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INDUSTRIAL & MINING INVESTIGATIONS PTY LIMITED

REPORT ON FIELD INVESTIGATIONS WITHIN EL 4/61,

WEST COAST, TASMANIA

SUMMER FIELD SEASON 1981-82

PART I

GEOCHEMICAL PROGRAMME NORTHERN EL4/61

BY

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(PART I)

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(Accompanying Parts I,II and III
of Report)

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INDUSTRIAL & MINING INVESTIGATIONS PTY LTD

Report on Field Investigations within EL 4/61, West Coast,
Tasmania - Summer Field Season 1981-82

SUMMARY OF EXPLORATION WITHIN EL4/61

Apart from the Savage River Magnetite deposits themselves, and the areas detailed in these 1981-82 Field Season Reports, areas investigated within EL4/61, and reported on, are as follows:

1. The Long Plains Magnetite Deposit.
2. The Rocky River Magnetite Deposit.
3. The S.W. Section of EL 4/61 around Stringer Creek(1978).
4. The Brown Plains Tin Deposits (1980).
5. The Harvey Creek-Little Savage River Area (1979).
6. The Hall Creek-Specimen Creek Area (1980).

The Long Plains and Rocky River Deposits have been drilled and tested for heavy media. The Browns Plains area was gridded and sampled for tin. The Stringer Creek, Harvey Creek, and Hall Creek areas have been investigated by way of stream sediment surveys.

PROPOSED INVESTIGATIONS WITHIN EL 4/61

Investigations for the 1982-83 Field Season will be a direct follow-up to the 1981-82 Season.

That is:

- a. Further investigations of the Main Creek Magnesite Deposit to delineate the area most favourable, in all aspects, for the earliest development. This will involve further geological reconnaissance and drilling.
- b. Further investigations of those areas to the north of Savage River, which, as a result of the 1981-82 soil geochemical programme, have produced the most interesting copper possibilities. These investigations will involve soil sampling on a closer grid, followed by Self Potential, Magnetic, Induced Potential Surveys and drilling, if warranted.

INTRODUCTION

Summer field season activities took place from 7.10.81 to 30.4.82.

Part I of this report covers work related to geochemical follow-up of magnetic anomaly targets in the North of EL 4/61, specifically two parallel trends: (a) in the McAuliffe Creek-Little Donaldson River area, and (b) in the Pipeline Road area northwards from Specimen Reef.

Part II covers geochemical work related to the detailed grid established in the Specimen Reef area, which was conducted as a self-contained programme early in the season.

Part III covers programmes related to drilling activity: (a) in the Specimen Reef area where diamond drilling was carried out on targets selected on the basis of the previous field season programme; and (b) in the Main Creek magnesite deposit, where, after failure of an attempt to collect bulk samples from bulldozer costeans, an airtrak rig was used to collect material from below the overburden. Other samples were collected from natural outcrop.

PART IA. McAULIFFE CREEK-LITTLE DONALDSON RIVER AREA1. INTRODUCTION

The area of interest contained a magnetic anomaly ridge with three culminations which were termed the southern, central and northern anomalies, and an outlying anomaly termed the eastern anomaly. The exploration programme was intended to test the area of these anomalies for base metal mineralization.

2. LOCATION AND ACCESS

The area is centred 10 km north of Savage River township. It is covered by the Horton 1:50,000 and Arthur River 1:100,000 map sheets.

From Savage River, the pipeline road is the only practicable approach. An access track was constructed leaving the pipeline road at 524145 and extending roughly WSW to 460098. It crosses the cut baseline for the geochemical sampling grid at 490122 and at this point a short branch track leads to the prepared camp area at 487126 which is centrally located to the 8 km long baseline. Traverse lines branching from the baseline are aligned along grid E-W and spaced generally at 500 m apart. The lines along 110N and 150N are extended to the pipeline road and provide an alternative though strenuous walking track access.

The access track incorporates most of the track work of the previous field season, exceptions being a major diversion needed to reduce grade 2 km in. An attempt to avoid another steep pinch at 4 km had to be abandoned owing to landslips.

The natural surface of the road must be classed as poor over extensive tracts of the Permian tillite/mudstone and Precambrian greenschist country and also in sections of the Tertiary basalt terrain. To illustrate the point, a section on Permian tillite at 3 km needed to be rebuilt twice during the field season and ultimately was surfaced with corduroy. On sections of greenschist and basalt, traction was lost after a light shower even in summer, and the section on basalt beyond the camp was effectively abandoned in March.

A partial solution to the problem was to equip all vehicles using the road with chains. By the end of the season the road itself had firmed considerably. The use of chains was affecting damage at some critical points.

The weak point most likely to close the road is at a critical hairpin bend 2 km in. At this point there is a spring induced by the basalt/Permian contact which has generated a succession of mudflows. At the end of the season the most recent mudflow had already nearly closed the road.

Cut lines were established by first flagging carefully located compass traverses through the bush, which were then converted to tracks by contract line cutters (the Purton brothers). This method enabled tracks to be accurately located in relation to the Australian Map Grid.

3. RELIEF AND DRAINAGE (GEOMORPHOLOGY)

The area is a dissected benched plateau with the principal surface represented by the frequency of 400 m summit ring contours. In adjacent country there are indications of other bench levels indicated by 460 m, 500 m and 320 m summit ring contour maxima. The 460 m surface is well represented on the basalt plateau in the first 2 km of the access track. The bench relicts are up to 2 km across making quite extensive tracts of gentle tops country, which narrow down to ridges that still usually maintain accordance though at a lower level. Slopes leading off to the valley floor are steep and even precipitous. Valley side benches are uncommon, so there is normally one continuous steep slope from plateau edge to valley floor. (This situation effectively prevented construction of a track to the Little Donaldson River.) Relative relief is of the order of 150 m.

The major river of the area is the Little Donaldson River which is, paradoxically, roughly double the width of the Donaldson River and may carry perhaps four times the volume of water. Within the area the Little Donaldson is a mature stream generally flanked with alluvial flats and with only short sections of bedrock floored rapids. The fall from the EL boundary at 510167 to the "hairpin" at 462115 is about 30 m, (270 m to 240 m), thus lacking anything to suggest a knickpoint in the area.

This level in the river channel may correspond to the mature reaches of the (other) Donaldson River and Broderick Creek, and the plateau-level western tributaries of McAuliffe Creek which are all around 300 m. The presence of a major knickpoint is indicated by the contrast in mature levels of Broderick Creek and McAuliffe Creek where they run parallel to each other with McAuliffe Creek incised 100 m lower.

All the rivers drain ultimately to the Pieman; the access track corresponds to the divide between the Donaldson and the Savage. The parallel courses of the Donaldson and Little Donaldson Rivers, which transgress the grain of the Precambrian, are thought to be twin-laterals inherited from a basalt cover.

4. VEGETATION

Nearly all the area is covered by temperate rainforest with the antarctic beech species *Nothofagus cunninghamii* being the dominant tree species supplemented by sassafras, leatherwood and horizontal, and ground cover of mosses, ferns and man ferns. Large crowned forest is the most common variety; the healthiest looking and most open forms are found on the basalt covered plateau relicts, although the greenschist terrain and parts of the Permian contain trees of comparable size. Areas with horizontal thicket are scattered throughout with notable concentrations in gullies and scarps edges.

Less common is a stunted variety in which big *Bauera* tends to replace the sassafras and leatherwood, and there is often also some celery-top pine. It tends to indicate quartz gravel soils and sometimes peat.

A very distinct minor vegetation type is paperbark with *Bauera* or rush understorey. It can occur as an isolated pocket or as a rim around a button grass area.

Eucalypt species were found only around the edge of "button grass" areas, and in a rare fern ground cover-*Nothofagus*-eucalypt forest. The eucalyptus "button grass" areas encountered were all degenerating to ti-tree or *Bauera* (presumably because of exclusion of fire since the passing of the aborigines).

An incidental discovery of the soil sampling programme was the presence of charcoal and brick-red calcined earth in many of the auger holes. As the larger trees throughout the area are more than a metre in diameter, the fire responsible would have to pre-date European contact in Tasmania. The larger trees appear to be even-aged and presumably grew up in regeneration after the fire.

A different form of stunted forest occurs in the west of the area where the track ends. Apart from the addition of more celery-top pine species, composition is close to that of the mature beech forest. It seems to be controlled by a lower soil fertility and/or a more recent severe fire.

None of the vegetation was easily traversed except for odd clear patches in the mature beech forest. In practice, cut access tracks were needed for any job which required gear such as augers, etc., to be carried in to a locatable point.

5. GEOLOGY - INTRODUCTION

The Precambrian basement of the area could be divided into an eastern area where greenschist was the dominant lithology and a western area which was mainly grey slate.

(Geology - Introduction)
continued

The greenschist area was divided by a N-S area of Permian rocks, mainly glacials, and the area examined lies within the official mapped boundary of the Arthur Lineament but does not include any rocks of the "psammitic association of the Whyte Schist" (Urquhart, 1966). Bedding and schistosity attitudes are normally steep and dip westwards. It is thought that the area is a simple west-dipping sequence.

6. STRATIGRAPHY

6.1 Quaternary - Introduction

Although something of a nuisance factor, an understanding of the nature and extent of the Quaternary superficial deposits is important in understanding and assessing relevance of a soil sampling programme, such as was undertaken in this field programme. Such cover is general and can be assumed to be present wherever actual rock outcrop is not present.

6.1.1 Alluvium

Alluvial cover is usually present alongside any stretch of creek or river which has attained an approximate base grade. Normally only a single flat level is present and this is subject to contemporary flooding. Traces of older and higher terraces were found. The presence of rock bars indicates that deposits are only 4 metres or so thick. Valley alluvium along even the largest river is normally less than 100 m wide but does reach 500 m in places along the Little Donaldson River.

6.1.2 Transported soil

Evidence for a near universal transported soil mantle was discovered in the auger drilling, where the most common section from near-surface comprised uniform clay followed by a pebble layer which had to be penetrated before entry to material in which relict bedrock textures might be found, occurred. The stone layer is considered to mark the base of transported soil material, with in situ weathered rock below it in most cases. Apart from soil creep and K-cycle boundaries, the stone layer may simply represent the base of the infilling of the holes left when trees fall over. The transported soil layer appears to be normally 0.5 to 1.5 m thick.

6.1.3 Mass movement deposits

Deposits suggestive of mass movement on a larger scale than soil creep - landslips or mudflows for instance - were detected as fossil gully fills exposed in the road-making work. Such features may be common but cannot be readily detected from surface or hand auger evidence.

6.1.4 Quartz gravel

A gravel with angular clasts up to 5 cm across and composed of vein quartz and quartz dominant rock types occurs on some of the ridge and plateau relicts of the 400 m and 460 m plateau surfaces and on the upper portions of the adjoining slopes. It was not found over a basalt bedrock nor was it universal over a greenschist bedrock although it was found in some areas where the greenschist lacked abundant quartz veins. In Savage River town the principal source is a Tertiary conglomerate.

It appears that the deposit consists largely of material derived from a lag deposit originally developed when the plateau areas were more extensive. The failure of the gravel to cover basalt areas may be explained if these remained slightly higher in the landscape under the weathering regime then in force, which requires a strong solutational component. The gravel may have been confined to channel areas and areas close to suitable source material, hence the inconsistencies of its present distribution.

Some elements of the original lag deposit may survive though it is suspected that most of the deposit is a Quaternary cover reworked from the old material.

6.2 Tertiary - Introduction

The rocks in the area that are unequivocally of Tertiary age are the basalt and the conglomerate which may occur below it. There is also some regolith material (deeply weathered rock) below the basalt which is probably also Tertiary. Erosion surfaces of the area are thought to be post-basalt but still Tertiary in age.

6.2.1 Basalt

The basalt is fine grained and without obvious distinctive varietal features in hand specimen. The area covered by basalt proved to be very extensive by comparison with the amount shown on the Burnie 1:250,000 sheet. It is possible that two ages of basalt are present in the area as the eastern basalt area has its base at a substantially higher elevation than that of the western basalt area.

