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GEOPEKO

A DIVISION OF PEKO WALLSEND OPERATIONS LTD
A.C.N 000 081 434

EL 21/90 LUINA

RELINQUISHMENT REPORT

INCLUDING REPORT ON EXPLORATION ACTIVITY

OCTOBER 1991 TO JUNE 1992

TCR 92-3371

MINES	
File #	EL21/90
- 8 JUL 1992	
Doc #	
Prepared by	Initials
LETTER	
3. 7. '92	
REFERS	
Folio 38	
Resubmit to	Date

Ian Mathison
June 1992

T274



Distribution: Geopeko, Parkes
Geopeko, Devonport
Department of Mines, Hobart

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1.0 INTRODUCTION

1.1 Location and Access (Fig. 1)

EL 21/90, Luina, is located in NW Tasmania. The township of Luina lies within the EL. Luina is approximately 80 km by road south-west of Burnie.

Access within the EL is good and is provided by the Waratah to Savage River Road, old exploration tracks, the Magnet Tramway, logging roads and HEC powerline tracks.

1.2 Tenure and Land Usage

EL 21/90 of 47 km² was granted to Peko Exploration Ltd in October 1990. The EL schedule is outlined in Appendix 1.

Most of the EL is "Multiple Use Forest Land" and includes part of the "Savage River" Australian Heritage Registered Entry. Part of the "Savage River" RAP and part of the "Ramsay" RAP. The Cleveland Mine Lease, other small leases and the Magnet Fossicking Area are excluded from the licence.

Vegetation within the area is predominantly wet eucalypt forest, much of which has been logged. Logged areas now support dense regrowth.

1.3 Regional Geology (Fig 2 and Table 1)

The oldest rocks in the area are correlated with the Precambrian Donah Formation (= Burnie Formation). A thin bedded sequence of thin bedded mudstone, siltstone, shale, quartz sandstone and quartz wacke outcrops in the north-east portion of EL 21/90. Around Waratah this sequence, known locally as the Bischoff Series, includes calcareous units. Structurally, this unit shows evidence of several stages of deformation. Refolded isoclinal folds are characteristic.

South of EL 21/90, the Donah Formation is unconformably overlain by the Eo-cambrian Success Creek Group. An infaulted block of quartzwacke and mudstone south-east of Whyte Hill is correlated with the Success Creek Group:

Most of the rocks within EL 21/90 belong to a Cambrian basaltic lava and volcanoclastic sequence with interbedded carbonates, cherts and carbonaceous shales. Brown (1989) discussed the correlation of this sequence with the Crimson Creek Formation. Although most workers consider the spilitic volcanics and volcanoclastics of the Cleveland-Waratah area to be equivalents of the Crimson Creek Formation, Brown, on geochemical grounds, considers this correlation doubtful. Around the Cleveland Mine, this sequence has been subdivided into, from oldest to youngest, the Deep Creek Volcanics, Halls Formation with the interbedded Henrys Basalt Member, and the Crescent Spur Sandstone.

This predominantly basaltic or basalt derived sequence is intruded and overlain by two slightly younger Cambrian mafic sequences. Brown (1989) describes these as a High Magnesian Andesite and Low Titanium Tholeiite. Within EL 21/90 these, together with coarser grained mafic intrusives, outcrop as two north-east trending belts. The easternmost belt is commonly known as the Magnet Dyke.

In the Devonian, the Precambrian and Cambrian units were intruded by the Meredith Granite. This outcrops to the south of the EL and underlies the area at depth. All known hard rock mineralization in the area has been attributed to the intrusion of the Meredith Granite.

Small outliers of Tertiary Basalt and associated sub basaltic sediments cap some of the higher areas. These are remnants of an extensive sheet of Tertiary basalts which once covered much of north-west Tasmania.

1.4 Known Mineral Deposits/Occurrences

There are a number of metallic mineral occurrences adjacent to the western, eastern and southern EL boundaries of Geopeko's Arthur River Project. (Green et al 1988).

These are listed in Table (2) and Figure (3) shows their locations.

The deposits range from small, relatively insignificant workings, e.g. Victory Mine, Atlas Leases to large world class ore bodies e.g. Mt Bischoff, Savage River. In most cases, extensions of the prospective host formations can be continued into Geopeko's Arthur River EL's.

Mineralization within EL 21/90 is dominated by the large carbonate replacement tin-copper deposit at Cleveland Mine. This is hosted by carbonate units of Halls Formation and consists of cassiterite, chalcopyrite and stannite in pyrrhotite. (Collins 1989)

Another large carbonate replacement tin deposit has been mined at Mt Bischoff just north-east of the EL. Here cassiterite and pyrrhotite occur within carbonate rocks of the Bischoff Series and within intrusive quartz porphyries. (Collins 1989)

At the Magnet Mine, a fissure lode of argentiferous galena and sphalerite occurs within the Magnet Dyke. Pyrite and arsenopyrite are associated with the ore minerals which occur in a manganosiderite gangue. (Collins 1989)

Similar but smaller fissure lodes occur near the Cleveland Mine and elsewhere along the fringe of the Meredith Granite,.

Small quantities of alluvial gold have been reported from streams in the area.

1.5 Previous Exploration

The area has been intensely explored. The discovery of the Mt Bischoff Mine was followed by intensive prospector activity. Modern exploration of the area has been underway since the 1960s. The Aberfoyle Group (Cleveland Tin, Cominco, and Aberfoyle Exploration) have systematically explored the area as ELs 1/63 and 34/78 ; Comstaff, EZ and Aberfoyle tested the Magnet Mine area; Comstaff explored part of the area within EL 5/63; and Placer explored the north-eastern portion as EL 47/88.

Ellis (1989), Randall (1987) and Rand (1989) summarize or give bibliographies for much of this early work.

Most of the early exploration was targeted on either replacement tin/tin-copper deposits or on base metal deposits of the Magnet type. Only Placer conducted any systematic gold exploration.

In 1989, Placer used BLEG and -80# stream sediment sampling, rock chip sampling, and geological mapping in a search for gold deposits hosted by the boninitic lavas of the Magnet Dyke. Their program was hampered by laboratory errors, contamination of sample sites by tailings, and by the erratic results common in BLEG surveys in Western Tasmania

Exploration activity by Geopeko during 1990 and 1991 is detailed in Geopeko Report T259. (Mathison 1991)

1.6 Scope of this report

Proposed exploration in EL 21/90 during 1990-91 was to have been aimed at delineating through stream water geochemistry prospective and geochemically anomalous areas within the EL. Areas worthy of further investigation would have been followed up with detailed exploration.

