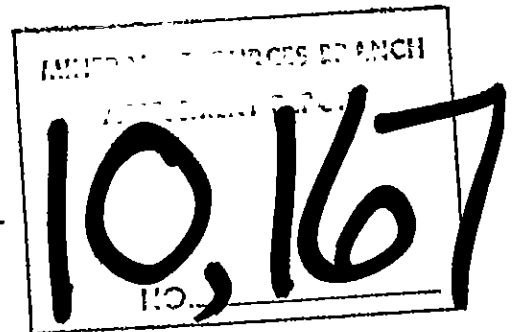COMINCO LTD.

(Operator)

EXPLORATION

NTS: 82K 8/9

ASSESSMENT REPORT

GEOLOGY AND GEOCHEMISTRY

ON THE

REDMAC CLAIM GROUP

GOLDEN MINING DIVISION

BRITISH COLUMBIA

REDMAC AND MACRED MINERAL CLAIMS

LATITUDE: $51^{o}30'N$

LONGITUDE: $116^{o}28'W$

PERIOD OF FIELD WORK

JUNE 1 - SEPTEMBER 30, 1981

15 FEBRUARY 1982

K.M. CARTER

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LIST OF CLAIMS

Claim No.	Record No.	No. of Units	Due Dates
Redmac 2	17148	1	Nov. 1, 1983
Redmac 6	17258	1	July 27, 1983
Redmac 8	17259	1	July 27, 1983
Redmac 18	17375	1	July 30, 1983
Redmac 19	17376	1	July 30, 1983
Redmac 20	227	1	July 18, 1983
Redmac 21	228	1	July 18, 1983
Redmac 22	259	1	Oct. 2, 9183
Redmac 23	260	1	Oct. 10, 1983
Redmac 24	261	1	Oct. 10, 1983
Redmac 25	262	1	Oct. 10, 1983
Redmac 26	263	1	Oct. 10, 1983
Macred 1	926	3	July 27, 1982
Macred 2	927	20	July 27, 1982
Macred 3	928	20	July 27, 1982
Macred 4	929	12 ·	July 27, 1982
Macred 5	930	4	July 27, 1982
Redmac 27	902	1	July 20, 1982
Redmac 28	903	1	July 20, 1982
Redmac 29	904	1	July 20, 1982
Redmac 30	905	1	July 20, 1982

EXPLORATION

NTS: 82K 8/9

ASSESSMENT REPORT

GEOLOGY AND GEOCHEMISTRY

ON THE

REDMAC CLAIM GROUP

GOLDEN MINING DIVISION

INTRODUCTION

The Redmac property of 21 mineral claims = 75 units, was staked to cover PbZn showings in Upper Precambrian dolomites of the Dutch Creek Formation.

Cominco Ltd. performed grid soil sampling and geological mapping across the area at a scale of 1:5,000 from June 1 to September 30, 1981 with a total expenditure of $84,695.06.

The registered owners of these claims are:

Val Winsor		Vernon A. Bortuck
Box 366,	and	Box 282,
Invermere, B.C.		Invermere, B.C.

LOCATION AND ACCESS

The claims are located 30 km west of Invermere in the Purcell Mountains of southeastern B.C. and are centred on Latitude $51^{\circ}30'$N and Longitude $116^{\circ}28'$W, on NTS. 82K 8/9.

Field work on the claims was conducted from a tent camp accessed by the all weather logging roads from Invermere via Wilmer and Horsethief Creek to McDonald Creek.

The topography is steep with elevations ranging from 1,500 meters to 3,500 meters and with tree line at around 2100 meters. Outcrop above tree line is around 10% but falls to 5% in the forested areas.

REGIONAL GEOLOGY

The Redmac property on the Lardeau East map sheet is within the central culmination of the Purcell Mountains. The area is dominated by Proterozoic sediments consisting of more than 9,000 meters of Purcell strata, unconformably overlain by approximately 2,500 meters of Windermere strata. The Purcell series, which includes the Kitchener-Siyeh, Dutch Creek and Mt. Nelson Formations, is a uniformly fine grained package. Amphibolite sills and dikes occur at a variety of intervals throughout the upper Purcell.

.../2

The Windermere series, represented by the Toby Formation and Horsethief Creek Group, shows rapid deposition of coarse to fine clastics probably derived from a nearby emergent area to the east and southeast. The two sequences are separated by the East Kootenay orogenic event at the end of Purcell time (800 my.). Paleozoic sediments in the central Purcell Mountains are rare, restricted to erosion remnants of L. Cambrian in synclinal axes.

Cretaceous granitoid intrusions consist of early mesocratic quartz diorite and granodiorite and leucocratic quartz monzonites. They superimpose a structural and metamorphic aureole on early regional structure and metamorphism.

The Regional structure consists of relatively open folds plunging gently to the northwest, which together form a broad geanticline extending across most of the Purcell Mountains. Southwest dipping thrust faults and north to northwest trending normal faults are common.

GEOLOGY OF THE CLAIMS

The Redmac property is underlain by the Dutch Creek and Mt. Nelson Formations, as well as narrow exposures of the Toby Formation and Horsethief Creek Group. Figure 1 shows the structural juxtaposition of stratigraphic units on the property, and can be compared to the schematic regional stratigraphic section for the McDonald Creek-Law Creek area in Figure 2.

The oldest exposed rocks on the property are lower Dutch Creek siltstones, silty argillites and quartzites. These outcrop in McDonald Creek, and the east flowing drainage north of Farnham Tower. This sequence is a minimum of 450 meters thick, the base of which would rest on the Kitchener-Siyeh Formation. The lower member is overlain by 550.0 meters of thick bedded dolomites and sandy dolomites, with decreasing intervals of grey-green siltstone and phyllitic argillite. The upper slates of the Dutch Creek Formation consist of 580.0 meters of green-grey iron-speckled siltstone and phyllitic siltstones, and are conformably overlain by the basal quartzite of the Mt. Nelson Formation.

The basal quartzite of the Mt. Nelson is the start of generally fining upward, transgressive sequence. It consists of siltstones, dolomitic siltstones and dolomites, with increasing amounts of shale and phyllitic argillite, culminating in a thick (+350.0 m) sequence of black, very fine crystalline pelagic dolomites. This lower member of the Mt. Nelson totals 850.0 meters, and is succeeded by a regressive cycle 800.0 meters thick consisting of tidal flat algal laminite dolomite, cherty dolomite, dolomitic siltstones and an upper quartzite member. The Mt. Nelson represents the uppermost unit of the Purcell series and is overlain unconformably by the Toby Formation conglomerates of the Windermere series.

The Toby is a polymictic conglomerate exhibiting extreme variability of occurrence, composition and thickness. In the McDonald-Law Creek area subrounded, poorly sorted fragments of dolomite and quartzite are set in a dolomite or dolomitic siltstone matrix, and thicknesses range from 30-40 meters up to 180 meters.

The Toby is overlain conformably by the Horsethief Creek Group. The lower part consists of argillite, slate and some dense black micritic limestones. The middle part is characterized by quartzite, grit and pebble-conglomerate with some slates and phyllite. The upper member contains substantial amounts of purple and red slates and siltstones with only minor limestone. The total thickness of the Horsethief here is in the order of 1000.0 meters, and is overlain unconformably by quartzites, schists and phyllites of the Lower Cambrian Hamill Group.

The structure in the core of the Redmac property (see Plates 3i, ii), comprises a complex set of imbricated west dipping thrust faults, truncated by later northwest trending normal faults, and associated drag folds. Figures 1 and 2 summarize the foreshortened stratigraphic succession at Redmac as compared to the regional stratigraphy. In general, strata dip southwest, west of Redline Creek, and dip to the northeast east of Redline Creek. West of Redline Creek, the stratigraphy consists of middle Dutch Creek in normal fault contact with the upper Dutch Creek slates to the west, & is itself thrust over Horsethief Creek Group grits to the east. The Horsethief rests on the Toby Conglomerate and the Mt. Nelson Formation in a normal stratigraphic succession. This package (Horsethief, Toby, Mt. Nelson) is in turn thrust over Horsethief and Toby again adjacent to Redline Creek, and juxtaposed against Mt. Nelson by a northwest trending normal fault in Redline Creek. All structures conform to the regional northwest-southeast grain of the Purcell geanticline, and all folds are conical and have a gentle plunge to the southeast.

MINERALIZATION

Mineralization on the Redmac claims is of several types.

1/ Galena and Sphalerite mineralization in narrow 5-10 cm veins perpendicular to bedding in quartzites and grits of the Horsethief Creek Group.

2/ Sphalerite and lesser galena in quartz carbonate fractures in grey blue dolomite interbedded in Horsethief Creek Group.

3/ Argentiferous galena sphalerite vein associated with normal fault cutting Mt. Nelson algal dolomites and cherts. (Ag King vein)

4/ Galena and minor sphalerite in narrow discontinuous quartz veins within middle Dutch Creek Quartzites.

5/ Sphalerite and galena in dolomite and dolomitic quartzite of middle Dutch Creek Formation.

Sphalerite and galena mineralization has been traced within dolomites and dolomitic quartzites in the "Upper" and "Lower" showing areas however intermittent outcrop prevents a reliable estimate of grade and thickness.

GEOCHEMISTRY

Procedure

During the period from June 1 to September 30, 1981 approximately 549 soil and silt samples were collected to test the Redmac showings and

their possible extensions. Samples were collected at 50 meter intervals from compass and chain surveyed cross lines spaced at 100 meters and tied in to a base line at 120°. In several areas contour sampling was used in place of grid sampling. All samples were collected from the B horizon (15-25 cm).

Analysis for Pb, Zn, Ag, Cu and Mn was done by the Cominco Laboratory on 1486 East Pender Street Vancouver, B.C. Samples were sieved to -80 mesh, digested in perchloric acid and analysed by atomic absorption. All sample pulps from the Redmac group are stored at the Cominco Laboratory.

Results

Appendix I shows the Log Transform Histograms and Cumulative Probability plots for Pb, Zn, Cu and Mn. Values are contoured for values of the mean and the mean plus ½ S.D. and plus 1 S.D. (log_{10} transformed data). In arithmetic terms each contour is about twice the level of the one below it.

Individual element distributions are very closely Lognormal (see Figures 4i, ii, iii, iv) and, with the exception of Ag, very well correlated as shown below:

	Cu	Pb	Zn	Mn	Ag	
Cu	1.00	.60	.67	.71	.21	549 samples
Pb		1.00	.79	.59	.48	Log_{10}
Zn			1.00	.74	.32	
Mn				1.00	.09	
Ag					1.00	

Zn values in soils range from 5 ppm to 3,460 ppm with a threshold of 60 ppm. Values in excess of 60 ppm were considered anomalous, while those in excess of 250 ppm were consistently associated with nearby sulphide mineralization.

