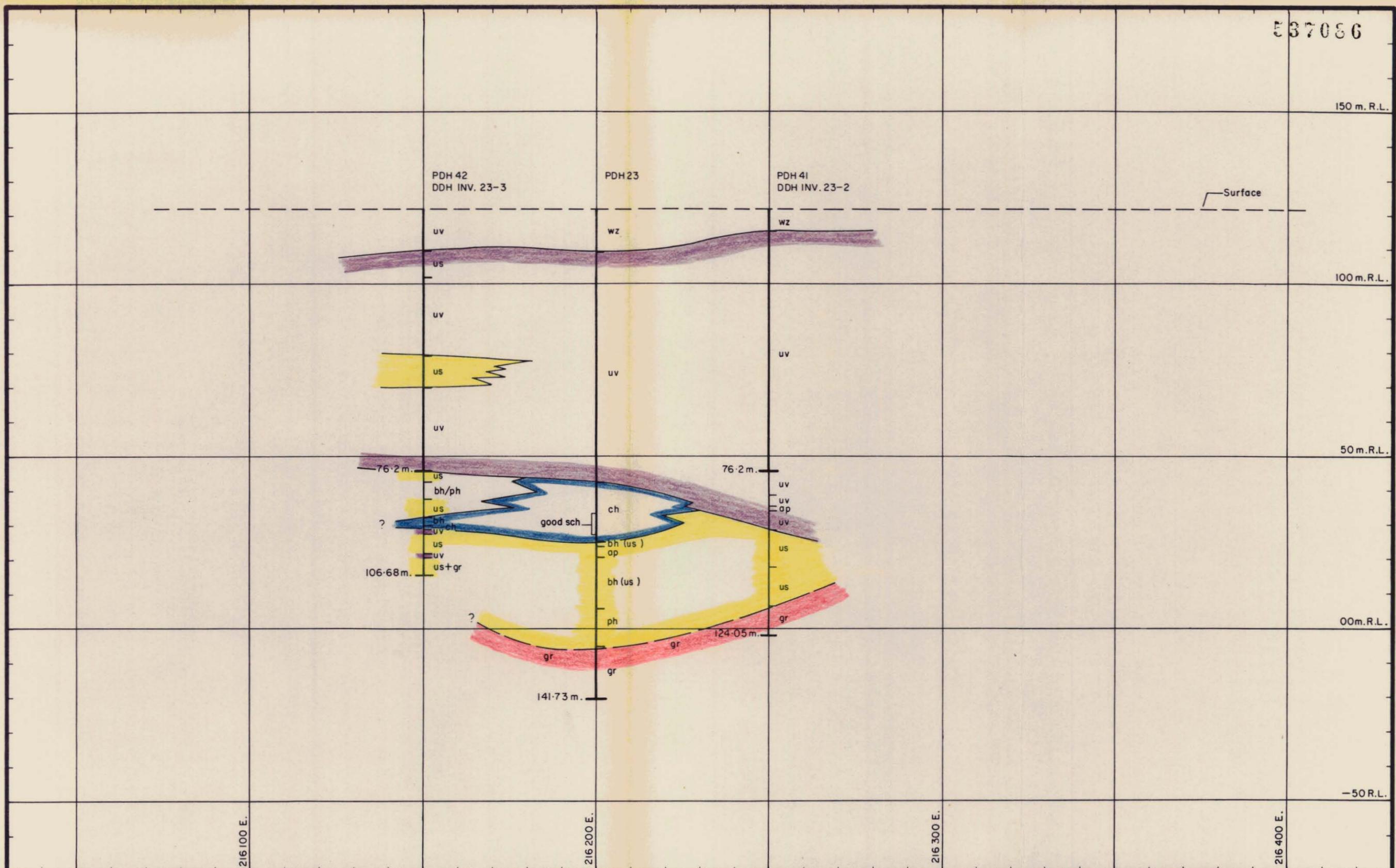
GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000

No KGR-15

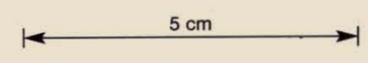
DATE Mar 75  
GEOL. SGB  
DWN: OS  
CHKD: MCR

GEOLOGICAL SECTION  
THROUGH DDH 218



LEGEND:

- 
- 
- 
- 



  
 DATE: Mar 75  
 GEOL: SGB  
 DWN: OS  
 CHKD: MCR

GEOPEKO LIMITED  
 KING ISLAND  
 Scale: 1:1000  
 No KGR-16  
**INVESTIGATOR 23**  
**564600 N.**  
**LONG SECTION**

127

537087

PDH 40  
DDH INV. 23/1

Surface

100m.R.L.

50m.R.L.

00m.R.L.

-50m.R.L.

wz

uv

us

us

us

uv

us

91.44 m.

us

gr

uv

us

gr

us

uv

gr

123.44 m.

COORDINATES : 564 425 N , 216 200 E .

LEGEND:



5 cm



DATE Mar75

GEOL: SGB

DWN: OS

CHKD: MCR

GEOPEKO LIMITED  
KING ISLAND

Scale: 1 : 1000

Nº KGR-17

GEOLOGICAL SECTION  
THROUGH DDH INV. 23/1

LEGEND:  
[ ]  
[ ]  
[ ]  
[ ]

DDH 214  
565955 N. 216200 E.

Surface

150m.R.L.

100m.R.L.

50m.R.L.

00m.R.L.

- 50m.R.L.

- 100m.R.L.

-150m.R.L.

uv

us

uv + us

bh

ch

bph

ph

ph weathered bph

bpch

bph

ch (impure)

bph

cph

bh

ch (fragmental)

mv

ph

spotted siltstones

spotted siltstones

spotted siltstones

283.77m.



DATE: Mar 75

GEOLOGIST: SGB

DWN: OS

CHKD: MCR

GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000  
No KGR-18

GEOLOGICAL SECTION  
THROUGH DDH 214

5 cm

129

DDH 220

537089

Surface

100m. R. L.

upper volcanics

50m. R. L.

00m. R. L.

126.49 m.

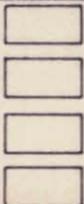
N. B. Hole suspended during August 1968 to drill at Bold Head.

-50m. R. L.

-100m. R. L.

COORDINATES: 564 346.6 N., 216 489.6 E.

LEGEND:



5 cm



GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000

No KGR-19

DATE: Mar75

GEOLOGICAL: SGB

DWN: OS

CHKD: MCR

GEOLOGICAL SECTION  
THROUGH DDH 220

DDH INV. 6/4

Surface

100m.R.L.

50m.R.L.

00m.R.L.

- 50m.R.L.

- 100m.R.L.

- 150m.R.L.

- 200m.R.L.

minor sch  
tr. sch

wz

uv

uv

ap

uv (very disturbed and broken)

bh

uv

bh

uv (disturbed)

tr. sch

tr. sch

minor sch

minor sch

moderate sch

8 m./0-52% WO<sub>3</sub>

uv+bh (ms)

ap

uv

minor sch

uv+bh (ms)

good sch

bah

uv

minor sch

bh+uv

ap

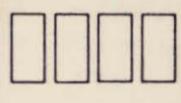
uv+bh+ap (very disturbed zone)

ap

386.20 m.

336.20 m

LEGEND:



DATE: Mar 75

GEOLOGIST: SGB

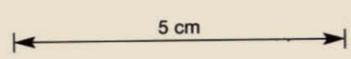
DRAWN: OS

CHECKED: MCR

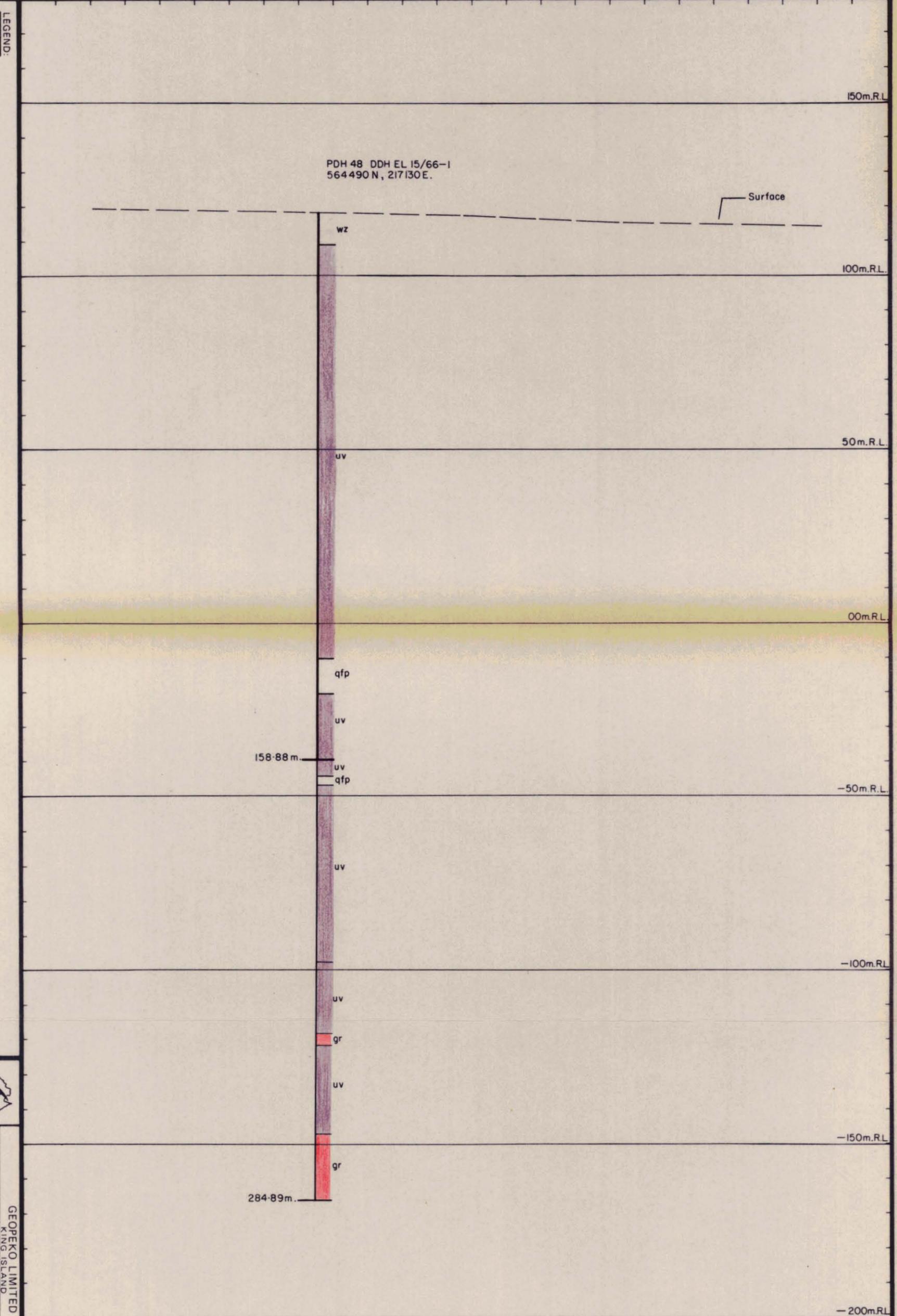
GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000  
No. KGR-20

GEOLOGICAL SECTION  
THROUGH DDH INV. 6/4  
(INVESTIGATOR 18)



COORDINATES: 564 438 N., 216 646 E.



LEGEND:

□ □ □ □

|  |                |  |
|--|----------------|--|
|  | DATE: Mar 75   | <p>Scale: 1:1000</p> <p>NO. KGR-21</p> |
|  | GEOLOGIST: SGB |  |
|  | DRAWN: OS      |  |
|  | CHECKED: MCR   |  |
| <p>GEOPIKO LIMITED<br/>KING ISLAND</p>               |                |  |
| <p>GEOLOGICAL SECTION<br/>THROUGH DDH EL 15/66-1</p> |                |  |

5 cm

132

537092

PDH 54  
DDH EL 15/66-3

Surface

100m. R.L.

uv

qfp

50m. R.L.

uv

us

00m. R.L.

uv

152.4 m.

uv + us

us

-50m. R.L.

uv

us

uv

us + 25 cm. cgh

uv

us

uv

COORDINATES: 564 675 N, 217 500 E.

213.5 m.

us

HOLE SUSPENDED

LEGEND:

- 
- 
- 
- 

5 cm



DATE: Mar 75  
 GEOL: SGB  
 DWN: OS  
 CHKD: MCR

GEOPEKO LIMITED  
KING ISLAND

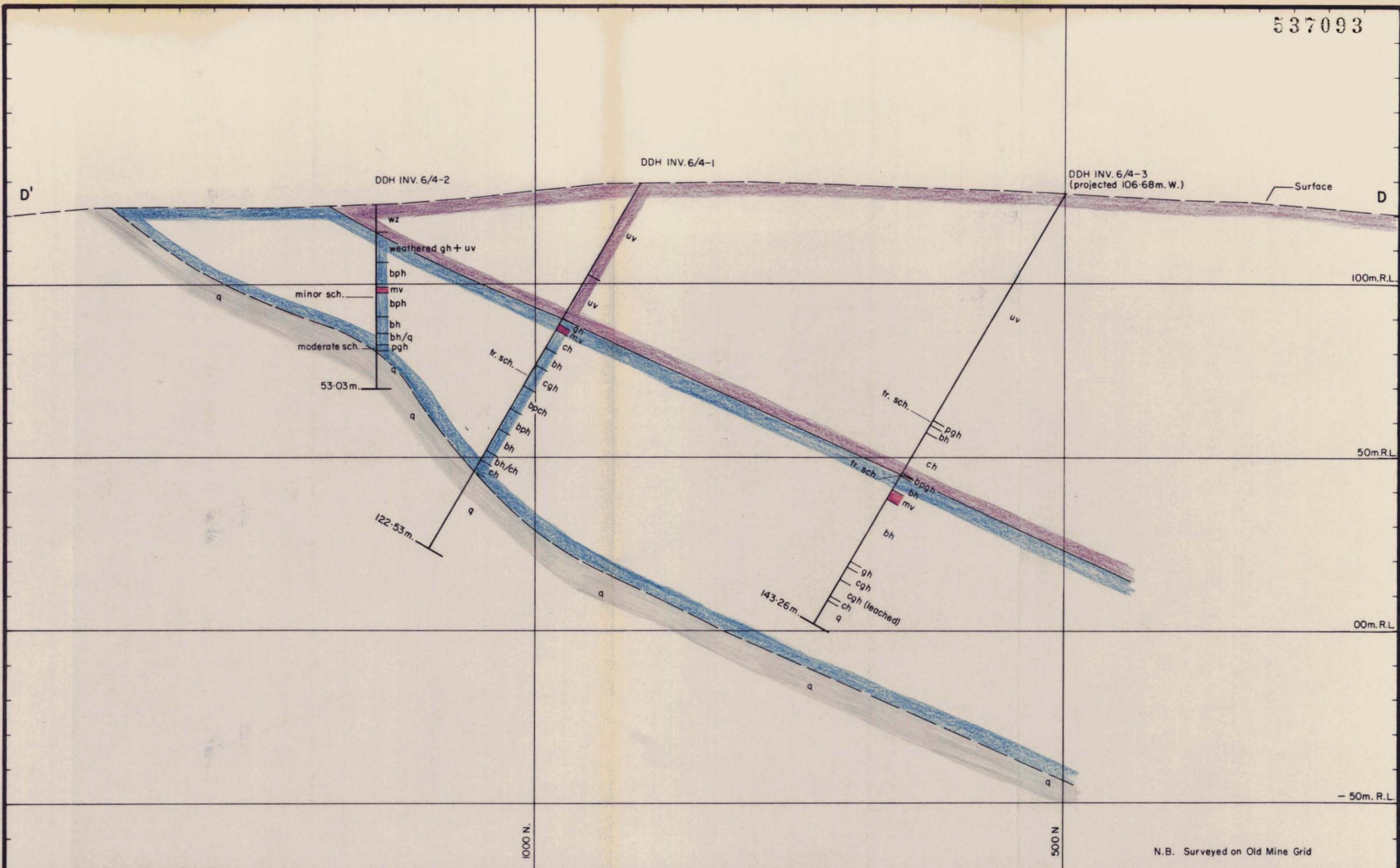
Scale: 1:1000

No KGR-22

GEOLOGICAL SECTION  
THROUGH DDH EL 15/66-3

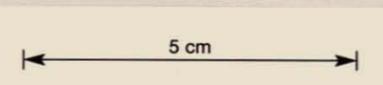
133

537093



LEGEND:

- 
- 
- 
- 



N.B. Surveyed on Old Mine Grid



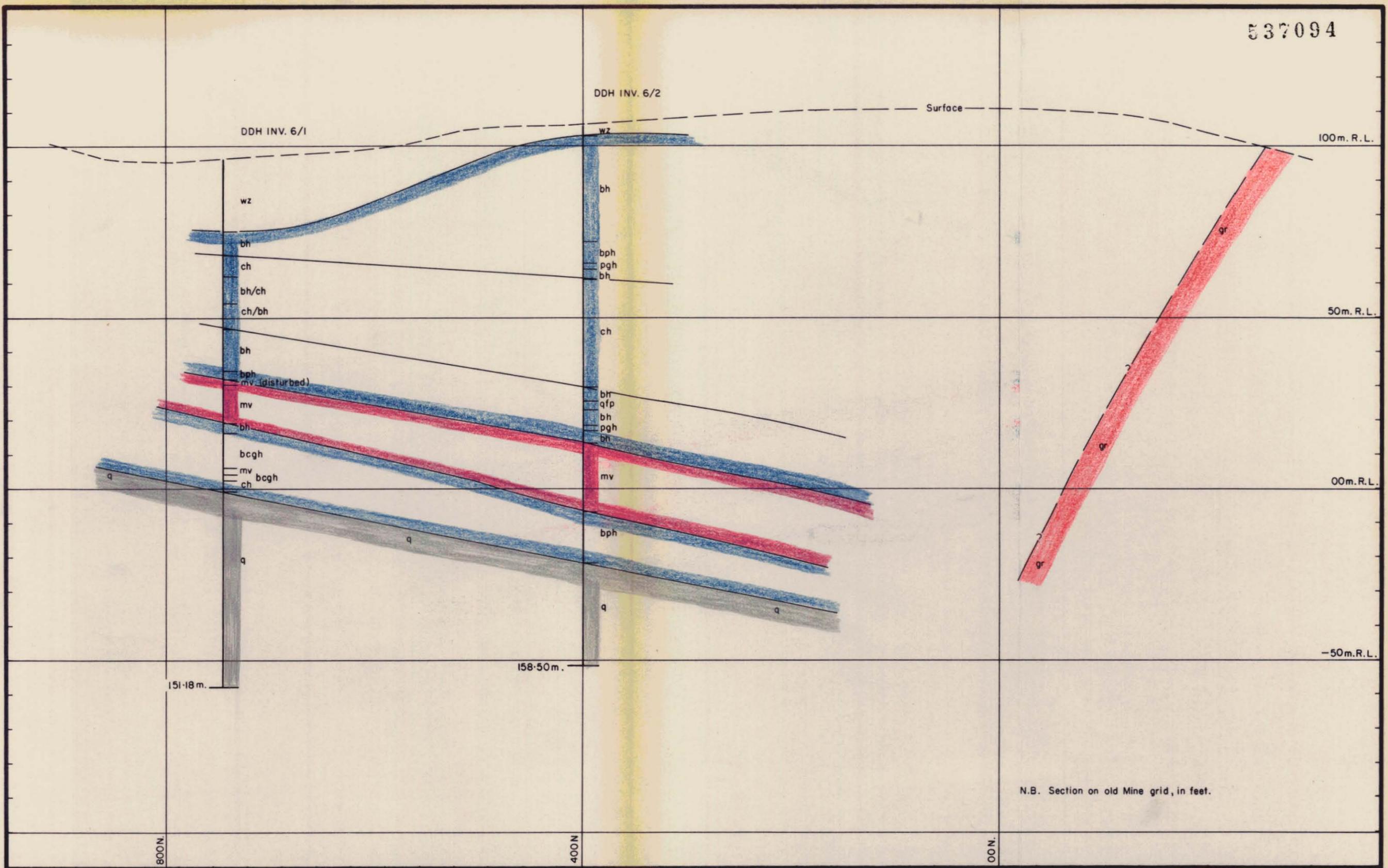
GEOPEKO LIMITED  
KING ISLAND

Scale: 1:1000

No KGR-23

DATE: Mar 75  
 GEOL: SGB  
 DWN: OS  
 CHKD: MCR

**SECTION D-D'**  
**INVESTIGATOR 6**  
**5300N.(O.M.G.) CROSS SECTION.**



N.B. Section on old Mine grid, in feet.

LEGEND:

|  |
|--|
|  |
|  |
|  |
|  |

5 cm

|   |   |           |
|---|---|-----------|
|  | GEOPEKO LIMITED<br>KING ISLAND                                  |           |
|   | Scale: 1:1000   | No KGR-24 |
| DATE: Mar 75  | <b>INVESTIGATOR 6</b><br><b>3300 W.</b><br><b>CROSS SECTION</b> |           |
| GEOL: SGB   |   |           |
| DWN: OS   |   |           |
| CHKD: MCR   |   |           |

**APPENDIX**

Drill Logs

PDH 1-59

Fig 52 Unavailable.

056

537096

Coordinates : 562000 N , 213700 E

Hole No. : 1

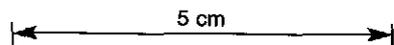
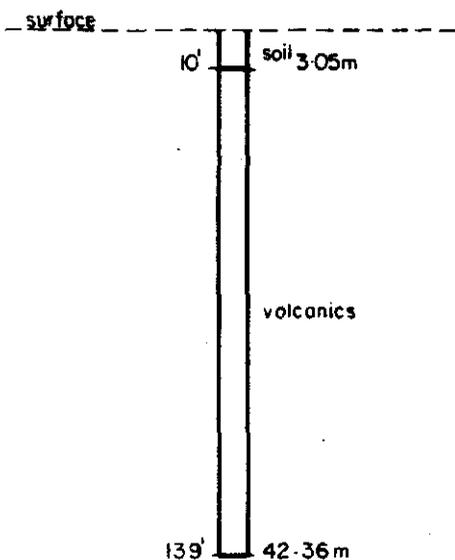


Figure No.1

051

337097

Coordinates : 562200 N , 213600 E

Hole No. : 2

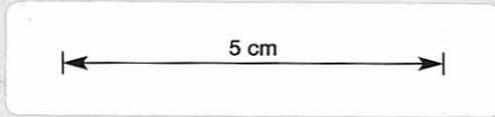
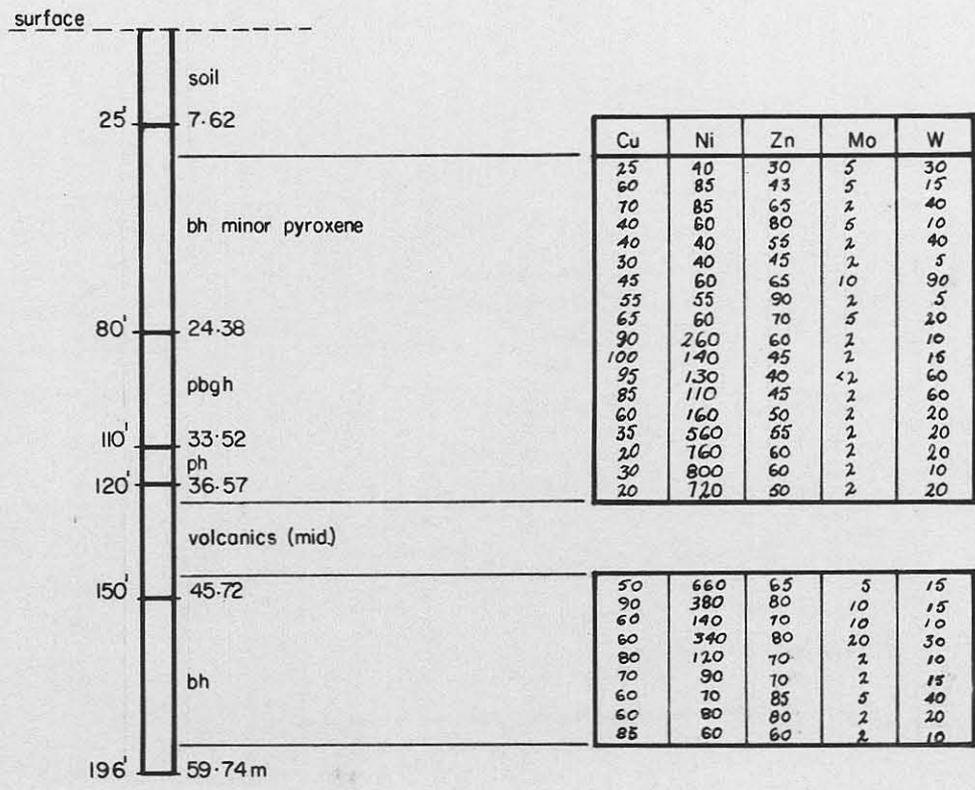


Figure No. 2.

