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TENEMENT:- SML 314

TENEMENT HOLDER:- CYPRUS MINES CORPORATION (Progress Report)

REPORTS:-

1970 The Mt. Lyndhurst Prospect S.A. SML 314 (NO PLANS) (pgs. 4-12)

Austin-Anderson (Aust.) Pty. Ltd. 1970 Appraisal on Stage 1 Mineral Exploration of Lorna Doone Prospect Mount Lyndhurst, S.A. for Cyprus Mines Corporation Sydney, N.S.W. July 1970 (pgs. 13-44)

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THE MOUNT LYNDHURST PROSPECT

SOUTH AUSTRALIA

Special Mining Lease No.314

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ABSTRACT

The Mount Lyndhurst prospect, situated in the northern Flinders Ranges of South Australia, contains several old mining areas of interest. The area is comprised predominantly of Proterozoic rocks, the central portion consisting of a large complex crush zone termed a "Diaper" by the South Australian Department of Mines. Mineralisation is distributed through the diaper and its immediate surrounds. The principal areas of mineralisation are closely associated with intense alteration halos, the possible significance of which was apparently not previously recognized.

An intense exploration program incorporating geological mapping, geochemistry, geophysics and diamond and percussion drilling was carried out by the S.A. Department of Mines in 1966-67. Small tonnages of low grade copper ore were outlined, but were considered of insufficient importance to warrant further work.

Current exploration is designed to re-check and extend the work already completed, concentrating initially in the zones of more intense alteration.

1. INTRODUCTION.

A preliminary evaluation of the mineral potential of South Australia was commenced early in 1968. This work was conducted in three phases: a survey of the literature determining the density of old mining operation, the extent and type of mineralization, an aerial reconnaissance of selected areas and a field investigation of the more promising areas.

Intense competition for land positions just prior to, and subsequent to, the commencement of the project had led to a large number of Special Mining Leases being taken up covering the areas of greatest potential. The Mount Lyndhurst prospect was one of the principal areas of interest available at the time Cyprus' preliminary evaluation of South Australia was completed.

2. LOCATION & ACCESS.

The Mount Lyndhurst prospect is situated in the Flinders Range of South Australia some 330 miles north of Adelaide, 30 miles north of Leigh Creek and 14 miles east of Lyndhurst. The prospect is readily accessible by a good gravel road from Lyndhurst, a small township on the main Adelaide-Darwin road and rail link.

3. CLIMATE & PHYSIOGRAPHY.

The prospect lies within a semi-arid region, annual rain fall being between 5" and 6" per annum. Evaporation is high (approximately 7' per annum) and rainfall is erratic, the area being on the fringe of a monsoonal and antarctic systems. Thirty to forty days of the year are wet, but half the annual precipitation may take place in periods of two to three days causing wide-spread episodic flooding. Temperatures range from 28^{o} to plus 115^{o}. Mean annual temperature is 65^{o}. The area consists of low rolling hills and plains - geomorphologically representing the mature dissection of a peneplain. Ridges formed by existing rocks occupy a central part of the prospect. The higher one (Mt. Lyndhurst) reach a summit level concordant with the hills south of the area. Relief is of the order of 400 to 500'.

4. HISTORY.

The first explorer to reach the area was John Eyre, in 1839. He was the first of many who attempted to explore this general region of the continent, including John McDowell Sturt who crossed the continent from south to north in 1862. Pastoral activities began in the early 1850's and were firmly established by 1860.

The first mining activity in the Mt. Lyndhurst region was recorded in 1872, some years before the discovery of copper at Mt. Gunston in 1875 and Manganese at Pernatty Lagoon in 1898.

Mining records are very sketchy. A total of only 7966 tons of ore being reported from the seventeen major copper mines and two lead/zinc mines. All recorded production is for copper. The major mines in the area are the Great Mt. Lyndhurst (Cu), the Lorna Doone (Cu), the White Lead (Cu), the Red Oxide (Cu), Tower Hill (Cu) and Avondale (Pb/Zn). The remainder are "occurances only" or just outside the prospect.

Initial prospecting of the area was apparently carried out prior to 1872 as some mines (Lorna Doone and Barilla) were reputedly in progress at that date. The bulk of the activity in the area occurred during the period 1892 to 1902, although some mines, notably the Lorna Doone and Avondale, were in continuous operation between 1902 and 1907. The Avondale Mine, continued operations intermittently until 1927. No mining activity has been recorded since 1927.

5. LEASES

Application for a Special Mining lease covering 140 square miles surrounding Mt. Lyndhurst was made on 25/6/69 and was formally granted on the 2/6/69. Six mineral claims (numbers 3458, 3459, 3460, 3461, 3462 and 3463) are held over the White Lead area by Messrs. S. Kennett, Mrs. M. Kennett, S. Kennett Jnr., D.J. Hayes, R.J. Hayes, P.M. Hayes and Therisa Hayes. One mineral claim (No. 5462) is held over the Lorna Doone area by Messrs. D.J. Paltridge and R.O. Sickereick.

6. PREVIOUS WORK

A. Geology

1. General

Virtually all geological mapping in the state of South Australia has been carried out using time-rock units.

The Mount Lyndhurst region was first mapped by the South Australian Department of Mines in sections corresponding to the one mile sheets. The area covers portions of the Searle (mapped by Parkin,

Raynor, Pittman & Johns 1953) Farina (Johns 1954) and Lyndhurst sheets (Johns 1955).

The increased interest in mineral exploration in the mid 1960's induced the Department to reserve the area from operation of the Mining Act and to carry out a large program during 1966-67 of geological mapping, geochemistry, geophysics and diamond and percussion drilling.

The particular feature of interest is the so called "Diaper" structure. This is described in brief as an intrusive sedimentary breccia on a grand scale. These structures occur in several parts of the State and are in most instances associated with mineralisation. They are considered to have been formed by lateral squeezing and injection of the brecciated mass.

2. Stratigraphy

The area is comprised almost entirely of protozoic (Adelaide system) sediments with minor tertiary and quaternary deposits. The oldest rocks in the area (Torrensian, Burra group) consist of dolomite, magnesite, sandy dolomite, quartzite and shale; overlain by greywacke with quartzite and dolomite bands near the top. The sturtian yudnamutana sub-group unconformably overlies these rocks and consists of glacial tillite and silt stone. At the top of the glacial deposits, a thick (9,000') sequence of upper Sturtian Tapley Hill slates occur.

Igneous rocks are represented by scattered outcrops of diorite and microdiorite and were considered to be intrusive rather than extrusive.

3. Structure

The area was considered as a central irregularly shaped diaper core surrounded by a folded sequence of precambrian strata. The central breccia is reported to contain fragments ranging from thumb nail size to blocks two miles by one mile in size. The larger blocks have also been contorted. The Mt. Lyndhurst "Diaper" has an area of 92 square miles.

Johns (1955) considered the Precambrian strata to have been folded into a series of east-west trending anticlines and synclines which have been modified and dislocated by faulting. Prominent faults were mapped on the eastern, southern and northern margins of the "Diaper" mass. The central "Diaper" portion was described as a complex crush zone, but no concerted attempt to define the nature of this area was made.

Later work, in this and other similar areas, ascribed the term "Diaper" to this structure.

Initial investigations indicate that although the area was extremely complex, the "Diaper" may be in fact a loci of stress relief. The apparent brecciation being fault blocks, with local brecciation along the margins. Identification of breccia zones is complicated by the glacial deposits and it is possible that some of the confusion originated from difficulties in differentiating between tilite and breccia. Samples of the tilite horizons are being taken for sizing analysis and statistical study.

Massive (3-5 miles wide) "sheeted" shear zones occur in the eastern part of the area. Some bedding is apparent in these zones and a comprehensive mapping program may reveal sufficient data to interpret the general structure. Although no detailed work has been done, the difference in lithologies between the rocks comprising the bulk of the "Diaper" and the surrounding strata may well prove to be, at least in part, due to the degree of metamorphism associated with the more intense faulting and shearing.

4. Mineralisation

a) Lead-Zinc - The largest lead-zinc occurence in the prospect is the Avondale Mine. The mineralisation occurs as three parallel veins a few feet wide transverse to the bedding. Oxide minerals, with galena predominating at the surface, and an extensive soil geochemical zinc anomoly surrounds the area. The only other notable occurence is "the lead mine", one mile east of the above occurence.

This area was covered by a self-potential survey which was followed up by two IP traverses which produced anomalies.

b) Copper

1. General - Outside the "Diaper" copper mineralisation occurs in two principal localities: at the white lead area along the southern margin, and at the Lorna Doone area in the north east corner of the structure.

Inside the "Diaper" mineralisation is reported to occur in two ways: within large shale blocks and within brecciated sediments adjacent to diorite intrusions. In both cases oxide ore minerals occur along bedding plains at the surface, but do not appear to persist with depth. A number of occurrences of the above types have been recognised, but only two have been tested. These were designated the eastern (Great Mt. Lyndhurst) and western anomalies.

2. Outside the "Diaper" - (a) The White Lead area - Mineralisation occurs over a strike length of 2 miles and in widths of 50' - 150', within the yudnamutana (siltstone) beds which strikes East-West and dips south at 60°. The surface expression is a zone of intense Kaolin alteration. Shallow shafts and pits, for the most part now inaccessible, are distributed along its length. Some costeneing has been carried out and has revealed oxide copper minerals (predominently malachite with minor azurite & cuprite) distributed throughout the altered zone.

The Mines Department drilled three shallow (max. length 539') diamond holes under this horizon and intersected low grade copper mineralisation (0.4% cu - 0.64% cu) over widths varying from 20' to 145'. The best intersection (DLY5) revealed a 145' width averaging 0.64% cu. The remaining two holes (DLY 7 & DLY 8) intersected 2-3 zones 15' - 20' wide averaging 0.32 cu. to 0.69%cu. The mineralisation is reported to occur as narrow (1") veins of quartz - pyrite - chalcopyrite, both parallel to & perpendicular to the bedding. Mineralised breccia was also reported in the core.

The I.P. survey carried out over this area (using 200' spreads) showed strong anomalous readings south of (i.e. down dip from) the area tested. These anomalies were not investigated. Six mineral claims are held over the surface expression of the mineralisation. However, the dip of the horizon is to the south away from the claims and the I.P. anomalies are located either outside or on the edge of these leases, consequently the claims themselves may not be of prime importance.

c) The Lorna Doone Area

This area is situated in the north-east corner of the prospect. It exhibits intense kaolin alteration along a breccia zone. Mineralisation extends for several thousand feet, trending north-west and bulging out in the vicinity of the old workings (Lorna Doone or Lynda Mine) into a pod some 600 feet by 300 feet.

New information suggests the mineralisation is fault controlled and hydrothermal in origin. An impermeable, gently north-east dipping quartzite band, has served as a barrier to mineralised solutions permeating upwards along a series of parallel faults perpendicular to the strike of the beds. The Mineralisation has been formed in a stockwork structure below the quartzite band and contained within one particular fault block. Opportunity for considerable extension of the ore horizon exists down dip.

No work was attempted in the area of intense alteration and brecciation in the Lorna Doone mine, but four 150' percussion holes were drilled 4000' to the north-west to test significant geochemical, self-potential, and I.P. anomalies. Very minor mineralisation was intersected - the holes probably failing to penetrate the leached horizon.

The area surrounding and extending north-west from the Lorna Doone mine is probably the most interesting part of the prospect. The structure dips north-east and coincident S.P. & I.P. anomalies occur on this side of the zone. This zone is on the edge of the area investigated by the Mines Department. Data is meagre on the north-east side and completely lacking on the south and south-west sides.

3. Inside the Diaper

a) The White Lead north area - Two thousand feet north of the central portion of the White Lead area, 1 diamond and 14 shallow (150') percussion holes were drilled into a zone of iron gossans. Two of the percussion holes revealed significant mineralisation (78' at 0.49% copper and 48' at 0.42% copper). Three other holes showed minor mineralisation (42 to 48' of 0.2% to 0.36% copper). The remainder of the holes showed mineralisation in the order of 0.1% to 0.15% copper over varying widths. The diamond hole (DLY9) was essentially unmineralised. However, it is possible that it failed to reach the zone of interest. Similarly, the percussion holes may not have penetrated the leached horizon. The succession of rock types shown in the drill core (Breccia/diorite/breccia/diorite/shale) was considered to indicate that the mineralisation was the result of late stage solutions rich in iron, silica and copper eminating from the diorite intrusive.

b) The Great Mt. Lyndhurst Area - (eastern anomaly) This area lies some 7,000' to the north-east of the White Lead Area. An intensive S.P. low associated with anomalous geochemistry was tested by the Mines Department with 9 short percussion holes that revealed minor mineralisation (0.2% copper) to a depth of 150'. One hole, however, intersected two zones of significant mineralisation (6' of 0.57% copper and 12' of 0.4% copper).

This area also exhibits intense alteration, but recent work indicates mineralisation may be controlled by the intersection of two fault systems, and hence be more local than is at first indicated. The S.P. anomaly probably reflects the intense shearing.

c) The Western Anomaly - This area is 7000' north-west of White Leads. The southern tip of an intense arcuate S.P. anomaly with minor coincident geochemistry was tested by the Mines Department with five short diamond drill holes. Sporadic, narrow intersections of up to 1% copper were obtained. Again, the intense S.P. anomaly appeared to be associated with shearing.

Several other mineral occurrences associated with relatively minor alteration halos have yet to be investigated.

B. Geochemistry.

An intensive stream sediment and soil sampling program was carried out by the Department of Mines. The stream sediment sampling was conducted at a density of 10 per square mile, samples being taken from 980 locations for a total number of 3,164 assays. Soil sampling was carried out on Grid Lines in

selected areas. A total of 4,785 samples were collected for analysis. All samples were analysed by the Australian Mineral Development Laboratories. The stream samples were analysed for copper, lead, zinc and nickel. The soil samples were analysed for copper only.

A plot of the stream sediment results for copper shows two major anomalous areas (the White Lead - Gt. Mount Lyndhurst and Lorna Doone areas) and several smaller anomalous areas. Soil sample results confirm the stream sediment anomalies, but do not outline them in detail. A zinc anomaly occurs in the vicinity of the Avondale Mine, but no basic data is available.

C. Geophysics.

A considerable amount of geophysical work was carried out in this area, consisting of ground magnetics, gravity, self-potential and induced polarisation surveys. Ground magnetics were restricted to areas inside the diaper. Several anomalies found are probably related to the basic intrusives. The gravity survey outlined only the diaper and is of no particular help in determining areas of mineralisation.

The S.P. anomalies, although probably tending to outline major shear zones, were in general confirmed by the I.P. survey. Anomalies were obtained in all of the major areas of interest. Information is lacking in two critical areas: south of the White Lead area and south of the Lorna Doone Mine. The S.P. program was apparently designed to cover only the diaper and its immediate surrounds.

I.P. surveys were restricted to 200' spreads over short line lengths and apparently were laid out to check the S.P. anomalies, hence data available is inadequate to evaluate the area tested.

D. Drilling.

38 percussion and 9 diamond holes were drilled. Significant quantities of mineralisation were intersected in several of the percussion holes and 3 of the diamond drill holes.

The Mines Department considered the small tonnages of low grade ore outlined by the drilling to be insufficient inducement to warrant further work in the area, and, consequently, the area was abandoned.

7. GENERAL.

The complex central portion of the prospect has been regarded by the South Australian Department of Mines as a Diaper, although the term diapiric breccia has been applied. This would generally be taken to mean a salt dome type of structure.

The size of the heavily disturbed zone (92 square miles), the degree of metamorphism and type of brecciation do not on initial inspection appear to be consistent with this theory. The metamorphism, shearing and occurrence of scattered outcrops of the more basic rocks tend to indicate a "light loading" i.e. upper portions of the sedimentary pile.

As a possible alternative, the brecciation and folding could be in part explained if a large intrusive body was postulated at depth, the basic rocks being the first derivatives. The occurrence of isolated outcrops of distinct litholigical rock types enclosed by rocks of different composition, at this stage, is something of an enigma.

Mineralisation is scattered throughout the Diaper and the immediate surrounds and is represented at the surface by either iron gossans or alteration zones. The gossans were examined and tested by the Mines Department in several instances, but were not mapped as such.

Very little attention was paid by the Department to the zones of intense alteration surrounding the major areas of mineralisation. No reference was made to these areas in the mapping and with the exception of three diamond drill holes in the White Leads area, no detailed testing was done in any of the major zones of alteration.

In general, the mineralisation may be divided into two basic types: that in direct association with dioritic intrusions and that contained within breccia and shear zones. It is possible that a similar origin may account for both types i.e., solutions eminating from an underlying igneous mass.

8. EXPLORATION PROGRAM

Exploration work will initially be concentrated in the three zones of principal interest. Geological mapping of alterations and structure is in progress. Concurrent with the mapping, selected lines of the existing grid are being re-pegged. These are set out in table 2. Reconnaissance I.P. traverses using 600' spreads will be run on these lines. Further work will be laid out when the results of the above program are available.

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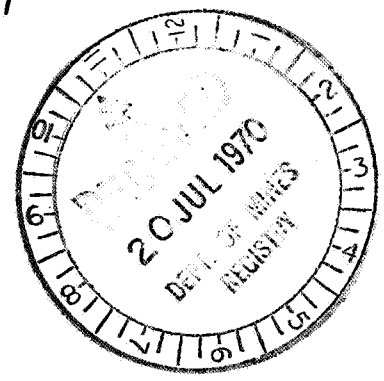

APPRAISAL

ON

STAGE I

MINERAL EXPLORATION

OF

LORNA DOONE PROSPECT,
MOUNT LYNDHURST, S.A.

FOR

CYPRUS MINES CORPORATION
SYDNEY, N.S.W.

BY

AUSTIN-ANDERSON (AUST.) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

JULY, 1970

W.O. AM 194 D.

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APPRAISAL

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STAGE I

MINERAL EXPLORATION

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JULY, 1970

W.O. AM 194 D.

SUMMARY.

The Lorna Doone prospect via Lyndhurst S.A. has been explored by modern geological, geophysical and geochemical techniques. A small zone of low-grade oxide copper mineralisation was found to be uneconomic, and the underlying supergene sulphide zone is of lower grade.

The client is advised not to expend further funds on this prospect.

I N D E X

9.00 ILLUSTRATIONS ACCOMPANYING REPORT

LOCALITY PLAN	DRG: AM194D - 933A (SEE APPENDIX ~~8.80~~ 8.60)
GEOLOGICAL MAP	DRG: ~~AM194D — 910B~~ (CYPRUS MINES)
SOIL SAMPLE LOCATION MAP	DRG: AM194D - 906A
GEOCHEMICAL Cu OVERLAY MAP	DRG: AM194D - 905A
GEOCHEMICAL Pb OVERLAY MAP	DRG: AM194D - 908A
GEOCHEMICAL Zn OVERLAY MAP	DRG: AM194D - 909A
INDUCED POLARISATION AND ANOMALY LOCATION MAP	DRG: AM194D - 938A
INDUCED POLARISATION CONTOUR MAPS	DRG: ~~AM194D — 939A to 942A~~ (CYPRUS MINES)
MAGNETIC PROFILES	DRG: AM194 - 934A (JOHNSON)
COMPILATION REPORTS	DRGS: AM194D - 911A to 923A
COMPOSITE PLANS	DRGS: AM194D - 924A to 929A
DRILLING EVALUATION PLAN	DRG: AM194D-947 (SEE APPENDIX 8.90)

AUTHORITY

Authority for this investigation was first given in Mr. Twitchell's undated telegram to Mr. L. Affleck confirming their telephone talk.

This telegram was then confirmed by a formal Agreement dated 17th March, 1970, between Cyprus Mines Corporation and Austin-Anderson (Australia) Pty. Ltd., based on an exploration programme and budget proposed by Austin-Anderson.

1.00 EXPLORATION BRIEF AND AREA HISTORY

1.10 Exploration Brief

The above-mentioned Agreement called for :-

1. A N-S grid survey with pegs at 100-feet intervals on lines 200 feet apart.
2. Geological mapping at 1" = 200'
3. Geochemical soil survey with samples at 50 or 100 feet intervals at Austin-Anderson's discretion.
4. Magnetometer survey by a qualified geophysicist.
5. Induced polarisation survey of all grid lines at 200-feet spreads.
6. A percussion drilling programme subject to approval by Cyprus Mines Corporation.

1.20 Area History (taken from S.A. Mines Department Report of Investigations No.12).

The mine was worked intermittently from 1895; operations were continuous from 1902 until 1907, and during that period averaging 20% copper. A considerable amount of rich copper ore is reported to have been extracted from near the surface and at shallow levels but there was gradual impoverishment of copper with depth to water level. In 1899 it is reported that over 100 tons of high grade ore had been won from workings to a depth of 15ft. producing malachite and cuprite. The lode system which strikes northwest with an easterly 45 degree dip was exposed in shafts, pits, and open stopes. An inclined shaft was sunk to a depth of 140 ft. on the vein material, a crosscut was driven at 116 ft., and from this point a winze was sunk on a lode up to 15ft. in width. The lode here consisted of quartz and leached iron-stone and carried a little copper and about 2 1/2 dwts. of gold per ton.

An open pit is being mined at present.

2.00 GEOLOGICAL SURVEY

2.10 Introduction

2.11 Location

Lorna Doone mine is situated 24 miles east of Lyndhurst, 3 1/2 miles east-north-east of Leslie's Well Hut and 390 miles north of Adelaide. It lies in the north-east corner of SML 314.

2.12 Access

The most convenient and quickest access is by charter flight from Adelaide to the nearest unsealed air-strip at Lyndhurst. Road access from Adelaide is a bitumen road for 190 miles then an unsealed road for 200 miles.

2.13 Topography

The area mapped by Austin-Anderson consists of gibber plains with a major ridge in the centre running NW-SE.

The climate is extremely dry with water flow in the three main streams occurring very rarely. The main stream course, a southern tributary of Mt. Lyndhurst Creek draining north-westwards, flows through the Lorna Doone Mine area. The mine has created a great deal of contamination in the area.

2.14 Grid Survey

A central base line at bearing 300° mag. E. and 1400 E was laid out and from this a grid was set out with lines 200 feet apart, pegged at 100-feet intervals.

2.15 Regional Geology (from Lyndhurst 1-mile geological map)

The vicinity of the Lorna Doone Mine is underlain by Proterozoic (late Precambrian) sediments of the Adelaide System. South of the mine there occur middle Sturtian interglacial sediments including slates, siltstones and minor dolomites. These strike North-South and dip from 15°-30° to the West. A fault contact occurs between middle Sturtian and the later Sturtian glacial sequence of tillites grading laterally into quartzites, sandstones, arkose and slates. Thin dolomite sometimes occurs at the top of this sequence. This upper glacial sequence strikes North-South near the mine with dips 30°-35° E.

All bearings given in the remainder of this report are related to survey grid north.

2.20 PREVIOUS INVESTIGATION

The area was first mapped in 1954-55 by R.K. Johns of the South Australian Geological Survey. Field mapping was based on vertical air photographs on an approximate scale of 2 inches to the mile. This work was published as the 'Lyndhurst One Mile Sheet' in 1956, and was followed in 1958 by the 'The Geology of the Lyndhurst and Farina Military Sheets' (Report of Investigations No. 12).

During 1967 the Geological Survey of South Australia conducted a detailed investigation of the Lyndhurst area. At present no information from the Lorna Doone mine is available, but information on the Lynda Mine area has been published in the 'Fourth Geological and Geochemical Report on the Lyndhurst Diapir' by P.J. Binks. Four holes totalling 378 feet were drilled in this latter area to test a copper anomaly and associated S.P. and I.P. anomalies over siltstones and sandstones of the Umberatana Group. Mineralisation is associated with a northwest-trending crush zone characterised by thin brecciated quartz and hematite veins. Copper mineralisation was very low grade and no further drilling was recommended (see Appendix 8.92 for drill-hole logs and assays).

During 1969 Cyprus Mines Corporation carried out geological mapping and made two induced polarisation traverses. One traverse ran through the site of the Austin-Anderson grid at 00E 4170N and 2800E 3680N. The second traverse ran parallel to the first and was situated northwest of the Lynda Mine.

2.30 GEOLOGICAL INVESTIGATIONS

2.31 Procedures

The geology of the Lorna Doone area was mapped initially by traversing the lines of the exploration grid. Rock samples were taken and submitted for (i) petrographic analysis. (Appendix 8.50)
(ii) wide scan spectrographic analysis (App. 8.40).
and (iii) atomic absorption analysis (Appendix 8.40).
Particular attention was given to occurrences of mineralisation in veins.

Further field mapping was later carried out in the area in order to establish rock units, delineate formation boundaries and faults, and determine the overall structure. Representative bedding trends and attitudes were measured wherever possible (AM 194D -910B).

2.32 Geology

2.321 Structure (see geological structure diagram on AM194D-910B)

2.3211 Folds

Austin-Anderson's geologists have found evidence within the area of the exploration grid of a pitching anticlinal fold with grid N-S axis. The nose of this suggested fold is exposed in the vicinity of the Lorna Doone mine and has a pitch of 45° grid S. though the axis flattens towards the southern end of the grid where near vertical dips were recorded. The fold is asymmetrical, with a western limb dipping at 40-50° and a steeper eastern limb at 70-80°. The fold is thought to be a real compressional arch structure rather than an apparent one produced by faulting and tilting. This view is supported by the presence of arcuate bedding trends in the locality held to be the nose of the fold (2900 N, 1500 E)

Zones of contorted bedding including small acute folds are common in the laminated shales and siltstones of the Tapley Hill Formation, particularly near contacts with bodies of massive dolomite owing to different competency of adjacent beds (4200 N, 2600 E; 3100 N, 2200 E).

In other places, contorted shales are also in proximity to inferred faults and may partly owe their configuration to drag effects by fault movements (4800 N, 00E; 3000N, 1100E). A drag fold in siliceous siltstone just grid-west of the mine area is probably caused by a minor shear fault (3600N, 1100E). Similar shearing has caused abrupt displacement of a drag fold in shale beds overlying quartzite to the NNE of the mine (4500N, 1600E.)

The two sharply angular changes in strike of individual dolomite and dolomitic siltstone beds near the nose of the anticline are too severe for fold structures and are believed to originate from fault plane intersections (2900N, 1550E).

2.3212 Faults

Three main strike faults can be discerned in the Lorna Doone area . Only indirect evidence for these structures is available as the drill holes do not provide any substantiating data.

Fault F1 strikes N-S through dolomitic siltstone and dolomite and probably hades at a small angle to the west. Evidence for this fault includes the following:-

(a) Brecciation developed in dolomitic siltstones and dolomites between lines 2000N and 3200N may be fault breccia.

2.3212 Faults (Cont'd)

(b) Quartz veins and dolomite dyke intruded parallel to strike of bedding in plan may be related to fracturing in fault zone.

(c) Continuous topographic slope along the 1030 ft contour line may represent a fault scarp with down throw side to the west

Fault F2 strikes E-W along the contact of the sandstone-quartzite and altered conglomerate with the dolomitic siltstone-dolomite and hades to the west with similar attitude to the bedding of the latter unit. Evidence for this fault includes the following:-

(a) Brecciation of the dolomitic siltstones and dolomites between lines 2800N and 3200N may be caused by fault movement.

(b) Quartz veins and reefs are parallel to the suggested fault line and occur on both sides of it.

(c) Hanging wall of dolomitic siltstone at contact with altered conglomerate in pits (3200N, 1400E) has the appearance of a fault plane rather than an unconformity.

(d) Bedding trends at nose of main anticlinal structure (2800N, 1550E) in dolomite and dolomitic siltstones are abruptly truncated by a fault.

Fault F3 strikes NNW-SSE along the boundary between the conglomeratic units and the sandstone- quartzites with a nearly vertical fault plane. Evidence for this fault includes the following:-

(a) Brecciation occurs in the dolomites and dolomitic siltstones between lines 2000N and 2800N along the western margin of the conglomerates between lines 3200N and 5200N.

(b) Trend lines and strikes of bedding in the conglomeratic units are successively terminated at the contact of the sandstone-quartzites.

(c) Bedding planes at the nose of the main anticline (2900N, 1550E) in dolomites and dolomitic siltstones are abruptly truncated by a fault.

(d) Oblique aerial colour photographs of the Lorna Doone area show a continuous linear structural feature for some miles along the direction of the suggested fault.

2.3212 Faults (Cont'd)

Minor shear and tear faults are associated with major faults and unconformities with small deviations from the overall structural trends

2.3213 Intrusives

Numerous quartz veins and reefs are scattered throughout the area but are concentrated in the brecciated zones of the Tapley Hill Formation and in the fracture zones of the conglomerates. A quartz-hematite vein is prominent in the former unit (3400N, 750E), and malachite and copper oxides are common in quartz veins in the latter. The strike of these intrusive bodies is dominantly orientated in the direction of bedding and of major faults.

Massive quartz reefs (3600N, 900E, 4500N, 450E) are bordered by quartzites, formed through alteration of surrounding sandstones and siltstones.

A dolomite dyke of 1 to 2 ft thickness cuts across the dip of the bedding of the dolomitic siltstones in the brecciated zone west of the mine area. (3000N, 1150E)

A series of concentrically outcropping dolomite beds is situated adjacent to the brecciated zone in a narrow wedge between the fault lines of F2 and F3 (2600N, 1700E).
Despite its unique structural location close to the intersection of the main fold axis with two major faults, this feature is considered unlikely to be some multiple form of sedimentary ring dyke, and it is more plausibly interpreted as one of the dome-shaped dolomitic bioherms originally built by calcareous algae and often associated with brecciated dolomite.

2.3214 Diapirs

There is much evidence for the existence of a diapir in the Lorna Doone area. Brecciated conglomerates and brecciated dolomitic siltstones have some of the characteristics of the complex intrusive breccias common to diapiric structures of the Proterozoic in the Flinders Ranges.

(a) The narrow brecciated crush-zone extends across the area in a N-S direction and possibly continues for some miles in the manner of diapirs in this region.

2.3214 Diapirs (Cont'd)

(b) Steep-sided walls for the western boundary of the conglomerates and breccias of the crush-zone are observable in pits (3200N, 1400E), and the structure as a whole is to some degree compatible with an origin connected with sedimentary injection accompanied by up-doming and buckling.

(c) A dolomite dyke is intruded across the bedding of brecciated dolomitic siltstones (3,000N, 1150E).

(d) Apart from quartz and quartzite pebbles and boulders, the coarse lithic component in the conglomerates and breccias is composed of indurated shale and siltstone fragments of apparent homogeneous derivation.

(e) The breccias and conglomerates have a carbonate matrix and contain copper minerals, a feature of the South Australian diapirs.

However, the following facts refute the contention that the Lorna Doone area is of diapiric origin.

(a) The zone of brecciation and quartz reefs is similar in many respects to that of a fault zone.

(b) The eastern boundary of the conglomerates and breccias is overlain by siltstones and laminated shales at an angle constantly averaging 45° which is shallow for an intrusive body. The overall structure has a regularity of form in agreement with that of the tight pitching folds of the Proterozoic.

(c) Doleritic and dioritic intrusive plugs and dykes are unknown at Lorna Doone but are common to most diapirs in the Flinders Range such as that at Mt. Lyndhurst.

(d) The conglomerates exhibit signs of facies changes along through dolomitic conglomerates and shales to deeper water calcareous shales in the west, a sedimentation pattern unlikely to be preserved in diapiric intrusion. Bedded shales and dolomites within the conglomerates have parallel strikes and are relatively undisturbed.

(e) Copper mineralization occurs not only in the brecciated sediments but also in the overlying non-brecciated shales in the Lynda Mine and in other pits (3900N, 2200E).

2.3215 Unconformities

The lithologies on either side of the contact at the base of the Tapley Hill Formation are of a transitional nature and lack the abruptness of a fault or of a diapir boundary. In places (5300N, 1500E), the beds pass up-dip through quartzite, conglomerate, quartzite, shale, quartzite, shale from the lower to the upper unit.
The trace of the contact plane at the surface is irregular and favours either an unconformity or a diapir interpretation.

The pits at the Lorna Doone Mine show an apparent angular unconformity between the conglomerates and the overlying shales and in approximately the same plane as the shale beds. The quartzite is absent at this locality.

2.3216 Joints

The siltstones of the Tapley Hill Formation are strongly jointed at high angles transversely to the strike of the beds.

2.3217 Summary

One of the main problems relating to the extent and distribution of mineralization in the Lorna Doone area is whether a diapiric or a pitching anticlinal structure is present. The evidence seems to be equally divided between both explanations and possibly indicates a composite phenomena involving the arching of a series of rock units by a deep-seated sedimentary intrusion with little penetration to the surface. The mine area may represent the domed cover of a diapir. Fracturing and perhaps minor diapiric intrusion of this capping has permitted the entrance of copper-rich quartz veins.

It is noteworthy that the major faults selected by Austin-Anderson in their structural interpretation coincide very closely to sharp peaks in the geochemical profiles for copper. (see lines 2800N, 3200N, 3600N, 4800N).

2.322 Stratigraphy

2.3221 Sandstone and quartzite unit

The rock unit is the oldest in the mapped area. It is exposed in the core of the main anticlinal structure and is bounded by two converging strike faults along the opposing splayed limbs of the fold. The contact between this unit and the altered conglomerate is concealed by alluvial flats.

The bedding is indistinct and difficult to distinguish from jointing, so that the precise attitude of the unit and the position of the fold axis are indeterminable. However, some high-angle easterly dips are observable in the sandstone in general agreement with structural interpretation of the area.

The rocks consist of pale coloured, uniformly grained, sandstone and quartzite with minor chert and pale coloured silt-shale. Siliceous siltstone adjacent to the conglomerate in the Lorna Doone area (3550N, 1150E) is possibly a correlative with the silt-shale (4500N, 1150E).

A large quartz reef is intruded into the unit in the direction of the strike, (4450N, 400E).

Because of its faulted contact, the stratigraphic position of this unit is uncertain, but it probably belongs in the Umberatana Group of middle Sturtian age.

2.3222 Conglomerate unit

This unit is laterally and vertically divisible into several sub-units on the basis of facies differentiation.

(a) Altered conglomerate and breccia sub-unit

This sub-unit is exposed in outcrops and open pits in the Lorna Doone Mine area and is the major host rock for copper mineralisation. It is situated in a zone of brecciation at the nose of the pitching anticline near the intersection of the two strike faults F2 and F3 with the fold axis.

Drill-hole PDH 3 substantiates the steep grid-westerly dipping contact of the conglomerate beneath the overlying unit, and likewise PDH 4 and 8 verify the shallower dip of the contact to grid-east.

The crushed and altered nature of the conglomeratic particles and their matrix was probably caused by some combination of faulting, folding, diapiric intrusion, and mineralisation, and there is now only remnant structural data left. The attitude of the bedding within the sub-unit cannot be accurately extrapolated from that of overlying and underlying units because (1) the contacts to grid-north with the sandstone-quartzite unit and with the unaltered silicified conglomerate sub-unit

are masked by scree and stream alluvium, (2) the contact to grid-west with the dolomite-dolomitic siltstone sub-unit is a fault plane, (3) the contact to grid-east with the siltstone-shale sub-unit is a slight unconformity, and (4) the contact to grid-south with the quartzite sub-unit is conformable but the rock is massive with little structure.

The rock is an altered conglomerate and breccia composed dominantly of siltstone, shale, and mudstone fragments in a sandy matrix often altered to soft white clayey material. The coarse component was examined by an Austin-Anderson geologist from one of the deeper shafts (3150N, 1400E) and is described as large boulders and pebbles.

The conglomerate is brecciated near the fault contacts and is throughout the mine area strongly mineralised by vertically inclined quartz veins carrying malachite and limonite.

Drill-holes PDH 1, 4, 7 and 8 have revealed the presence of a greyish to brownish blue siltstone beneath the altered conglomerate, reaching a maximum recorded thickness of 100 ft. in PDH 4. For convenience it is regarded as a member within or at the base of the sub-unit but may be equivalent to the siliceous siltstone (3550N, 1150E) and/or the silt-shale (4500N, 1150E) tentatively placed in the sandstone-quartzite unit. It differs from the altered conglomerate in that chalcocite is the predominant copper mineral rather than malachite, and it contains disseminated pyrite.

A similarly coloured siltstone with chalcocite was encountered in PDH 5 and 6, but on the basis of surface dip measurements in the surrounding area and the absence of conglomerate in the overlying drill-hole sections, it is preferably correlated with the siltstones of the Tapley Hill Formation. If this structural interpretation is incorrect and it is actually an extension of the bluish siltstone of the mine area, then it means that the conglomerate wedges or faults out between PDH 4 and 5 and again between PDH 1 and 6.

(b) Silicified conglomerate and breccia sub-unit

This sub-unit outcrops on a steep hillside grid-north of the altered conglomerate in the more gently dipping limb of the major anticline. These two related sub-units are separated by alluvium and it is not known whether the contact is sharp (e.g. transverse faulting) or gradual. The silicified conglomerate is apparently more brecciated near its fault contact F3 with the underlying sandstone-quartzite unit.

Reliable dips and strikes are few because of hill-creep effects, though trend-lines indicate the general attitude of bedding as dipping at 60 to 70° to grid-east.

The silicified conglomerate and breccia consists of poorly sorted boulders and pebbles in a hard siliceous or cherty matrix. The

coarse component is mainly rounded quartzite and sandstone boulders and angular to sub-angular shale and siltstone fragments. Thin beds of shale are interspersed through the conglomerate and thick, massive cherts outcrop on the grid-north limits of the sub-unit.

The harder nature of the matrix and cement of the silicified conglomerate compared to the altered conglomerate is expressed topographically in their greater and lesser resistance to erosion respectively.

The extent of copper mineralisation in the hard silicified conglomerate has not been explored by large pits or drill-holes and known occurrences are restricted to one vein (4275N, 1450E).

The origin of the conglomerates is controversial. Possible glacial erratics are rare and the evidence from lithology favours an interformational conglomerate rather than a tillite. Grooves and scratches on pebbles are attributed to slickensiding rather than glacial striation. Fault brecciation is preferred to diapiric brecciation.

(c) Dolomitic conglomerate sub-unit

This sub-unit is exposed as a lens-shaped body laterally grading and interfingering with the grid-north boundary of the silicified conglomerate. The structural arrangement of the sub-unit is similar to that of the other conglomeratic sub-units.

Hard bands of brown to grey dolomitic conglomerate and dolomite stand out as low strike ridges orientated at an oblique angle to the boundary fault F3 to grid-west.

Drill-hole PDH 14 encountered dolomitic siltstone and dolomite throughout its total depth.

The sub-unit consists of dolomitic conglomerate and minor shale and dolomite beds. After weathering, the dolomitic outcrops display wavy banded algal-like structures common to all the dolomitic formations of the Lorna Doone area. The sub-unit probably accumulated in a shallow water environment.

(d) Dolomitic siltstone and calcareous shale sub-unit

This sub-unit grades transitionally from the dolomitic conglomerates and continues grid-north beyond the limits of the grid.

It consists of brown dolomitic siltstone changing to calcareous shale towards grid north-east. A brecciated conglomerate is exposed in a stream bed near the fault F3 contact with the sandstone-quartzite unit. The calcareous shale contains diminutive circular algal markings and probably represents the deepest water facies of the composite conglomeratic unit.

(e) Quartzite sub-unit

This sub-unit outcrops as a narrow, discontinuous band at the top of the conglomerate unit along the strike of the grid-east limb and in the nose of the main anticlinal fold. The quartzite highlights the general structure of the area and also the facies relationship between the other sub-units of the conglomerate.

The top of the quartzite is mildly uncomformable with the overlying unit and in one locality is sharply displaced by a shear fault (4500N, 1600E).

The sporadic distribution of the sub-unit is shown by its presence in drill-hole PDH 5 and its absence in PDH 1, 3, 4, 7 and 8. The latter results confirm the lack of quartzite outcrops adjacent to the unconformity in the Lorna Doone Mine area.

The rock is a pale grey, uniformly grained, hard quartzite and is occasionally interbedded with the overlying shales and underlying conglomerate (5200N, 1500E).

Other quartzites occur in the Lorna Doone area but are at different stratigraphic horizons.

The five sub-units of the conglomerate unit appear to represent changes of facies deposited from near shore to deeper water environments towards the grid-north direction.

The unit is regarded as part of the Yudnamutana Sub-Group of the Umberatana Group and of middle Sturtian age.

2.3223 Siltstone and dolomite unit

This unit is widespread throughout the district surrounding the Lorna Doone area and is represented by two distinct facies.

(a) Siltstone and shale sub-unit

This sub-unit forms a high broken strike ridge across the area and is the youngest sediment in the grid-east limb of the main fold.

Bedding dips fairly constantly at 40 to 45° towards grid-east except near the grid south-east boundary of the sub-unit where a local swing in strike to grid-east is accompanied by a steepening of dip to 60°. A small acute angled pitching anticline occurs at this locality (3100N, 2200E).

Extremely contorted shale bedding is exposed at boundaries with dolomitic masses owing to deformation of less competent beds.

The siltstone and shales intertongue with adjacent dolomites and

dolomitic siltstones so that boundaries are transitional.

The sub-unit consists of brown and grey, indurated siltstone and laminated shale with minor fine-grained silty sandstone. The siltstone is well-jointed and sheared in some places and acts as a host rock for copper mineralisation (3400N, 1650E).

The siltstones are often ferruginized and form pronounced ridges at 500 to 600 ft. grid-east of the Lorna Doone Mine. The shales are limonite stained owing to iron enrichment near the surface. A black well-laminated shale member of the sub-unit was discovered beneath brownish grey laminated shale in drill-hole PDH 11 where it is 180 ft. thick. Though according to local dips it should outcrop grid-west of the drill-hole, it was not found during surface mapping. A similar black shale was located in a South Australian Mines Department drill-hole in the Lynda Mine area where it was underlain by a pale brown to reddish brown siltstone and fine-grained sandstone. This black shale was identified as the Tindelpina Shale Member of the Tapley Hill Formation.

(b) Dolomite and dolomitic siltstone sub-unit
This sub-unit occurs in the steeply dipping grid-westerly limb and in the nose of the major fold. The bedding approaches vertical attitudes towards the grid-south continuation of the fold axis indicating a flattening in the grid-southerly plunge.

Brecciation of the rocks is extensively developed on the steeper limb and is apparently connected with the intersection of the three major faults. The high dip measured on this side of the fold axis is substantiated by drill-hole PDH 3 which penetrated through the dolomitic siltstone into the underlying altered conglomerate at 160 ft.

Dolomites occurring as massive lensing bodies (4400N, 2600E) and as circularly arranged bedding (2600N, 1700E0) are most likely reef structures. Dolomitic siltstone closely interfingers with dolomite in the nose of the main anticline.

The sub-unit is composed of reddish brown, pale brown, and buff dolomite, dolomitic siltstone, and shale, with minor brecciated dolomite and shale.

The sub-unit is intruded by a dolomite dyke (3000N, 1100E). Quartz veining is common along the strike direction and a large quartz reef fringing quartzite occurs between the contacts of faults F1 and F2 (3600N, 900E). A micaceous hematite vein strikes parallel to the fault F1. (3400N, 750E).

There is little copper mineralisation in this sub-unit.

The area in the south-eastern part of the grid essentially consists of shale and dolomitic shale with prominent dolomite ridges and hillocks.

The combined siltstone and dolomite unit is regarded as the Tapley Hill Formation, following the usage of the South Australian Mines Department in the Lyndhurst district. This formation is placed in the Farina Sub-Group at the middle of the Umberatana Group and is of late Sturtian age.

2.3224 Calcrete

Patches of calcrete occur as a thin cover on the dolomite and dolomitic siltstone in the eastern parts of the grid. Minor malachite occurrences are associated with the calcrete. Occasional calcrete patches also are present over the carbonate members of the conglomerate unit.

The calcretes of the Northern Flinders Ranges are mostly of Middle Pleistocene age.

2.3225 Alluvium and Colluvium

Wide alluvium filled valleys of low grade drain towards the grid-east. The alluvial flats spread more extensively to grid-west of the main conglomerate band and to grid-south of the brecciated dolomite zone indicating local base levels of erosion behind these more resistant barriers through which the valleys narrow. It is assumed that slow tilting movements connected with faults F1 and F3 have resulted in antecedent drainage though it is possible that river capture or superimposition are involved. The absence of displaced formation boundaries in the constricted sections of the valley make a fault line gap explanation unlikely.

The rock debris comprising the alluvium is of a wide range of composition and size and indicated ill-sorted sand, gravel, and lithic pebble fragments.

Colluvial material is plentiful on the slopes and around the flanks of hills where it merges with the stream deposits. Much of the outcrop around the Lorna Doone Mine is obscured by scree and mine tailings.

Both alluvium and colluvium are of Quaternary age.