Pb values range from 5 to 2,530 ppm with a threshold chosen at 30 ppm. Pb anomalies are coincident with Zn anomalies for the most part, however, Pb is often more effective in delineating small discontinuous base metal occurrences than Zn.

Cu ranged from 1 to 135 ppm in soils with a threshold of 16 ppm, and while some linearity of anomalies is evident, most seem to highlight local Cu occurrences in the Horsethief-Mt. Nelson thrust panel. Trace amounts of malachite were noted in association with vein and fracture related galena sphalerite mineralization in grits, quartzites and blue-grey dolomites of this assemblage.

Mn anomalies tended to coincide with Zn, Pb anomalies but may in fact reflect distribution of Mn in carbonates rather than being tied into the base metal. Appendix I summarizes statistical data for the elements analysed.

In summary, Zn and Pb in soils were reasonably effective in highlighting base metal mineralization. However, the grid selected for soil coverage of this type of mineralization was not sufficiently detailed to define variation in grade along strike or in fact to highlight all zones with exposed mineralization. It is recommended in future that coverage be at a maximum spacing of 25 m x 25 m in this terrain.

CONCLUSIONS AND RECOMMENDATIONS

Geological mapping and geochemistry at a scale of 1:5,000 has outlined sphalerite and galena showings in Middle Dutch Creek dolomites and dolomitic quartzites on the claims. The grade and lateral extent of the mineralization at Redmac should be defined by trenching.

Report by: _K.M. Carter_____
          K.M. Carter, Geologist

Endorsed by: _A.B. Mawer_____
           A.B. Mawer, Senior Geologist

Approved for
Release by: _____
          G. Harden, Manager
          Exploration
          Western District

KMC/skg
Distribution
Mining Recorder (2)
Western District (1)

6.

REFERENCES

Freiholz, G.,   Personal communications, geology and structure of Redmac
                Property, 1981.

Fyles, J.T.,   Report of the Minister of Mines, British Columbia, 1959,
                pp. 74-89.

Medford, G.A., Personal communications, geochemistry of Redmac Property.

Reeser, J.E.,   Geology of the Lardeau map-area, east-half, British Columbia,
                GSC Memoir 369, 1973.

Rice, H.M.A.,   Nelson map-area, east-hald, British Columbia, GSC Memoir
                228, 1941.

Walder, J.F.,   Geology and Mineral Deposits of Windermere map-area, British
                Columbia, GSC Memoir 148, 1926.

APPENDIX II

SUMMARY STATEMENT OF EXPENDITURES

REDMAC CLAIM GROUP

June 1 - September 30, 1981

Communications $ 140.54

Salaries and Wages

G. Medford	80 days @ $192	=	15,360		
K. Carter	26 days @ $220	=	5,720		
G. Freiholz	79 days @ $124	=	9,796		
B. Sherret	105 days @ $ 87	=	9,135		
G. Mackay	105 days @ $ 75	=	7,875		
C. Downey	88 days @ $ 82	=	7,216		
A. Rankins	80 days @ $106	=	8,480	$63,582.00

Equipment $ 1,655.65

Supplies $ 3,263.11

Geochemistry $ 6,482.20

Truck Rental   120 days @ $33.69 $ 4,042.56

Drafting $ 5,529.00

                                               TOTAL: $84,695.06

IN THE MATTER OF THE B.C. MINERAL ACT AND

IN THE MATTER OF A GEOLOGICAL AND GEOCHEMICAL

PROGRAM CARRIED OUT ON THE

REDMAC CLAIM

LOCATED IN THE GOLDEN MINING DIVISION

OF THE PROVINCE OF BRITISH COLUMBIA

MORE PARTICULARLY NTS: 82K 8/9

A F F I D A V I T

I, KENNETH M. CARTER, OF THE CITY OF NORTH VANCOUVER, IN THE PROVINCE

OF BRITISH COLUMBIA, MAKE OATH AND SAY:-

1. THAT I am employed as a geologist by Cominco Ltd., and as such have
   a personal knowledge of the facts to which I hereinafter depose;

2. THAT annexed hereto and marked as Appendix II to this my affidavit
   is a true copy of expenditures for geochemistry and geological mapping
   on the Redmac claim.

3. THAT the said expenditures were incurred between June 1 and September
   30, 1981 for the purpose of mineral exploration on the above noted
   claim.

Signed: _K.M. Carter_
K.M. Carter, Geologist

15 February 1982

STATEMENT OF QUALIFICATIONS

I, KENNETH M. CARTER, OF THE CITY OF NORTH VANCOUVER, IN THE PROVINCE
OF BRITISH COLUMBIA, HEREBY CERTIFY:-

1. THAT I am a geologist residing at 2697 Mountain Highway, North Vancouver, British Columbia, with a business address at 409 Granville Street, Vancouver, British Columbia.

2. THAT I graduated with a B.Sc. (Hons.) in geology from the University of British Columbia in 1970.

3. THAT I have practised geology with Cominco Ltd. for the past eleven years.

Signed: _K. M. Carter_

K.M. Carter, Geologist

15 February 1982

REDMAC

LOG TRANSFORM HISTOGRAM FOR ZINC

frequency (arithmetic scale)
scaled for largest class =100

MID-POINT	FREQ%	0	20	40	60	80	100

```
MID-POINT  FREQ%   0       20       40       60       80       100
                   +--------+--------+--------+--------+--------+
> 2169.47   0.2    ¥
  1913.28   0.0    ¥
  1488.09   0.2    ¥
  1157.40   0.4    ¥¥
   900.19   0.4    ¥¥
   700.15   0.2    ¥
   544.56   0.5    ¥¥¥
   423.55   0.4    ¥¥
   329.43   0.5    ¥¥¥
   256.23   0.7    ¥¥¥
   199.30   2.6    ¥¥¥¥¥¥¥¥¥¥¥¥
   155.02   3.8    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
   120.58   4.6    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    93.79   6.0    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    72.96   4.0    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    56.75   9.1    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    44.15  12.4    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    34.35  10.7    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    26.73   8.4    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    20.80   6.6    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    16.18   5.3    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
    12.60   5.1    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
     9.81   8.2    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
     7.64   4.7    ¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥¥
     5.95   2.2    ¥¥¥¥¥¥¥¥¥¥
     4.64   1.1    ¥¥¥¥¥
     3.62   0.7    ¥¥¥
     2.82   0.4    ¥¥
     2.21   0.5    ¥¥¥
     1.73   0.0    ¥
     1.35   0.0    ¥
     1.06   0.2    ¥
     0.84   0.0    ¥
     0.66   0.0    ¥
     0.52   0.0    ¥
     0.47   0.0    ¥
                   +--------+--------+--------+--------+--------+
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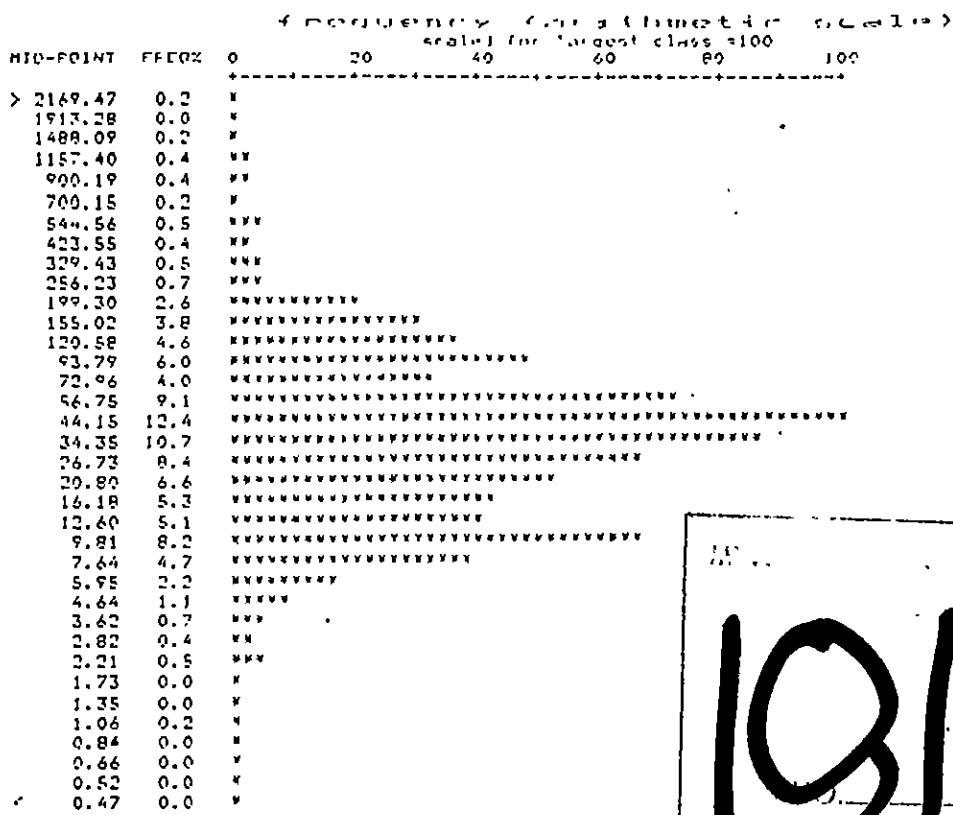
NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL .109),VALUES ARE MID-POINTS OF CLASSES

REDMAC

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	549	1 TO 3460 ppm	72.2 (464)	34.3 (309)

REDMAC

CUMULATIVE PROBABILITY PLOT FOR ZINC

cumulative % (probability scale)

LOW-LIMIT	CUM %	.01	1	5	10	20	30	50	70	80	90	95	99	99.99

```
LOW-LIMIT  CUM %  .01      1    5   10  20 30   50   70 80  90  95      99        99.99
                  +--------+----+---+---+---+---+----+---+---+---+-------+----------+--
> 1687.35   0.18                 ¥
  1312.37   0.36                    ¥
> 1020.73   0.73                   ¥
>  793.90   1.09                  ¥
>  617.47   1.28                  ¥
>  480.26   1.82                   ¥
>  373.54   2.19                    ¥
>  290.54   2.73                    ¥
>  225.98   3.46                     ¥
>  175.77   6.01                      ¥
>  136.72   9.84                       ¥
>  106.34  14.39                        ¥
>   82.72  20.40                          ¥
>   64.35  24.41                           ¥
>   50.06  33.52                             ¥
>   38.94  45.90                               ¥
>   30.30  56.65                                 ¥
>   23.57  65.03                                  ¥
>   18.39  71.58                                    ¥
>   14.38  76.87                                     ¥
>   11.12  81.97                                      ¥
>    8.66  90.16                                        ¥
>    6.74  94.90                                          ¥
>    5.25  97.09                                           ¥
>    4.10  98.18                                            ¥
>    3.20  98.91                                             ¥
>    2.50  99.27                                              ¥
>    1.95  99.82                                               ¥
>    1.53  99.82                                               ¥
>    1.20  99.82
                  +--------+----+---+---+---+---+----+---+---+---+-------+----------+--
```
PPM

NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL =.109),VALUES ARE CLASS LOWER LIMITS

REDMAC

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	549	1 TO 3460 ppm	72.2 (464)	34.3 (309)

REDMAC

LOG TRANSFORM HISTOGRAM FOR LEAD