Little exploration was conducted in EL 21/90 during the 1990-91 field season. Exploration in other parts of the Arthur River Project area revealed significant problems with the Huminex analytical technique. Consequently, the planned 1990-91 Summer Field Program was terminated. To allow time for the Department of Mines to resolve these analytical problems, Geopeko applied for release from the 1991 expenditure commitments for this licence. This exemption was granted in April, 1991.

Water sampling recommenced in November 1991 and was completed by February 1992. This report describes the methodology and results of this program.

2.0 EXPLORATION ACTIVITY UNDERTAKEN BY GEOPEKO

2.1 October 1990 to September 1991 (Mathison, 1991)

No field work was attempted. Results of RGC Exploration's gravity survey of EL 21/90 were reported.

2.2 October 1991 to June 1992 (Drawings 2057A&B, Drawings 2315A, B, C and Appendix 2)

Work Completed

The results of Comstaff's stream sediment sampling were compiled. Six water samples and one rock float sample were collected. Water samples were analysed by CSIRO in Sydney for Cu, Pb, Cd, Zn, As and Au. For details of the sampling and analytical techniques used, see Appendix 2.

Results Received

Four of the water samples were anomalous in one or more of the elements Zn, Pb, Cd, Cu and As. These samples were collected from streams around the old Magnet Mine. Anomalous results are attributed to either contamination from the mine workings or to the effects of similar mineralization. As such, they are probably not significant. They do, however, provide some indications of the reliability of the water sampling technique.

Rock Geochemistry

No rock sample from this EL was analysed.

Comstaff's Stream Sediment Geochemistry Waratah Sheet

Results show extensive low level Cu, Pb, Zn contamination along Magnet Creek and the Arthur River.

Luina Sheet

Cu (Range 5-60). No anomalies

Pb Not all assayed. No anomalies (Range 5-20).

Zn (Range 20-470) A group of samples with elevated Zn were collected around Mt Cleveland in the NW corner of the EL.

3.0 CONCLUSIONS

- * Insufficient exploration has been conducted in EL 21/90 to assess the prospectivity of the area.
- * The amount of low level contamination around this area would make results of a stream water sampling program unreliable.

4.0 RECOMMENDATIONS

No further stream water sampling should be conducted in EL 21/90. The EL should be relinquished.

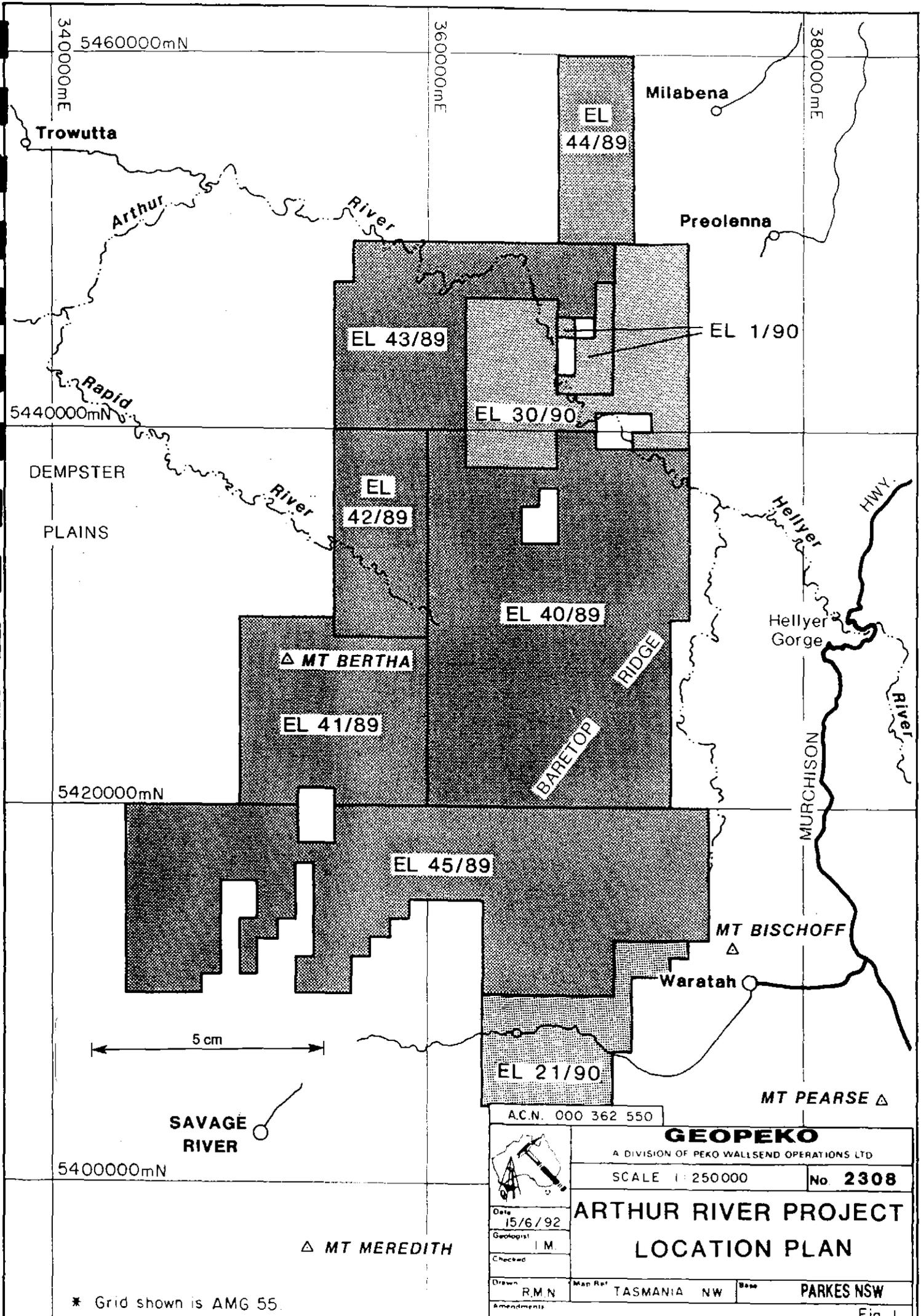
5.0 ENVIRONMENTAL DISTURBANCE AND REHABILITATION

Exploration conducted by Geopeko between 1990 and 1992 has caused no environmental disturbance. Semi permanent samples markers left at sample sites are considered to be valuable reference points for future exploration. No rehabilitation has been necessary.

Jan Mathison

REFERENCES

- BROWN, A.V., (1989) Chapter 3: "Eo-Cambrian-Cambrian" in Burrett and Martin (1989)
- BURRETT, C.F. AND MARTIN E.L. (1989) Editors "Geology & Mineral Resources of Tasmania" Geological Society of Australia Special Publication 15
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- GREEN, G.R., BOTTRILL, R.S., BACON, C.A., TURNER, N.J. (1988) - *Mineral Deposits and Metallogenic Map of Tasmania 1:50 000*, Tas. Department of Mines.
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- RANDALL, J.P., (1987) *Progress Report for the Period 1/11/86 to 31/10/87, Luina Joint Venture, EL 34/82*. Unpublished Shell Metals Report Tas Department of Mines open file TCR 87-2717.