6.2.2 Conglomerate

The better developments of the conglomerate occur outside the area, for example at Savage River town and at Brown Plains. In these exposures the conglomerate is comprised of coarse cobbles of grey and white quartzite, schist and vein quartz in a poorly consolidated sandstone matrix (sometimes silicified). Most occurrences lack basalt cover. In the area, such conglomerate as was found attributed to the Tertiary was float and resembled the Precambrian conglomerate, so it is possible that only Precambrian conglomerate exists in the area. The occurrences at 475150 and in the Little Donaldson River are thought to be Tertiary because they are upstream of Precambrian conglomerate rock bars - e.g., at 467122.

6.2.3 Sub-Basalt Regolith

Kaolinized rock in various pastel colours - pink, yellow or white - occurs immediately below basalt along the pipeline road (ex greenschist) and at the hairpine bend on the I.M.I. access track (ex tillite).

6.3 Permian

The Permian sediments comprise tillite and ice-rafted pebbly mudstones, bedded mudstone and minor sandstone. The boundaries of the Permian are sharp and linear and as they do not correspond with the dip and strike measurements taken in Broderick Creek they are interpreted as faults.

The sequence is tillite-mudstone-tillite, with the lower tillite formed in Broderick Creek and the mudstone and upper tillite exposed from 505129 to 513133 along the access track.

6.4 Precambrian - Introduction

Considering the area east of the Permian belt, there is a distinction between an eastern belt of metavolcanics represented mainly by greenschists and a western belt of metasediments which may continue well beyond the pair of ridge-forming sandstone/conglomerate beds which were used as a natural limit of the area of interest. Mostly observed dips are to the west, and although there is some evidence for superimposed folding it appears the area contains a simple west-dipping sequence.

Divisions can be made as follows:

6.4.1 Greenschist Unit

There is fairly good exposure along the access track from 505129 to 495125, and in this section there is only greenschist exposed. From 495125 to 491122 there is greenschist interspersed with thin but relatively resistant grey slate or phyllite beds. The occurrence of a pyrite bearing white carbonate rock (magnesite?) in stream sections at 495112 and 499138 suggests that there are some generally non-outcropping carbonates in the sequence also. The magnetic anomalies lie near the western limit of this belt.

6.4.2 Pyroclastic Marker

This unit contains three sub-units with different and distinctive resistant components. From the east there are beds with the appearance of a well bedded shale or siltstone, which lacks altogether any obvious metamorphic texture in hand specimen although unoriented, greenschist grade metamorphic minerals are detectable in thin section. There are grey and green colour phases present in the good exposures at 489124 and 492138, but at 492101 only a small amount of the green phase is present and the remainder of the unit appears to have converted to grey and green phyllite.

The second distinctive bed is a pale green pyroclastic rock with sparse clasts up to 1-2 cm across in a fine grained matrix.

The third bed contains numerous flattened clasts up to 1 cm in the long dimension and a conspicuous cleavage. Many clasts are white and the matrix is grey to green. Good exposures occur at 486104, 488130 and 489137.

6.4.3 Slate Unit

Much of the area likely to be underlain by this unit is covered by basalt, so the unit is known from the section along the Little Donaldson River only and there are many gaps in the exposures. Outcropping rocks vary from phyllite through slate to virtually uncleaved mudstones in their metamorphic character and from grey pelites to black carbonaceous, pyritic pelites in composition with minor black chert. Sample 1004 from outcrop at 475127 is an interbedded grey and black pelite with the appearance of possible graded bedding, but this was not confirmed by thin section examination. However, cut and fill features indicated west-is-up facing compatible with the expected facing direction.

6.4.4 "Dolomite" unit

In the Little Donaldson River section, a 500 m stretch virtually without outcrop is interpreted as a dolomite area on indirect evidence. Dolomite exists along strike in the Harvey Creek area 10 km south, and at 100467 a doline was encountered in an area of basalt, which is most easily explained as a subjacent collapse feature which implies an underlying carbonate rock.

Basalt cover is practically universal in the belt and it is suggested that the basalt followed a solutional lowland in the pre-basalt surface.

The one outcrop in this stretch of the river was a fine grained sandstone with concretionary structures of a form normal in impurity beds in carbonate rock.

The last 50 m before the conglomerate marker (see below) comprise a well bedded slate.

6.4.5 Conglomerate Marker

A short gorge occurs at 467122 where the Little Donaldson River crosses the basal conglomerate bed of the marker. This bed is a quartzose small cobble conglomerate, and it is overlain by sandstone and some pebble conglomerate. The unit is resistant and is expressed as a marked strike ridge. A similar strike ridge exists about 500 m west and this pair of strike ridges is the most reliable mappable unit in the area.

6.4.6 Grey slate unit

A portion of the weaker beds lying between the two strike ridges has been examined between 466122 and 462115. In this area grey slate and phyllite are the main rock types with some carbonaceous and pyritic slate or phyllite.

7. STRUCTURE AND METAMORPHISM

There is a general N-S strike and steep westerly dip of cleavage throughout the area. True bedding is usually not distinguishable, thus the assumption of bedding plane cleavage is somewhat arbitrary although it is often supported where true bedding can be detected. The major division between these metavolcanic greenschist sequence and the slate sequence is considered to be conformable since the comparatively thin pyroclastic marker appears to persist at the boundary.

Multiple lineation directions and crumpling of the phyllites suggest that complex superimposed folding may be present in the area, but not necessarily on a large scale.

The slates that are interstratified with the greenschists imply that the appearance of stronger metamorphism of the schists may be an illusion caused by different source materials having a variable response to essentially the same metamorphic conditions. Thus the "Arthur Lineament" need not be a major tectonic feature. The belt of magnetic anomalies appears now to outline an essentially stratigraphic formation of greenschists.

If a significant boundary exists in the area it may well be the western edge of the "psammitic association" of the Whyte Schist.

8. GEOCHEMISTRY - INTRODUCTION

As it was decided at the outset of the programme that the magnetic anomalies would be tested by soil sampling, the stream sediment sampling was designed rather as a control for further work. Line spacing between soil traverses is based on target size considerations, specifically that an orebody of useful size would be expected to have some geochemical expression over a 500 m strike length. The spacing is considered somewhat over large for reliable contouring of the sample data.

8.1 Soil Sampling Programme

The sampling traverse lines were set up using 50 m pegs labelled with a reference number approximating the A.M.G. reference for that point. For the E-W lines sample spacing was 25 m except where there was evidence of basalt cover. For N-S lines the basic spacing was 50 m with some interpolation to 25 m along the south of the baseline.

The samples were collected using 1 m hand augers, often taking advantage of natural hollows in the ground surface, such as the pits left behind by uprooted trees, in order to gain deeper penetration.

As explained in the section on geology, the layering encountered in soils was mainly of stratigraphic rather than pedogenic character, but the organic topsoil cover can be considered an "A" horizon, the transported soil layer with its lenticular basal stone layer a "B" horizon, and the in-situ weathered rock a "C" horizon.

The ideal of the sampling procedure was to penetrate through the covering layers and collect a sample in which relict textures of the bedrock could be recognized after breaking open the compacted auger cuttings. There was usually a definite colour change where the "C" horizon was entered.

It was not always possible to achieve the desired level of penetration, and where the sample taken was not a genuine weathered bedrock it was noted as a poor sample. Areas with a capping of quartz gravel were particularly troublesome. Occasionally, silicified or hard outcropping rock hampered collection of a weather rock specimen.

Samples were sieved to -80 mesh prior to analysis by Analabs, Burnie. One sample batch of -40 + 80 mesh samples were also assayed. The method used for preparation was perchloric acid digestion, and for analysis, atomic absorption spectrometry.

8.1.1 Results

A substantial area of elevated copper values was found which relates well to the central and southern magnetic anomalies. There are some supporting values in zinc although they are not high in themselves, and except for a solitary extreme value of 1.25%, lead values are low.

The peak copper value, 1,400 ppm, lies east of the central anomaly. The next highest is in the southern anomaly, and the third highest value, 555 ppm, is in the central anomaly and is supported by several values of 400 ppm+.

The highest zinc value, 570 ppm, may be part of a dispersion halo marginal to the copper anomaly. Other values above 200 ppm may relate to faults bounding the trough of Permian sediments or perhaps minor vein mineralization.

8.1.2 Discussion: Significance of results

The most useful comparison which can be made is with the Que River area described by Webster and Skey (1979), which although in rocks of different age and metamorphism is a base metal deposit hosted in volcanics in a Tasmanian west coast situation.

The soil samples at Que River give an indication of the lead-zinc mineralization but not much indication of the copper. Values are erratic with only isolated high values of lead or zinc. There is a zone of above-background lead in the area of the two ore lenses but some lines show only background zinc across the same lenses. Thus although a spot soil lead value of 1.25% lead is found in the eastern anomaly area of the I.M.I. survey, it is considered more likely to indicate chance intersection of a minor vein.

With respect to copper, the values found in the I.M.I. programme appear more promising. At Que River the highest copper value at surface was in a gossan specimen from the 2% copper bearing ore lens, which had 1,100 ppm Cu. The highest soil value was 600 ppm in weather rock. This compares with a soil high of 1,400 ppm Cu, and a float specimen of 780 ppm Cu found so far in the I.M.I. programme. There is some support in zinc in zones of high Cu content. Note that the soil Cu in the area exceeds actual gossan values at Que River.

The main magnetic anomaly trend does seem to be associated with a promising looking copper anomaly even if ore concentrations are not necessarily indicated by the data, which could fit in with a unit carrying high background copper but lacking in ore grade concentrations of the metal. The eastern anomaly may be an accidental effect of the neighbouring trough of Permian sediments; apart from the isolated lead it shows no interesting geochemistry.

8.2 Stream Sediment Sampling Programme

Access for stream mud sampling was by means of the larger creeks and the Little Donaldson River supplemented by use of the cut lines. Minor creeks are usually very overgrown and so were not used in this survey. Freshly deposited silts were collected, sieved to -80 mesh and analysed by Analabs, Burnie, using the same procedures as for the soil samples.

8.2.1 Results

It was found that background values were of the order of Cu 15 ppm, Zn 50 ppm, Pb <5-10 ppm. The maximum value for both copper and zinc was from a minor creek draining the central section of the central anomaly which had Cu 150 ppm, Zn 190 ppm, Pb <5 ppm. Virtually all other samples which had above background values were related to the central and southern magnetic/geochemical anomaly areas. Undoubtedly the same areas would have been picked out as interesting by both the stream mud approach and the magnetics.

One isolated sample from a large creek in the slate belt may warrant some follow-up work; it has values Cu 40, Zn 110, Pb 20 ppm. This is the highest lead value in a stream sediment sample.

9. CONCLUSION

An area prospective for copper mineralization has been established with support from magnetics, stream mud geochemistry and soil geochemistry.

10. RECOMMENDATIONS

The more promising areas disclosed in the soil survey should be sampled in greater detail using 100 m line spacing. Some geophysical follow-up is desirable using self potential, ground magnetics and induced polarization techniques; particularly dipole-dipole I.P. as an aid to drilling target selection. For the area north of the Little Donaldson it may be necessary to locate a drilling rig on site by helicopter.

(PART I)B. PIPELINE ROAD AREA1. INTRODUCTION

The area of interest was determined by a magnetic anomaly trend extending northwards from the Savage River magnetite. Although it was suspected to be caused by low grade magnetite, there was some interest in the area for base metals going by results from the Specimen Reef Grid, which lies just east of the main anomaly peak. The other two culminations on the anomaly axis lie to the east of the pipeline road.

2. LOCATION AND ACCESS

The area is centred 12 km NNW of Savage River and the anomaly peaks are within 2 km of the Pipeline road.

A series of cut lines were constructed from start points on the pipeline road itself, which functioned as a base line for the area.

3. RELIEF AND DRAINAGE

The area is described in section A of this volume (Part I) of the report. (The anomalies lie in the principal area where 500 m A.S.L. plateau relicts occur.)

4. VEGETATION

The main vegetation communities are the beech forest and stunted Bauera forest types described in section A. At Specimen Reef however there is a stand of blackwood and ti-tree which is a special feature of that area.

5. GEOLOGY

Detailed descriptions of Permian and younger rocks applicable to the area are found in section A. Basalt and ridge-capping quartz gravels are common.