2.3226 Summary

The Lyndhurst 1-mile geological map (South Aust. Dept. Mines) shows the area embracing both the conglomerate and the siltstone-dolomite unit and extending to the north (magnetic) as belonging to the upper glacial sequence and thus younger than the interglacial Tapley Hill Formation outcropping to the south (magnetic). In fact, the siltstone-dolomite unit is itself the Tapley Hill Formation and the underlying conglomerate is therefore part of the lower glacial sequence. Copper mineralization in the Lorna Doone area has shown a preference for the brecciated and fractured conglomerate and for the overlying sheared and jointed siltstones of the Tapley Hill Formation.

2.323 Mineralization

2.3231 Copper

Copper occurs in the grid area in the form of malachite, cuprite, and tenorite. These minerals are associated in quartz veins through the conglomerate and are exposed in open pits at the Lorna Doone Mine. The quartz veins vary in width from 4 to 12 inches in the main pit (3450N, 1550E), whereas in nearby pits (3150N, 1400E) and in most other occurences the width averages from 1 to 2 inches.

Mineralization in joints and along small shear planes by copper-bearing quartz veins is displayed in the Tapley Hill Formation to the north of the Lorna Doone Mine (between 3100N and 3400N, from 1600E to 2000E).

At the Lynda Mine, copper mineralization is present as malachite and cuprite on joint planes and also associated with quartz veins.

Copper minerals occur in the other pits (3900N, 2200E) and in veins (see Am194D-910B). The quartz veins occur in sporadic zones.

The main shaft at the mine is believed to have been filled in. Of the open vertical shafts the deepest is 250 ft. No information is available concerning the nature of the ore being mined in the shaft, but the dumps contain about 3% copper as malachite. The rock in the pit varies from soft, well-weathered shales to well-indurated siltstone. The siltstone is well-jointed and in places brecciated. The siltstone is intruded by quartz veins bearing malachite and limonite. The malachite is disseminated in breccia and also occurs in joint and bedding planes.

The Lynda workings have an open pit with tunnels into the walls. The rock is strongly jointed siltstone,sometimes brecciated.

2.3232 Vanadium

This element was found in a yellow powdery mineral associated with malachite and clayey material near the Lynda Mine (5100N, 2500E). Analysis of this mineral is given in the Appendix 8.40.

2.3233 Hematite

Micaceous hematite is exposed with quartz veins in the dolomitic siltstone (3400N, 750E and 3200N and 1700E).

2.3234 Gold

Gold was identified in a minor siltstone outcrop (345)N, 2400E). The analysis of this mineral appears in the Appendix 8.40.

3.00 GEOPHYSICAL SURVEYS

3.10 Magnetometer Survey

A ground magnetic survey was carried out between 23rd and 29th March. The survey was initially done by Consulting Geophysicist B. Thomas Johnson of Sydney, the remainder of the survey being completed by Austin-Anderson field staff.

Readings were taken with a M700 Flux-gate magnetometer at 50 feet intervals along all grid lines.

The results of this work are plotted as magnetic profiles on dwg. AM 194D-934 (B. Thomas Johnson) and drwgs. AM 194D-912 to 923.

Traverses were later extended 1000 feet grid west on lines 1600N, 2000N, 2400N, 2800N, 3200N and 3600N. The results on these lines are not considered to be significant.

3.11 Magnetic Interpretation

The surface magnetic survey has been described by B. Thomas Johnson, Consultant Geophysicist in Appendix 8.20 and dwg AM194D-934.

In general, the conclusions derived from the surface magnetic survey do not correlate with possible extensions of mineralisation. Mr. Johnson's tentative recommendations should not be considered, as the magnetics do not appear to be of major usefulness in further development of the prospect.

3.20 Induced Polarization Survey

The induced polarization survey was done by McPhar Geophysics of Adelaide, between 20th April, 1970 and 4th May, 1970. The survey was done on grid lines 400 feet apart using 200-feet electrode spacings and the di-pole di-pole method in the frequency domain. Readings were taken from n=1 to 4.

The following thirteen lines were surveyed.

1,200N	2,800N	4,400N
1,600N	3,200N	4,800N
2,000N	3,600N	5,200N
2,400N	4,000N	5,600N
		6,000N

The results of this I.P. Survey appear in Appendix 8.10.

The interpretation of the I.P. Surveys is based on n=1 and n=3 readings of the apparent frequency effects and resistivities. These are portrayed on dwgs AM 194-939 to 942.

3.21 Resistivity n=1

The lowest resistivities are located over shales and dolomites of the Tapley Hill Formation. Grid south of the mine and creek, resistivities parallel the geological boundaries. Grid north of the creek, low resistivities are located within the area of the Lynda workings. Relatively low resistivities occur over the altered conglomerate outcrop, and less decisively over the silicified conglomerate. Higher resistivities are located over the grid west Tapley Hill dolomites or limestones.

Displacements of these higher resistivities approximating to the creek bed location suggest that a discontinuity is present.

3.22 Resisitivity n=3

Compared with n=1 levels, the grid east reading at n=3 show very low resistivities, associated with the units of the Tapley Hill Formations.

A widening of the area of relatively low resistivities associated with the altered conglomerate is located beneath the creek alluvium. This low resistivity zone thins grid southwards associated with the plunging anticline. North of the creek, the association of erratic, low resistivities with the dolomitic conglomerate outcrop is repeated. It is noticeable also that the siltstone member, occuring adjacent to the dolomitic conglomerate, appears to dip eastwards in conformity with surface observations.

The relatively high resistivities associated with the grid west occurrences of the Tapley Hill Formation are accentuated at the n=3 level.

At the Lynda area, very low resistivities are located within the square shaped area located at (5600N - 6000N, 2400-2800E). There is a suggestion that the mineralised zone may plunge grid north east.

The main creek discontinuity, noted on the n=1 level, is less well defined, but is present.

3.23 Frequency Effects n=1

Frequency effects within the 3 to 8 range occur grid north of the Mine Creek. On the basis of these values, PDH 11 was drilled to 250 feet and showed highly pyritic black shales from 70 to 250 feet.

The altered conglomerate shows very low frequency effects at this level, which suggests complete oxidation of sulphides. The axis of the plunging anticline located grid south of the altered conglomerate is suggested by higher frequency effects within carbonate rocks. Much stronger, but erratic, frequency effect patterns are present grid north of the altered conglomerate.

3.24 Frequency Effects n=3

At the n=3 level, very strong frequency effects occur over the eastern grid area on which outcrops of Tapley Hill Formation dolomites and shales have been mapped. The strength and uniformity of these effects (8.0 to 16.8) suggest the stratigraphic origin of the overall anomalies.

The weak frequency effects associated with altered conglomerate at n=1 are continued at n=3 level. These suggest only a weak sulphide concentration over widths of up to 600 feet.

At Lynda workings,the strongly anomalous effects associated with the dolomites and shales obscure additional conductors apart from one locality at 5600N 2100E.

At this level, the frequency effects appear to show discontinuities along the creek near the mine workings, with a trend of N 30°E, and at the Eastern end of the Lynda workings, with a similar trend.

3.30 Scintillometer Survey

The possibility of potash occurrence associated with the pale dolomitic shales was tested by traversing the formations with a scintillation counter. The possibility of uranium being associated with the vanadium occurrence at the Lynda Mine was also tested. The scintillation counts were low over the total area except for alteration in some of the mine dumps and pits.

4.00 GEOCHEMICAL SURVEYS

A geochemical soil survey was conducted at 100 foot intervals over the entire gridded area. Where areas of ironstaining were observed, the sampling interval was reduced to 50 feet. In general, samples were collected at depths varying from 6 inches to 2 feet in depth.

The samples were analysed on the-80 mesh fraction after drying and sieving at the laboratories of McPhar Geophysics Pty. Ltd., Adelaide, for copper, lead and zinc. The results of these analyses are plotted on drawings. (dwgs. AM 194D-905, 908, 909)

During the course of geological mapping, it became evident that some samples of alluvial origin had been collected. These values have been omitted from the overlays listed above.

For the purposes of interpretation, copper only was found to be of value.

4.10 Copper

The isograds chosen for copper indicate threshold at 75 p.p.m. Cu and peak value at 225 p.p.m. Cu and over. Mining operations have been indicated on the overlay as contamination or omitted from consideration where flood plain alluvial samples had been collected.

The copper overlay has been correlated with the geological map of the area (dwg. AM 194D-910B).

An area of intensely altered conglomerate is being mined currently, and is strongly anomalous, even where there is no obvious contamination.

The silicified conglomerate located to the grid north of the altered conglomerate shows as a weak anomaly in copper. The variation of rock type along strike correlates with the breccia or tillite indicated by other workers (Cyprus Mines; South Australian Geological Survey). Austin-Anderson geologists have interpreted this formation as a silicified conglomerate, grading grid north wards into a dolomitic conglomerate and finally into a dolomitic siltstone. The sporadic nature of this anomaly appears to be related in part to the decreasing alteration towards grid north and in part also to decreasing average grain size of the host rock. It appears possible, therefore, that the localisation of copper anomalies related to mineralisation is governed by a combination of structural preparation, and also the heterogeneous grain size of the host rock.

4.10 Copper (Continued)

The anomaly plus contamination in the vicinity of the mine workings shows an area of approximately 400,000 square feet. It is possible that this anomaly extends northwards into the silicified conglomerate, but is masked by flood plain alluvium.

A continuation of the mine workings anomaly towards grid south-east appears to be related to a weakly fractured anticlinal axis (through 1600N 1800E). This trend is approximately magnetic east-west, similar to that of the silicified conglomerate anomaly situated grid north of the mine workings.

Using anomaly trends, there is an apparent discontinuity between the mine anomaly and the silicified conglomerate anomaly. It is possible that faulting transverse to the local trend is, at least, partially responsible for the discontinuity.

The Lynda workings show as a strong anomaly in copper with extensive contamination from workings. The fringing halo is very weak, and its northward extension is terminated by a steep hill slope.

In order to distinguish the Lynda mineralisation i.p. effects from those emanating from the adjacent dolomites and pyritic shales of the Tapley Hill Formation, an extension of 2000 feet was projected grid eastwards along traverse 6000N and residual soil samples taken.

Only background values were obtained in all metals. (See Appendix 8.70.) This was characteristic also of similar dolomites and shales located grid south of the main creek at (3600N 2600E), which yielded similar strongly anomalous i.p. effects.

4.20 Lead

In general, only background values were obtained throughout the gridded area. The one exceptional value located (3600N 1700E) is possibly contaminated. Some values of 40 to 70 p.p.m. Pb related to the occurrence of dolomites and siltstones are not correlated with the copper anomalies.

4.30 Zinc

Very weakly anomalous zinc values located near the mine workings are probably contaminated.

Some of the samples affected by alluvium have above background values. As with lead, zinc does not appear to be significant.

5.00 DRILLING PROGRAMME

Percussion drilling was carried out by Waterlands Rock and Well Drillers Pty. Ltd. using an Ingersoll Rand air percussion rig with a down-the-hole hammer.

Drilling commenced on 5th May, 1970, and was completed on 19th May, 1970. Twelve holes were drilled for a total footage of 2240 feet. Samples were taken at 5 or 10 feet intervals from all drill holes and transmitted to G.S.C. Laboratories Pty. Ltd. of Sydney for copper, lead, zinc, and silver analyses.

5.10 Location of Percussion Drill-holes

Drill Hole No.	Grid Co-ordinates	
PDH 1	1550E	3625N
PDH 2	1550E	2825N
PDH 3	1300E	3200N
PDH 4	1700E	3200N
PDH 5	2000E	3200N
PDH 6	2000E	3600N
PDH 7	1500E	3400N
PDH 8	1600E	3400N
~~PDH 9~~	not drilled	
~~PDH 10~~	not drilled	
PDH 11	2600E	3200N
PDH 12	2300E	4000N
PDH 13	2500E	4000N
PDH 14	1344E	4800N

5.20 Reasons for Drilling

PDH 1 - To test for copper mineralization in altered conglomerate

PDH 2 - To test high surface copper value

PDH 3 - To test for mineralization in the dolomitic siltstone

PDH 4 - To test sheared siltstone in vicinity of mine area

PDH 5 - To test for mineralization in the siltstone formation

PDH 6 - To test the siltstone formation adjacent to the mine

PDH 7 - To test the copper mineralization in the mine area

PDH 8 - To test the copper mineralization in the mine area

PDH 9 - Not drilled

PDH 10 - Not drilled

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5.20 Reasons for Drilling (con'd)

PDH 11 - To test I.P. anomaly in shale

PDH 12 - To test I.P. anomaly in siltstone formation

PDH 13 - To test I.P. anomaly in siltstone formation

PDH 14 - To test I.P. anomaly in dolomitic conglomerate

5.30 Results of Drilling

Hole No.	Mineralized zone	Average Cu p.p.m.	Max. Cu p.p.m.	Rock Type
PDH 1	30 - 180'	3660	8800	conglomerate and siltstone
PDH 2	0 - 50'	3770	7310	dolomitic siltstone
PDH 3	0 - 50'	1608	2170	dolomitic siltstone
PDH 4	0 - 230'	-	458	siltstone and conglomerate
PDH 5	0 - 65'	4537	7402	siltstone
	75 - 85'	1485	1780	siltstone
PDH 6	0 - 25'	1238	1820	dolomitic siltstone and siltstone
PDH 7	0 - 200'	6585	25000	conglomerate and siltstone
	10 - 85'	12472	25000	conglomerate
PDH 8	0 - 120'	3850	8800	conglomerate
	155 - 190'	2091	4430	siltstone
PDH 11	0 - 250'	-	143	dolomitic siltstone and shale
PDH 12	0 - 150'	-	1003	dolomite and siltstone
PDH 13	0 - 140'	-	690	dolomite and siltstone
PDH 14	0 - 100'	-	44	dolomitic conglomerate

5.40 Interpretation of Drilling Results

5.41 Copper mineralisation in the drill-holes essentially consists of oxides and carbonates. The host rocks for mineralisation are the altered conglomerate, dolomite and dolomitic siltstone, siltstone and black shale units.

Drilling of the Lorna Doone area has added evidence to the conclusion that mineralisation is confined to altered conglomerate with quartz veins, sheared siltstone, and sheared dolomite.

a) Area A - Lorna Doone Mine.
In area A (AM.194D-947), drill-holes PDH 1, 7 and 8 have been drilled. From the assay values the grade of area A has been assessed to be 0.43% Cu to an average depth of 160 feet. The mineralisation in area A to an average depth of 160 feet has been calculated at 600,000 tons

Drill-hole No.	Depth interval (ft)	Average Cu (p.p.m.)
PDH 1	0-160	3321
PDH 7	0-160	7266
PDH 8	0-160	2321

Average copper for 3 drill-holes = 4318 p.p.m.

Calculation of volume and tonnage of rock in area A to a depth of 160 feet, and estimation of its value.

Area A is a trapezium with the following dimensions
250 ft = length of side near PDH 7 and 8
100 ft = length of side near PDH 1
320 ft = distance between the above parallel sides
Volume beneath trapezium A to a depth of 160 ft.

$$= (250 + 100) \times \frac{320}{2} \times 160 \text{ cubic feet}$$

$$\text{Tonnage} = (250 + 100) \times \frac{320}{2} \times 160 \times \frac{1}{15} \text{ tons}$$

= approx. 600,000tons
(assuming 15 cu. ft. of mineralisation = 1 ton weight)
Value of 600,000 tons of 0.43% cu at $1200 per ton
= approx. $3.1 M.

According to O'Hara (1970) the operative costs per ton mined for a 5 year working basis of this mineralisation are:-

	$ per ton
Mining	5.5
Milling	3.5
Overheads	3.5
	12.5

a) Area A - Lorna Doone Mine (continued)

Additional provisions for water, trucking, and railing of concentrates have not been included, and are not justified on the above figures. O'Hara estimates that a revenue per ton of $20-25 would be required for a deposit of 600,000 tons. At $5.16 per ton, it is clear that the Lorna Doone deposit is both too small and too low in grade to be considered as an economic possibility.

b) Peripheral area - Lorna Doone Mine

At 1400E 3150N three shafts sunk in the altered conglomerate have copper oxides and carbonate visible. This area and the remaining conglomerate zone peripheral to area A have not been tested by percussion drilling.

The top 25 to 50 ft. in PDH 2,3, and 6 show copper values averaging 0.22% Cu within dolomite or dolomitic siltstone surrounding the conglomerate.

Hole No.	Depth interval (ft.)	Average Cu (p.p.m.)
PDH 2	0-50	3770
PDH 3	0-50	1608
PDH 6	0-25	1238

Average for 3 drill-holes = 2205 p.p.m.

Drill-hole PDH 5 is located outside the main zone of mineralisation. The copper values in this area are probably related to a localised shear.

5.42 Sulphides

A sulphide zone was intersected in drill-holes PDH 1, 2, 4, 5, 7, 8 and 11. The sulphide minerals were mainly pyrite but some chalcocite and chalcopyrite occurred in small amounts. With the exception of drill-hole PDH 7 (0.29% Cu over 50 feet) the sulphides are of minor significance only.

The average copper (p.p.m.) in the sulphide zone of each hole is listed below.

Hole No.	Depth interval	Average Cu (p.p.m.)
PDH 1	160-190	1080
PDH 2	190-235	80
PDH 4	130-230	74
PDH 5	180-200	248
PDH 6	110-120	312
PDH 7	150-200	2983
PDH 8	170-200	1358
PDH 11	90-250	61

6.00 CONCLUSIONS AND RECOMMENDATIONS

6.10 The altered conglomerate located at the Lorna Doone Mine has been shown to be the most strongly mineralised formation within the gridded area. In outcrops, this formation is indicated by surface shows of malachite, and also by copper analysis of residual soils samples.

Percussion drill holes within the conglomerate have shown weak oxide and carbonate mineralisation to near water table. The grade of oxide mineralisation varies up to 2.5% Cu for one five feet length. The strongest mineralisation was located in PDH 7 in the vicinity of the open-cut worked by the miners. In this drill-hole 10 feet to 85 feet averaged 1.24% Cu. Sulphide mineralisation is mainly pyritic with minor chalcopyrite and chalcocite, with average values of 0.29% Cu in PDH 7 only.

The estimated reserves of 600,000 tons of 0.43% Cu are too small and too low grade for consideration as a viable mining proposition by a large corporation.

6.20 Less significant indications of surface mineralisation and geochemical anomalies were found in the shales and siltstones. The black shales, equated with the Tindelpina Shales of the Tapley Hill Formation of the South Australian Geological Survey, have been shown to be pyritic with up to 5% pyrite in PDH 11. The extensive and deep induced polarisation anomalies embodying parameters of low resistivities, and of high frequency effects and metal factors associated with the shales, suggest that pyrite and possibly graphite are present in significant proportions.

The extended traverse covering the I.P. anomaly on line 6000N showed that the copper contents of the residual soils are at background levels only. If further similar geophysical anomalies are located within the shales, geochemical testing of residual soils should decide conclusively whether significant copper mineralisation is present.

6.30 The general structure of the Lorna Doone area is a faulted asymmetrical anticlinal fold pitching to grid south and probably related to arching of sediments over the top of a diapir.

The linear, becciated zone is connected with faulting or minor diapir intrusion and suggests continuity of some mineralisation in either direction along the same trend. The strongest copper mineralisation is in the altered conglomerates exposed in the fold axis, and the mineable area is limited by its subsurface plunge to grid south at 45°. The conglomerates dip at a similar angle to grid east where mineralisation has penetrated into the siltstone - shale facies of the overlying Tapley Hill Formation.

6.40 The gridded area has been explored intensively using geological mapping, geochemical analysis of residual soils, geophysical induced polarisation and ground magnetic surveys, and percussion drilling.

We consider that the drill locations were spaced representatively and adequately to test the depth and grade of the outcropping copper mineralisation. In view of the uneconomic nature of this mineralisation, both oxides and sulphides, we advise no further exploration at this site.

6.50 Near the Lynda Mine workings, some weakly vanadiferous samples were obtained in association with surface malachite. The possibility of uranium-bearing formation should not be discounted with regard to the strongly alkaline near-surface conditions. One minor gold occurence was not substantiated and is unlikely to be significant.

7.00 REFERENCES

Johns R.K.	1958	The Geology of the Lyndhust and Farina Military Sheets - Report of Investigations No. 12, Dept. of Mines S.A. Geological Survey.
	1956	Lyndhurst One Mile Sheet 1: 63,360 1954-55 Dept. of Mines S.A.
O'Hara T.A.	1970	Factors Affecting Feasibility of Underground Mines A54 to A58 April Bulletin of Institution of Mining and Metallurgy,London.
Parkin L.W. (ed.)	1969	Handbook of South Australian Geology, Geological Survey of South Australia.
Wright R.G., Binks P.J.	1968	Fourth Geological and Geochemical Report on the Lyndhust Diapir. S.A. Geological Survey.

APPENDIX 8.10

INDUCED POLARISATION FIELD DATA PLOTS

APPENDIX 8.20

DESCRIPTION AND INTERPRETATION
SURFACE MAGNETIC SURVEY, LORNA DOONE
PROSPECT, LYNDHURST S.A. 12TH JUNE
1970. (B.T. JOHNSON)

1618

000047

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DESCRIPTION AND INTERPRETATION

OF

SURFACE MAGNETIC SURVEY

LORNA DOONE PROSPECT

LYNDHURST, SOUTH AUSTRALIA

SUBMISSION TO

AUSTIN ANDERSON (AUSTRALIA) PTY. LTD.

12th. June, 1970.

LORNA DOONE PROSPECT, SOUTH AUSTRALIA - DESCRIPTION AND INTERPRETATION OF SURFACE MAGNETIC SURVEY

by

B.T. Johnson.

ACKNOWLEDGEMENTS

The author is indebted to the exploration staff of Austin-Anderson (Australia) Pty. Ltd., and particularly to D. Woolf, for geological judgements and background information from which the author has drawn in producing this report.

GENERAL

The following report is an evaluation and qualitative interpretation of a vertical force magnetic survey carried out by the author and members of the Austin-Anderson staff, over the Lorna Doone prospect, near Lyndhurst, South Australia, held by the Cyprus Mines Corporation. Most of the traversing results presented herein were obtained either by the author or under his direct supervision over a four-day period, 23rd. to 26th. March, 1970. Most of the additional traversing undertaken after the author's departure, was either considered of poor quality or requiring additional base checks, and has therefore not been presented here.

OBJECT OF SURVEY

Magnetic traversing was carried out across the Lorna Doone base metal occurrences, as an aid to structural mapping in the area.

LOCATION OF SURVEY

The Lorna Doone Prospect surrounds the Lorna Doone mine, approximately twenty-five miles east of Lyndhurst, South Australia, Lat. 30°15' S, Long 138° 45' E.

BACKGROUND

The major geological features of the Lorna Doone prospect are shown on Map No. 903, available from Austin-Anderson.

western side of this brecciated zone.

Surface geology in the area appears to be entirely sedimentary.

PEGGING AND GROUND CONTROL

An Austin-Anderson survey team laid out the grid over the Lorna Doone prospect. Pegs on a line are 100 feet apart, while lines are 200 feet apart. The base line, labelled 14E, lies approximately in a west-northwesterly direction.

Lines have been pegged from 12N to 60N. The main grid extends from OE to 28E.

Further details of the pegging are available from Austin-Anderson.

AREA TRAVERSED

The vertical force magnetic traversing at the Lorna Doone prospect is detailed in Table I accompanying this report.

A McPhar M700 magnetometer, rented from McPhar Geophysics Pty. Ltd., was used in the survey. Ultimate resolution of this instrument is five gammas. Overall accuracy of a magnetic survey undertaken with this type of instrument, may be taken as plus or minus fifteen to twenty gammas, under good conditions.

AMBIENT FIELD VALUES

The earth's main magnetic field components have approximately the following values at the Lorna Doone prospect:

Total Intensity (T):	57,600 gammas
Vertical Intensity (V):	-51,200 gammas
Horizontal Intensity (H):	26,900 gammas
Declination (D):	$7^{o}06'$E
Inclination (I):	$-62^{o}18'$

The intensity components have approximately the following gradients at the Lorna Doone prospect:

Total Intensity Gradient: 1.71 gammas per 1000 feet, Increasing to the Magnetic South.

Vertical Intensity Gradient: 2.74 gammas per 1000 feet, Increasing negatively to the Magnetic South.

No correction has been applied to the accompanying overlay, Plan No. 1. The vertical gradient values suggest that a correction of five gammas might be applied to some of the magnetic values in the extreme northern and southern corners of the grid.

RESULTS AND INTERPRETATION

The following interpretational comments are based on Austin-Anderson Sheet No. 903, Preliminary Geological and Grid Plan.

The magnetic field variations at the Lorna Doone prospect are minimal. Small fluctuations in the field, close to the level of ultimate resolution, may be due to trace amounts of magnetic material near the surface. The large magnetic fluctuations near the Lorna Doone Mine are largely or entirely due to scrap iron lying about the area.

There is a noticeable field gradient, increasing toward grid east.

Several broad, low-amplitude magnetic features suggest deep-seated structures on the northern edge, or to the grid east of, the survey:

There is a depression in the magnetic field, most noticeable on line 54N, grid east of Peg 22E. The depression also appears near the grid eastern ends of Line 52N and 56N, and there is some suggestion of it on the corresponding portions of Lines 48N and 50N. Its depth may be estimated as at least 300 feet; however this estimate must be regarded as tentative until magnetic data to the east of these lines can be examined.

There is a low-amplitude magnetic high noticeable on the grid eastern ends of Lines 16N, 20N, 22N, and 24N. This anomaly may be associated with the increasing values on the grid eastern end of Line 30N. The minimum depth to this structure may be estimated from Line 24N as 150 feet, but this interpretation must also be regarded as tentative, since the anomalies in question have not been completely traversed.

A magnetic trend may be inferred passing through Pegs 20N/20E, 22N/23E, and 24N/26E. This trend may be truncated by the fault. Its amplitude is near the threshold of sensitivity for the magnetometer; however, a tentative depth estimate would be about 150 feet.

Magnetic fluctuations from station to station may suggest a variation in composition of the surface colluvium. In particula a slight fluctuation is noticeable near the fault on most lines. Disconnected areas of fluctuation are seen to the grid east of Pegs 46N/24E, 48N/22E, and 50N/22E, and in other areas.

CONCLUSIONS

The magnetic field expressions at the Lorna Doone prospect do not appear to correlate with surface features in general.

Local, small field fluctuations may be due to rubble in the surface colluvium or they may be due to statistical fluctuations in field measurement. There appears to be some correlation between slight, local magnetic expressions and the fault mapped in the area. This could be due to a small amount of igneous rubble carrie up from depth in the breccia near the fault. If this is so, it lends some support to the idea that local fluctuations indicate changes in the character of the surface colluvium.

Minimal, broad magnetic anomalies in the Lorna Doone prospec could be related to sources or zones of mineralization. Since the anomalies are of such low amplitude, it is hard to perform a meaningful interpretation on them; a problem that is enhanced by incomplete magnetic coverage.

RECOMMENDATIONS

The additional magnetic data that has been obtained in the area may be checked and used to further outline the magnetic expressions at Lorna Doone. If it is considered that these anomalies may indicate sites of mineralization, the area could be retraversed with a proton magnetomer of one-gamma sensitivity; alternately, a low-level airborne survey could be undertaken. These latter suggestions should only be considered if the magnetics appears to be of major usefulness in further development of the prospect.

TABLE

SURFACE MAGNETIC TRAVERSES

LORNA DOONE PROSPECT, S.A.

ALL READING INTERVALS ARE 50 FEET.

TRAVERSING CARRIED OUT WITH McPHAR M700 VERTICAL FORCE MAGNETOMETER.

LINE	FROM STN	TO STN	DISTANCE	NO. STATIONS
16N	6E	28E	2200'	45
20N	OE	28E	2800'	57
22N	OE	28E	2800'	57
24N	OE	28E	2800'	57
26N	6E	28E	2200'	45
28N	6E	28E	2200'	45
30N	6E	30E	2400'	49
32N	5E	28E	2300'	47
34N	OE	28E	2800'	57
36N	OE	28E	2800'	57
38N	OE	28E	2800'	57
40N	OE	28E	2800'	57
42N	OE	28E	2800'	57
44N	OE	28E	2800'	57
46N	OE	28E	2800'	57
48N	OE	28E	2800'	57
50N	OE	28E	2800'	57
52N	OE	28E	2800'	57
54N	6E	28E	2200'	45
56N	5E	28E	2300'	47
58N	14E	28E	1400'	29
60N	14E	28E	1400'	29

APPENDIX 8.30

ROCK SURVEY DESCRIPTION SHEETS

SAMPLE NO.	TYPE	DESCRIPTION	SURVEY LOCATION or BEARING	AM194
Ly 1	Chip	Malachite in sheared mudstone	5050 N 2550 E	
Ly 2	"	Malachite, limonite,(?) cuprite and quartz.	5200 N 2300 E	WIDE SCAN
Ly 3	"	iron rich siltstone	5050 N 1850 E	
Ly 4	"	iron stained siliceous material(P.D.Sericitic chert)	5200 N 1200 E	PETROGRAPHIC STUDY ATOMIC ABSORPTION
Ly5	"	altered siltstone with iron rich quarts vein	3750 N 2500 E	
Ly 6	"	ironstone	3850 N 800 E	ATOMIC ABSORPTION WIDE SCAN
Ly 7	"	chloritic material (P.D. limonitic breccia)	3400 N 750 E	ATOMIC ABSORPTION PETROGRAPHIC STUDY WIDE SCAN
Ly 8	"	breccia	4300 N 600 E	WIDE SCAN
Ly 9	"	siliceous carbonate rock (P.D. siliceous marble)	4400 N 650 E	PETROGRAPHIC STUDY
Ly 10	"	breccia	4800 N 1300 E	ATOMIC ABSORPTION
Ly 11	"	calcrete	4750 N 2400 E	
Ly 12	"	calcareous sandstone with shale blebs	4200 N 2000 E	WIDE SCAN
Ly 13	"	calcareous conglomerate	4500 N 1700 E	WIDE SCAN
Ly 14	"	medium grained sandstone	4500 N 1700 E	
Ly 15	"	breccia (P.D. sericitic cherty conglomerate)	4600 N 1400 E	WIDE SCAN PETROGRAPHIC STUDY
Ly 16	"	quartzite	4500 N 1200 E	
Ly 17	"	malachite and hematite in breccia	4250 N 1450 E	
Ly 18	"	breccia	4550 N 1950 E	

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SAMPLE NO.	TYPE	DESCRIPTION	SURVEY LOCATION or BEARING	AM194
Ly 19	chip	quartzite	4800 N 700 E	WIDE SCAN
Ly 20	"	siliceous siltstone with calcic material (P.D. limonitic sericitic chert or fine quartzite)	3600 N 2200 E	PETROGRAPHIC STUDY
Ly 21	"	limonite and malachite in shale	3400 N 2000 E	
Ly 22	"	dolomite (P.D. sericitic siltstone)	3400 N 1900 E	PETROGRAPHIC STUDY ATOMIC ABSORPTION
Ly 23	"	quartz veined dolomite (? siderite) (P.D. dendritic limestone)	3200 N 1100 E	PRTROGRAPHIC STUDY
Ly 24	"	nodular material in leached outcrop	3000 N 1800 E	WIDE SCAN
Ly 25	"	crystalline dolomite (? siderite)	2800 N 1475 E	ATOMIC ABSORPTION
Ly 26	"	goethitic siltstone	2200 N 1500 E	ATOMIC ABSORPTION
Ly 27	"	iron stained dolomite (? siderite)	2000 N 1800 E	ATOMIC ABSORPTION
Ly 28	"	malachite in shale	5400 N 2400 E	
Ly 29	"	siliceous siltstone with calc material	3600 N 2200 E	
Ly 30	"	siltstone breccia with malachite in fractures	3400 N 1550 E	
Ly 31	"	sandstone breccia with malachite	3400 N 1560 E	WIDE SCAN
Ly 32	"	malachite, ? caprite and limonite(small outcrop)	2825 N 1550 E	ATOMIC ABSORPTION WIDE SCAN
Ly 33	"	yellow material in kaolinitic material	5100 N 2500 E	WIDE SCAN
Ly 34	"	volcanic breccia	5200 N 1000 E	ATOMIC ABSORPTION WIDE SCAN
Ly 35	"	? chert - yellowish colour	4700 N 300 E	
Ly 36	"	hematite and malachite with quartz	5100 N 2550 E	

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SAMPLE NO.	TYPE	DESCRIPTION	SURVEY LOCATION or BEARING	AM194
Ly 37	chip	yellow material with malachite	5100 N 2500 E	
Ly 38	"	malachite and yellow material	5100 N 2550 E	
Ly 39	"	malachite with hematite	5400 N 2500 E	
Ly 40	"	siliceous siltstone	4600 N 2250 E	ATOMIC ABSORPTION
Ly 41	"	greywacke	4200 N 2600 E	
Ly 42	"	dolomitic breccia	3200 N 1250 E	ATOMIC ABSORPTION
Ly 43	"	siliceous siltstone	3100 N 1900 E	ATOMIC ABSORPTION
Ly 44	"	iron and carbonate rich sediment	3000 N 2200 E	ATOMIC ABSORPTION WIDE SCAN
Ly 45	"	dolomitic sandstone (P.D. limonitic arkose)	2650 N 1600 E	ATOMIC ABSORPTION PETROGRAPHIC STUDY
Ly 46	"	siliceous siltstone	5900 N 2300 E	
Ly 47	"	malachite in siltstone	5600 N 1300 E	
LDR 1	"	gossan cap - ironstone	600 E 4400 N	WIDE SCAN ANALYSIS
LDR 2	"	ironstone	500 E 4350 N	" " "
LDR 3	"	siliceous gossan	2400 E 3450 N	" " "

00000

APPENDIX 8.40

ANALYSES OF GRAB SAMPLES

ATOMIC ABSORPTION 000058

spectrometer services pty. ltd.

Phones: 30-3910
30-3960

29-31 Cobden Street, North Melbourne, 3051

SPECTROGRAPHIC AND CHEMICAL ANALYSTS

ANALYSIS REPORT FOR:
Austin Anderson (Aust) Pty Ltd.,
7th Floor, B.P. House,
1-29 Albert Road.,
MELBOURNE. 3004.,

PURCHASE ORDER No. AM 194D/7

DATE - 15th April 1970,

LY NUMBERS PLOTTED SERIALLY ON MAP 904

A9003

Sample-	Ni.	Cu.	Co.	Pb.	Zn.
LY 4	25	62	12	11	32
6	34	32	175	<4	23
7	105	32	280	<4	17
10	70	105	10	<4	17
23	120	158	22	<4	36
25	58	50	10	<4	23
26	365	168	23	<4	36
27	72	13375	40	44	36
32	34	126900	26	<4	44
34	39	202	95	<4	36
40	58	360	18	<4	23
42	72	62	10	<4	17
43	70	345	20	<4	36
44	144	202	70	<4	41
45	50	315	18	11	36

All results in ppm.

SPECTROMETER SERVICES PTY. LTD.

BY.....

PECTROMETER SERVICES PTY LTD.

29 COBDEN STREET.

NORTH MELBOURNE 3051.,

A 904

000059

Date- 22nd April 1970,
O/No- AM 1940-2
Attention - Mr. J. Bailey.

RS PLOTTED SERIALLY ON MAP 904

).	Mo.	Ag.	Ni.	Co.	Sn.	W.	Nb.	Au.	As.	Sb.	Be.	U.	Pt.	Pd.	Hg.
	6	.80	40	15	/2	/15	/10	ND	/30	/20	1.5	ND	ND	ND	ND
2	3	1.0	35	100	/2	/15	/10	ND	/30	/20	.5	ND	ND	ND	ND
2	5	.75	100	250	/2	/15	/10	ND	/30	/20	1.5	ND	ND	ND	ND
5	4	.55	.65	.50	5	/15	/10	ND	/30	/20	7	ND	ND	ND	ND
	14	.15	45	30	5	/15	/10	ND	/30	/20	3	ND	ND	ND	ND
)	8	.4	60	20	5	/15	/10	ND	/30	/20	4.5	ND	ND	ND	ND
2	20	/.1	30	15	10	/15	/10	ND	/30	/20	2	ND	ND	ND	ND
5	16	.15	30	10	10	/15	/10	ND	300	/20	.5	ND	ND	ND	ND
2	/1	.80	20	20	5	/15	/10	ND	300	/20	1	ND	ND	ND	ND
5	6	.15	15	20	5	/15	/10	ND	/30	/20	1	ND	ND	ND	ND
5	5	.40	35	15	/2	/15	/10	ND	/30	/20	1	ND	ND	ND	ND
)	6	.15	90	40	/2	/15	/10	ND	/30	/20	4.5	ND	ND	ND	ND
2	/1	.50	40	80	5	/15	/10	ND	/30	/20	1	ND	ND	ND	ND

Signed - Spectrometer Services Pty Ltd.

SPECTROMETER SERVICES PTY LTD.

29 COBDEN STREET.

NORTH MELBOURNE 3051.,

A 904

000059

derson (Aust) Pty Ltd.,
, B.P. House.,
Road.,
3004.,

Date- 22nd April 1970,
O/No- AM 1940-2
Attention - Mr. J. Bailey.

Ly NUMBERS PLOTTED SERIALLY ON MAP 904

Zn.	Mn.	Bi.	Cr.	V.	Cu.	Pb.	Mo.	Ag.	Ni.	Co.	Sn.	W.	Nb.	Au.	As.	Sb.	Be.	U.	Pt.	Pd.	Hg.
40	60	5	100	70	10000+	5	6	.80	40	15	<2	<15	<10	ND	<30	<20	1.5	ND	ND	ND	ND
20	700	5	100	170	65	<2	3	1.0	35	100	<2	<15	<10	ND	<30	<20	.5	ND	ND	ND	ND
70	1800	10	600	120	350	<2	5	.75	100	250	<2	<15	<10	ND	<30	<20	1.5	ND	ND	ND	ND
60	2500	5	150	140	.10	55	4	.55	.65	.50	5	<15	<10	ND	<30	<20	7	ND	ND	ND	ND
40	400	<2	300	200	2000	5	14	.15	45	30	5	<15	<10	ND	<30	<20	3	ND	ND	ND	ND
40	160	<2	400	150	2600	10	8	.4	60	20	5	<15	<10	ND	<30	<20	4.5	ND	ND	ND	ND
25	270	<2	1400	60	150	<2	20	<.1	30	15	10	<15	<10	ND	<30	<20	2	ND	ND	ND	ND
35	70	<2	1000	20	450	15	16	.15	30	10	10	<15	<10	ND	300	<20	.5	ND	ND	ND	ND
15	10000+	10	200	50	50	<2	<1	.80	20	20	5	<15	<10	ND	300	<20	1	ND	ND	ND	ND
15	650	<2	300	290	10000+	15	6	.15	15	20	5	<15	<10	ND	<30	<20	1	ND	ND	ND	ND
30	250	15	60	60	10000+	15	5	.40	35	15	<2	<15	<10	ND	<30	<20	1	ND	ND	ND	ND
45	50	5	200	1600	80	10	6	.15	90	40	<2	<15	<10	ND	<30	<20	4.5	ND	ND	ND	ND
40	10000+	5	120	20	800	<2	<1	.50	40	80	5	<15	<10	ND	<30	<20	1	ND	ND	ND	ND

Signed - Spectrometer Services Pty Ltd.

(0)060

AUSTIN ANDERSON PTY. LTD.,
7TH. FLOOR
B.P. HOUSE
ALBERT STREET
MELBOURNE. 3004

OUR O/NO. C70/409TM
DATE 29TH. JUNE 1970
Your O/NO. AM194D
ATTENTION MR. J. BAILEY.

SPECTROMETER SERVICES PTY. LTD.,
29 COBDEN STREET
NORTH MELBOURNE. 3051

A9014

SAMPLE	Cu.	Pb.	Zn.	Ni.	Co.	Mo.	Bi.	Be.	Mn.	Cr.	V.	Ag.	Li.	Sb.	Cd.	Sn.	W.	As.	Fe.	Nb.	Pt.	Pd.	U.
LER-1	130	98	50	150	330	40	18	2	3250	200	120	3	11	<20	1	ND	ND	ND	>1%	ND	ND	ND	ND
LER-2	36	48	19	38	38	6	6	1	7500	190	160	2	2	<20	1	5	ND	ND	≥1%	ND	ND	ND	ND
LER-3	18	98	14	43	22	3	5	1.5	1200	270	160	2	1.5	<20	1	5	ND	ND	≥1%	ND	ND	ND	ND

SIGNED

SPECTROMETER SERVICES PTY. LTD.

APPENDIX 8.50

MINERALOGICAL REPORT NO. 170

PHAR GEOPHYSICS PTY. LTD.
000062
TELEPHONE 72 2133
50-52 MARY STREET, UNLEY, SOUTH AUSTRALIA
Postal Address: P.O. Box 42, UNLEY, SOUTH AUSTRALIA 5061
CABLE "PHARGEO" ADELAIDE
TELEX AA82 · 623

JR

C.901.

1) RL
2) DW
3) file

MINERALOGICAL REPORT NO. 170

by D.H. McColl

22nd April, 1970

TO: Mr. Jeff BAILEY,
Austin-Anderson (Aust.) Pty. Ltd.,
1-29 Albert Road,
MELBOURNE, VIC. 3004.

YOUR REFERENCE: Purchase Order No. AM 194 D-6

MATERIAL: Rock Samples (8)

IDENTIFICATION:
LY 4
LY 7
LY 9
LY 15
LY 20
LY 22
LY 23
LY 45

WORK REQUESTED: Thin section preparation and petrographic description.

SAMPLES AND SECTIONS: Returned to you by airfreight.

INVOICE ENCLOSED

RECEIVED
MELBOURNE
25 APR 1970
AUSTIN-ANDERSON
(AUSTRALIA) PTY. LTD.

D.H. McColl
(Signed)

000063
C. 901

LY 4

Rock Name:	Sericitic chert	
Components:	Quartz	70%
	Carbonate	3 - 5%
	Felspars	2 - 3%
	Sericite (and clays ?)	15%
	Limonite (and opaques)	2 - 5%
	Accessory minerals - biotite, zircon	

This is a cherty sedimentary rock, consisting of well sorted rounded to irregular grains of quartz with a contorted but definite sedimentary layering preserved in linear concentrations of sericite and limonite.

Quartz is generally clear but most grains contain some inclusions, grain size varying from 0.03 to 0.06 mm. Some felspars are present in minor proportion amongst the anhedral quartz mosaic, plagioclase varieties being evident by twinning. Composition of these corresponds to albite-oligoclase.

Sericite flakes up to 0.02 x 0.1 mm. are irregularly dispersed throughout the rock with concentrations along sedimentary banding in accompaniment with fine dusty opaques, limonitic staining and interstitial clays.

Limonite pseudomorphs after euhedral cubical crystals, probably pyrite, are fairly common, crystal sizes being up to 0.15 mm. Some opaque iron oxides may be among the limonite.

A vein across one end of the section 1.5 to 2 mm. in width contains irregular anhedral carbonate crystals, probably calcite, up to 0.15 x 0.2 mms. with fine interstitial clays and chalcedony. Rare scattered waterworn grains of zircon and flakes of brownish biotite are also present in accessory proportions.

/.....3

LY 4 (CONTD.)

The rock is concluded to be a fine sedimentary sandstone or chert, with minor metamorphism producing sericite and carbonate veining.

LY 7

Rock Name:	Limonitic Breccia	
Components:	Carbonate	25%
	Limonite	15 - 20%
	Quartz	15 - 20%
	Clay mineral	10 - 15%
	Sericite	20%
	Chlorite	5%

This rock is a breccia composed of rounded to angular rock fragments of several different types, cemented by carbonate and limonite. Rock fragments are of various sizes up to 4mm. diameter.

Individual quartz grains up to 1 mm. diameter are not uncommon, also quartzitic fragments up to 2 x 3 mm, consisting of an anhedral mosaic of crystals up to 0.08 mm. diameter. Some cherty fragments consist of quartz mosaic with sericite dispersed in regular semi-parallel lineation. Other quartz containing fragments are rich in cryptocrystalline clays with minor scattered quartz and some sericitisation. Large phyllitic fragments are common showing a network of sericite mesh with interstitial flaky chlorite and granules of limonite. Smaller grains apparently consisted entirely of earthy clay minerals which are sericitised in some cases to considerable extent.

The limonite appears to have been derived in part from micaceous haematite, pseudormorphous flakes of which are still evident between rock fragments. Introduction of carbonate, probably calcite, has apparently accompanied oxidation of iron minerals so that much interstitial carbonate is intimately mixed with limonite staining. Some fissures however contain clear calcite suggesting that it was formed during final stages of induration.

/.....4

LY 7 (CONTD.)

The rock is classified as a breccia with limonitic carbonate cement.