A.C.N. 000 362 550		
GEOPEKO		
A DIVISION OF PEKO WALLSEND OPERATIONS LTD		
SCALE 1:250000		No 2308
ARTHUR RIVER PROJECT		
LOCATION PLAN		
Date	15/6/92	
Geologist	I.M.	
Checked		
Drawn	R.M.N	
Map Ref	TASMANIA NW	Base
		PARKES NSW
Amendments		

* Grid shown is AMG 55.

Fig. 1

APPENDIX 1
E.L. SCHEDULE

TASMANIA

No. EL 21/90

(Regulation 6A)

The Mining Act 1929**EXPLORATION LICENCE**

Issued to PEKO EXPLORATION LTD of 25 MERRIWA STREET, GORDON, NSW, 2072,
in respect of 47 square kilometres of land in the Land District
of RUSSELL vicinity of LUINA as described in the schedule
hereto.

This licence shall remain in force until the fifth day of October
1991.

This licence is subject to the following conditions:-

1. That the licensee shall immediately on the issue of this licence take steps to commence preliminary works necessary for the investigation of the area.
2. That the licensee shall carry out investigations as may be necessary to determine the mineral potential of the area, and in particular will fulfil the proposals set out in the exploration programme and approved by the Director of Mines.
3. That the licensee shall employ such technical and other staff and equipment as may be necessary effectively to carry out such investigations.
4. This licence shall apply to all minerals.
5. The licensee shall notify the owner and occupier of private land, in writing, at least three days before entering such land.
6. That the security (Private Land Deposit) provided by Section 15E (1) (a) & (b) of the Mining Act, 1929, (see below) shall be lodged with the Director of Mines before entering private land.
7. The licensee shall observe, perform and fulfil the conditions as set forth in Schedule 'A' (Revised) attached hereto.
8. The licensee shall be liable to pay the cost of any work carried out to remedy any damage arising from any breach of the conditions of this licence.

9. The licensee shall deposit an amount of \$5,000 (Performance Deposit) as security that the conditions contained herein shall be observed. Upon expiry or sooner determination of the licence, if the licensee satisfies the Director of Mines that such conditions have been complied with, the Director of Mines shall refund such deposit or such portion thereof, as he may determine.
10. If it is found, that the operations hereby authorised, are causing any undue damage to, or erosion of, the subject land or other land in the vicinity thereof or are unnecessarily disturbing the environment, the Minister may cancel the licence without compensation to the licensee by giving seven days' notice in writing of his intention so to do.
11. The licensee shall obtain the written permission of the Director of Mines before carrying out any work in a Forest Reserve.
12. The licensee shall arrange and keep in good standing public liability insurance to the minimum of \$1,000,000. Evidence of currency shall be produced on demand.

SCHEDULE

Commencing at the north east corner at grid co-ordinates 374 000 metres E. 5 413 000 metres N. thence grid south to 5 412 000 metres N. grid west to 373 000 metres E. again grid south to 5 411 000 metres N. again grid west to 371 000 metres E. again grid south to 5 407 000 metres N. again grid west to 370 000 metres E. again grid south to 5 404 000 metres N. again grid west to 363 000 metres e. grid north to 5 410 000 metres N. grid east to 370 000 metres E. aforesaid again grid north to 5 413 000 metres N. aforesaid thence again grid east to the point of commencement.

The area excludes 5.6 skm Mining Leases; 1 skm Magnet Fossicking Area

Land Tenure:

The area comprises: Crown Land

The area includes: "Savage River" Australian Heritage Commission Act, Registered Entry, Part of "Savage River" and "Ramsay" RAPS.

Note: Land Tenure table is a guide only

EXCLUSIONS

The area embraced by this licence includes State Forests but does not include:

- (a) All other public reserves or municipal reserves or roadways.
- (b) All forms of mining tenements and water licences including leases, water licences, easement licences, special and exploration licences, prospectors licences, miners rights, permits to enter, owners consents and owners rights which were in lawful possession or marked out prior to the date of marking out of this licence.
- (c) Land exempt from the provisions of the Mining Act, 1929.
- (d) Land under the National Parks and Wildlife Act, 1970, not subject to the Mining Act, 1929.
- (e) All Crown reservations or other land set apart or dedicated for any public purposes.