052

337098

Coordinates : 562 400 N, 213 650 E

Hole No. : 3

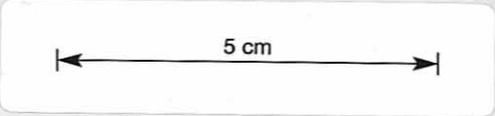
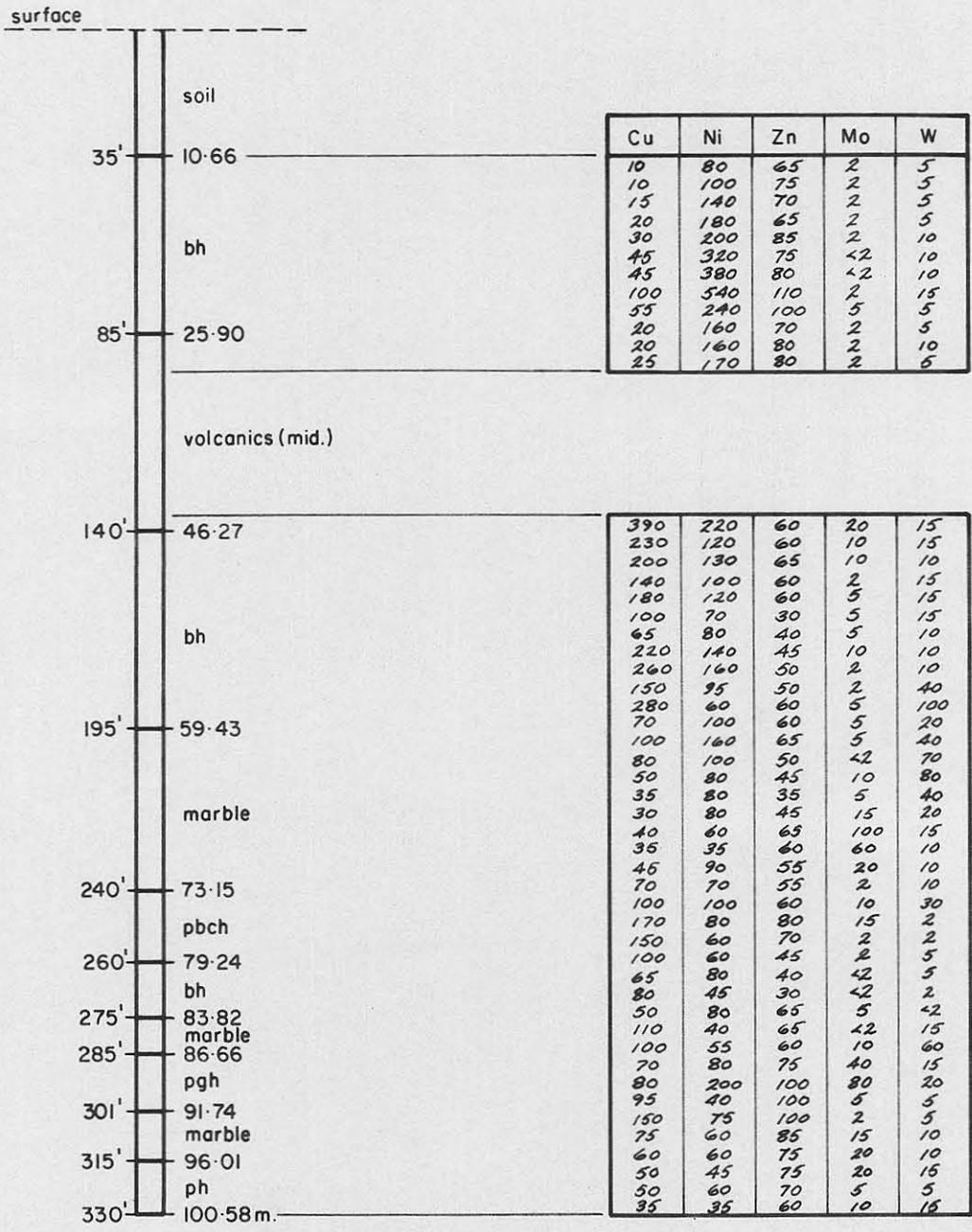


Figure No.3.

053

537099

Coordinates : 562600 N , 213600 E  
Hole No. : 4

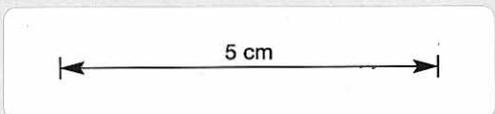
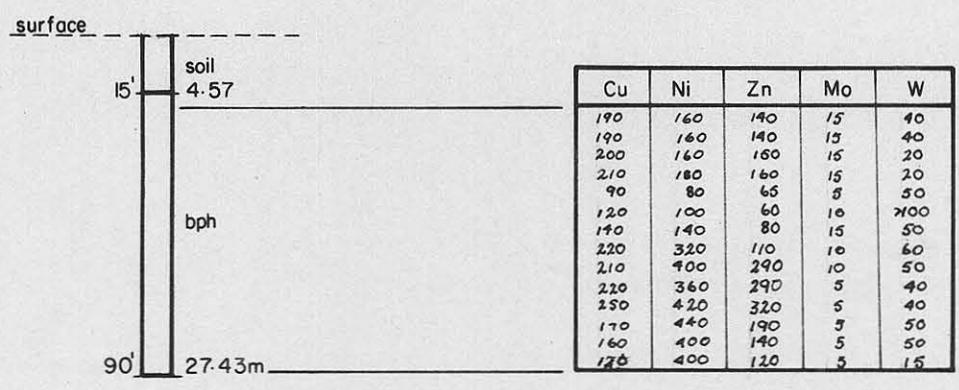


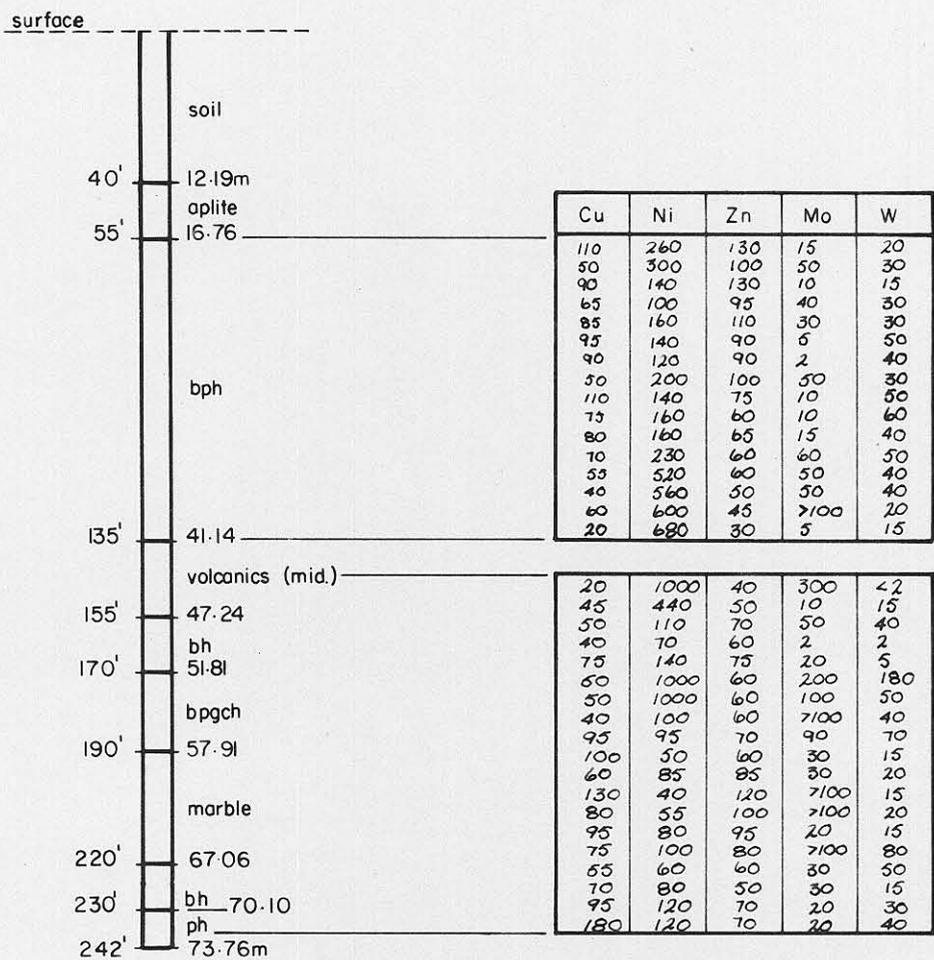
Figure No 4.

054

537100

Coordinates : 562625 N 213775 E

Hole No. : 5



5 cm

Figure No. 5.

055

537101

Coordinates : 562 800N , 213 750 E

Hole No. : 6

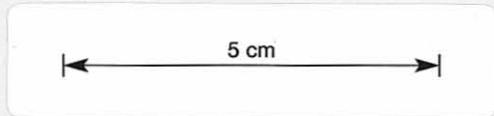
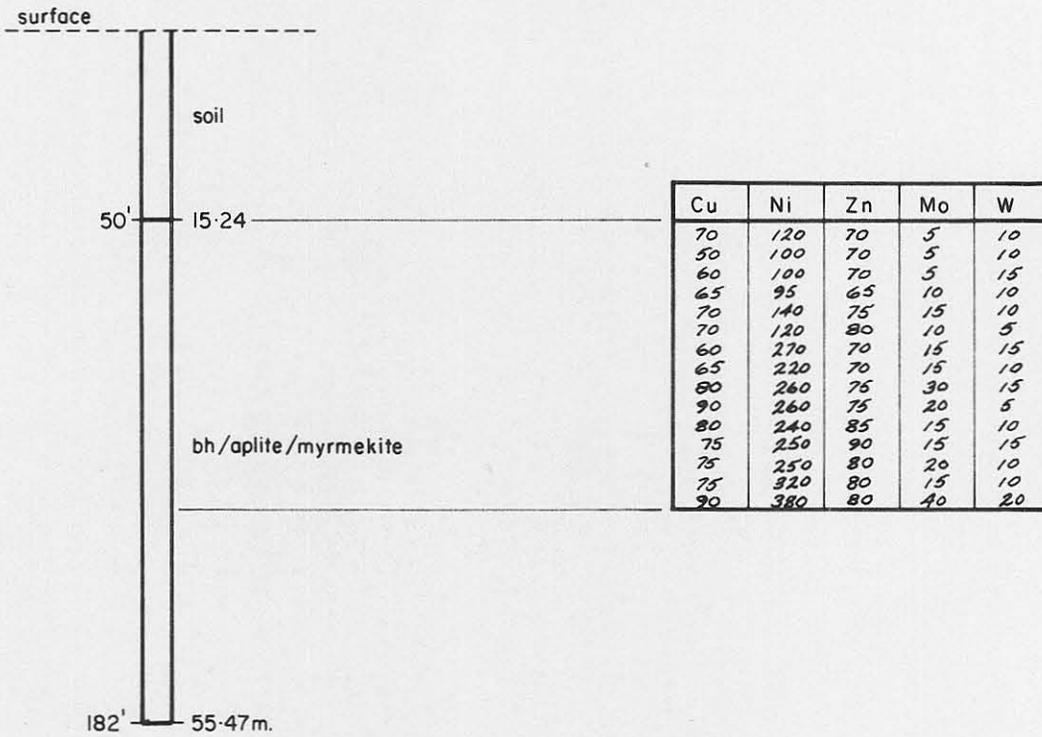


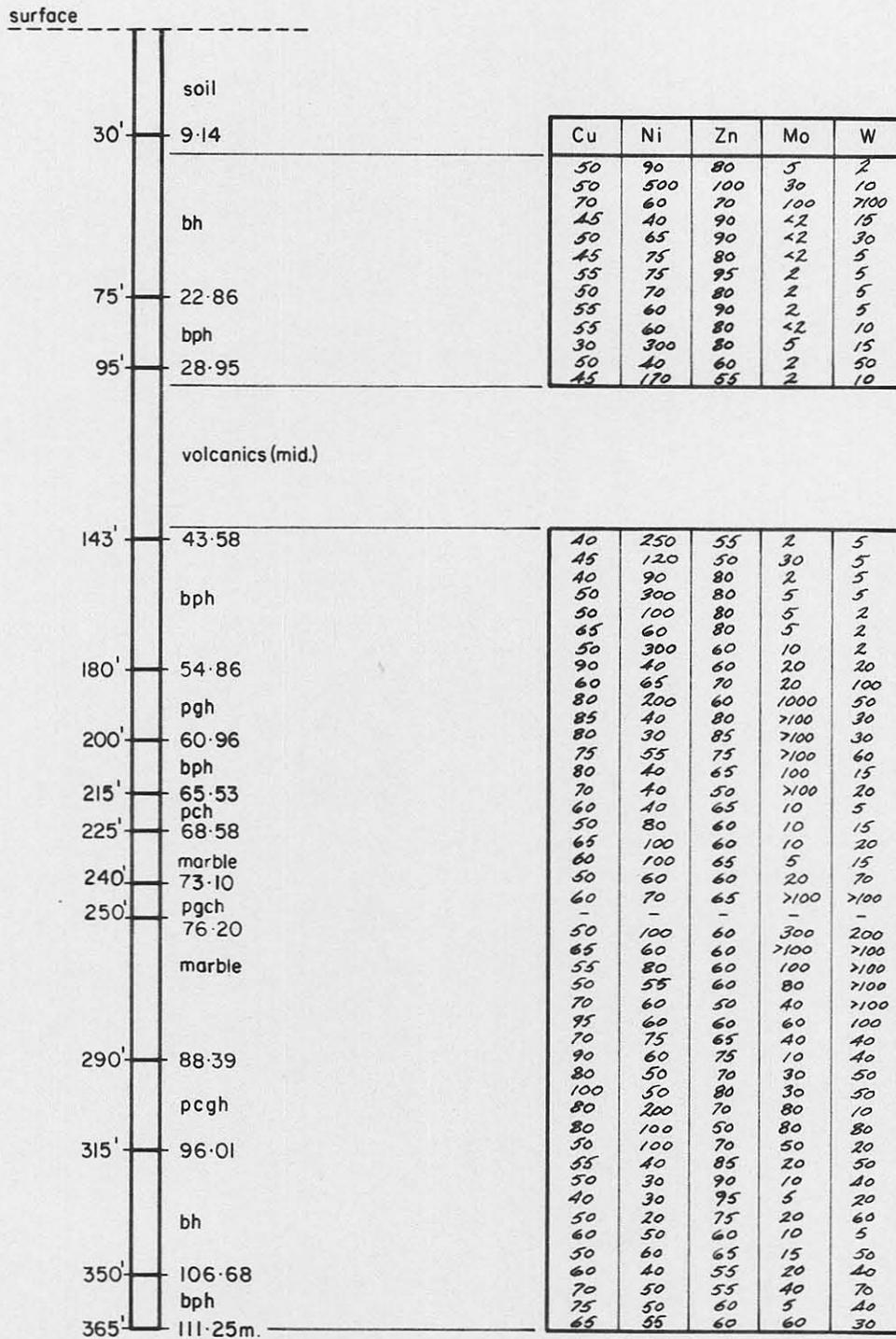
Figure No. 6.

056

537102

Coordinates : 563 000 N, 213 800 E

Hole No. : 7



5 cm

Figure No.7

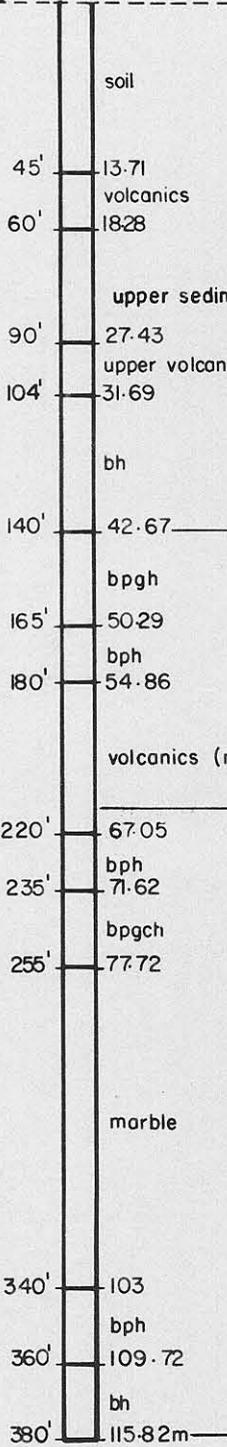
057

537103

Coordinates : 563200 N 213900 E

Hole No. : 8

surface



|     | Cu  | Ni  | Zn | Mo | W |
|-----|-----|-----|----|----|---|
| 140 | 240 | 70  | 5  | 10 |   |
| 100 | 480 | 50  | 2  | 15 |   |
| 100 | 520 | 60  | <2 | 2  |   |
| 110 | 240 | 80  | <2 | 2  |   |
| 95  | 210 | 100 | <2 | 15 |   |
| 90  | 140 | 110 | 2  | 2  |   |
| 75  | 70  | 110 | 5  | 5  |   |
| 85  | 180 | 100 | 2  | 5  |   |
| 65  | 220 | 120 | 2  | 5  |   |
| 65  | 140 | 110 | <2 | 5  |   |
| 60  | 160 | 130 | 2  | 5  |   |

|     |     |     |    |    |
|-----|-----|-----|----|----|
| 60  | 410 | 40  | 5  | 10 |
| 85  | 200 | 55  | 10 | 5  |
| 60  | 120 | 70  | 20 | 5  |
| 85  | 160 | 80  | 5  | 5  |
| 75  | 140 | 70  | 5  | 5  |
| 85  | 80  | 80  | 5  | 5  |
| 95  | 35  | 65  | 5  | 5  |
| 50  | 60  | 50  | 2  | 5  |
| 60  | 40  | 120 | 5  | 2  |
| 150 | 240 | 90  | 5  | 5  |
| 130 | 120 | 80  | 5  | 5  |
| 100 | 120 | 70  | 5  | 5  |
| 70  | 80  | 80  | 2  | 5  |
| 140 | 320 | 75  | 5  | 5  |
| 65  | 120 | 60  | 5  | 5  |
| 55  | 60  | 100 | 2  | 5  |
| 45  | 60  | 90  | 2  | 5  |
| 70  | 180 | 70  | 2  | 10 |
| 50  | 160 | 60  | 2  | 10 |
| 30  | 95  | 50  | <2 | 10 |
| 20  | 60  | 40  | <2 | 5  |
| 60  | 160 | 65  | 2  | 5  |
| 50  | 100 | 60  | <2 | 5  |
| 50  | 90  | 65  | <2 | 10 |
| 110 | 60  | 75  | 10 | 10 |
| 95  | 65  | 70  | 2  | 10 |
| 80  | 80  | 70  | 5  | 10 |
| 90  | 140 | 75  | 5  | 10 |
| 65  | 60  | 90  | 2  | 5  |
| 50  | 80  | 90  | <2 | 5  |
| 30  | 40  | 80  | <2 | 5  |
| 60  | 60  | 80  | <2 | 15 |
| 80  | 50  | 70  | 10 | 5  |

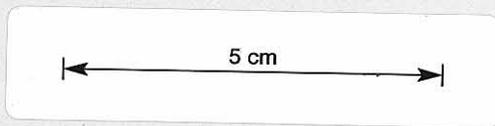


Figure No. 8

058

537104

Coordinates : 563 400 N, 214 200E

Hole No. : 9

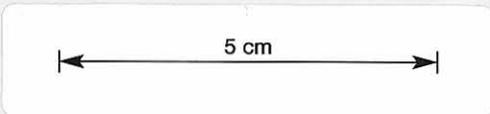
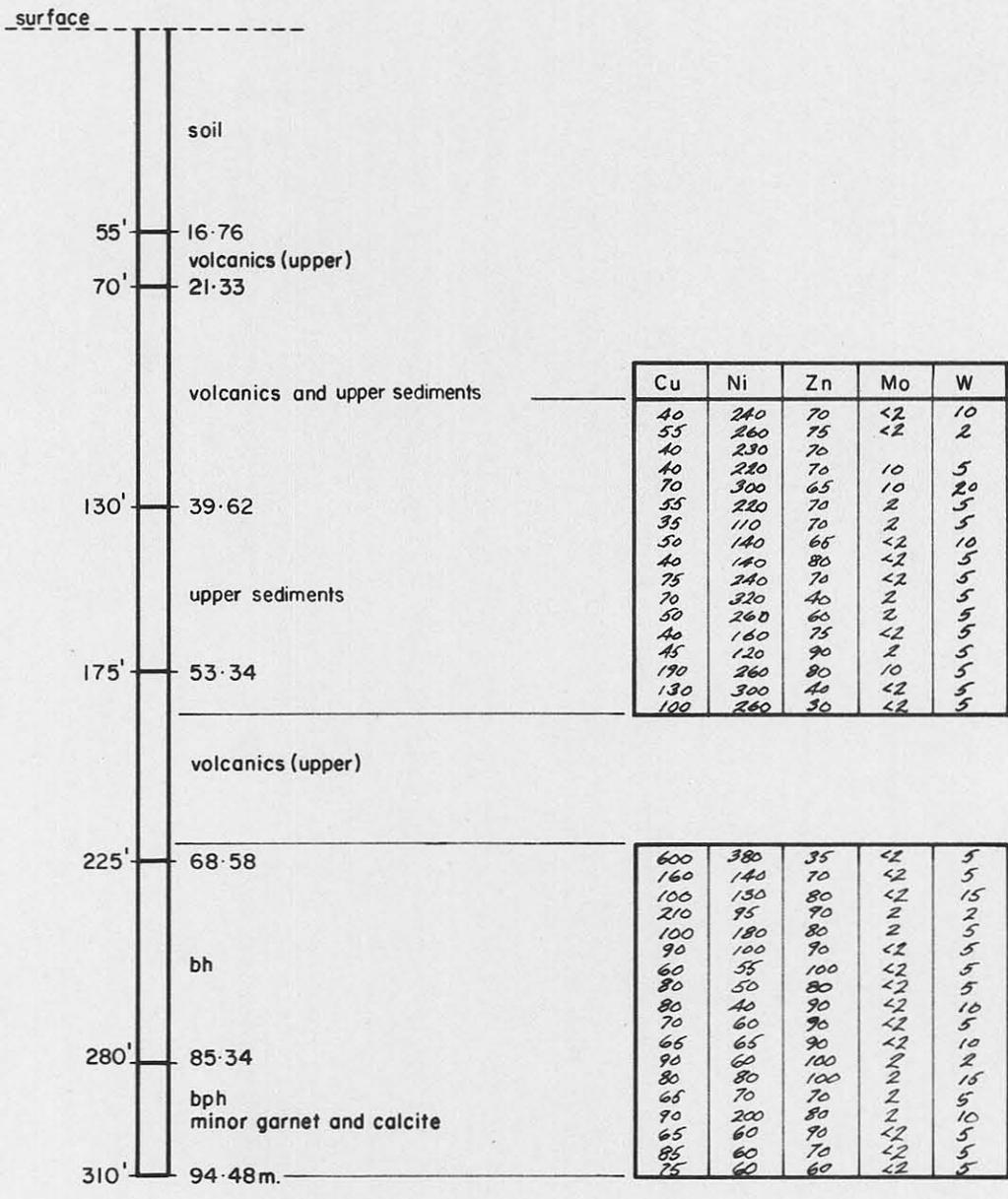


Figure No. 9

059

37105

Coordinates : 563600 N, 214300 E

Hole No. : 10

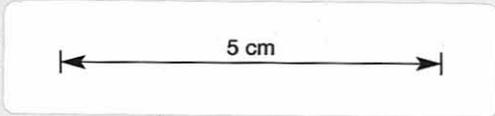
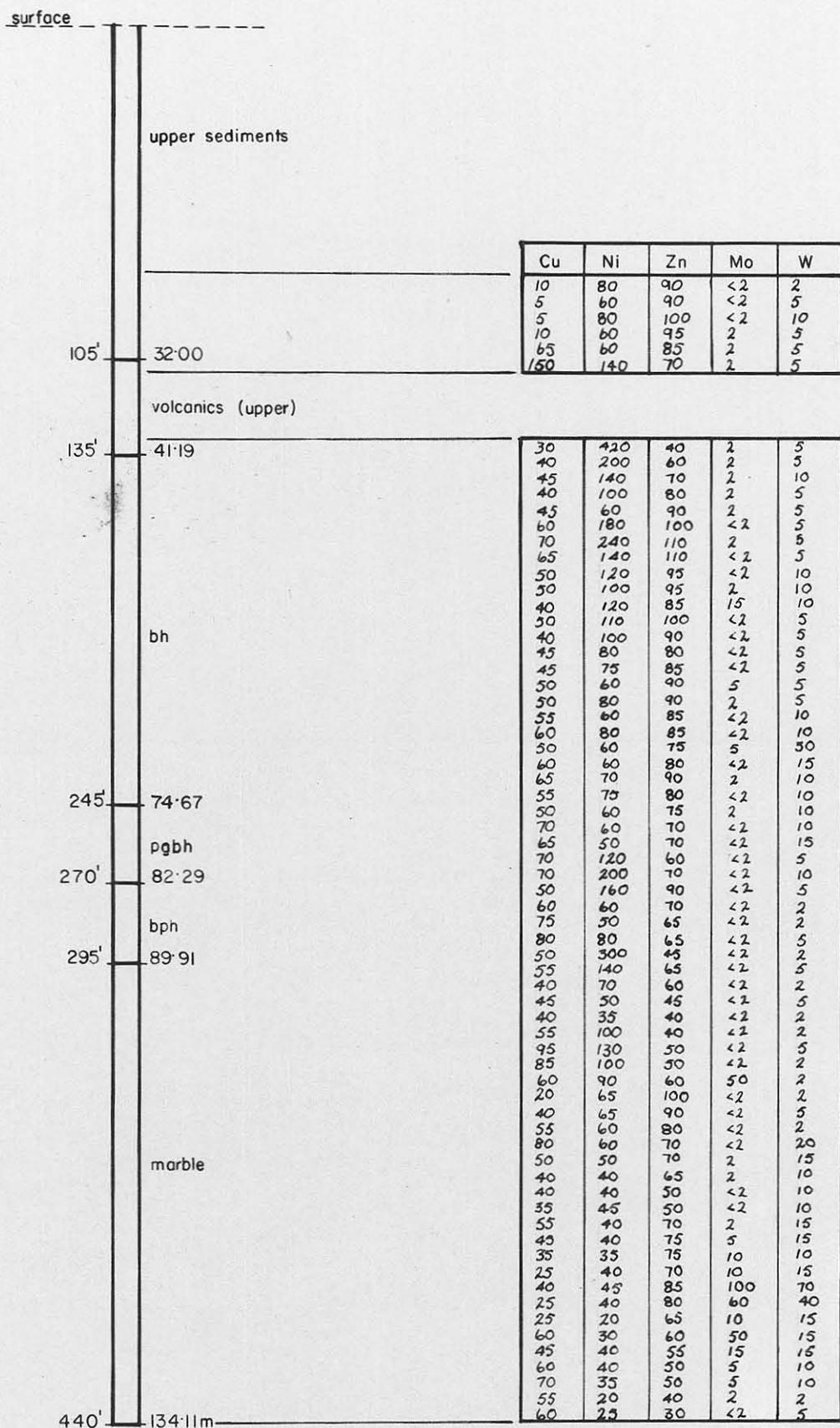
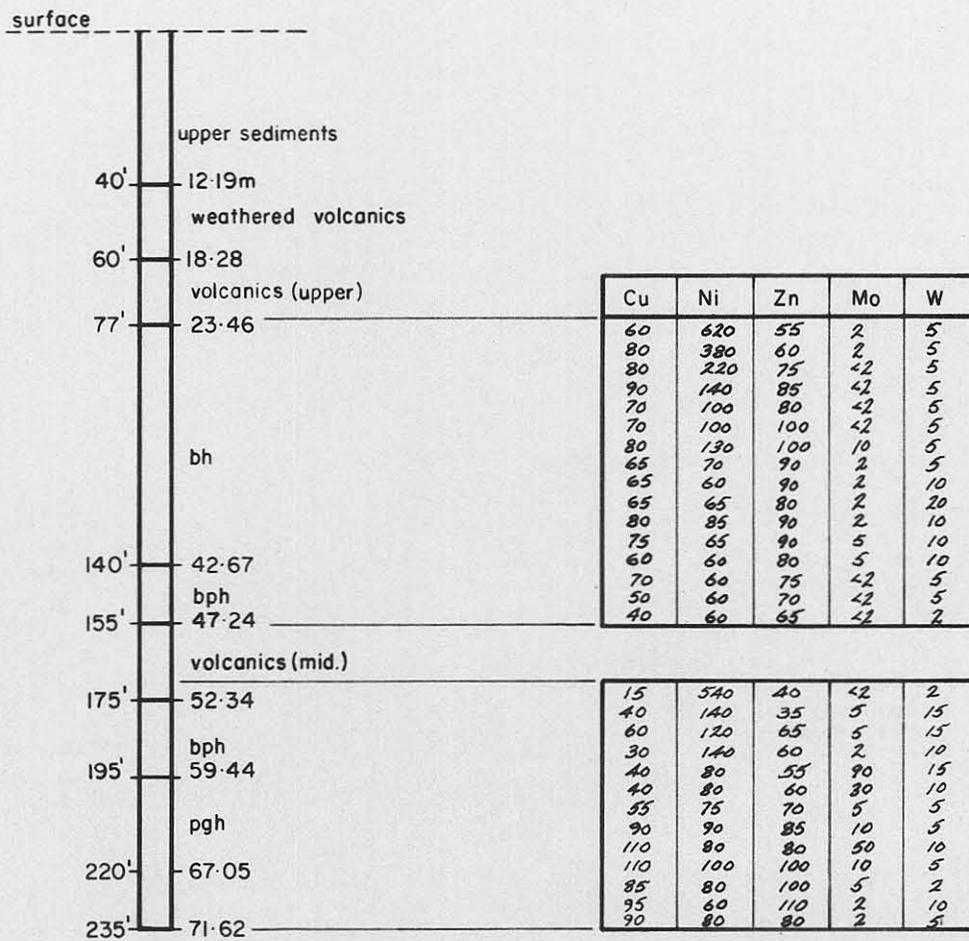