LY 9

Rock Name:	Siliceous marble	
Components:	Quartz	40 - 50%
	Felspar (microcline)	1 - 2%
	Carbonate (calcite)	40%
	Clay mineral	5 - 10%
	Sericite	2%
	Limonite	1%
	Accessory minerals - biotite, epidote	

This rock is an aggregate of rounded sand grains with minor felspars set partly in a matrix of anhedral crystallise carbonate and partly in fine quartz with interstitial clays. The original sediment has been extensively recrystallised with some chemical interaction as evidenced by rare fine veinlets containing prismatic epidote.

Quartz is the dominant component as rounded grains up to 0.5 mm. diameter, generally showing corroded boundaries and strain polarisation. Finer grains do not tend to show rounded form, but rather the angular polygonal outlines of anhedral quartz mosaic, evidently due to partial recrystallisation. Felspars are of similar form to the quartz, but are in small proportions, most grains showing the typical twinning of microcline.

Fine cryptocrystalline clays are dispersed interstitially among the quartz with minor formation of flakes of sericite amongst higher clay concentrations.

Carbonate, probably calcite, is present as massive aggregates of anhedral crystals, filling veins and forming a continuous matrix to the quartz in many parts. Some calcite crystals are quite coarse, up to 1 mm. diameter being common.

/.....5

LY 9 (CONTD.)

Traces of limonitic staining are present within interstices in a few isolated parts of the rock. Also rare flakes of biotite which appear to be an original sedimentary constituent.

The rock is classified as a siliceous marble of medium grain size, derived by recrystallisation of a marly calcarenite.

LY 15

Rock Name:	Sericitic cherty conglomerate	
Components:	Quartz	60%
	Sericite	30 - 40%
	Clay minerals	2 - 3%
	Limonite staining	1%

This rock consists of an altered and partially recrystallised aggregate of coarse to medium sized rounded to subrounded rock and mineral fragments.

Rock fragments appear principally to have been cherts, shales, siltstones or phyllites in fragments up to 2.0 cms. in diameter, with quartz grains up to 0.6 mm. diameter set in a matrix which appears to have been originally clay minerals. Cherty fragments consist almost entirely of anhedral quartz mosaic of well sorted unifrom size within each fragment, finer cherts having grains up to 50 microns and coarser examples up to 0.2 mms.

Most rock fragments were banded siltstones containing approximately equal proportions of quartz grains up to 0.1 mm. and clay minerals. Metamorphism of these rocks since formation of the conglomerate has converted almost all clays to sericite. Highly argillaceous fragments have formed an irregular meshwork of fine sericite flakes up to 50 microns length.

/.....6

LY 15 (CONTD.)

Layered shales and siltstones have developed some coarser sericites up to 0.15 x 0.02 mm. which with the quartz are aligned in a very fine matrix of sericitic meshwork. Finally interstitial clays between the conglomerate components are also extensively sericitised, with possibly some chalcedony formation as well.

The final result has been a hard compact cherty rock with vague traces of limonite outlining the original constituents of the conglomerate. The large proportion of sericite present being visible only microscopically. It is concluded to be a sericitic cherty conglomerate, produced by metamorphism of an argillaceous conglomerate containing shale and chert pebbles.

LY 20

Rock Name: Limonitic sericitic chert or fine quartzite.

Components:		
	Quartz	40 - 50%
	Sericite	40%
	Limonite	10 - 15%

This is a slightly altered sedimentary rock, originally consisting of quartz, clay minerals and iron oxides in a well sorted aggregate with pronounced sedimentary banding. Metamorphism has affected the rock to the extent of complete sericitisation of clays and at least partial recrystallization of the quartz into a mosaic of polygonal anhedral grains.

Quartz crystals vary in size up to a maximum of 0.15 mm., but the general size would be nearer to 0.05 to 0.08 mm. Interstices are filled with a fine mass of sericitic meshwork and granular limonite. Sericite is very fine, generally in the 10 to 20 micron range with a few longer flakes. Limonite granules are of cryptocrystalline sizes, and are not distinguishable optically.

/.....7

LY 20 (CONTD.)

An unusual feature about this rock is the presence of regular shaped voids up to 0.3 mm. diameter, commonly partially filled with limonite. These have vague cubical shape and would appear to be pseudomorphous after oxidised and leached crystals of pyrite.

The rock is classified as a limonitic sericitic chert or a banded fine grained quartzite produced by slight metamorphism of a shale or shaly sandstone.

LY 22

Rock Name:	Sericitic siltstone	
Components:	Quartz	35 - 40%
	Sericite	30 - 35%
	Clay mineral (felspathic ?)	20 - 30%
	Carbonate (calcite)	5 - 10%
	Limonite	2%
	Accessory minerals - tourmaline, zircon	

This rock is a very fine grained well-sorted aggregate of fine quartz and minor mineral components set in a matrix of sericitic clays. It was evidently a fine argillaceous siltstone, which has been metamorphosed to a minor degree.

Quartz grains are fairly fine ranging in size up to 0.15 mm. with a very high proportion in the 0.05 to 0.08 interval. Grains are generally rounded to ovoid, with slightly ragged edges suggesting some interaction with the matrix. Granular cryptocrystalline clays which may be partly felspathic comprise the original matrix with a more recent intergrowth of stumpy to acicular flakes of sericite intermittently coalescing into a meshwork. Sericite flakes rarely exceed 20 microns in length.

Carbonate had invaded the rock along minor transgressive fissures, permeating the matrix for several millimetres on either side. It is absent from the remainder of the rock. Likewise restricted areas are stained with limonite which has possibly originated from opaque grains, remnants of which still remain.

/....8

LY 22 (CONTD.)

An unusual feature is the presence of small amounts of tourmaline and zircon grains scattered through the aggregate, possibly indicating that the sediments were derived from a granitic or pegmatitic source rock.

The rock is classified as a sericitic siltstone.

LY 23

Rock Name:	Dendritic limestone with minor quartz veining.	
Components:	Carbonate	80%
	Quartz	5%
	Clay mineral	5%
	Limonitic opaques	5- 10%

This is a massive yellow carbonate rock, composed of granular crystalline calcite or dolomite with dendritic, probably manganiferous limonite stringers throughout.

The massive carbonate intergrowth contains an abundant turbidity of earthy fine granular limonite and limonitic clays, contributing the marked yellow colouring. The carbonate crystals vary widely in size from several millimetres to quite small fractions Boundaries of individual crystals tend to be obscured by the limonite making size estimations indefinite.

Coarse hydrothermal quartz veining shows along part of the section, comprised mainly of anhedral quartz mosaic with polygonal crystals of widely varying size from 0.05 mm. to 2.00mm. The quartz is all much strained and clouded with entrained clay minerals. A striking feature of the veining is the presence of euhedral pyritohedra of limonite, pseudomorphous after pyrite, the original crystals of which were from 1 to 3 mms. in diameter.

Probably surface leaching of this rock has led to formation of a low proportion of voids and fissuring which has extended the dendritic structure and led to oxidation of iron minerals.

The rock is now classified as a dendritic limestone with minor quartz veining.

/.....9

000070
C.901.

LY 45

Rock Name:	Limonitic arkose	
Components:	Quartz	5 - 10%
	Felspar (microcline)	60%
	Sericite	10 - 15%
	Limonite	15 - 20%
	Carbonate	2%

This rock is an anhedral granular mosaic of potash felspars and minor quartz with abundant finer inclusions of sericite and limonite. It has apparently undergone a minor degree of metamorphism and has as a result developed a weak greissose structur which may also represent relict sedimentary layering.

The potash felspars show abundant typical microcline "cross-hatched" twinning. Crystals are polygonal in form, and of general size from 0.2 to 1.0 mm. Most crystals are crowded with inclusions of fine flaky sericite and yellow-brown granular limonite of cryptocrystalline dimensions. Bands of felspars and quartz 1 to 2 mm. in width which are relatively free of inclusions have a parallel alignment through the rock. This is indicative of original compositional banding or development of greissose structure, or both.

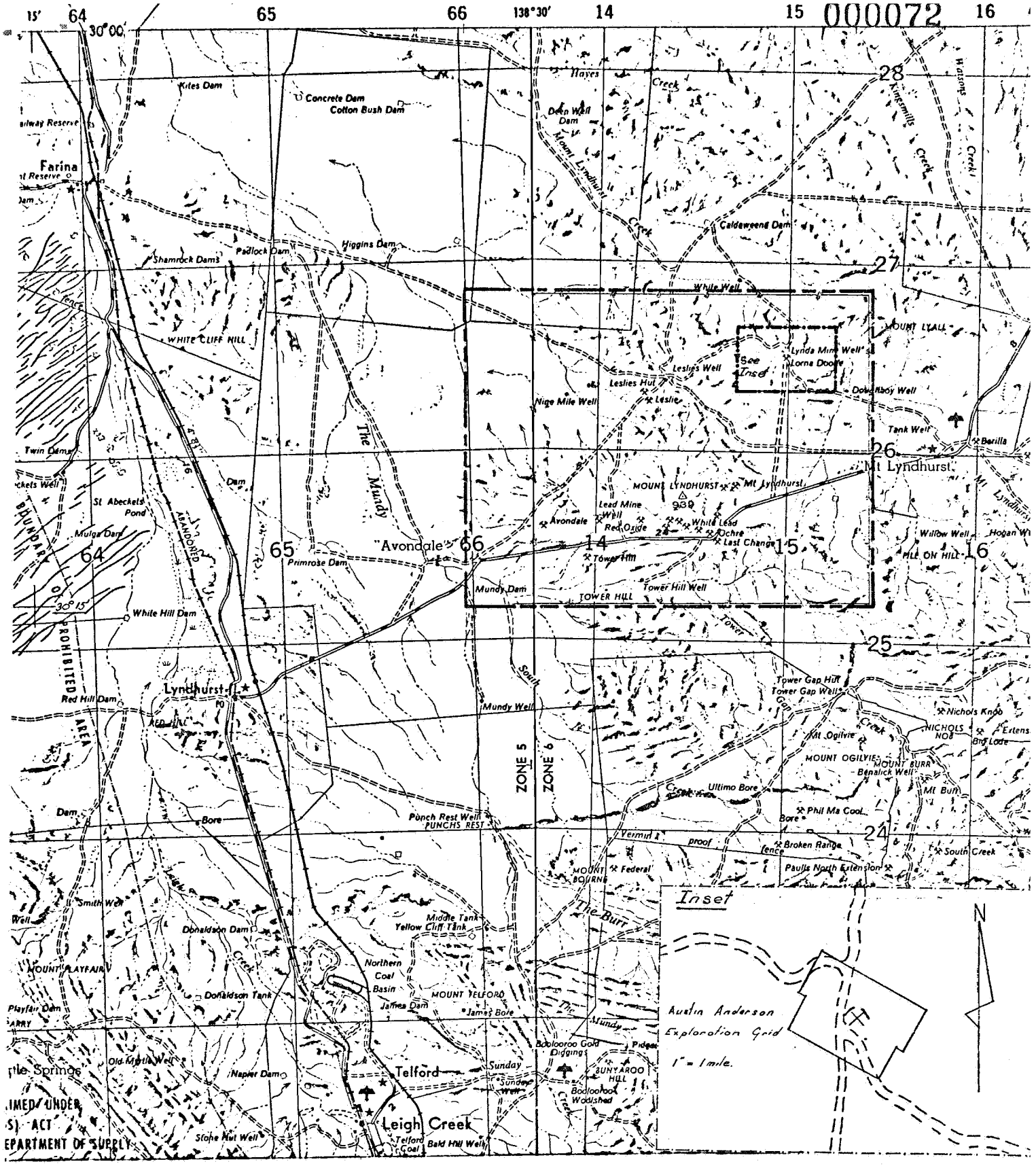
Quartz is a minor component scattered amongst the felspars as odd similar sized polygonal anhedral crystals. Most limonite as already mentioned is in the form of staining and earthy interstitial filling, but a few rounded masses up to 0.1 mm. diameter suggest a pseudomorphous structure after an earlier now oxidised mineral. Pyrite seems likely.

Several thin veins of carbonate mineral fill fissuring up to 0.15 mm. diameter, transgressively intersecting the banding structure. These are composed of massive crystalline carbonate, probably calcite, with finer included quartz and patches of limonite

The rock is classified as a limonitic arkose or greissic arkose with minor carbonate veining. The hand specimen also shows development of a vesicular structure inwards from the surface by removal of felspars due to weathering.

APPENDIX 8.60

LOCALITY PLAN



LOCALITY PLAN LORNA DOONE

——— SML 314 Boundary

—·—·— Inset Boundary

Scale 1" = 1 mile

AUSTIN - ANDERSON (AUSTRALIA) PTY. LIMITED

DESIGNERS • ENGINEERS • BUILDERS

WORLD-WIDE SERVICE

CONTRACT No.	ISSUE No.	NAME OF ORDER
AM 194	A	CYPRUS MINES CORPORATION
SHEET No. 933		JOB LOCATION Lorna Doone Via Lyndhurst S.A.

APPENDIX 8.70

GEOCHEMICAL SOIL SAMPLE RESULTS (SUPPLEMENTARY)

000074

MINEX ANALYTICAL LABORATORIES PTY. LTD.

ANALYSTS AND CONSULTANTS TO MINING, AGRICULTURE AND INDUSTRY

4-8 GWYNNE STREET, RICHMOND, VIC. 3121 PHONE: 42 4706, 42 4707 TELEGRAMS & CABLES: MINEXLABS, MELBOURNE

~~ORL~~ (2) DW (3) file

A9005

11th May, 1970.

70/309

Austin-Anderson (Aust.) Pty. Ltd.,
B.P. House,
1-29 Albert Road,
MELBOURNE. VIC. 3000

Your Reference : AM 194

Attention : Mr. J.D. Bailey

Sample No.	% Uranium
LY 33	<0.002

RECEIVED MELBOURNE 11 MAY 1970 AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.

Method : X.R.F.

J. Hopper
(Mrs.) I. Hopper
Manager.

McPHAR

GEOCHEMICAL RESULTS

50 MARY STREET
UNLEY, S.A. 5061
PHONE: 72 2133
CABLE: "PHARGEO"
ADELAIDE

Samples from: AUSTIN-ANDERSON (AUST.) PTY. LTD.,

Area: LYNDHURST, SOUTH AUSTRALIA

Samples of: SOIL

Sheet No.: 1

Batch No.: G 2320

Assay (A)/Geochem (G): G

A9006

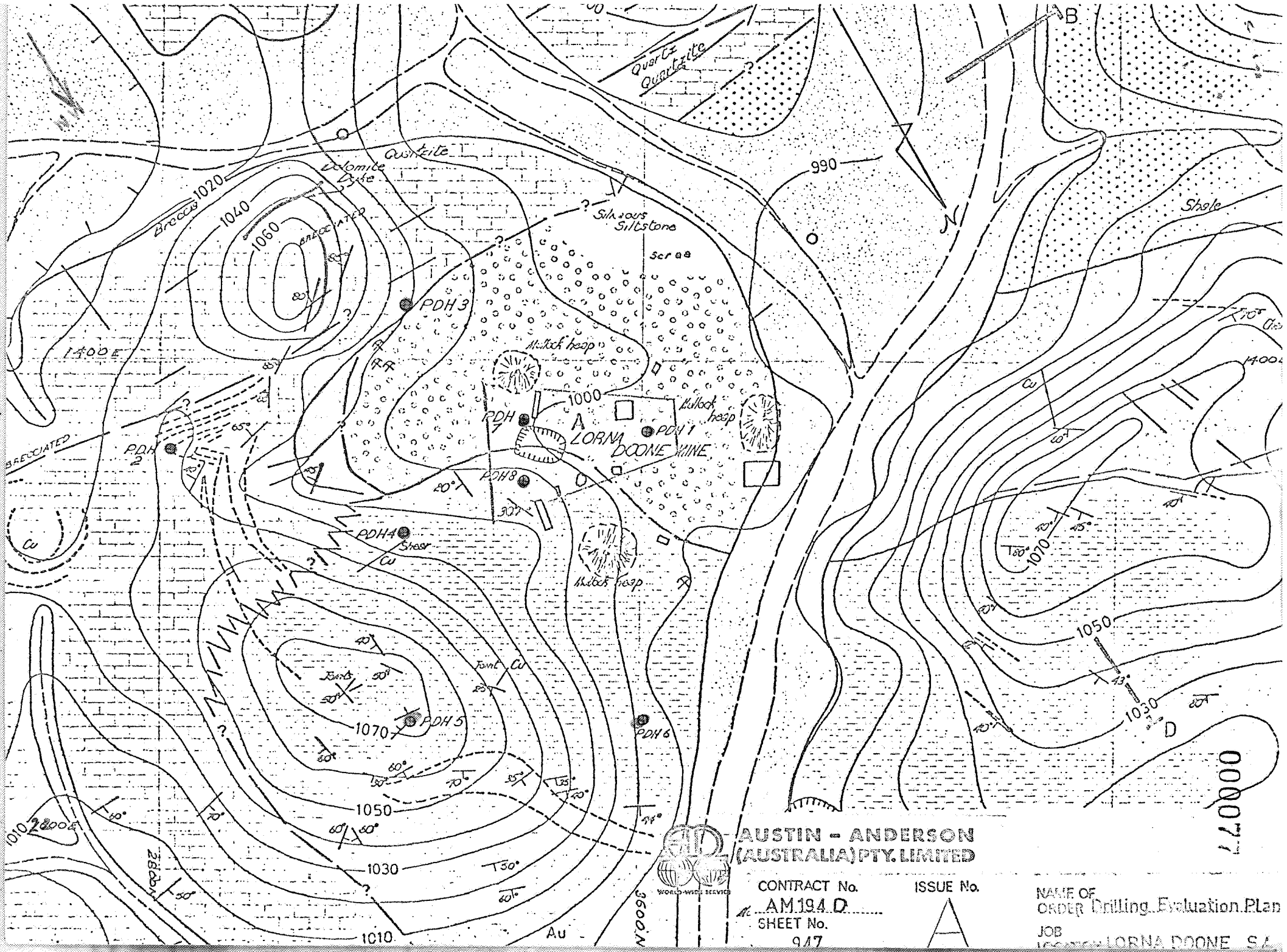
(1) RC
(2) DW
(3) file

Date: 12.5.70

Sample Description	Cu, ppm	Pb, ppm	Zn, ppm
LS 60/29	40	40	50
30	55	40	50
1	60	45	40
2	50	40	40
3	50	40	50
4	40	30	40
5	35	30	65
36 A	25	30	40
36 B	40	30	35
36 C	50	30	45
36 D	45	30	85
37	35	30	35
8	25	40	45
9	15	30	35
40	35	20	30
1	10	20	25
2	15	30	40
3	10	40	15
4	15	30	30
5	10	50	5
6	10	55	5
7	5	35	15
LS 60/48	20	35	20

APPENDIX 8.80

DRILLING EVALUATION PLAN



AUSTIN - ANDERSON (AUSTRALIA) PTY. LIMITED

CONTRACT No. AM 194 D

SHEET No. 947

ISSUE No. A

NAME OF ORDER Drilling Evaluation Plan

JOB LOCATION LORNA DOONE S.A.

APPENDIX 8.90

PERCUSSION DRILL LOGS

WITH INTERLEAVED ASSAYS

DRILL HOLE ASSAY RESULTS

000079

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 993'

HOLE NO. PDH 1 CO-ORD 1550 E DEPTH 190'
3625 N

57.91

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	10	CONGLOMERATE	83	BLD	16	BLD
10	20		209	"	8	"
20	30		639	"	10	"
30	40		1960	14	14	"
40	50		1440	16	6	"
50	60		1530	35	8	"
60	70		3080	53	15	"
70	80		8800	13	42	"
80	90		7400	6	45	"
90	100		6400	5	58	"
100	110		3870	BLD	58	"
110	120		4700	Tr	51	"
120	130		4240	15	71	"
130	140		3310	5	53	"
140	150		2600	27	66	"
150	160		2880	45	74	"
160	170	SILSTSTONE	1540	22	51	"
170	180		1150	16	44	"
180	190		550	30	26	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

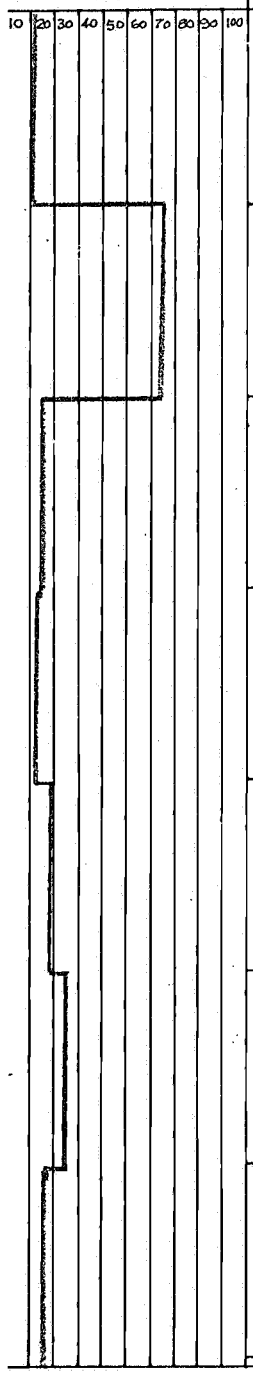
MELBOURNE * SYDNEY * PERTH

000080

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194 D

LOCATION LORNA DOONE, VIA LYNDHURST, SOUTH AUSTRALIA R.L. 993

HOLE NO. 1 CO-ORDS 3625 N 1550 E DEPTH 190'



DEPTH	LOG	DESCRIPTION
		SILTSTONE Angular fragments of siltstone and quartz with 10% clay mineral. Surface scree. White colour.
10		As above with 0.5% limonite and minor quartz crystal. White colour.
20		Sub rounded to angular fragments of siltstone and quartz with 10% clay mineral and 1% limonite. White colour.
30		Sub rounded to rounded fragments of siltstone and quartz with 10% clay mineral and 1% limonite, 40% siltstone. White colour.
40		Rounded to angular fragments of siltstone, conglomerate and quartz. 60% quartz, 10% clay mineral, 0.5% conglomerate, 2% limonite, 20% siltstone. White colour. Malachite grade A.
50		Rounded to angular fragments. 45% siltstone, 40% quartz, 10% clay mineral, 2% limonite. White colour. Malachite grade B.
60		Rounded to angular fragments. White colour. 50% siltstone, 35% quartz, 10% clay mineral, 2% limonite. Malachite grade D.
70		

DRILL TYPE INGERSOLL-RAND

OPERATOR WATERLANDS

COMMENCED 5 MAY 1970

COMPLETED 5 MAY 1970

LOGGED BY J.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 1 OF 3

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000081

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194 D

LOCATION LORNA DOONE, VIA LYNDHURST, SOUTH AUSTRALIA R.L. 993

HOLE NO. 1 CO-ORDS 3625 N. 1550 E. DEPTH 190'

PENETRATION RATE MIN /FT. (10 20 30 40 50 60 70 80 90 100)	DEPTH	LOG	DESCRIPTION
	80		Purple limonitic siltstone. 40% limonite, 50% quartz, 2% clay material, 3% siltstone. Malachite and native copper, grade B. Particles rounded to angular.
	90		Purple limonitic siltstone. Rounded to angular fragments. 30% quartz, 70% limonitic siltstone particles, 0.5% clay material.
	100		Brown coloured rounded to angular fragments. 20% quartz, 40% siltstone, 40% iron oxide. Malachite grain grade A.
	110		Brown coloured rounded to angular fragments. 25% quartz, 45% siltstone, 30% iron oxide. Malachite grain grade A.
	120		As above.
	130		As above with 40% siltstone and 5% clay material.
	140		Brown coloured material well rounded to angular fragments. 45% quartz, 30% siltstone, 5% clay material, 20% iron oxide. Malachite - grade B.

DRILL TYPE INGERSOLL-RAND

OPERATOR WATERLANDS

COMMENCED 5/5/70

COMPLETED 5/5/70

LOGGED BY J.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 2 OF 3

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

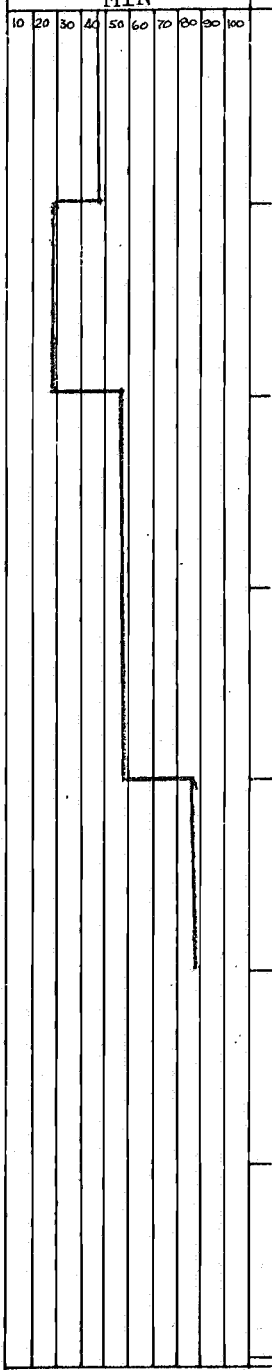
MELBOURNE * SYDNEY * PERTH

000082

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194 D

LOCATION LORNA DOONE, VIA LYNDHURST, SOUTH AUSTRALIA R.L. 993

HOLE NO. 1 CO-ORDS 3625 N. 1550 E DEPTH 190'



DEPTH	LOG	DESCRIPTION
150		Brown coloured material. Well rounded to angular fragments. 45% quartz, 30% siltstone, 5% clay material, 20% iron oxide. Malachite - grade A.
160		As above - no malachite.
170		Blue to brown material, angular fragments. Pyrite disseminated in blue fine siltstone. Chalcocite - grade C.
180		Blue to brown material, angular fragments. 80% fine blue siltstone, 20% limonitic siltstone. Disseminated pyrite Chalcocite - grade C.
190		- 185' reached water table. Blue material, angular fragments. Fine siltstone with disseminated pyrite and chalcocite. Grade D.

DRILL TYPE ~~INGERSOLL-~~ RAND

OPERATOR WATERLANDS

COMMENCED 5/5/70

COMPLETED 5/5/70

LOGGED BY J.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 3

DRILL HOLE ASSAY RESULTS

000083

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1042'

HOLE NO. PDH 2 CO-ORD 1550 E 2825 N DEPTH 235'

71 G3

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	10	DOLOMITE	6200	35	15	Tr
10	20		7310	38	35	5
20	30		800	21	14	Tr
30	40		1490	35	17	"
40	50	DOLOMITE AND SILTSTONE	3050	47	20	"
50	60		670	39	22	"
60	70		550	6	15	"
70	80		453	Tr	15	5
80	90		188	18	18	BLD
90	100		94	5	7	Tr
100	110		50	BLD	8	"
110	120		45	13	9	"
120	130		80	5	10	"
130	140		139	18	9	"
140	150		43	15	5	BLD
150	160		71	61	8	"
160	170		140	5	16	"
170	180		50	22	14	"
180	190		50	8	8	"
190	200		70	BLD	8	Tr
200	210		46	7	9	"
210	220		39	BLD	7	BLD
220	230		125	12	11	"
230	240		121	21	10	"
0	250 (Fines)		2090	36	19	Tr

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

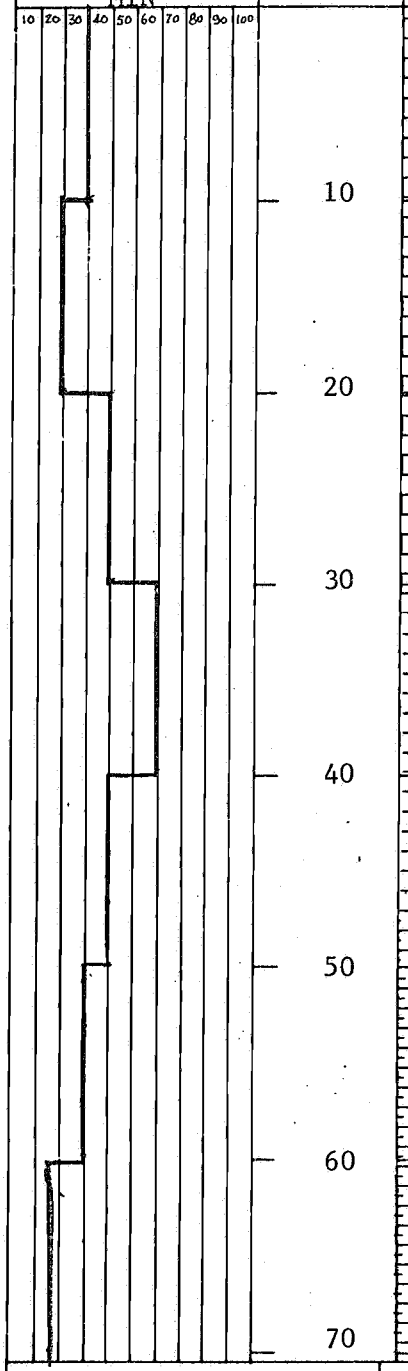
MELBOURNE * SYDNEY * PERTH

000084

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1042'

HOLE NO. 2 CO-ORDS 1550 E. 2825 N. DEPTH 235'



DESCRIPTION

DOLOMITIC LIMESTONE

Buff colour, angular fragments with 1% quartz. Malachite - grade A.

As above.

Buff colour, angular fragments. Dolomitic limestone with leached material, native copper and malachite grade B.

Light brown, angular fragments. Dolomitic limestone.

INTER-BEDDED DOLOMITE AND SILTSTONE

Light brown, angular fragments.
65% dolomite, 30% siltstone, 5% limonite. Native copper grade A.

Buff to light brown, angular fragments.
50% siltstone, 46% dolomite, 2% clay, 2% limonite.

Buff colour, angular fragments.
40% dolomite, 57% siltstone, 2% limonite, 1% mica.

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 6th May 1970

COMPLETED 6th May 1970

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 1 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

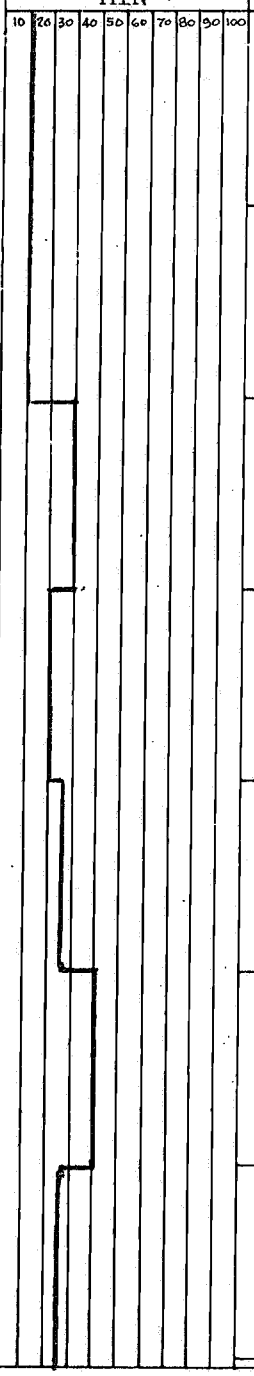
MELBOURNE * SYDNEY * PERTH

000085

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1042'

HOLE NO. 2 CO-ORDS 1550 E. 2825 N. DEPTH 235'



DEPTH	LOG	DESCRIPTION
80		Buff, angular fragments. 10% dolomite, 89% green siltstone (fresh) 1% clay, very minor pyrite.
90		Buff, angular fragments. 25% dolomite, 73% white siltstone, 2% limonite, very minor pyrite.
100		Buff, angular fragments. 60% green siltstone, 40% pink dolomite.
110		Buff, angular fragments. 40% siltstone, 59% dolomite, 1% limonite, minor pyrite.
120		Light red-brown, angular fragments. 60% dolomite, 40% siltstone, minor pyrite.
130		Blue to buff, angular fragments. 10% dolomite, 90% siltstone.
140		Blue to light brown, angular fragments. 30% dolomite, 70% siltstone.

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 6.5.1970

COMPLETED 6.5.1970

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 2 OF 4

DRILL HOLE LOG

000086

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1042'

HOLE NO. 2 CO-ORDS 1550 E. 2825N. DEPTH 235'

PENETRATION RATE MIN /FT. (10 20 30 40 50 60 70 80 90 100)	DEPTH	LOG	DESCRIPTION
	150		Blue to light brown, angular fragments. 10% dolomite, 90% siltstone, much pyrite and chalcocite grade A.
	160		Light brown. 80% dolomite, 20% siltstone.
	170		As above.
	180		Light brown to blue, angular fragments. 20% dolomite, 80% blue siltstone, malachite grade A.
	190		Buff material, angular fragments. 20% siltstone, 80% dolomite.
	200		Buff material, angular fragments. 40% dolomite, 60% siltstone, minor pyrite and chalcocite grade A.
	210		Blue - buff, angular fragments. Minor chalcocite and pyrite - grade A. 15% dolomite, 85% siltstone.

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 6.5.1970

COMPLETED 6.5.1970

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000087

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1042'

HOLE NO. 2 CO-ORDS 1550 E. 2825N. DEPTH 235'

PENETRATION RATE MIN /FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100			Blue to buff. 15% dolomite, 85% blue calcareous siltstone, chalcopyrite, pyrite, chalcocite grade B.
	220		Blue to buff. 20% dolomite, 80% calcareous siltstone, pyrite, chalcocite grade B.
	230		Blue to buff. 60% dolomite, 40% calcareous siltstone, pyrite, chalcocite grade A.
	235'		
	END OF HOLE		Water not reached

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 6.5.1970

COMPLETED 6.5.1970

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 4 OF 4

DRILL HOLE ASSAY RESULTS

000088

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1018'

HOLE NO. PDH 3 CO-ORD 1300 E 3200 N DEPTH 225'

68.58

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M			
FROM	TO		Cu	Pb	Zn	Ag
0	10	DOLOMITIC SILTSTONE	1870	19	10	Tr
10	20		1350	6	11	"
20	30		1110	6	22	BLD
30	40		2170	16	23	"
40	50		1540	BLD	36	"
50	60		510	49	30	"
60	70		95	9	24	"
70	80		59	11	15	"
80	90		70	BLD	30	"
90	100		95	"	18	"
100	110		133	9	Tr	"
110	120		66	BLD	14	"
120	130		80	"	22	"
130	140		46	"	27	"
140	150		62	"	16	"
150	160		69	"	27	"
160	170	CONGLOMERATE	104	30	27	"
170	180		108	32	26	"
180	190		225	26	21	"
190	200		45	24	9	"
200	210		230	BLD	19	"
210	220		217	"	31	8

000089

DRILL HOLE LOG

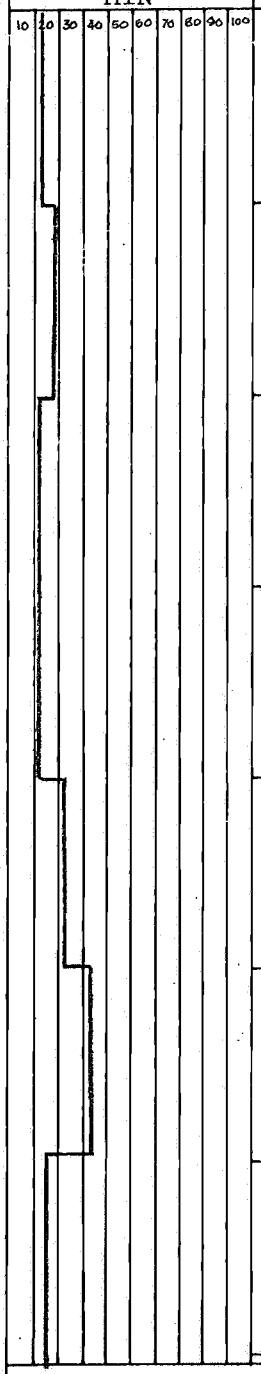
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT Percussion Drilling - Cyprus Mines Corp. NUMBER AM 194D

LOCATION Lorna Doone Via Lyndhurst. S.A. R.L. 1018'

HOLE NO. 3 CO-ORDS 1300E 3200N DEPTH 225'



DEPTH	LOG	DESCRIPTION
		Dolomitic Siltstone
		Red - Brown, Angular, 15% carbonate, 85% limonitic siltstone
10		Red - brown, angular, 20% carbonate, 80% limonitic siltstone
20		Brown, angular, 95% limonitic siltstone 5% carbonate
30		As above
40		Red - brown, angular 95% limonitic siltstone 5% carbonate
50		Red - brown, angular 80% limonitic siltstone 20% carbonate
60		Brown material, angular, 90% limonitic Siltstone 10% carbonate
70		

DRILL TYPE Ingersoll Rand

OPERATOR Waterlands

COMMENCED 13.5.70

COMPLETED 13.5.70

LOGGED BY J.D.B.

CHECKED BY DLW

VERTICAL SCALE 1" = 10

SHEET 1 OF 4

000090

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT Percussion Drilling - Cyprus Mines Corp. NUMBER AM 194D

LOCATION Lorna Doone Via Lyndhurst. S.A. R.L. 1018'

HOLE NO. 3 CO-ORDS 1300E 3200N DEPTH 225'

PENETRATION RATE MIN /FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100	70		Dark brown, rounded to angular, 10% carbonate 90% limonitic siltstone.
	80		Siltstone Brown, rounded to angular, 99% limonitic siltstone 1% clay material
	90		Brown material, angular 100% limonitic siltstone
	100		Dolomitic siltstone Brown, angular 5% carbonate 95% limonitic siltstone
	110		Brown, angular 5% carbonate 95% limonitic siltstone drill blocked 10 minutes
	120		Light brown, rounded to angular 5% carbonate, 95% limonitic siltstone
	130		As above.
	140		

DRILL TYPE Ingersoll Rand

OPERATOR Waterlands

COMMENCED 13.5.70

COMPLETED 13.5.70

LOGGED BY JDB

CHECKED BY DLW

VERTICAL SCALE 1" = 10'

SHEET 2 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

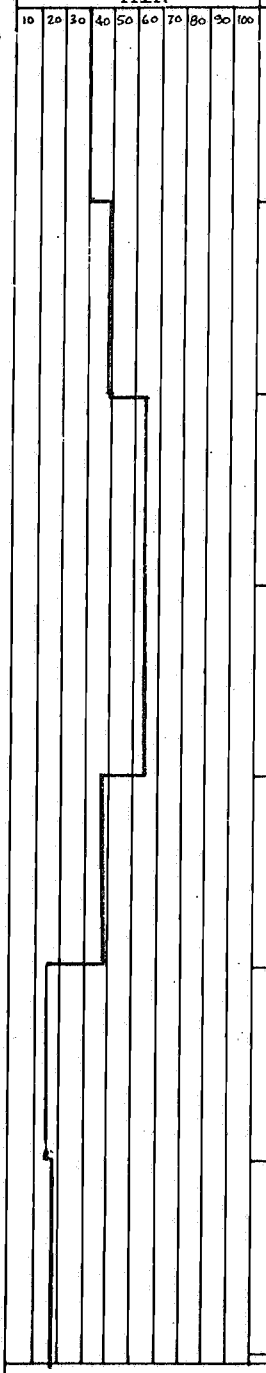
MELBOURNE * SYDNEY * PERTH

000091

PROJECT Percussion Drilling - Cyprus Mines Corp. NUMBER AM 194D

LOCATION Lorna Doone Via Lyndhurst. S.A. R.L. 1018'

HOLE NO. 3 CO-ORDS 1300E 3200N DEPTH 225'



DEPTH	LOG	DESCRIPTION
140		Brown, angular, 96% limonitic siltstone 2% carbonate, 2% clay.
150		Brown angular, 98% limonitic siltstone 2% carbonate cuprite grade B
160		Limonitic Siltstone Brown, angular material
170		As above
180		As above.
190	Water Level	As above with minor pyrolusite
200		As above with malachite Grade B
210		

DRILL TYPE Ingersoll Rand

OPERATOR Waterlands

COMMENCED 13.5.70

COMPLETED 13.5.70

LOGGED BY J.D.B.

CHECKED BY DLW

VERTICAL SCALE 1"=10'

SHEET 3 OF 4

000092

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT Percussion Drilling - Cyprus Mines Corp. NUMBER AM 194D

LOCATION Lorna Doone Via Lyndhurst. S.A. R.L. 1018'

HOLE NO. 3 CO-ORDS 1300E 3200N DEPTH 225'

PENETRATION RATE MIN/FT.	DEPTH	LOG	DESCRIPTION
0 20 30 40 50 60 70 80 90 100	210		As above - no malachite
	220		As above - malachite grade B
	225' end of hole		

DRILL TYPE Ingersoll Rand

OPERATOR Waterlands

COMMENCED 13.5.70

COMPLETED 13.5.70

LOGGED BY J.D.B

CHECKED BY DLW

VERTICAL SCALE 1" = 10'

SHEET 4 OF 4

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000093

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1027'

HOLE NO. PDH 4 CO-ORD 1700 E DEPTH 230'
3200 N

20.10

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
DM	TO		Cu	Pb	Zn	Ag
)	10	SILTSTONE	71	BLD	Tr	BLD
10	20		211	"	5	"
20	30		7	"	5	"
30	40		21	"	Tr	"
40	50		360	Tr	"	"
50	60		455	BLD	"	"
50	70		440	"	5	"
70	80	CONGLOMERATE	458	"	5	"
80	90		239	"	13	"
90	100		219	"	12	"
100	110		36	"	31	"
110	120		27	"	16	"
120	130		150	"	13	"
130	140	SILTSTONE	BLD	"	7	"
140	150		Tr	"	7	"
150	160		5	31	9	"
160	170		Tr	BLD	9	"
170	180		50	"	5	"
180	190		69	"	7	"
190	200		128	"	6	"

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000094

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L.

HOLE NO. PDH 4 CO-ORD DEPTH

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
200	210		36	BLD	Tr	BLD
210	220		55	20	25	Tr
220	230		100	23	25	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000095

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1027'

HOLE NO. 4 CO-ORDS 1700 E. 3200 N. DEPTH 230'

PENETRATION RATE MIN. /FT.	DEPTH	LOG	DESCRIPTION
50 40 50 60 70 80 90 100			SILTSTONE
			Buff, angular. 92% siltstone, 5% limonite, 3% carbonate.
	10		As above.
	20		Buff, angular. 95% siltstone, 2% limonite, 3% carbonate.
	30		Buff, angular. 97% siltstone, 1% limonite, 2% carbonate, native copper grade B.
	40		As above
	50		Buff, angular. 89% siltstone, 10% carbonate, 1% limonite, native copper grade B.
	60		As above - grade A.
	70		

LL TYPE INGERSOLL RAND

RATOR WATERLANDS

COMMENCED 8 MAY 1970

COMPLETED 10 MAY 1970

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 1 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

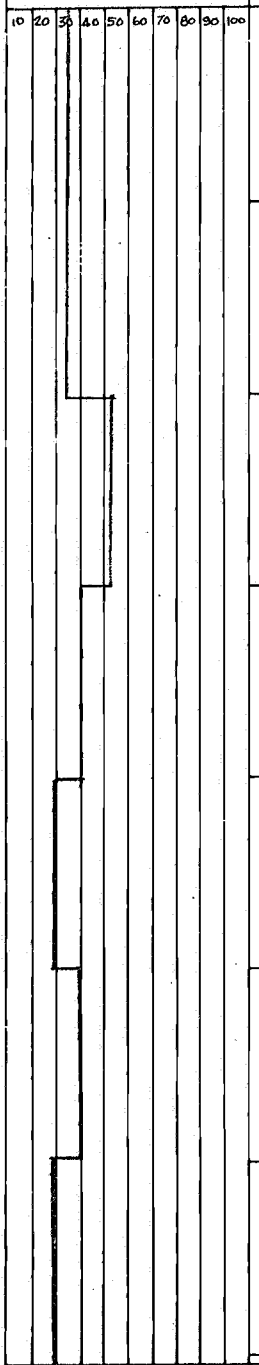
MELBOURNE * SYDNEY * PERTH

000096

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1027'

HOLE NO. 4 CO-ORDS 1700 E. 3200 N. DEPTH 230'



DEPTH	DESCRIPTION
	Red - brown, angular, 15% carbonate, 10% limonite, 75% siltstone, native copper grade C.
80	Light brown, angular, 97% siltstone, 1% carbonate, 2% limonite.
90	Brown to grey, angular, 88% siltstone, 3% limonite, 8% carbonate, native copper grade C.
100	Brown to grey, angular, 90% siltstone, 10% limonite, native copper grade C.
110	Light brown, rounded to angular, 96% siltstone, 4% limonite, native copper grade C.
120	Grey, rounded to angular, 67% blue siltstone, 30% buff siltstone, 3% limonite, native copper grade C.
130	Grey to blue, rounded to angular, 100% blue siltstone with disseminated sulphides. Pyrite, native copper, chalcocite - grade D.
140	

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 8.5.70

COMPLETED 10.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 2 OF 4

DRILL HOLE LOG

000097

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1027'

HOLE NO. 4 CO-ORDS 1700 E. 3200 N. DEPTH 230'

PENETRATION RATE MIN. /FT.	DEPTH	LOG	DESCRIPTION
30 40 50 60 70 80 90 100			As above - grade E.
	150		As above.
	160		As above.
DRILL BLOCKED			
	170		Blue - brown, angular. 50% brown siltstone, 50% blue siltstone with disseminated sulphides. Chalcocite, pyrite, chalcopyrite - grade D.
	WATER LEVEL		
	180		As above.
	190		As above - grade E.
	200		Blue, angular. 95% blue siltstone with disseminated sulphides, 5% brown siltstone. Pyrite, chalcocite, chalcopyrite - grade F.
	210		

LL TYPE INGERSOLL RAND

ERATOR WATERLANDS

COMMENCED 8.5.70

COMPLETED 10.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000098

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1027'

HOLE NO. 4 CO-ORDS 1700 E. 3200 N. DEPTH 230'

PENETRATION RATE MIN. /FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100			As above - grade E.
	150		As above.
	160		As above.
DRILL BLOCKED			
	170		Blue - brown, angular. 50% brown siltstone, 50% blue siltstone with disseminated sulphides. Chalcocite, pyrite, chalcopyrite - grade D.
	WATER LEVEL		
	180		As above.
	190		As above - grade E.
	200		Blue, angular. 95% blue siltstone with disseminated sulphides, 5% brown siltstone. Pyrite, chalcocite, chalcopyrite - grade F.
	210		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 8.5.70

COMPLETED 10.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000099

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM.194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1027'

HOLE NO. 4 CO-ORDS 1700 E. 3200 N. DEPTH 230'

PENETRATION RATE MIN. /FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100	220		Blue, angular. 95% blue siltstone with disseminated sulphides, 5% brown siltstone. Pyrite, chalcocite, chalcopyrite - grade F. As above.
	230 End of hole		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 8.5.70

COMPLETED 10.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 4 OF 4

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000100

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP.

NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A.

R.L. 1072'

HOLE NO. PDH 5 CO-ORD 2000 E 3200 N

DEPTH 200'

60.96

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
ROM	TO		Cu	Pb	Zn	Ag
0	10	SILTSTONE	2025	38	15	BLD
10	20		7402	33	20	"
20	30		5750	33	20	"
30	35		7250	35	17	"
35	40		4425	38	16	"
40	45		3750	33	13	"
45	50		5800	50	22	"
50	55		3700	55	14	"
55	60		1520	25	8	"
60	65		2180	48	24	"
65	70		330	28	26	"
70	75		240	28	26	"
75	80		1190	80	25	"
80	85		1780	53	21	"
85	90		670	30	22	"
90	95	QUARTZITE	420	20	10	"
95	100		360	18	9	"
100	105		418	20	8	"
105	110A		1230	15	4	"
105	110B		620	28	17	"
110	115		460	40	23	"
115	120		400	28	29	"
120	125		355	20	28	"
125	130		255	30	16	"
130	135		289	40	14	BLD
135	140		167	13	15	"
140	145		137	23	11	"
145	150		170	13	10	"
150	155		230	20	9	"
155	160		165	18	10	"
160	165	SILTSTONE	128	19	10	"
165	170		132	20	19	"
170	175		154	18	9	"
175	180		500	25	10	"
180	185		720	20	9	"
185	190		113	10	5	"
190	195		80	25	9	"
195	200		80	20	12	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

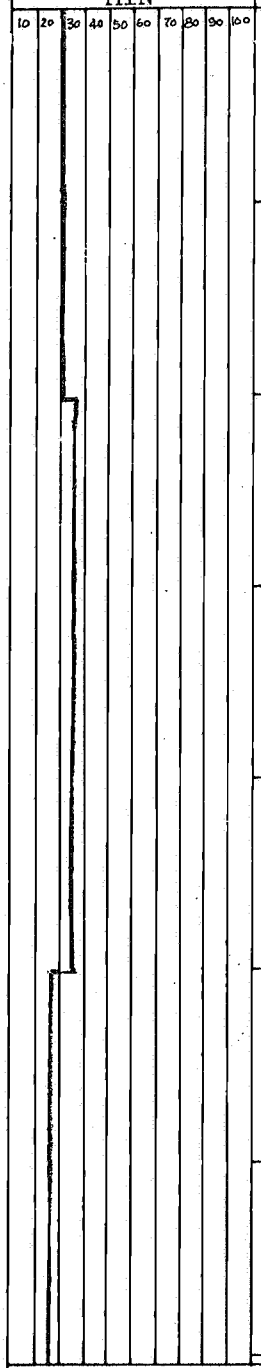
MELBOURNE * SYDNEY * PERTH

000101

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST, S.A. R.L. 1072'

HOLE NO. 5 CO-ORDS 2000E 3200N DEPTH 200'



DEPTH	LOG	DESCRIPTION
		SILTSTONE Buff to red-brown, angular 80% brown siltstone 15% carbonate 5% limonite cuprite grade B
10		As above with cuprite and malachite grade C
20		Red- brown siltstone with cuprite and malachite grade C
30		Red-brown angular limonitic siltstone cuprite grade B
40		Dark brown angular limonitic siltstone
50		Brown angular fine grained calcareous sediment with 2% limonite
60		As above
70		

DRILL TYPE INGERSOLL ~~RAND~~ COMMENCED 10.5.70 LOGGED BY J.D.B. VERTICAL SCALE 1" = 10'

OPERATOR WATERLANDS COMPLETED 11.5.70 CHECKED BY D.L.W. SHEET 1 OF 3

C00102

DRILL HOLE LOG

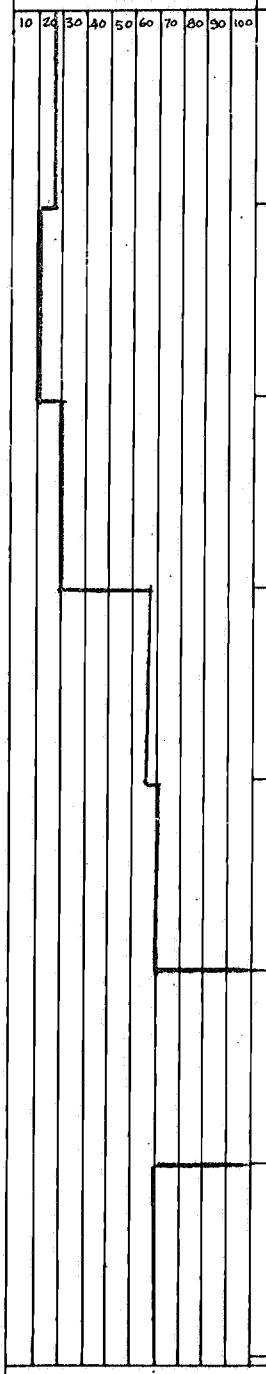
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP — NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. — R.L. 1072'

HOLE NO. 5 — CO-ORDS 2000E 3200N — DEPTH 200'



DEPTH	LOG	DESCRIPTION
		Brown - black angular material limonitic siltstone with 3% clay.
80		As above
90		Quartzite Buff, angular with 1% limonite
100		As above
110		Buff to dark brown quartzite with 10% limonite
120		As above
130		Buff, angular quartzite with 3% limonite
140		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 10.5.70

COMPLETED 11.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 2 OF 3

DRILL HOLE LOG

000103

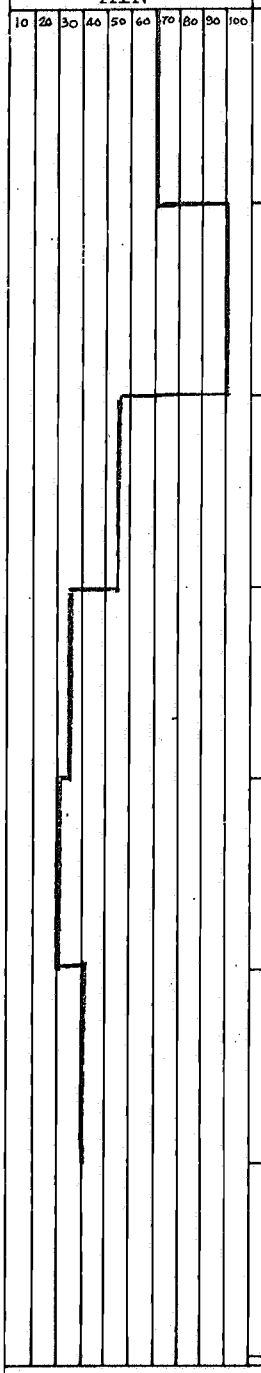
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 1072'

HOLE NO. 5 CO-ORDS 2000E 3200N DEPTH 200'



DEPTH	LOG	DESCRIPTION
		As above
150		As above
160		Siltstone grey-green to brown, angular with 2% limonite native copper grade A
170		Grey, angular fine siltstone with 1% limonite native copper grade A
180		Grey to brown, angular minor chalcocite, pyrite grade B
190		Blue, angular minor chalcocite, chalcopyrite and pyrite grade F
200		Water not reached.

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 10.5.70

COMPLETED 11.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 3

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000104

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP.

NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A.

R.L. 992'

HOLE NO. PDH6 CO-ORD 2000 E 3600 N

DEPTH 120'

36.58

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	5	DOLOMITE	1088	40	25	BLD
5	10		1820	53	32	"
10	15		800	35	35	"
15	20		1110	33	40	"
20	25	SILICIFIED SILTSTONE	1370	25	72	"
25	30		720	28	28	"
30	35		360	18	15	"
35	40		430	19	19	"
40	45		580	28	25	"
45	50		530	35	27	"
50	55		283	40	12	"
55	60		90	25	14	"
60	65		121	28	40	"
65	70		36	20	11	"
70	75		50	25	12	"
75	80		21	13	8	"
80	85		14	8	16	"
85	90		27	31	41	"
90	95		42	43	30	"
95	100		16	20	16	"
100	105		67	25	16	"
105	110		52	25	14	"
110	115		570	35	20	"
115	120		54	28	17	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

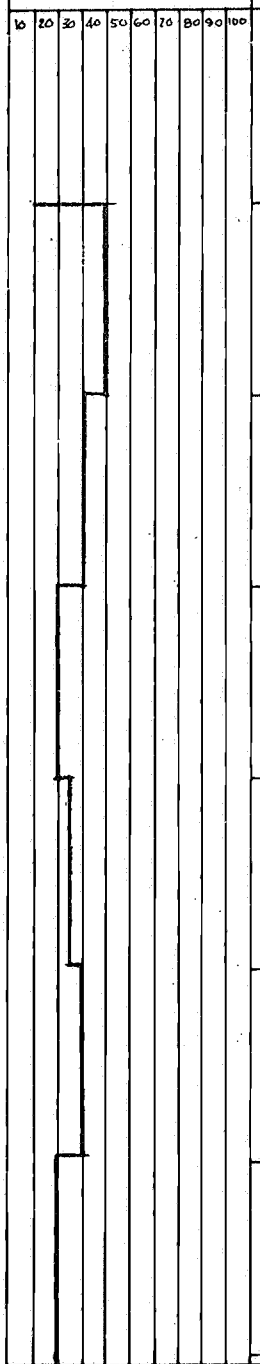
MELBOURNE * SYDNEY * PERTH

000105

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST S.A. R.L. 992'

HOLE NO. 6 CO-ORDS 2000E 3600N DEPTH 120'



LOG

DESCRIPTION

DOLOMITE
Grey to brown, angular
Dolomite with 5% quartz 4% limonite

Red - Brown Angular
20% Clay 5% Limonite 60% Dolomite
15% Siltstone

SILICIFIED SILTSTONE
Grey, Angular
Silicified Siltstone with 2% Limonite

AS ABOVE

AS ABOVE

Grey to Purple, Angular
10% Clay 80% Silicified Siltstone
10% Limonitic Siltstone

Grey to Buff, Angular
85% Silicified Siltstone
5% Clay 10% Limonitic Siltstone

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 11.5.70

COMPLETED 11.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" =10'

SHEET 1 OF 2

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

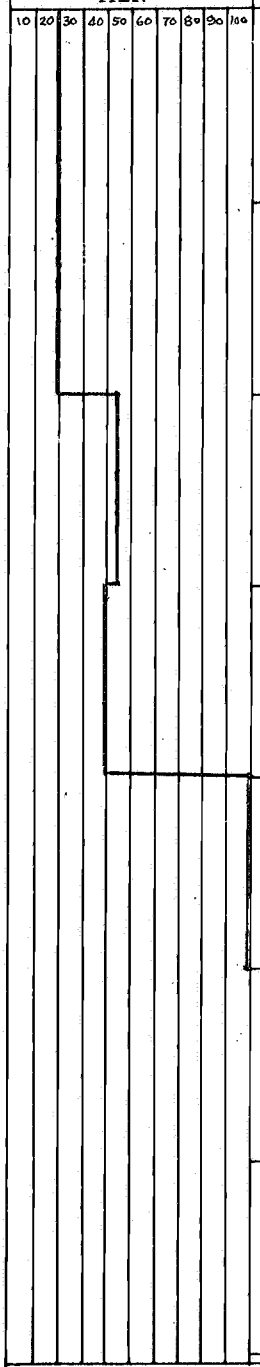
MELBOURNE * SYDNEY * PERTH

000106

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP NUMBER AM194D

LOCATION LORNA DOONE VIA LYNDHURST S.A. R.L. 992'

HOLE NO. 6 CO-ORDS 2000E 3600N DEPTH 120'



DEPTH	LOG	DESCRIPTION
		MUDSTONE Grey, Angular
80		SILTSTONE Grey to brown, Angular 20% Limonite
90		Grey-green to light brown, Angular Siltstone with 10% Limonite
100		As above with 5% Limonite
	Water level	
110		Blue grey to brown Blue calcareous siltstone, brown siltstone
120		Chalcocite and Pyrite - Grade C.
End of hole		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 11.5..70

COMPLETED 11.5.70

LOGGED BY JDB

CHECKED BY DLW

VERTICAL SCALE 1"=10'

SHEET 2 OF 2

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000107

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP.

NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A.

R.L. 997'

HOLE NO. PDH7 CO-ORD. 1500 E 3400 N

DEPTH 200'
60.96

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	5	CONGLOMERATE	1760	24	10	BLD
5	10		2810	36	8	"
10	15		13300	25	Tr	"
15	20		6250	27	"	"
20	25		9000	25	"	"
25	30		10100	30	"	"
30	35		25000	29	6	"
35	40		4300	26	Tr	"
40	45		5460	25	10	"
45	50		14300	24	Tr	"
50	55		18000	29	7	"
55	60		21000	27	Tr	"
60	65		10500	25	"	"
65	70		10000	31	"	"
70	75	15	12500	31	"	"
75	80		9100	31	"	"
80	85		5800	32	7	"
85	90		1220	31	Tr	"
90	95		1200	29	"	"
95	100		2900	29	"	"
100	105		3340	27	6	"
105	110	1.25%	MISSING			
110	115		1500	27	7	BLD
115	120		MISSING			

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000108

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L.

HOLE NO. PDH7 CO-ORD DEPTH

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M			
FROM	TO		Cu	Pb	Zn	Ag
120	125		7260	28	Tr	BLD
125	130		8320	24	6	"
130	135		7100	29	10	"
135	140		4500	30	5	"
140	145		1850	33	9	"
145	150		2530	28	8	"
150	155	SILTSTONE	1620	29	10	"
155	160		1240	22	10	"
160	165		2070	24	8	"
165	170		4080	24	8	"
170	175		5550	42	8	"
175	180		2630	20	16	"
180	185		3320	33	96	"
185	190		3840	27	6	"
190	200		2340	21	4	"
10	200 (FINES)		7860	28	Tr	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

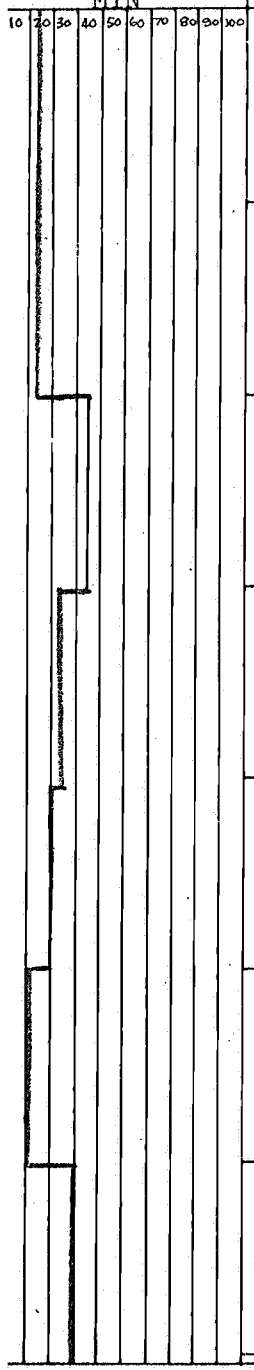
MELBOURNE * SYDNEY * PERTH

000109

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 997'

HOLE NO. 7 CO-ORDS 1500E 3400N DEPTH 200'



DEPTH	LOG	DESCRIPTION
		SILTSTONE white to brown, angular siltstone with 1% limonite.
10		white, weathered siltstone 2% malachite, 2% hematite grade D
20		White, weathered siltstone native copper, 1% malachite, minor hematite - grade D
30		As above
40		White, siltstone·5% malachite, ·5% limonite grade B
50		White to light brown siltstone ·5% limonite malachite 1% grade C
60		As above
70		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 12.5.70

COMPLETED 12.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 1 OF 3

000110

DRILL HOLE LOG

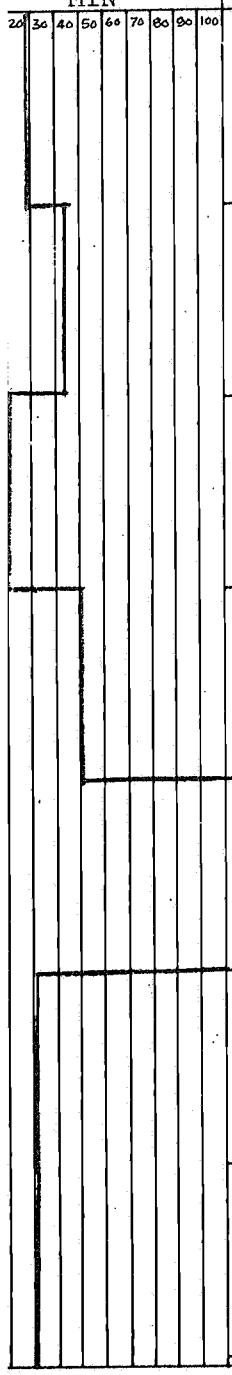
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 997'

HOLE NO. 7 CO-ORDS 1500E 3400N DEPTH 200'



DEPTH	LOG	DESCRIPTION
		White, siltstone with 10% clay, 1% malachite grade C.
80		White, siltstone with 20% clay malachite grade B
90		As above
100		As above Grade A
110		White, 50% siltstone 50% clay, minor malachite grade A
	Water Level	
120		White, 45% siltstone, 50% clay limonite, cuprite and malachite grade E
130		White to brown, siltstone 5% clay limonite, cuprite, minor malachite grade C
140		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 12.5.70

COMPLETED 12.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 2 OF 3

DRILL HOLE LOG

000111

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP.

NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A.

R.L. 997'

HOLE NO. 7 CO-ORDS 1500E 3400N

DEPTH 200'

PENETRATION RATE MIN /FT.	DEPTH	LOG	DESCRIPTION
20 30 40 50 60 70 80 90 100	150		Grey to purple, siltstone 0.5% clay, 5% limonite minor cuprite and malachite grade B
	160		Buff to grey - green 90% grey green siltstone 10% buff mudstone minor pyrite
	170		As above
	180		As above, with pyrite, chalcocite grade A
	190		As above - grade C Caving of hole
	200		As aboye grade D
	END OF HOLE		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 12.5.70

COMPLETED 12.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 3

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000112

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1012'

HOLE NO. PDH 8 CO-ORD 1600 E 3400 N DEPTH 200'

60.96

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M			
FROM	TO		Cu	Pb	Zn	Ag
0	5	SILTSTONE	3050	28	12	BLD
5	10		1440	26	Tr	"
10	15		410	23	"	"
15	20		2300	20	"	"
20	25		748	48	72	"
25	30		1780	19	8	"
30	35		700	29	Tr	"
35	40	CONGLOMERATE	1070	26	"	"
40	45		1620	23	"	"
45	50		930	20	"	"
50	55		1050	30	"	"
55	60		4900	26	"	"
60	65		9200	23	"	"
65	70		8800	16	"	"
70	75		5400	21	"	"
75	80		2750	14	6	"
80	85		2180	16	Tr	"
85	90		2480	22	6	"
90	95		3700	21	Tr	"
95	100		3580	18	"	"
100	105		2610	25	"	"
105	110		2080	15	12	"
110	115		1590	26	8	"

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000113

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L.

HOLE NO. PDH8 CO-ORD DEPTH

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P. P. M			
FROM	TO		Cu	Pb	Zn	Ag
115	120		3250	12	6	BLD
120	125		950	22	Tr	"
125	130		940	17	6	"
130	135		460	22	8	"
135	140		780	41	10	"
40	145		410	41	8	"
145	150		620	20	12	"
150	155		700	23	14	"
155	160		2100	20	30	"
160	165		4430	24	42	"
165	170		1460	19	16	"
170	175	SILTSTONE	2130	24	14	"
175	180		1620	23	12	"
180	185		1670	24	28	"
185	190		1230	15	18	"
190	195		770	26	20	"
195	200		730	24	22	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

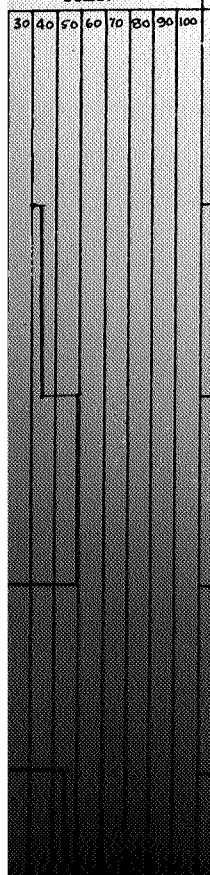
MELBOURNE * SYDNEY * PERTH

000114

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 1012'

HOLE NO. 8 CO-ORDS 1600E 3400N DEPTH 200'



PENETRATION RATE MIN/FT.	DEPTH	LOG	DESCRIPTION
			SILTSTONE
			Buff to purple 50% buff mudstone, 30% white siltstone 15% purple siltstone 5% limonite.
	10		Grey - green mudstone with 1% limonite malachite grade A
	20		As above
	30		Grey to purple 45% grey - green mudstone, 20% white siltstone, 15% limonitic siltstone, 20% clay malachite - grade A
	40		Grey to purple 50% white siltstone, 25% mudstone, 15% limonitic siltstone, 10% clay
			Grey to purple 70% white siltstone, 20% limonitic siltstone, 10% clay malachite grade B
			As above grade C

13.5.70

13.5.70

LOGGED BY J.D.B

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 1 OF 3

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000115

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 1012'

HOLE NO. 8 CO-ORDS 1600E 3400N DEPTH 200'

PENETRATION RATE MIN/FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100			White - well weathered 60% clay, 38% siltstone 1% limonite, 1% malachite grade C
	80		As above
	90		As above - grade B
	100		As above - grade A
	110		White siltstone with 40% clay 0.5% limonite malachite and cuprite - grade B
	120		As above
	130		Light brown 30% clay, 70% siltstone with limonitic cement malachite and cuprite grade A
	140		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 13.5.70

COMPLETED 13.5.70

LOGGED BY J.D.B

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 2 OF 3

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000116

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORPORATION NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 1012'

HOLE NO. 8 CO-ORDS 1600E 3400N DEPTH 200'

PENETRATION RATE MIN/FT.	DEPTH	LOG	DESCRIPTION
20 30 40 50 60 70 80 90 100			As above
	150		LIMONITIC SILTSTONE Brown to purple 20% clay 80% limonitic siltstone
	160	Water Bored	White to purple 60% white siltstone 39% limonitic siltstone 1% grey mudstone malachite grade A
	170		SILTSTONE Blue to grey 10% limonitic siltstone 90% blue siltstone, minor pyrite, malachite, chalcocite - grade C
	180		Blue - grey siltstone pyrite, chalcocite grade D
	190		As above
	200		End of hole

RILL TYPE INGERSOLL RAND

PERATOR WATERLANDS

COMMENCED 13.5.70

COMPLETED 13.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 3

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000117

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP.

NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A.

R.L. 992'

HOLE NO. PDH 11 CO-ORD 2600E 3200N

DEPTH 250'

76.20

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	5	SILTSTONE	68	21	24	BLD
5	10		86	35	36	"
10	15		60	28	34	"
15	20		47	21	48	"
20	25		64	30	54	"
25	30		68	19	40	"
30	35		67	27	34	"
35	40		57	27	36	"
40	45		71	30	52	"
45	50		66	26	24	"
50	55		60	26	34	"
55	60		35	23	16	"
60	65		28	23	28	"
65	70		49	41	28	"
70	75	SHALE	63	31	18	"
75	80		47	44	26	"
80	85		143	38	32	"
85	90		127	36	20	"
90	95		70	35	40	"
95	100		30	37	50	"

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

0.00118

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L.

HOLE NO.PDH 11 CO-ORD DEPTH

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
100	105		22	49	42	BLD
105	110		40	37	36	"
110	115		38	34	34	"
115	120		59	44	38	"
120	125		52	39	44	"
125	130		78	45	46	"
130	135		70	32	88	"
135	140		88	43	158	"
140	145		73	230	248	"
145	150		72	150	331	"
150	155		78	35	74	"
155	160		108	33	46	"
160	165		97	24	44	"
165	170		99	43	36	"
170	175		71	38	30	"
175	180		113	53	50	"
180	185		63	36	28	"
185	190		69	44	32	"
190	195		57	24	38	"
195	200		82	45	24	"

DRILL HOLE ASSAY RESULTS

000119

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L.

HOLE NO. PDH 11 CO-ORD DEPTH

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
200	205		80	31	20	BLD
205	210		72	37	34	"
210	215		78	33	20	"
215	220		83	43	18	"
220	225		17	30	10	"
225	230		17	35	14	"
230	235		13	35	32	"
235	240		11	29	12	"
240	245		11	28	22	"
245	250		37	39	20	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

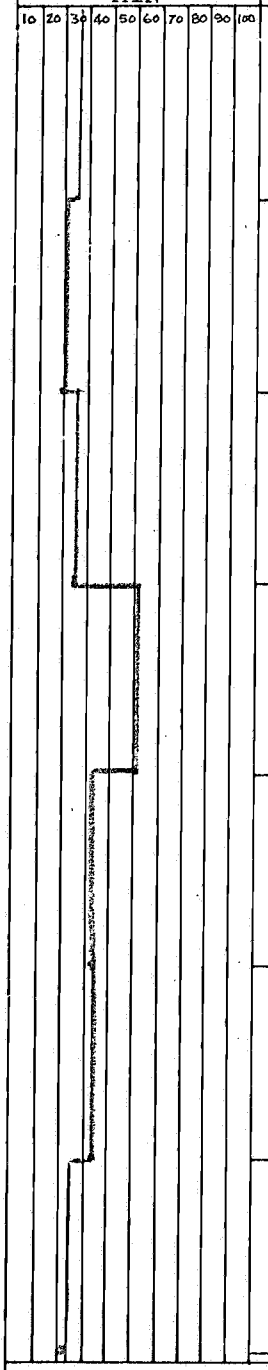
MELBOURNE * SYDNEY * PERTH

000120

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM194D

LOCATION LORNA DOONE VIA LYND HURST S.A. R.L. 992'

HOLE NO. 11 CO-ORDS 3200N 2600E DEPTH 250'



DEPTH	LOG	DESCRIPTION
		SHALE finely laminated shale with 1% limonite and native copper grade B
10		Dark grey hornfelsic material with 1% limonite and native copper grade C
20		Grey shale 5% limonite and native copper grade C
30		As above
40		As above
50		grey to light brown shale with native copper and cuprite Grade C
60		dark grey to buff shale with cuprite Grade C
70		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 14.5.70

COMPLETED 19.5.70

LOGGED BY J.D.B.

CHECKED BY R.C.G.

VERTICAL SCALE 1"=10'

SHEET 1 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000121

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM194 D

LOCATION LORNA DOONE VIA LYND HURST R.L. 992'

HOLE NO. 11 CO-ORDS 3200N 2600E DEPTH 250'

PENETRATION RATE /FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100			BLACK SHALE native copper and cuprite Grade C
	80		As above
	90		Black shale with 5% pyrite
	100		Grey black shale with 1% pyrite
	110		Black shale with 1% pyrite
	120		As above
	130	water	Black shale with 5% pyrite
	140		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 14.5.70

COMPLETED 19.5.70

LOGGED BY J.D.B.

CHECKED BY R.C.G.

VERTICAL SCALE 1"=10'

SHEET 2 OF 4

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000122

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM194D

LOCATION LORNA DOONE VIA LYND HURST S.A. R.L. 992'

HOLE NO. 11 CO-ORDS 3200N 2600E DEPTH 250'

PENETRATION RATE MIN/FT. (10 20 30 40 50 60 70 80 90 100)	DEPTH	LOG	DESCRIPTION
			As above
	150		As above
	160		Black shale 3% pyrite
	170		As above
	180		As above
	190		As above
	200		Black shale with 2% pyrite.
	210		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 14.5.70

COMPLETED 19.5.70

LOGGED BY J.D.B.

CHECKED BY R.C.G.

VERTICAL SCALE 1"=10'

SHEET 3 OF 4

000123

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194 D

LOCATION LORNA DOONE VIA LYND HURST S.A. R.L. 992'

HOLE NO. 11 CO-ORDS 3200N 2600E DEPTH 250'

PENETRATION RATE MIN /FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100			Black shale with 2% pyrite
	220		As above
	230		As above
	240		As above
	250 end of hole		As above

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 14.5.70

COMPLETED 19.5.70

LOGGED BY J.D.B.

CHECKED BY R.C.G.

VERTICAL SCALE 1"=10'

SHEET 4 OF 4

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000124

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 995'

HOLE NO. PDH 12 CO-ORD 2300E 4000N DEPTH 150'

45.72

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	5	SILTSTONE	105	24	20	BLD
5	10		122	36	18	"
10	15		108	31	18	"
15	20		263	31	30	"
20	25		515	34	30	"
25	30		558	29	64	"
30	35	INTERBEDDED	810	28	48	"
35	40	DOLOMITE AND	910	35	43	"
40	45	SILTSTONE	1002	37	24	"
45	50		920	26	22	"
50	55		630	36	14	"
55	60		770	29	38	"
60	65		440	32	16	"
65	70		307	30	8	"
70	75		143	36	19	"
75	80		78	43	9	"
80	85	DOLOMITE	97	47	6	"
85	90		28	36	10	"
90	95		91	57	180	"
95	100		47	45	6	"
100	105		41	40	12	"
105	110		42	34	10	"
110	115		30	35	8	"
115	120		180	35	6	"
120	125		96	32	6	"
125	130		141	38	8	"

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000125

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L.

HOLE NO. PDH 12 CO-ORDS. DEPTH

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
130	135		195	34	6	BLD
135	140		90	45	10	"
140	145		117	36	10	"
145	150		100	20	8	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000126

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 995'

HOLE NO. 12 CO-ORDS 4000N 2300E DEPTH 150'

PENETRATION RATE MIN/FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100	10		LIMONITIC SILTSTONE Light to red - brown angular fragments 60% limonitic siltstone 40% light brown siltstone. As above
	20		Red brown limonitic siltstone with cuprite grade C
	30		INTERBEDDED DOLOMITE AND LIMONITIC SILTSTONE Grey to red brown 25% dolomite 75% limonitic siltstone.
	40		Red brown material 15% light brown dolomite 85% limonitic siltstone
	50		Brown to red brown 60% light brown dolomite 40% limonitic siltstone
	60		Brown to red brown 90% brown dolomite 10% limonitic siltstone
	70		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 15.5.70

COMPLETED 15.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 1 OF 3

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

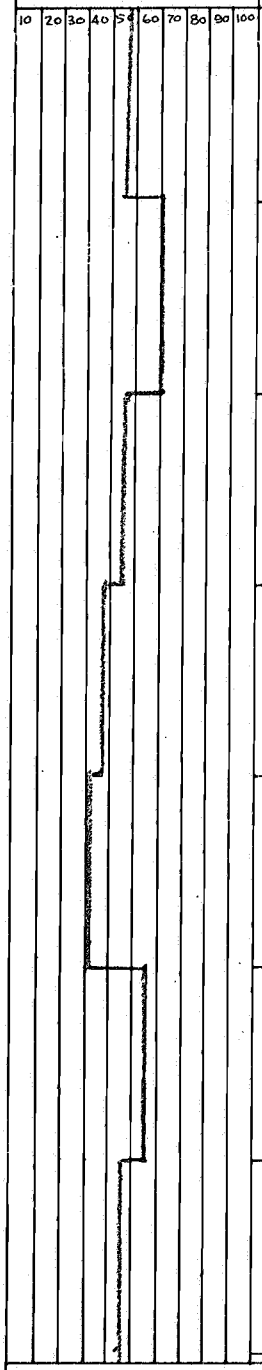
MELBOURNE * SYDNEY * PERTH

000127

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 995'

HOLE NO. 12 CO-ORDS 4000N 2300E DEPTH 150'



DEPTH	LOG	DESCRIPTION
		Grey dolomite with 5% limonitic sediment
80		DOLOMITE Grey dolomite
90		Grey to green dolomite
100		As above
110		As above minor disseminated pyrite
120		As above
		Water Level
130		As above
140		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 15.5.70

COMPLETED 15.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 2 OF 3

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000128

PROJECT PERCUSSION DRILLING - CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYNDHURST. S.A. R.L. 995'

HOLE NO. 12 CO-ORDS 4000N 2300E DEPTH 150'

PENETRATION RATE MIN/FT.	DEPTH	LOG	DESCRIPTION
10 20 30 40 50 60 70 80 90 100			As above
	150		
	End of hole		

DRILL TYPE INGERSOLL ~~RAND~~

OPERATOR WATERLANDS

COMMENCED 15.5.70

COMPLETED 15.5.70

LOGGED BY J.D.B.

CHECKED BY D.L.W.

VERTICAL SCALE 1" = 10'

SHEET 3 OF 3

DRILL HOLE ASSAY RESULTS

000129

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 986'

HOLE NO. PDH 13 CO-ORDS. 2500E 4000N DEPTH 140'

42.67

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	5	INTERBEDDED SILTSTONE	630	38	28	BLD
5	10	AND DOLOMITE	168	36	28	"
10	15		38	21	20	"
15	20		70	23	26	"
20	25		42	22	41	"
25	30		68	47	86	"
30	35		58	29	90	"
35	40		80	31	96	"
40	45		70	30	96	"
45	50		40	10	34	"
50	55		102	25	70	"
55	60		58	21	40	"
60	65		41	19	32	"
65	70		50	37	32	"
70	75		49	32	40	"
75	80		59	26	44	"
80	85		65	12	74	"
85	90		60	40	62	"
90	95		76	26	52	"
95	100		63	22	46	"
100	105		63	33	60	"
105	110		95	40	79	"
110	115		62	34	62	"
115	120		81	33	397	"
120	125		108	25	112	"
125	130		300	36	102	"
130	135		690	28	30	"
135	140		312	31	20	"

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

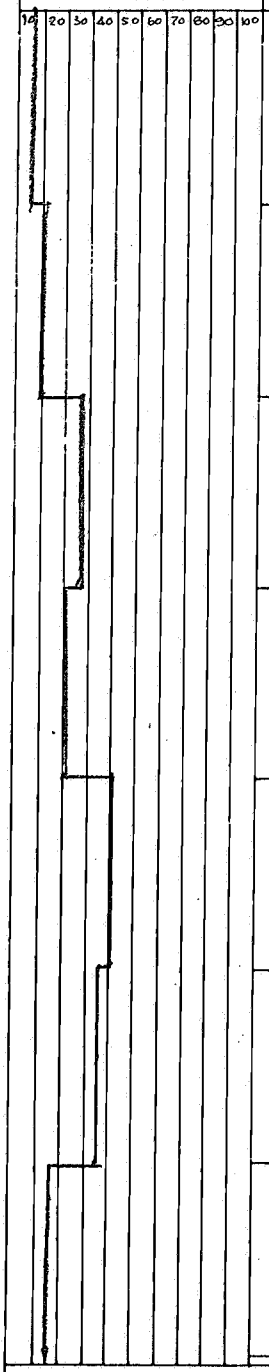
MELBOURNE * SYDNEY * PERTH

000130

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE VIA LYND HURST R.L. 986'

HOLE NO. 13 CO-ORDS 4000N 2500 E DEPTH 140'



DEPTH	DESCRIPTION
	INTERBEDDED SILTSTONE AND DOLOMITE Red-brown to grey, angular material 80% Limonitic siltstone 20 % Dolomitic shale
10	Light brown 10% limonitic siltstone, 90% dolomitic shale
20	Light brown 10% limonitic siltstone 85% dolomitic shale 5% quartz
30	Red-brown 85% limonitic siltstone 15% dolomite
40	As above
50	Red-brown to grey 60% limonite siltstone 40% dolomite
60	Light brown 90% brown to grey dolomite 10% limonitic siltstone

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 16.5.70

COMPLETED 16.5.70

LOGGED BY J.D.B.

CHECKED BY R.C.G.

VERTICAL SCALE 1"=10'

SHEET 1 OF 2

000131

DRILL HOLE LOG

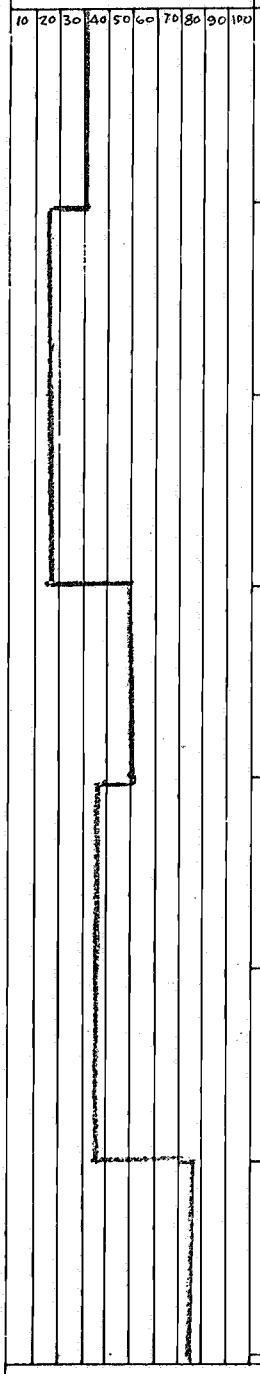
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 196D

LOCATION LORNA DOONE VIA LYND HURST S.A. R.L. 986'

HOLE NO. 13 CO-ORDS 4000 N 2500 E DEPTH 140'



DEPTH	LOG	DESCRIPTION
		Red brown to light brown 70% Dolomite 30 % Limonitic siltstone
80		As above
90		Red-brown 70% Limonitic siltstone 30% Dolomite
100		Red brown limonitic siltstone (ironstone) with 5% dolomite
110	water level	Red- Brown to light brown 70% limonitic siltstone 30% dolomite
120		Red brown to light brown 50% ironstone and limonitic siltstone 50% dolomite
130		As above
140	end of hole	

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 16.5.70

COMPLETED 16.5.70

LOGGED BY J.D.B.

CHECKED BY R.C.G

VERTICAL SCALE 1" = 10'

SHEET 2 OF 2

DRILL HOLE ASSAY RESULTS

AUSTIN-ANDERSON (AUSTRALIA) PTY. LTD.
MELBOURNE * SYDNEY * PERTH

000132

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194D

LOCATION LORNA DOONE, VIA LYNDHURST, S.A. R.L. 1032'

HOLE NO. PDH 14 CO-ORD. 1344E 4800N DEPTH 100'

30.4.8

DEPTH INTERVAL		ROCK TYPE	ASSAY RESULTS P.P.M.			
FROM	TO		Cu	Pb	Zn	Ag
0	5	DOLOMITIC CONGLOMERATE	31	32	14	BLD
5	10		22	33	12	"
10	15		17	27	12	"
15	20		17	31	14	"
20	25		11	26	12	"
25	30		20	23	16	"
30	35		18	27	10	"
35	40		16	26	14	"
40	45		24	28	10	"
45	50		23	23	8	"
50	55		44	18	10	"
55	60		19	16	20	"
60	65		12	32	12	"
65	70		20	33	10	"
70	75		32	33	9	"
75	80		30	30	13	"
80	85		21	30	14	"
85	90		24	29	12	"
90	95		40	36	10	"
95	100		27	16	12	"

DRILL HOLE LOG

000133

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP.

NUMBER AM194 D

LOCATION LORNA DOONE VIA LYND HURST S.A.

R.L. 1032'

HOLE NO. 14 CO-ORDS 4800N 1344E

DEPTH 100'

PENETRATION RATE MIN /FT.	DEPTH	LOG	DESCRIPTION
0 30 40 50 60 70 80 90 100	10		DOLOMITE Grey dolomite with 1% limonite
	20		As above
	30		As above
	40		Grey Dolomite with 1% Quartz
	50		Dolomite with quartz view 60% Quartz 40% Brown dolomite
	60		Brown to grey dolomite
	70		Brown dolomitic siltstone

DRILL TYPE INGERSOLL RAND WATERLANDS

OPERATOR

COMMENCED 17.5.70

COMPLETED 19.5.70

LOGGED BY J.D.B.

CHECKED BY R.C.G

VERTICAL SCALE 1"=10'

SHEET 1 OF 2

DRILL HOLE LOG

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

MELBOURNE * SYDNEY * PERTH

000134

PROJECT PERCUSSION DRILLING CYPRUS MINES CORP. NUMBER AM 194 D

LOCATION LORNA DOONE VIA LYND HURST S.A R.L. 1032'

HOLE NO. 14 CO-ORDS 4800N 1344E DEPTH 100'

PENETRATION RATE MIN /FT.	DEPTH	LOG	DESCRIPTION
20 30 40 50 60 70 80 90 100			Brown Dolomitic Siltstone
	80		60% Grey Dolomite 38% brown dolomitic siltstone 2% limonite
	90		85% grey dolomite 15% brown dolomite 5% limonite
	100		Water not reached
	end of hole		

DRILL TYPE INGERSOLL RAND

OPERATOR WATERLANDS

COMMENCED 17.5.70

COMPLETED 19.5.70

LOGGED BY J.D.B

CHECKED BY R.C.G.

VERTICAL SCALE 1"=10'

SHEET 2 OF 2

APPENDIX 8.91

WATERLANDS ROCK AND WELL DRILLERS PTY. LTD. DRILL-HOLES

APPENDIX 8.92

SOUTH AUSTRALIAN MINES DEPARTMENT DRILL-HOLES

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LW 33

000137

GEOCHEMICAL EXPLORATION SECTION
LOG OF WAGON DRILL HOLE NO. LW33

Project: Lyndhurst

D.M.1461/65

Serial No. 1108/68

Collar Coords. 42500N 37800E Grid LYNDHURST

Angle -75° Bearing 180° Depth 102'

Date Bore Commenced 7.5.68 Completed 7.5.68 Driller K. Merrin

Bore Logged by P.J. Binks On 8.5.68 Hirer D.M.

OBJECT: To test geochemical Cu anomaly.

RESULTS Hole Abandoned at 102' due to collapse of hole and trapping of hammer. No Cu mineralisation seen.

LOG Comprises Geological log

Recovery in lbs.

A.A.S. assay of -80 mesh fraction

FROM	TO	DESCRIPTION SUMMARY LOG
0	42'	Pale-brown and red-brown, finely laminated silty shale and siltstone with cross-cutting narrow veins containing brecciated quartz cemented with limonite. Small vughs lined with calcite. Some pyrolusite up to 20.30%
42	72	Off-white fine-grained sandstone with pale-brown siltstone 10 - 20% vein (material, quartz, haematite and calcite)
72	102	Grey, finely laminated siltstone with 5% vein material - quartz, ~~hematite~~ haematite, calcite.

Hole No.	From	To	Recovery in lbs.	Assay of -80 Fraction Cu ppm	Assay of Bulk Sample
LW33	0	6'	30	200	
	6	12	30	1,500	
	12	18	65	1,000	
	18	24	65	1,250	
	24	30	65	1,050	
	30	36	75	1,700	
	36	42	78	1,400	
	42	48	75	1,850	
	48	54	75	2,000	
	54	60	73	540	
	60	66	65	700	
	66	72	65	820	
	72	78	75	650	
	78	84	75	1,800	
	84	90	65	1,800	
	90	96	45	800	
	96	102	20	720	

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LW34

000139

GEOCHEMICAL EXPLORATION SECTION
LOG OF WAGON DRILL HOLE NO. LW34

Project: LYNDHURST

D.M.14614/65
Serial No. 1109/68
Grid LYNDHURST

Collar Coords. 42700N, 37800E
Angle Vertical Bearing Depth 144'
Date Bore Commenced 8.5.68 Completed 9.5.68 Driller K. Merrin
Bore Logged by P.J. Binks On 9.5.68 Hirer D.M.