MINISTER FOR RESOURCES AND ENERGY

Date

APPENDIX 2

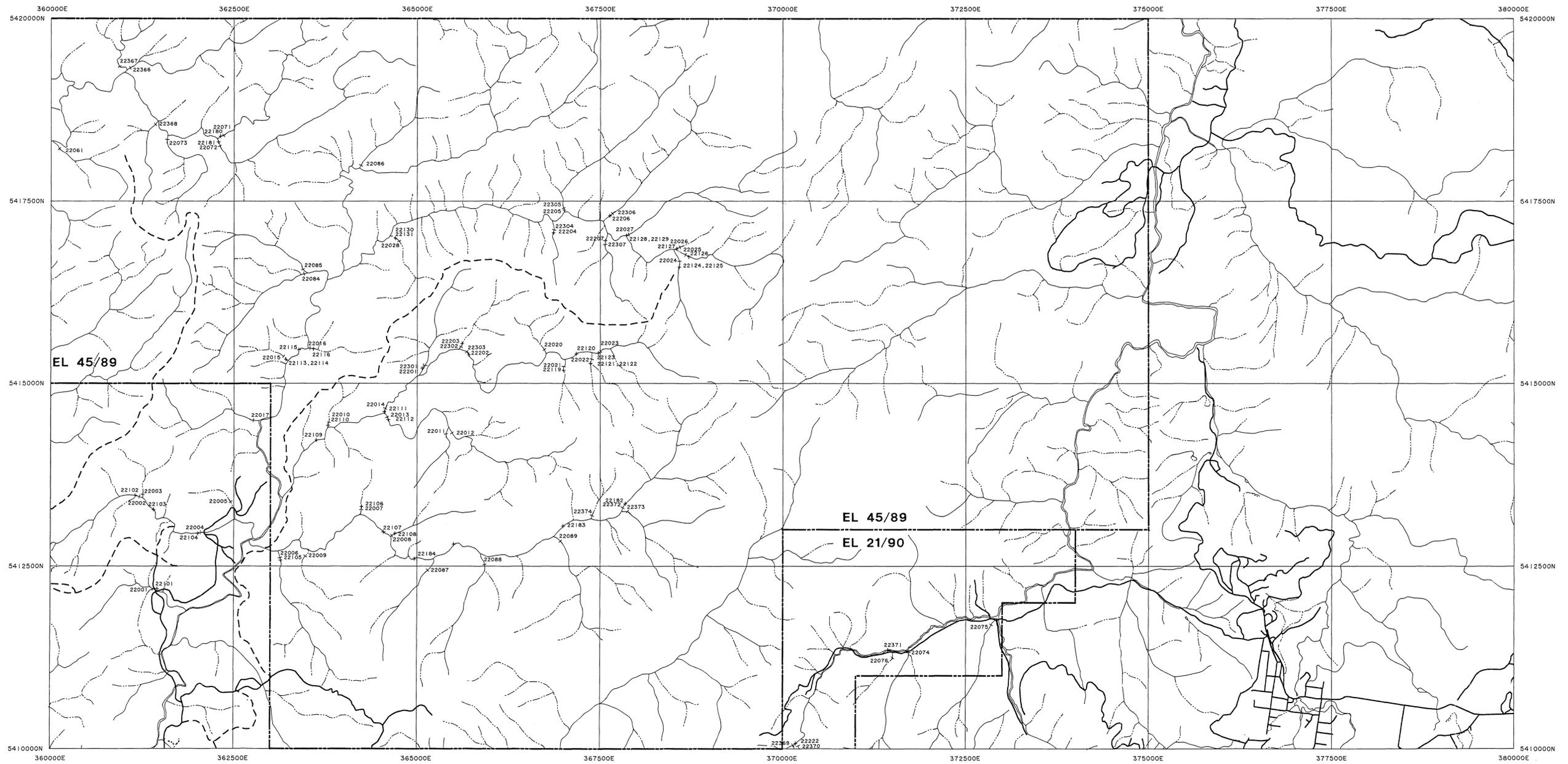
WATER GEOCHEMISTRY

Results and Sample Details

ARTHUR RIVER PROJECT - EL 21/90

DESCRIPTIONS OF ~~ADDED~~ ROCK SAMPLES - WARATAH SHEET

EL	MAP	NUMBER	TYPE	LITHOLOGY	DESCRIPTION
21/90	WARATAH	22222	FLOAT	CHERTY MUDSTONE	Hard, dense (rarely fine laminated) red chocolate brown.



LOCATION SYMBOLS
 + Location of outcrop with description
 { 60 M:11 Location of stream float with percentages of each float type in stream
 30 0:12
 10 7%

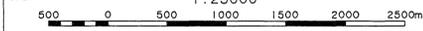
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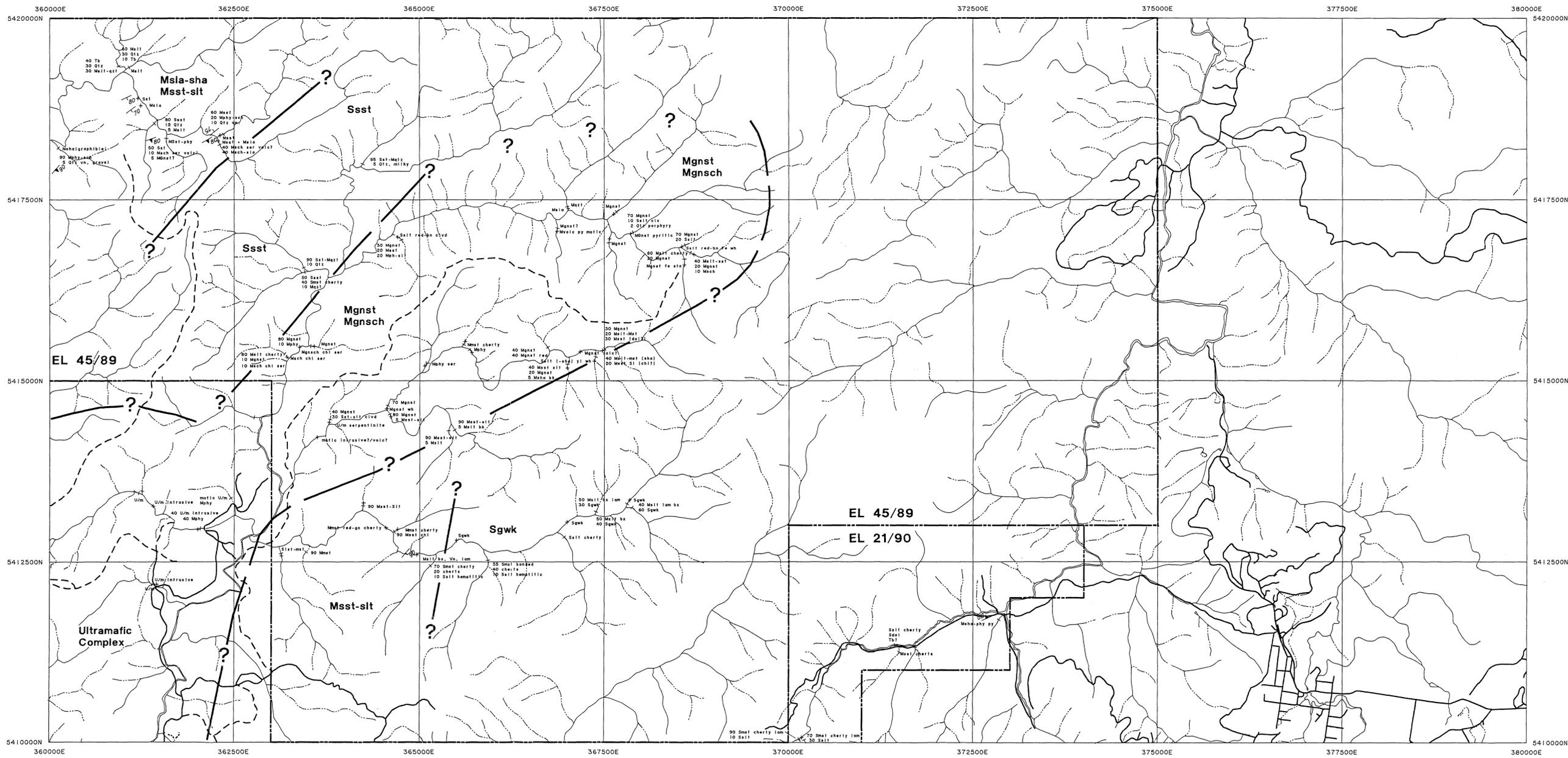
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1:25000 SHEET LAYOUT

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3441	3641	3841
3440	3640	3840

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		Scale 	
PARKE'S <small>Project / Tenure</small>		WARATAH 3641	
<small>Geo. Client. Carta. Date Appended</small> D. G. R. M. N. 12/3/92		SAMPLE LOCATIONS & NUMBER	
<small>Job No. 82_92</small>		<small>100k. Sheet 7915</small>	
		<small>DWG No. 2057A</small>	



GEOLOGICAL LEGEND

TERTIARY

Tb Basalt

CARBONIFEROUS - PERMIAN

C-Pwt Wynyard Tillite

PRE CAMBRIAN -

SEDIMENTS

Ssst sandstone
Sgwk greywacke
Sslt siltstone
Sdol dolomite
Ssha shale

METAMORPHICS

Msch schist
Mphy phyllite
Mgnst greenstone
Mgnsch greenschist
Mqzt quartzite
Msla slate

COLOURS

bk black
wh white
gn green
gy grey
pl pale
dk dark
bn brown

LOCATION SYMBOLS

+ Location of outcrop with description
○ 80 Mst 30 Ols 10 Tn Location of stream float with percentages of each float type in stream

VOLCANICS

Valc volcanic
tuff tuff

OTHER

U/m ultramafic

MINERALOGY

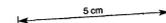
qtz quartz
fs feldspar
Fe iron
py pyrite
ser sericite
chl chloride
sil siliceous

TEXTURES

Vn vein, veining
lam laminated
stn stain
wth weathered
cld cleaved
foln foliation
mas massive

STRUCTURES

bedding
foliation
definite contact
approximate contact
possible contact



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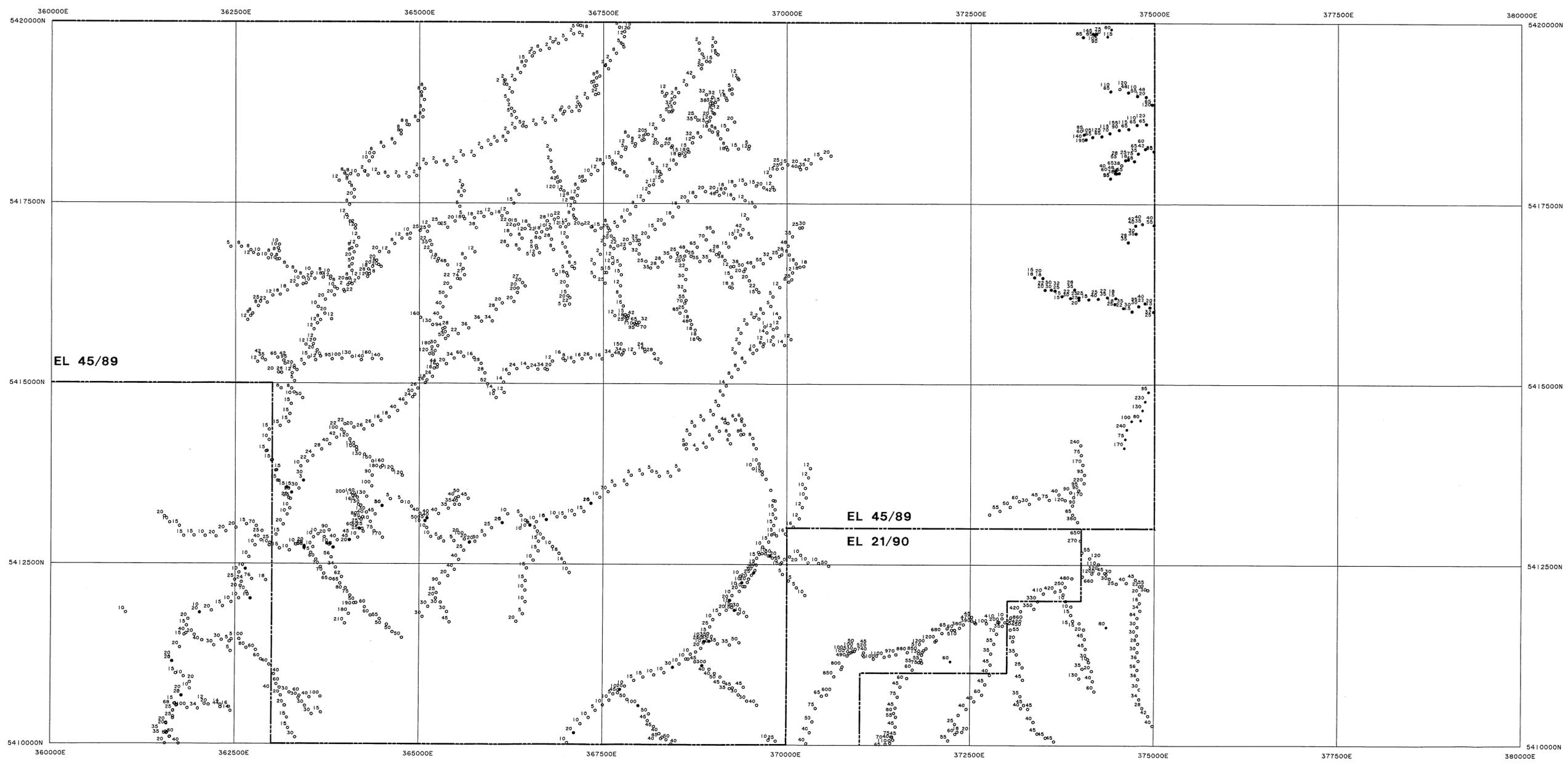
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Carto. R. M. N.
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Date 12/3/92
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Job No. 82_92
DWG No. 2057B

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Project / Tairea
WARATAH 3641
FACT GEOLOGY & INTERPRETATION
DWG No. 2057B