Figure No.10

060

537106

Coordinates: 563 500 N, 214 100EHole No.: 11

5 cm

Figure No. 11

061

537107

Coordinates : 563800 N, 214400 E

Hole No. : 12

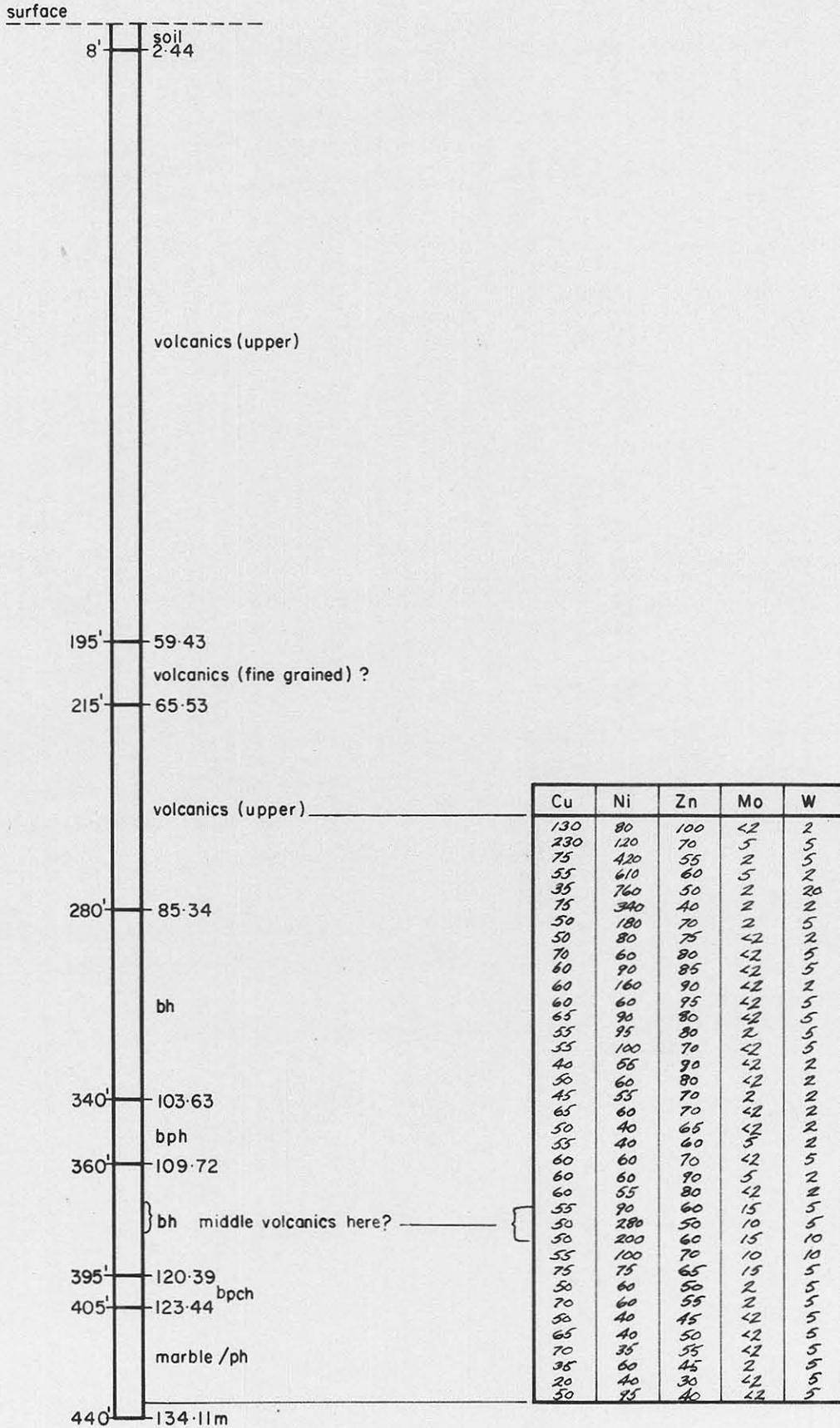


Figure No.12

062

537108

Coordinates : 564000 N, 214600 E

Hole No. : 13

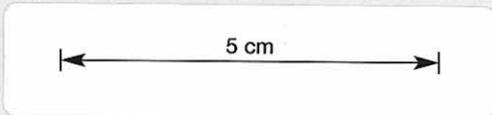
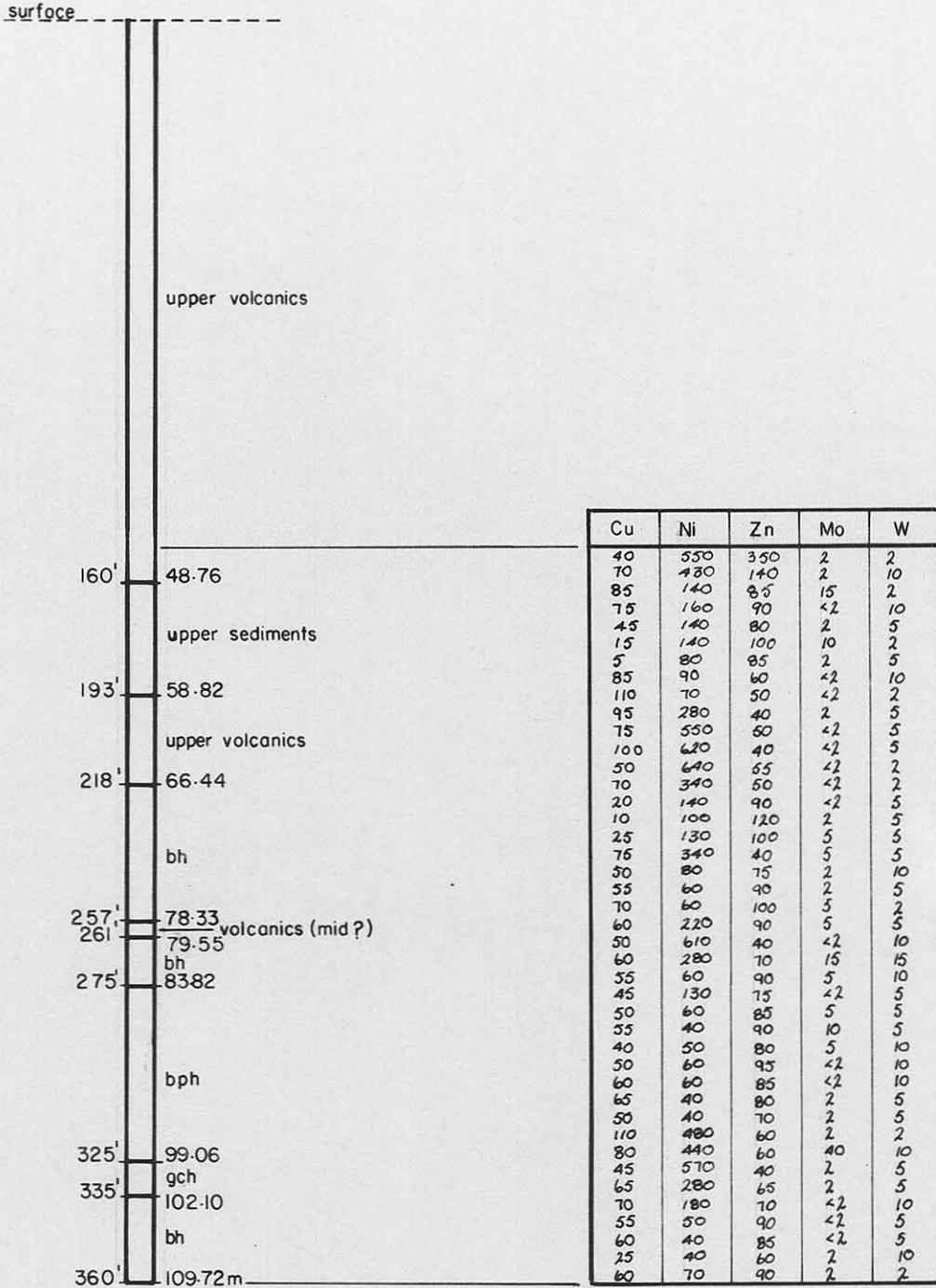


Figure No.13

063

537109

Coordinates : 563000 N, 213750 E  
Hole No. : 14

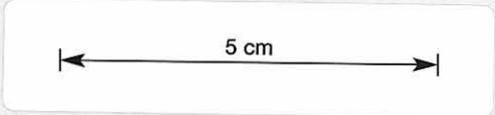
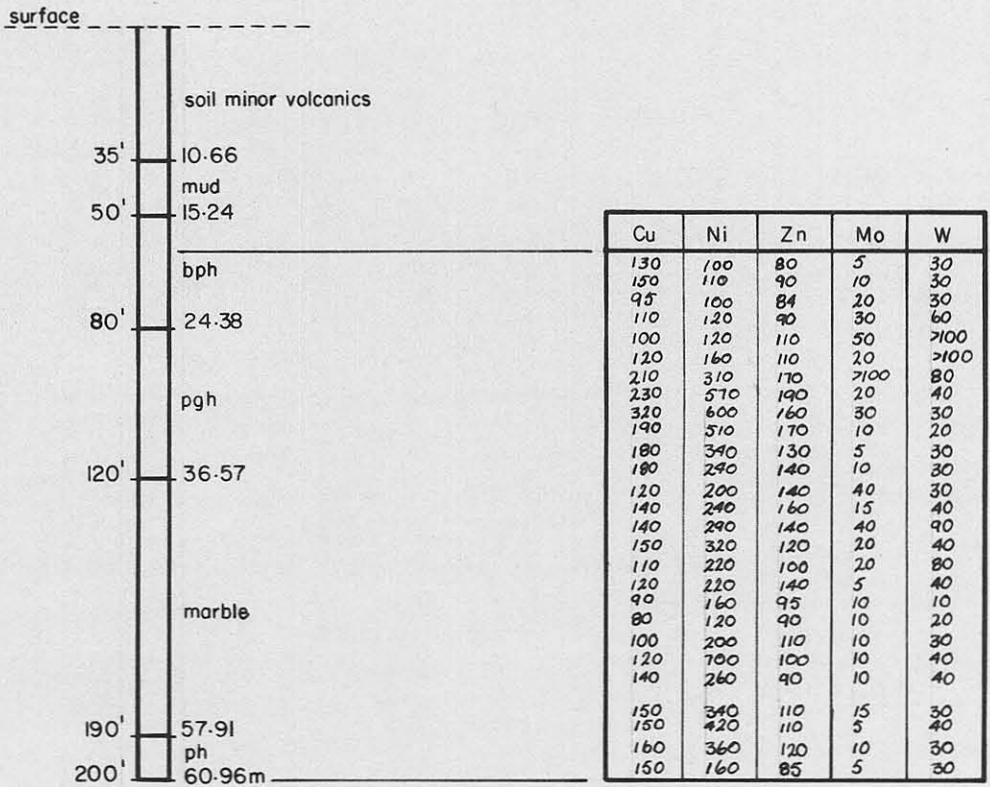


Figure No.14

064

537110

Coordinates : 563600 N, 214200 E

Hole No. : 15

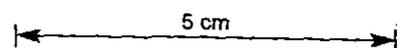
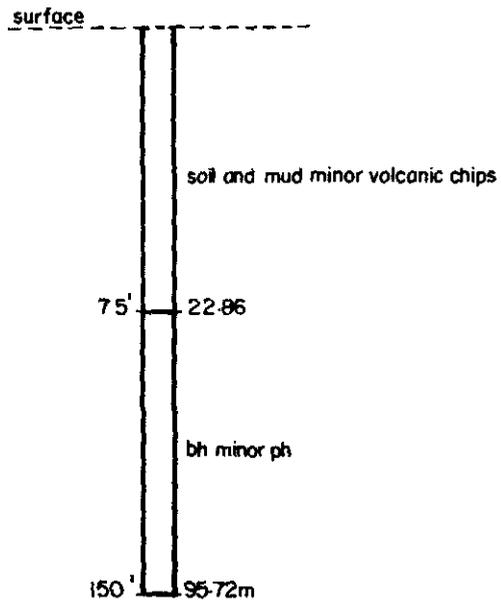


Figure No.15

055

537111

Coordinates : 563600 N, 214230 E

Hole No. : 15A

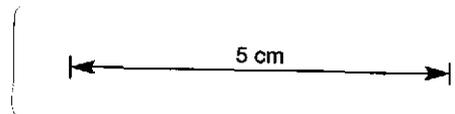
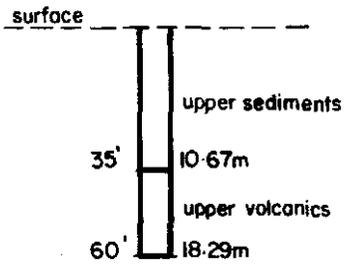


Figure No. 15A

056

537112

Coordinates : 564225 N, 214825 E

Hole No. : 16

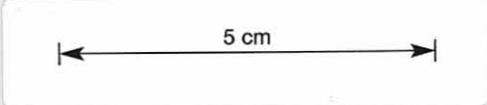
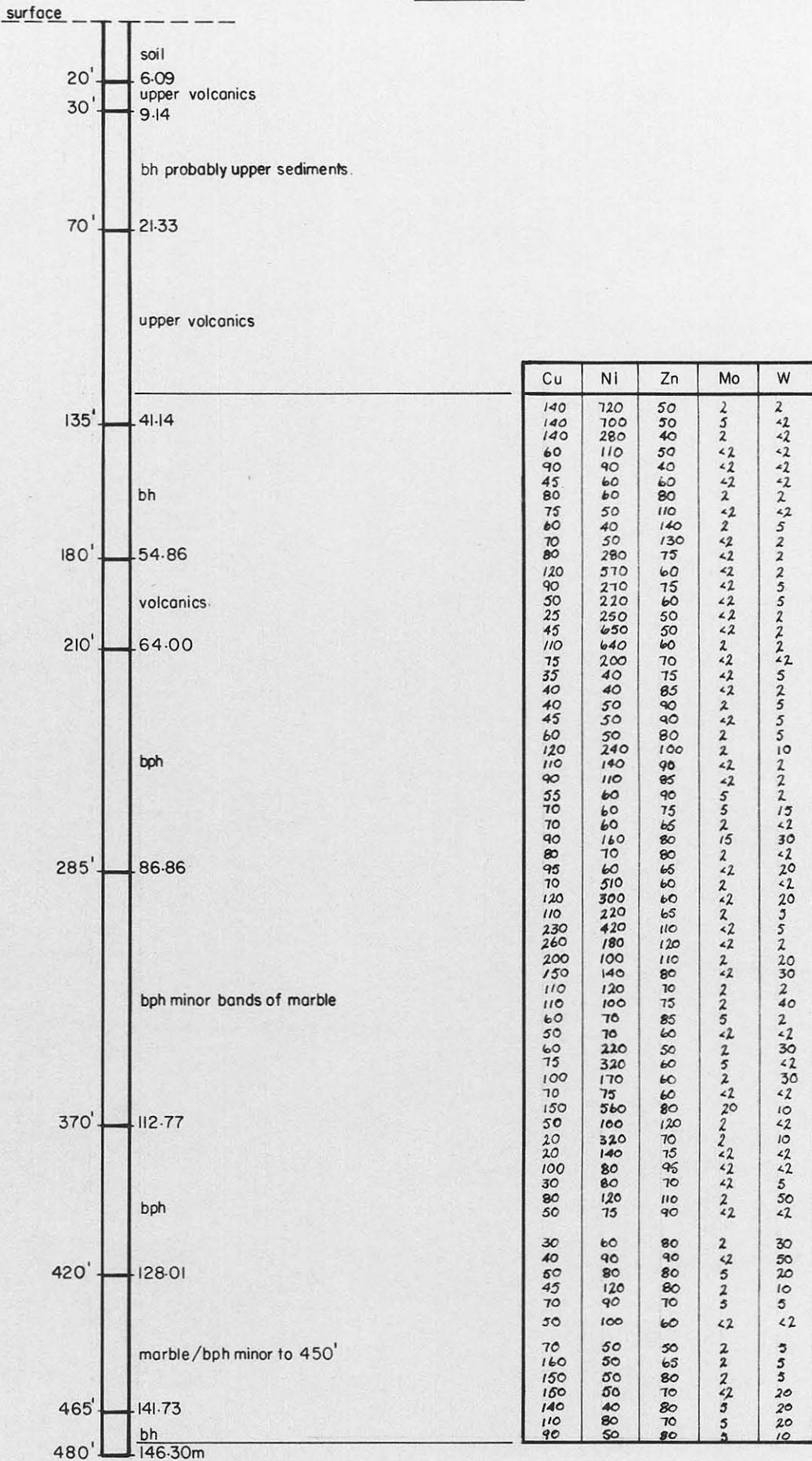


Figure No.16

067

537113

Coordinates : 562 625 N, 213 850 E

Hole No. : 17

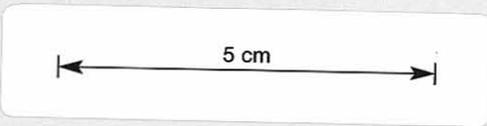
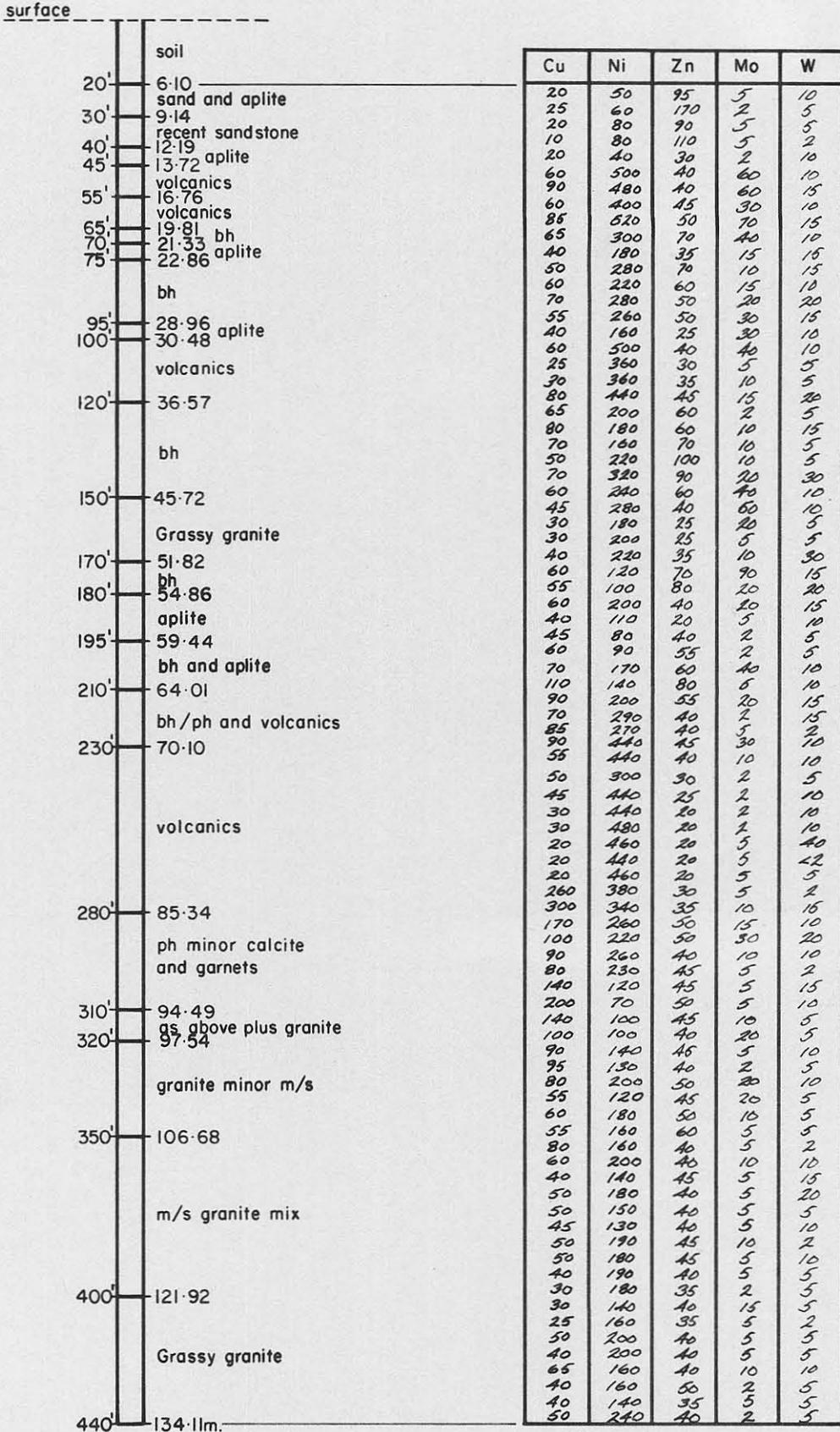
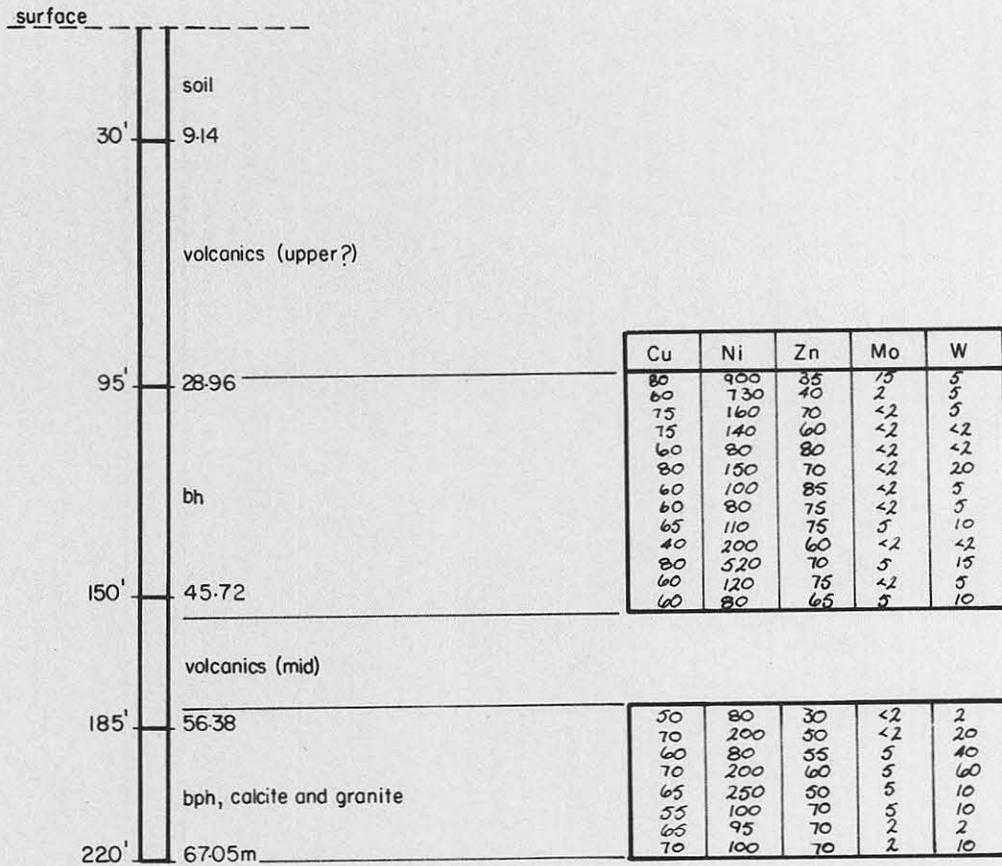