OBJECT: To test for Cu mineralisation in crush zone and to check SP & I.P. anomaly.

RESULTS Hole abandoned at 144' due to cave in between 140-144' trapped hammer. No visible Cu mineralisation intersected.

LOG Comprises

Geological Log
Recovery in Lbs
A.A.S. assay of -80 mesh fraction

FROM	TO	DESCRIPTION SUMMARY LOG
0	60'	Grey to brown, finely laminated shale, (probably Tindelpina Shale Member) with cross cutting veins of quartz, hematite and calcite.
60	138	Pale-brown to red-brown siltstone and fine grained sandstone with cross-cutting veins of quartz, hematite and calcite.
138	144	Pale-grey siltstone with cross-cutting veins of quartz and hematite.

Hole No.	DEPTH From	To	RECOVERY in lbs.	Assay of -80 fraction Copper ppm	ASSAY of Bulk Sample
LW34	0	6'	65	280	
	6	12	125	250	
	12	18	70	360	
	18	24	75	520	
	24	30	71	480	
	30	36	70	510	
	36	42	75	450	
	42	48	70	420	
	48	54	76	390	
	54	60	75	500	
	60	66	75	360	
	66	72	76	370	
	72	78	71	290	
	78	84	75	130	
	84	90	75	95	
	90	96	73	120	
	96	102	75	70	
	102	108	75	160	
	108	114	80	170	
	114	120	83	100	
	120	126	80	410	
	126	132	78	880	
	132	138	75	530	
	138	144	40	520	

DEPARTMENT OF MINES
SOUTH AUSTRALIA

LW35

000141

GEOCHEMICAL EXPLORATION SECTION
LOG OF WAGON DRILL HOLE NO.LW35

Project LYNDHURST

D.M. 1461A/65

Serial No. 1110/68

Collar Coords.43100N,36500E

Grid LYNDHURST

Angle Vert. Bearing - Depth 150'

Date Bore Commenced 10.5.68 Completed 10.5.68 Driller K.MERRIN

Bore Logged by P.J.Binks On 11.5.68 Hirer D.M.

OBJECT: To test geochemical Cu anomaly in Yudnamutana Siltstone.

RESULTS No visible Cu mineralization intersected.

LOG Comprises Geological Log.

Recovery in lbs.

A.A.S. assay of -80 mesh fraction

FROM	TO	DESCRIPTION SUMMARY LOG
0'	150'	Pale-grey, well bedded, fine-grained siltstone and fine-grained sandstone with beds of grey to brown coarser grained sandstone. Few narrow (0.2-0.5") cross-cutting veins of quartz and hematite. Iron-staining on bedding planes and joints.

HOLE NO.	FROM	TO	RECOVERY IN LBS	ASSAY OF -80 fraction Cu ppm	ASSAY OF BULK SAMPLES
LW35	0'	6'	45	~~-~~	
	6	12	18	320	
	12	18	70	360	
	18	24	60	450	
	24	30	83	370	
	30	36	86	320	
	36	42	92	370	
	42	48	86	600	
	48	54	90	970	
	54	60	80	440	
	60	66	92	860	
	66	72	82	450	
	72	78	80	300	
	78	84	87	410	
	84	90	87	290	
	90	96	90	240	
	96	102	85	280	
	102	108	83	300	
	108	114	90	310	
	114	120	80	280	
	120	126	82	330	
	126	132	85	390	
	132	138	75	340	
	138	144	81	360	
	144	150	70	460	

LW36

000143

GEOCHEMICAL EXPLORATION SECTION
LOG OF WAGON DRILL HOLE NO. LW36

Project LYNDHURST

D.M. 1461A/65

Serial No. 1111/68

Collar Coords 43300N, 36740E

Grid. LYNDHURST

Angle Vert Bearing - Depth 70'

Date Bore Commenced 10.5.68 Completed 11.5.68 Driller K.MERRIN

Bore Logged by P.J.Binks On 11.5.68 Hirer. D.M.

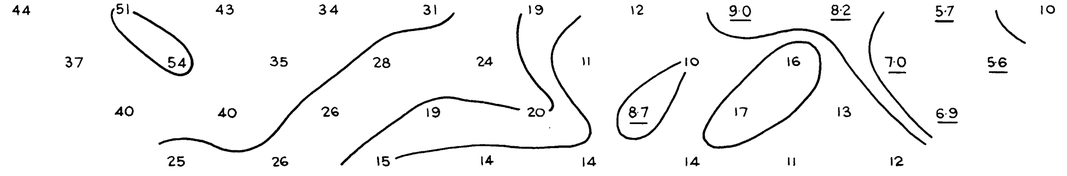
OBJECT: To test for Cu mineralization in gossanous crush zone.

RESULTS Hole abandoned at 70' due to trapping of hammer between 65-69'. No visible Cu mineralization intersected.

LOG Comprises Geological log
Recovery in lbs
A.A.S. assay of -80 mesh fraction

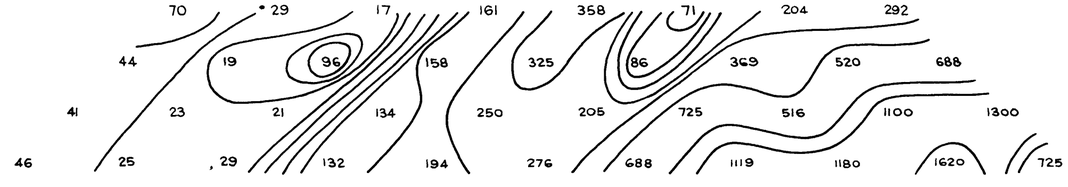
From	To	DESCRIPTION SUMMARY LOG
0	60'	Grey to pale-brown siltstone and fine-grained sandstone with interbeds of pale-brown coarse grained sandstone. Few thin veins of quartz and hematite.
60	70	Pale brown medium-grained sandstone with cross-cutting quartz, hematite veins.

HOLE NO.	DEPTH FROM	TO	RECOVERY IN LBS	ASSAY OF -80 FRACTION Oz/Ton	ASSAY OF BULK SAMPLE
LW36	0	6	45	120	
	6	12	60	210	
	12	18	75	850	
	18	24	80	1,050	
	24	30	98	590	
	30	36	85	370	
	36	42	90	620	
	42	48	80	780	
	48	54	90	850	
	54	60	80	510	
	60	66	80	690	
	66	72	41	740	

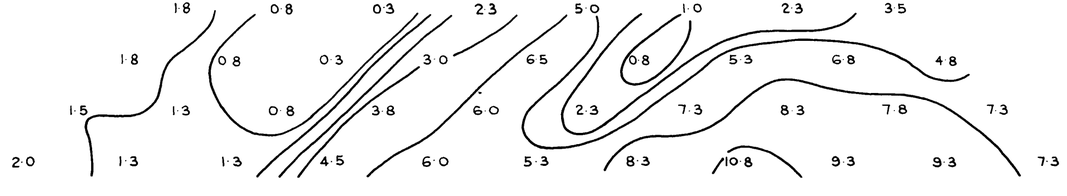


Pa
2π

West 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 East



M.F.

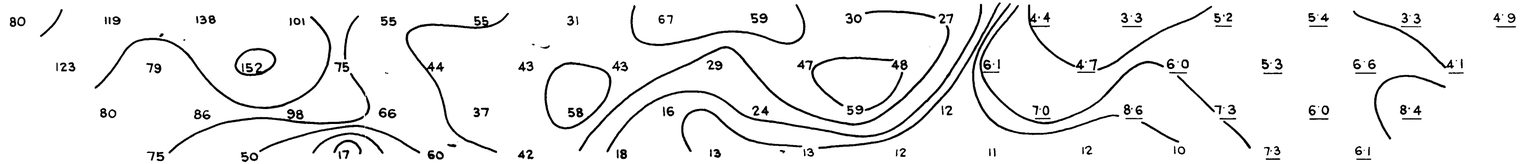


F.E.

McPHAR GEOPHYSICS PTY. LTD.
I. P. SURVEY

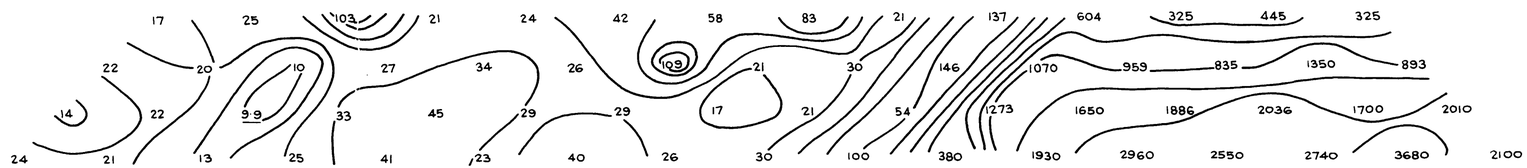
CYPRUS MINES CORPORATION	
CLIENT: AUSTIN ANDERSON	
Area:	LORNA DOONE
Line:	1,200 N
Spread:	200 FT.
Freq:	2·5 × 0·3 CPS
Electrodes:	SINGLE FOIL ELECTRODES
Plotted by:	K. SKINNER
Checked by:	L. B. ARNDT
Date:	2 - 5 - 70

ENV 1193 — 16



Pa
2π

West 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



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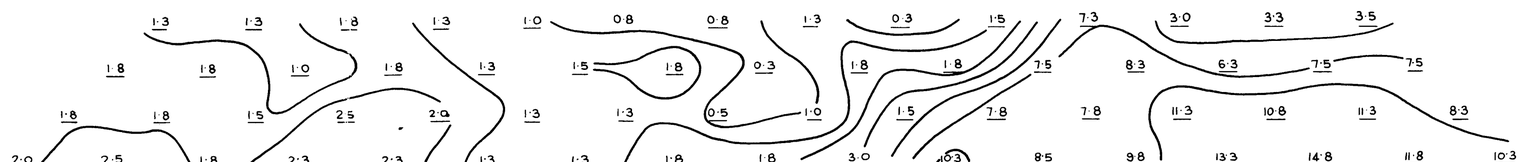
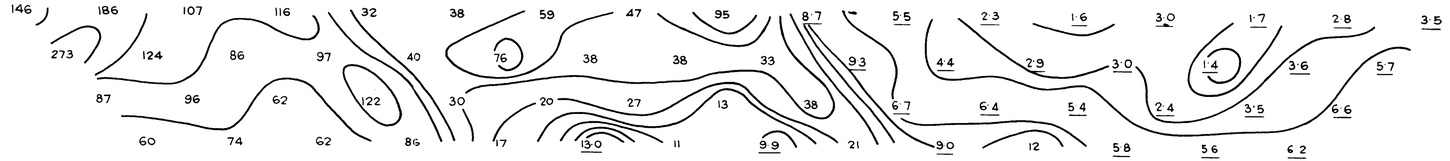


F.E.

McPHAR GEOPHYSICS PTY. LTD.
I. P. SURVEY

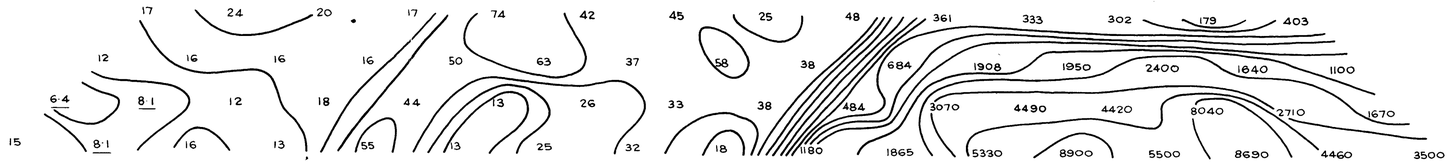
CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	1,600 N
Spread:	200 FT.
Freq:	2·5 × 0·3 C.P.S.
Electrodes:	SINGLE ALFOIL
Plotted by:	O. J. F. KELLY
Checked by:	L. B. ARNDT
Date:	3-5-70

ENV 1193-17



Pa
2π

West 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



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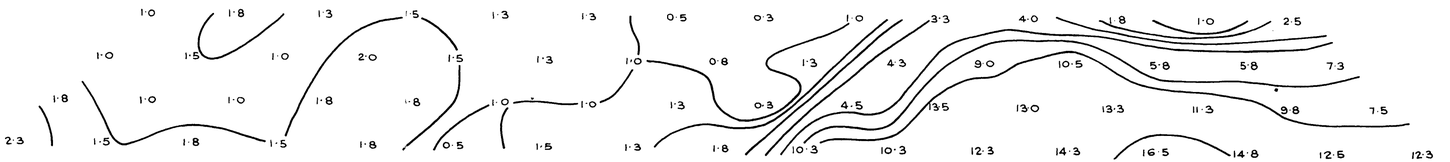
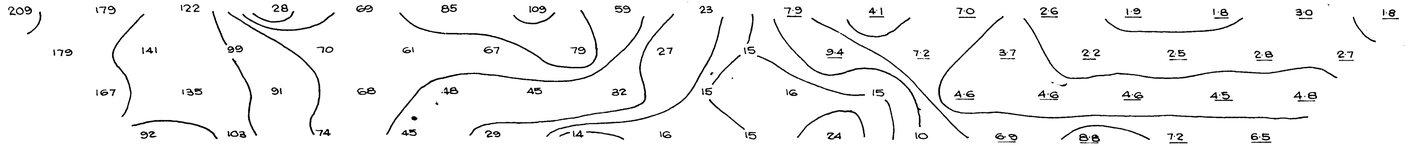


F.E.

McPHAR GEOPHYSICS PTY. LTD.
I. P. SURVEY

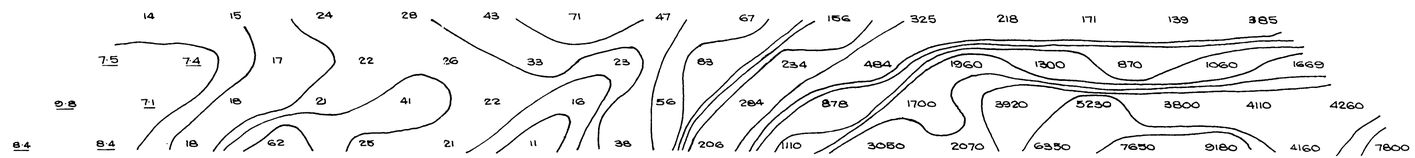
CYPRUS MINES CORPORATION	
CLIENT: AUSTIN ANDERSON	
Area:	LORNE DOONE
Line:	2,000 N
Spread:	200'
Freq:	2·5 x 0·3 C.P.S.
Electrodes:	SINGLE FOIL ELECTRODE
Plotted by:	K. SKINNER
Checked by:	L. B. ARNDT
Date:	2-5-70

ENV 1193-18



Pa / 2π

West 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



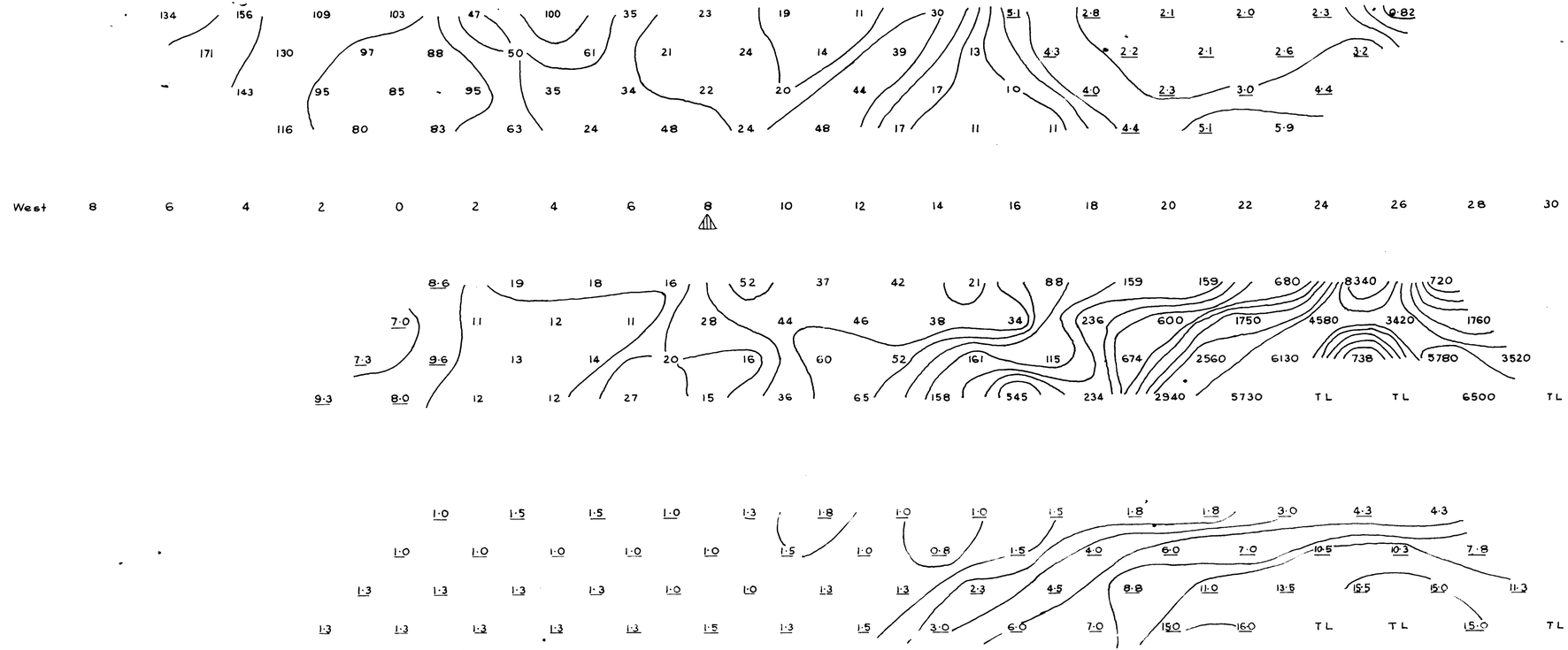
M.F.

F.E.

McPHAR GEOPHYSICS PTY LTD.
I.P. SURVEY

CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	2,400 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE FOIL ELERODES
Plotted by:	K. SKINNER
Checked by:	L.B. ARNDT
Date:	26-4-70

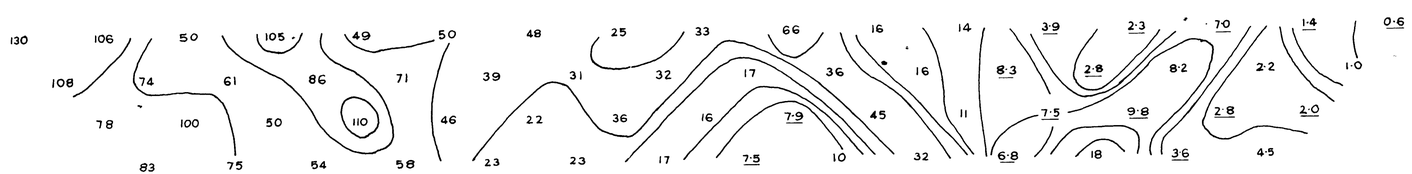
ENV 1193 -19



McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

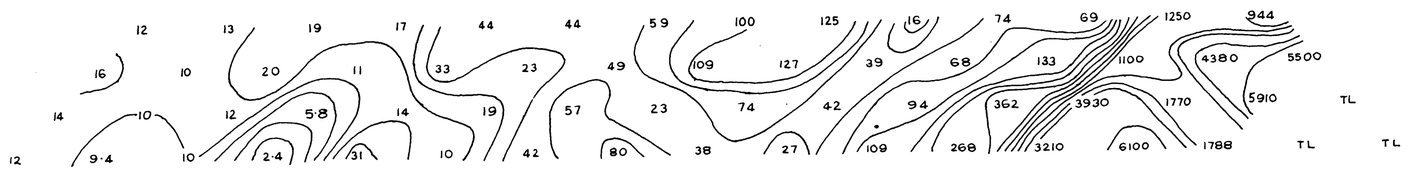
CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	2,800 N
Spread:	200 FT.
Freq:	2·5 × 0·3 CPS
Electrodes:	SINGLE ALFOIL
Plotted by:	D J F KELLY
Checked by:	L B ARNDT
Date:	26-4-70

ENV 1193-20

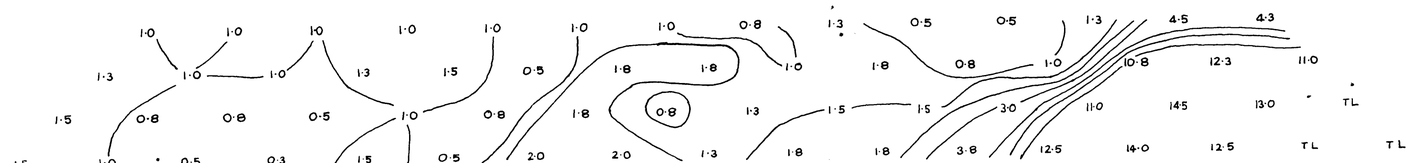


Pa
2π

West 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



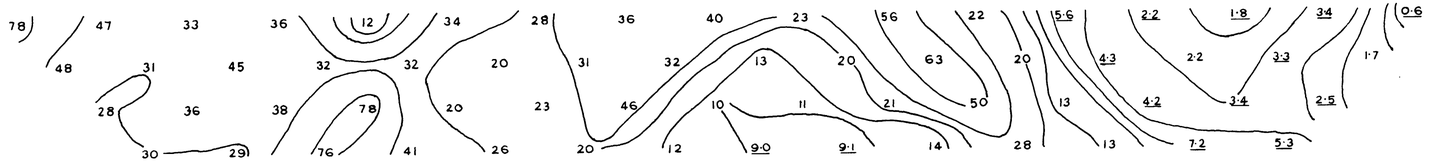
M.F.



F.E.

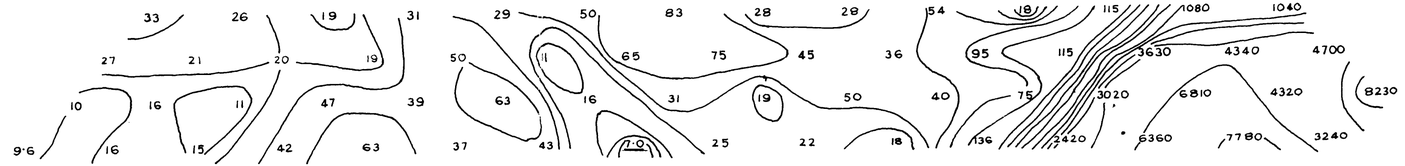
CYPRUS MINES CORPORATION	
CLIENT: AUSTIN ANDERSON	
Area:	LORNA DOONE
Line:	3,200 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE FOIL
Plotted by:	K SKINNER
Checked by:	L B ARNDT
Date:	27-4-70

EM 1193-21

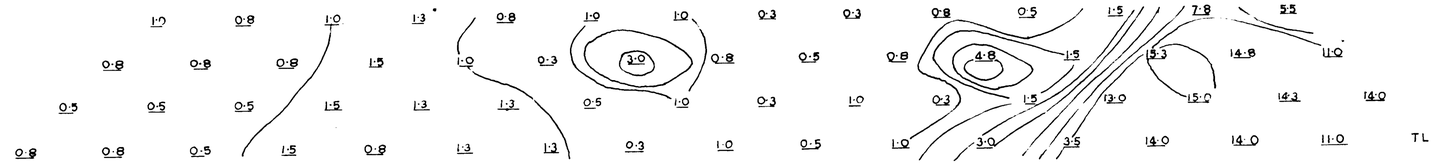


Pa
2π

West 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



M.F.



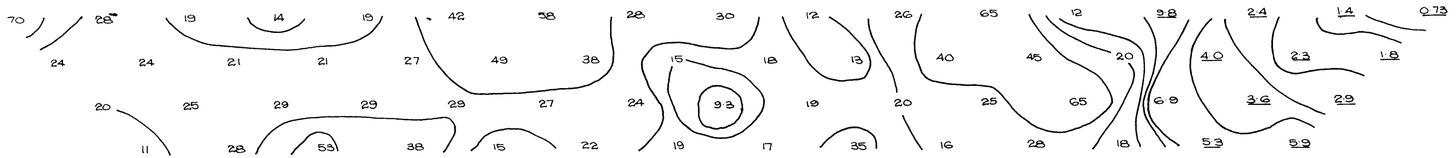
F.E.

TL

McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

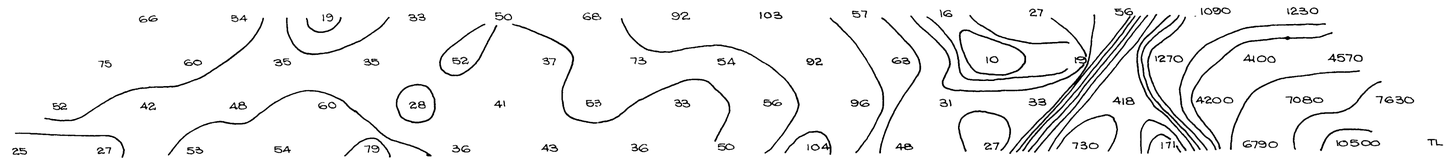
CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	3,600 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE ALFOIL
Plotted by:	D J F KELLY
Checked by:	L B ARNDT
Date:	27 - 4 - 70

ENV 1193-22

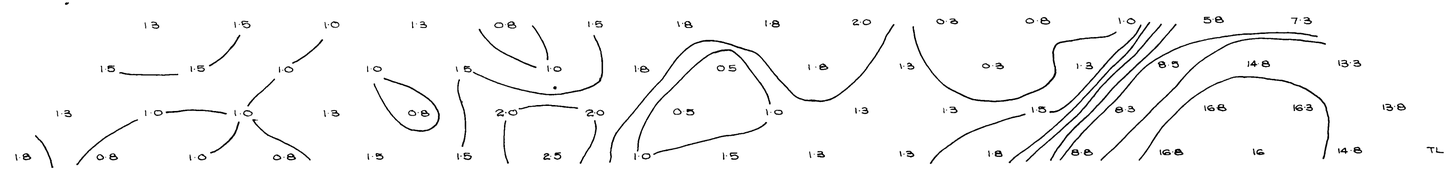


Pa
2π

8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36



M.F.

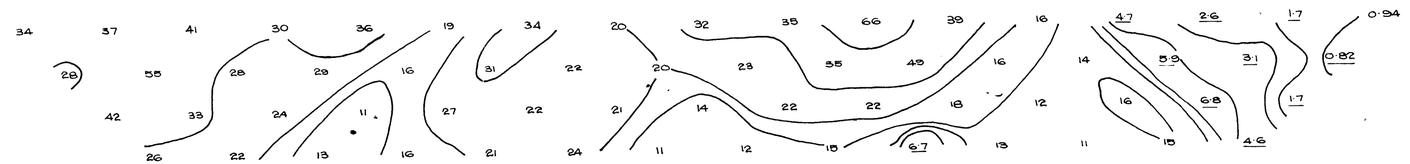


F.E.

McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

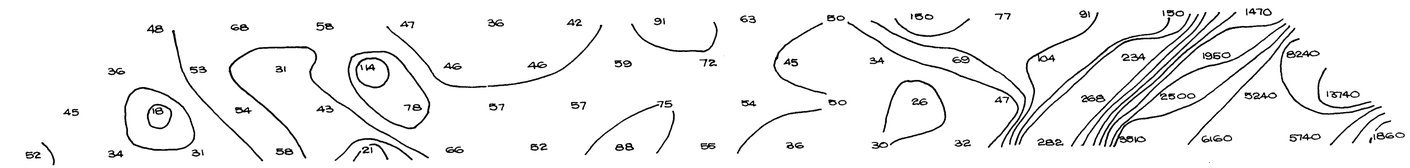
CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	4,000 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE FOIL ELECTRODES
Plotted by:	K SKINNER
Checked by:	L B ARNDT
Date:	28-4-70

EIV 1193-23

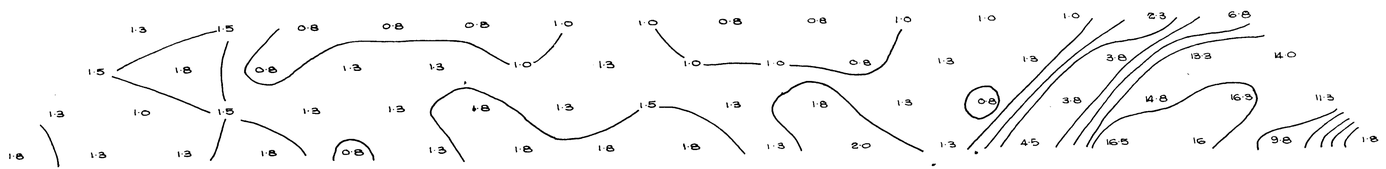


Pa
2π

West 8 6 4 2 0 2 4 6 8 9 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



M.F.

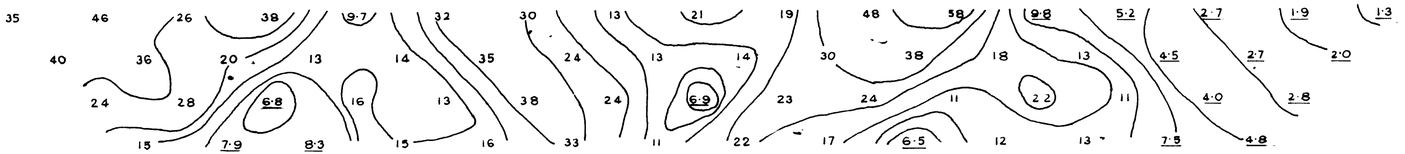


F.E.

McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

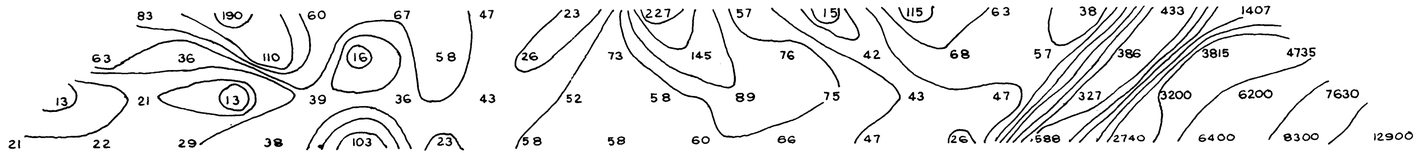
CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	4,400 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE FOIL ELECTRODES
Plotted by:	K. SKINNER
Checked by:	LB ARNDT
Date:	1-5-70

ENV 1193 – 24

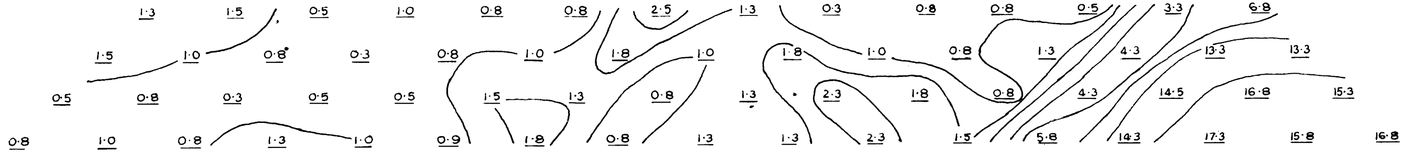


$\frac{Pa}{2\pi}$

West 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



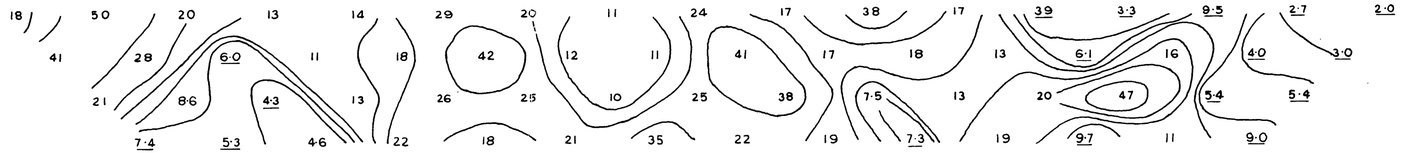
M.F.



F.E.

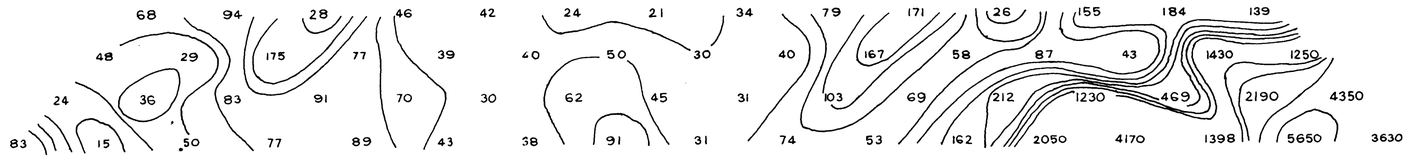
McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	4,800 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE ALFOIL
Plotted by:	DJF KELLY
Checked by:	LB ARNDT
Date:	29-4-70



Pa / 2π

West 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



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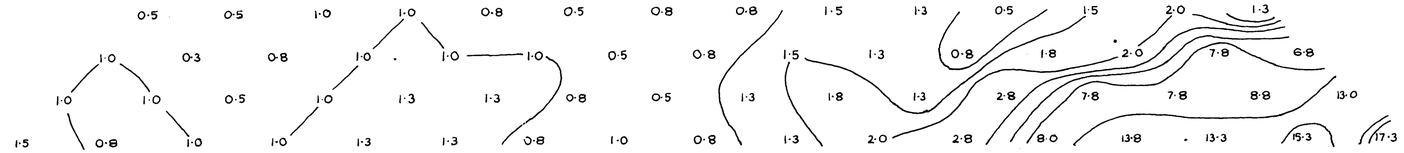
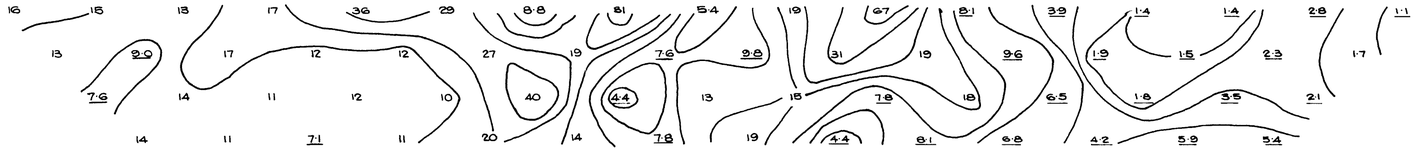


F.E.

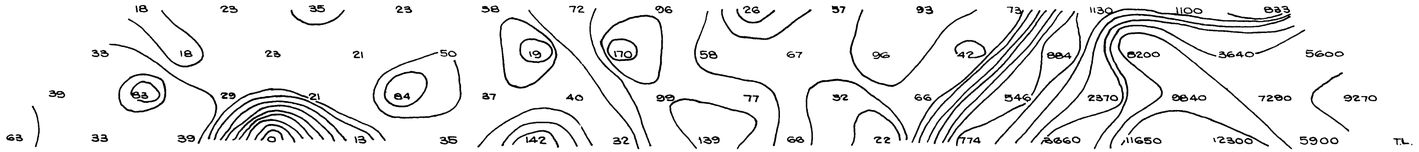
McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	5,200 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE FOIL ELECTRODES
Plotted by:	K. SKINNER
Checked by:	L B ARNDT
Date:	2 - 5 - 70



$\frac{Pa}{2\pi}$

West 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 East



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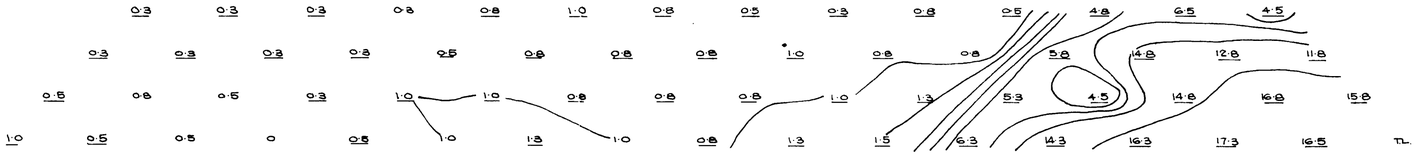
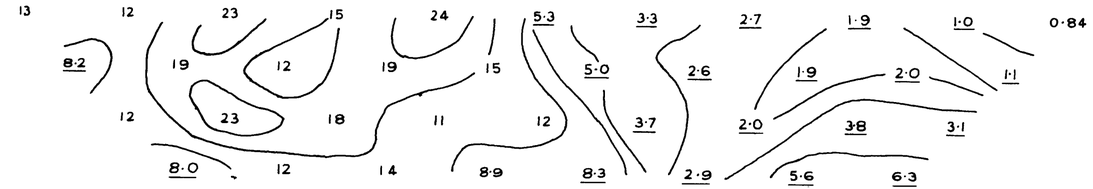


F.E.

McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

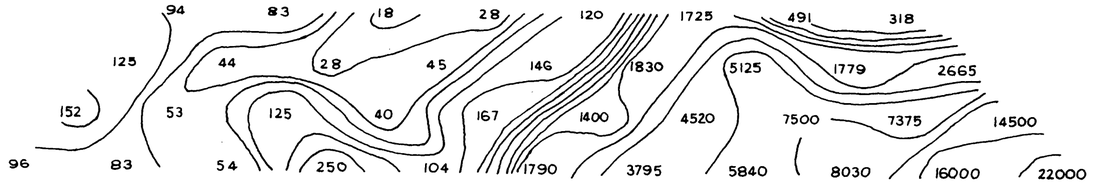
CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	5,600 N
Spread:	200 FT.
Freq:	2·5 x 0·3 CPS
Electrodes:	SINGLE ALFOIL
Plotted by:	D J F KELLY
Checked by:	L B ARNDT
Date:	30 - 4 - 70

EMV 1193-27

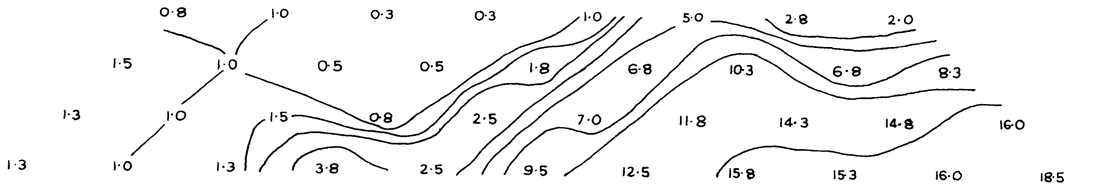


Pa
2π

West 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 East



M.F.



F.E.

McPHAR GEOPHYSICS PTY. LTD.
I.P. SURVEY

CYPRUS MINES CORPORATION	
CLIENT:	AUSTIN ANDERSON
Area:	LORNA DOONE
Line:	6,000 N
Spread:	200 FT.
Freq:	2·5 × 0·3 CPS
Electrodes:	SINGLE ALFOIL
Plotted by:	K SKINNER
Checked by:	L B ARNDT
Date:	2-5-70

ENV 1193-28

LEGEND

- A Breccia.
- B "Limestone."
- C Shale with limestone layers.
- D Shale - buff to red brown.
- E Quartzite. (Mine Area.)
- F Sandstone.
- G White Quartzite.
- H Slate, Grey green.

MN

1969 I.P. Grid. Y35000N

SHALE

SHALE WITH LIMESTONE LAYERS

SHALE

SHALE WITH LIMESTONE LAYERS

SHALE

SANDSTONE

Highest Hill.

Hill

LYNDA MINE

SANDSTONE

Lorna Doone Hill

Quartz Vein

Quartz Vein

Quartz Vein

BRECCIA

WHITE QUARTZITE

WHITE QUARTZITE

BRECCIA

SLATE

SANDSTONE

LORNA DOONE MINE

Mine Hill

QUARTZITE

S.E. Hill

Qtz Vein

"LIMESTONE"

Qtz Vein

SHALE

SLATE

SLATE

RECEIVED 20 JUL 1970 DEPT. OF MINES REGISTRY

CYPRUS MINES CORPORATION		
SCALE 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY J.C.S - R.M.
DATE	PROJECT TITLE	REVISED
GEOLOGICAL MAP OF LORNA DOONE - LYNDA MINE		
		DRAWING NUMBER

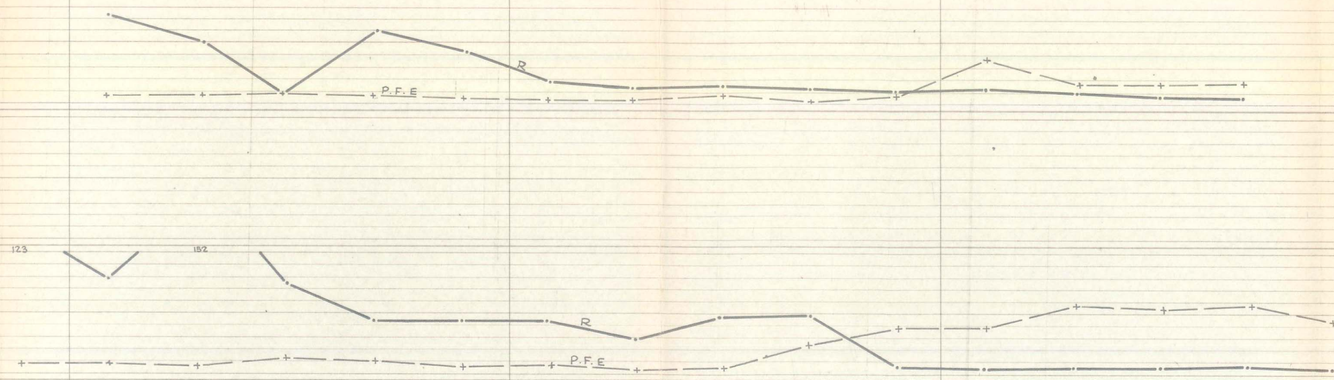
ENV 1193/2 1193-49

INDUCED POLARISATION PROFILES

RESIS. ——•——•

P.F.E. +— —+

	RESIS.	P.F.E.
N-1	100 / 50 / 0	20 / 10 / 0
N-2	100 / 50 / 0	20 / 10 / 0
N-3	100 / 50 / 0	20 / 10 / 0
N-4	100 / 50 / 0	20 / 10 / 0



SELF POTENTIAL AND MAGNETIC PROFILES

S.P. ——

Mag. — —

S.P.(mV)	Mag (γ)
0	0

GEOCHEMICAL PROFILES

Cu. ——

Pb. — —

Zn. – – – –

LEAD NOT ABOVE 30 P.P.M.