```
                    frequency (arithmetic scale)
                      scaled for largest class =100
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   813.29   0.0   #
   644.78   0.2   #
   511.19   0.4   ##
   405.28   0.2   #
   321.31   0.2   #
   254.74   0.7   ###
   201.97   0.5   ###
   160.13   0.7   ###
   126.96   3.8   ################
   100.66   4.7   ###################
    79.81   3.8   ################
    63.28   4.0   #################
    50.18   4.6   ###################
    39.79   7.7   ################################
    31.56   9.1   ####################################
    25.03  12.2   ###############################################
    19.85  11.5   ###########################################
    15.75   8.4   #################################
    12.49   5.8   ########################
     9.71   8.0   ################################
     7.87   4.9   ####################
     6.25   2.9   ############
     4.96   2.0   ########
     3.94   1.3   #####
     3.14   0.0   #
     2.50   0.0   #
     1.99   2.0   #########
     1.58   0.0   #
     1.27   0.0   #
     1.01   0.0   #
     0.81   0.0   #
     0.65   0.0   #
     0.53   0.0   #
<    0.47   0.0   #
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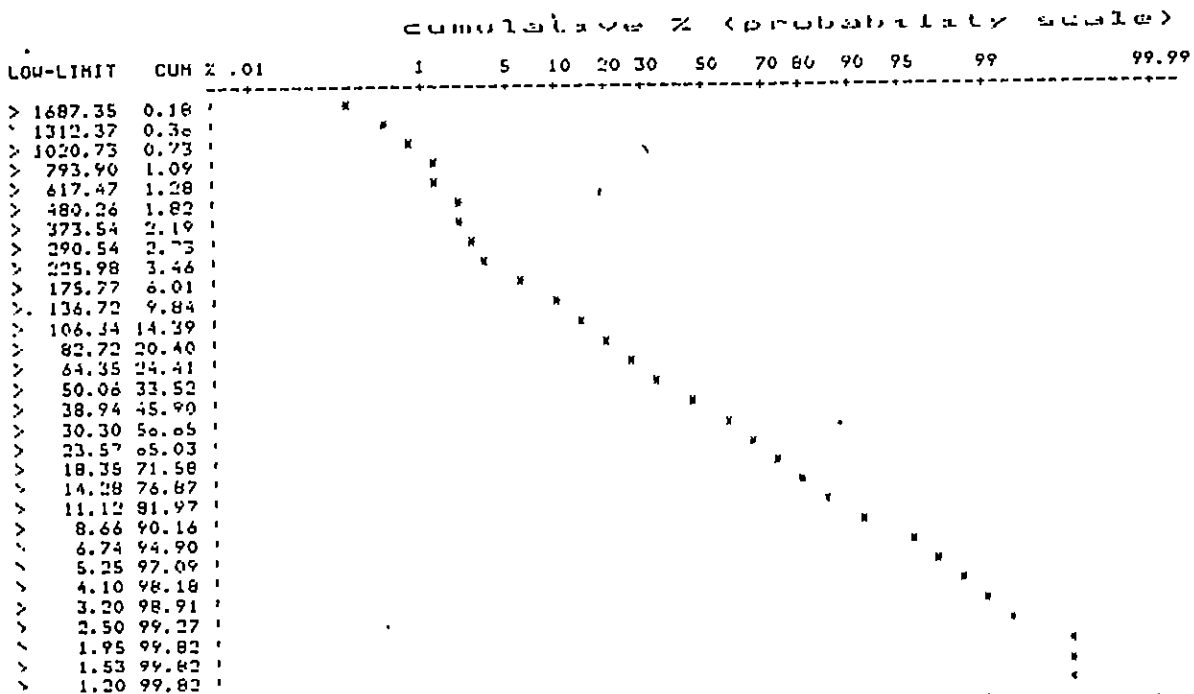
NOTE : CONC SCALE IS LOGARITHMIC(INTERVAL=.100),VALUES ARE MID-POINTS OF CLASSES

REDMAC

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	549	4 TO 2530 ppm	48.2 (319)	24.9 (190)

REDMAC

CUMULATIVE PROBABILITY PLOT FOR LEAD

```
                          cumulative % (probability scale)
LOW-LIMIT  CUM %  .01         1      5   10 20 30   50   70 80  90 95    99        99.99
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>  724.15   0.36  '                    #
:  574.11   0.55  '                    #
`  455.16   0.91  '                   #
>  360.86   1.09  '                   #
`  286.10   1.28  '                   #
>  226.82   2.00  '                  #
>  179.83   2.55  '                 #
`  142.58   3.28  '                #
>  113.05   7.10  '              #
>   89.63  11.84  '             #
>   71.07  15.66  '            #
`   56.35  19.67  '           #
>   44.69  24.23  '          #
>   35.44  31.88  '         #
>   28.10  40.98  '        #
>   22.29  53.19  '       #
`   17.68  64.66  '      #
    14.03  73.04  '     #
`   11.13  78.87  '    #
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>    7.01  91.80  '   #
`    5.57  94.72  '  #
>    4.42  96.72  ' #
`    3.52  98.00  ' #
`    2.80  98.00  ' #
`    2.23  98.00  '
                  +----------+------+----+----+----+----+----+----+----+--------+---------+--
       ↑
     PPM
```
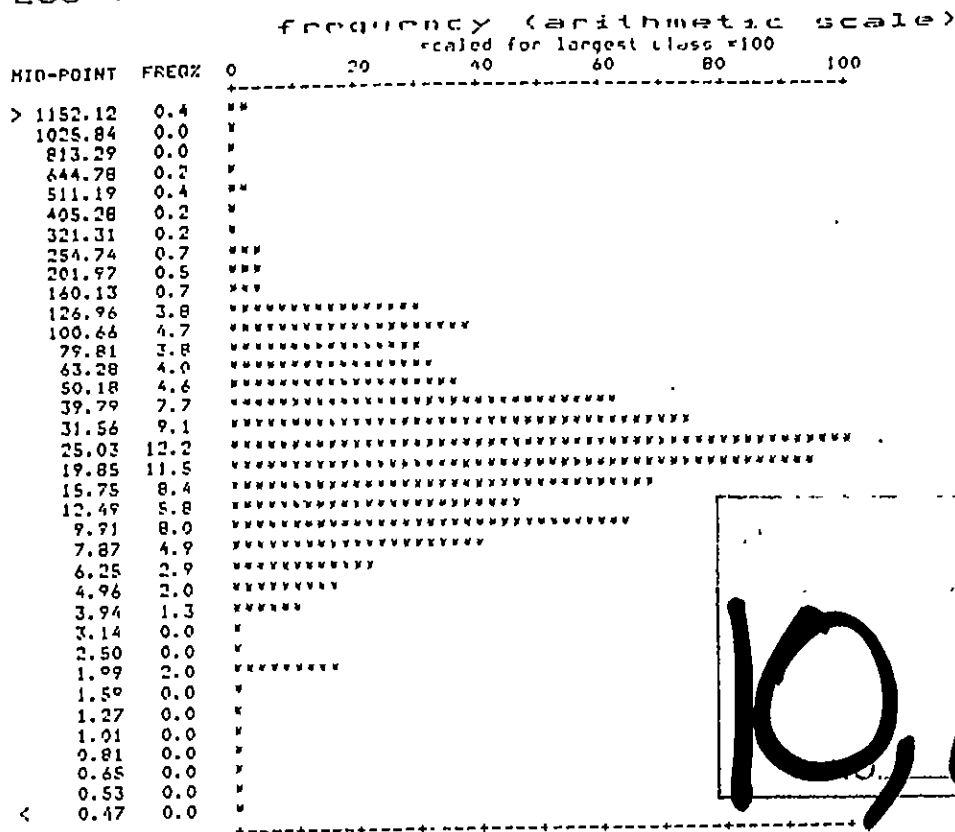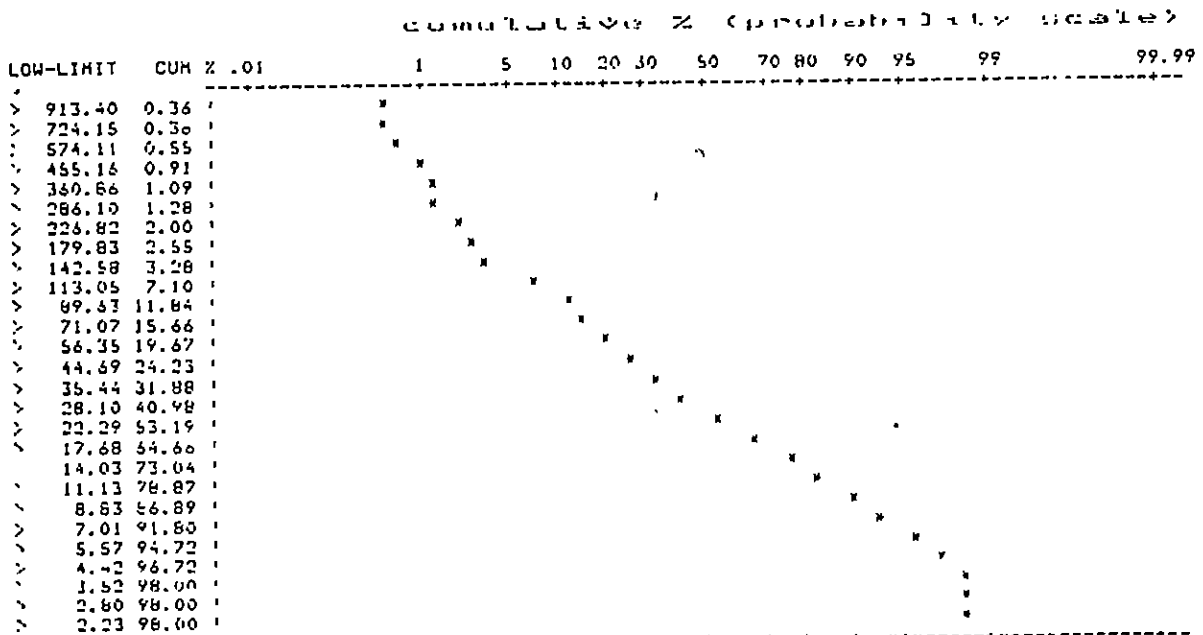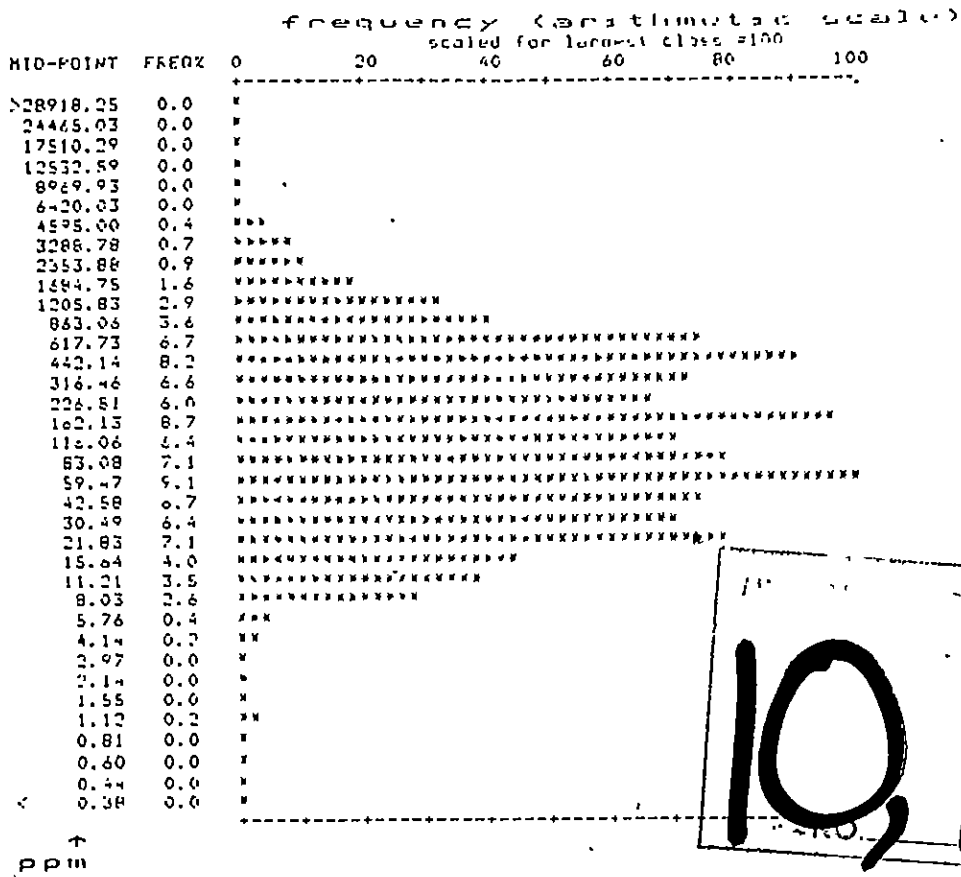
NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.100),VALUES ARE CLASS LOWER LIMITS

REDMAC

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	549	4 TO 2530 ppm	48.2 (319)	24.9 (190)

10,167

REDMAC

LOG TRANSFORM HISTOGRAM FOR MANGANESE

```
                    frequency  (arithmetic scale)
                     scaled for largest class =100
MID-POINT  FREQ%   0      20      40      60      80      100
                   +-------+-------+-------+-------+-------+-------.
>28918.25   0.0    x
 24445.03   0.0    x
 17510.29   0.0    x
 12532.59   0.0    x
  8969.93   0.0    x        .
  6420.03   0.0    x
  4595.00   0.4    xxx              .
  3288.78   0.7    xxxxx
  2353.88   0.9    xxxxxx
  1694.75   1.6    xxxxxxxxxx
  1205.83   2.9    xxxxxxxxxxxxxxxxx
   863.06   3.6    xxxxxxxxxxxxxxxxxxxx
   617.73   6.7    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
   442.14   8.2    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
   316.46   6.6    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
   226.81   6.0    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
   162.13   8.7    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
   116.06   4.4    xxxxxxxxxxxxxxxxxxxxxxxxxx
    83.08   7.1    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    59.47   9.1    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    42.58   6.7    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    30.49   6.4    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    21.83   7.1    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    15.64   4.0    xxxxxxxxxxxxxxxxxxxxx
    11.21   3.5    xxxxxxxxxxxxxxxxx
     8.03   2.6    xxxxxxxxxxxxx
     5.76   0.4    xxx
     4.14   0.2    xx
     2.97   0.0    x
     2.14   0.0    x
     1.55   0.0    x
     1.12   0.2    xx
     0.81   0.0    x
     0.60   0.0    x
     0.44   0.0    x
<    0.38   0.0    x
                   +-------+-------+-------+-------+-------+-------+
ppm
```
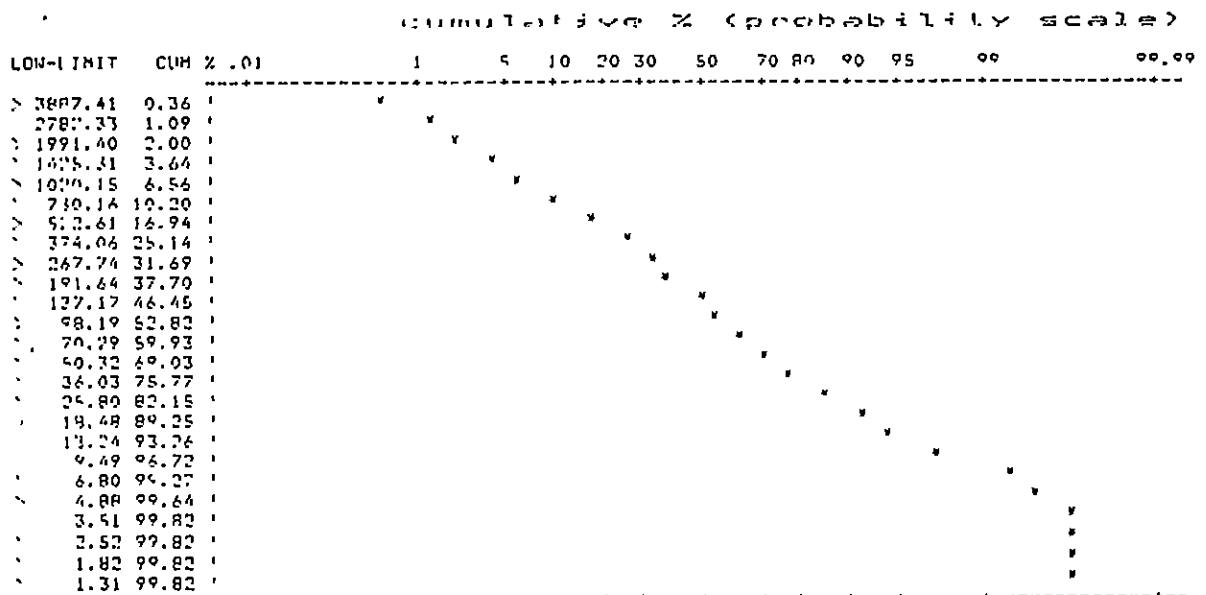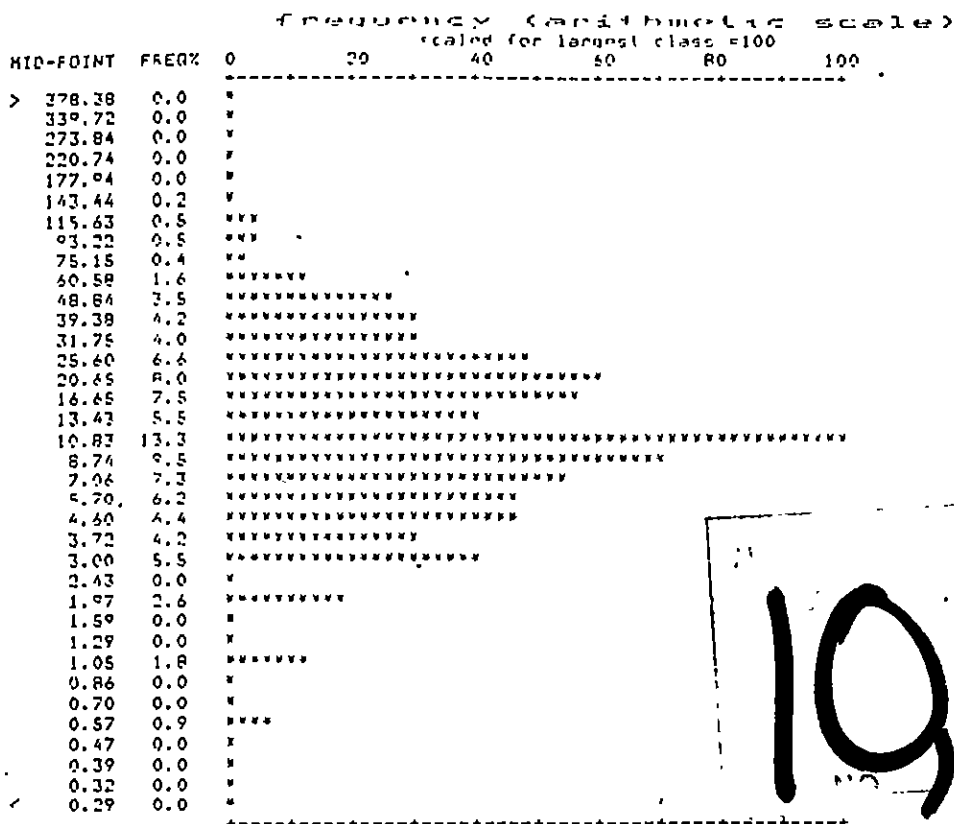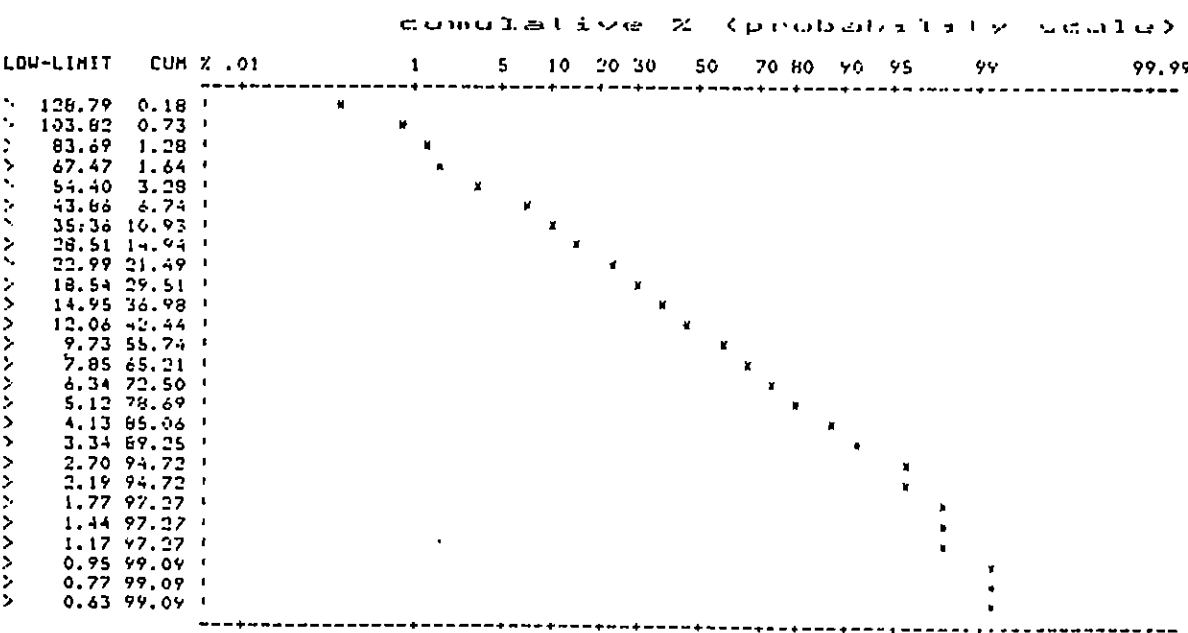
NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL=.145),VALUES ARE MID-POINTS OF CLASSES

REDMAC

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
MANGANESE	549	1 TO 4980 ppm	311.1 (1383)	116.0 (2165)

REDMAC

CUMULATIVE PROBABILITY PLOT FOR MANGANESE

```
                        cumulative % (probability scale)
LOW-LIMIT  CUM % .01        1    5  10 20 30  50  70 80  90  95    99        99.99
                   +-------+----+---+--+--+---+---+--+---+---+-----+---------+---
> 3887.41   0.36   '             x
  2782.33   1.09   '               x
> 1991.40   2.00   '                 x
> 1425.31   3.64   '                   x
> 1020.15   6.56   '                     x
   730.16  10.20   '                       x
>  522.61  16.94   '                          x
   374.06  25.14   '                            x
>  267.74  31.69   '                              x
>  191.64  37.70   '                                x
   137.17  46.45   '                                  x
>   98.19  52.82   '                                    x
    70.29  59.93   '                                      x
    50.32  69.03   '                                        x
    36.03  75.77   '                                          x
    25.80  82.15   '                                           x
    18.48  89.25   '                                             x
    13.24  93.26   '                                               x
     9.49  96.72   '                                                 x
     6.80  98.27   '                                                   x
     4.88  99.64   '                                                      x
     3.51  99.82   '                                                       x
     2.52  99.82   '                                                       x
     1.82  99.82   '                                                       x
     1.31  99.82   '                                                       x
                   +-------+----+---+--+--+---+---+--+---+---+-----+---------+---
ppm
```

NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.145),VALUES ARE CLASS LOWER LIMITS

REDMAC

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
MANGANESE	549	1 TO 4980 ppm	311.1 (1383)	116.0 (2165)

REDMAC

LOG TRANSFORM HISTOGRAM FOR COPPER

```
                        Frequency (arithmetic scale)
                         scaled for largest class =100
MID-POINT  FREQ%  0      20      40      60      80     100
           ------------------------------------------------
>  378.38   0.0   *
   339.72   0.0   *
   273.84   0.0   *
   220.74   0.0   *
   177.04   0.0   *
   143.44   0.2   *
   115.63   0.5   ***
    93.22   0.5   ***
    75.15   0.4   **
    60.58   1.6   *******
    48.84   3.5   ****************
    39.38   4.2   ********************
    31.75   4.0   *******************
    25.60   6.6   ******************************
    20.65   8.0   ***************************************
    16.65   7.5   ***********************************
    13.43   5.5   **************************
    10.83  13.3   *************************************************************
     8.74   9.5   *******************************************
     7.06   7.3   **********************************
     5.70   6.2   *****************************
     4.60   4.4   *******************
     3.72   4.2   ******************
     3.00   5.5   ************************
     2.43   0.0   *
     1.97   2.6   ***********
     1.59   0.0   *
     1.29   0.0   *
     1.05   1.8   ********
     0.86   0.0   *
     0.70   0.0   *
     0.57   0.9   ****
     0.47   0.0   *
     0.39   0.0   *
     0.32   0.0   *
<    0.29   0.0   *
           ------------------------------------------------
      ↑
    PPm
```

NOTE : CONC SCALE IS LOGARITHMIC(INTERVAL=.093),VALUES ARE MID-POINTS OF CLASSES

REDMAC

ELEMENT	NO OF ANALYSES	RANGE		ARITH MEAN (M+2STD DEV)		GEO MEAN (M+2STD DEV)	
COPPER	549	<1 TO	135 ppm	16.3 (	49)	10.7 (	71)

REDMAC

CUMULATIVE PROBABILITY PLOT FOR COPPER

```
                            cumulative % (probability scale)
LOW-LIMIT  CUM %  .01        1    5   10  20 30   50   70 80  90  95    99      99.99
           ------------------------------------------------------------------------
> 128.79   0.18  !            *
> 103.82   0.73  !          *
>  83.69   1.28  !           *
>  67.47   1.64  !            *
>  54.40   3.28  !             *
>  43.66   6.74  !               *
>  35.36  10.93  !                *
>  28.51  14.94  !                 *
>  22.99  21.49  !                   *
>  18.54  29.51  !                     *
>  14.95  36.98  !                      *
>  12.06  42.44  !                       *
>   9.73  55.74  !                         *
>   7.85  65.21  !                          *
>   6.34  72.50  !                           *
>   5.12  78.69  !                            *
>   4.13  85.06  !                             *
>   3.34  89.25  !                              *
>   2.70  94.72  !                                 *
>   2.19  94.72  !                                  *
>   1.77  97.27  !                                   *
>   1.44  97.27  !                                   *
>   1.17  97.27  !                                   *
>   0.95  99.09  !                                     *
>   0.77  99.09  !                                      *
>   0.63  99.09  !                                      *
           ------------------------------------------------------------------------
      ↑
    PPm
```

NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL-.093),VALUES ARE CLASS LOWER LIMITS

REDMAC

ELEMENT	NO OF ANALYSES	RANGE		ARITH MEAN (M+2STD DEV)		GEO MEAN (M+2STD DEV)	
COPPER	549	<1 TO	135 ppm	16.3 (	49)	10.7 (	71)
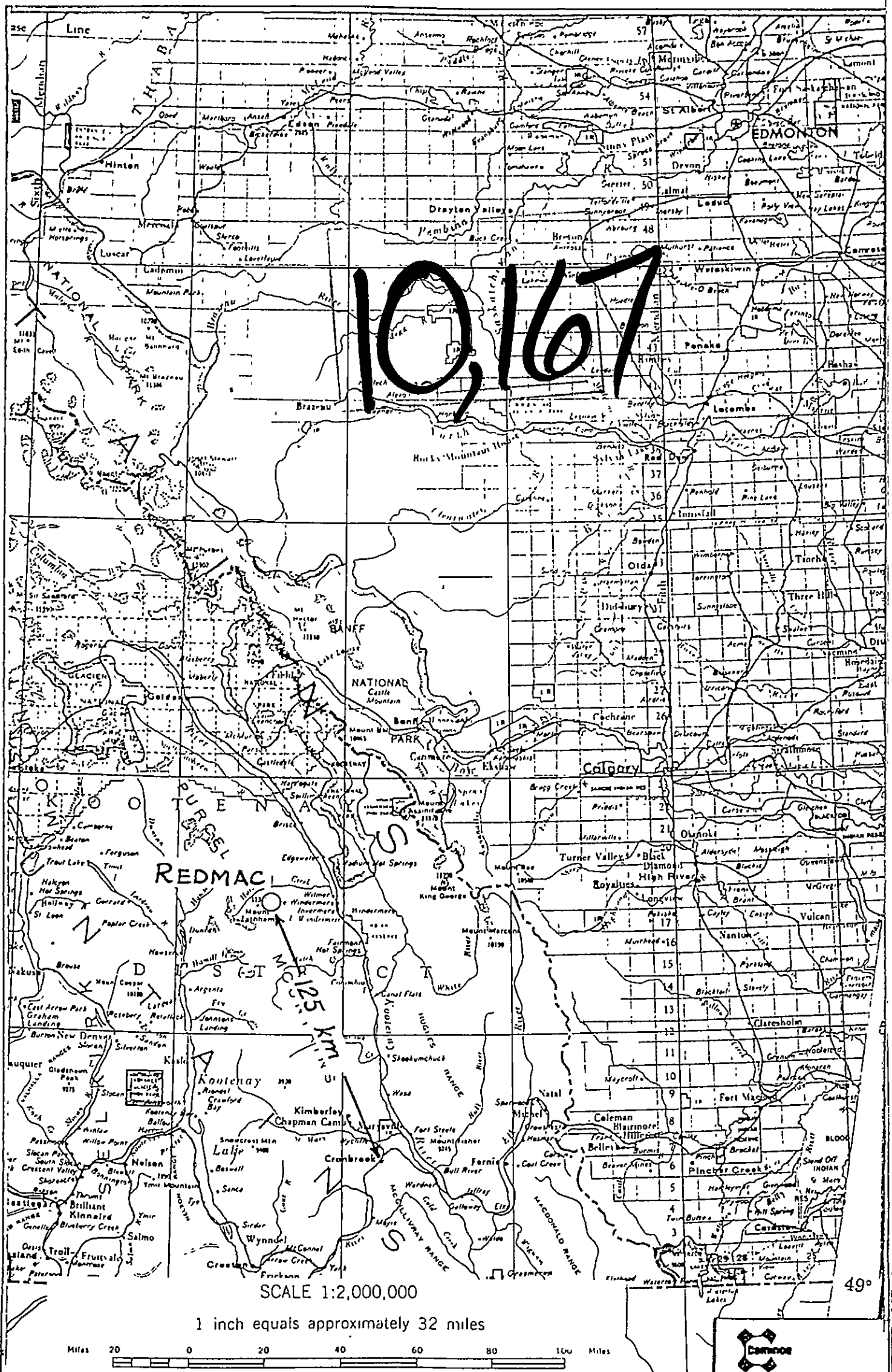
10167

10,167

SCALE 1:2,000,000

1 inch equals approximately 32 miles
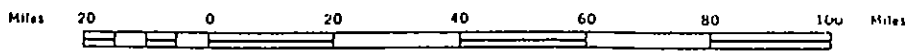
Miles 20 0 20 40 60 80 100 Miles

Drawn by:		Traced by:		REDMAC PROPERTY LOCATION MAP		
Revised by	Date	Revised by	Date			
			Scale 1:2,000,000	Date OCTOBER, 81	Plate 1	

REDMAC PROPERTY
LOCATION MAP
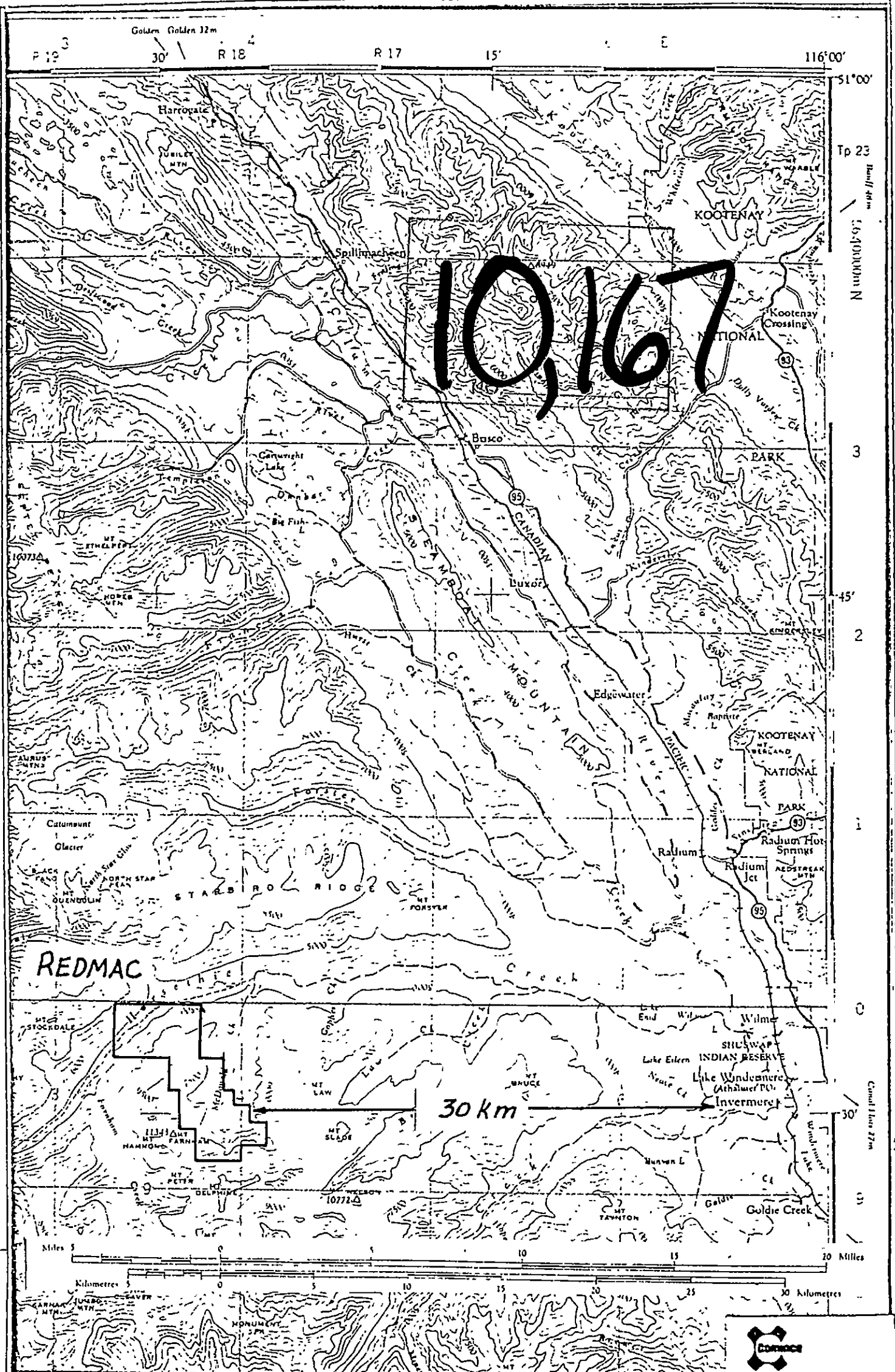
10,167

REDMAC

30 km

Drawn by:		Traced by:			
Revised by	Date	Revised by	Date		

Scale: 1:250,000 | Date: OCTOBER, 1981 | Plate: 2

BC IL-2187 C

210-0610

10,167

Figure 1 — Structure and Stratigraphic Relationships (Redmac Property)

NORMAL MT. NELSON SEQUENCE

- 1500.0 m — MT. NELSON FM. BASAL QTZITE
- UPPER DUTCH CK. FORMATION
- 1000.0 m — MIDDLE DUTCH CK. FORMATION
- HORSETHIEF CK. GROUP
- 500.0 m — TOBY FM.
- MT. NELSON FORMATION
- HORSETHIEF CK. GROUP
- 0.0 m — TOBY FM.
- MT. NELSON FORMATION

BASE NOT EXPOSED

NORMAL FAULT
REVERSE FAULT
REVERSE FAULT
NORMAL FAULT

Figure 2 — Regional Stratigraphy, McDonald Creek – Law Creek Area

LOWER CAMBRIAN — HAMILL FORMATION — 4500.0 m

WINDERMERE SERIES
- HORSETHIEF CREEK GROUP (1000.0 m) — 3500.0 m
- TOBY FORMATION (780.0 m)

PROTEROZOIC SERIES

- MOUNT NELSON FORMATION (1600.0 m) — 2500.0 m

PURCELL

DATUM — 1500.0 m — BASAL QUARTZITE

- DUTCH CREEK FORMATION (1500.0 m)

BASE NOT EXPOSED

4000.0 m
3000.0 m
2000.0 m
1000.0 m
500.0 m
0.0 m

Legend

Symbol	Description
	QUARTZ PEBBLE GRIT
	LIMESTONE
	CONGLOMERATE (TOBY FM.)
	AMPHIBOLITE
	QUARTZITE
	DOLOMITE, SANDY DOLOMITE
	SHALE, SILTSTONE
	CHERT

VERTICAL SCALE 1:20,000 (1" = 1670')

FIGURE 1 STRUCTURE AND STRATIGRAPHIC RELATIONSHIPS
REDMAC PROPERTY

FIGURE 2. REGIONAL STRATIGRAPHY, McDONALD CREEK – LAW CREEK AREA

RED MAC PROPERTY

GEOLOGY AND STRUCTURE
INTERPRETATION MAP

HORSETHIEF CREEK FM.

Qtz. pebble grit with sandy quartzitic matrix, lensoid shape of coarser beds. No obvious feldspar or clayey content. Rusty, some dolomitic content in clayey matrix.

Phyllite and shale, blue, dark red, purple.

Dark dolomicrite or fine crystalline, quartz healed massive dolomite.

TOBY CONGLOMERATE

Strongly foliated and elongated pebbles of quartzite and tan or dark Mt. Nelson dolomite. Dolomitic to clayey matrix, light, size of particles 1 cm to 50 cm.

MT. NELSON FM.

Quartzite (upper and lower). Very clean orthoquartzite to impure sandy buff dolomite; green argillaceous partings, recrystallized, grey, mossy weathered outcrop.

Cream to black dolomite. Flaggy to medium crystalline, cream dolomite. Massive fine crystalline black dolomite, quartz healed, grey to buff weathering.

Cabbage shaped or laminite algal structures in dolomite
d = dark   c = cream

Chert modules in dolomite.
Chert bands, black or cream.

Slate and argillite, green, pink, light cream.

Coarse and fine crystalline green amphibolite dike-sill.

DUTCH CREEK FM.

Undifferentiated dolomite, tan flaggy limestone, dolomitic quartzite and quartzite.

Orthoquartzite, sandstone, pyritic and dolomitic quartzite, (some orthoquartzites have no obvious bedding).

Mainly cream, light grey dolomite, flaggy or sandy buff weathering. Some conglomeratic (micro) horizons may grade into quartzite or alternate with it.

Finely laminated, black, grey, limestone, box shaped fold style, micrite laminae or light pale bulbs in darker, massive micrite.

Rhythmite of blue-grey, green argillite, slate; some phyllitic dark argillite; some coarser bands and silty argillite.

Siltite, more or less dolomitic, regular, narrow beds interbedded with some argillite.

Strata-bound mineralization
Vein

bedding

cross-bedding

overturned bed
60 = dip

anticline

overturned anticline

syncline

overturned syncline

cleavage attitude
foliation plane

Lineation, intersection of bedding and cleavage
07 = plunge

fold axis of drag folds

axial plane of folds

parting, joint

normal fault
left dropped side

reverse fault, thrust left side carried on right side

unclassified fault

LITHOLOGICAL CONTACTS

outcrop with contact of lithological units

inferred continuity of lithological units on surface

Float

Scale: 1:5000   Date: Oct.1981   Plate: 3(ii)

Drawn by: GF

TALUS

TALUS

TALUS

TALUS

TALUS

McDonald Creek

Red Line Creek

dol, sph in narrow veins
cutting qtzite/grit

sph,gol in fractures,
venlets in blue-grey dol

sph,gol
in cream dol, dol qtzite

sph,gol in
cream dol, dol qtzite

Ag King
mass argentiferous
gol & sph in vein 20-30.0 cm
wide adj to fault in upper
Mt Nelson algal dolomite
and chert

gol,sph in fractures,
venlets in blue-grey dol

10,167

Legend

HORSETHIEF CREEK FM.

15	Qtz. pebble grit with sandy quartzitic matrix, lensoid shape of coarser beds. No obvious feldspar or clayey content. Rusty; some dolomitic content in clayey...
14	Phyllite and shale, blue, dark red, purple
13	Dark dolomicrite or fine crystalline, quartz healed massive dolomite.

TOBY CONGLOMERATE

| 12 | Strongly foliated and elongated pebbles of quartzite and tan or dark Mt. Nelson dolomite. Dolomitic to clayey matrix, light, size of particles 1 cm to 50 cm. |

MT. NELSON FM.

11	Quartzite (upper and lower). Very clean orthoquartzite to impure sandy buff dolomite; green argillaceous partings, recrystallized, grey, mossy weathered outcrop.
10	Cream to black dolomite. Flaggy to medium crystalline, cream dolomite. Massive fine crystalline black dolomite. quartz healed, grey to buff weathering.
☺ ≈	Cabbage shaped or laminite algal structures in dolomite d = dark c = cream
9	Chert nodules in dolomite. Chert bands, black or cream
8	Slate and argillite, green, pink, light cream.
7	Coarse and fine crystalline green amphibolite dike-sill.

DUTCH CREEK FM.

6	Undifferentiated dolomite, tan flaggy limestone, dolomitic quartzite and quartzite.
5	Orthoquartzite, sandstone, pyritic and dolomitic quartzite, (some orthoquartzites have no obvious bedding).
4	Mainly cream, light grey dolomite, flaggy or sandy buff weathering. Some conglomeratic (micro) horizons may grade into quartzite or alternate with it.
3	Finely laminated, black, grey, limestone; box shaped fold style, micrite laminae or light pale bulbs in darker, massive micrite.
2	Rhythmite of blue-grey, green argillite, slate, some phyllitic dark argillite; some coarser bands and silty argillite.
1	Siltite, more or less dolomitic, regular, narrow beds interbedded with some argillite, also in Mt Nelson Fm

gol = galena
sph = sphalerite

bedding

cross-bedding

overturned bed
60 = dip

anticline

overturned
anticline

syncline

overturned
syncline

cleavage attitude
foliation plane

Lineation, intersection of
bedding and cleavage
07 = plunge

fold axis of drag folds

AP axial plane of folds

parting, joint

normal fault
left dropped side

reverse fault, thrust left
side carried on right side

unclassified fault

LITHOLOGICAL CONTACTS

outcrop with contact of
lithological units

inferred continuity of
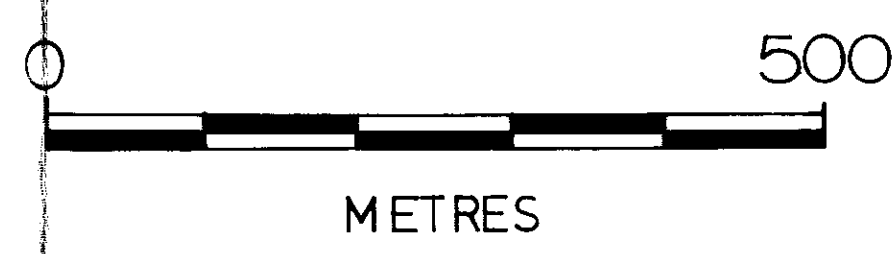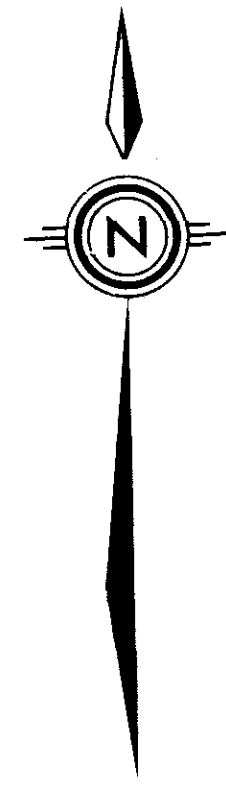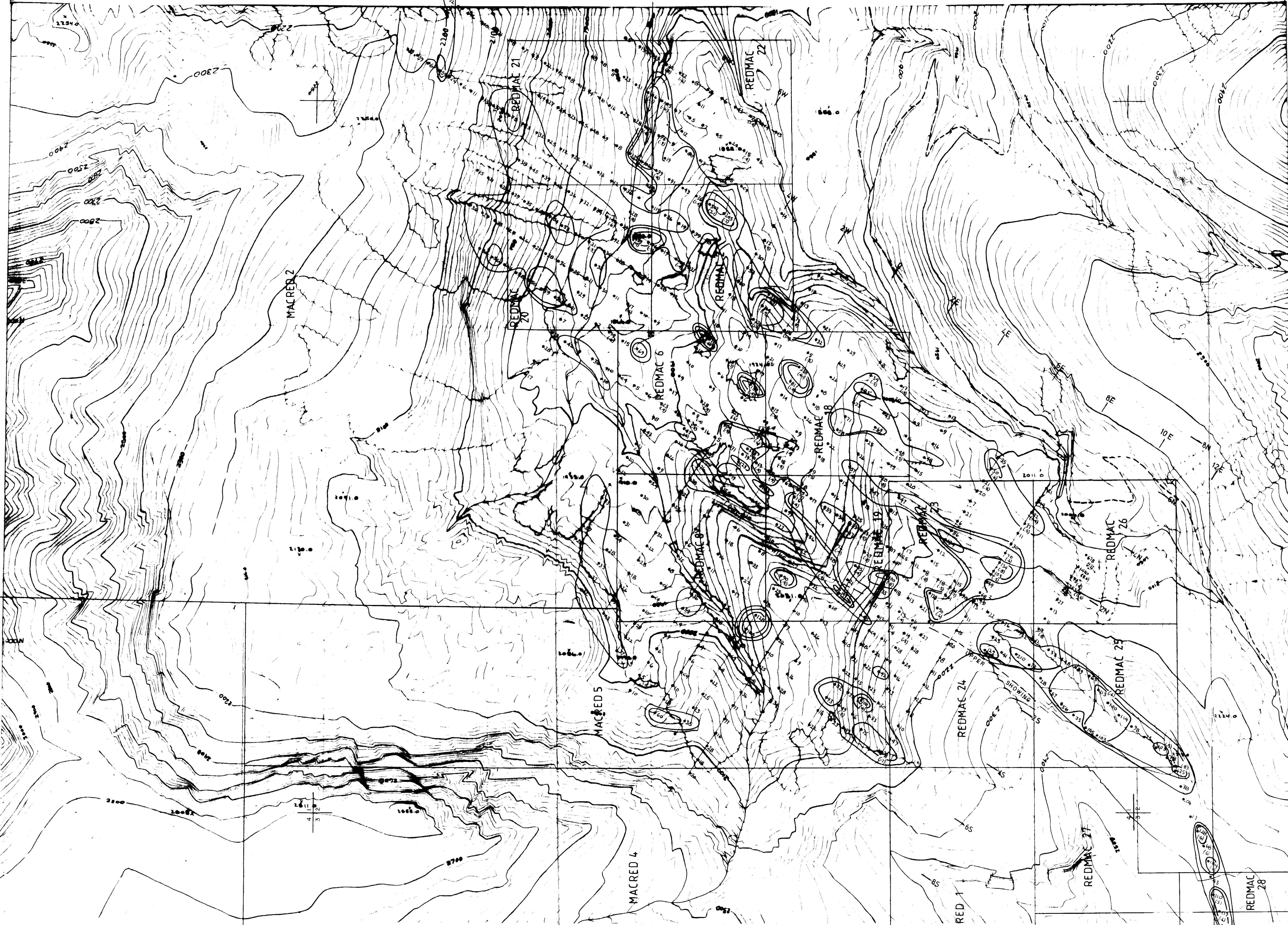lithological units on surface

Float

Survey station

0   100   200   300
Meters
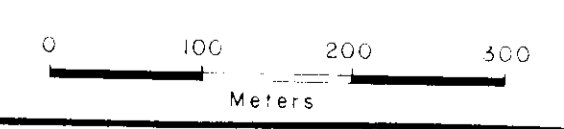
RED MAC PROPERTY

| Drawn by: GF | Traced by: APR |
| Revised by | Date | Revised by | Date |

SURFACE GEOLOGY PLAN
AND OUTCROP MAP

Scale: 1:5000   Date: Oct 1981   Plate: 3(i)

10,167

contours at 30,50,&100 ppm Lead
Silver values <.4 not posted

0   500
METRES

REDMAC PROPERTY

Drawn by: GAM	Traced by:		
Revised by	Date	Revised by	Date

LEAD ppm   (SILVER) ppm

SOIL GEOCHEMISTRY
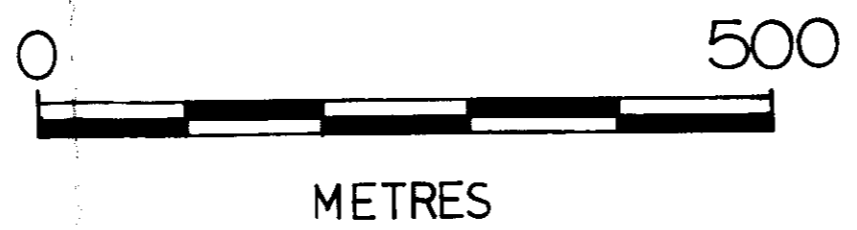
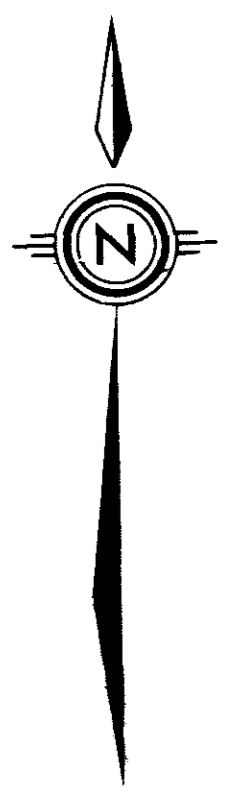| Scale: 1 5000	Date: 1 OCT 1981	Plate: 4(i)

10,167

0   500

METRES
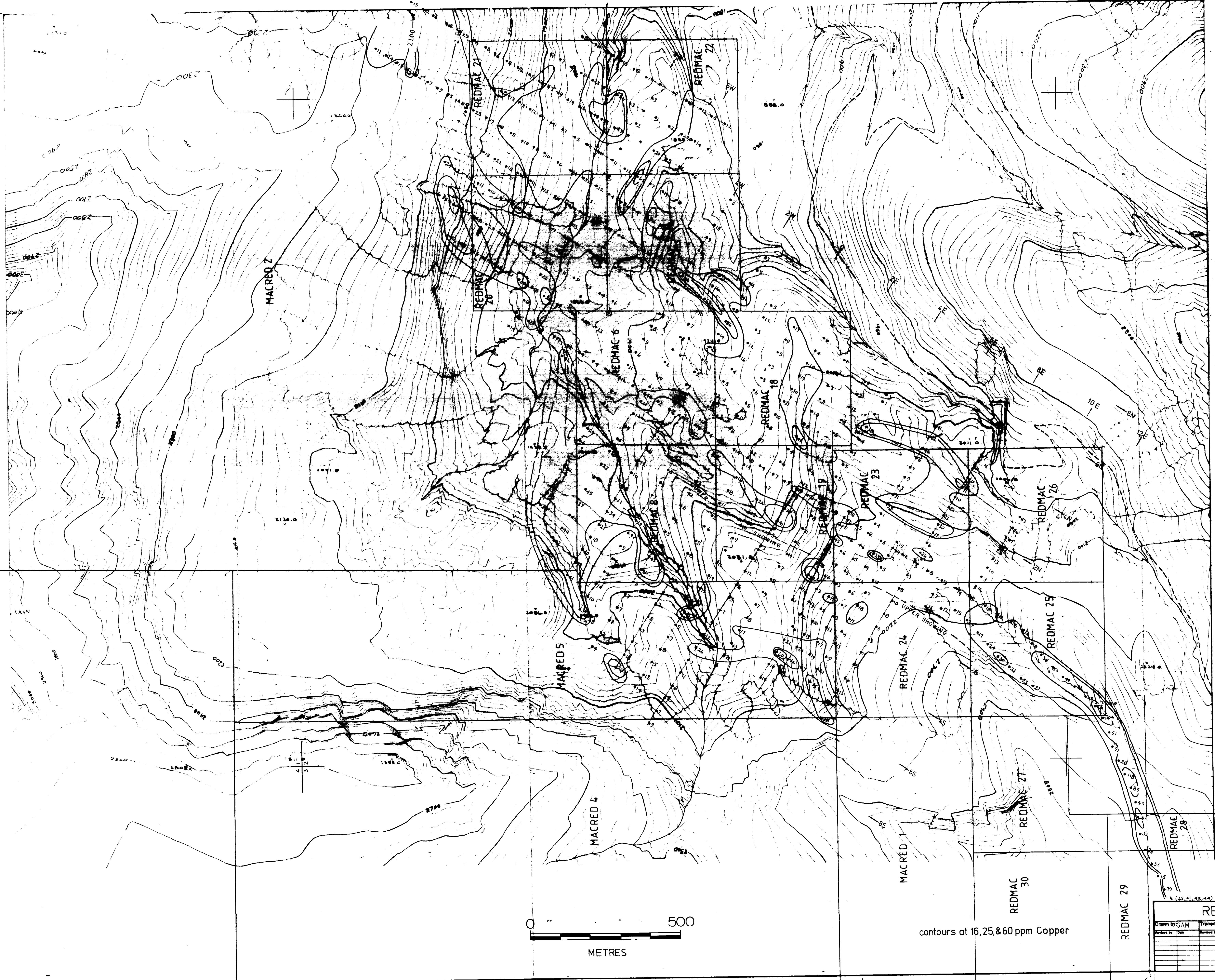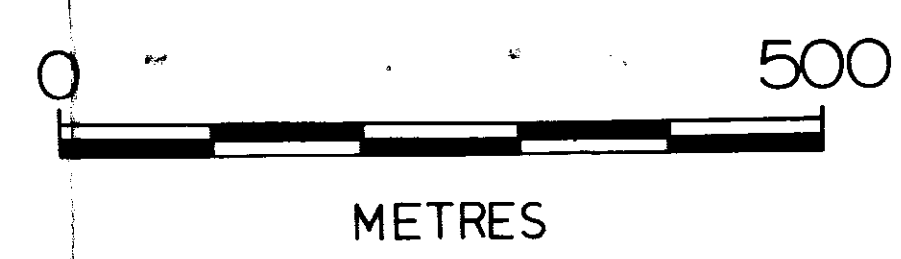
contours at 16, 25, & 60 ppm Copper

REDMAC PROPERTY		
Drawn by: GAM	Traced by:	
Revised by	Date	COPPER ppm
Revised by	Date	SOIL GEOCHEMISTRY
Scale: 1:5000	Date: 1 OCT 1981	Plate: 4 (iii)

FORM 210 0670

N.O.L.-118-CL

10,167

REDMAC 22
REDMAC 21
MACRED 2
REDMAC 6
REDMAC 18
REDMAC 23
REDMAC 26
REDMAC 19
REDMAC 8
REDMAC 5
REDMAC 24
REDMAC 25
MACRED 4
MACRED 1
REDMAC 27
REDMAC 28
MACRED 3
REDMAC 30
REDMAC 29

0   500

METRES

contours at 160, 400, & 1200 ppm Manganese

REDMAC PROPERTY		
Drawn by: GAM	Traced by:	
Revised by	Date	Revised by	Date
MANGANESE ppm		
SOIL GEOCHEMISTRY		
Scale: 1:5000	Date: 1 OCT 1981	Plate:

10,167

REDMAC 21 · REDMAC 22 · REDMAC 20 · REDMAC 6 · REDMAC 18 · REDMAC 23 · REDMAC 26 · REDMAC 8 · REDMAC 19 · REDMAC 25 · REDMAC 24 · MACRED 5 · MACRED 2 · MACRED 4 · MACRED 1 · REDMAC 27 · REDMAC 28 · REDMAC 29 · REDMAC 30

0   500

METRES
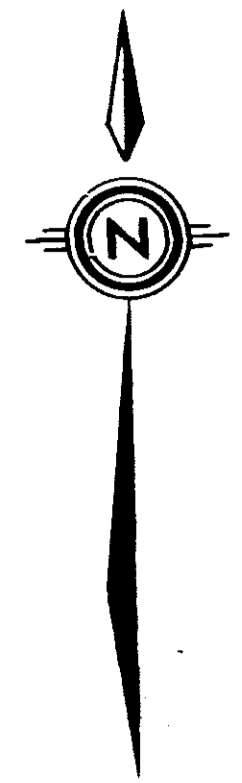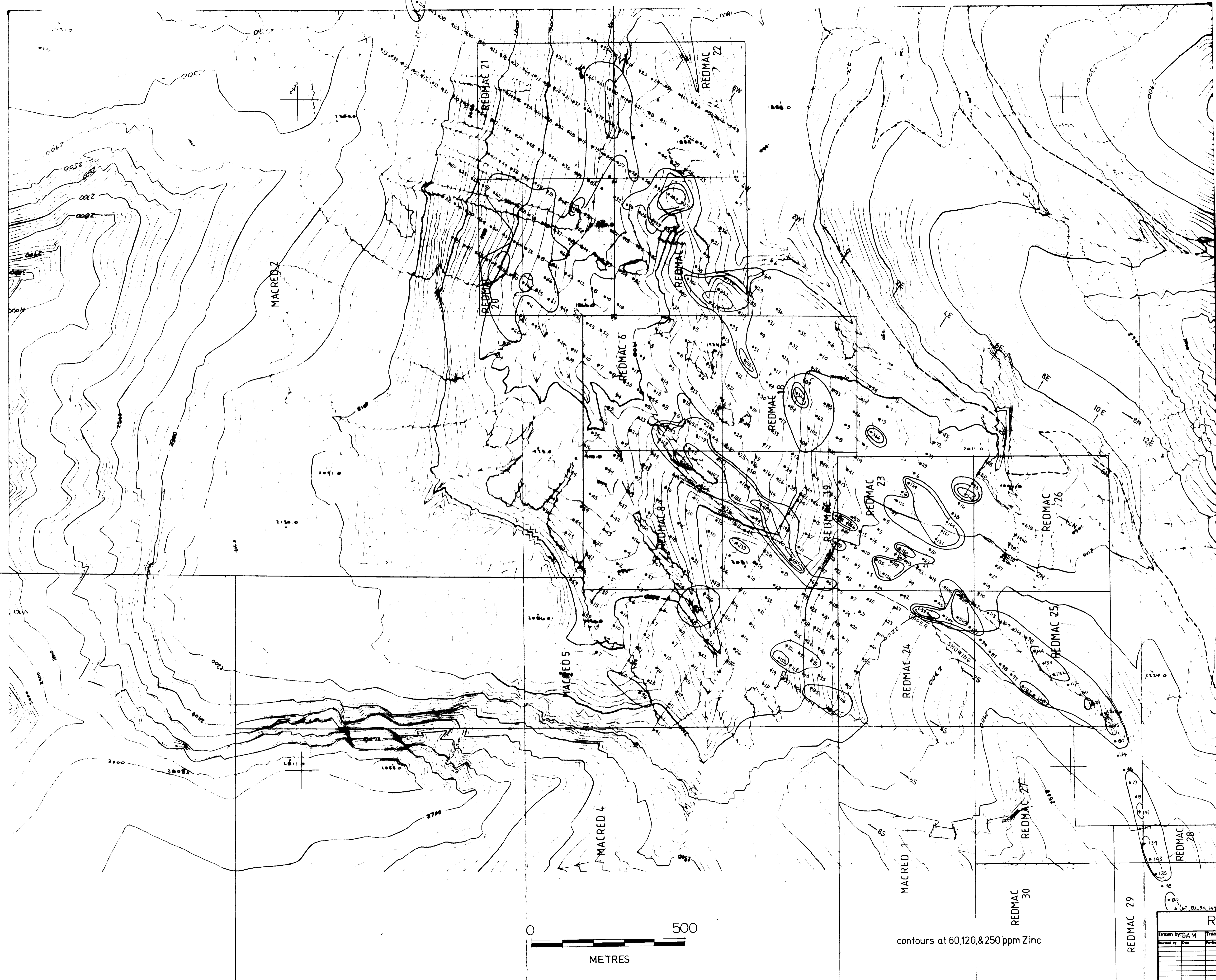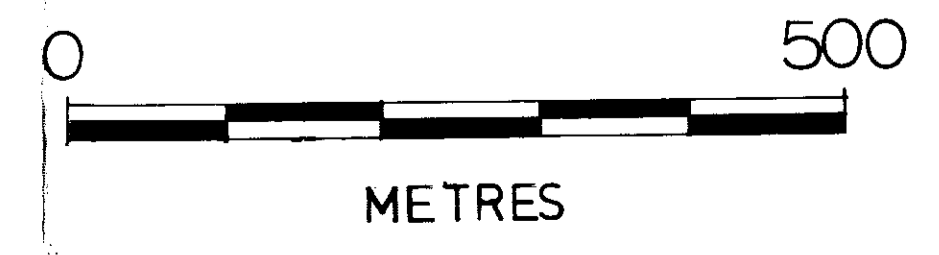
contours at 60,120,& 250 ppm Zinc

REDMAC PROPERTY			✿
Drawn by GAM	Traced by:		
Revised by	Date	Revised by	Date
			ZINC ppm
			SOIL GEOCHEMISTRY
Scale: 1:5000		Date: 1 OCT 1981	Plate:

FORM 210 0079

M.C.I. - 116 - CL