Figure No.17

068

537114

Coordinates : 564250 N, 215000 E

Hole No. : 18

5 cm

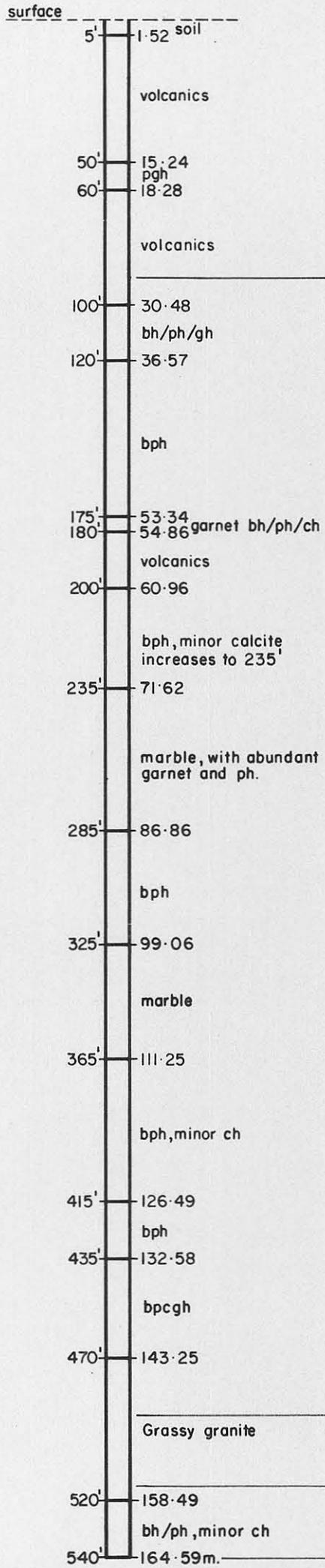
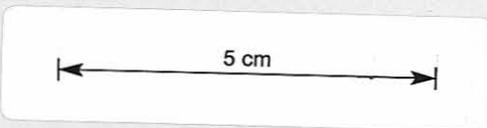
Figure No.18

069

537115

Coordinates : 564 300N , 215 185E

Hole No. : 19



|     | Cu  | Ni  | Zn | Mo  | W |
|-----|-----|-----|----|-----|---|
| 30  | 890 | 36  | 42 | 5   |   |
| 50  | 780 | 25  | 42 | 5   |   |
| 70  | 400 | 20  | 42 | 42  |   |
| 70  | 260 | 45  | 2  | 42  |   |
| 60  | 120 | 75  | 2  | 5   |   |
| 55  | 70  | 80  | 5  | 20  |   |
| 20  | 640 | 50  | 2  | 20  |   |
| 60  | 140 | 80  | 5  | 20  |   |
| 55  | 110 | 80  | 2  | 15  |   |
| 60  | 200 | 80  | 2  | 15  |   |
| 20  | 460 | 40  | 5  | 5   |   |
| 60  | 180 | 70  | 2  | 10  |   |
| 60  | 120 | 70  | 2  | 5   |   |
| 70  | 85  | 75  | 2  | 20  |   |
| 60  | 95  | 70  | 10 | 40  |   |
| 70  | 70  | 85  | 5  | 20  |   |
| 70  | 70  | 70  | 30 | 30  |   |
| 80  | 230 | 50  | 20 | 15  |   |
| 20  | 540 | 35  | 5  | 5   |   |
| 10  | 850 | 30  | 2  | 2   |   |
| 10  | 890 | 25  | 2  | 10  |   |
| 200 | 600 | 50  | 2  | 10  |   |
| 110 | 220 | 45  | 10 | 40  |   |
| 80  | 100 | 65  | 20 | 40  |   |
| 70  | 100 | 65  | 15 | 20  |   |
| 70  | 60  | 65  | 10 | 10  |   |
| 80  | 80  | 50  | 5  | 5   |   |
| 40  | 40  | 50  | 20 | 5   |   |
| 70  | 60  | 55  | 20 | 10  |   |
| 70  | 40  | 55  | 10 | 10  |   |
| 90  | 60  | 75  | 2  | 10  |   |
| 100 | 70  | 60  | 5  | 5   |   |
| 100 | 75  | 60  | 10 | 20  |   |
| 100 | 60  | 65  | 10 | 30  |   |
| 70  | 65  | 70  | 5  | 30  |   |
| 100 | 60  | 60  | 5  | 60  |   |
| 110 | 50  | 75  | 5  | 50  |   |
| 110 | 60  | 60  | 5  | 110 |   |
| 55  | 60  | 70  | 5  | 40  |   |
| 50  | 60  | 70  | 5  | 50  |   |
| 40  | 70  | 70  | 2  | 50  |   |
| 30  | 70  | 70  | 2  | 20  |   |
| 30  | 70  | 70  | 2  | 40  |   |
| 40  | 60  | 70  | 30 | 50  |   |
| 50  | 60  | 40  | 20 | 30  |   |
| 130 | 80  | 75  | 20 | 10  |   |
| 170 | 60  | 80  | 10 | 30  |   |
| 190 | 50  | 50  | 5  | 50  |   |
| 190 | 60  | 60  | 5  | 40  |   |
| 130 | 50  | 35  | 5  | 40  |   |
| 130 | 60  | 30  | 2  | 20  |   |
| 200 | 60  | 40  | 5  | 20  |   |
| 170 | 50  | 55  | 5  | 40  |   |
| 120 | 50  | 50  | 5  | 60  |   |
| 130 | 35  | 75  | 5  | 70  |   |
| 150 | 35  | 80  | 5  | 40  |   |
| 140 | 40  | 80  | 5  | 40  |   |
| 110 | 45  | 70  | 5  | 42  |   |
| 110 | 60  | 75  | 2  | 5   |   |
| 100 | 35  | 80  | 15 | 10  |   |
| 100 | 40  | 90  | 5  | 20  |   |
| 120 | 35  | 70  | 30 | 5   |   |
| 120 | 40  | 85  | 10 | 5   |   |
| 130 | 40  | 80  | 42 | 2   |   |
| 60  | 65  | 50  | 42 | 5   |   |
| 100 | 65  | 70  | 2  | 5   |   |
| 110 | 40  | 80  | 5  | 5   |   |
| 120 | 45  | 90  | 2  | 5   |   |
| 120 | 45  | 90  | 2  | 10  |   |
| 110 | 40  | 90  | 2  | 2   |   |
| 90  | 50  | 110 | 5  | 20  |   |
| 80  | 55  | 70  | 5  | 40  |   |
| 100 | 70  | 85  | 5  | 30  |   |
| 110 | 80  | 100 | 10 | 20  |   |
| 95  | 60  | 95  | 10 | 10  |   |
| 100 | 40  | 110 | 10 | 10  |   |
| 95  | 20  | 50  | 10 | 15  |   |
| 140 | 15  | 50  | 5  | 5   |   |
| 80  | 20  | 60  | 20 | 10  |   |
| 55  | 20  | 80  | 42 | 10  |   |

|     |    |    |   |    |
|-----|----|----|---|----|
| 100 | 30 | 60 | 2 | 10 |
| 130 | 40 | 80 | 5 | 15 |
| 170 | 50 | 90 | 5 | 5  |
| 170 | 40 | 90 | 5 | 10 |
| 150 | 60 | 85 | 5 | 30 |

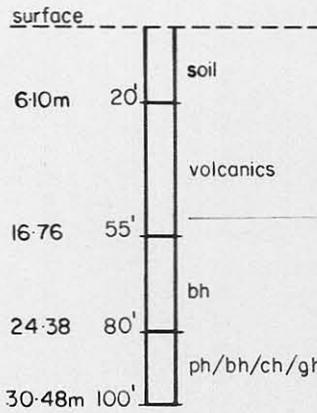
Figure No.19

070

337116

Coordinates : 564 400 N, 215 400 E

Hole No. : 20



|     | Cu  | Ni | Zn | Mo | W |
|-----|-----|----|----|----|---|
| 80  | 820 | 60 | 10 | 10 |   |
| 120 | 360 | 50 | 30 | 15 |   |
| 90  | 160 | 80 | 2  | 10 |   |
| 130 | 140 | 90 | 10 | 10 |   |
| 85  | 120 | 90 | 5  | 5  |   |
| 90  | 140 | 80 | 15 | 15 |   |
| 70  | 140 | 50 | 10 | 5  |   |
| 95  | 260 | 50 | 20 | 15 |   |

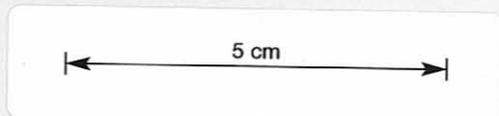


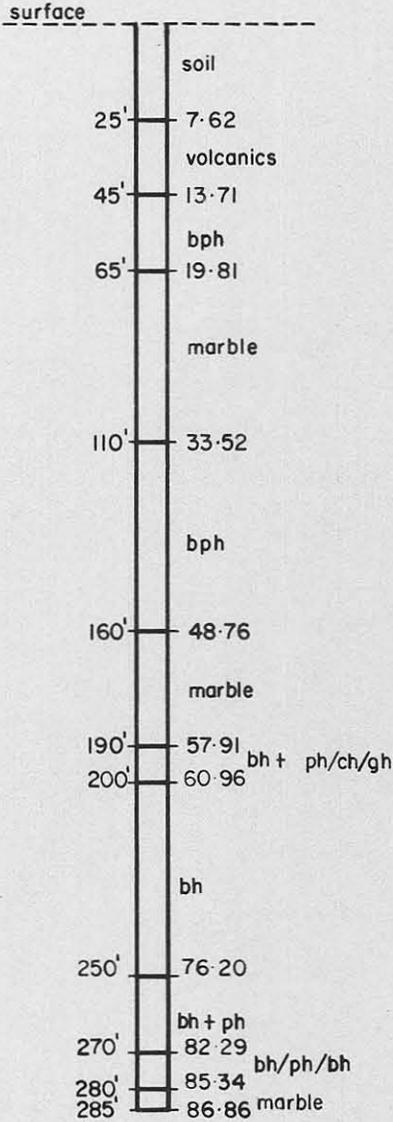
Figure No. 20

071

537117

Coordinates : 564 500N, 215 400 E

Hole No. : 20A



| Cu  | Ni  | Zn | Mo  | W  |
|-----|-----|----|-----|----|
| 40  | 340 | 60 | 2   | 5  |
| 60  | 140 | 95 | 5   | 2  |
| 75  | 110 | 95 | 2   | 5  |
| 70  | 130 | 75 | 2   | 5  |
| 75  | 130 | 70 | 2   | 5  |
| 190 | 45  | 60 | 2   | 5  |
| 110 | 55  | 75 | 2   | 5  |
| 170 | 50  | 60 | 2   | 5  |
| 130 | 65  | 70 | 2.0 | 10 |
| 90  | 45  | 70 | 2   | 10 |
| 85  | 45  | 70 | 5   | 10 |
| 100 | 65  | 90 | <2  | 15 |
| 85  | 40  | 85 | 30  | 5  |
| 40  | 40  | 70 | 10  | 5  |
| 40  | 70  | 70 | 2   | 5  |
| 25  | 40  | 60 | 10  | 20 |
| 20  | 60  | 75 | 2   | 20 |
| 30  | 50  | 75 | 5   | 20 |
| 10  | 50  | 80 | <2  | 5  |
| 15  | 50  | 80 | <2  | 10 |
| 20  | 55  | 90 | 2   | 10 |
| 45  | 60  | 90 | 5   | 10 |
| 55  | 60  | 90 | 2   | 10 |
| 45  | 80  | 85 | 2   | 10 |
| 30  | 60  | 70 | 2   | 5  |
| 120 | 45  | 45 | 2   | 5  |
| 40  | 40  | 45 | <2  | 2  |
| 30  | 40  | 50 | 2   | 2  |
| 90  | 35  | 55 | 5   | 5  |
| 140 | 35  | 70 | 2   | 10 |
| 120 | 20  | 70 | 2   | 2  |
| 110 | 35  | 80 | 5   | 20 |
| 110 | 20  | 75 | 10  | 5  |
| 110 | 50  | 75 | 5   | 2  |
| 140 | 40  | 70 | 10  | 5  |
| 120 | 40  | 70 | 2   | 2  |
| 110 | 30  | 70 | <2  | 2  |
| 100 | 20  | 60 | <2  | 2  |
| 110 | 30  | 70 | <2  | <2 |
| 120 | 60  | 65 | <2  | <2 |
| 110 | 30  | 70 | <2  | 2  |
| 120 | 20  | 65 | <2  | <2 |
| 120 | 35  | 80 | <2  | <2 |
| 140 | 25  | 75 | <2  | 5  |
| 120 | 20  | 60 | <2  | 2  |
| 110 | 80  | 70 | <2  | 2  |
| 90  | 40  | 90 | <2  | 2  |
| 110 | 40  | 95 | 10  | 2  |
| 80  | 40  | 70 | 10  | 10 |

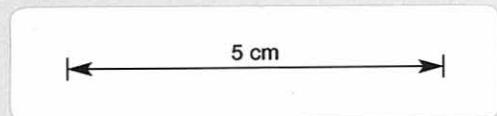


Figure No.20A

072

537118

Coordinates : 564 475 N, 215 600 E

Hole No. : 21

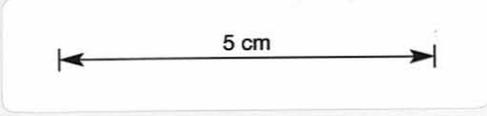
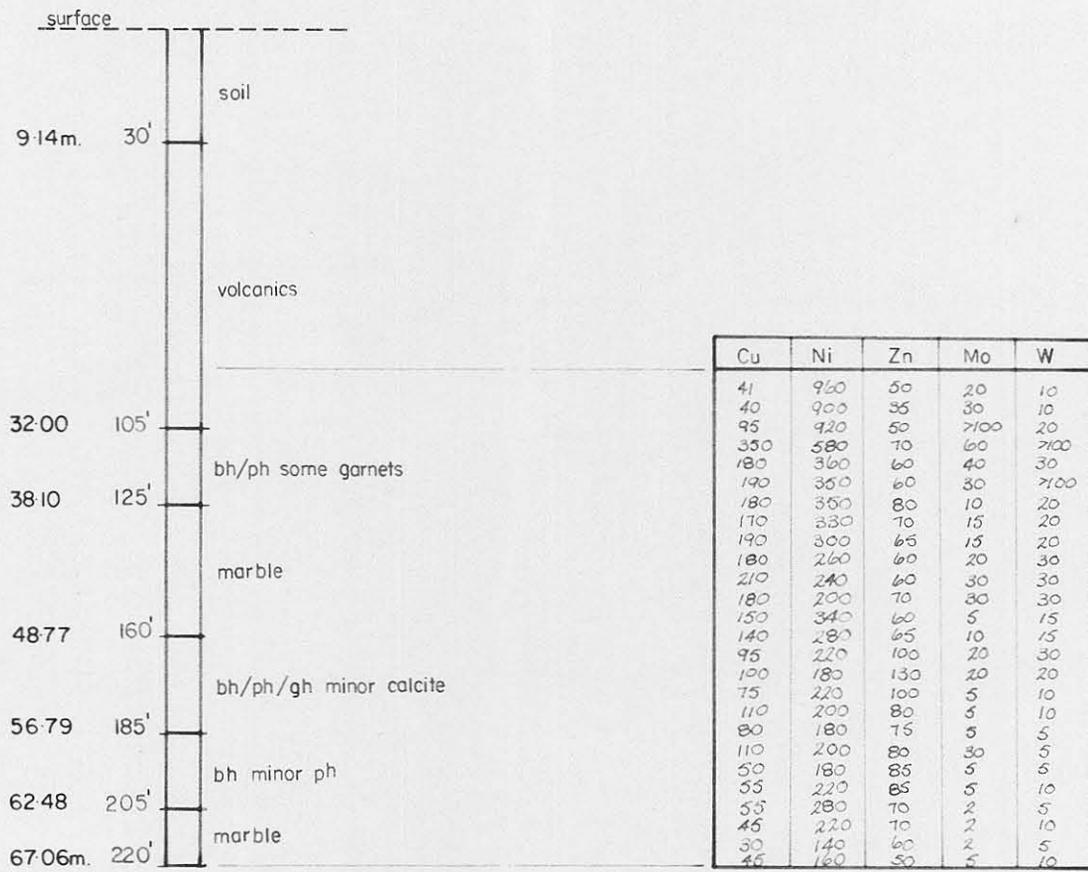


Figure No.21

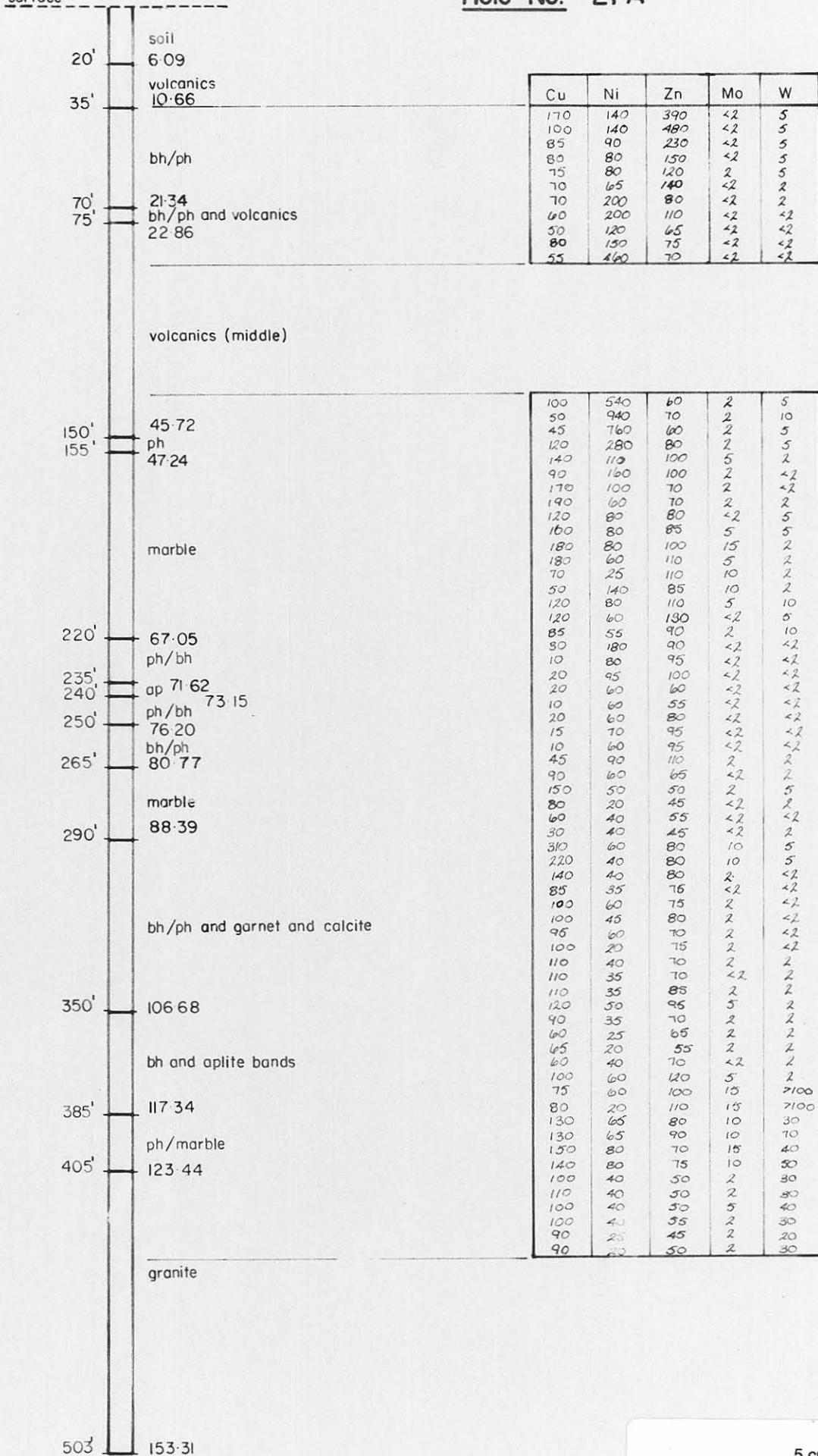
073

537119

Coordinates : 564 475N, 215 650E

Hole No. : 21 A

surface



5 cm

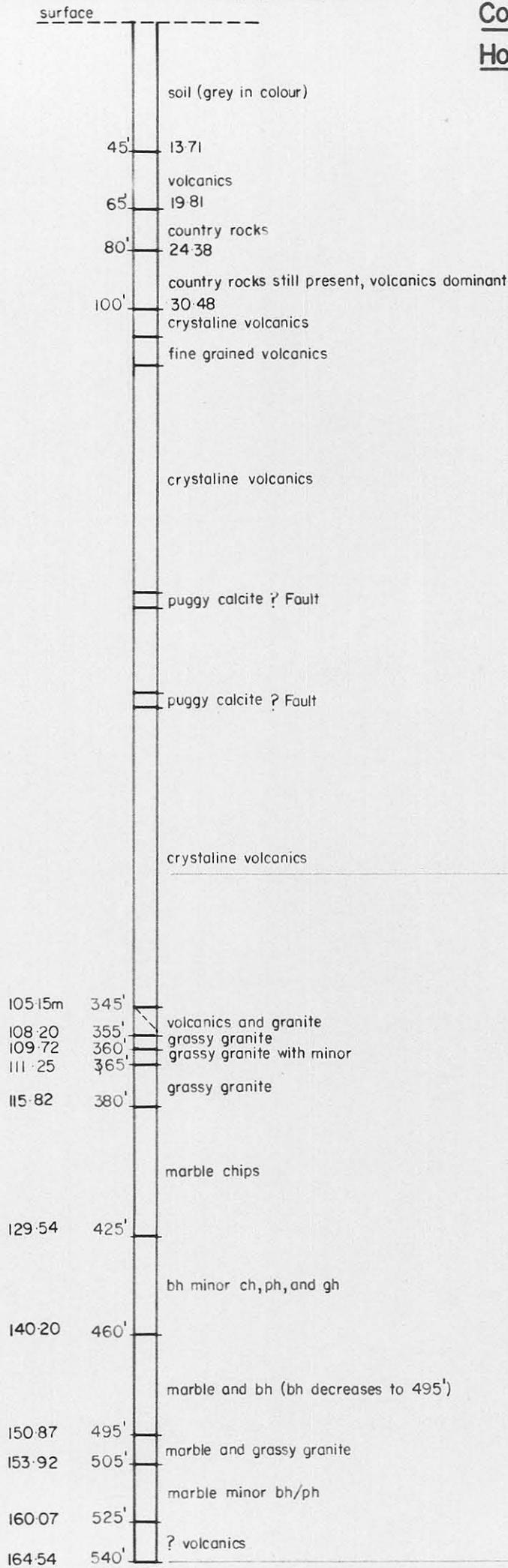
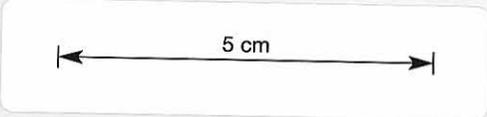
Figure No.21A

07A

537120

Coordinates : 564 450 N, 216 000 E

Hole No. : 22



|  | Cu  | Ni  | Zn | Mo | W  |
|--|-----|-----|----|----|----|
|  | 60  | 800 | 25 | <2 | 5  |
|  | 20  | 530 | 25 | <2 | 42 |
|  | 85  | 530 | 25 | 2  | 2  |
|  | 70  | 560 | 25 | <2 | <2 |
|  | 80  | 540 | 30 | <2 | <2 |
|  | 75  | 540 | 40 | <2 | <2 |
|  | 60  | 510 | 35 | <2 | <2 |
|  | 90  | 550 | 20 | <2 | <2 |
|  | 60  | 480 | 30 | <2 | <2 |
|  | 30  | 400 | 35 | <2 | 2  |
|  | 50  | 210 | 50 | 2  | 50 |
|  | 50  | 100 | 25 | <2 | 2  |
|  | 50  | 230 | 30 | <2 | 60 |
|  | 40  | 180 | 30 | 2  | <2 |
|  | 35  | 110 | 30 | <2 | <2 |
|  | 35  | 190 | 40 | <2 | <2 |
|  | 45  | 380 | 35 | <2 | <2 |
|  | 45  | 440 | 40 | <2 | <2 |
|  | 45  | 440 | 40 | <2 | <2 |
|  | 45  | 350 | 60 | <2 | <2 |
|  | 45  | 340 | 50 | <2 | <2 |
|  | 40  | 340 | 50 | <2 | <2 |
|  | 45  | 820 | 60 | 2  | 2  |
|  | 40  | 280 | 60 | 2  | <2 |
|  | 40  | 200 | 70 | 2  | 2  |
|  | 40  | 160 | 60 | <2 | 2  |
|  | 45  | 160 | 70 | 2  | 2  |
|  | 45  | 150 | 70 | <2 | 2  |
|  | 50  | 140 | 80 | 2  | 2  |
|  | 45  | 160 | 80 | <2 | 2  |
|  | 55  | 160 | 70 | 5  | 2  |
|  | 60  | 160 | 75 | 2  | 5  |
|  | 60  | 140 | 60 | <2 | 2  |
|  | 60  | 180 | 60 | <2 | 2  |
|  | 30  | 200 | 55 | <2 | 2  |
|  | 60  | 200 | 55 | <2 | 2  |
|  | 75  | 220 | 50 | <2 | <2 |
|  | 60  | 210 | 50 | <2 | <2 |
|  | 60  | 250 | 50 | <2 | <2 |
|  | 60  | 260 | 45 | <2 | 2  |
|  | 75  | 240 | 45 | <2 | 2  |
|  | 90  | 190 | 45 | <2 | 2  |
|  | 140 | 190 | 50 | <2 | 2  |
|  | 85  | 140 | 40 | <2 | 15 |
|  | 120 | 220 | 45 | 2  | 5  |
|  | 120 | 170 | 40 | <2 | 5  |
|  | 90  | 160 | 40 | <2 | 20 |

Figure No.22

075

537121

Coordinates : 564 500N, 216 200E

Hole No. : 23

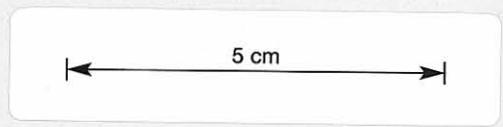
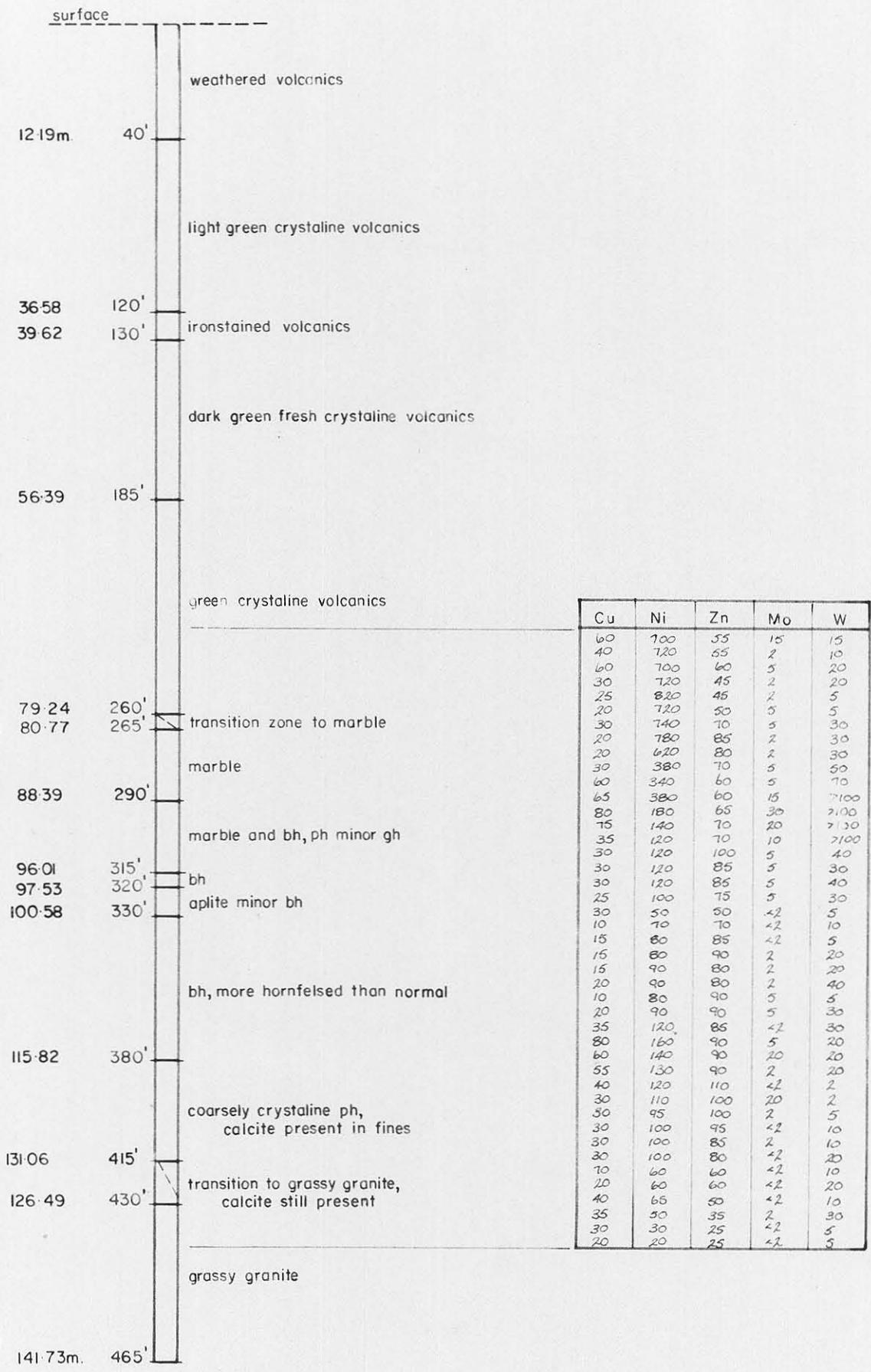


Figure No.23

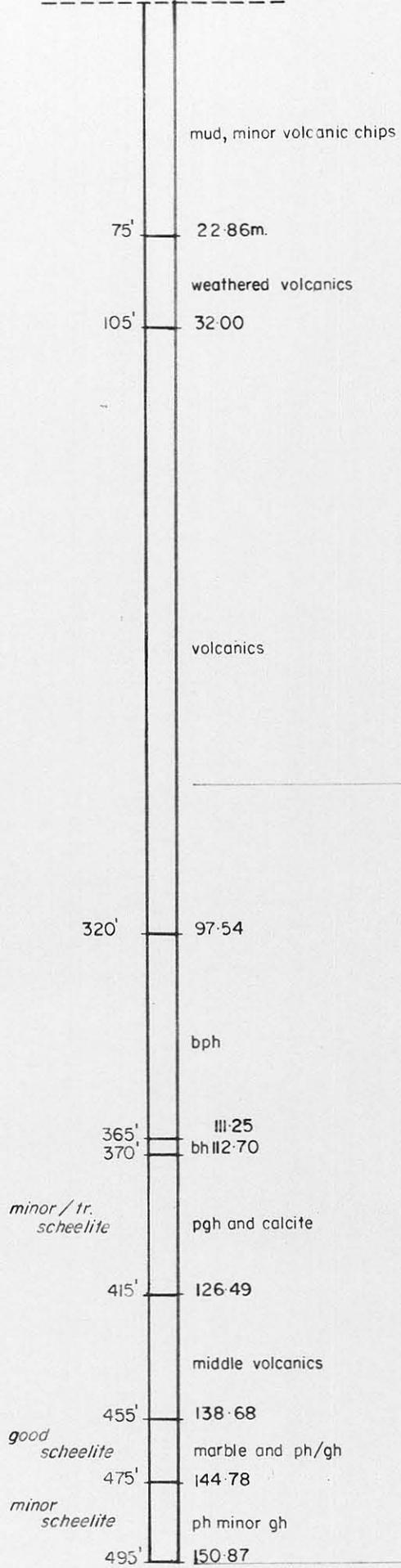
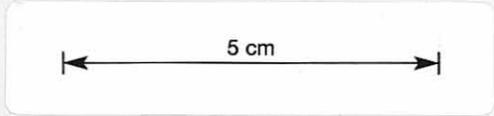
076

537122

Coordinates : 564 750 N, 216 225 E

Hole No. : 24

surface



|  | Cu  | Ni  | Zn  | Mo | W   |
|--|-----|-----|-----|----|-----|
|  | 30  | 240 | 80  | 2  | 2   |
|  | 30  | 140 | 85  | 5  | 2   |
|  | 55  | 200 | 90  | <2 | 5   |
|  | 75  | 190 | 80  | 2  | 10  |
|  | 100 | 160 | 85  | 2  | 5   |
|  | 80  | 140 | 95  | 2  | 2   |
|  | 70  | 100 | 100 | 2  | 2   |
|  | 80  | 90  | 95  | 5  | 15  |
|  | 70  | 80  | 90  | 70 | 10  |
|  | 70  | 90  | 95  | 20 | 2   |
|  | 70  | 100 | 90  | 20 | 2   |
|  | 60  | 260 | 75  | 5  | 2   |
|  | 60  | 270 | 70  | 5  | 2   |
|  | 65  | 220 | 85  | 2  | 2   |
|  | 65  | 310 | 70  | 2  | 2   |
|  | 60  | 230 | 70  | 2  | 2   |
|  | 70  | 190 | 70  | 2  | 5   |
|  | 80  | 160 | 70  | 5  | 20  |
|  | 90  | 190 | 90  | 10 | 30  |
|  | 80  | 220 | 95  | 5  | 10  |
|  | 80  | 180 | 95  | 2  | 2   |
|  | 100 | 160 | 95  | 5  | 10  |
|  | 80  | 160 | 90  | 5  | 70  |
|  | 140 | 140 | 85  | 10 | 30  |
|  | 120 | 220 | 80  | 10 | 70  |
|  | 110 | 270 | 70  | 5  | 70  |
|  | 95  | 290 | 75  | 5  | 30  |
|  | 130 | 140 | 70  | 40 | 30  |
|  | 110 | 130 | 70  | 30 | 40  |
|  | 110 | 130 | 190 | 40 | 50  |
|  | 70  | 140 | 70  | 2  | 20  |
|  | 80  | 180 | 80  | 2  | 40  |
|  | 70  | 220 | 60  | 5  | 20  |
|  | 70  | 320 | 55  | 5  | 20  |
|  | 60  | 550 | 55  | 2  | 30  |
|  | 55  | 740 | 65  | 2  | 5   |
|  | 45  | 930 | 50  | <2 | 5   |
|  | 50  | 840 | 50  | <2 | 5   |
|  | 60  | 880 | 55  | 2  | 15  |
|  | 70  | 870 | 55  | <2 | 5   |
|  | 80  | 890 | 60  | 2  | 5   |
|  | 75  | 750 | 60  | 5  | 10  |
|  | 80  | 560 | 65  | 5  | 40  |
|  | 75  | 480 | 70  | 30 | 60  |
|  | 85  | 400 | 60  | 5  | 100 |
|  | 70  | 440 | 65  | <2 | 30  |
|  | 60  | 370 | 85  | 5  | 20  |
|  | 60  | 320 | 80  | 2  | 30  |
|  | 54  | 300 | 85  | 5  | 20  |
|  | 80  | 280 | 95  | 5  | 30  |

Figure No.24

077

537123

Coordinates : 565 000 N, 216 450 E

Hole No. : 25

surface

upper volcanics

372'

113.38

| Cu  | Ni  | Zn  | Mo | W  |
|-----|-----|-----|----|----|
| 65  | 190 | 100 | 2  | 5  |
| 110 | 280 | 100 | 5  | 5  |
| 70  | 250 | 95  | 5  | 10 |
| 60  | 230 | 95  | 2  | 2  |
| 40  | 180 | 100 | 10 | 5  |
| 20  | 140 | 85  | <2 | 5  |
| 20  | 150 | 90  | 2  | 5  |
| 75  | 210 | 75  | <2 | 10 |
| 50  | 190 | 85  | 2  | 5  |
| 35  | 140 | 70  | 2  | 2  |
| 90  | 200 | 100 | 5  | 5  |
| 100 | 150 | 100 | 2  | 5  |
| 95  | 120 | 110 | 2  | 5  |

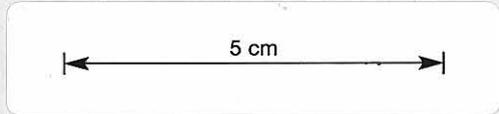


Figure No.25

078

537124

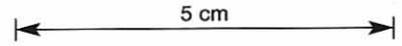
Coordinates : 565 625 N, 217 150 E

Hole No. : 26

surface

10'

weathered volcanics  
3.05m



upper volcanics

245'

74.67m

260'

transition zone  
79.25

biotite hornfels (country rocks)

335'

102.10m

350'

mixture bh/volcanics  
106.68

upper volcanics

435'

132.58m

quartzites

497'

151.48m

|  | Cu  | Ni   | Zn  | Mo | W  |
|--|-----|------|-----|----|----|
|  | 70  | 930  | 50  | <2 | <2 |
|  | 50  | 910  | 45  | <2 | <2 |
|  | 70  | 950  | 40  | <2 | <2 |
|  | 70  | 920  | 40  | <2 | <2 |
|  | 70  | 880  | 45  | <2 | <2 |
|  | 70  | 800  | 55  | <2 | 2  |
|  | 60  | 180  | 40  | 5  | 2  |
|  | 65  | 800  | 46  | <2 | 2  |
|  | 30  | 280  | 80  | <2 | <2 |
|  | 65  | 160  | 90  | 2  | <2 |
|  | 55  | 340  | 85  | 2  | <2 |
|  | 40  | 110  | 110 | <2 | <2 |
|  | 40  | 80   | 120 | <2 | <2 |
|  | 45  | 90   | 130 | <2 | <2 |
|  | 45  | 75   | 100 | <2 | 2  |
|  | 55  | 95   | 110 | 2  | 2  |
|  | 40  | 70   | 100 | <2 | <2 |
|  | 35  | 85   | 100 | <2 | <2 |
|  | 50  | 150  | 90  | <2 | <2 |
|  | 60  | 200  | 85  | <2 | <2 |
|  | 50  | 140  | 95  | <2 | 5  |
|  | 50  | 180  | 95  | <2 | <2 |
|  | 55  | 150  | 110 | 2  | 2  |
|  | 80  | 150  | 130 | 2  | <2 |
|  | 85  | 120  | 110 | 2  | <2 |
|  | 55  | 230  | 100 | <2 | <2 |
|  | 75  | 380  | 70  | <2 | <2 |
|  | 100 | 600  | 50  | <2 | <2 |
|  | 95  | 1000 | 45  | <2 | 2  |
|  | 85  | 870  | 70  | <2 | <2 |
|  | 80  | 1000 | 45  | <2 | <2 |
|  | 130 | 680  | 55  | <2 | <2 |
|  | 30  | 860  | 55  | <2 | <2 |
|  | 40  | 850  | 45  | <2 | <2 |
|  | 30  | 850  | 40  | <2 | <2 |

|  |    |      |     |    |    |
|--|----|------|-----|----|----|
|  | 35 | 1400 | 40  | <2 | <2 |
|  | 85 | 490  | 80  | <2 | <2 |
|  | 90 | 330  | 90  | <2 | 2  |
|  | 90 | 230  | 100 | <2 | 2  |
|  | 70 | 210  | 95  | <2 | 5  |
|  | 65 | 140  | 65  | 2  | 5  |
|  | 50 | 110  | 60  | 2  | 5  |
|  | 40 | 80   | 70  | <2 | 5  |
|  | 30 | 65   | 55  | <2 | 5  |
|  | 25 | 50   | 65  | 5  | 2  |
|  | 25 | 50   | 65  | <2 | 2  |
|  | 30 | 45   | 40  | 5  | 5  |
|  | 30 | 70   | 45  | 5  | 5  |
|  | 25 | 80   | 50  | 2  | 5  |
|  | 46 | 110  | 60  | 5  | 5  |
|  | 55 | 220  | 55  | 2  | 2  |
|  | 60 | 140  | 55  | 2  | 2  |
|  | 45 | 100  | 60  | 2  | <2 |

Figure No.26

079

537125

surface

Coordinates : 564 950 N, 217 400 E

Hole No. : 27

5 cm



| Cu  | Ni  | Zn | Mo | W  |
|-----|-----|----|----|----|
| 45  | 200 | 45 | 42 | 42 |
| 75  | 800 | 50 | 2  | 5  |
| 65  | 850 | 40 | 2  | 42 |
| 35  | 800 | 40 | 42 | 42 |
| 45  | 330 | 35 | 42 | 42 |
| 35  | 500 | 50 | 42 | 42 |
| 50  | 360 | 40 | 2  | 42 |
| 45  | 700 | 60 | 2  | 42 |
| 40  | 450 | 55 | 2  | 42 |
| 35  | 480 | 55 | 5  | 42 |
| 30  | 490 | 50 | 2  | 42 |
| 85  | 480 | 45 | 2  | 42 |
| 55  | 700 | 45 | 5  | 2  |
| 30  | 600 | 40 | 42 | 42 |
| 40  | 600 | 40 | 2  | 42 |
| 65  | 700 | 30 | 42 | 42 |
| 140 | 820 | 40 | 42 | 42 |
| 80  | 800 | 30 | 2  | 42 |
| 50  | 750 | 25 | 42 | 42 |
| 45  | 510 | 45 | 2  | 5  |
| 30  | 170 | 85 | 2  | 10 |
| 30  | 120 | 75 | 2  | 2  |
| 20  | 60  | 80 | 2  | 5  |
| 20  | 70  | 90 | 2  | 5  |

Figure No.27

U80

537126

Coordinates : 564 850N, 217 520E.

Hole No. : 28

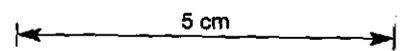
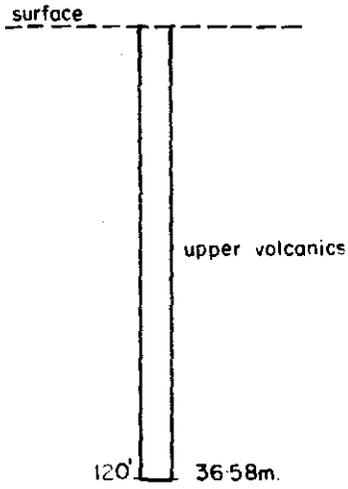


Figure No28

537127

Coordinates : 564 650 N, 217 850 E

Hole No. : 29

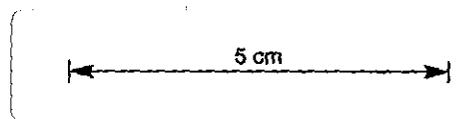
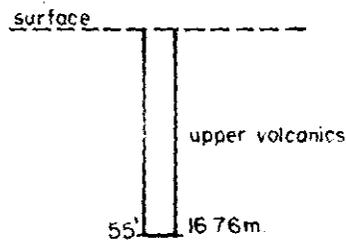


Figure No 29

082

537128

Coordinates : 564 650 N, 217 850 E

Hole No. : 29 B

surface

upper volcanics

420' 128.01m

grassy granite

443' 135m

| Cu | Ni  | Zn | Mo | W |
|----|-----|----|----|---|
| 60 | 730 | 50 | 2  | 2 |
| 45 | 780 | 40 | 2  | 5 |
| 60 | 720 | 25 | 5  | 5 |
| 40 | 800 | 30 | 5  | 5 |
| 50 | 600 | 40 | 5  | 2 |
| 35 | 470 | 40 | 2  | 5 |

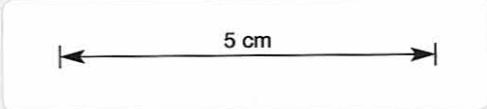


Figure No.29B

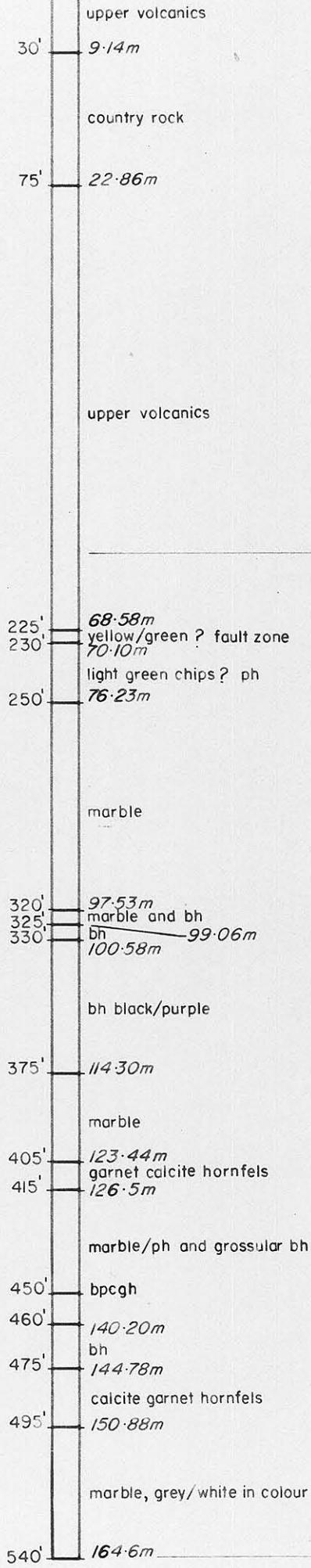
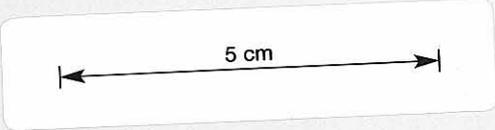
083

337129

surface

Coordinates : 564 700 N 218 000 E

Hole No. : 30



|  | Cu  | Ni  | Zn  | Mo | W  |
|--|-----|-----|-----|----|----|
|  | 55  | 130 | 65  | 2  | 5  |
|  | 40  | 90  | 70  | 2  | 5  |
|  | 40  | 90  | 85  | 2  | 2  |
|  | 75  | 90  | 100 | 2  | 2  |
|  | 85  | 100 | 70  | 2  | 2  |
|  | 60  | 80  | 50  | 2  | 5  |
|  | 65  | 70  | 55  | 2  | 5  |
|  | 350 | 120 | 80  | 5  | 5  |
|  | 70  | 710 | 50  | 2  | 5  |
|  | 180 | 600 | 70  | 2  | 5  |
|  | 150 | 700 | 95  | 2  | 5  |
|  | 65  | 250 | 65  | 2  | 20 |
|  | 35  | 100 | 50  | 2  | 20 |
|  | 20  | 65  | 35  | 2  | 20 |
|  | 15  | 65  | 25  | 2  | 40 |
|  | 15  | 45  | 20  | 2  | 20 |
|  | 20  | 45  | 20  | 2  | 20 |
|  | 15  | 45  | 30  | 2  | 10 |
|  | 15  | 35  | 25  | 5  | 5  |
|  | 20  | 35  | 30  | 2  | 20 |
|  | 30  | 85  | 30  | 2  | 2  |
|  | 20  | 55  | 25  | 2  | 2  |
|  | 15  | 25  | 20  | 2  | 2  |
|  | 20  | 40  | 30  | 2  | 5  |
|  | 65  | 40  | 45  | 2  | 5  |
|  | 100 | 60  | 45  | 2  | 5  |
|  | 110 | 70  | 85  | 2  | 2  |
|  | 60  | 40  | 15  | 2  | 2  |
|  | 75  | 45  | 80  | 2  | 5  |
|  | 110 | 50  | 85  | 2  | 5  |
|  | 100 | 50  | 15  | 2  | 5  |
|  | 95  | 50  | 80  | 2  | 5  |
|  | 85  | 65  | 80  | 5  | 5  |
|  | 70  | 50  | 90  | 2  | 10 |
|  | 40  | 160 | 40  | 80 | 10 |
|  | 20  | 35  | 30  | 5  | 10 |
|  | 40  | 25  | 30  | 5  | 10 |
|  | 25  | 30  | 30  | 20 | 5  |
|  | 20  | 25  | 25  | 2  | 10 |
|  | 20  | 45  | 35  | 2  | 5  |
|  | 35  | 30  | 25  | 2  | 10 |
|  | 30  | 30  | 30  | 2  | 5  |
|  | 75  | 70  | 15  | 10 | 5  |
|  | 60  | 40  | 60  | 5  | 5  |
|  | 50  | 30  | 45  | 5  | 5  |
|  | 55  | 30  | 70  | 5  | 5  |
|  | 45  | 25  | 50  | 5  | 5  |
|  | 60  | 130 | 60  | 40 | 5  |
|  | 70  | 55  | 60  | 10 | 10 |
|  | 75  | 40  | 60  | 10 | 5  |
|  | 80  | 230 | 70  | 5  | 5  |
|  | 60  | 70  | 60  | 5  | 10 |
|  | 80  | 50  | 75  | 5  | 5  |
|  | 190 | 40  | 90  | 40 | 10 |
|  | 70  | 40  | 60  | 10 | 5  |
|  | 40  | 35  | 50  | 20 | 5  |
|  | 35  | 30  | 45  | 20 | 5  |
|  | 30  | 30  | 50  | 20 | 5  |
|  | 40  | 130 | 50  | 5  | 10 |
|  | 25  | 45  | 40  | 10 | 2  |
|  | 35  | 75  | 55  | 10 | 5  |
|  | 35  | 70  | 50  | 5  | 5  |
|  | 30  | 40  | 50  | 2  | 5  |
|  | 20  | 20  | 45  | 10 | 2  |
|  | 25  | 40  | 50  | 5  | 2  |
|  | 25  | 25  | 45  | 5  | 2  |
|  | 25  | 30  | 50  | 10 | 2  |