P.P.M.: 1000 / 800 / 600 / 400 / 200 / 0

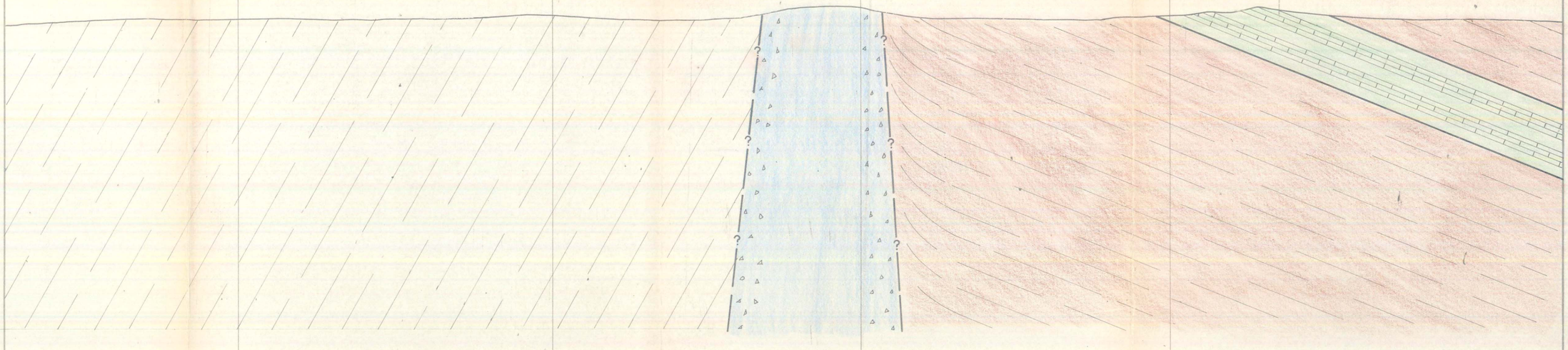
GEOLOGICAL CROSS SECTION

GEOLOGICAL CONTACT

FAULT

BRECCIA

SHATTERING



GEOLOGICAL PLAN

1600 N

00 1000E 2000E 3000E

CYPRUS MINES CORPORATION

SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY R.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE.	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 1600 N

DRAWING NUMBER

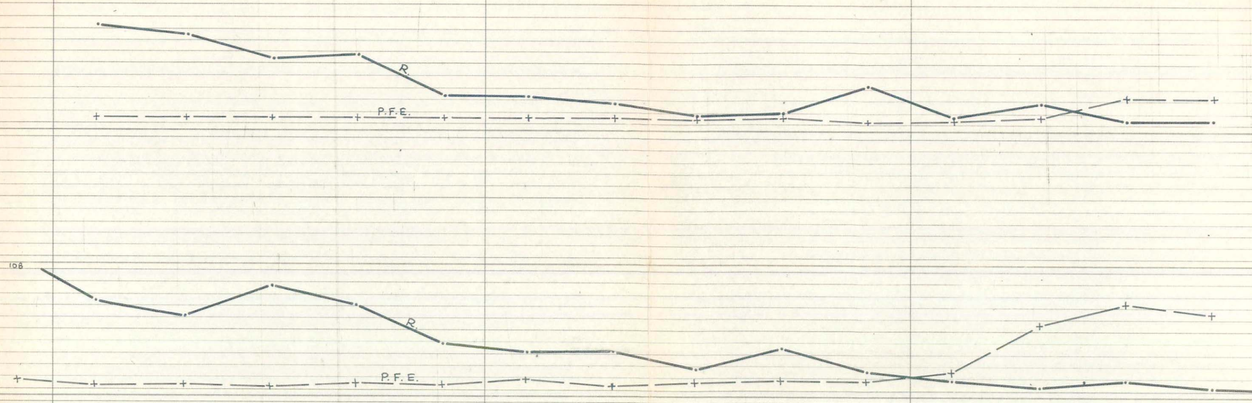
EMV 1193/2

1193-50

INDUCED POLARISATION PROFILES

RESIS. ——•——•
P.F.E. +— —+

	RESIS.	P.F.E.
N-1	100 / 50 / 0	20 / 10 / 0
N-2	100 / 50 / 0	20 / 10 / 0
N-3	100 / 50 / 0	20 / 10 / 0
N-4	100 / 50 / 0	20 / 10 / 0



SELF POTENTIAL AND MAGNETIC PROFILES

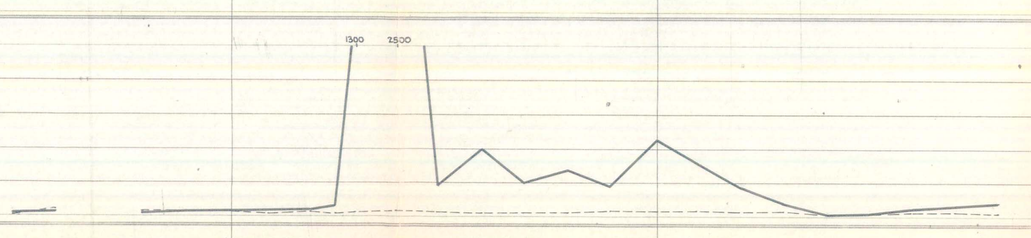
S.P. ——
Mag. — —

S.P.(mV)	Mag (γ)
0	0

GEOCHEMICAL PROFILES

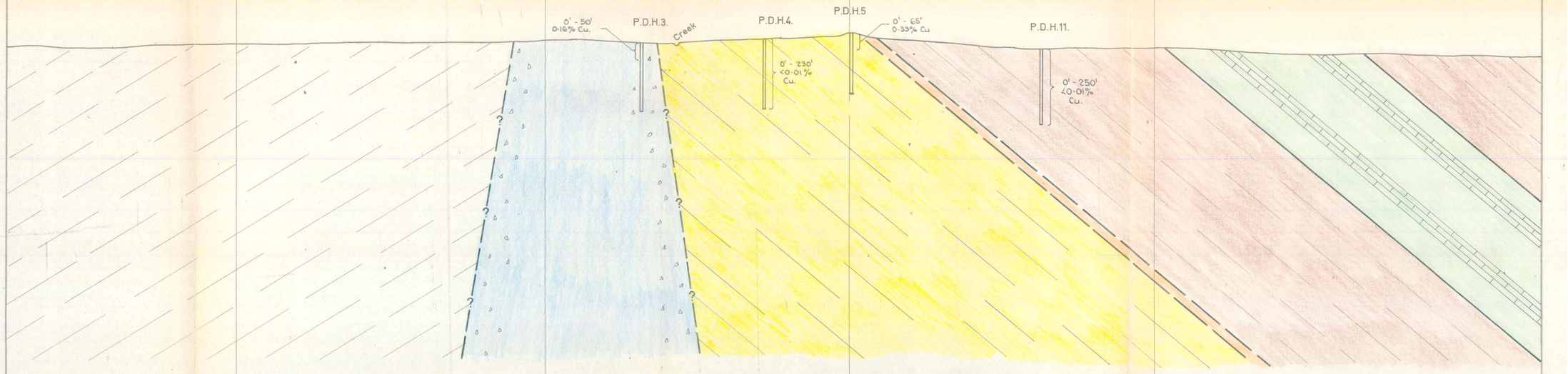
Cu. ——
Pb. — —
Zn. – – – –
LEAD NOT ABOVE 20 P.P.M.

P.P.M. 1000 / 800 / 600 / 400 / 200 / 0



GEOLOGICAL CROSS SECTION

GEOLOGICAL CONTACT
FAULT
BRECCIA
SHATTERING



GEOLOGICAL PLAN

CYPRUS MINES CORPORATION

SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY R.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE.	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

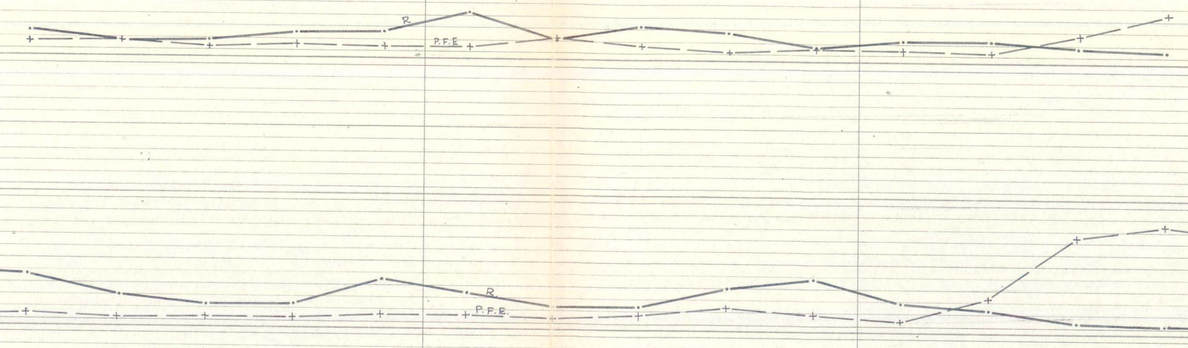
SECTION 3200 N — DRAWING NUMBER

EMV 1193/2 1193-51

INDUCED POLARISATION PROFILES

RESIS. •——•
P.F.E. +— —+

	RESIS.	P.F.E.
N-1	100 / 50 / 0	20 / 10 / 0
N-2	100 / 50 / 0	20 / 10 / 0
N-3	100 / 50 / 0	20 / 10 / 0
N-4	100 / 50 / 0	20 / 10 / 0



SELF POTENTIAL AND MAGNETIC PROFILES

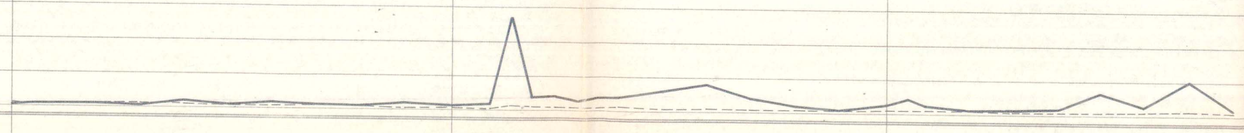
S.P. ——
Mag. — —

S.P.(mV)	Mag (γ)
0	0

GEOCHEMICAL PROFILES

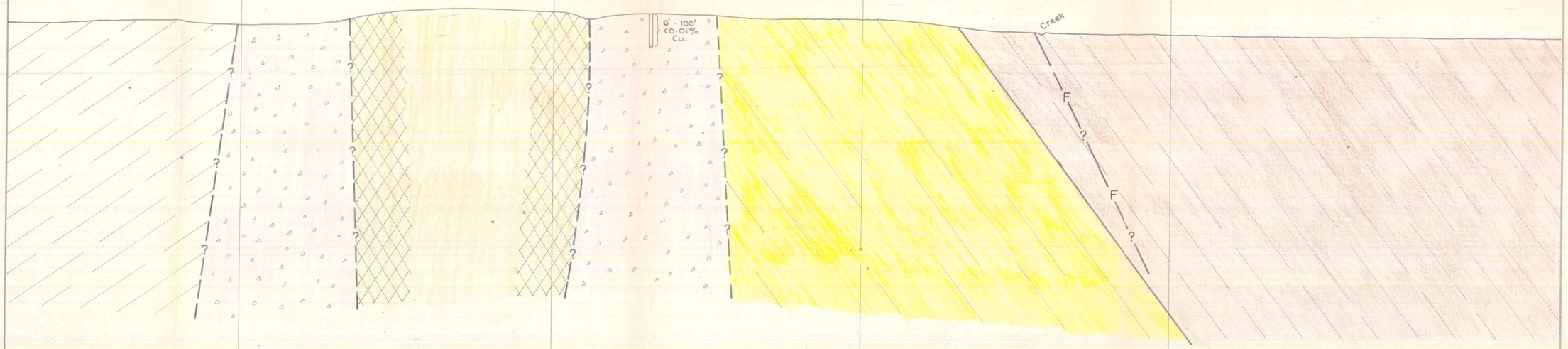
Cu. ——
Pb. — —
Zn. – – – –
LEAD NOT ABOVE 35 P.P.M

P.P.M.: 1000 / 800 / 600 / 400 / 200 / 0

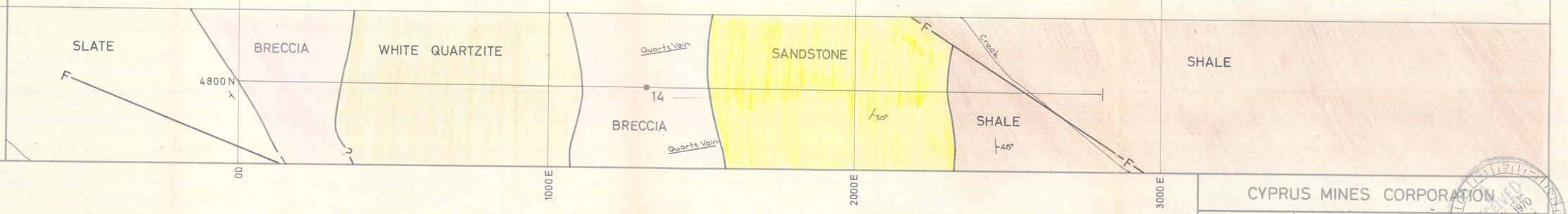


GEOLOGICAL CROSS SECTION

GEOLOGICAL CONTACT
FAULT
BRECCIA
SHATTERING



GEOLOGICAL PLAN



CYPRUS MINES CORPORATION

SCALES 1" = 200	AREA LYNDHURST S.A.	DRAWN BY R.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE.	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES.

SECTION 4800 N — DRAWING NUMBER

ENV 1193/2

1193-52

INDUCED POLARISATION PROFILES

RESIS. ——•——•

P.F.E. +— —+

	RESIS.	P.F.E.
N-1	100 / 50 / 0	20 / 10 / 0
N-2	100 / 50 / 0	20 / 10 / 0
N-3	100 / 50 / 0	20 / 10 / 0
N-4	100 / 50 / 0	20 / 10 / 0

SELF POTENTIAL AND MAGNETIC PROFILES

S.P. ——

Mag. — —

S.P.(mV)	Mag (γ)
0	0

GEOCHEMICAL PROFILES

Cu. ——

Pb. — —

Zn. – – – –

LEAD NOT ABOVE 45 P.P.M.

P.P.M.: 1000 / 800 / 600 / 400 / 200 / 0

GEOLOGICAL CROSS SECTION

GEOLOGICAL CONTACT

FAULT

BRECCIA

SHATTERING

55000 E 56000 E 57000 E 58000 E 59000 E

SLATE

BRECCIA

W. QTZ. BRECCIA

WHITE QUARTZITE

SANDSTONE

SANDSTONE

SHALE

QUARTZITE

SHALE

SHALE WITH LIMESTONE LAYERS

SHALE

Y 35000 N

GEOLOGICAL PLAN

NOTE. 00 REFERS TO EASTING BASELINE FOR 1970 I.P. SURVEY

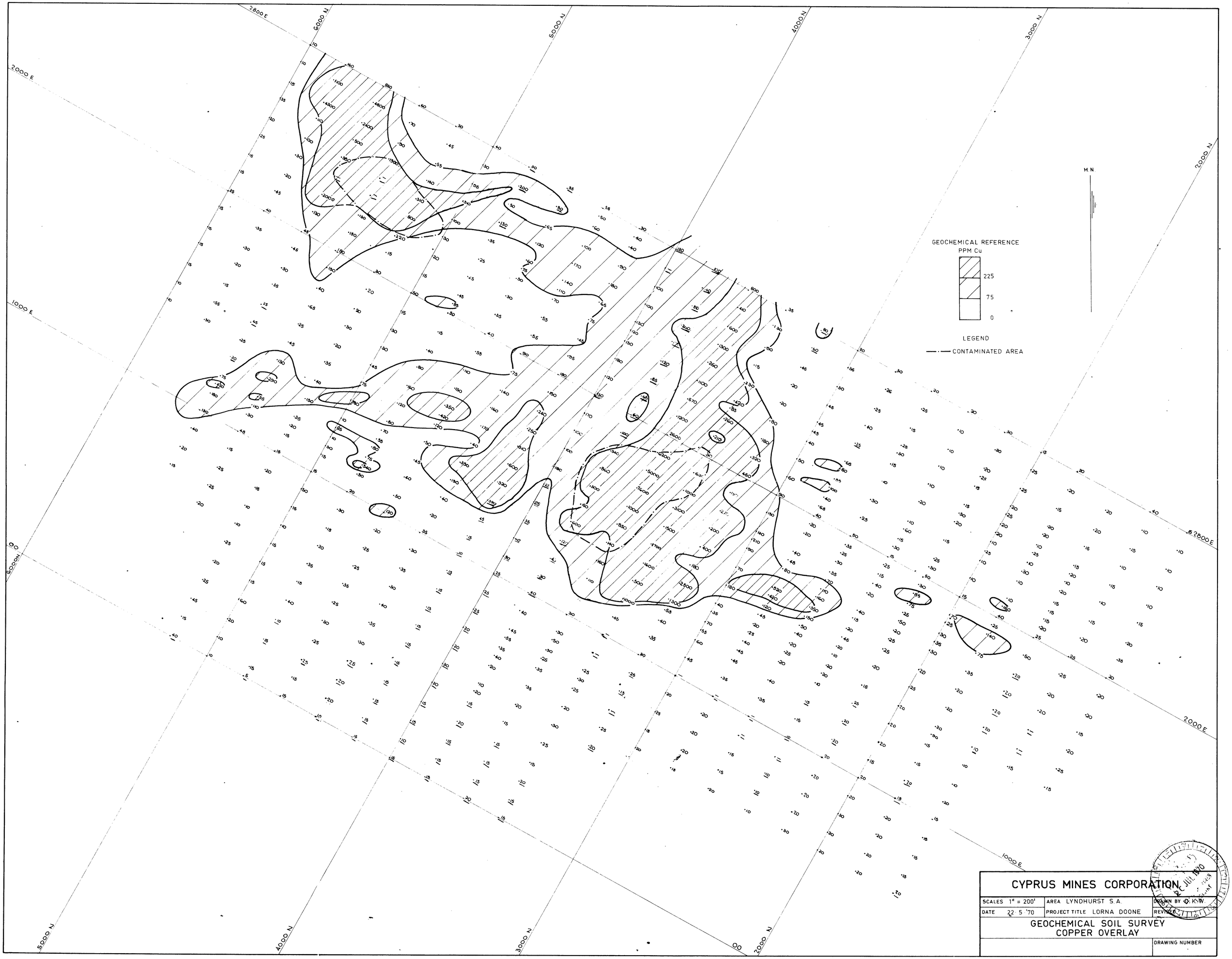
CYPRUS MINES CORPORATION

SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY R.M.
DATE	PROJECT TITLE LORNA DOONE.	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

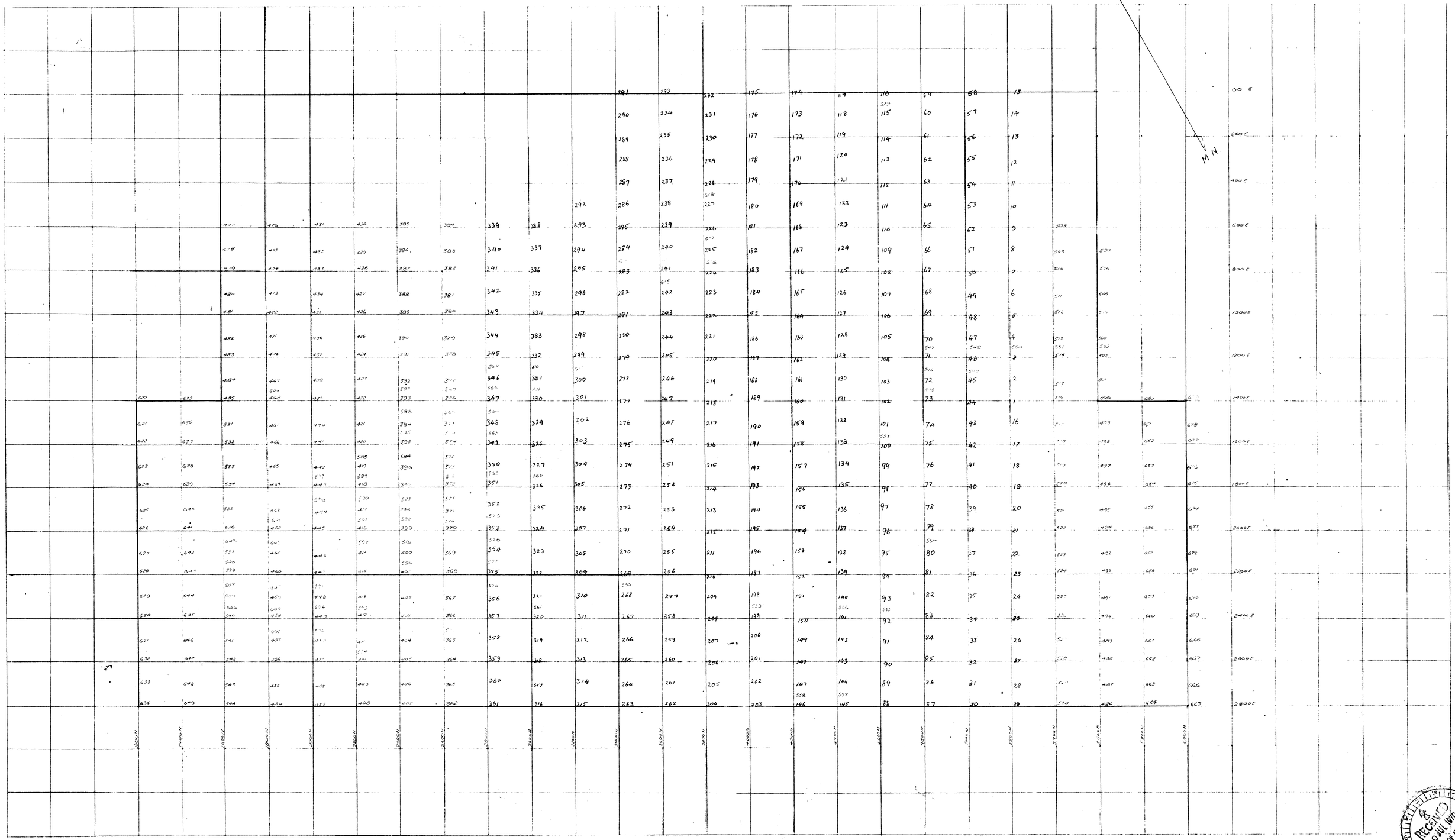
SECTION Y 35000 E | DRAWING NUMBER

1193-53



CYPRUS MINES CORPORATION		
SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY D. K. W.
DATE 22 5 '70	PROJECT TITLE LORNA DOONE	REVISED
GEOCHEMICAL SOIL SURVEY COPPER OVERLAY		
		DRAWING NUMBER

ENV 1193/2 1193-56



NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
	1				

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

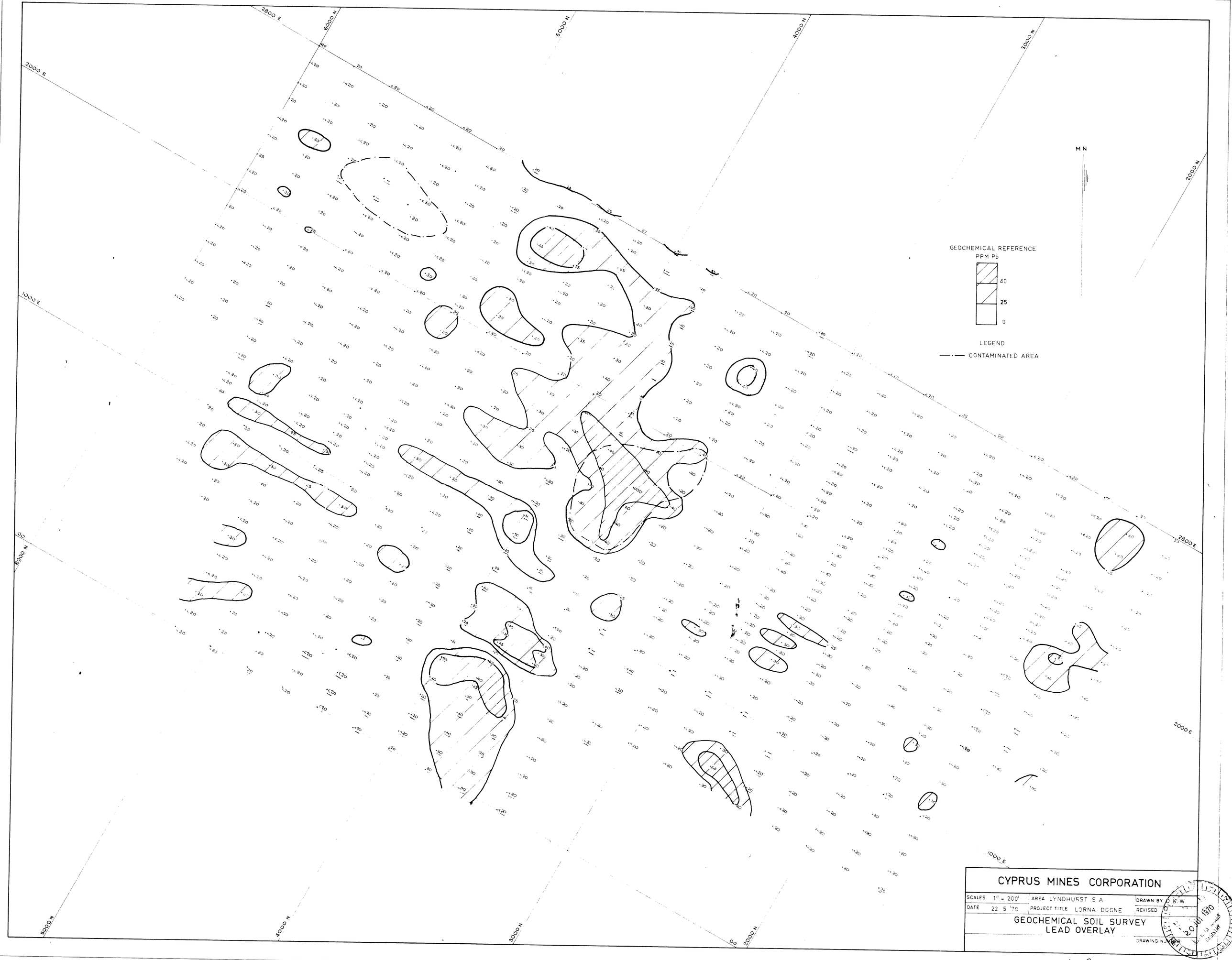
DRAWN BY: A. FRASER	DATE: 24-4-70	CHECKED BY: RAW	DATE: 24-4-70	SCALE 1"=200'	APPROVED FOR CONSTR. BY: RAW

TITLE	Geochemical Soil Survey - Sample Locations
OWNER	Cyprus Mines Corporation
LOCATION	Lorna Doone Prospect Via Lyndhurst SA
ISSUE No.	A
DATE:	24-4-70

CONTRACT No. AM1940
SHEET No. 906
ISSUE No. A

ENV 1193/2

1193-55



CYPRUS MINES CORPORATION		
SCALES 1" = 200'	AREA LYNDHURST S A	DRAWN BY D K W
DATE 22 5 '70	PROJECT TITLE LORNA DOONE	REVISED
GEOCHEMICAL SOIL SURVEY LEAD OVERLAY		DRAWING NUMBER

ENV 1193/2

1193-42

2800 E

6000 N

5000 N

4000 N

3000 N

2000 N

2000 E

1000 E

M N

GEOCHEMICAL REFERENCE
PPM Zn

40

30

0

LEGEND

CONTAMINATED AREA

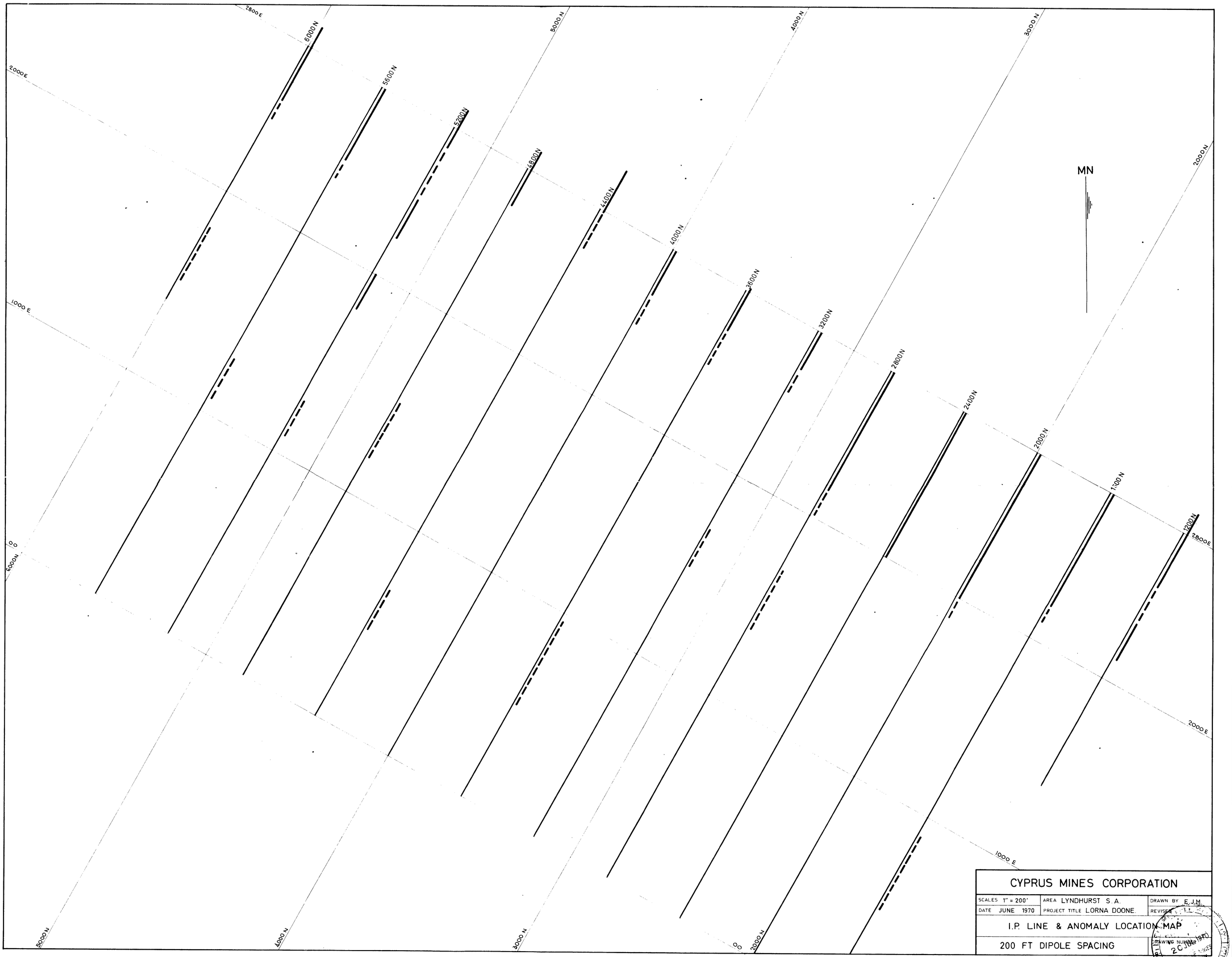
CYPRUS MINES CORPORATION

SCALE: 1" 200'	AREA LYNDHURST S.A.	DRAWN BY D.K.W.
DATE 22 JUL '70	PROJECT TITLE LORNA DOONE	REVISED
GEOCHEMICAL SOIL SURVEY ZINC OVERLAY		DRAWING NUMBER

22 JUL 1970

ENV 1193/2

1193-43



CYPRUS MINES CORPORATION		
SCALES 1" = 200'	AREA LYNDHURST S. A.	DRAWN BY E.J.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE.	REVISED
I.P. LINE & ANOMALY LOCATION MAP		
200 FT DIPOLE SPACING		DRAWING NUMBER 2C JUNE 1970

ENV 1193/2

1193-44

CYPRUS MINES CORPORATION

SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY E.J.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE.	REVISED

INDUCED POLARISATION CONTOUR MAP

FIRST LEVEL P.F.E. | DRAWING NUMBER

ENV 11972

1193-45

CYPRUS MINES CORPORATION

SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY E.J.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE.	REVISED

INDUCED POLARISATION CONTOUR MAP

THIRD LEVEL P.F.E.

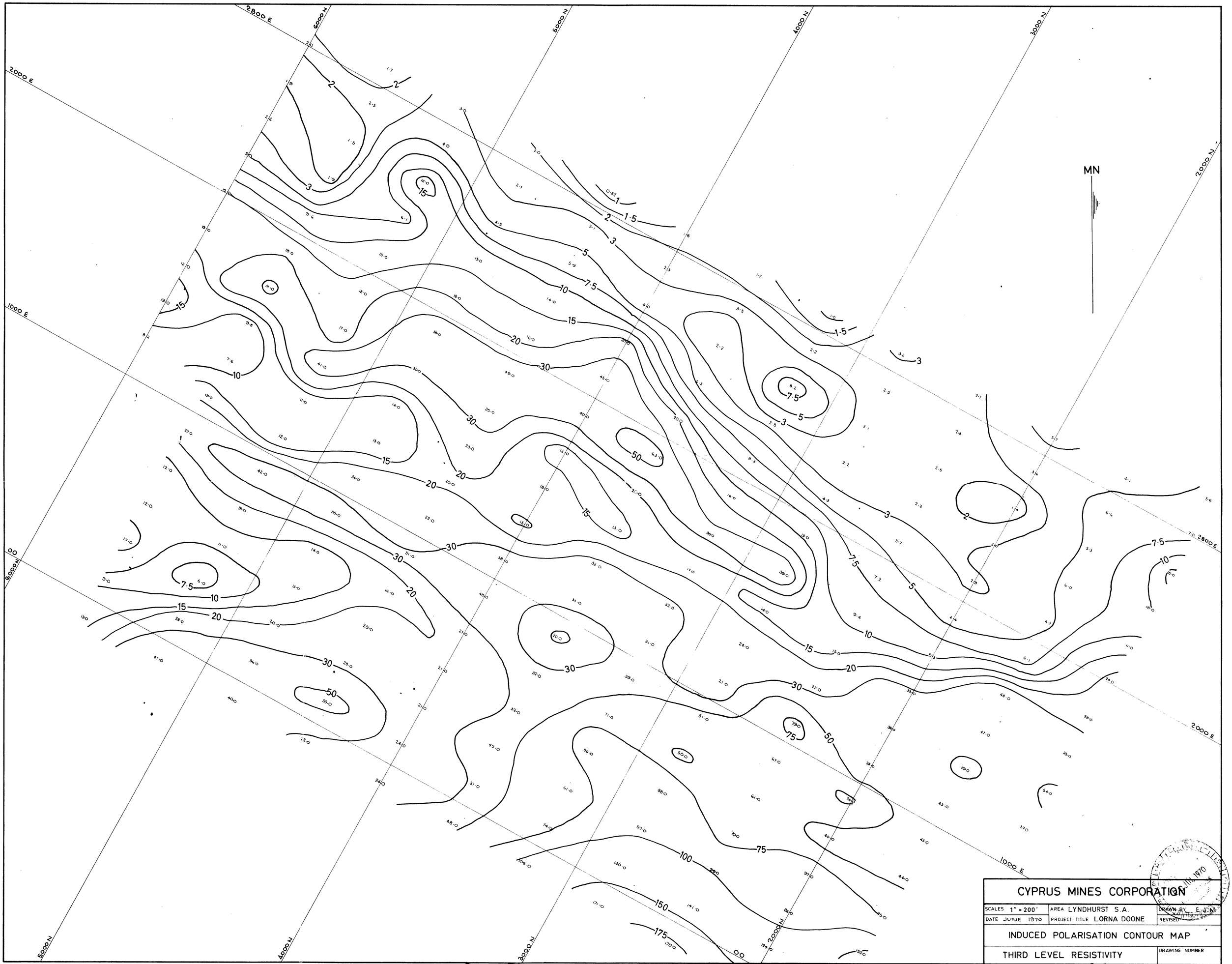
DRAWING NUMBER

EMV 1193/2

1193-46

CYPRUS MINES CORPORATION		
SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY E.J.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE	REVISED
INDUCED POLARISATION CONTOUR MAP		
FIRST LEVEL RESISTIVITY		DRAWING NUMBER

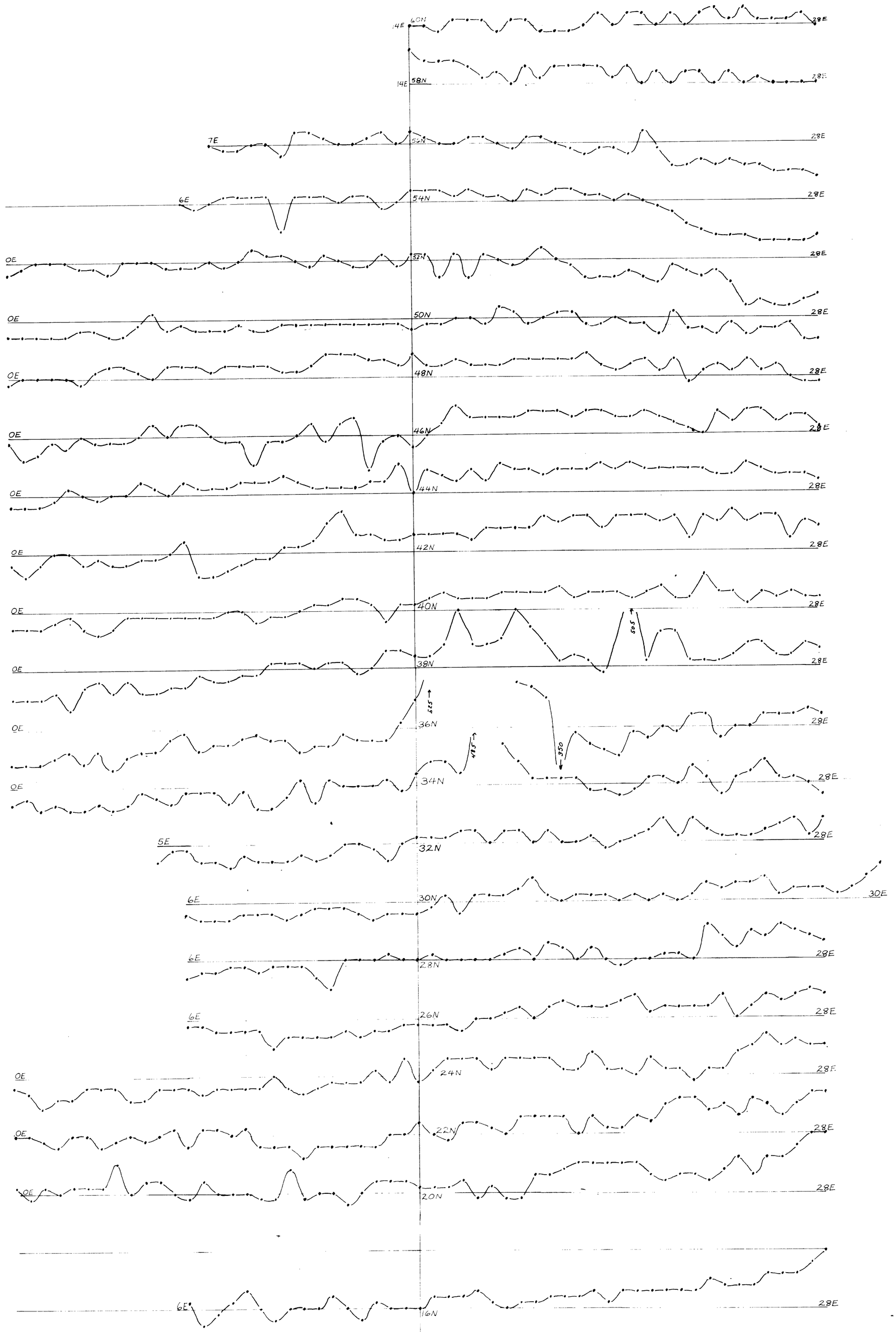
ENV 1193/2 1193-47



CYPRUS MINES CORPORATION		
SCALES 1" = 200'	AREA LYNDHURST S.A.	DRAWN BY E.J.M.
DATE JUNE 1970	PROJECT TITLE LORNA DOONE	REVISED
INDUCED POLARISATION CONTOUR MAP		
THIRD LEVEL RESISTIVITY		DRAWING NUMBER

EHV 1193/2

1193-48



PLAN NO. LD-1

LORNA DOONE, S. A.

VERTICAL COMPONENT MAGNETICS OVERLAY

FOR

AUSTIN-ANDERSON (AUST) PTY. LTD.

TO ACCOMPANY REPORT BY B.T. JOHNSON
DATED 12TH. JUNE, 1970

SCALE:

MAP 1" = 200'
MAGNETIC 1" = 50 GAMMAS

ENV 1193/2

AUSTIN - ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS

CONTRACT No. AM194
ISSUE No. 1
SHEET No. 934
NAME OF ORDER CYPRUS MINES CORPORATION
JOB LOCATION LORNA DOONE PROSPECT S.A.

1193-41

RESISTIVITY ($\frac{\rho_a}{2\pi}$) spread = 200'

METAL FACTOR (MF) spread = 200'

FREQUENCY EFFECT (FE) spread = 200'

MAGNETOMETER PLOT

1" = 50 GAMMAS

GEOCHEMICAL SURFACE PLOT

		PEAK VALUES	ANOMALOUS VALUES	THRESHOLD VALUES	
Cu	Zn	120	40	25	0
Pb	Pb	100	40	25	0
Zn	Cu	75	25	25	0

Precambrian

SURFACE GEOLOGY

SUB-SURFACE GEOLOGY INTERPRETED.

FOR LEGEND SEE SHEET 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	22 6 70		Compilation report line 1200N.		

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY: B. Jennings	DATE: 22. 6. 70.	CHECKED BY:	DATE:	SCALE 1-200	APPROVED FOR CONSTR. BY: RPG

ISSUE No. A DATE: 29-6-70

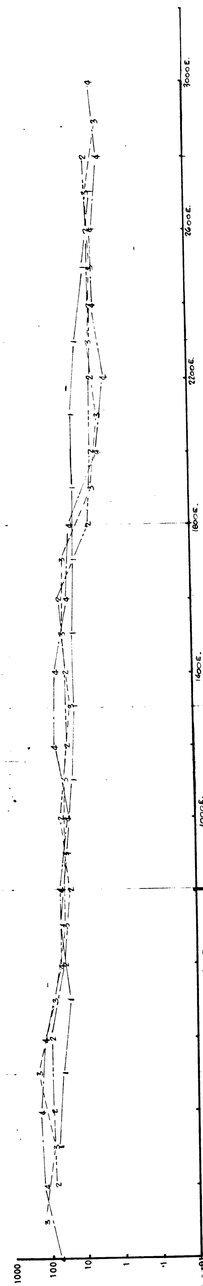
TITLE: COMPILATION REPORT, LINE 1200N
OWNER: CYPRUS MINES CORPORATION
LOCATION: LORNA DOONE PROSPECT SA
SHEET No. 911

CONTRACT No. AM194

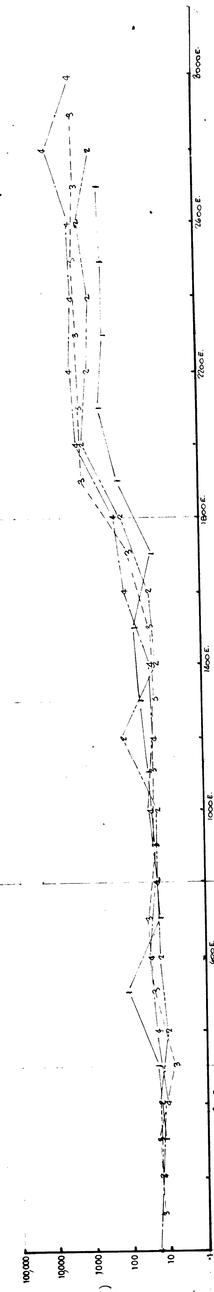
ISSUE No.