EL 45/89

EL 45/89

EL 21/90

5 cm

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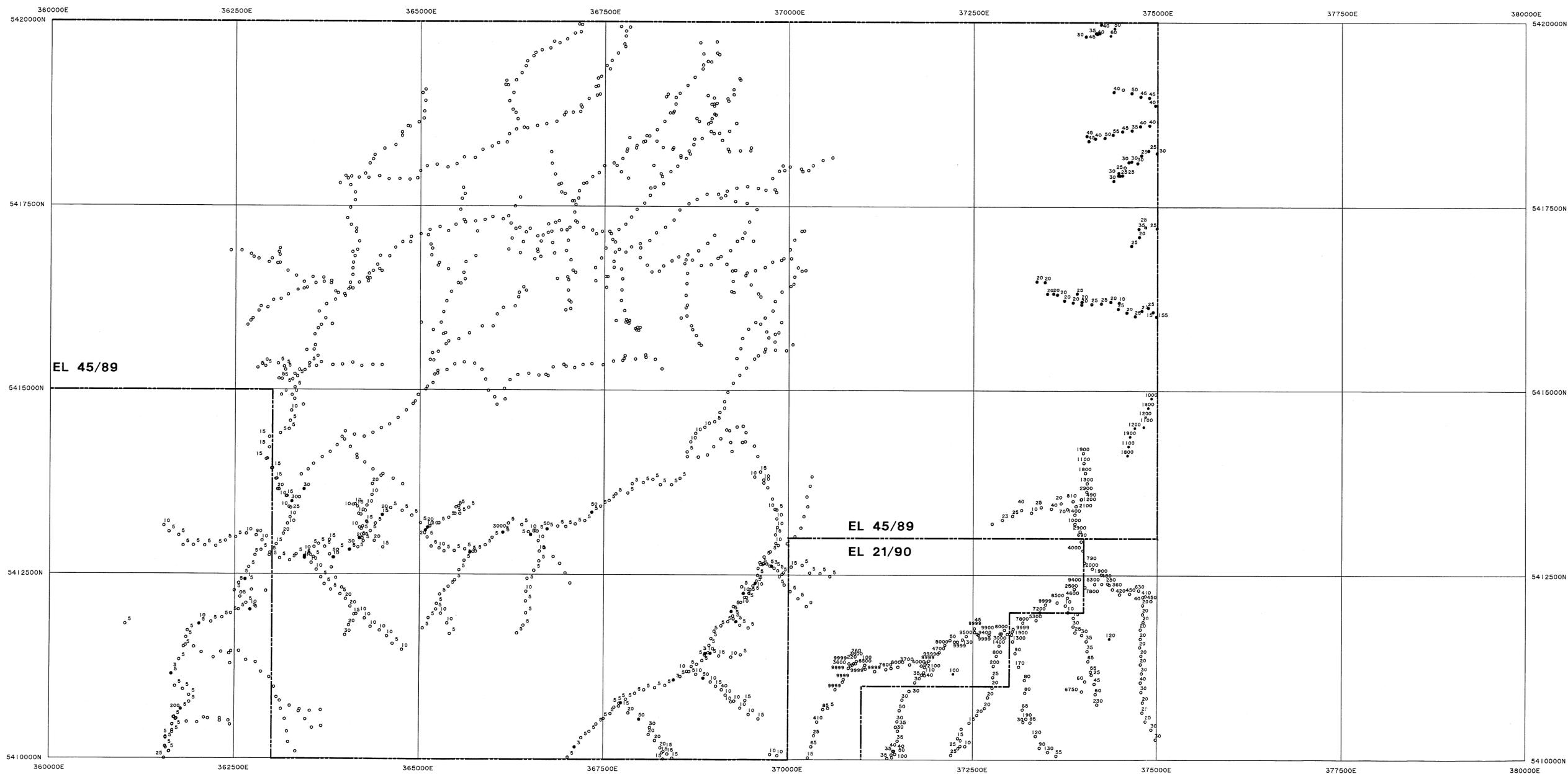
SAMPLE LEGEND

- Location of Panned Concentrate sample
 - Location of Stream Sediment sample
- Note: 9999 equals >10000ppm

1:25000 SHEET LAYOUT

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3440	3640	3840

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<p>Project / Tenure</p>		
<p>WARATAH 3641</p>		
<p>COMSTAFF STREAM SEDIMENT SAMPLING</p>		
<p>COPPER (ppm)</p>		
Geo. Client.	D. G.	
Carto.	R. M. N.	
Checked		
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		DWG No. 2315A



EL 45/89

EL 45/89

EL 21/90

5 cm

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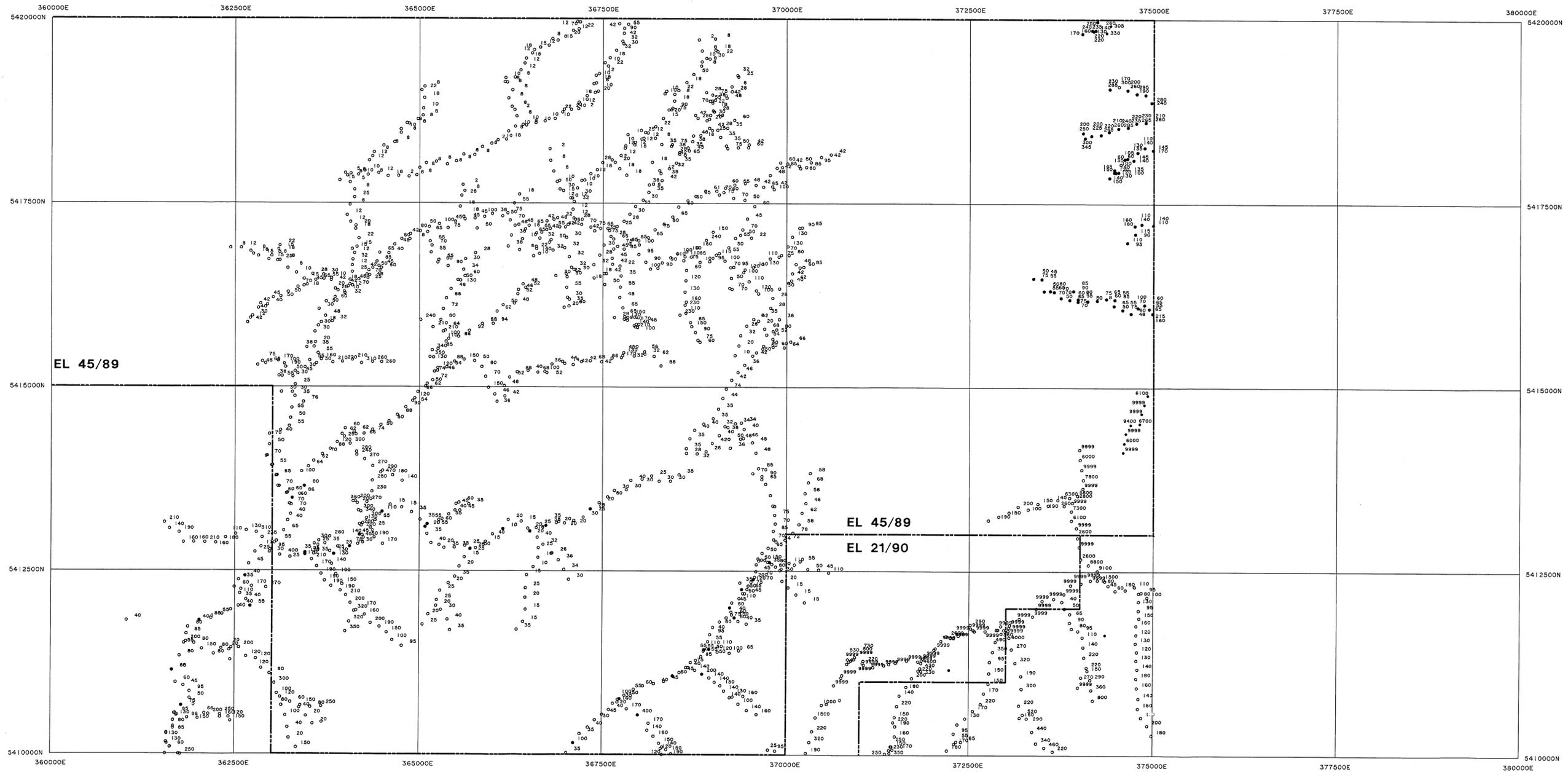
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- Note: 9999 equals >10000ppm

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		DWG No. 2315B		



EL 45/89

EL 45/89

EL 21/90

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- Note: 9999 equals >10000ppm

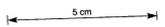
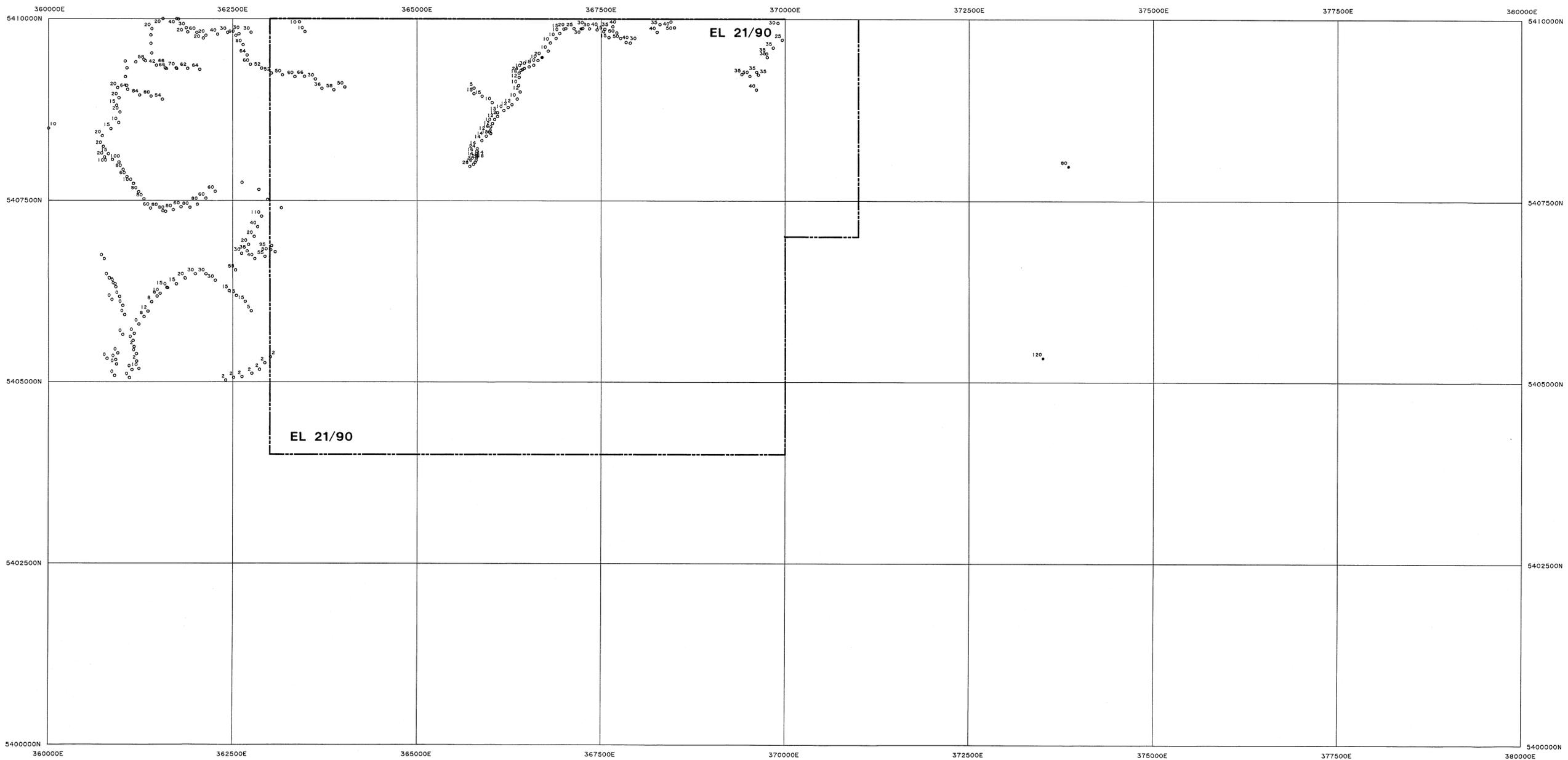
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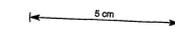
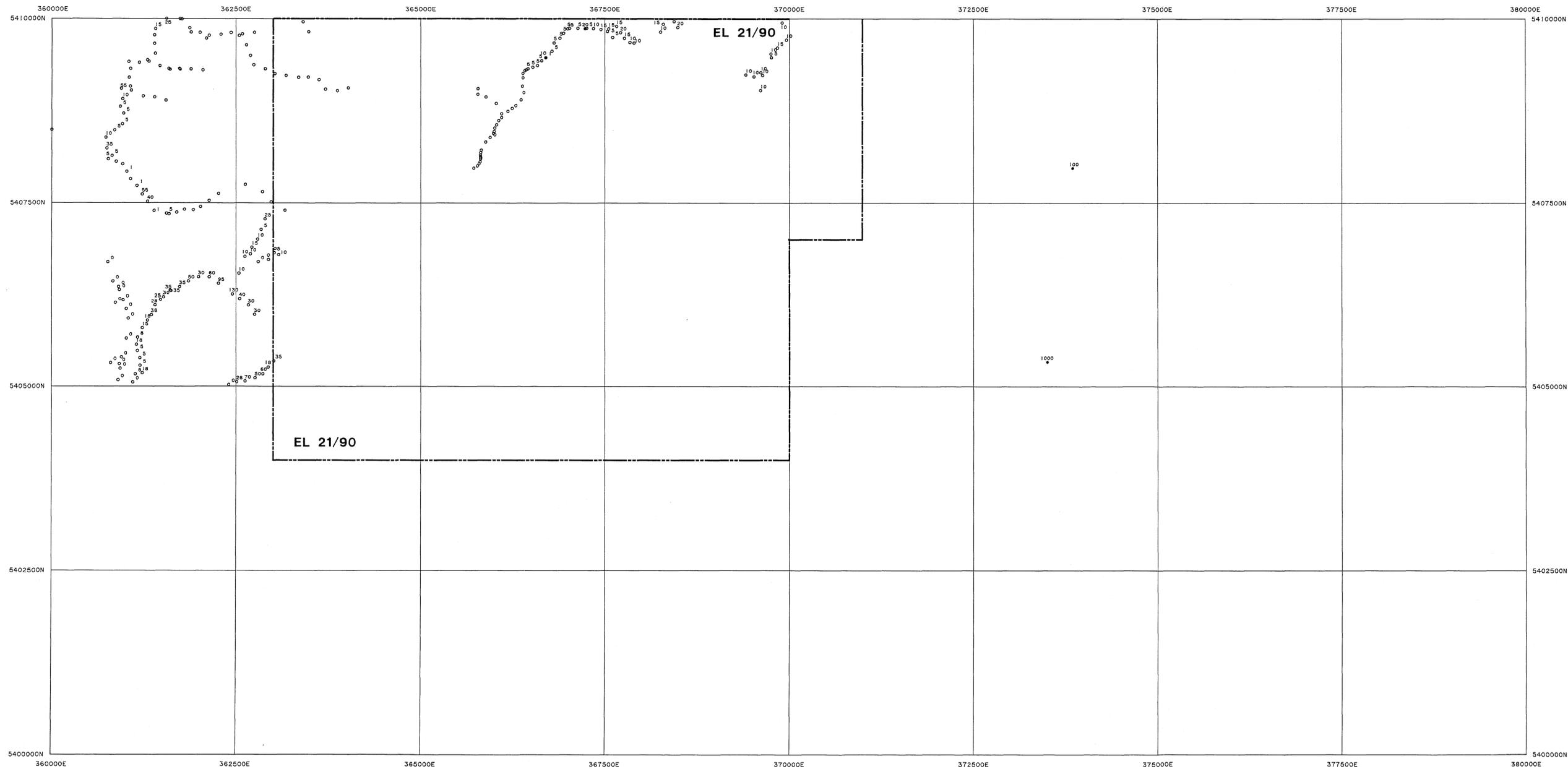
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 - Location of Stream Sediment sample
- Note: 9999 equals >10000ppm

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Project / Tenure PARKES	LUINA 3640 COMSTAFF STREAM SEDIMENT SAMPLING COPPER (ppm)	
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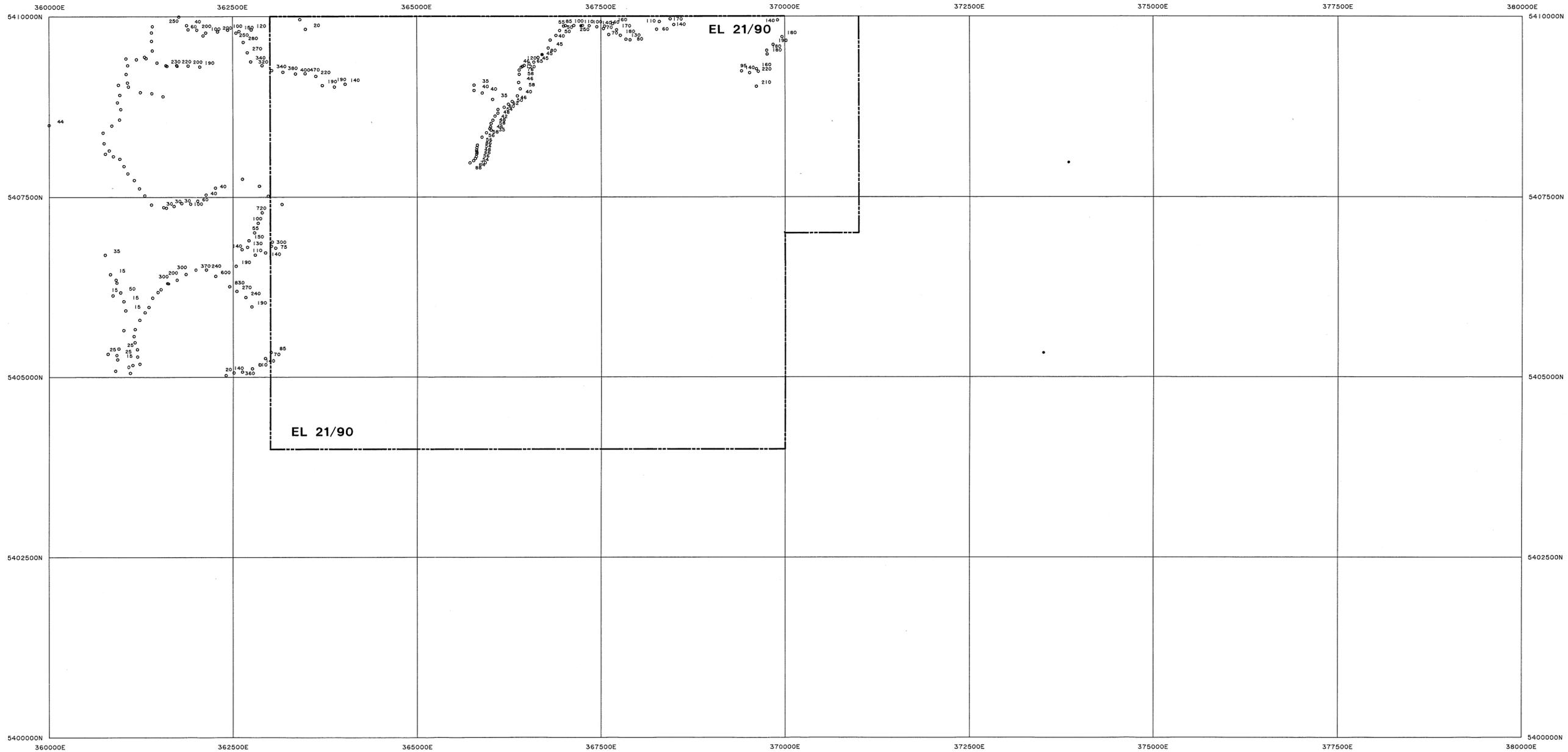
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 - Location of Stream Sediment sample
- Note: 9999 equals >10000ppm

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Project / Tenure		LUINA 3640	
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Carto. R. M. N.		LEAD (ppm)	
Checked			
Date 25/6/92			
Appended			
Job No. 201_92	100k. Sheet 7915	DWG No. 2317B	



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SAMPLE LEGEND

- Location of Panned Concentrate sample
 - Location of Stream Sediment sample
- Note: 9999 equals >10000ppm

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3439	3639	3839

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Geo. Client.	D. G.	
Carto.	R. M. N.	
Checked		
Date	25/6/92	
Appended		
Job No.	201_92	DWG No. 2317C