Figure No.30

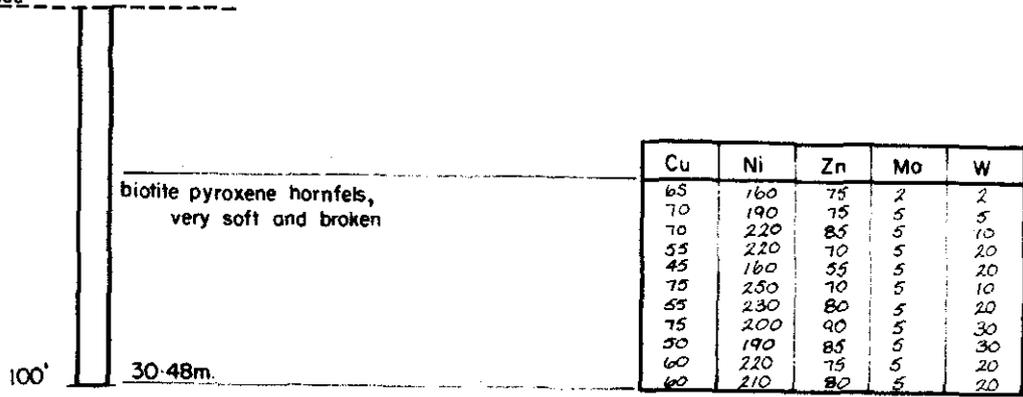
U84

537130

Coordinates : 562 825 N, 213 800 E

Hole No. : 31

surface



5 cm

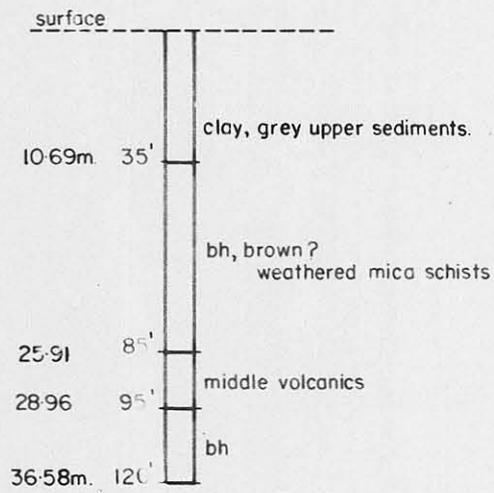
Figure No. 31

085

337131

Coordinates : 562 950 N, 213 800 E

Hole No. : 32



5 cm

Figure No. 32

086

E 37132

Coordinates : 562 975 N, 213 800 E

Hole No. : 32 A

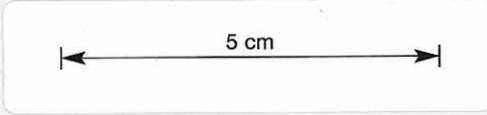
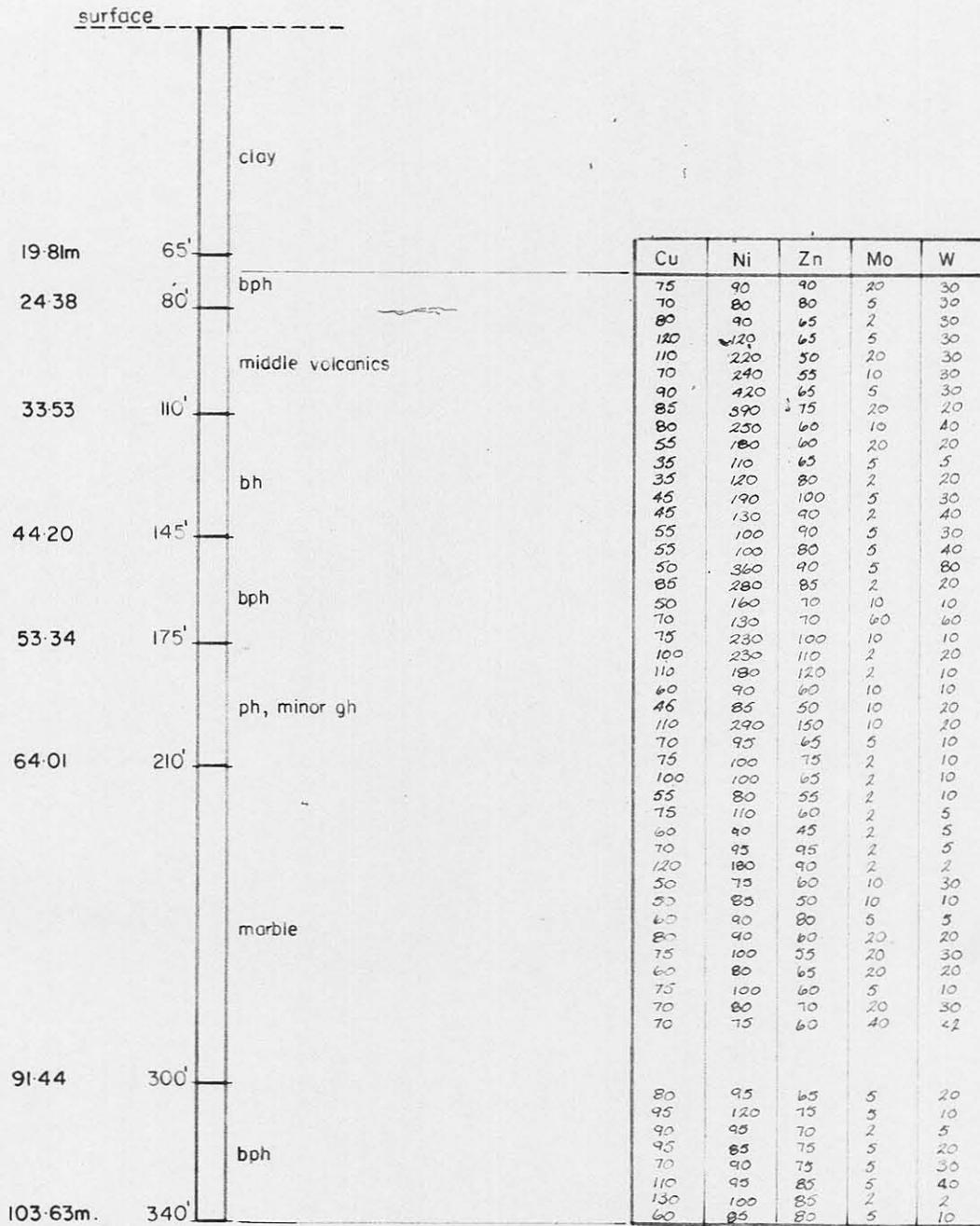


Figure No.32 A

087

537133

Coordinates : 563 000 N, 213 850 E

Hole No. : 33

surface

25' red/brown clay  
7.62m

55' grey clay, black spots,  
upper sediments.  
16.76m

65' green clay ? upper weathered  
volcanics

95' grey/black rock chips,  
upper sediments.  
28.95m

120' sediment and  
bh, purple  
36.57m

150' bh - mine series  
45.72m

185' middle volcanics  
56.39m

230' bph  
70.10m

245' pgh  
74.67m

250' bh 76.20m

265' pch minor gh  
80.77m

275' bpch  
83.22m

295' 89.92m

320' marbie and skarn,  
good scheelite and molybdenum  
97.54m

340' marbie, very heavy contamination  
103.6m

355' contaminated bh  
106.20m

365' pch minor bh  
111.25m

375' very badly contaminated as above.  
114.30m

|  | Cu  | Ni  | Zn  | Mo   | W    |
|--|-----|-----|-----|------|------|
|  | 35  | 310 | 80  | 2    | 5    |
|  | 25  | 310 | 75  | 2    | 2    |
|  | 30  | 190 | 100 | 2    | 5    |
|  | 20  | 190 | 90  | 2    | 5    |
|  | 120 | 320 | 130 | 5    | 60   |
|  | 90  | 290 | 130 | 5    | 20   |
|  | 95  | 270 | 110 | <2   | 20   |
|  | 70  | 150 | 90  | <2   | 20   |
|  | 70  | 120 | 95  | <2   | 10   |
|  | 80  | 150 | 95  | <2   | 10   |
|  | 65  | 120 | 85  | <2   | 5    |
|  | 60  | 140 | 85  | 2    | 10   |
|  | 60  | 95  | 80  | <2   | 5    |
|  | 60  | 80  | 100 | <2   | 5    |
|  | 70  | 85  | 100 | 2    | 2    |
|  | 80  | 160 | 90  | 2    | 2    |
|  | 70  | 100 | 85  | <2   | 2    |
|  | 75  | 200 | 60  | 2    | 2    |
|  | 90  | 130 | 85  | 5    | 5    |
|  | 80  | 110 | 75  | 2    | 2    |
|  | 60  | 400 | 55  | 2    | 2    |
|  | 50  | 660 | 45  | 10   | 2    |
|  | 240 | 720 | 50  | 2    | 5    |
|  | 70  | 180 | 55  | 2    | 5    |
|  | 80  | 140 | 70  | 2    | 5    |
|  | 50  | 140 | 65  | 2    | 5    |
|  | 50  | 110 | 65  | 2    | 10   |
|  | 55  | 120 | 65  | 2    | 5    |
|  | 70  | 75  | 90  | 2    | 5    |
|  | 75  | 80  | 85  | 2    | 5    |
|  | 75  | 80  | 75  | 2    | 10   |
|  | 65  | 95  | 80  | 2    | 2    |
|  | 60  | 90  | 70  | 5    | 10   |
|  | 65  | 65  | 65  | >100 | 20   |
|  | 90  | 60  | 70  | 10   | 40   |
|  | 95  | 50  | 55  | 10   | 20   |
|  | 45  | 40  | 45  | 5    | 10   |
|  | 140 | 140 | 65  | 5    | 2    |
|  | 110 | 75  | 130 | 2    | 2    |
|  | 50  | 85  | 120 | 2    | 2    |
|  | 70  | 55  | 95  | 2    | 5    |
|  | 65  | 60  | 60  | 2    | 5    |
|  | 85  | 75  | 75  | 5    | 5    |
|  | 65  | 120 | 45  | 2    | 20   |
|  | 45  | 140 | 50  | 2    | 5    |
|  | 45  | 80  | 50  | >100 | >100 |
|  | 50  | 95  | 50  | >100 | >100 |
|  | 50  | 200 | 65  | 20   | >100 |
|  | 100 | 160 | 55  | >100 | >100 |
|  | 200 | 95  | 70  | >100 | >100 |
|  | 140 | 95  | 60  | >100 | >100 |
|  | 130 | 280 | 55  | >100 | >100 |
|  | 110 | 320 | 45  | >100 | >100 |
|  | 100 | 340 | 50  | 80   | >100 |
|  | 95  | 180 | 55  | >100 | >100 |
|  | 90  | 240 | 65  | 20   | >100 |
|  | 85  | 150 | 85  | 10   | 100  |
|  | 95  | 160 | 75  | 10   | >100 |
|  | 110 | 160 | 95  | 5    | 80   |
|  | 110 | 150 | 95  | 10   | >100 |

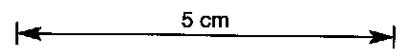
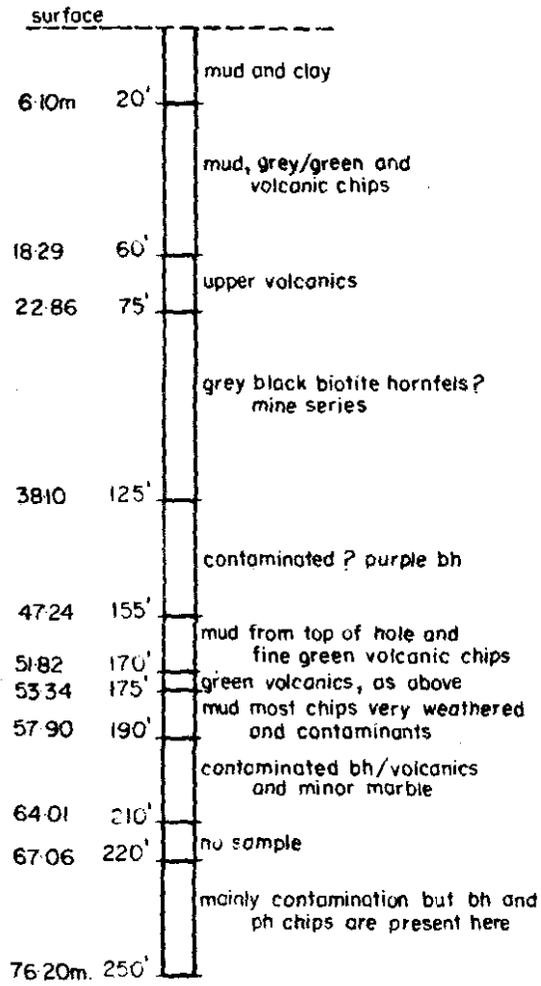


Figure No.33

537134

Coordinates : 563 050 N, 213 850 E

Hole No. : 34



5 cm

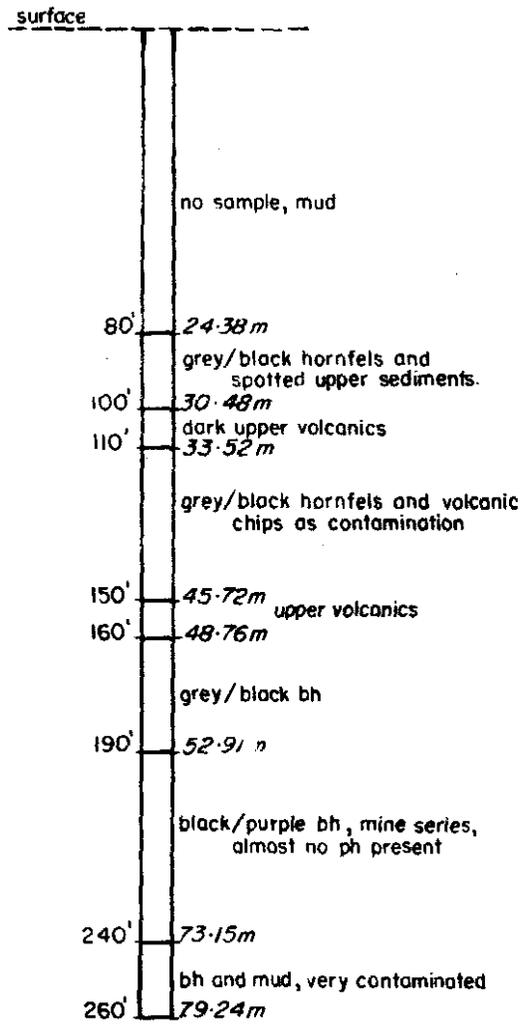
Figure No. 34

089

537135

Coordinates : 563 000 N, 213 900 E

Hole No. : 35



5 cm

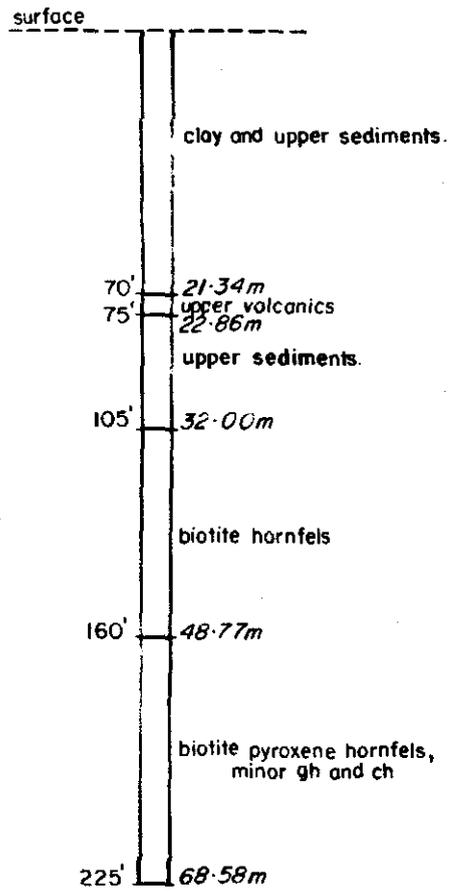
Figure No.35

090

537136

Coordinates : 562 950 N, 213 850 E

Hole No. : 36



5 cm

Figure No.36

091

537137

Coordinates : 563100 N, 213900 E.

Hole No. : 37

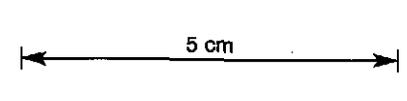
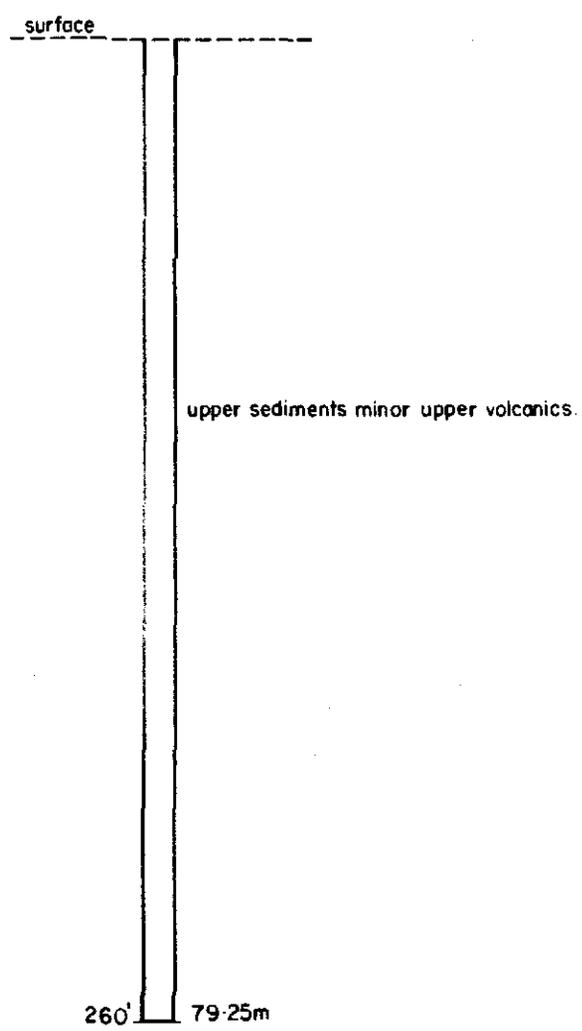
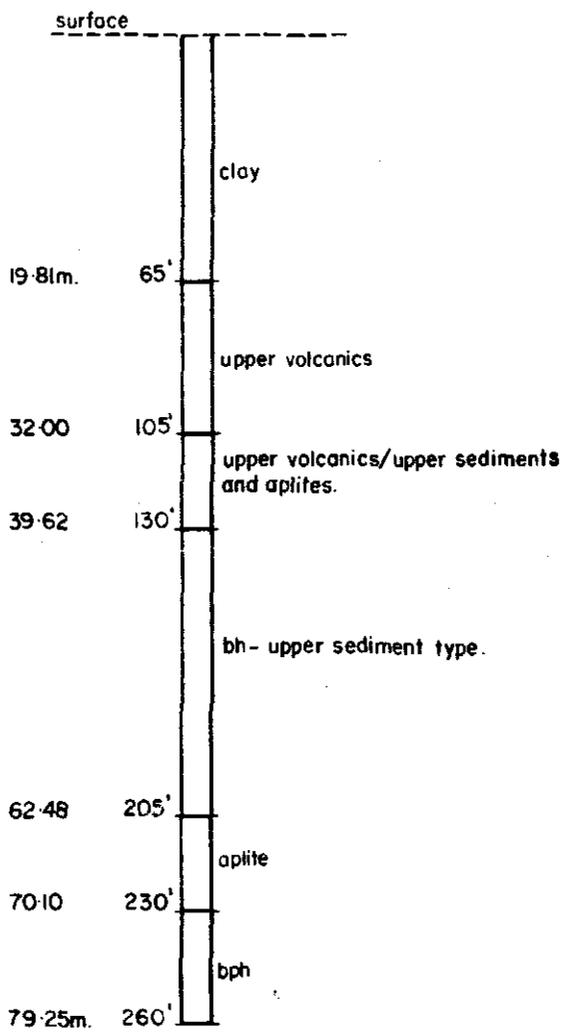


Figure No.37

537138

Coordinates : 563 100 N, 214 000 E

Hole No. : 38



5 cm

Figure No.38

093

537139

Coordinates : 563 100 N, 213 950 E

Hole No. : 39

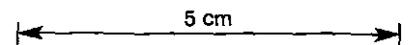
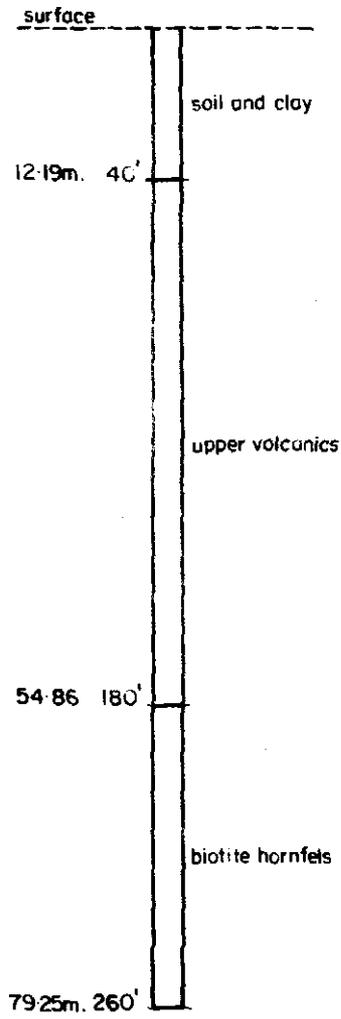


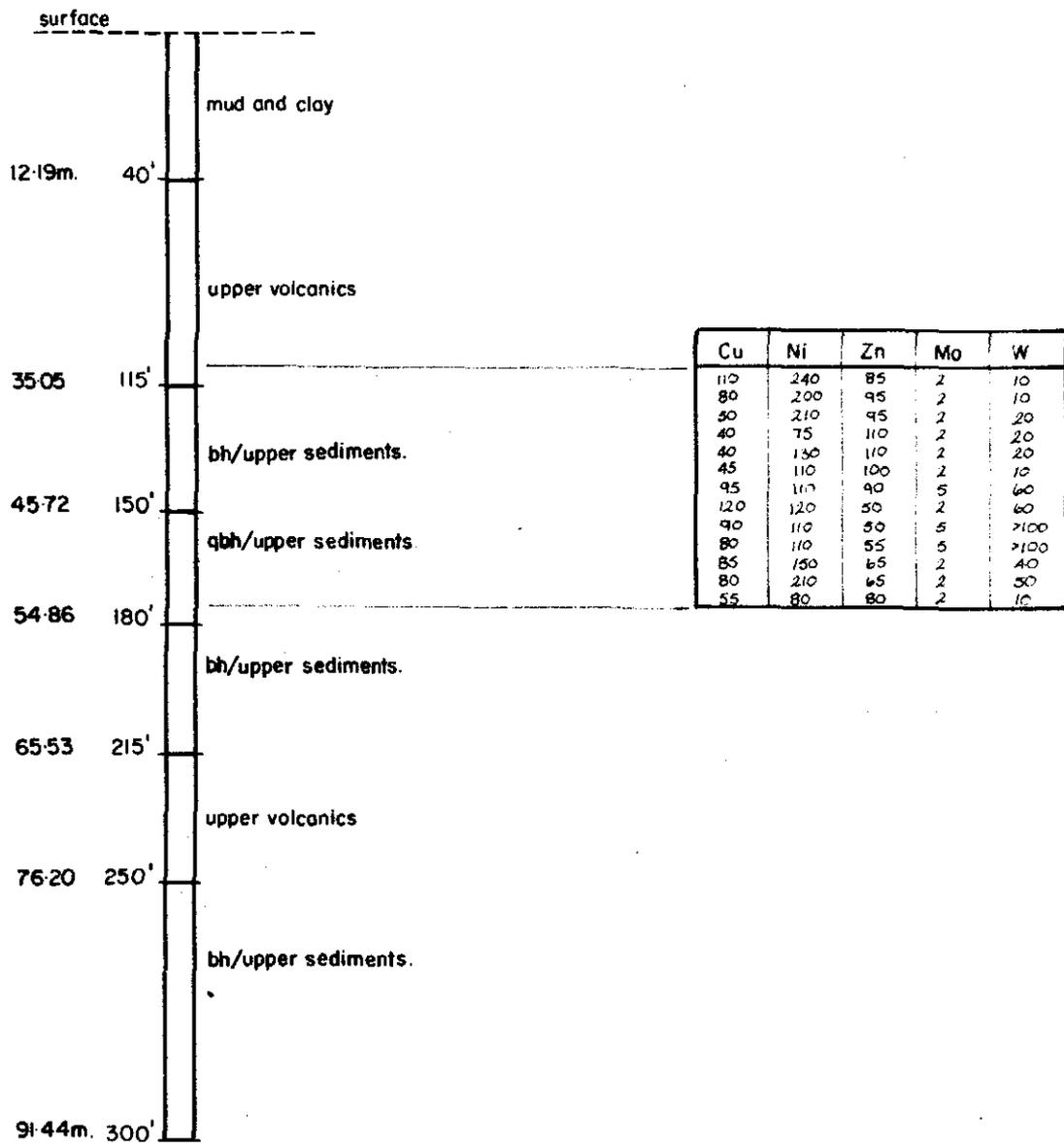
Figure No. 39

094

537140

Coordinates : 564 450 N, 216 200 E

Hole No. : 40



5 cm

Figure No.40

095

537141

Coordinates : 564 500 N, 216 250 E

Hole No. : 41

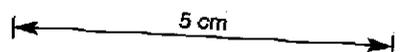
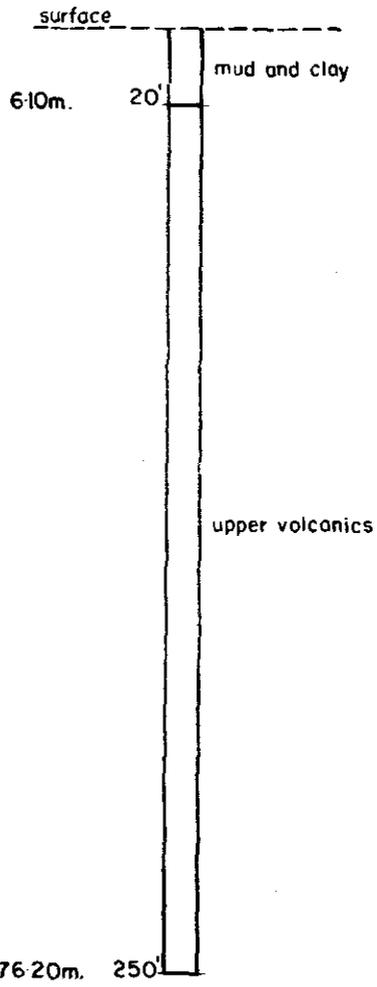


Figure No.41

096

537142

Coordinates : 564 500 N, 216 150 E

Hole No. : 42

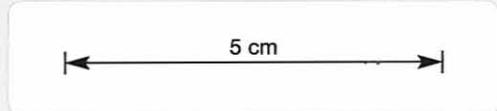
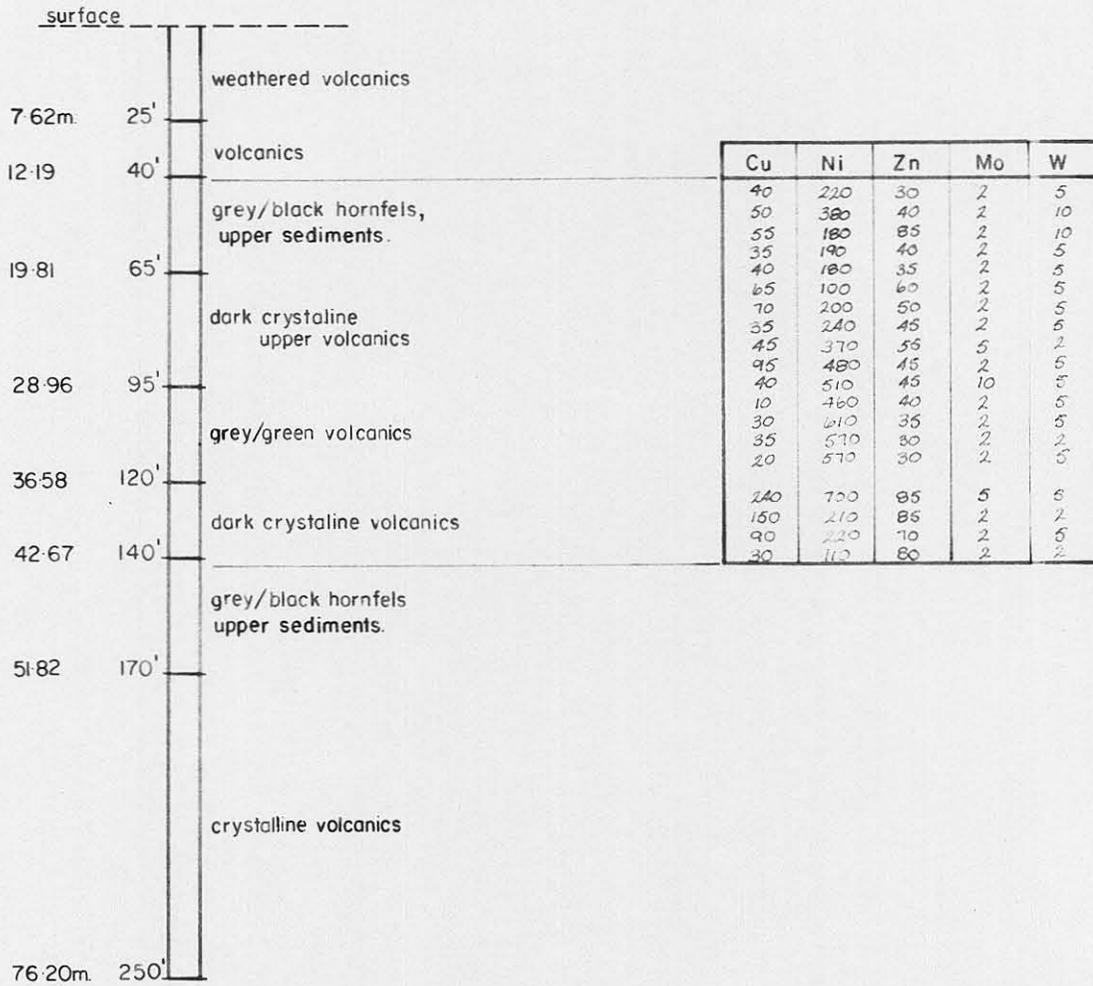
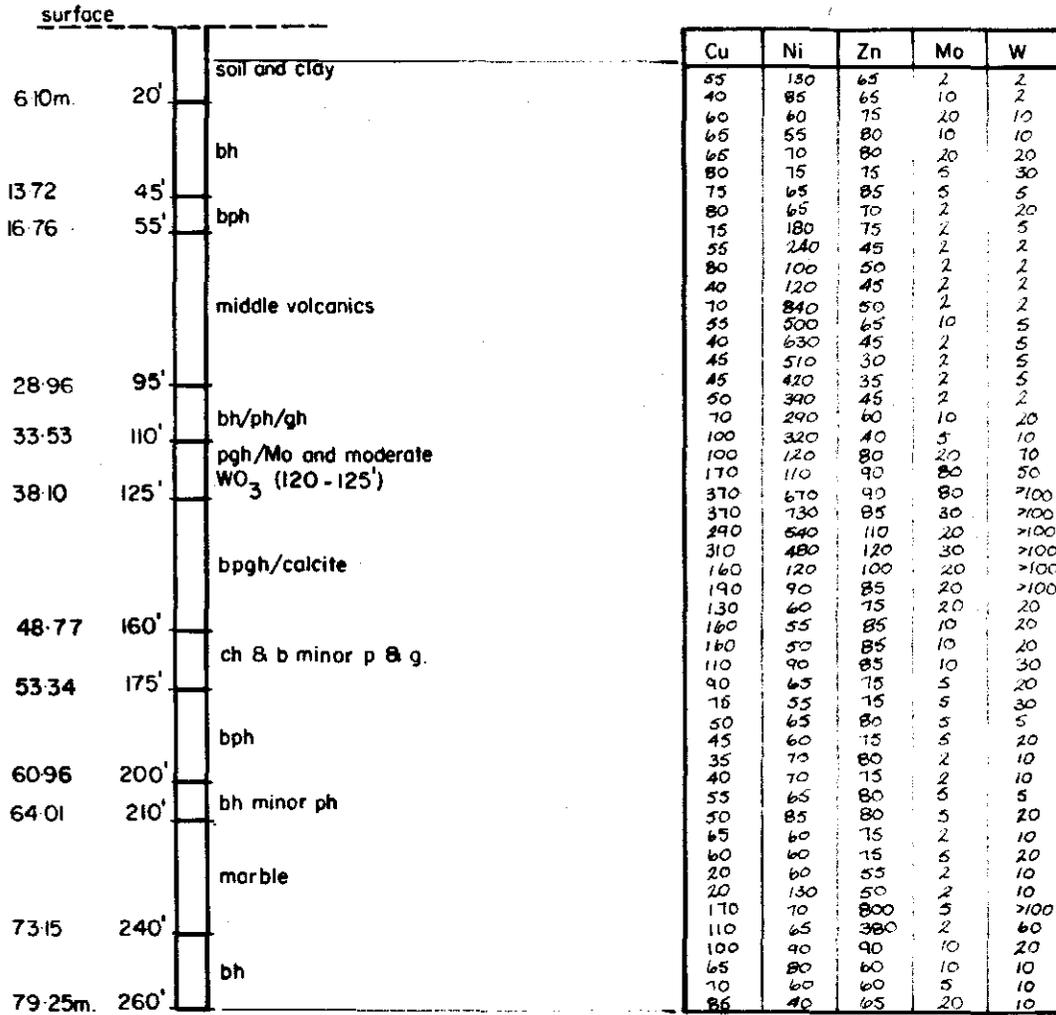


Figure No.42

537143

Coordinates : 564 460 N, 215 616 E

Hole No. : 43



5 cm

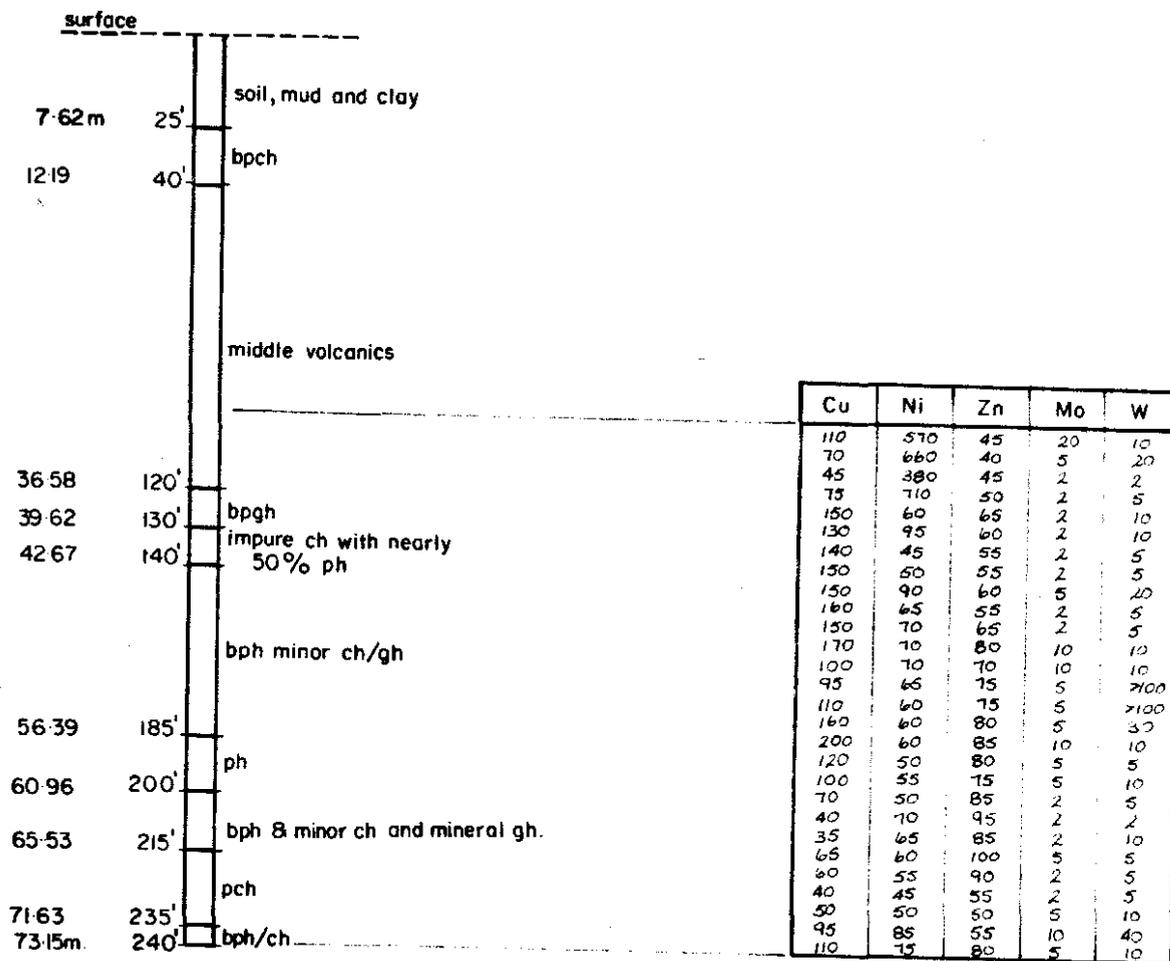
Figure No.43

03.

537144

Coordinates : 564 510 N, 215 666 E

Hole No. : 44



5 cm

Figure No.44

093

537145

Coordinates : 564 460 N, 215 716 E

Hole No. : 45

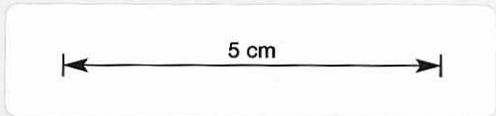
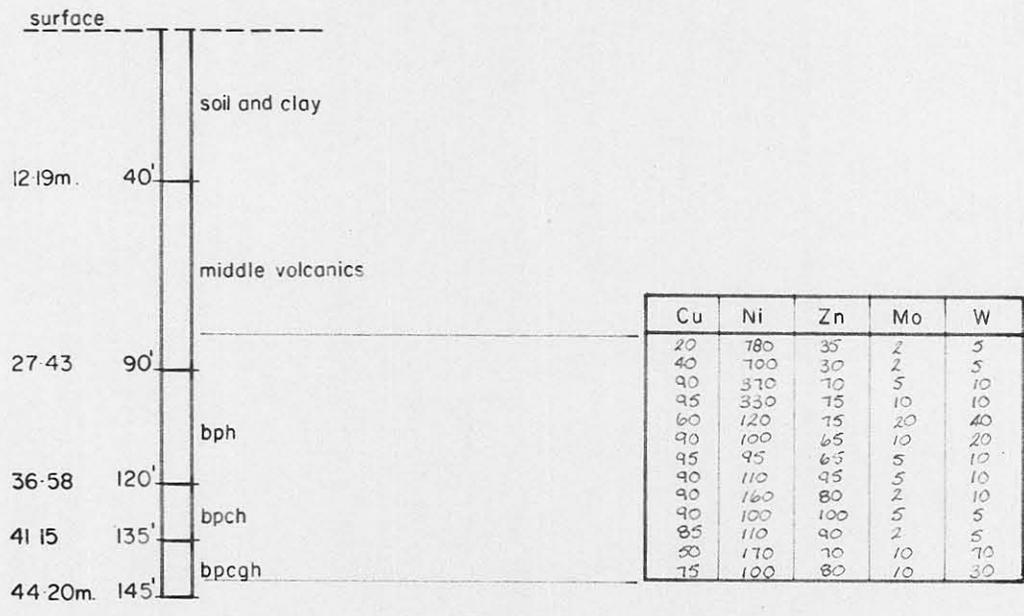


Figure No.45

100

537146

Coordinates : 562 575 N, 213 780 E

Hole No. : 46

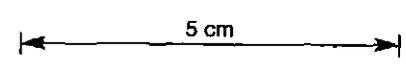
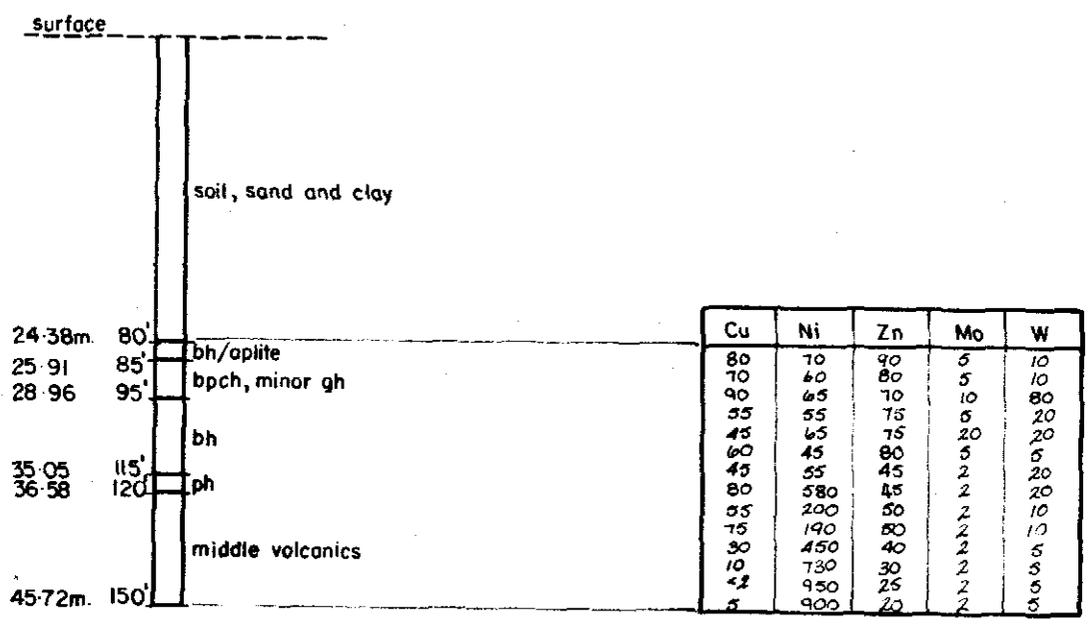


Figure No.46

10

537147

Coordinates : 562 675 N, 213 780 E

Hole No. : 47

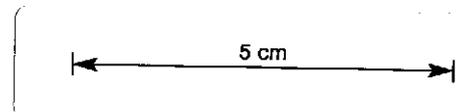
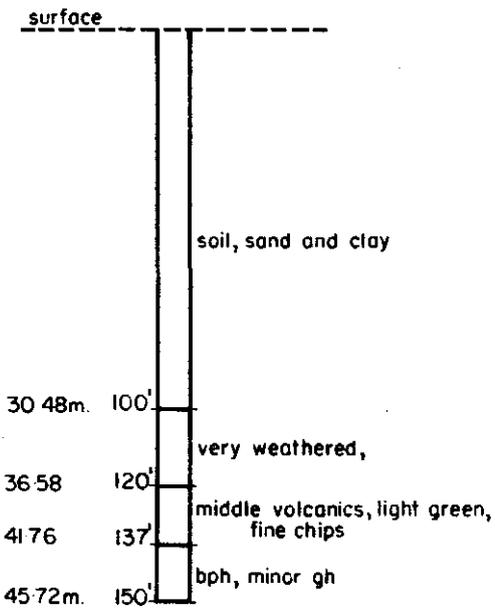


Figure No.47

10

537148

Coordinates : 564 450 N, 217 100 E

Hole No. : 48

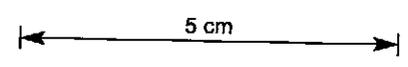
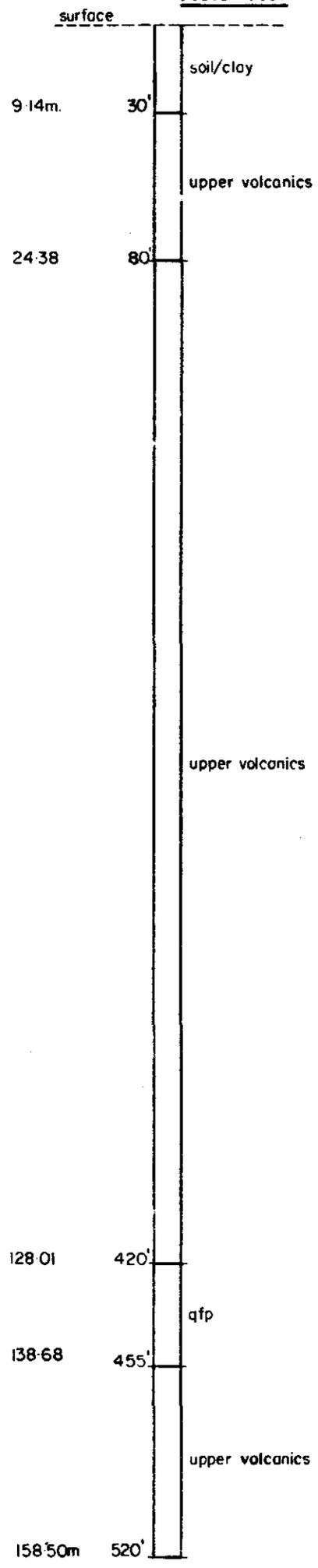


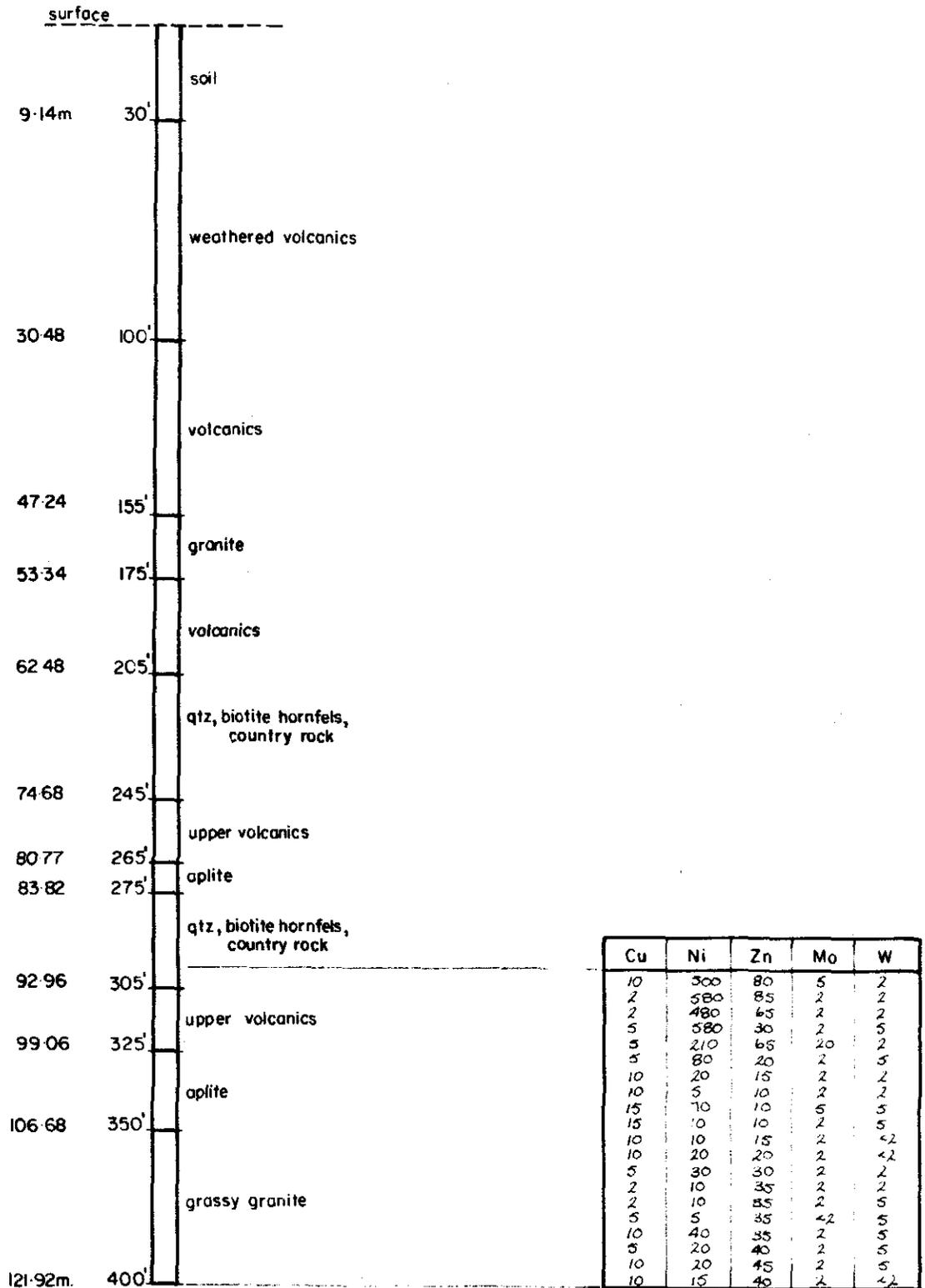
Figure No.48

103

537149

Coordinates : 564 700 N, 214 780 E

Hole No. : 49



5 cm

Figure No.49

537150

Coordinates : 561 800 N , 213 700 E

Hole No. : 50

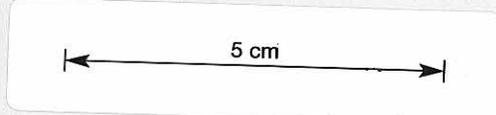
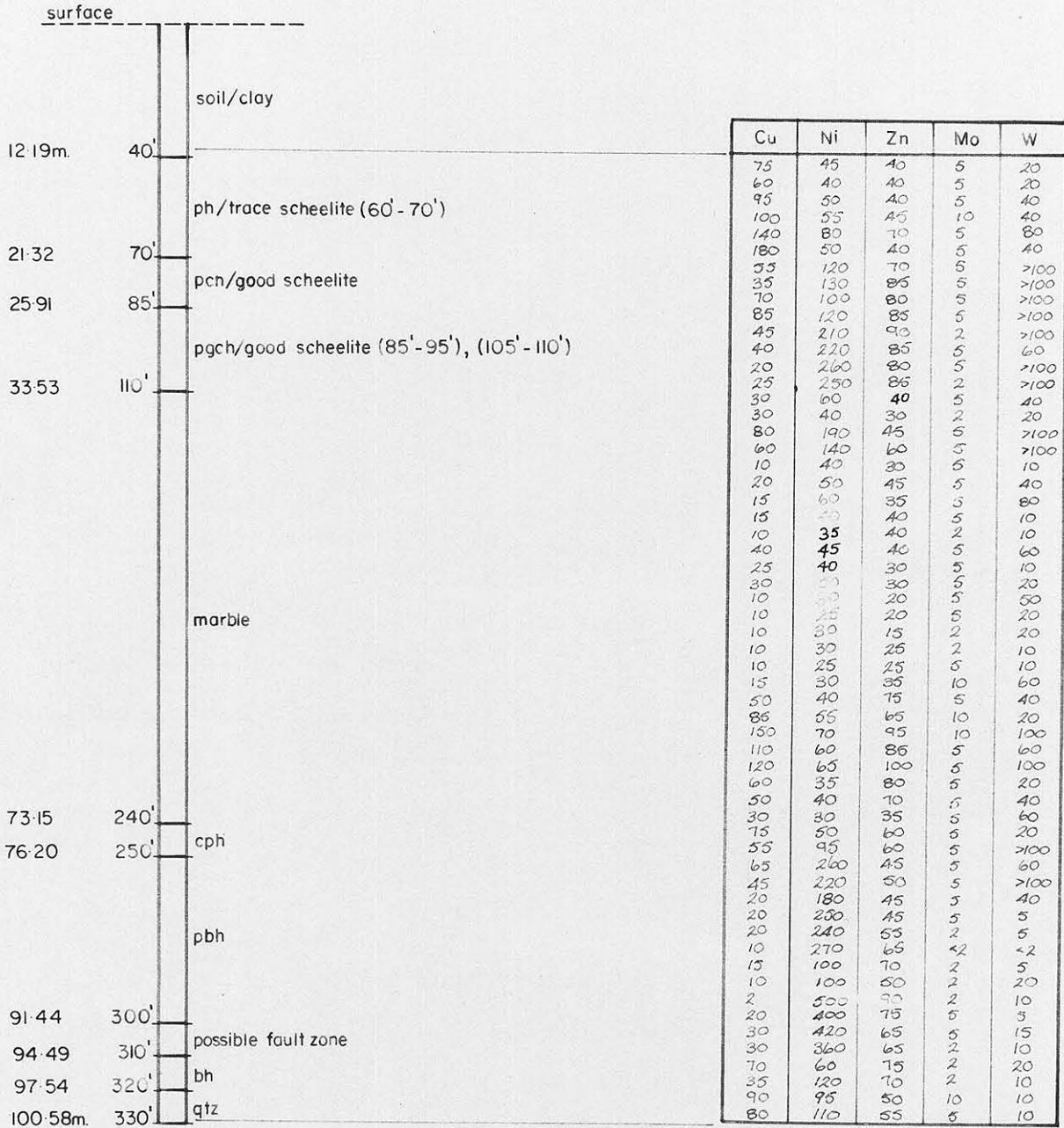


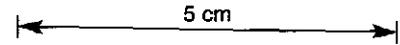
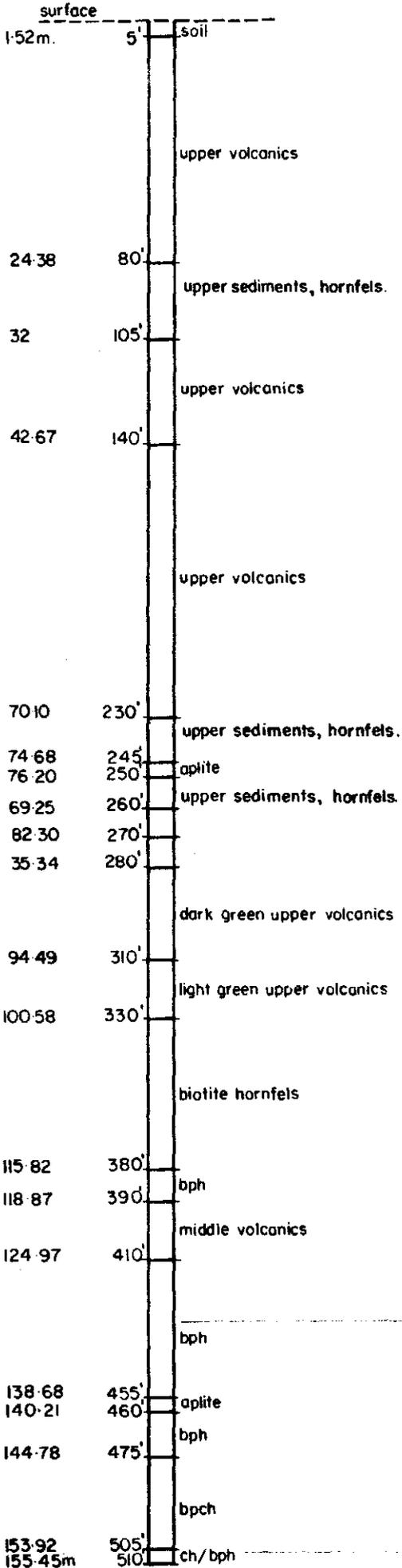
Figure No.50

105

537151

Coordinates : 563 900N, 214 650E.

Hole No. : 51



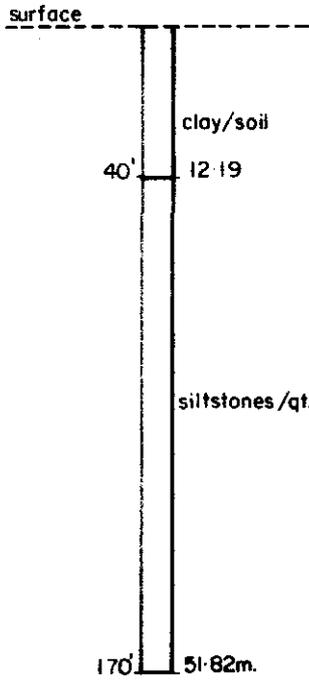
|     | Cu | Ni | Zn | Mo  | W   |
|-----|----|----|----|-----|-----|
| bph | 55 | 45 | 95 | 2   | <2  |
|     | 50 | 80 | 80 | 2   | 5   |
|     | 55 | 60 | 75 | 2   | 4.2 |
|     | 50 | 45 | 80 | 2   | 5   |
|     | 30 | 60 | 40 | 2   | 5   |
|     | 55 | 55 | 50 | 5   | 10  |
|     | 40 | 55 | 55 | 2   | 4.2 |
|     | 50 | 75 | 50 | 2   | 10  |
|     | 50 | 90 | 60 | 10  | 10  |
|     | 75 | 60 | 55 | 2   | 5   |
|     | 70 | 70 | 65 | 5   | 4.2 |
|     | 65 | 45 | 65 | 10  | 2   |
|     | 55 | 65 | 80 | 2   | 2   |
|     | 50 | 90 | 80 | 4.2 | 5   |
|     | 65 | 70 | 60 | 2   | 5   |

Figure No.51

537152

Coordinates : 565900N, 218000E.

Hole No. : 53



| Cu | Ni | Zn | Mo | W  |
|----|----|----|----|----|
| 45 | <2 | 45 | 70 | 10 |

|    |    |     |    |    |
|----|----|-----|----|----|
| 40 | 35 | 95  | 20 | 10 |
| 60 | 40 | 180 | 15 | 2  |
| 40 | 40 | 110 | 10 | 5  |
| 40 | 40 | 120 | 5  | 2  |
| 35 | 40 | 100 | 10 | 10 |
| 35 | 45 | 100 | 15 | 2  |
| 40 | 50 | 110 | 10 | 5  |
| 40 | 60 | 110 | 15 | 5  |
| 35 | 40 | 100 | 10 | 2  |
| 35 | 35 | 100 | 10 | 10 |
| 30 | 40 | 100 | 10 | 2  |

PDH. No 52 drilled at Noracoopa.

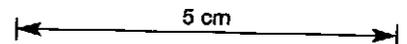
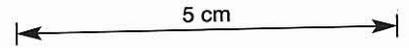


Figure No.53

537153

Coordinates : 564675 N, 217500 E.

Hole No. : 54



surface

upper volcanics

51.82m 170'

quartz feldspar porphyry

60.96 200'

upper volcanics

94.49 310'

upper volcanics

100.58 330'

upper volcanics

146.30 480'

upper volcanics + bh

152.40m 500'

| Cu | Ni  | Zn | Mo | W  |
|----|-----|----|----|----|
| 40 | 580 | 45 | <2 | 2  |
| 35 | 590 | 40 | 5  | 5  |
| 20 | 340 | 40 | <2 | 10 |
| 20 | 500 | 40 | <2 | 2  |
| 45 | 620 | 35 | 2  | 5  |
| 30 | 400 | 50 | 5  | 5  |
| 35 | 370 | 50 | <2 | 2  |
| 45 | 370 | 50 | <2 | 10 |
| 30 | 460 | 45 | <2 | 2  |
| 30 | 440 | 55 | <2 | 5  |

Figure No.54

537154

Coordinates : 563 000 N, 213 950 E.

Hole No. : 55

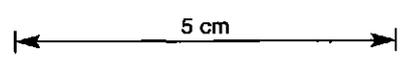
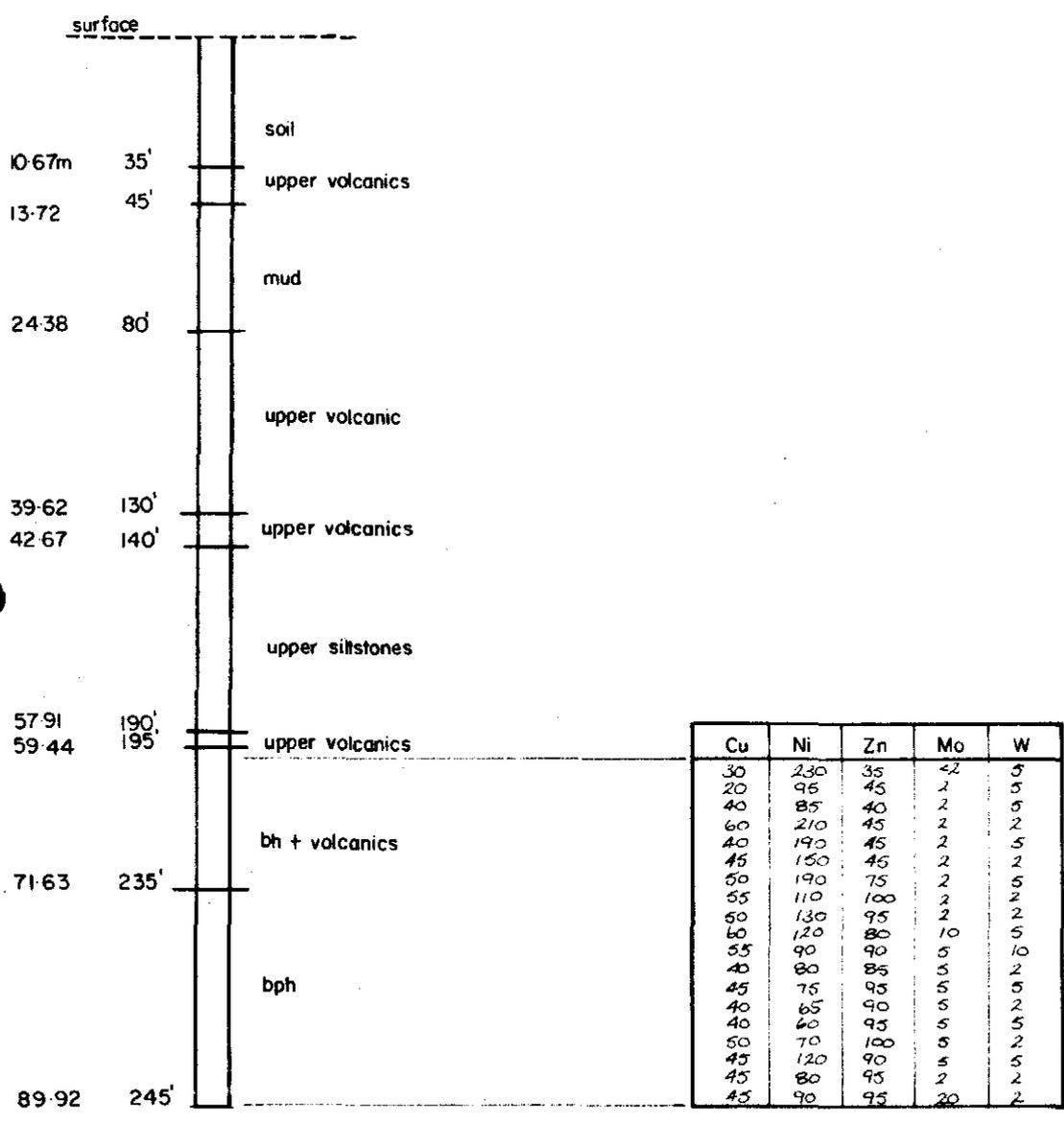


Figure No. 55

537155

Coordinates : 562 950 N, 218 900 E

Hole No. : 56

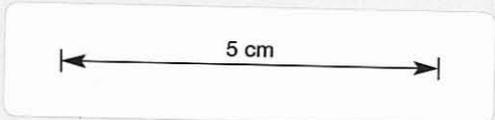
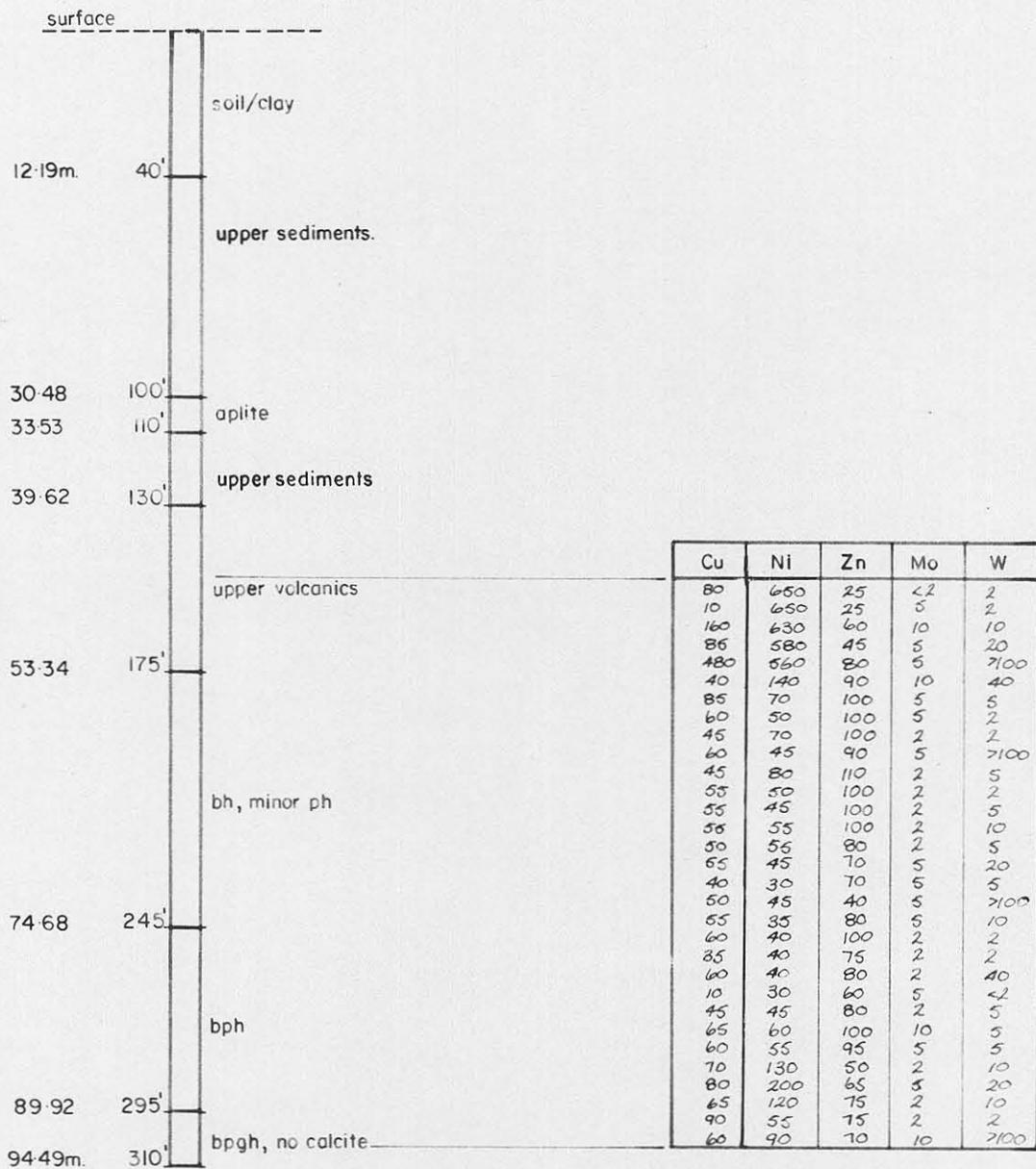


Figure No.56

110

537156

Coordinates : 563 050 N, 213 900 E

Hole No. : 57

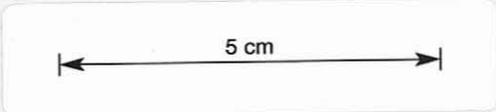
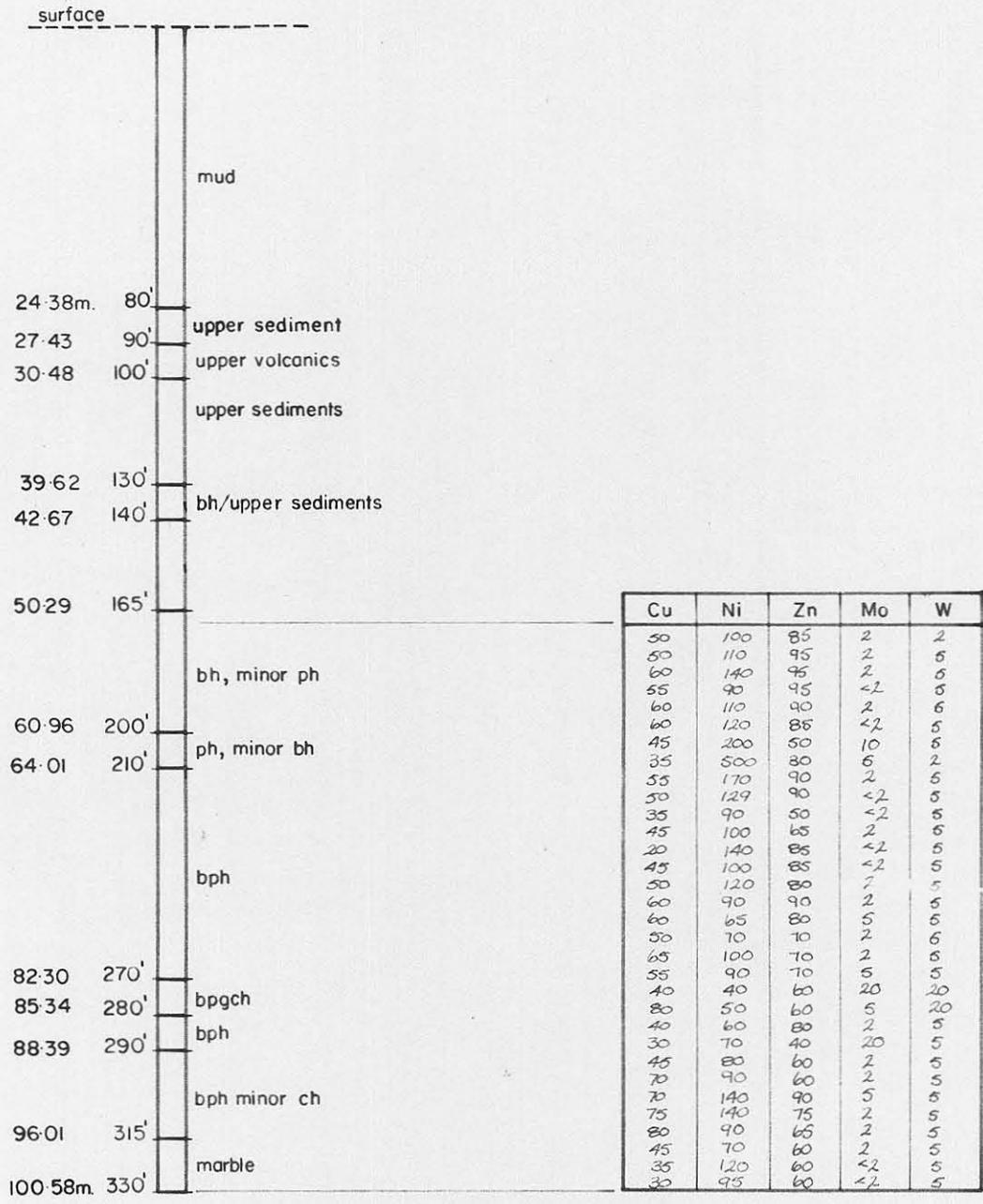


Figure No.57

111

537157

Coordinates : 563 050 N, 213 850 E

Hole No. : 58

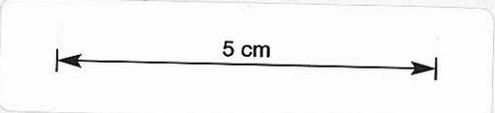
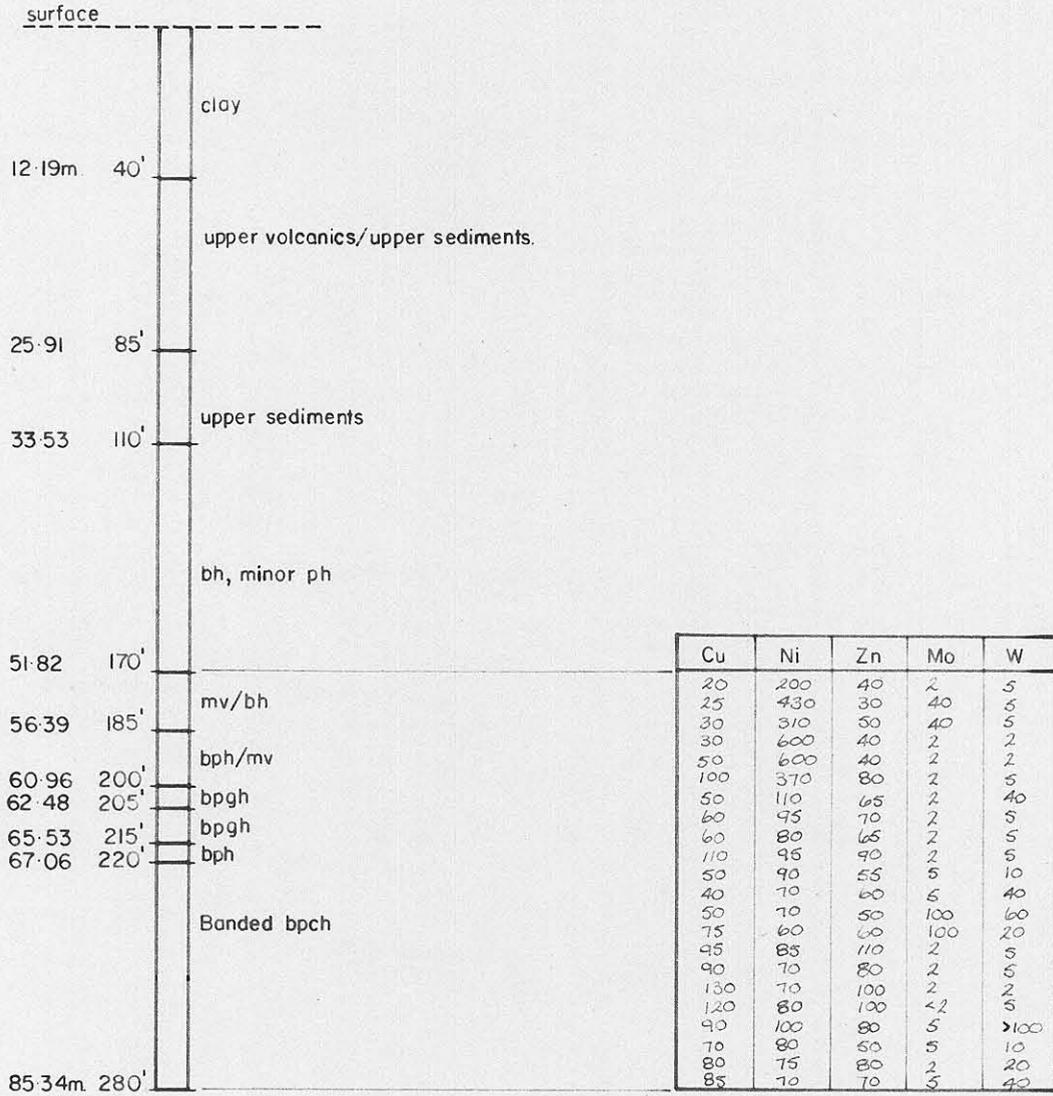


Figure No. 58

537158

Location: Mag. An. 12 A.

Hole No.: P.D.H. 12-1.

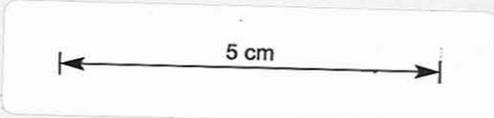
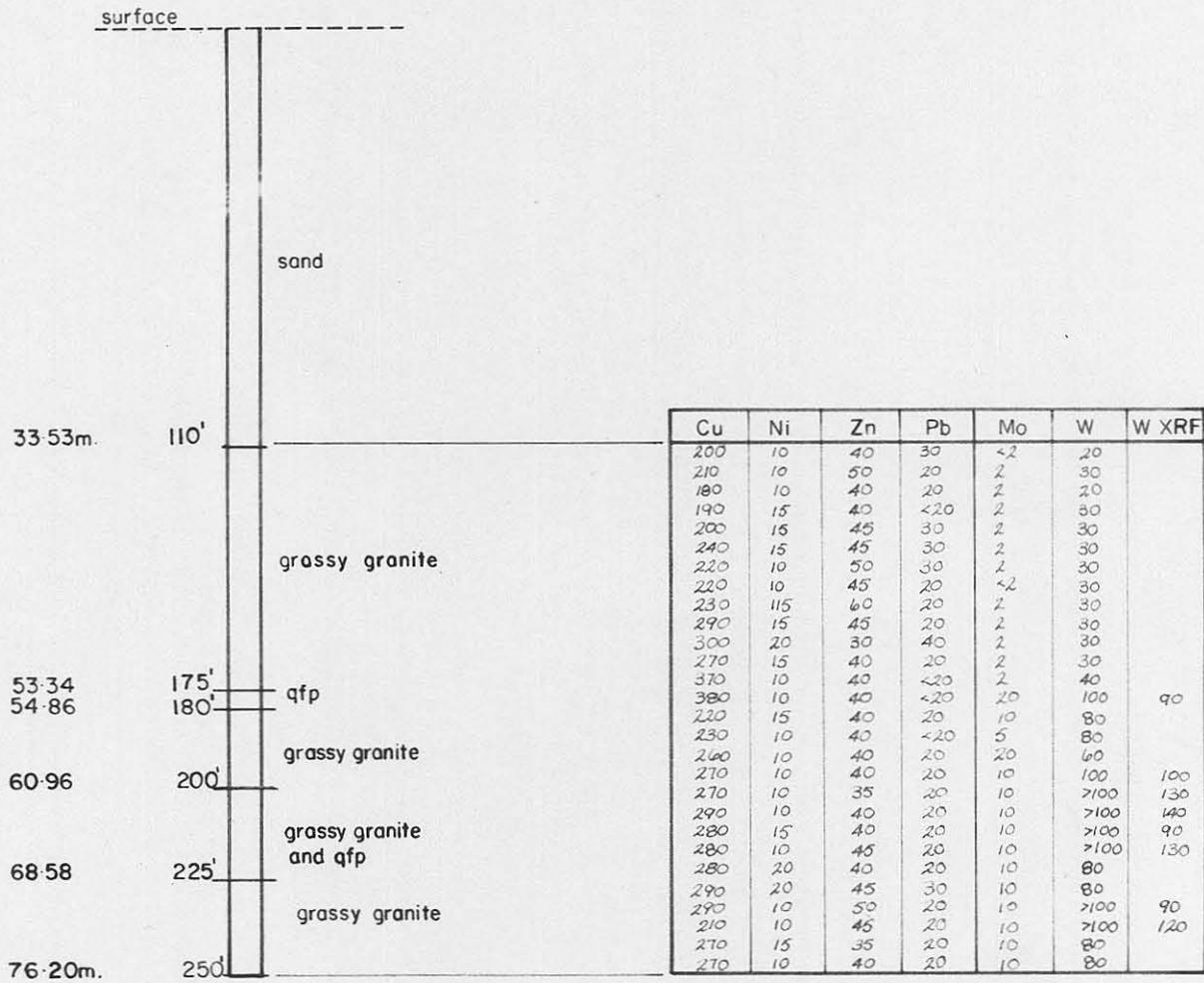


Figure No. 59