EMV 1193/2

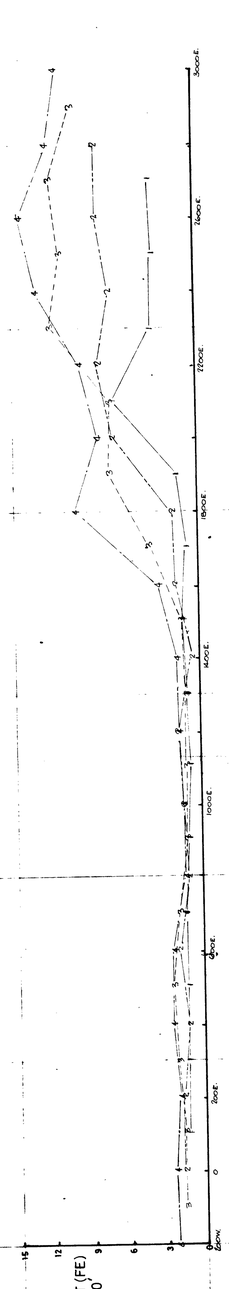
1193-18



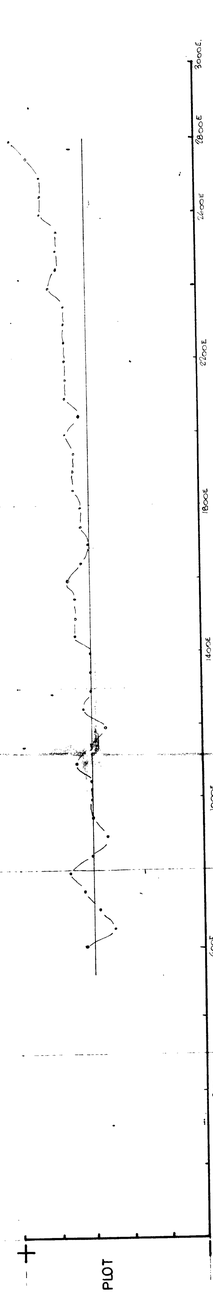
RESISTIVITY ($\frac{\rho}{2\pi}$) spread = 200



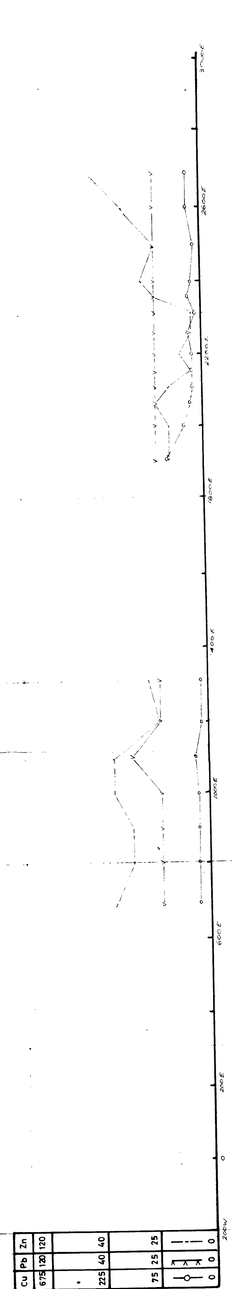
METAL FACTOR (MF) spread = 200



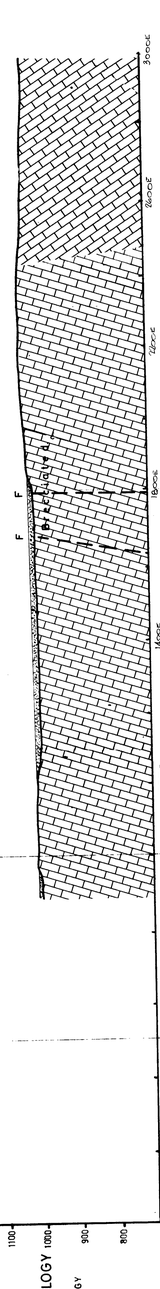
FREQUENCY EFFECT (FE) spread = 200



MAGNETOMETER PLOT
1" = 50 GAMMAS



GEOCHEMICAL SURFACE PLOT
PEAK VALUES
ANOMALOUS VALUES
THRESHOLD VALUES



SURFACE GEOLOGY
SUBSURFACE GEOLOGY INTERPRETED

FOR LEGEND SEE SHEET 910 B

20 JUL 1970
DEPT. OF MINES REGISTRY

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	22. 6.70		Compilation report line 1600 N.	D.J.M.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

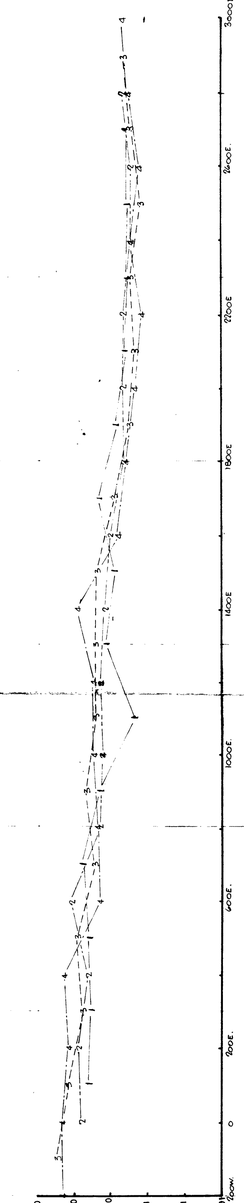
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

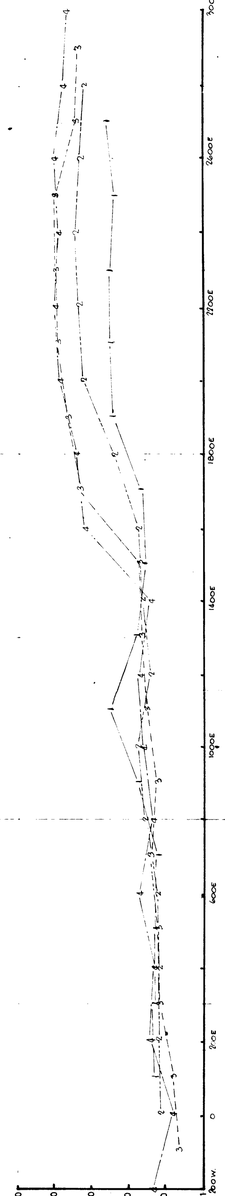
DRAWN BY: D.J. Morgan | DATE: 22. 6. 70. | CHECKED BY: JB | DATE: 29 6 70 | SCALE 1" = 200'

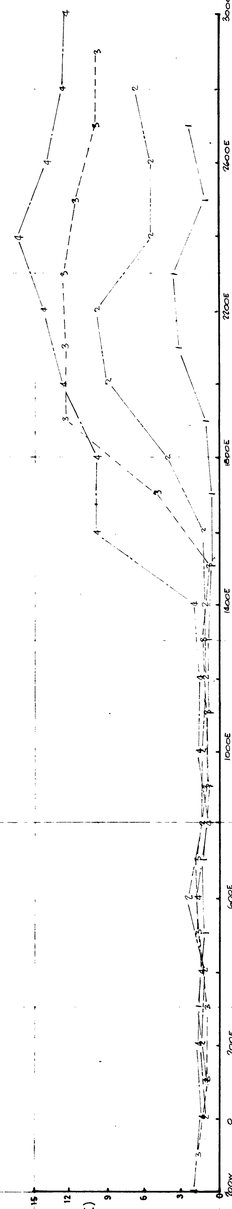
TITLE	COMPILATION REPORT, LINE 1600N
OWNER	CYPRUS MINES CORPORATION
LOCATION	LORNA DOONE PROSPECT S.A.
APPROVED FOR CONSTR. BY: ABS	ISSUE No. A DATE: 29-6-70

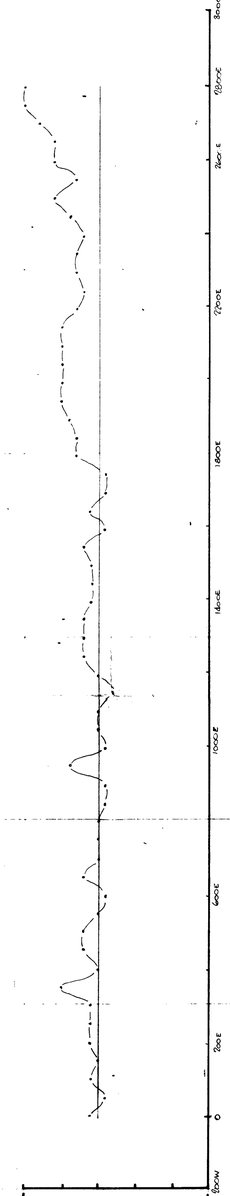
CONTRACT No. AM 194D
SHEET No. 912
ISSUE No. A

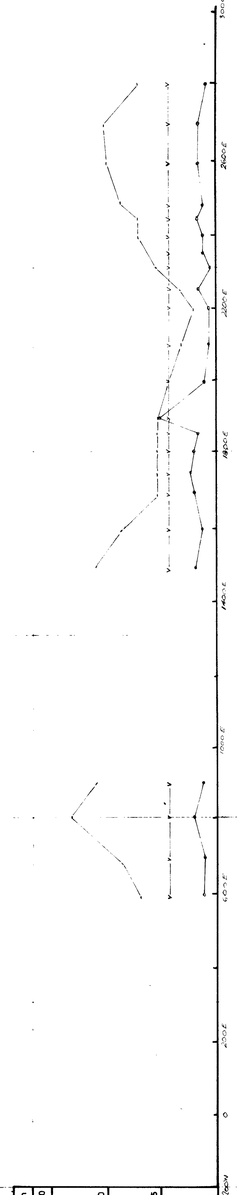
EM 1193/2 1193-30

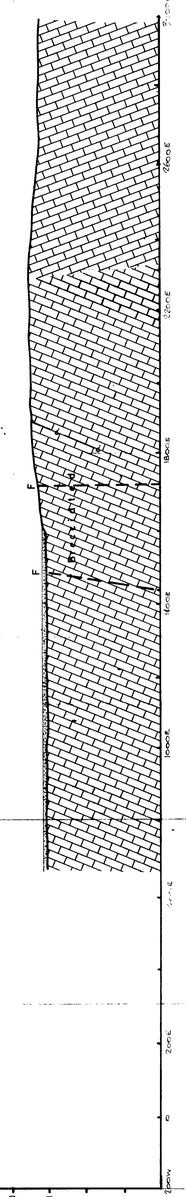












FOR LEGEND SEE SHEET 910B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	22. 6. 70		Compilation report line 2,000 N.	G	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY: G.Jennings	DATE: 22. 6. 70.	CHECKED BY: JB	DATE: 29. 6. 70	SCALE 1" = 200'	APPROVED FOR CONSTR. BY: R.G.S.	ISSUE No. A	DATE: 29-6-70

TITLE	COMPILATION REPORT, LINE 2000 N
OWNER	CYPRUS MINES CORPORATION
LOCATION	LORNA DOONE PROSPECT S.A.
SHEET No.	913
CONTRACT No.	AM 194D
ISSUE No.	A

RESISTIVITY ($\frac{R_a}{2\pi}$) spread = 200

METAL FACTOR (MF) spread = 200

FREQUENCY EFFECT (FE) spread = 200

MAGNETOMETER PLOT

1" = 50 GAMMAS

GEOCHEMICAL SURFACE PLOT

		PEAK VALUES	ANOMALOUS VALUES	THRESHOLD VALUES
Zn	120	40	25	0
Pb	120	40	25	0
Cu	675	225	75	0

SURFACE GEOLOGY

GEOLOGY

SUBSURFACE GEOLOGY INTERPRETED

FOR LEGEND SEE SHEET 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	22. 6. 70.		Compilation report line 2400N.	D. J. M.	JB

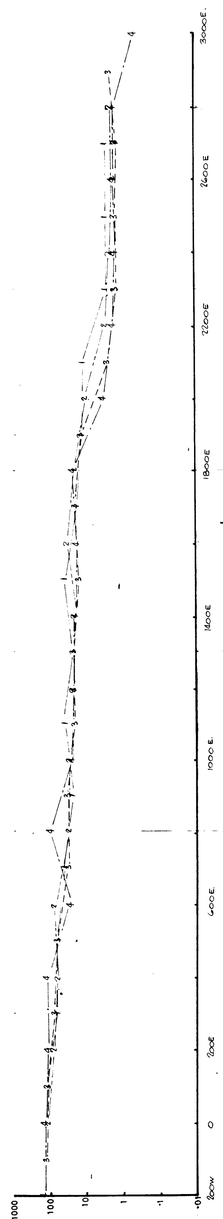
ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

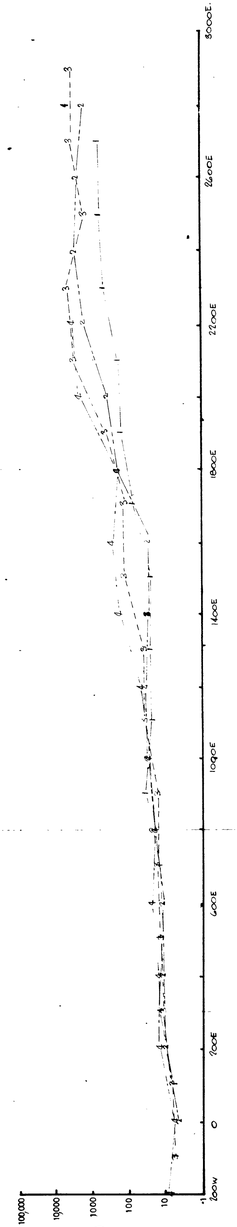
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

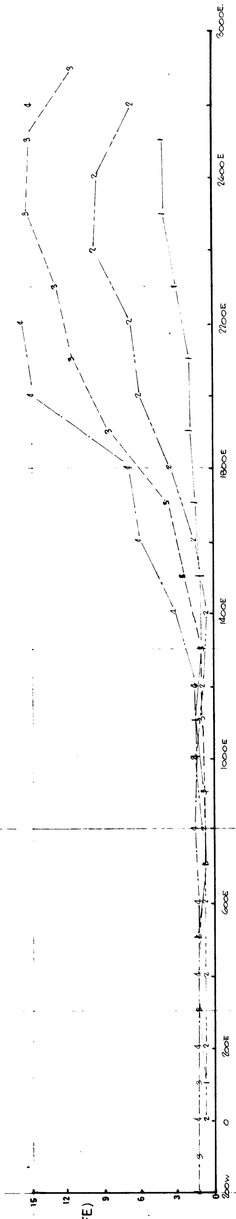
DRAWN BY: D.J.Morgan.	DATE: 22. 6. 70.	CHECKED BY: JB	DATE: 29.6.70	SCALE 1=200			

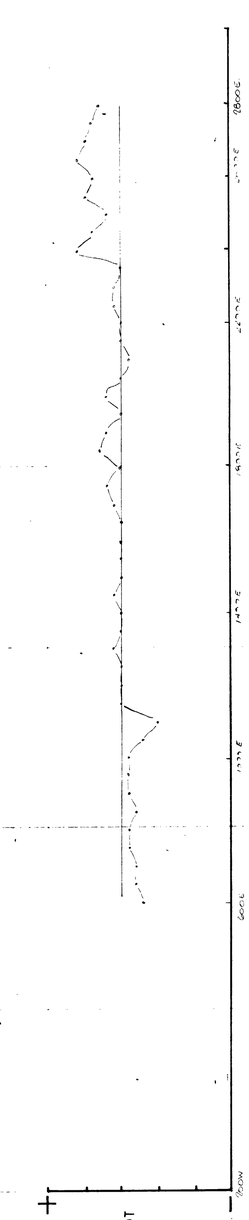
TITLE	COMPILATION REPORT, LINE 2400N	CONTRACT No.	ISSUE No.
OWNER	CYPRUS MINES CORPORATION	AM 194D	A
LOCATION	LORNA DOONE PROSPECT S.A.	SHEET No.	
APPROVED FOR CONSTR. BY:	ISSUE No. A	DATE: 29-6-70	914

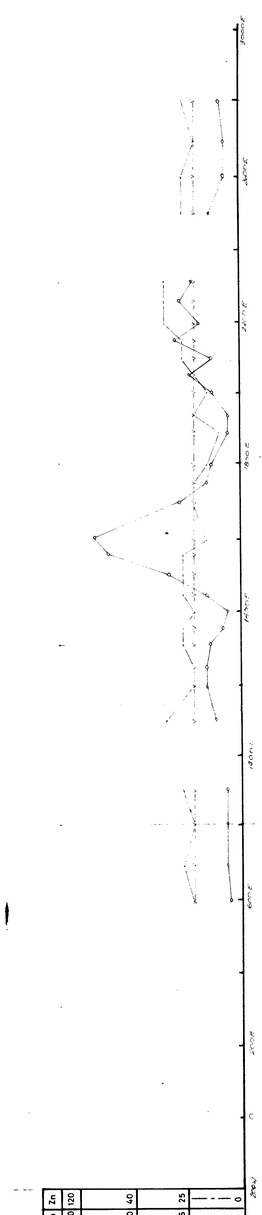
ENV 1193/2 1193-32

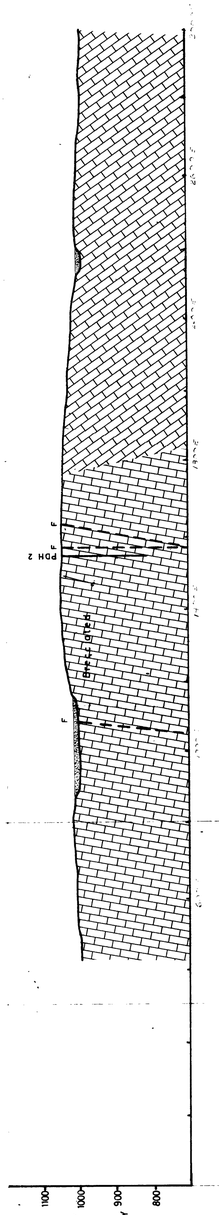












NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	23-6-70		Compilation report line 2 800 N	ARF	RG

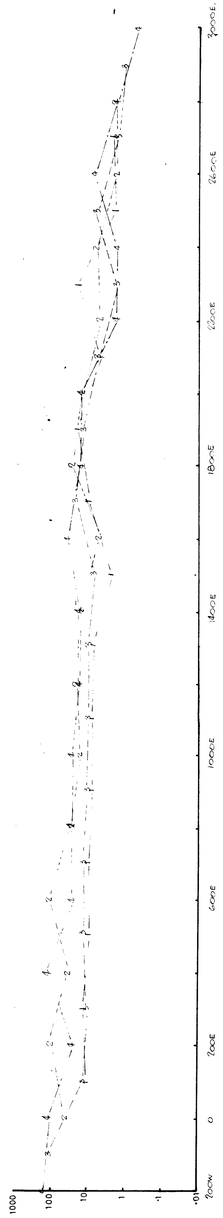
ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

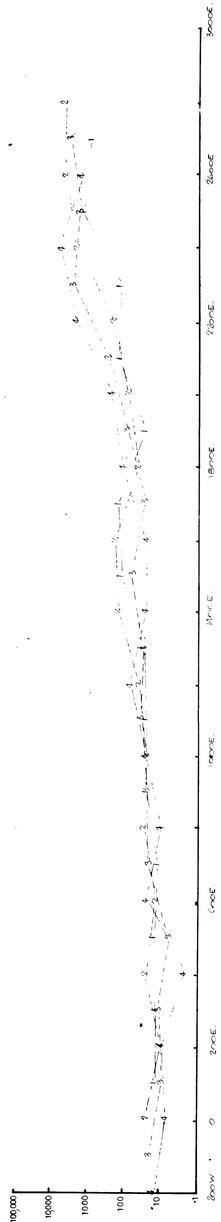
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

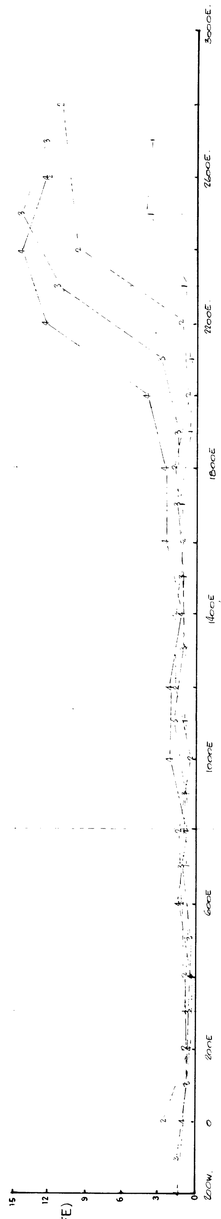
DRAWN BY: A. Fraser	DATE: 23-6-70	CHECKED BY:	DATE:	SCALE 1" = 200'

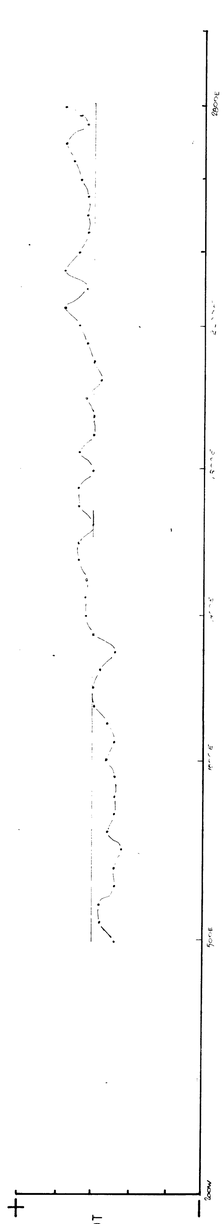
TITLE	COMPILATION REPORT, LINE 2800N		CONTRACT No.	ISSUE No.
OWNER	CYPRUS MINES CORPORATION		AM194	A
LOCATION	LORNA DOONE PROSPECT S.A.		SHEET No.	
APPROVED FOR CONSTR. BY: RGG	ISSUE No. A	DATE: 29-6-70	915	

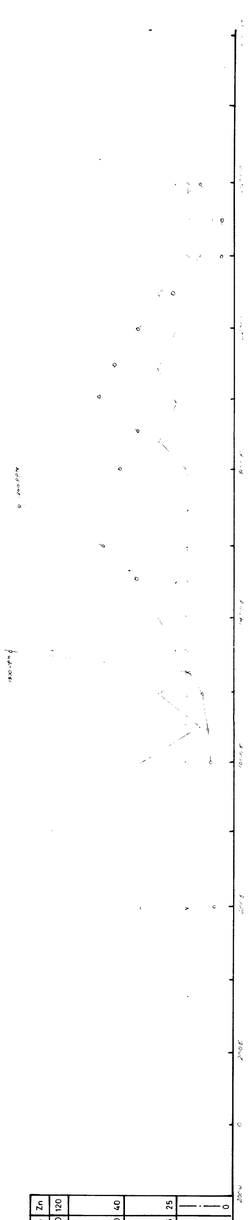
ENV 1193/2 1193-33

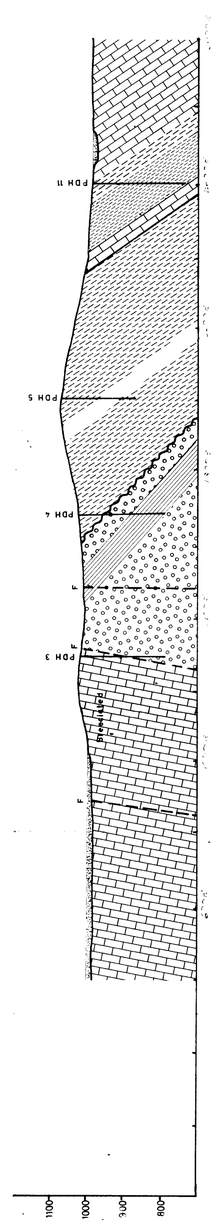












FOR LEGEND SEE SHEET 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD BY
A	23.6.70		Compilation report line 3200 N	D.J.M.	

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD BY

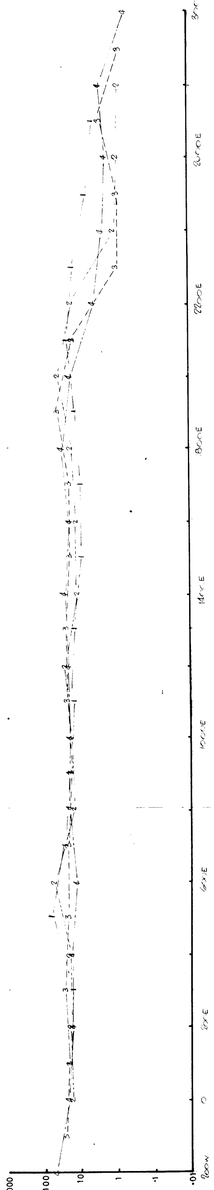
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

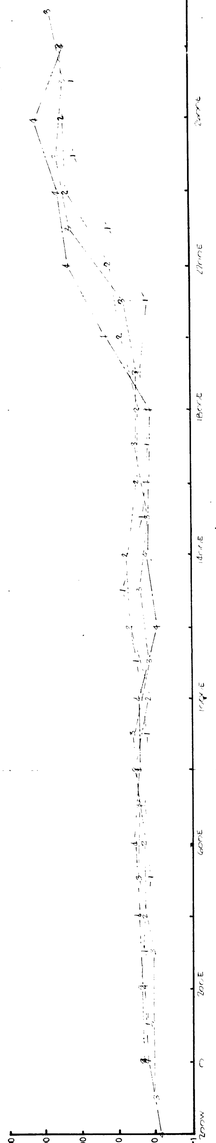
DRAWN BY: D.J. Morgan	DATE: 23. 6. 70.	CHECKED BY:	DATE: 29. 6. 70	SCALE 1=200'	

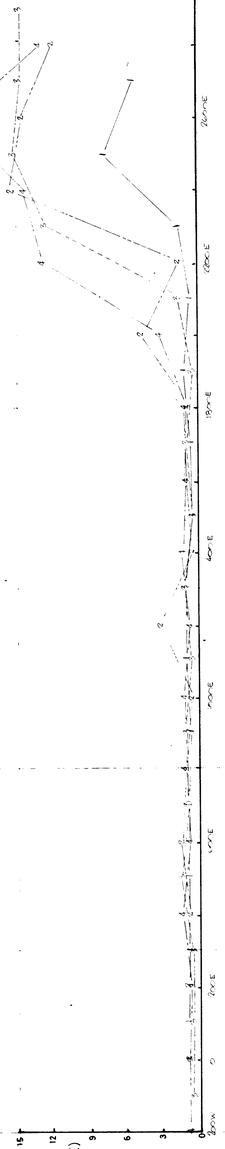
TITLE	COMPILATION REPORT, LINE 3200 N	CONTRACT No.	ISSUE No.
OWNER	CYPRUS MINES CORPORATION	AM 194D	A
LOCATION	LORNA DOONE PROSPECT S.A.	SHEET No.	
APPROVED FOR CONSTR. BY: RCG	ISSUE No. A	DATE: 29-6-70	916

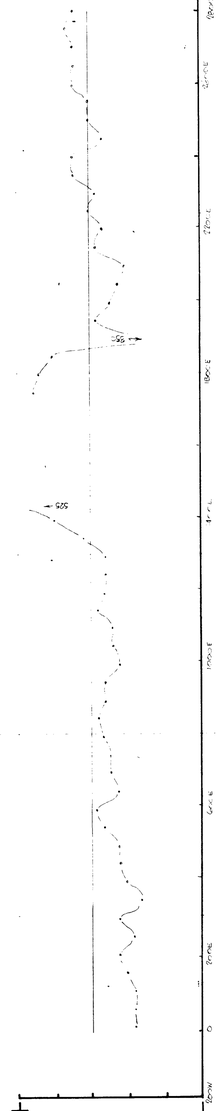
ENV 1193/2

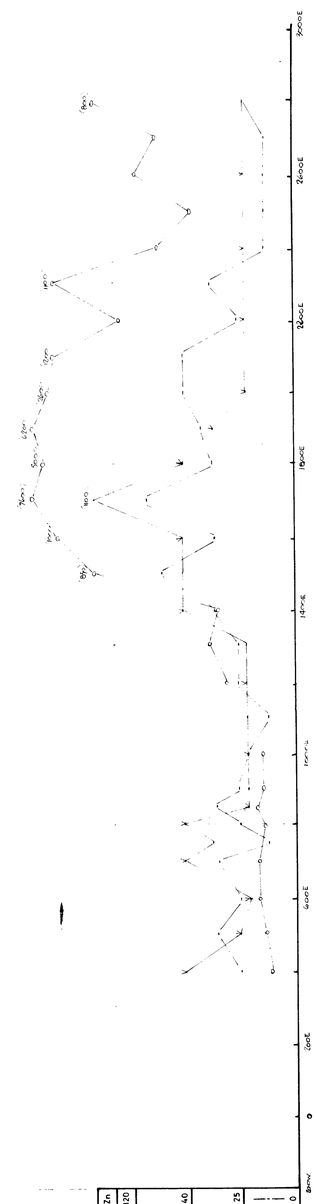
1193-34

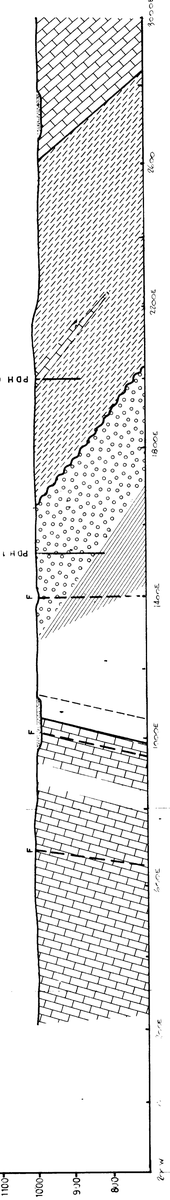












NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD BY
A	23. 6. 70		Compilation report line 3600N	D. J. M.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD BY

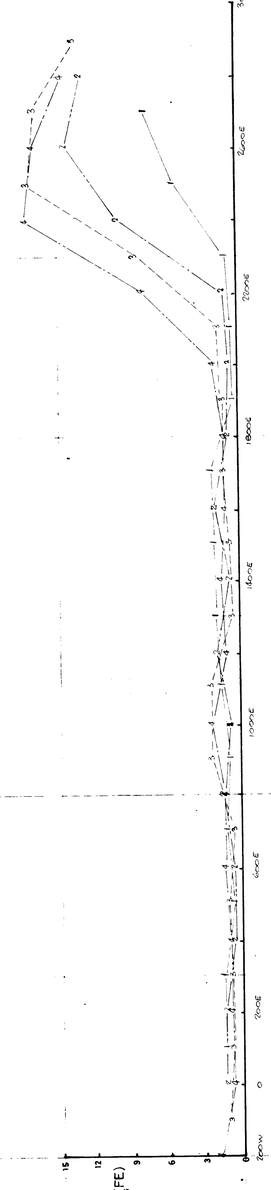
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

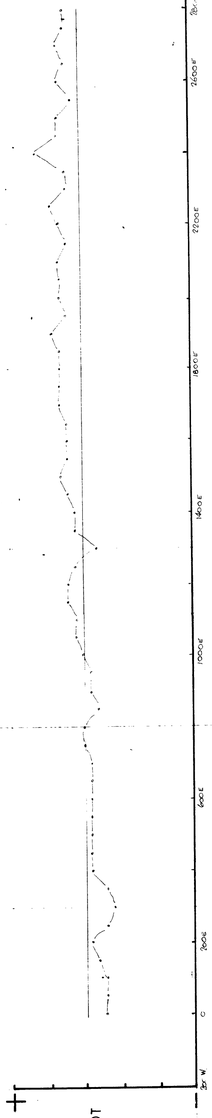
DRAWN BY: D J Morgan | DATE: 23 6 70 | CHECKED BY: JB | DATE: 29 6 70 | SCALE 1"=200'
APPROVED FOR CONSTR. BY: RGJ | ISSUE No. A | DATE: 29-6-70

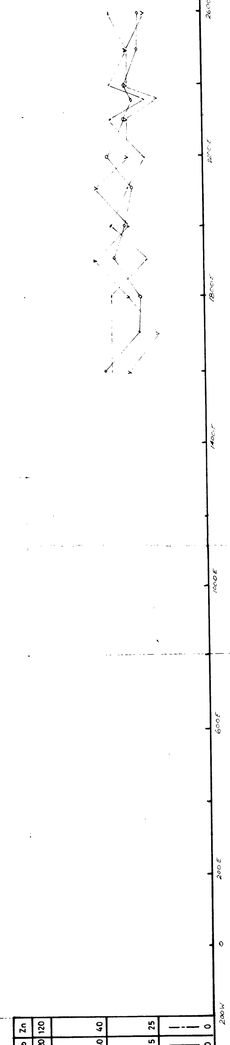
TITLE	COMPILATION REPORT, LINE 3600N
OWNER	CYPRUS MINES CORPORATION
LOCATION	LORNA DOONE · PROSPECT SA
CONTRACT No.	AM194D
SHEET No.	917

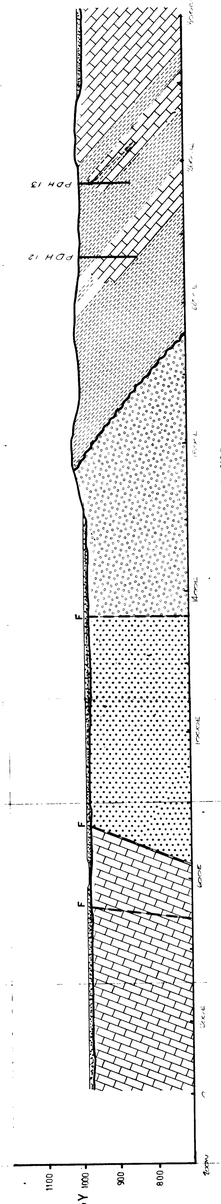
ISSUE No. 1 JUL 1970

ENV 1193/2 1193-35









FOR LEGEND SEE SHEET 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	23. 6. 70		Compilation report line 4,000 N.		

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

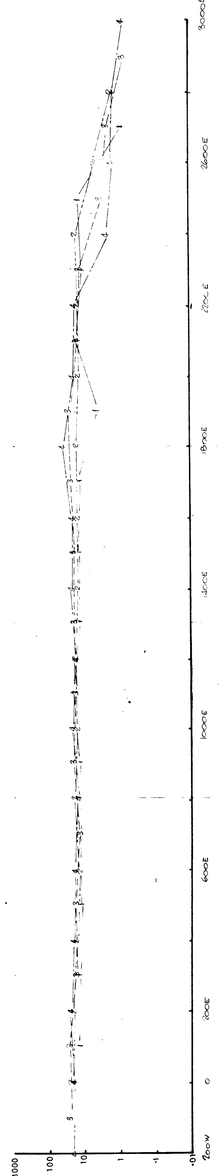
DRAWN BY: B.Warrington	DATE: 23. 6. 70	CHECKED BY: GB	DATE: 29 6 70	SCALE 1"= 200'	APPROVED FOR CONSTR. BY: RBS	ISSUE No. A	DATE: 29-6-70

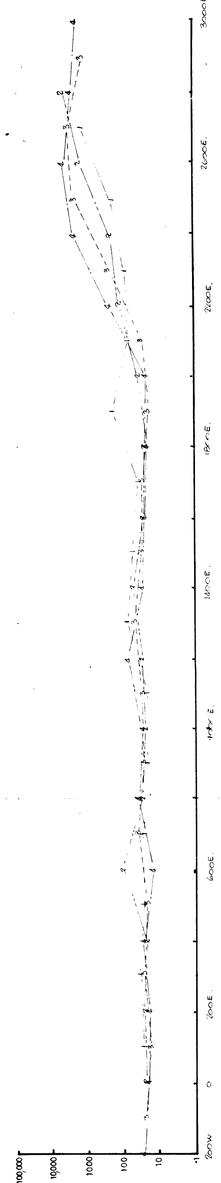
TITLE	COMPILATION REPORT, LINE 4000 N
OWNER	CYPRUS MINES CORPORATION
LOCATION	LORNA DOONE PROSPECT S.A.

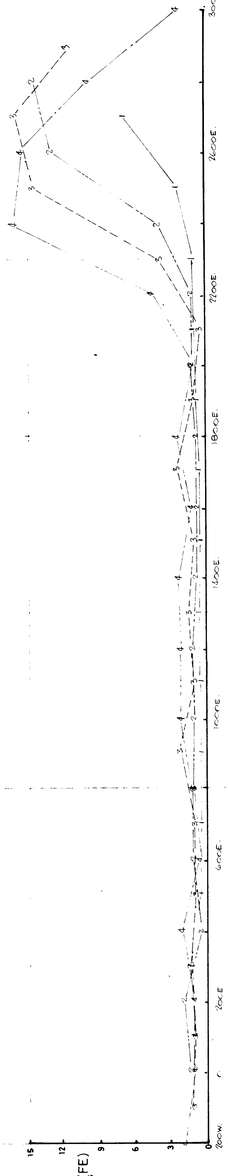
CONTRACT No.	ISSUE No.
AM194	A
SHEET No. 918	

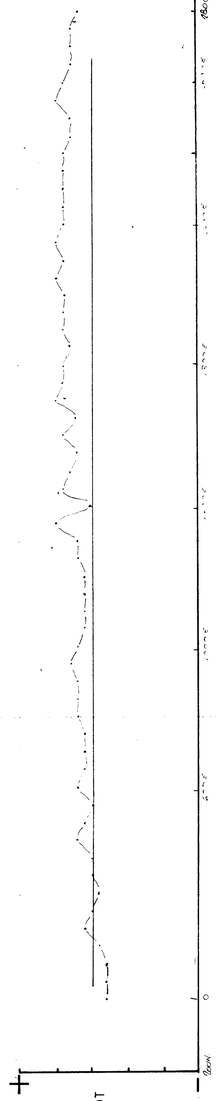
ENV 1193/2

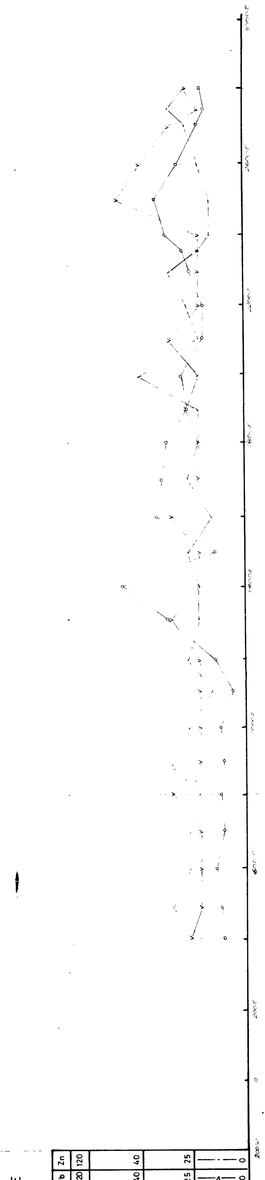
1193-W

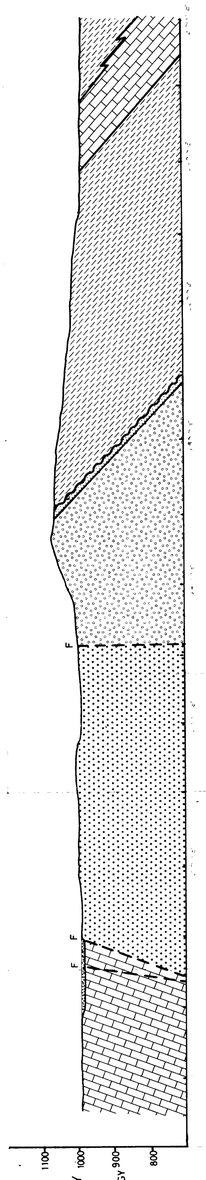












SEE SHEET 910B FOR LEGEND

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	23. 6. 70		Compilation report line 4,400 N	D.J.M.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY: D J Morgan | DATE: 23. 6. 70. | CHECKED BY: JB | DATE: 29.6.70 | SCALE 1" = 200'
APPROVED FOR CONSTR. BY: JB | ISSUE No. A | DATE: 29-6-70

TITLE: COMPILATION REPORT, LINE 4400 N
OWNER: CYPRUS MINES CORPORATION
LOCATION: LORNA DOONE · PROSPECT S.A.

CONTRACT No. AM 194 D
SHEET No. 919
ISSUE No. A

ENV 11923 11923-36

RESISTIVITY ($\frac{\rho_a}{2\pi}$) spread = 200'

METAL FACTOR (MF) spread = 200'

FREQUENCY EFFECT (FE) spread = 200'

MAGNETOMETER PLOT 1" = 50 GAMMAS

GEOCHEMICAL SURFACE PLOT

	PEAK VALUES	ANOMALOUS VALUES	THRESHOLD VALUES
Cu	675	225	75
Pb	300	60	25
Zn	120	40	25

SURFACE GEOLOGY

SUBSURFACE GEOLOGY INTERPRETED

PDH 14

FOR LEGEND SEE 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	22.6.70.		Compilation report line 4,800 N.		

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

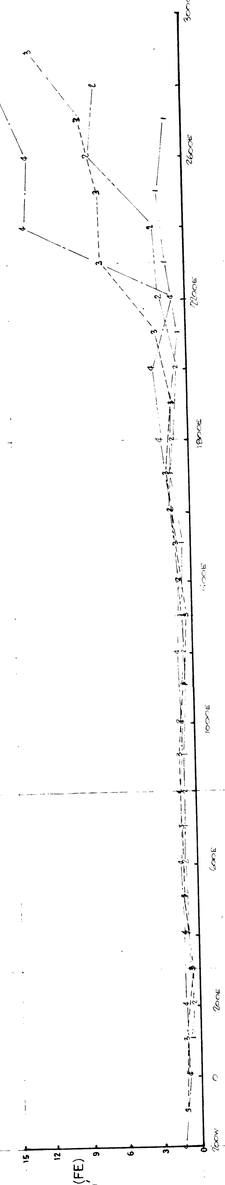
DESIGNERS • ENGINEERS • BUILDERS

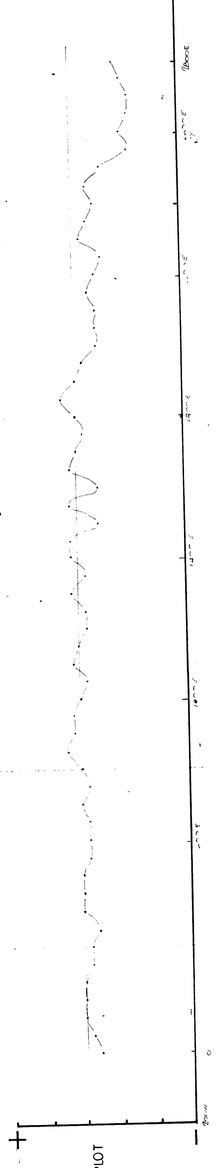
SYDNEY MELBOURNE

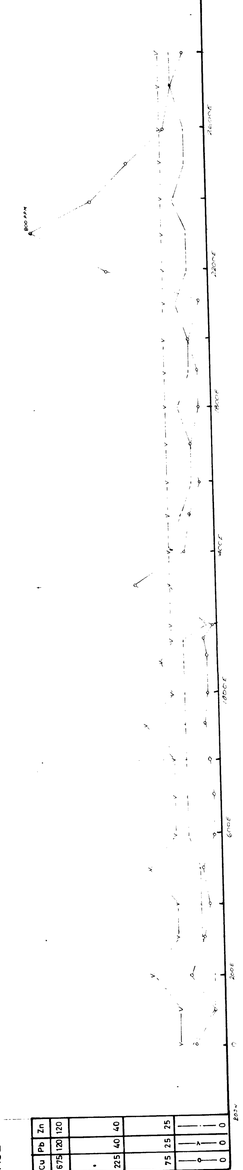
DRAWN BY: B. Jennings	DATE: 22. 6. 70.	CHECKED BY:	DATE: 29-6-70	SCALE 1" = 200'	

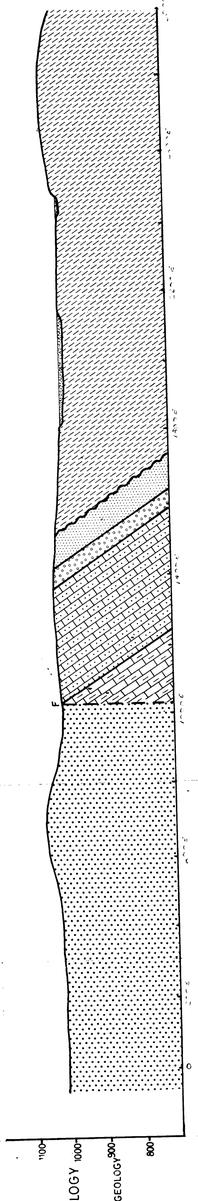
TITLE	COMPILATION REPORT, LINE 4,800 N	CONTRACT No.	ISSUE No.
OWNER	CYPRUS MINES CORPORATION	AM194 D	A
LOCATION	LORNA DOONE · PROSPECT S.A.	SHEET No.	
APPROVED FOR CONSTR. BY:	ISSUE No. A DATE: 29-6-70	920	

ENV 1193/2 1193-37









FOR LEGEND SEE SHEET 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD BY
A	22. 6. 70.		Compilation report line 5,200N	D. J. M.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

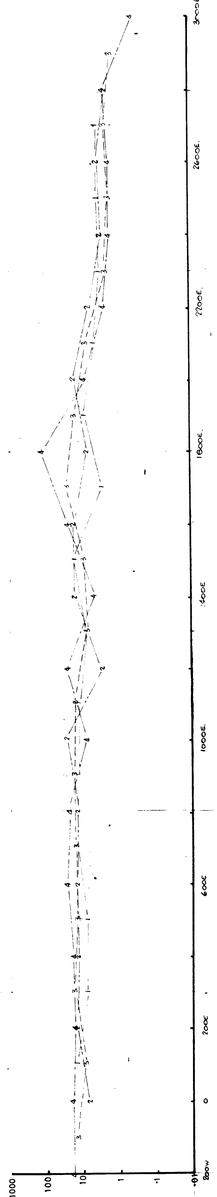
DRAWN BY: D. J. Morgan. DATE: 22. 6. 70. CHECKED BY: JB DATE: 29 6 70 SCALE 1"=200'

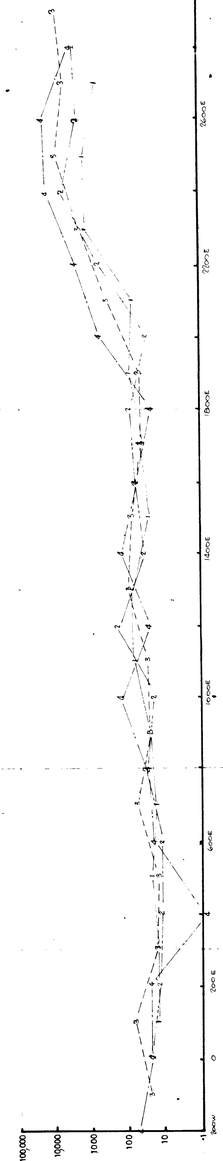
APPROVED FOR CONSTR. BY: RGG ISSUE No. A DATE: 29-6-70

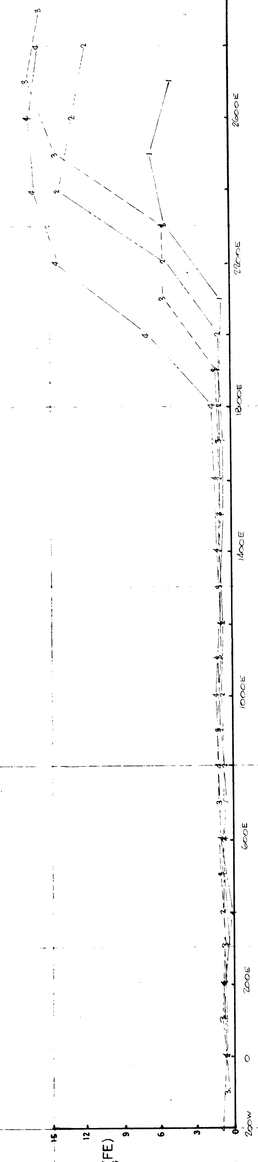
TITLE: COMPILATION REPORT, LINE 5200N
OWNER: CYPRUS MINES CORPORATION
LOCATION: LORNA DOONE PROSPECT S.A.