For the Precambrian only the greenschist unit is present. The greenschist itself is the most common rock and a transition from schist with metamorphic segregation into quartzo-feldspathic and chlorite rich bands to a near massive rock with relict phenocrysts can be traced in the Specimen Reef drillhole core. The original volcanic appears to be an andesite. Other rocks found in the area are magnetite-quartz rock and graphite schist.

6. GEOCHEMISTRY

The sampling procedure used is described in section A. The sampling of the northern and central pipeline road anomalies was hampered by extensive basalt and quartz gravel cover. One unexpected result was the presence of zinc values exceeding 200 ppm in an area of basalt. In the area where Precambrian rock is sampled there are no copper values significantly higher than 100 ppm or zinc above 200 ppm.

The anomaly west of Specimen Reef has a peak copper value of 370 ppm, but the area lacks any sizable zones of greater than 200 ppm copper. Zinc values are low except for an isolated 200 ppm sample.

7. CONCLUSION

There appears to be no significant anomaly in the area with the possible exception of the area near Specimen Reef.

8. RECOMMENDATIONS

No further work seems warranted in this area since the Little Donaldson area appears more promising. If more work in that area establishes that moderate copper anomalies are worth follow-up work it may then be desirable to establish some more geochemical traverses near the peak copper values.

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Geological Survey of Tasmania, pp 1-12.
3. Urquhart, G. 1966.
Magnetite Deposits of the Savage River-
Rocky River Region:
Tasmanian Department of Mines, Geological
Survey Bulletin No 48 pp 1-45.
4. Webster, S.S., and Skey, E.H. 1979
Geophysical and Geochemical Case History
of the Que River Deposit, Tasmania, Australia;
in Geophysics and Geochemistry in the Search
for Metallic Ores; Peter J. Hood, editor;
Geological Survey of Canada, Economic Geology
Report 31, pp 697-720.

APPENDIX 1

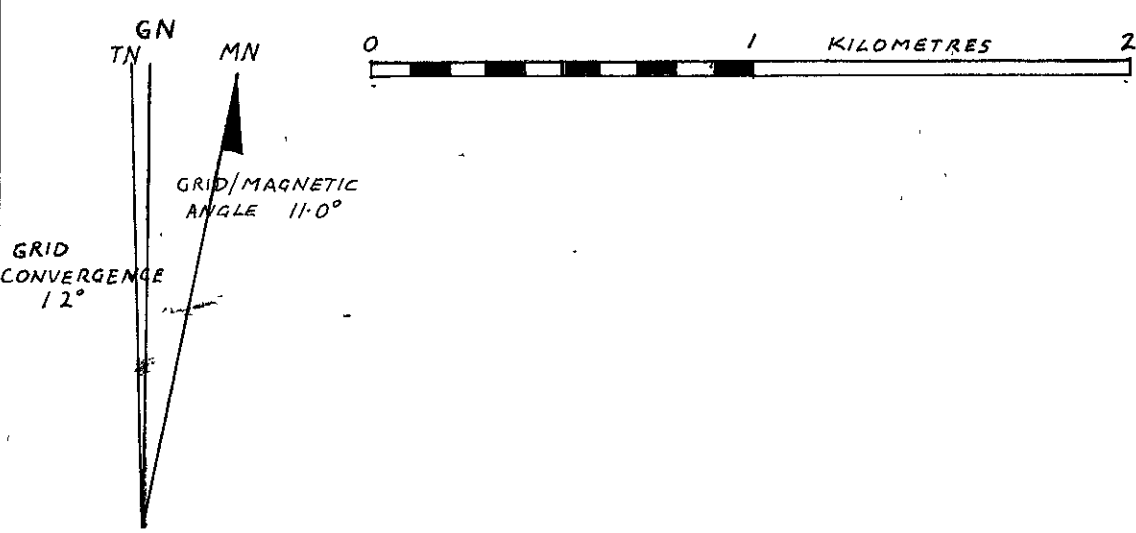
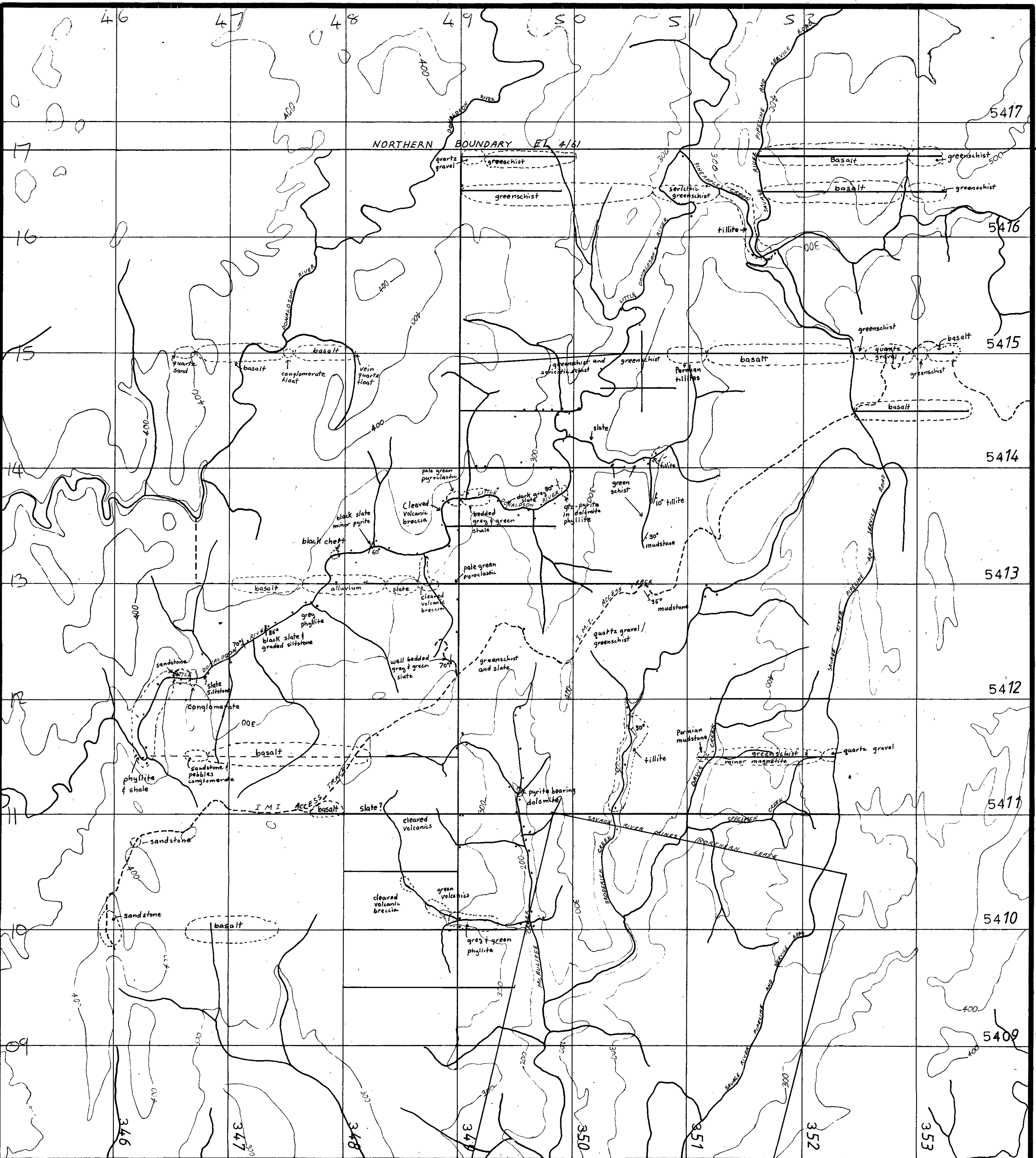
McAULIFFE CREEK-LITTLE DONALDSON RIVER AREA.

TABLE OF MISCELLANEOUS ROCK CHIP SAMPLES.

TABLE 1. McAULIFFE CREEK-LITTLE DONALDSON RIVER AREA
MISCELLANEOUS ROCK CHIP SAMPLES

GRID LOCATION	SAMPLE No	Cu	Pb	Zn	As	Au	Ag	REMARKS
	1004	170	10	100	47	0.015	X	Interbedded slate & siltstone with graded beds and pyrite - outcrop.
	1005) 1006)	NO ANALYSES						
14.1-49150	1007	100	X	90	NO ANALYSES			Grey sericite/chlorite phyllite with lensoid white bodies - Float.
14.6-49575	1008	150	X	95	"	"		Weathered Phyllite with grey phyllite cores - Float.
14.6-49650	1009	780	5	150	"	"		Greenschist with minor limonitic joint fillings - Float.
14.6-49690	1010	20	X	80	"	"		Vein quartz in chloritic schist - Float.
14.6-49848	1011	255	385	105	"	"		Chlorite schist with minor gossan vein - Float.
14150-49550	1012	245	X	80	"	"		Grey sericite-chlorite-epidote?schist - Float.
14500-49500	1013	115	5	40	"	"		Grey sericite phyllite - Float.

757022



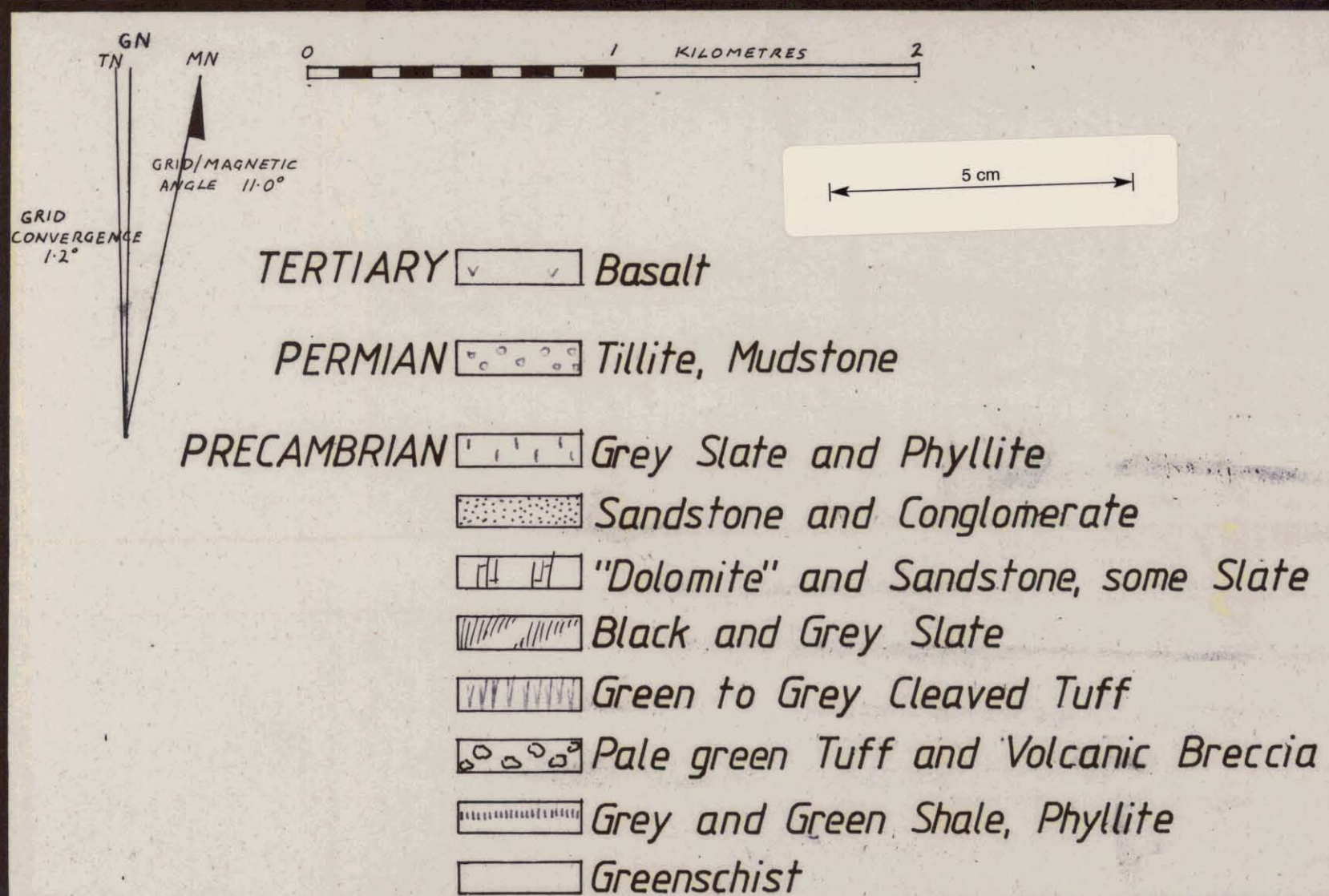
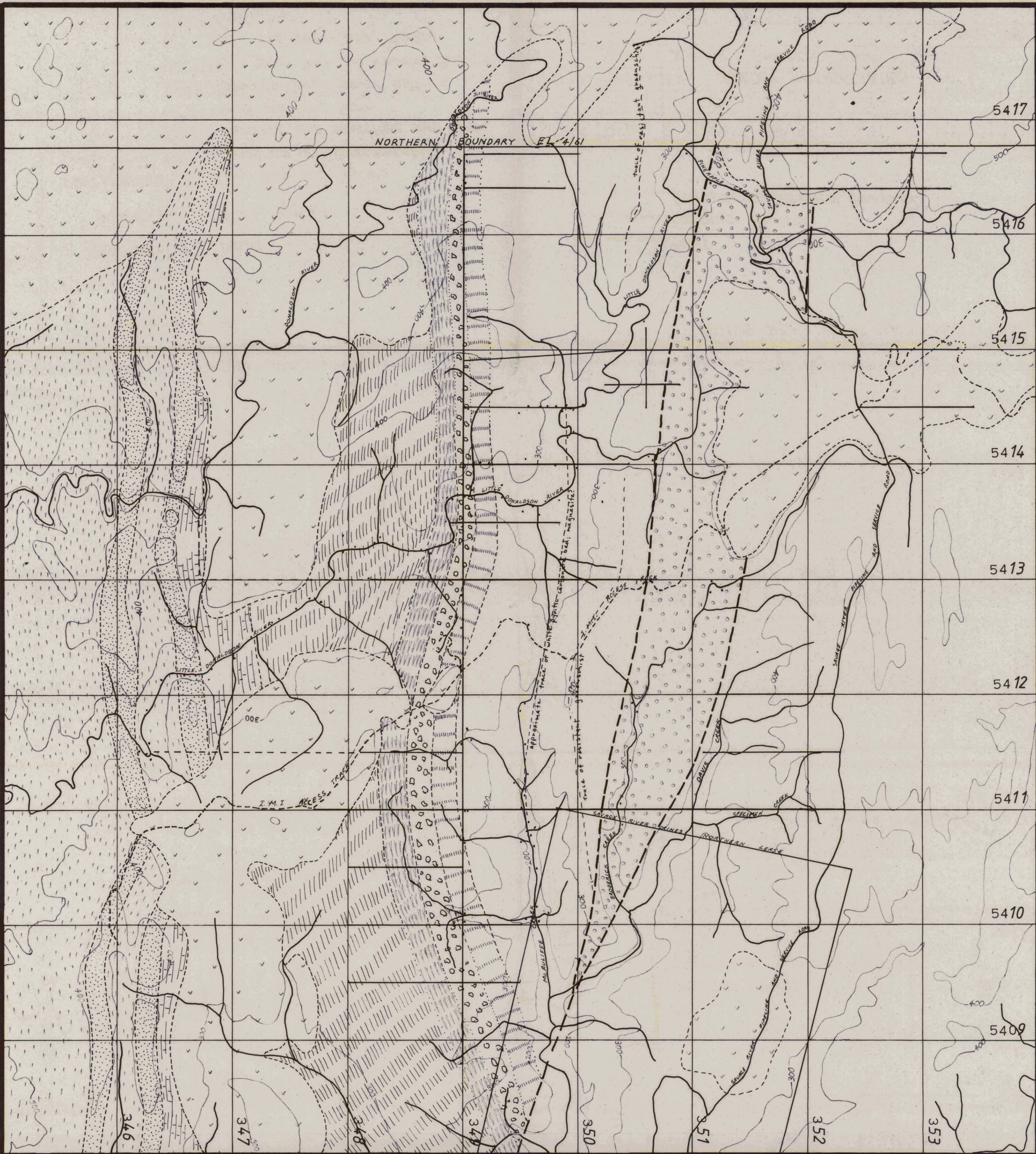
ARTHUR RIVER (PART MAP) SHEETS 17-22

5 cm

92-1781. Vol. 1.

757023

INDUSTRIAL & MINING INVESTIGATIONS PTY LTD
McAULIFFE Ck, LITTLE DONALDSON RIVER, AREA
PIPELINE ROAD AREA EL 4/61 GEOLOGY FACTUAL
SCALE 1:20,000 DATA COLLECTED BY H SHANNON & J WOODMAN
DRAWN J WOODMAN
JUNE 1982



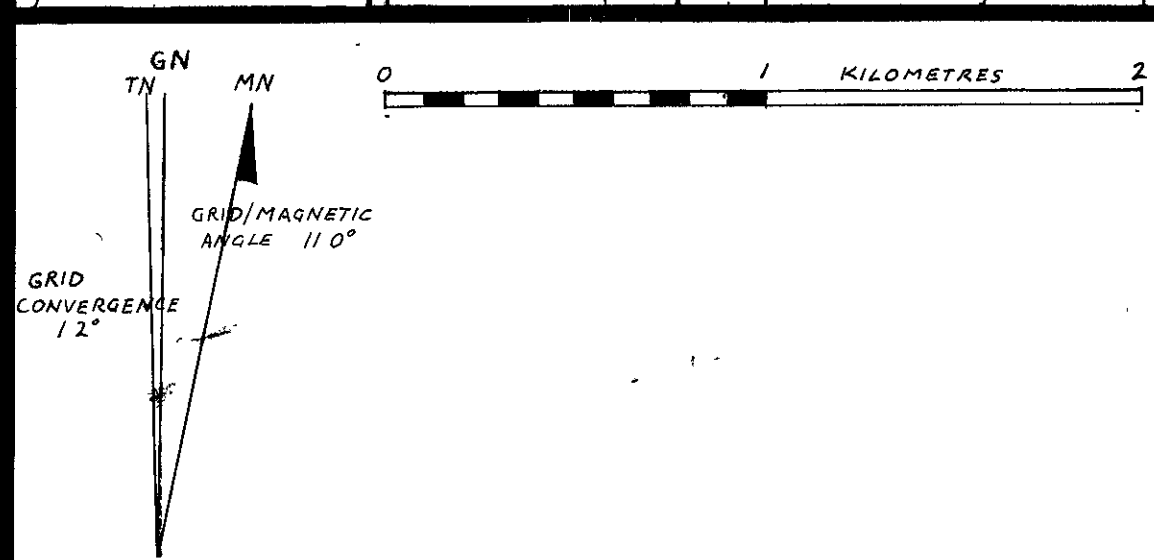
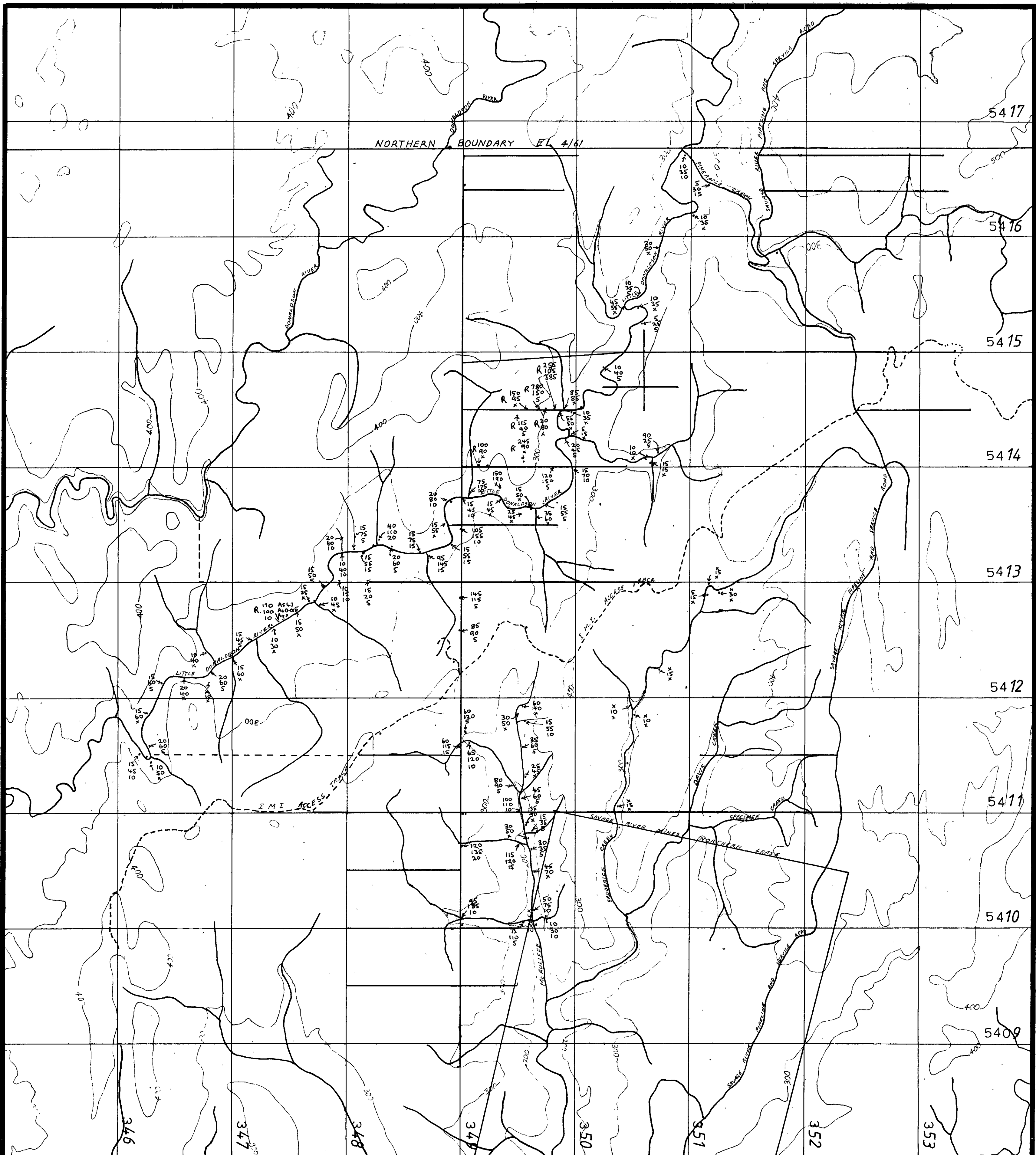
--- Fault
 - - - - - Geological Boundary
 Extrapolated Geological Boundary

ARTHUR RIVER (PART MAP) SHEETS 17+22

82-1781. Vol. 1. 757024

INDUSTRIAL & MINING INVESTIGATIONS PTY LTD
 McAULIFFE CK, LITTLE DONALDSON RIVER, AREA
 PIPELINE ROAD AREA GEOLOGY INTERPRETATION
 SCALE 1:20,000 AUTHOR H SHANNON DRAWN H SHANNON
 EL 4/61 JUNE 1982

1008



ARTHUR RIVER (PART MAP) 17+22

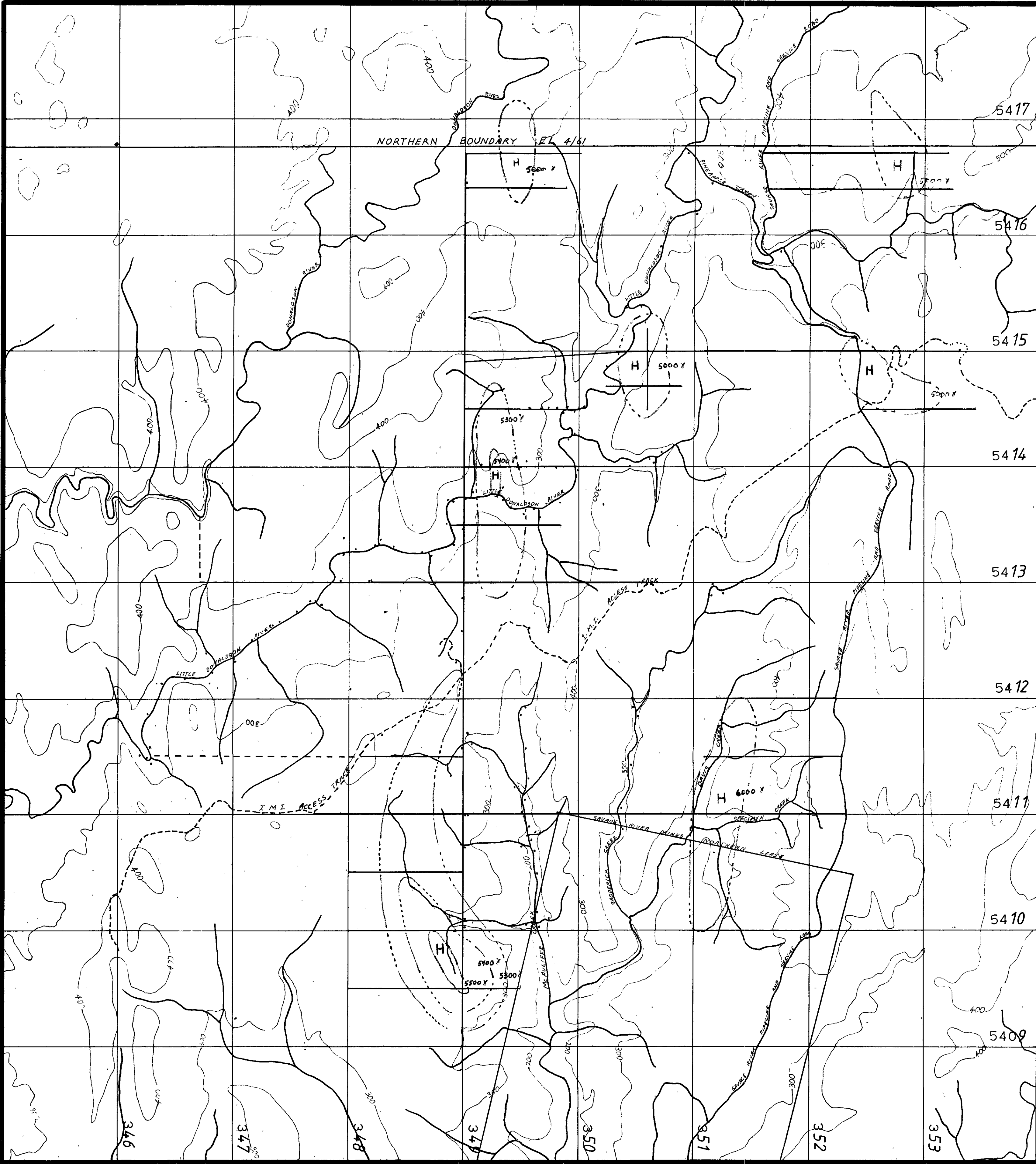
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82-1781. Vol.1. 757026

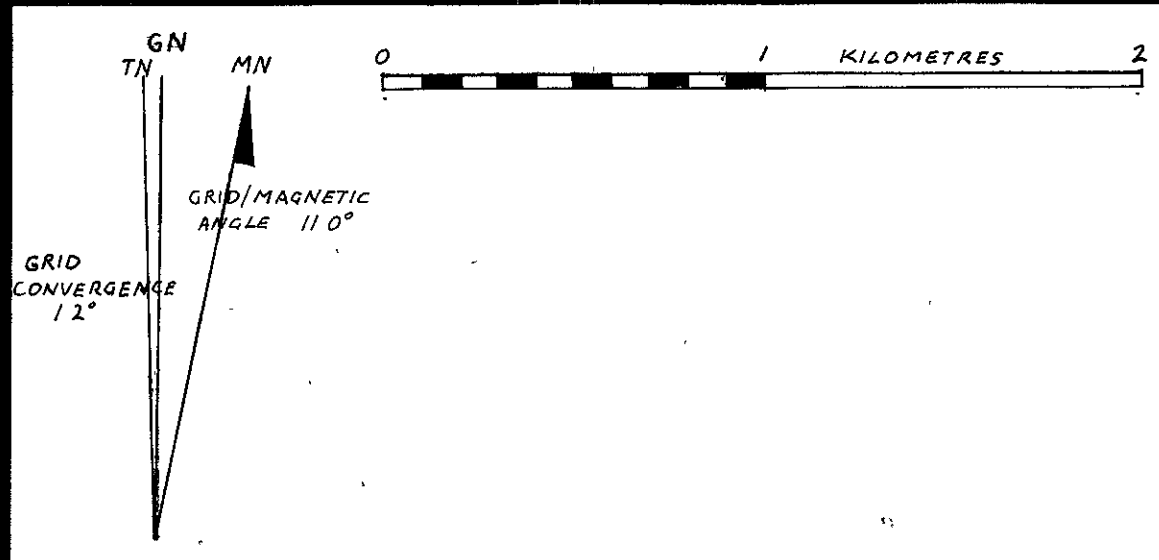
INDUSTRIAL & MINING INVESTIGATIONS PTY LTD		
McAULIFFE Ck, LITTLE DONALDSON RIVER, AREA		
PIPELINE ROAD AREA EL 4/61	Cu Zn Pb ASSAY VALUES	
SCALE 1:20,000	STREAM MUD & ROCK CHIP SAMPLES	
DRAWN H SHANNON	JUNE 1982	

Cu in ppm
Zn in ppm
Pb in ppm x = below limit of detection
R denotes Rock chip sample

45
30
x



ARTHUR RIVER (PART MAP) 17+22

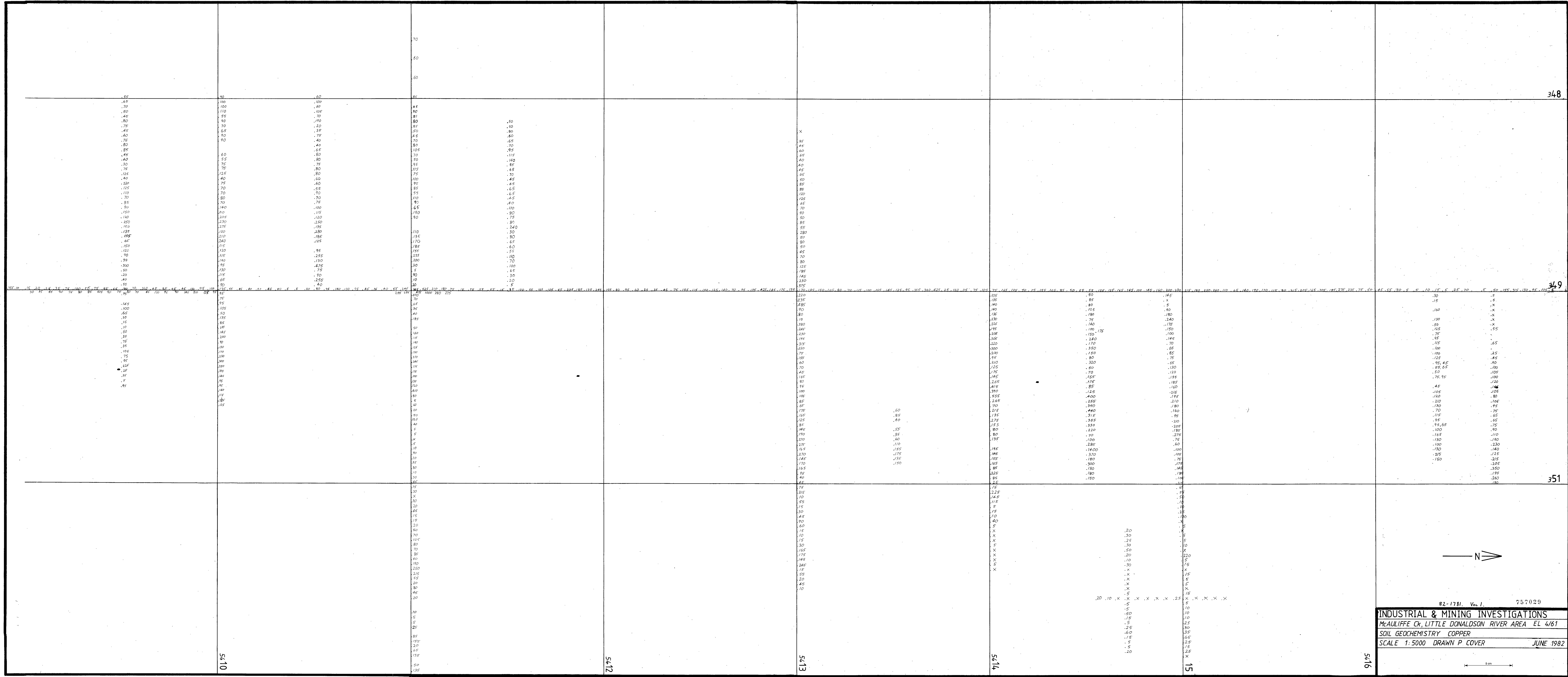


5 cm

82-1781. Vol. 1 757027

INDUSTRIAL & MINING INVESTIGATIONS PTY LTD	
McAULIFFE CK, LITTLE DONALDSON RIVER, AREA	
PIPELINE ROAD AREA -EL 4/61. MAGNETIC ANOMALY TARGET AREAS	
SCALE 1:20,000	SOURCE R.T.A.E SURVEY 1956
DRAWN J WOODMAN	JUNE 1982





82-1781, Vol. 1, 757029

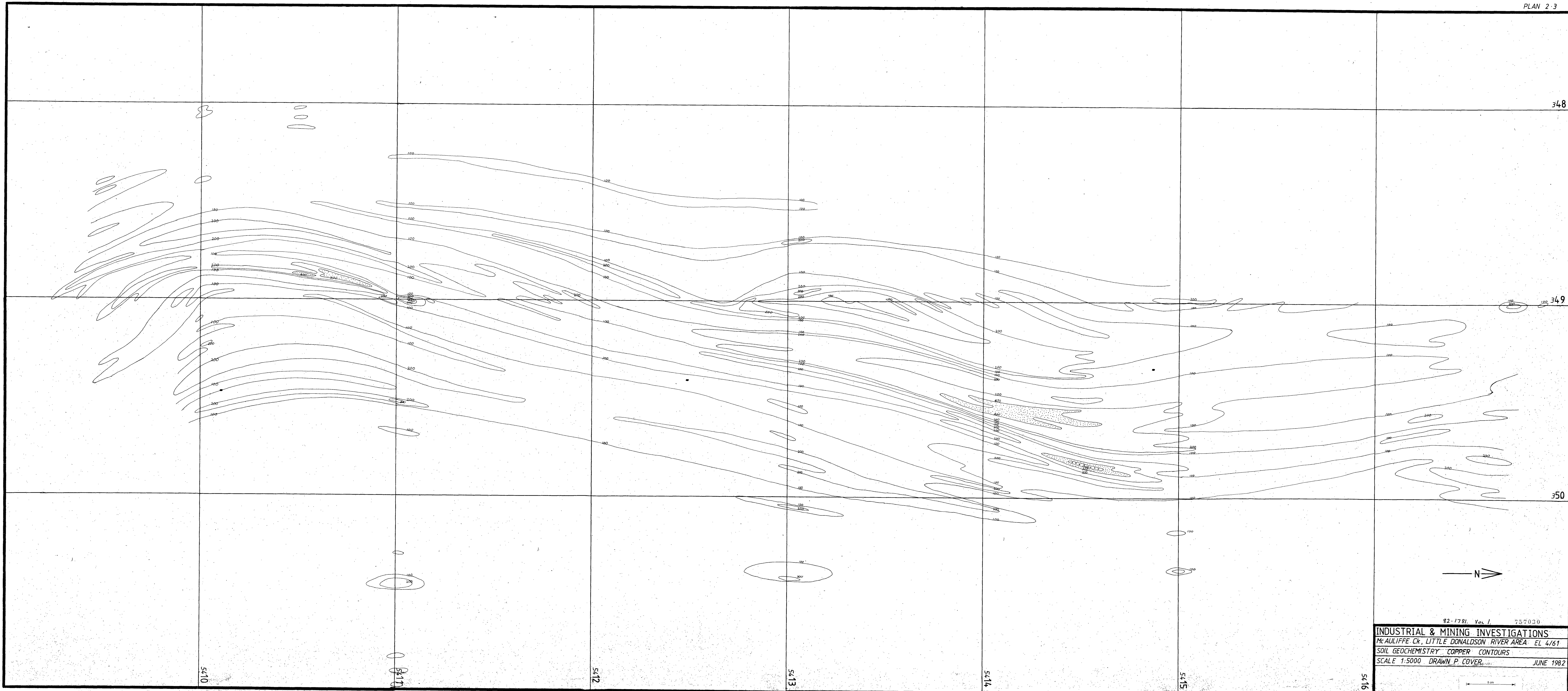
INDUSTRIAL & MINING INVESTIGATIONS

McAULIFFE CR, LITTLE DONALDSON RIVER AREA EL 4/61

SOIL GEOCHEMISTRY COPPER

SCALE 1:5000 DRAWN P COVER JUNE 1982

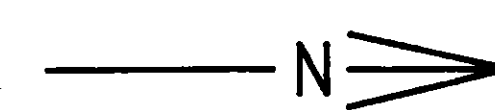
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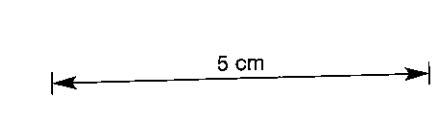
34.8

34.9

350



82-1781, Vol. 1. 757031
INDUSTRIAL & MINING INVESTIGATIONS P/L
McAULIFFE CK, LITTLE DONALDSON RIVER, AREA EL 4/61
SOIL GEOCHEMISTRY ZINC
SCALE 1:5000 DRAWN P COVER. JUNE 1982



1013

5416

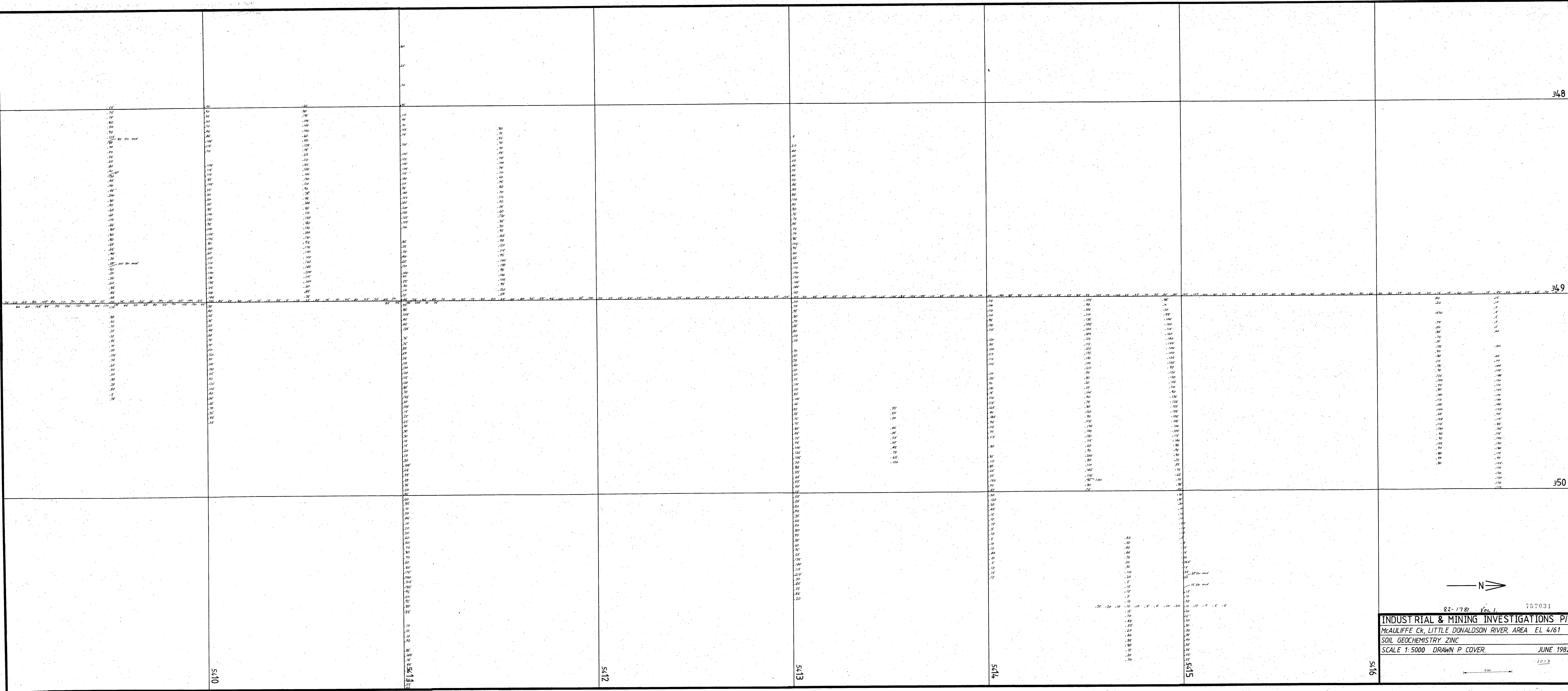
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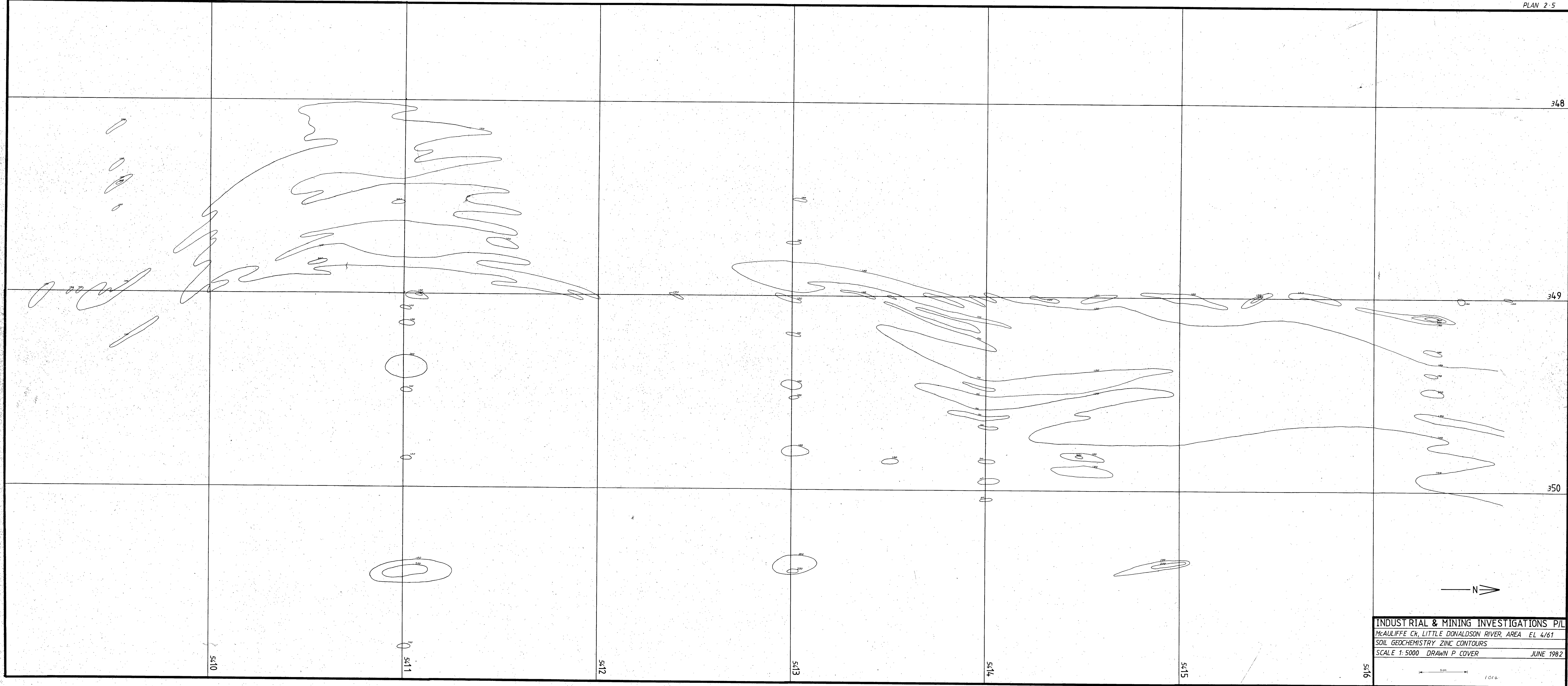
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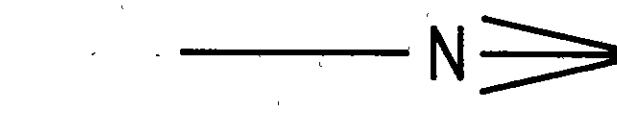
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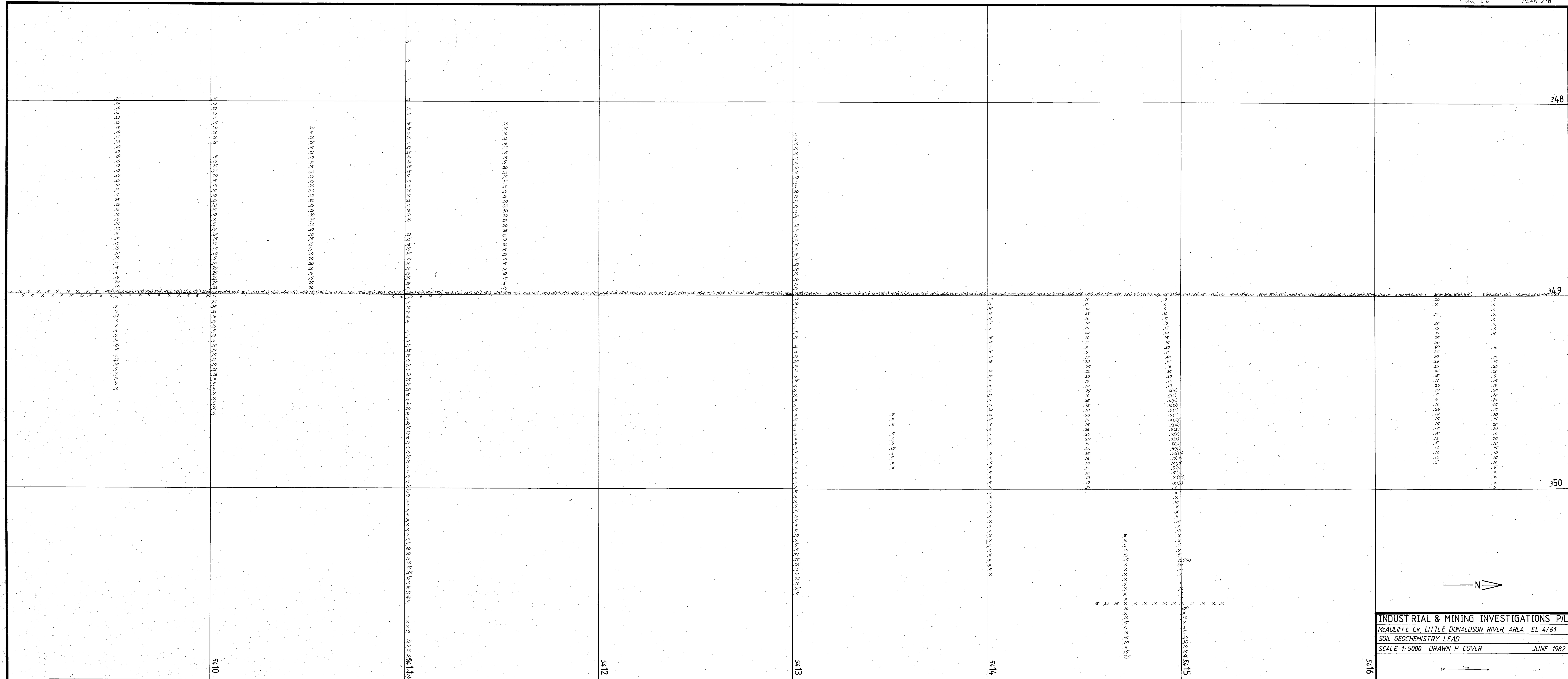


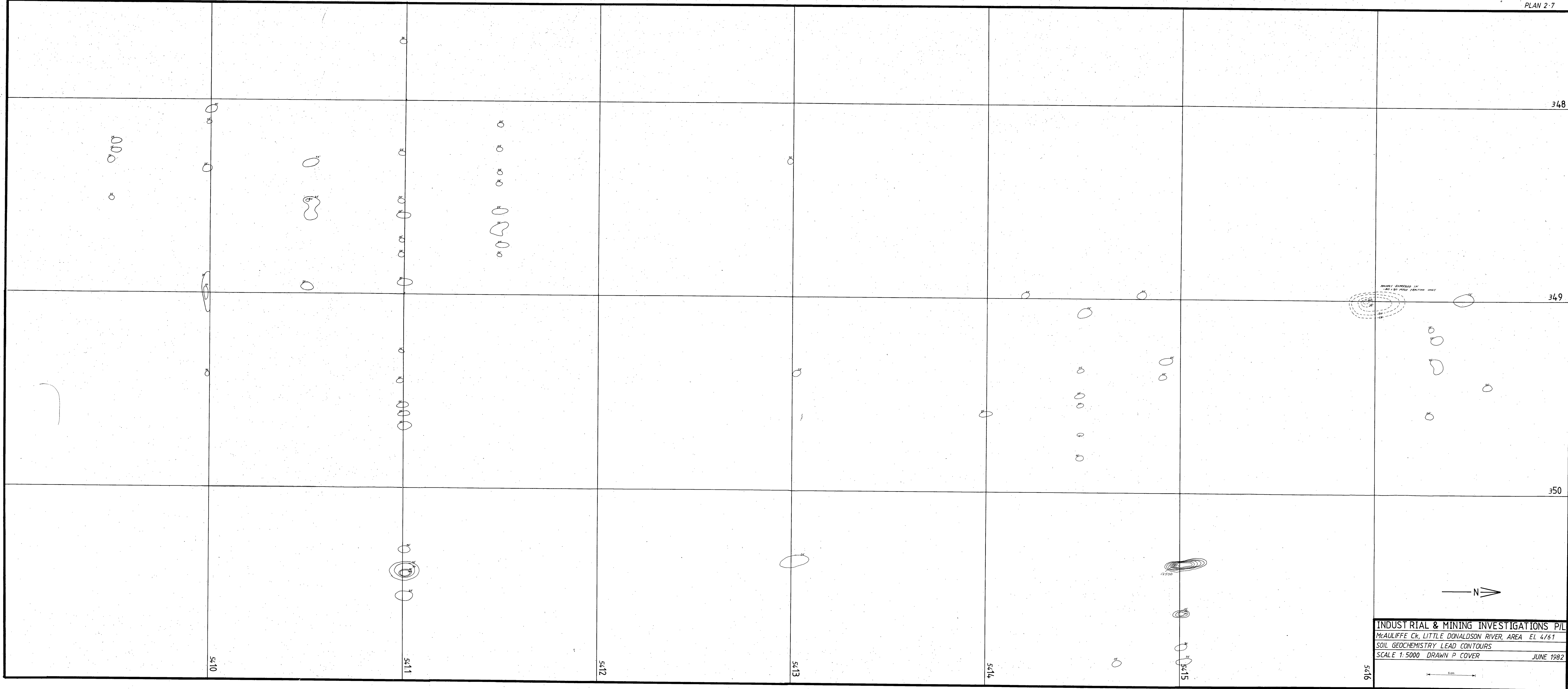


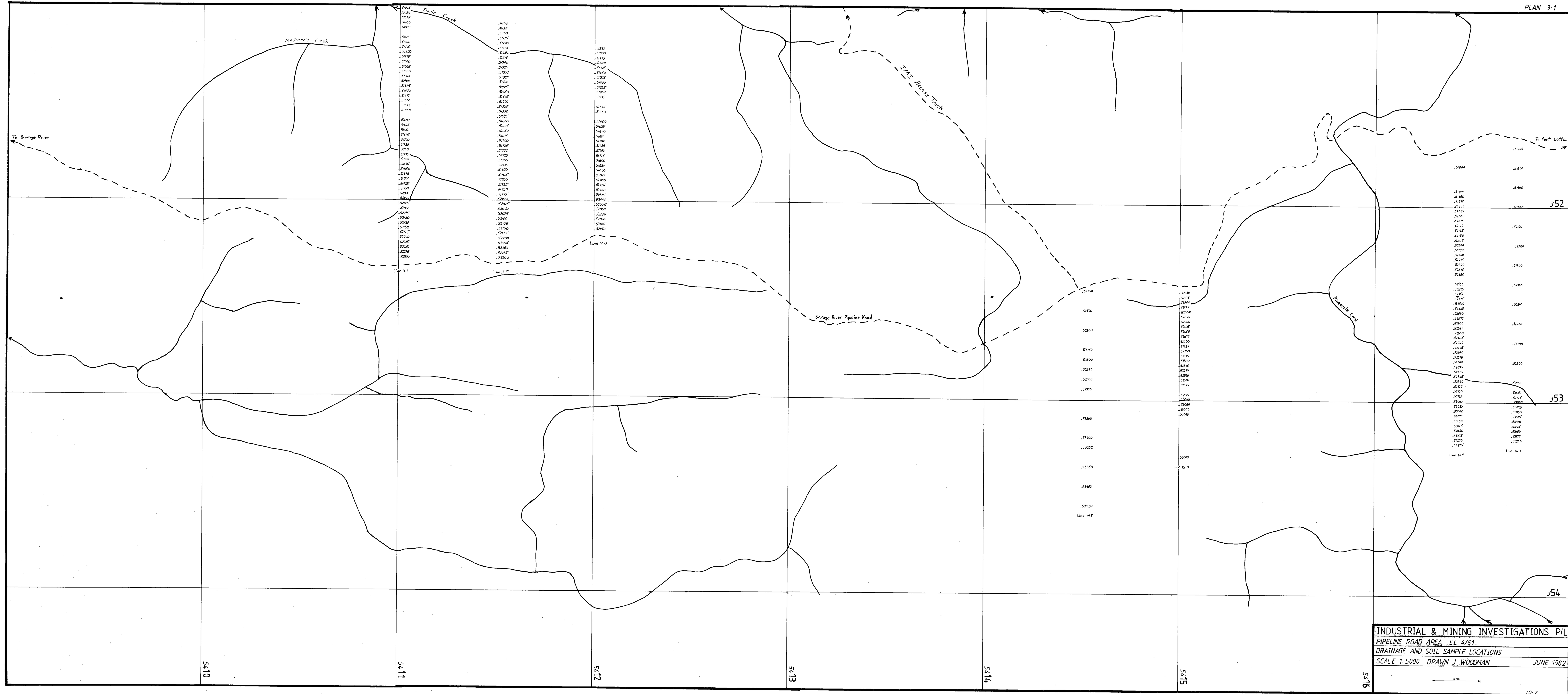
INDUSTRIAL & MINING INVESTIGATIONS P/L
 McAULIFFE CK, LITTLE DONALDSON RIVER, AREA EL 4/61
 SOIL GEOCHEMISTRY ZINC CONTOURS
 SCALE 1:5000 DRAWN P COVER JUNE 1982



5 cm

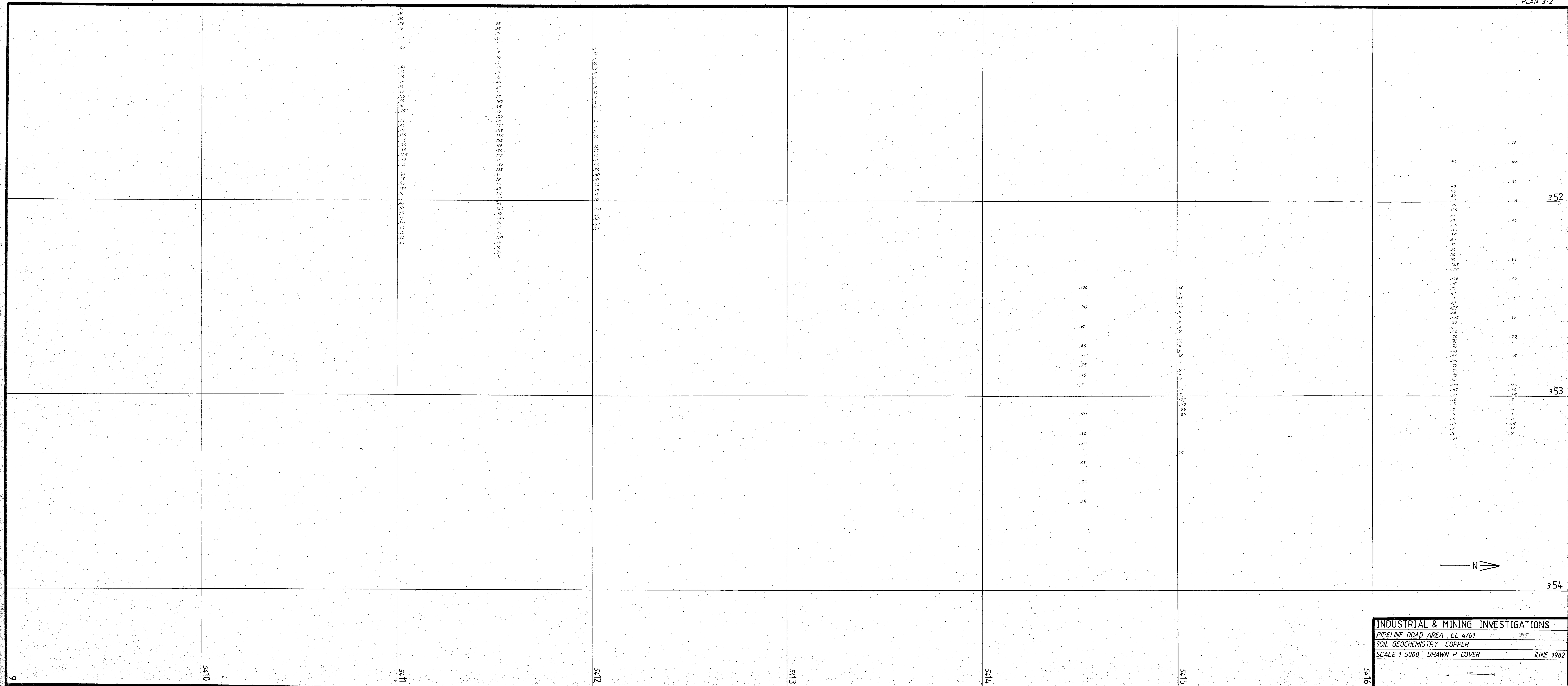


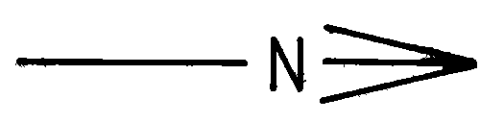
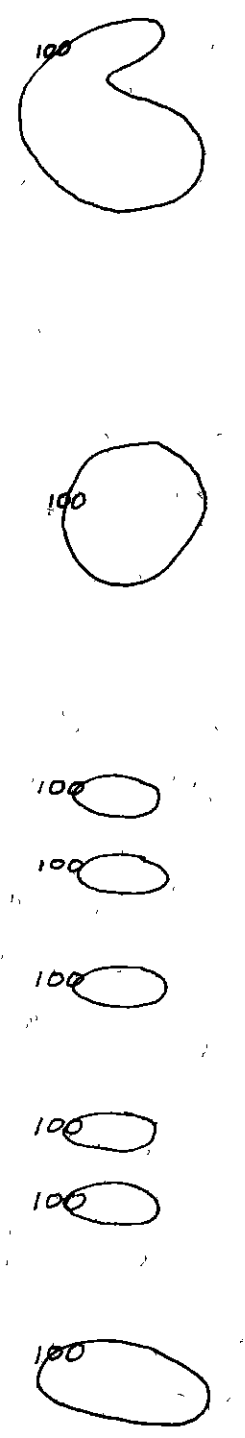
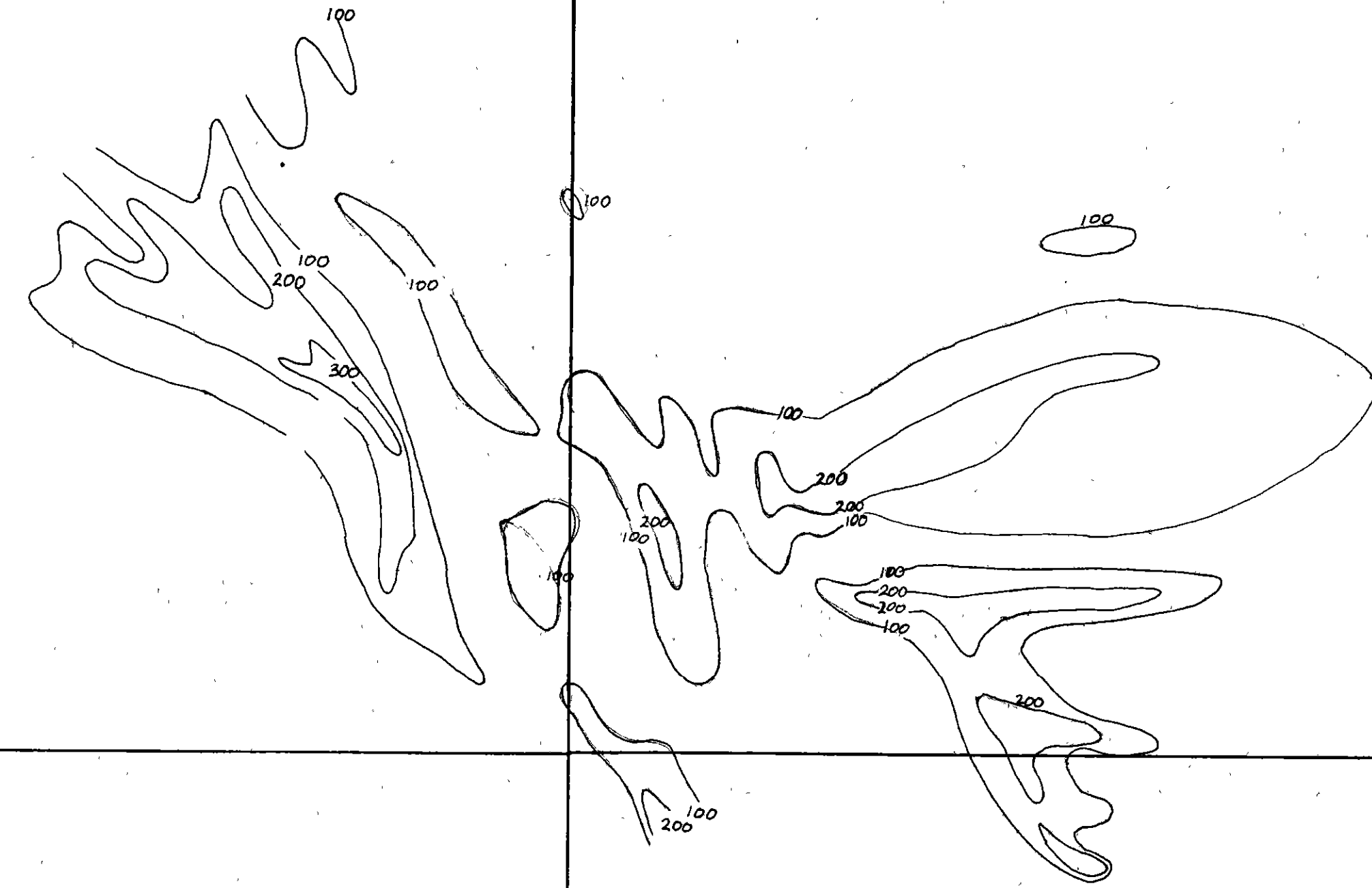




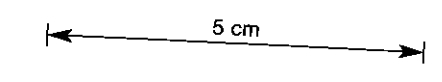
INDUSTRIAL & MINING INVESTIGATIONS P/L
PIPELINE ROAD AREA EL 4/61
DRAINAGE AND SOIL SAMPLE LOCATIONS
SCALE 1:5000 DRAWN J. WOODMAN JUNE 1982

8 m





INDUSTRIAL & MINING INVESTIGATIONS
 PIPELINE ROAD AREA EL 4/61
 SOIL GEOCHEMISTRY COPPER CONTOURS
 SCALE 1:5000 DRAWN P COVER JUNE 1982



5410

5411

5412

5413

5414

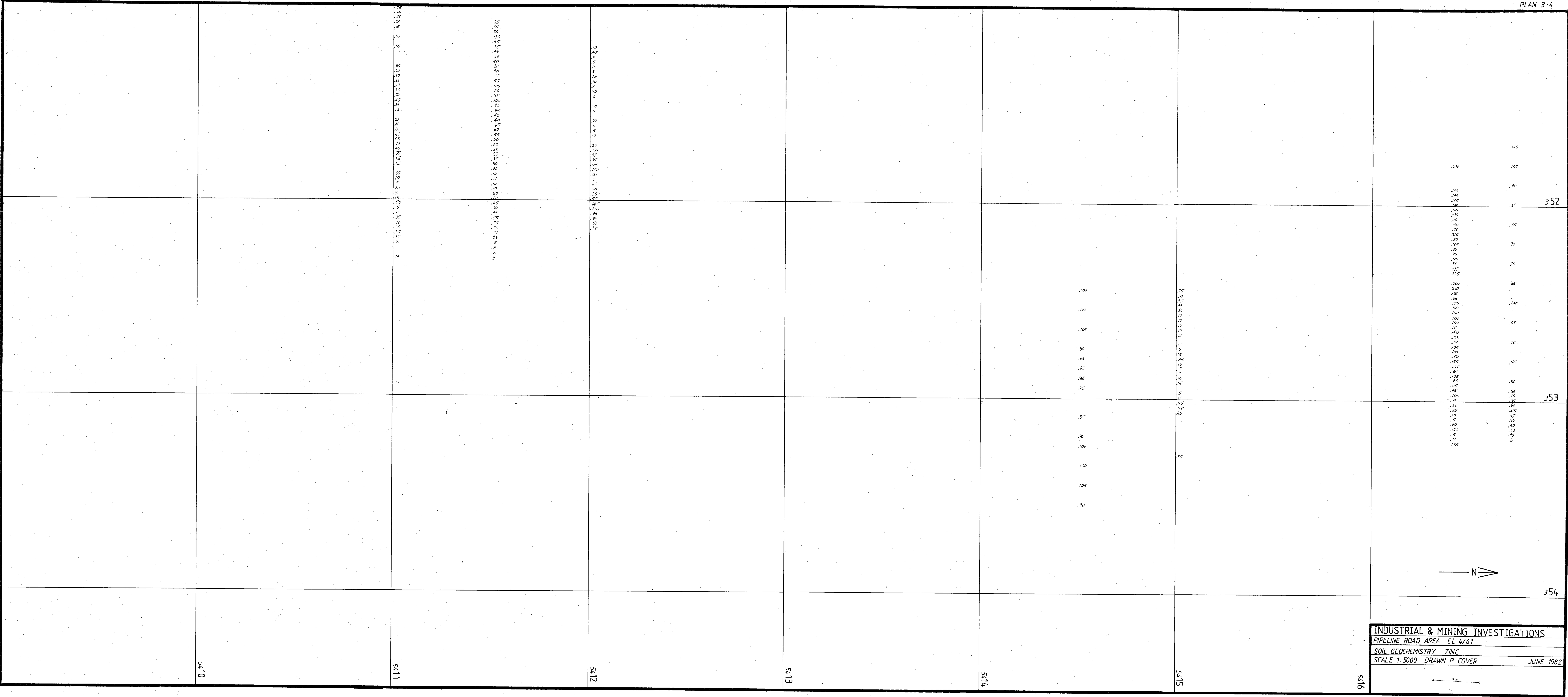
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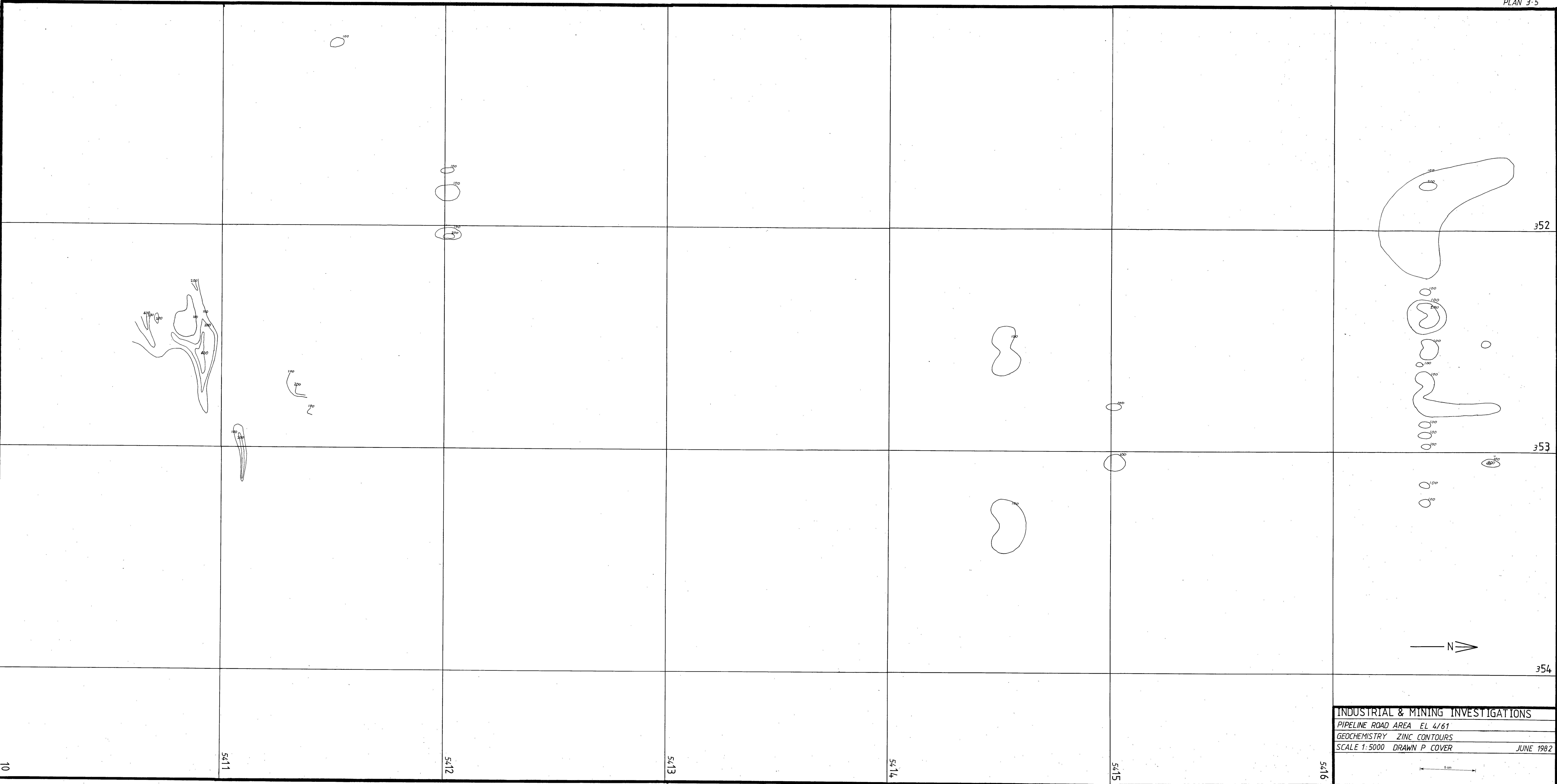
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352

353

354





INDUSTRIAL & MINING INVESTIGATIONS
PIPELINE ROAD AREA EL 4/61
GEOCHEMISTRY ZINC CONTOURS
SCALE 1:5000 DRAWN P COVER JUNE 1982

5 cm