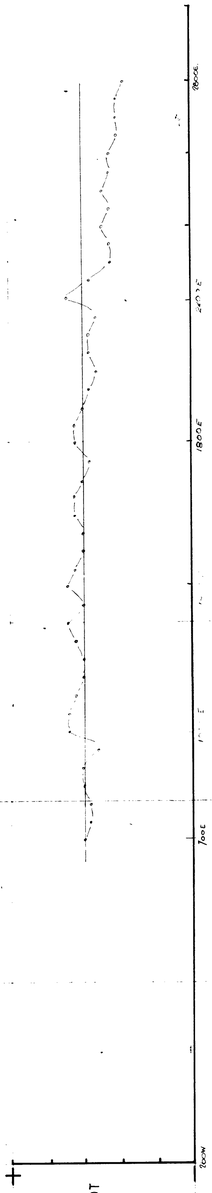
CONTRACT No. AM 194D
SHEET No. 921
ISSUE No. A

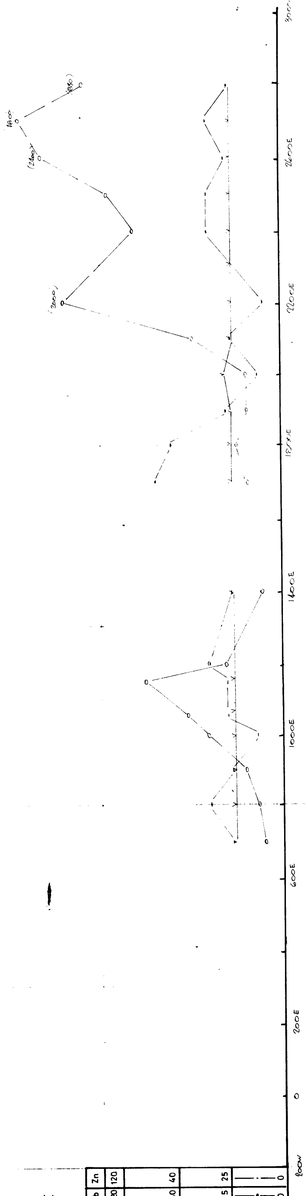
EMV 1193/2 1193-38

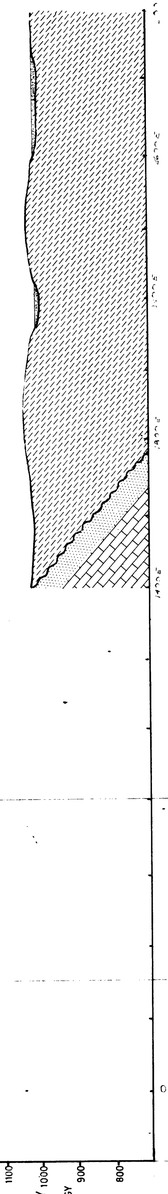












FOR LEGEND SEE SHEET 910 B

RECEIVED
20 JUL 1970
Dept. of MINES
Adelaide

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	23-6-70		COMPILATION REPORT LINE 5600N	B.J.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

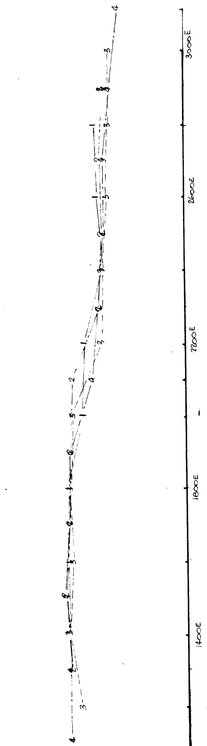
AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

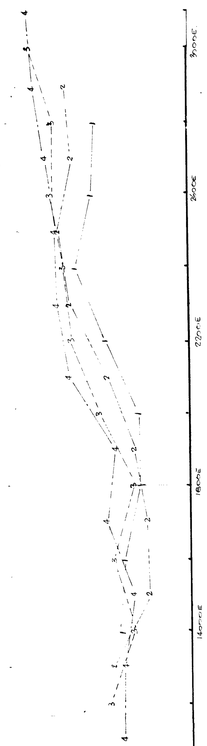
DRAWN BY: D J Morgan. DATE: 23-6-70 CHECKED BY: JB DATE: 29 6 70 SCALE 1=200

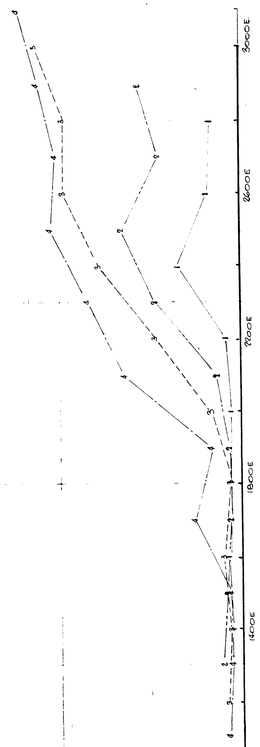
TITLE: COMPILATION REPORT, LINE 5600N
OWNER: CYPRUS MINES CORPORATION
LOCATION: LORNA DOONE PROSPECT S A
APPROVED FOR CONSTR. BY: [illegible] ISSUE No. A DATE: 29-6-70

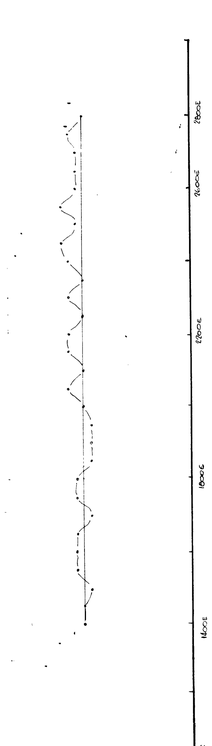
CONTRACT No. AM 194
SHEET No. 922
ISSUE No. A

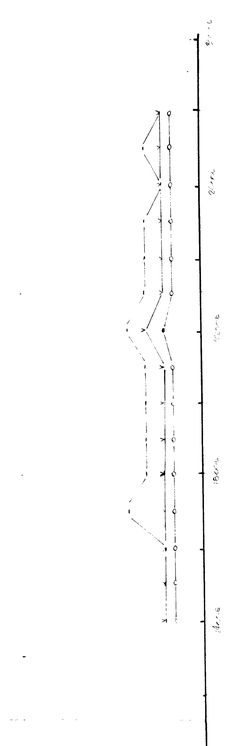
ENV 1193/2 1193-39

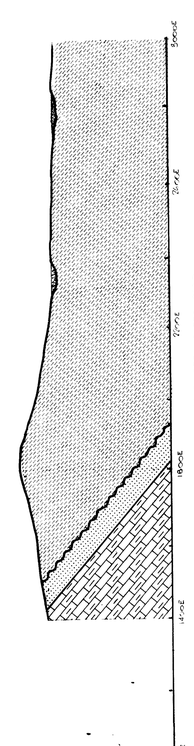












FOR LEGEND SEE SHEET 911B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	25-6-70		COMPILATION REPORT LINE 6000N	[illegible]	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY: B. Jennings. DATE: 25-6-70 CHECKED BY: JB DATE: 29-6-70 SCALE 1" = 200'

TITLE	COMPILATION REPORT, LINE 6000 N
OWNER	CYPRUS MINES CORPORATION
LOCATION	LORNA DOONA · PROSPECT S.A.
APPROVED FOR CONSTR. BY: [illegible] ISSUE No. A DATE: 29-6-70	

CONTRACT No. AM 194
SHEET No. 923
ISSUE No. A

ENV 1193/2 1193-67

RESISTIVITY. ($\frac{\rho a}{2\pi}$)

SPREAD = 200'

1000 / 100 / 10 / 1 / ·1 / ·01

METAL FACTOR.

SPREAD = 200'

100000 / 10000 / 1000 / 100 / 10 / 1

FREQUENCY EFFECT.

SPREAD = 200'

15 / 12 / 9 / 6 / 3 / 0

MAGNETOMETER PLOT.

1" = 12·50 GAMMAS

GEOCHEMICAL SURFACE PLOT.

	Cu	Pb	Zn
PEAK VALUE	675	120	120
Anomalous Value.	225	40	40
Threshold Value.	75	25	25

1200E / 1400E / 1600E / 1800E / 2000E

SURFACE GEOLOGY.

1030 / 980

PDH 2
TD 235'

FOR LEGEND SEE SHEET 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	26 6 70		Composite plan line 2800N	D. J. M.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY: D.J.Morgan.	DATE: 17. 6. 70.	CHECKED BY: JB	DATE: 30-6-70	SCALE 1" = 50'	APPROVED FOR CONSTR. BY:	ISSUE No. A	DATE: 30-6-70

TITLE	COMPOSITE PLAN. LINE 2800N.
OWNER	CYPRUS MINES CORPORATION.
LOCATION	LORNA DOONE PROSPECT Via LYNDHURST S.A.

CONTRACT No. AM194D
ISSUE No. A
SHEET No. 924

RESISTIVITY ($\frac{2\pi as}{2T}$)

SPREAD = 200'

1000 / 100 / 10 / 1 / ·1 / ·01

METAL FACTOR

SPREAD = 200'

100000 / 10000 / 1000 / 100 / 10 / ·1

FREQUENCY EFFECT.

SPREAD = 200'

15 / 12 / 9 / 6 / 3 / 0

MAGNETOMETER PLOT.

+ / − 1" = 12·50 GAMMAS

GEOCHEMICAL SURFACE PLOT.

	Cu	Pb	Zn
Peak Value	675	120	120
Anomalous Value.	225	40	40
Threshold Value.	75	25	25

1300E / 1500E / 1700E / 1900E / 2100E / 2300E / 2500E / 2700E

SURFACE GEOLOGY

1030 / 980

Water struck 190'

PDH.3
T.D. 250'

Water struck 175'

PDH.4
T.D. 230'

PDH.5
T.D. 200'

Water struck 130'

PDH.11
T.D. 250'

FOR LEGEND SEE SHEET 910B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY	ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	26 6 70		Composite plan line 3200N	D. J. M.	JB						

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY: D. J. Morgan.	DATE: 18. 6. 70.	CHECKED BY: JB	DATE: 30·6·70	SCALE 1" = 50'	
TITLE	COMPOSITE PLAN LINE 3200N			CONTRACT No.	ISSUE No.
OWNER	CYPRUS MINES CORPORATION.			AM194D	A
LOCATION	LORNA DOONE PROSPECT Via. LYNDHURST S.A.			SHEET No.	
APPROVED FOR CONSTR. BY:	ISSUE No. A	DATE: 30-6-70		925	

RESISTIVITY ($\frac{\rho a}{2\pi}$)

SPREAD = 200'

1000 100 10 1 ·1 ·01

METAL FACTOR

SPREAD = 200'

100000 10000 1000 100 10 ·1

FREQUENCY EFFECT.

SPREAD = 200'

15 12 9 6 3 0

MAGNETOMETER PLOT.

+

−

1" = 12·50 GAMMAS

465

GEOCHEMICAL SURFACE PLOT.

	Cu	Pb	Zn
Peak Value	675	120	120
Anomalous Value.	225	40	40
Threshold Value.	75	25	25
	0	0	0

1200E 1400E 1600E 1800E 2000E

SURFACE GEOLOGY

1030

980

115' Water struck

PDH. 7. T.D.120'

Water struck 160'

PDH.8 T.D.120'

FOR LEGEND SEE SHEET 910 B

20 JUL 1970 Dept. of Mines Regional

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY	ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	26. 6. 70		Composite plan line 3400N	D. J. M.	JR						

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

DESIGNERS • ENGINEERS • BUILDERS

SYDNEY MELBOURNE

DRAWN BY: D. J. Morgan.	DATE: 18. 6. 70.	CHECKED BY: JB	DATE: 30-6-70	SCALE 1" = 50'	
APPROVED FOR CONSTR. BY:		ISSUE No. A	DATE:		

TITLE	COMPOSITE PLAN LINE 3400 N.
OWNER	CYPRUS MINES CORPORATION.
LOCATION	LORNA DOONE PROSPECT Via. LYNDHURST S.A.

CONTRACT No. AM194D

SHEET No. 926

ISSUE No. A

ENV 1193/2 1193-69

RESISTIVITY ($\frac{\rho a\pi}{2T}$)

SPREAD = 200'

1000 100 10 1 .1 .01

METAL FACTOR

SPREAD = 200'

100000 10000 1000 100 10 1 .1

FREQUENCY EFFECT.

SPREAD = 200'

15 12 9 6 3 0

MAGNETOMETER PLOT.

+

−

1" = 12·50 GAMMAS.

GEOCHEMICAL SURFACE PLOT.

	Cu	Pb	Zn
Peak Value	675	120	120
Anomalous Value.	225	40	40
Threshold Value.	75	25	25

1300E 1500E 1700E 1900E 2100E

SURFACE GEOLOGY

1030

980

Water struck 185'
T.D. 190' P.D.H.1.

Water struck 105'
T.D 120' P.D.H. 6.

FOR LEGEND SEE SHEET 910B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	30. 6. 70		Composite plan line 3,600N.	D.J.M.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY:	DATE:	CHECKED BY:	DATE:	SCALE
D.J. Morgan.	30. 6. 70.	JB	30-6-70	1" = 50'

TITLE	COMPOSITE PLAN LINE 3,600N
OWNER	CYPRUS MINES CORPORATION.
LOCATION	LORNA DOONE PROSPECT Via. LYNDHURST S.A.
APPROVED FOR CONSTR. BY:	ISSUE No. A DATE: 20-6-70

CONTRACT No. AM194D

ISSUE No. A

SHEET No. 927

EHV 1193/2 1193-70

RESISTIVITY ($\frac{\rho a}{2\pi}$)

SPREAD = 200'

1000 100 10 1 .1 .01

METAL FACTOR

SPREAD = 200'

100000 10000 1000 100 10 -1

FREQUENCY EFFECT.

SPREAD = 200'

15 12 9 6 3 0

MAGNETOMETER PLOT.

+

1" = 12 - 50 GAMMAS

−

GEOCHEMICAL SURFACE PLOT.

	Cu	Pb	Zn
Peak Value	675	120	120
Anomalous Value.	225	40	40
Threshold Value.	75	25	25
	Nil to	Nil to	Nil to

900 E 1100E 1300E 1500E 1700E

SURFACE GEOLOGY

1030 980

PDH 14
T.D. 100'

FOR LEGEND SEE SHEET 910B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	30. 6. 70		Composite plan line 4800 N	D.J.M.	JB

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED
DESIGNERS • ENGINEERS • BUILDERS
SYDNEY MELBOURNE

DRAWN BY: D.J.Morgan. DATE: 30. 6. 70. CHECKED BY: JB DATE: 30-6-70 SCALE 1" = 50'

APPROVED FOR CONSTR. BY: ISSUE No. A DATE:

TITLE: COMPOSITE PLAN LINE 4800N

OWNER: CYPRUS MINES CORPORATION.

LOCATION: LORNA DOONE PROSPECT Via. LYNDHURST S.A.

CONTRACT No. AM 194

ISSUE No. A

SHEET No. 929

ENV 1193/2 1193-72

RESISTIVITY ($\frac{\rho a c}{2\pi}$)

SPREAD = 200'

1000 100 10 1 ·1 ·01

METAL FACTOR

SPREAD = 200'

100000 10000 1000 100 10 1

FREQUENCY EFFECT.

SPREAD = 200'

15 12 9 6 3 0

MAGNETOMETER PLOT.

+ −

1" = 12·50 GAMMAS

GEOCHEMICAL SURFACE PLOT.

	Cu	Pb	Zn
Peak Value	675	120	120
Anomalous Value.	225	40	40
Threshold Value.	75	25	25

2000 E 2200 E 2400 E 2600 E 2800 E

SURFACE GEOLOGY

1030 980

Water struck 125'

PDH12 TD.150'

Water struck 110'

PDH13 TD.140'

FOR LEGEND SEE SHEET 910 B

NOTES:

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY
A	30.6.70		Composite plan line 4000N	D.J.M.	JC

ISSUE	DATE	"E" No.	DESCRIPTION	BY	CHKD. BY

AUSTIN-ANDERSON (AUSTRALIA) PTY. LIMITED

DESIGNERS • ENGINEERS • BUILDERS

SYDNEY MELBOURNE

DRAWN BY: D.J.Morgan. DATE: 30. 6. 70. CHECKED BY: JC DATE: 30-6-70 SCALE 1" = 50'

TITLE: COMPOSITE PLAN LINE 4000 N

OWNER: CYPRUS MINES CORPORATION.

LOCATION: LORNA DOONE PROSPECT Via. LYNDHURST S.A.

APPROVED FOR CONSTR. BY: ISSUE No. A DATE: 30-6-70

CONTRACT No. AM 1940

SHEET No. 928

ISSUE No. A

ENV 1193/2 1193-71

50,000 E

40,000 E

30,000 E

20,000 E

10,000 E

50,000 N

40,000 N

30,000 N

20,000 N

10,000 N

000 N

Y 35,000 LINE

Y 39,000 LINE

LYNDA MINE

33,600 E LINE

30,000 E LINE

18,000 N LINE

13,500 N LINE

10,000 N LINE

MT. LYNDHURST

22,000 E LINE

25,000 N LINE

21,000 N LINE

18,000 E LINE

LEGEND

Prospect Workings

10,000 N LINE : IP Line Location

CYPRUS MINES CORPORATION

SCALE: 1" = 1000'	AREA: S. M. L. 314	DRAWN BY: G.D.
DATE:	PROJECT TITLE: MT. LYNDHURST	REVISED

LOCATION MAP SHOWING
IP RECONNAISSANCE SURVEY

DRAWING NUMBER

ENV 1193-54

INDUCED POLARIZATION PROFILES

Resis ——
PFE ——
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics -
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr – Yellow Mount Granite

Og – Girilambone Group: - Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. – Zn Combined
% Cu.

Pb. – Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 -1%	0·2 - 0·5%

6,400 E N
8,400 E N
10,400 E N
12,400 E

SCALE IN FEET 200 100 0 200 400

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 18,000 E SHEET 1 | DRAWING NUMBER:

28 MAY 1970

ENV 1193-59

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF -----

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — — —

PPM
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Sbv Sbr — Babinda Volcanics: -
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Og — Girilambone Group: - Phyllite & Clastics

— — Geological Contact
— — Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

12,400 E N
14,400 E N
16,400 E N
18,400 E

200 100 0 200 400
SCALE IN FEET

29 MAY 1975

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 18,000 E SHEET 2 — DRAWING NUMBER:

ENV 1193-60

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV) +100 0 -100 -100

Mag(γ) +100 0

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. - - - -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv — Acid to Intermediate Volcanics
Sbr — Silicified Rhyolite & Sediments

Sqr — Yellow Mount Granite

Og — Giriambone Group :-
Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 -1%	0·2 - 0·5%

12·8 PFE R. 10·3 12·3 PFE R.
14 PFE R. 11 15·8 PFE
T.N 12·5 15·8 12 PFE R. 14·5 T.N 12·8 10·5 PFE R.
T.N 14·8 11·8 17 12·5 PFE 12·3 18·3 T.N 20·3 PFE R.
T.C

6,400 8,400 10,400 12,400

200 100 0 200 400
SCALE IN FEET

28 MAY 1970

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 22,000 E SHEET 1 | DRAWING NUMBER:

ENV 1193-63

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. - - - -

P.P.M
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics -
Sbv Acid to Intermediate Volcanics
Sbr Silicified Rhyolite & Sediments

Sgr Yellow Mount Granite

Og Girrlambone Group: -
Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

12·3 22 PFE R 12 30·3 16·3 13·8 PFE R 11·5 13 PFE R 17·3 TL TL TL 5·3 PFE R TL TL TL TL

12,400 14,400 16,400 18,400

SCALE IN FEET 200 100 0 200 400

25 MAY 1970

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA	DRAWN BY
DATE	PROJECT TITLE LYNDHURST	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 22,000 E SHEET 2 DRAWING NUMBER

ENV 1193-64.

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. - - - -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv Acid to Intermediate Volcanics
Sbr Silicified Rhyolite & Sediments

Sgr Yellow Mount Granite

Og Girrilambone Group :-
Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 -1%	0·2 - 0·5%

7,000 E
9,000 E
11,000 E
13,000 E

SCALE IN FEET 200 100 0 200 400

28 MAY 1970

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 30,000 E SHEET 1 | DRAWING NUMBER:

ENV 1193-6

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - - -

	RESIS	MF	PFE
	1000	100	10
N-1 (600')	500	50	5
	0	0	0
	1000	100	10
N-2 (600')	500	50	5
	0	0	0
	1000	100	10
N-3 (600')	500	50	5
	0	0	0
	1000	100	10
N-4 (600')	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics -
Sbv – Acid to Intermediate Volcanics
Sbr Silicified Rhyolite & Sediments

Sgr Yellow Mount Granite

Og Girilambone Group: - Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

13,000 E
15,000 E
17,000 E
19,000 E

SCALE IN FEET 200 100 0 200 400

28 MAY 1970
DEPT. OF MINES
REGISTRY

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 30,000 E SHEET 2 | DRAWING NUMBER:

ENV 1193 - 7

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. - - - -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr – Yellow Mount Granite

Girilambone Group :-
Og – Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3%	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

7,000 E
9,000 E
11,000 E
13,000 E

200 100 0 200 400
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA:	
DATE:	PROJECT TITLE: LYNDHURST	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 33,600 E SHEET 1 | DRAWING NUMBER:

ENV 1193 – 8

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

P.F.E.
R.
TN

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Sbv Sbr — Babinda Volcanics:-
Sbv — Acid to Intermediate Volcanics
Sbr — Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Og — Girilambone Group:-
Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined		Cu.	
> 3%		> 1%	
1 - 3 %		0·5 - 1%	
0·5 - 1%		0·2 - 0·5%	

13,000 E
15,000 E
17,000 E
19,000 E

200 100 0 200 400
SCALE IN FEET

28 MAY 1970
DEPT. OF MINES
KALGOORLIE

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

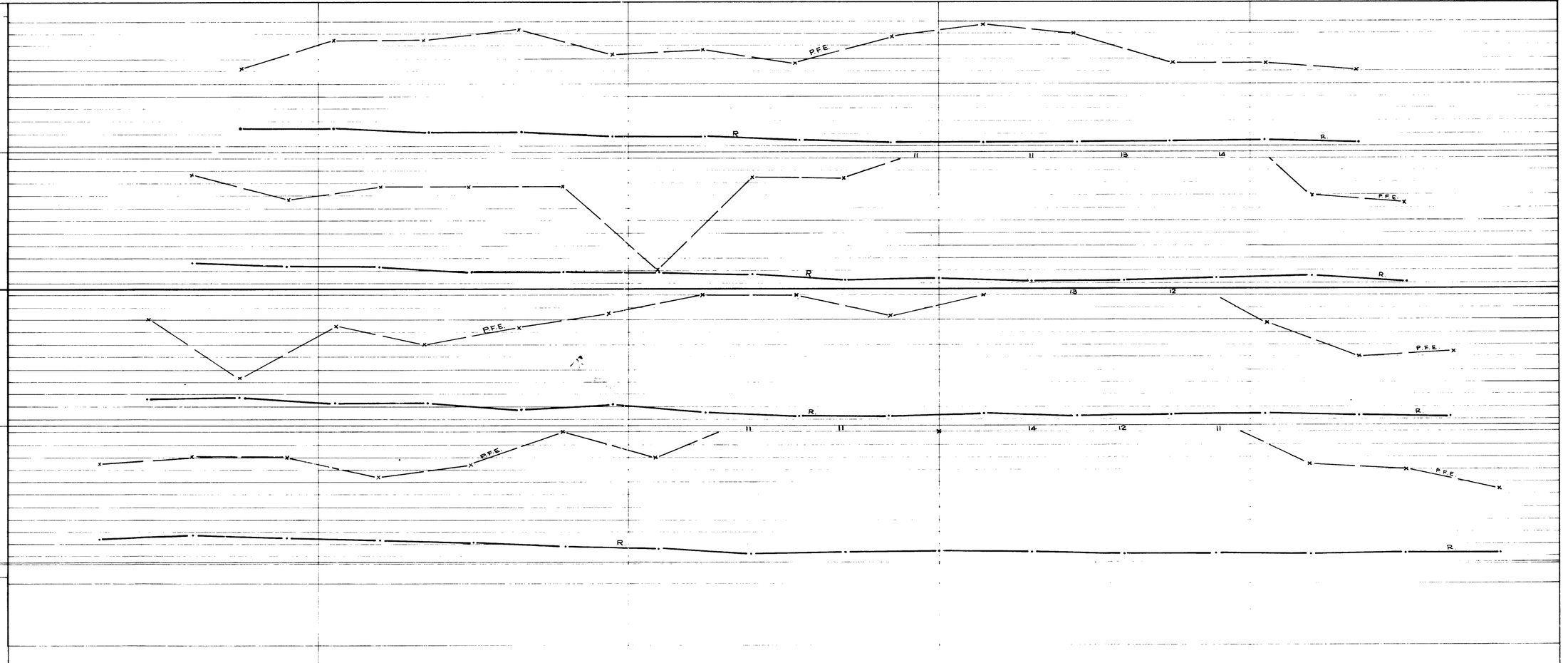
SECTION 33,600 E SHEET 2 | DRAWING NUMBER:

ENV 1193 - 9

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0



SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv - Acid to Intermediate Volcanics
Sbr - Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Og — Girilambone Group :- Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

22,800 E
24,800 E
26,800 E
28,8000 E

200 100 0 200 400
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA	DRAWN BY
DATE	PROJECT TITLE LYNDHURST	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 10,000 N — DRAWING NUMBER

ENV 1193-57

INDUCED POLARIZATION PROFILES

Resis ——
PFE ——
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

SP ——
Mag — —

SP (mv)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu ——
Pb — —
Zn - - - -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Sbv Sbr — Babinda Volcanics:-
Sbv - Acid to Intermediate Volcanics
Sbr - Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Og — Girilambone Group:-
Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

20,200 E
22,200 E
24,200 E
26,200 E

200 100 0 200 400
SCALE IN FEET

28 MAY 1970

CYPRUS MINES CORPORATION

400'

LYNDHURST

DRAWN BY
REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 13,500 N SHEET 1

DRAWING NUMBER

ENV 1193-65

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF – – – –

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P ——
Mag. — —

S.P (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. – – – –

PPM
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr – Yellow Mount Granite

Girilambone Group :-
Og – Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

26,200 E
28,200 E
30,200 E
32,200 E

200 100 0 200 400
SCALE IN FEET

28 MAY 1970
DEPT. OF MINES
REGISTRY

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 13500 N SHEET 2 | DRAWING NUMBER:

ENV 1193-58

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. - - - -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics -
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr – Yellow Mount Granite

Girilambone Group. – Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. – Zn Combined
% Cu.

Pb. – Zn. Combined	Cu.
> 3%	> 1%
1 - 3%	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

17,400 E
19,400 E
21,400 E
23,400 E

200 100 0 200 400
SCALE IN FEET

28 MAY 1970

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 18,000 N — DRAWING NUMBER:

ENV 1193-61

INDUCED POLARIZATION PROFILES

Resis ——
PFE — — —
MF - - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.

1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr – Yellow Mount Granite

Og – Girilambone Group :- Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. – Zn Combined
% Cu.

Pb. – Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 -1%	0·2 - 0·5%

12,000 E
14,000 E
16,000 E
18,000 E

SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA	DRAWN BY
DATE:	PROJECT TITLE LYNDHURST	REVISED

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 21,000 N SHEET 1 | DRAWING NUMBER:

ENV 1193-63

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Girilambone Group :-
Og — Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined		Cu.	
[ ]	> 3%	[ ]	> 1%
[ ]	1 - 3%	[ ]	0·5 - 1%
[ ]	0·5 - 1%	[ ]	0·2 - 0·5%

18,000 E
20,000 E
22,000 E
24,000 E

RECEIVED
28 MAY 1970
DEPT. OF MINES
REGISTRY

200 100 0 200 400
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

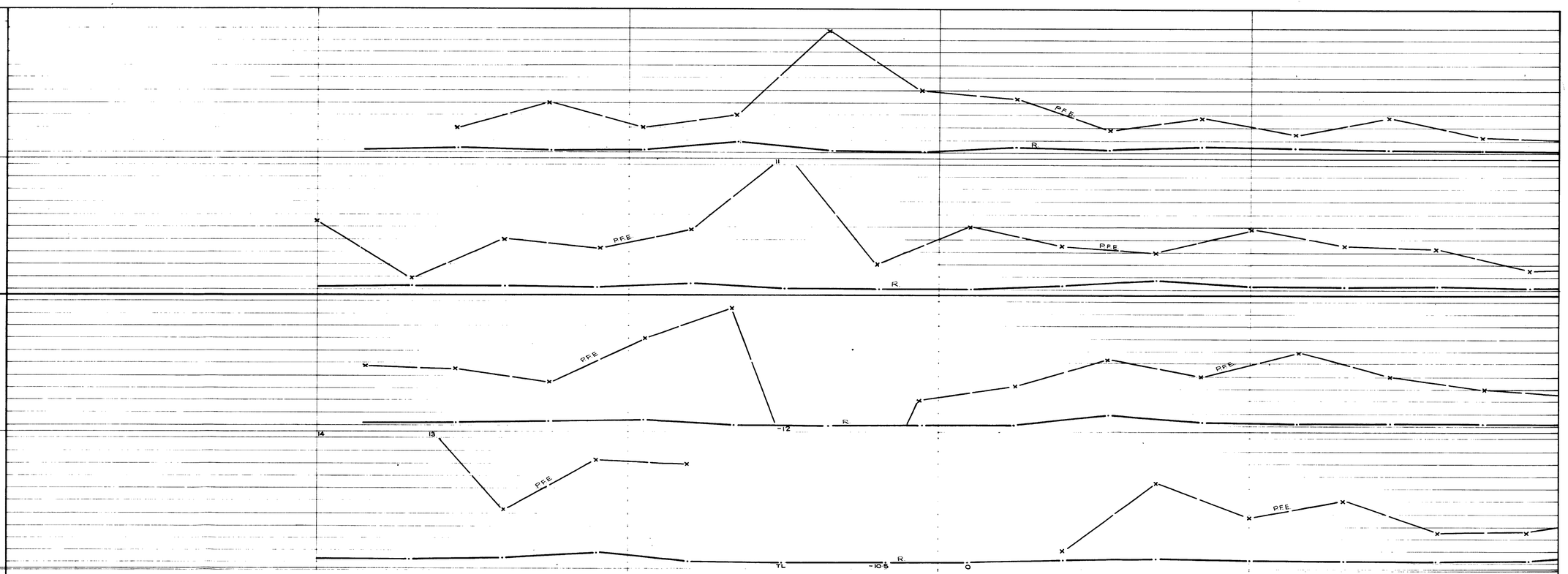
SECTION 21,000 N SHEET 2 — DRAWING NUMBER: .

ENV 1193-1

INDUCED POLARIZATION PROFILES

Resis ——— PFE — — MF - - - - -

	RESIS	MF	PFE
N-1 (600')	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0



SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——— Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——— Pb. — — Zn. - - - - -

P.P.M.

1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Sbv Sbr — Babinda Volcanics -
Sbv - Acid to Intermediate Volcanics
Sbr - Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Og — Girilambone Group: -
Phyllite & Clastics

— — Geological Contact
— — Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

24,000 E
26,000 E
28,000 E
30,000 E

200 100 0 200 400
SCALE IN FEET

RECEIVED 28 MAY 1970

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 21,000 N SHEET 3 DRAWING NUMBER:

ENV 1193 - 2

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics: -
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Girilambone Group: -
Og — Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

30,000 E
32,000 E
34,000 E
36,000 E

200 100 0 200 400
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA	DRAWN BY:
DATE	PROJECT TITLE LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 21,000 N SHEET 4 DRAWING NUMBER:

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sqr — Yellow Mount Granite

Girilambone Group :-
Og — Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

15,400 E
17,400 E
19,400 E
21,400 E

SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA	DRAWN BY:
DATE	PROJECT TITLE LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

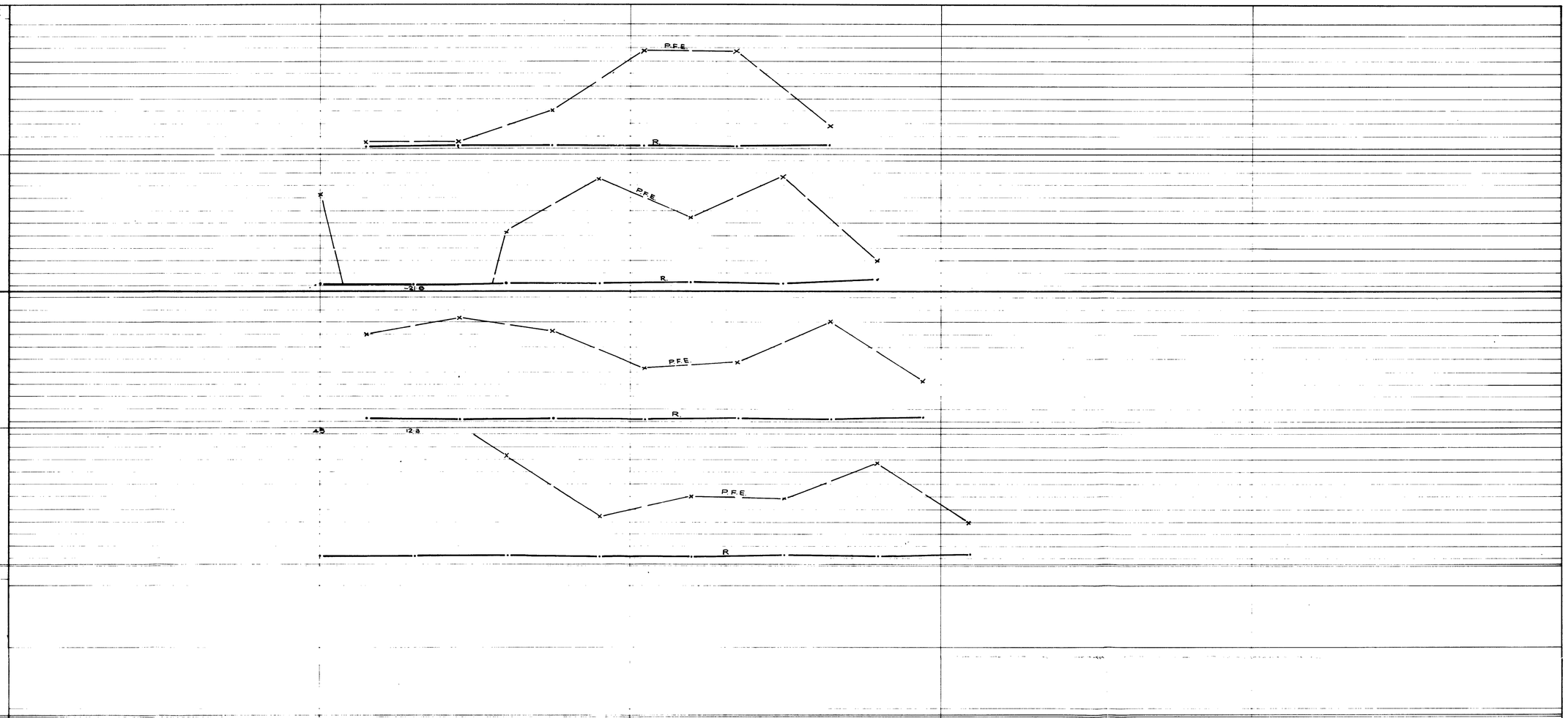
SECTION 25,000 N SHEET 1 | DRAWING NUMBER:

ENV 1193 – 4

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0



SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV): +100, 0, -100
Mag(γ): +100, 0, -100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. - - - -

P.P.M: 1000, 800, 600, 400, 200, 0

GEOLOGICAL CROSS SECTION

Sbv / Sbr — Babinda Volcanics –
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr. — Yellow Mount Granite

Og — Girilambone Group –
Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. – Zn. Combined
% Cu.

Pb. – Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

21,400 E
23,400 E
25,400 E
27,400 E

200 100 0 200 100
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION 25,000 N SHEET 2 | DRAWING NUMBER:

ENV 1193 – 5

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF -----

	RESIS	MF	PFE
N-1 (400')	1000	100	10
	500	50	5
	0	0	0
N-2 (400')	1000	100	10
	500	50	5
	0	0	0
N-3 (400')	1000	100	10
	500	50	5
	0	0	0
N-4 (400')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — — —

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics :-
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sgr – Yellow Mount Granite

Og – Girilambone Group :-
Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. – Zn Combined
% Cu.

Pb. – Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

52,000 E.
54,000 E.
56,000 E.
58,000 E.
60,000 E.

RECEIVED
28 MAY 1970
DEPT. OF MINES
RUBY NT

200 100 0 200 400
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA	DRAWN BY
DATE	PROJECT TITLE LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION Y35,000 | DRAWING NUMBER:

ENV 1193 – 10

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

- Sbv / Sbr — Babinda Volcanics - Sbv — Acid to Intermediate Volcanics; Sbr — Silicified Rhyolite & Sediments
- Sgr — Yellow Mount Granite
- Og — Girilambone Group - Phyllite & Clastics
- Geological Contact
- Fault
- Breccia
- Shattering

Drillhole
% Pb. - Zn. Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

52,000 E
54,000 E
56,000 E
58,000 E

SCALE IN FEET 200 100 0 200 400

28 MAY 1970 DEPT. OF MINES QUEENSLAND

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION Y35,000 SHEET 1 | DRAWING NUMBER:

ENV 11193-11

INDUCED POLARIZATION PROFILES

Resis ——
PFE ——
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — - — -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Sbv, Sbr — Babinda Volcanics -
Sbv Acid to Intermediate Volcanics
Sbr Silicified Rhyolite & Sediments

Sgr — Yellow Mount Granite

Og — Girilambone Group - Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 -1%	0·2 - 0·5%

58,000 E. 60,000 E. 62,000 E. 64,000 E.

200 100 0 200 400
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE 1" = 400'	AREA	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION Y35,000 SHEET 2 | DRAWING NUMBER:

ENV 1193-12

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
MF - - - -

	RESIS	MF	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0

SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. - - - -

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics: -
Sbv – Acid to Intermediate Volcanics
Sbr – Silicified Rhyolite & Sediments

Sqr – Yellow Mount Granite

Og – Girilambone Group – Phyllite & Clastics

Geological Contact
Fault
Breccia
Shattering

Drillhole
% Pb. – Zn Combined
% Cu.

Pb. – Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

52,000 E.
54,000 E.
56,000 E.
58,000 E.

200 100 0 200 400
SCALE IN FEET

RECEIVED 28 MAY 1970 DEPT. OF MINES KALGOORLIE

CYPRUS MINES CORPORATION

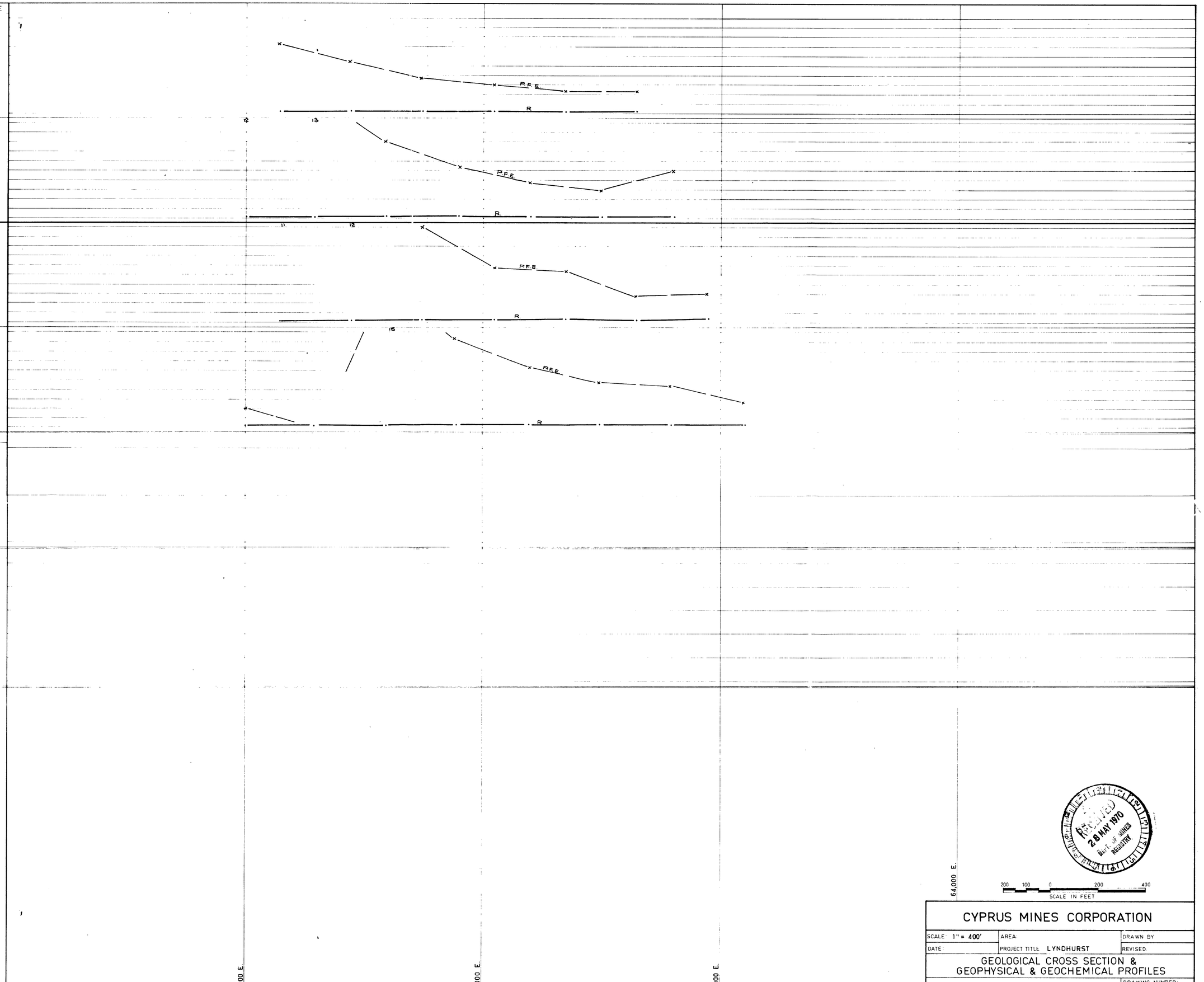
SCALE: 1" = 400'	AREA	DRAWN BY:
DATE	PROJECT TITLE LYNDHURST	REVISED:
GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES		
SECTION Y39,000 SHEET 1		DRAWING NUMBER: -

ENV 1193-13

INDUCED POLARIZATION PROFILES

Resis ——
PFE — —
M.F -----

	RESIS	M.F	PFE
N-1 (600')	1000	100	10
	500	50	5
	0	0	0
N-2 (600')	1000	100	10
	500	50	5
	0	0	0
N-3 (600')	1000	100	10
	500	50	5
	0	0	0
N-4 (600')	1000	100	10
	500	50	5
	0	0	0



SELF POTENTIAL & MAGNETIC PROFILES

S.P. ——
Mag. — —

S.P. (mV)	Mag(γ)
+100	+100
0	0
-100	-100

GEOCHEMICAL PROFILES

Cu. ——
Pb. — —
Zn. — — —

P.P.M.
1000
800
600
400
200
0

GEOLOGICAL CROSS SECTION

Babinda Volcanics -
Sbv - Acid to Intermediate Volcanics
Sbr - Silicified Rhyolite & Sediments

Sgr - Yellow Mount Granite

Og - Girilambone Group: - Phyllite & Clastics

—— Geological Contact
—— Fault
Breccia
Shattering

Drillhole
% Pb. - Zn Combined
% Cu.

Pb. - Zn. Combined	Cu.
> 3%	> 1%
1 - 3 %	0·5 - 1%
0·5 - 1%	0·2 - 0·5%

58,000 E.
60,000 E.
62,000 E.
64,000 E.

200 100 0 200 400
SCALE IN FEET

CYPRUS MINES CORPORATION

SCALE: 1" = 400'	AREA:	DRAWN BY:
DATE:	PROJECT TITLE: LYNDHURST	REVISED:

GEOLOGICAL CROSS SECTION & GEOPHYSICAL & GEOCHEMICAL PROFILES

SECTION Y39,000 SHEET 2 — DRAWING NUMBER: