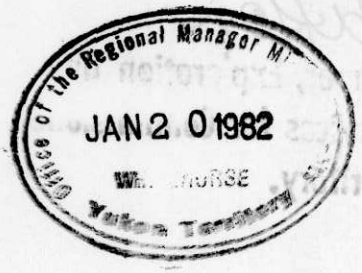


CCH MINERALS LTD.

ASSESSMENT REPORT

GEOCHEMICAL SURVEY
August 4-7, 1981

MAHTIN CLAIMS 25 to 32

115-P-15

63°55'N 136°50'W

DAWSON AREA
YUKON TERRITORY

Brian Paul/Daniel Rota
December 15, 1981

090956

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 4218 .

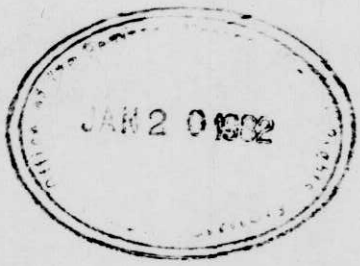
P Watson

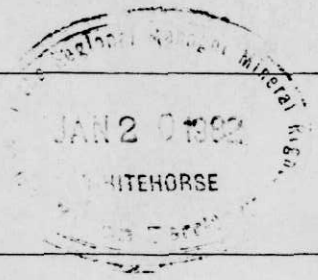
Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

DATE SENT: 15 Jan 1992

DATE RECEIVED BY WHITEHORSE

TRANSMITTAL SHEET





TO: REGIONAL MANAGER MINERAL RIGHTS
WHITEHORSE, YUKON TERRITORY

FROM: DAWSON MINING DISTRICT

NEW APPLICATION FOR PLACER LEASE TO PROSPECT: NAME _____

_____ RENEWAL OF PLACER LEASE TO PROSPECT: NAME _____

AFFIDAVIT OF EXPENDITURE ON PLACER LEASE: NAME _____

LEASE NO. _____

ASSIGNMENT OF PLACER LEASE NO. _____

FROM _____ TO _____

GROUPING APPLICATION UNDER SECTION 52(2) PLACER MINING ACT

OWNER _____ DAWSON GROUPING NO. _____

DIAMOND DRILL LOGS CLAIM _____ CLAIM SHEET NO. _____

QUARTZ ASSESSMENT REPORT CLAIM Mahon 25-32 CLAIM SHEET NO. 115-P-15

Type of Report: Mechanical Submitted By: Campbell Knowles

C.I.S. work performed on: Mahon 25-32

$ Req. for rend. application: 4218.00

B. J. PROUDFOOT
MINING RECORDER

REPLY ACTION:

090956

CAMPBELL RESOURCES INC.

(NO PERSONAL LIABILITY)

SUITE A-105, 355 BURRARD STREET
VANCOUVER, BRITISH COLUMBIA, CANADA
V6C 2G6

TELEPHONE
(604) 684-7558

TELEX
04-907698

January 12, 1982

Mr. D. F. Jennings
Mining Recorder
Box 249
Dawson, Y.T.

Dear Mr. Jennings:

Re: Mahtin Claims 25-32, 115-P-15

Enclosed please find two copies of an Assessment Report covering geochemical surveys on the above claims in support of Form C filed in August 1981.

CCH Minerals Ltd., holder of the above claims, is a wholly owned subsiduary of Campbell Resources Inc., manager of the Cortin Joint Venture in 1981.

Sincerely,

CAMPBELL RESOURCES INC.

Gordon Ford
Exploration Manager
CCH Minerals
Campbell Resources Inc.

Encl. (2)

GF/lj

090956

Contents

Illustrations

Horseshoe Creek, approximate area of geochemical coverage, 1981.

Introduction

The Mahtin claim group lies in an area between Sprague and Big Creeks, its eastern side abutting on to the boundary between the Mayo and Dawson Mining Districts. The claims are owned by CCH Minerals Ltd. of Toronto, Ontario.

The work outlined in this report was conducted from August 4 to August 7, 1981. Two hundred and three soils were collected in the southeastern portion of the claim group for tin, tungsten, copper, silver and arsenic analyses. An amount totalling four thousand dollars has been claimed for assessment purposes.

Exploration History

No exploration activity is reported in the area of the Mahtin claims prior to 1979. Galena bearing veins were discovered at the north end of East Ridge in 1948 by the Geological Survey of Canada, and the presence of very old claim posts along the ridge forming the eastern boundary of the Mahtin Group suggests that the area has previously been examined.

The Ram and Wolf claims were staked during 1979 by E. Weiz and L. Havranek, who reported bulldozer trenching later on in the year - these claims are in the Mayo Mining District, immediately adjacent to the Mahtin Group. AMAX Exploration were active on the HI Group, north of Sprague Creek, also during 1979.

CCH Resources Ltd. staked the Mahtin Group upstream from high tin, tungsten and arsenic values in Bolivia Creek in 1979. During 1980, geological and geochemical surveys were carried out over the original block of claims and the group was extended eastward to the mining district boundary. In the northwestern corner of the claim group, a number of test pits were excavated to evaluate the placer tin potential of Bolivia Creek. At present, the Mahtin Group totals 32 claims.

Geology

The property is underlain by a north to northwesterly dipping sedimentary sequence of Ordovician age. These sediments young to the north, passing from shallow water siltstones, chert and limestone into a clastic, deeper water sequence composed mainly of argillite and calcarenite. They are autochthonous sediments of the North American platform. Allochthonous sedimentary rocks, largely psammitic, of the Proterozoic Yukon Group occur in the extreme southeastern corner of the property, having been thrust northwards over the younger sediments. The thrust contact trends northeast/southwest in the area immediately south of the claim group.

This combined sedimentary package has been subsequently intruded by a large body of biotite quartz monzonite, as well as an east/west trending dyke swarm of monzonitic to syenitic composition. Both intrusive systems are thought to be late Cretaceous (100 my) in age.

Northwest/southeast trending faults are inferred along Bolivia and Horseshoe Creeks, trending at right angles to the thrust and presumably related to it.

Skarn and hornfels are moderately well developed adjacent to the quartz monzonite intrusive, which is itself cut by late arsenopyrite bearing fractures. No tin or tungsten minerals have been identified to date.

Geochemistry

Methods

Soil samples were collected from the B horizon wherever possible. Areas of well developed A horizon (in excess of 1/3 metre) are widespread on the Mahtin Group, being especially abundant on the poorly drained slopes in the northwestern and northcentral portions of the property. Organic contamination was minimal however, within the area of the present survey. Sample lines were tied to a pre-existing grid and extended by simple chain and compass; individual samples were collected using geological picks and kraft paper envelopes.

Minus 80 mesh fractions were analyzed for tin, tungsten, copper, silver and arsenic by Bondar-Clegg and Co. Ltd. in Whitehorse and Ottawa.

Tin analyses were done using ammonium iodide fusion and atomic absorption spectrometry after the method of Stanton and MacDonald (1961), and Smith (1967).

Tungsten analyses were done using a standard colorimetric technique, which involves fusion with sodium carbonate and complexing with zinc dithiol.

Copper and silver were analyzed by atomic absorption spectrometry following standard digestion by nitric and hydrochloric acids.

Arsenic was analyzed by a colorimetric method, after digestion by nitric and perchloric acids, in Bondar-Clegg's Ottawa laboratory.

Results

Tin, tungsten, copper, silver and arsenic were analyzed in soils on a 50 metre x 100 metre grid covering approximately 90 hectares in the southeastern portion of the claim block. All of this work was completed in August of 1981. Included with the report are maps 713-2(tin), 713-3(tungsten), 713-4(copper), 713-6(silver), 713-7(arsenic) and 713-10(compilation geochemistry), all at 1:5000 scale, showing arbitrarily contoured results for the various elements. These maps incorporate work done during 1980, and previously reported on.

A large circular arsenic anomaly, approximately 700 metres in diameter, occurs in the extreme southeastern corner of the claim group. Arsenopyrite is abundant in this area as fracture fillings within a quartz monzonite intrusve body, and also as a constituent of skarn. Although the soil anomaly is centered over the most intensely mineralized area at the eastern end of the intrusive, it would also seem to follow the intrusive contact around to the southwest. A very pronounced dispersion trail is present along the upper reaches of Bolivia Creek, and anomalous amounts of arsenic are present in the majority of stream sediment samples collected along the two creeks draining the property. This mobility makes arsenic an ideal "pathfinder" element: in-fill stream sediment sampling along Bolivia and Horseshoe Creeks was prompted by the presence of anomalous arsenic (105 ppm) in a sample collected 2½ km west of the present claim group, and led to the acquisition of these claims.

Tin values in soil are generally quite low, but moderately anomalous values do show some coincidence with the area of high arsenic.

Highly anomalous values are present within stream sediment and panned concentrate samples from Bolivia and Horseshoe Creeks, and are seemingly concentrated in the flat area towards the junction of these two creeks. The presence of anomalous stream sediment values in an area of relatively low tin in soils remains unexplained.

Tungsten values are generally low, as are silver and copper, but weakly anomalous values again show some coincidence with the large arsenic anomaly in the southeastern corner of the claim block.

Recommendations for Future Work

All surface work on the Mahtin Group was completed as of August, 1981. Fill-in geochemical surveys during the past year were successful in closing anomalies in the southeastern portion of the claim group. Tin and tungsten values in soils, with few exceptions, are not sufficiently enhanced to warrant additional follow-up. The main quartz monzonite intrusive mass which hosts arsenopyrite-pyrite-stibnite mineralization in fracture veinlets, and which underlies an area of enhanced As(with sporadic high Sn,W,Cu and Ag) in soils, does not appear to have potential as a Sn-W precursor. Stream sampling along the eastern margin of the claim group, done during September of 1981 and not claimed for assessment purposes, offered little in the way of encouragement. In addition, test pitting on Bolivia Creek during 1980 indicated only uneconomic quantities of cassiterite in the stream gravels.

Based on the above factors, no additional work is recommended on the Mahtin Group at the present time. The ground is held in good standing until August of 1985, at which time a re-evaluation can be made. Still unexplained, it should be noted, are the high Sn(and to a lesser extent,W) values in the active stream sediments of Bolivia and Horseshoe Creek.

STATEMENT OF QUALIFICATIONS

Work on the Mahtin group during 1981 was carried out under the direction of D. Rota of Toronto, Ontario.

Mr. Rota is Project Geologist for BILLITON CANADA LTD. Currently seconded to the Cortin Joint Venture, he holds a B.Sc. degree in geology from Laurentian University, Sudbury, Ontario and has practiced his profession continuously for a period of twelve years in a variety of geological environments within Canada.

The geochemical survey described in the present report was carried out by B. Scott Martell of Kingston, Ontario and John C. Goodman of Toronto, Ontario, under the direct supervision of the author, Brian Paul. Mr. Paul, also an employee of BILLITON CANADA LTD. has been involved as a member of the Cortin Joint Venture since May, 1979. He holds a B.Sc.(Hons.) degree in geology from the University of Western Ontario and is currently completing the requirements for an M.Sc. degree in geology from the University of Manitoba. He is a member of the Canadian Institute of Mining and Metallurgy, the Geological Association of Canada and the Mineralogical Association of Canada.

STATEMENT OF EXPENDITURES

203 Soils analyzed for Sn,W,Cu,Ag and As @ $13.50/sample	$2740.50
8 Assistant days @ $40.00/day	320 ~~240~~.00
1/2 Geologist Day @ $85.00/day	42.50
Food and Supplies: 8 man-days @$12.00/day	96.00
2 Hours Helicopter @ $500.00/hour (casual rate)	1000.00
Drafting and Interpretation	100.00
	~~$4219.00~~ 4299.00

Work was carried out during the period August 4, 1981 to August 7, 1981.

Brian Paul

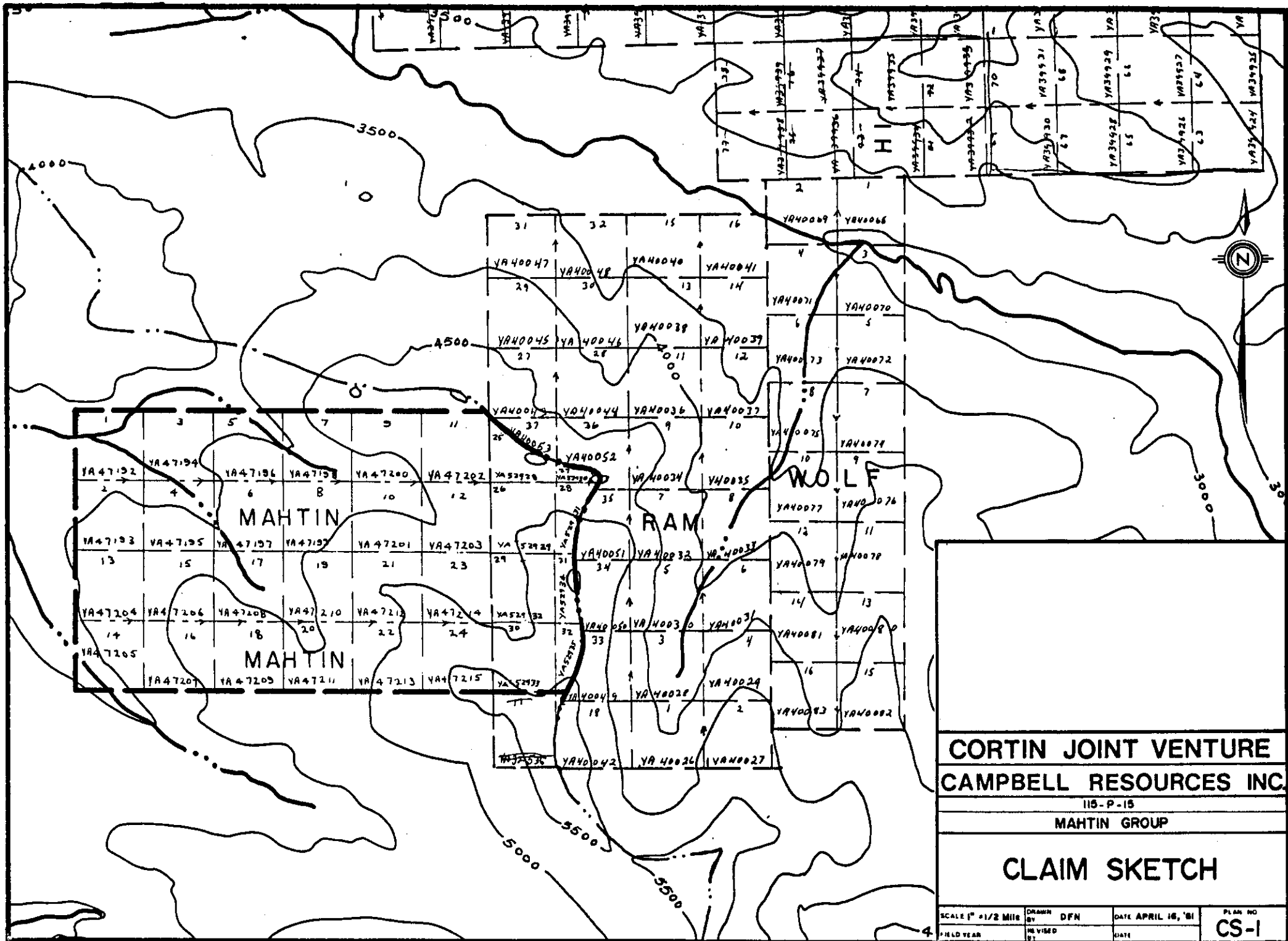
Vancouver, B. C.
December 15, 1981.

Brian Paul
Geologist - Cortin J.V.

LIST OF CLAIMS

GRANT NUMBERS	CLAIM NAMES	LOCATION	CLAIM SHEET NO.
YA47192-YA47215	MAHTIN 1-24	EAST RIDGE	115-P-15
YA52928-YA52935	MAHTIN 25-32	EAST RIDGE	115-P-15

Assessment has been filed for claim numbers YA52928-YA52935 (Mahtin 25-32), sufficient to hold these claims until August 8, 1985, for which this report is representation.



CORTIN JOINT VENTURE

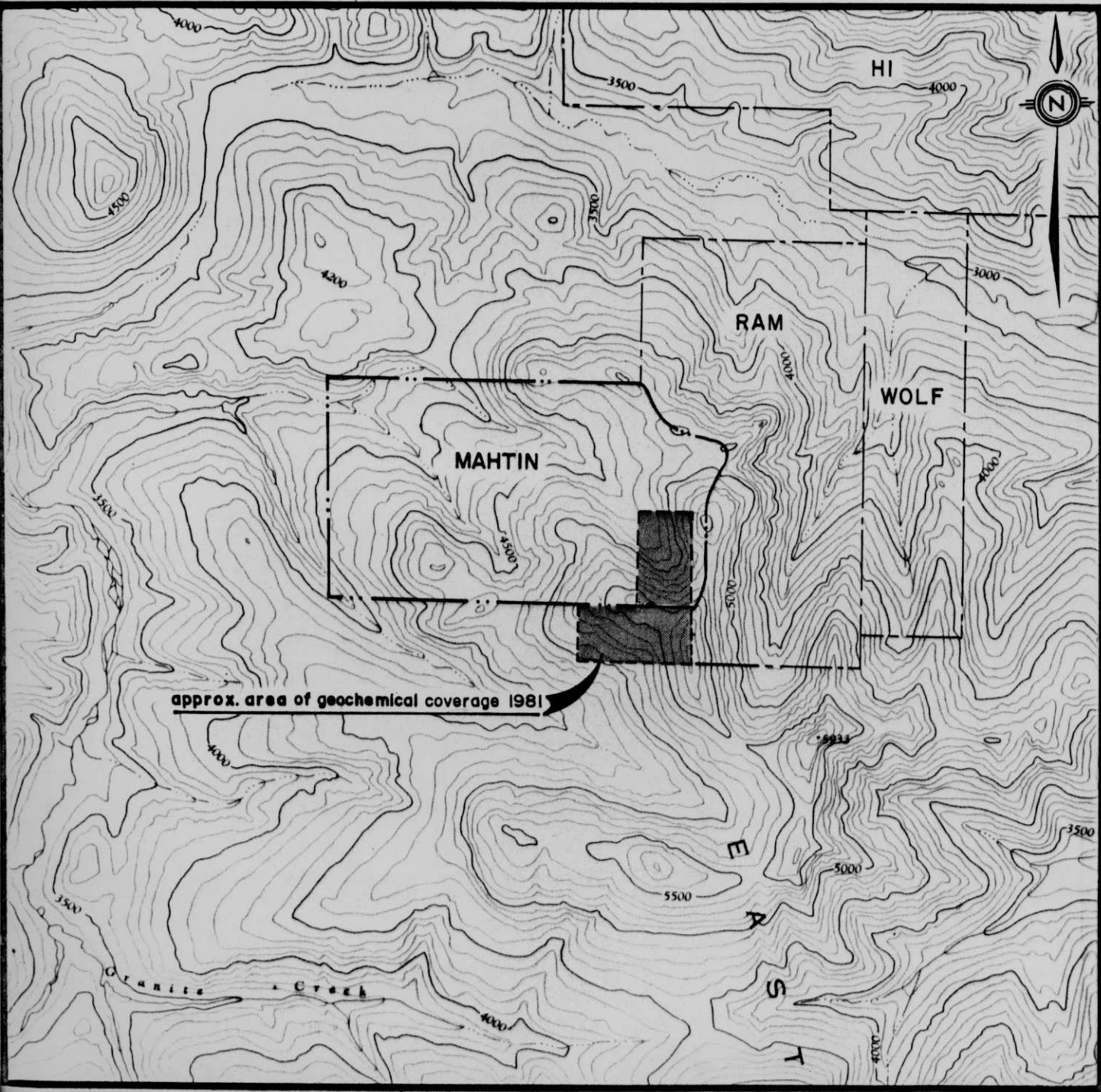
CAMPBELL RESOURCES INC.

115-P-15

MAHTIN GROUP

CLAIM SKETCH

SCALE 1" = 1/2 Mile	DRAWN BY DFN	DATE APRIL 16, '81	PLAN NO CS-1
FIELD YEAR	REVISED BY	DATE	



LEGEND

CORTIN CLAIM GROUPS

OTHER CLAIM GROUPS

CORTIN JOINT VENTURE

CCH RESOURCES LTD.

115-P-15

MAHTIN GROUP

CLAIM LOCATION

DRAWN BY BJP	DATE NOV. 1981	PROJECT No 713	PLAN No
REVISED BY	DATE	SCALE 1:50,000	

HORSESHOE CREEK

BOLIVIA CREEK

DAWSON MINING DISTRICT

MAYO MINING DISTRICT

1250 1375 1500 1625 1700

LEGEND

VALUES:

Sn

- > 99 ppm
- > 49 ppm
- > 19 ppm
- > 9 ppm

NS SAMPLE NOT TAKEN

CAMP LOCATION

N.B. - ALL ELEVATIONS IN METRES.

MAHTIN CLAIM POSTS

1980, 1981 SOIL SAMPLES

1980, 1981 STREAM SEDIMENT SAMPLES

DWG 397

090956

CORTIN JOINT VENTURE

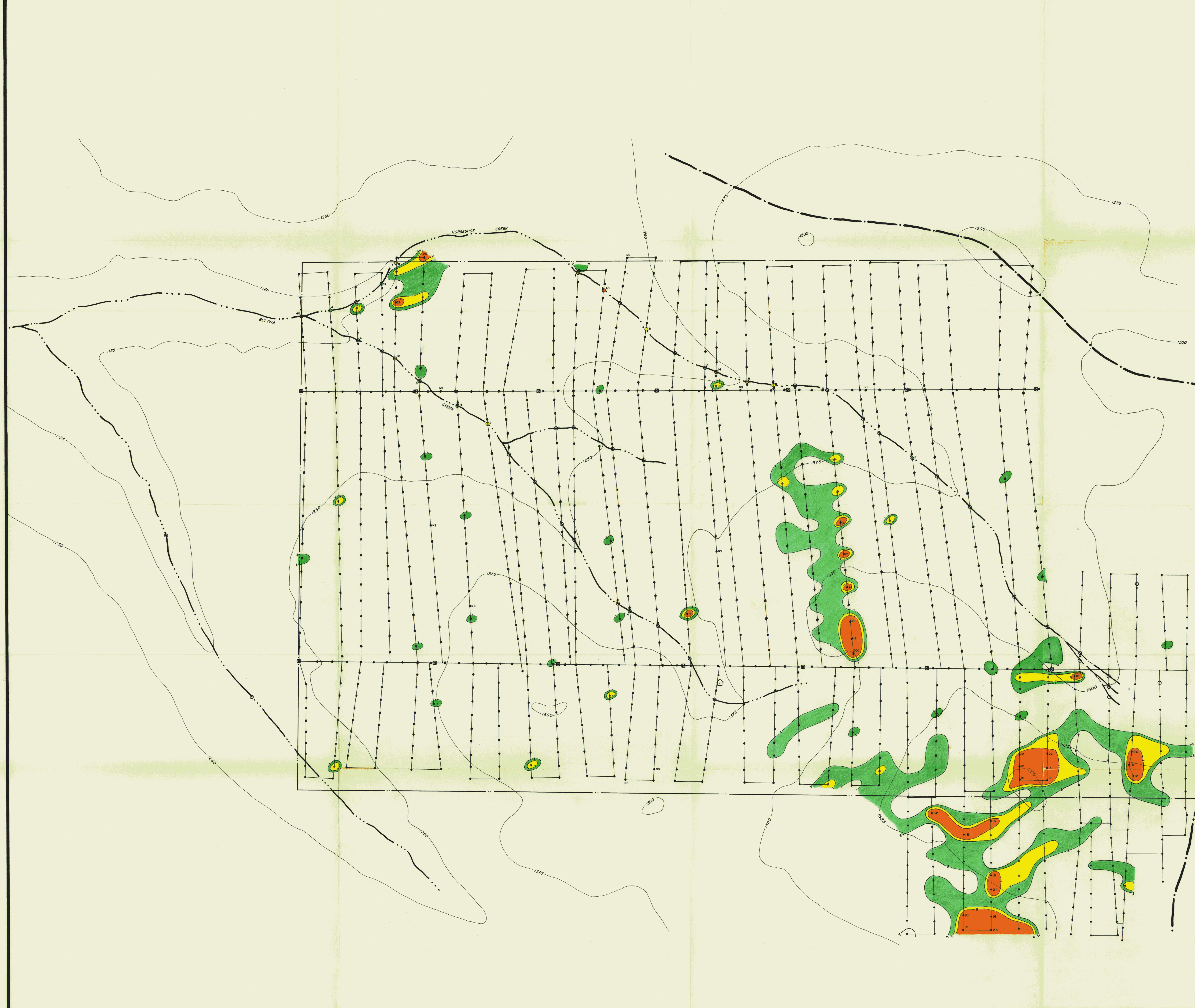
CAMPBELL RESOURCES INC

115-P-15

MAHTIN GROUP

DETAILED SOIL GRID — Sn

SCALE 1:5000	DRAWN BY DFN	DATE JAN. 14, 1981	PLAN NO. 713-2
FIELD YEAR 1980	REVISED BY	DATE	



LEGEND

VALUES:

W

(orange)	>11 ppm
(yellow)	>7 ppm
(green)	>3 ppm

NS SAMPLE NOT TAKEN

CAMP LOCATION

N.B. - ALL ELEVATIONS IN METRES.

MAHTIN CLAIM POSTS

1980, 1981 SOIL SAMPLES

1980, 1981 STREAM SEDIMENT SAMPLES

DWG 398
090956

CORTIN JOINT VENTURE
CAMPBELL RESOURCES INC.

115-P-15

MAHTIN GROUP

DETAILED SOIL GRID — W

SCALE 1 : 5000	DRAWN BY DFN	DATE JAN. 13, 1981	PLAN NO. 713-3
FIELD YEAR 1980	REVISED BY	DATE	

HORSESHOE CREEK

BOLIVIA

DAWSON MINING DISTRICT
MAYO MINING DISTRICT

LEGEND

VALUES:

Cu — >299 ppm; >99 ppm

NS SAMPLE NOT TAKEN

CAMP LOCATION

N.B. - ALL ELEVATIONS IN METRES.

MAHTIN CLAIM POSTS

1980, 1981 SOIL SAMPLES

1980, 1981 STREAM SEDIMENT SAMPLES

DWG 399
090956

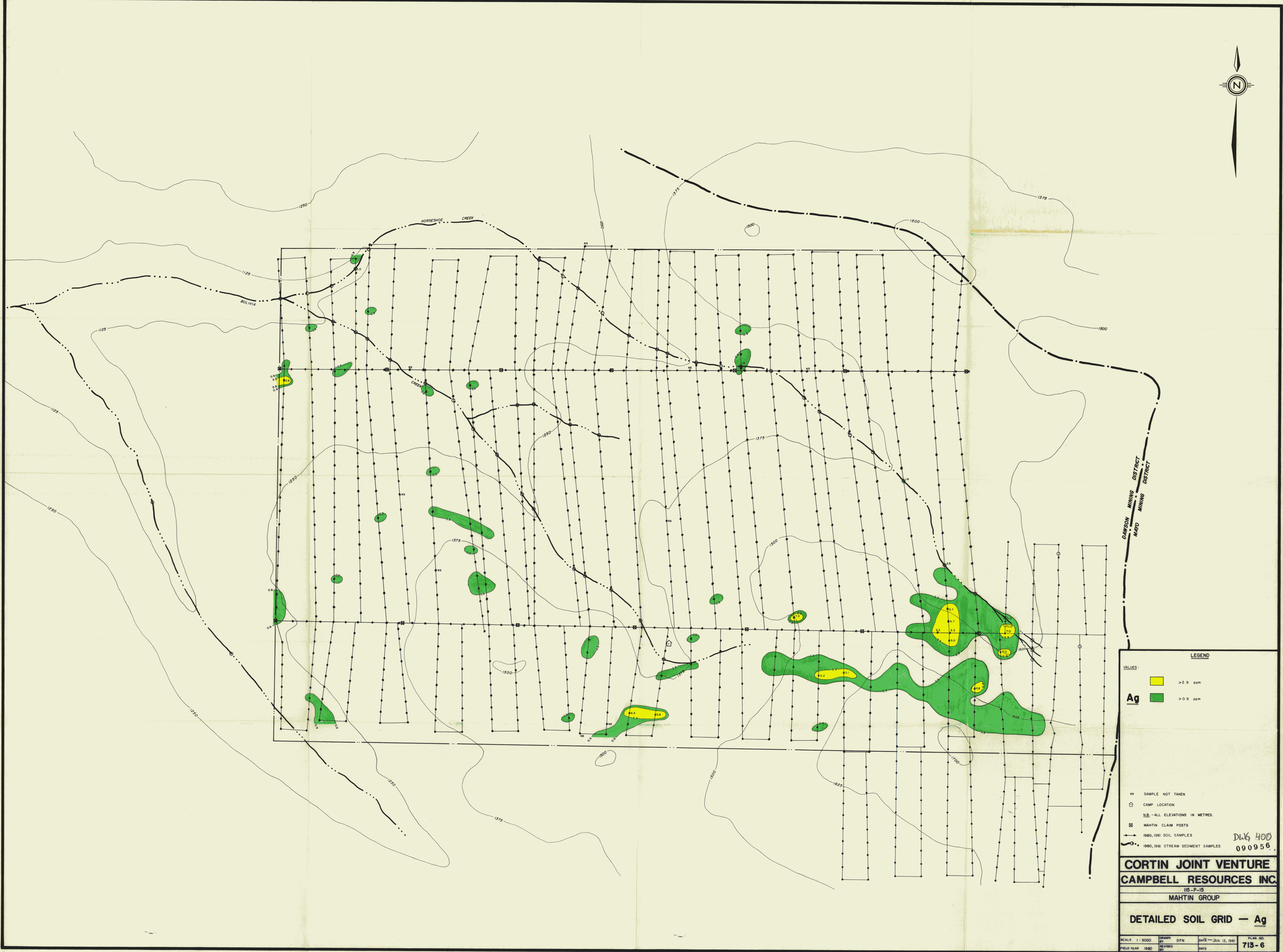
CORTIN JOINT VENTURE
CAMPBELL RESOURCES INC.

115-P-15

MAHTIN GROUP

DETAILED SOIL GRID — Cu

SCALE 1:5000	DRAWN BY DFN	DATE JAN. 13, 1981	PLAN NO. 713-4
FIELD YEAR 1980	REVISED BY	DATE	



LEGEND

VALUES:

Ag

>2.9 ppm

>0.9 ppm

NS SAMPLE NOT TAKEN

CAMP LOCATION

N.B. - ALL ELEVATIONS IN METRES.

MAHTIN CLAIM POSTS

1980, 1981 SOIL SAMPLES

1980, 1981 STREAM SEDIMENT SAMPLES

DWG 400
090956

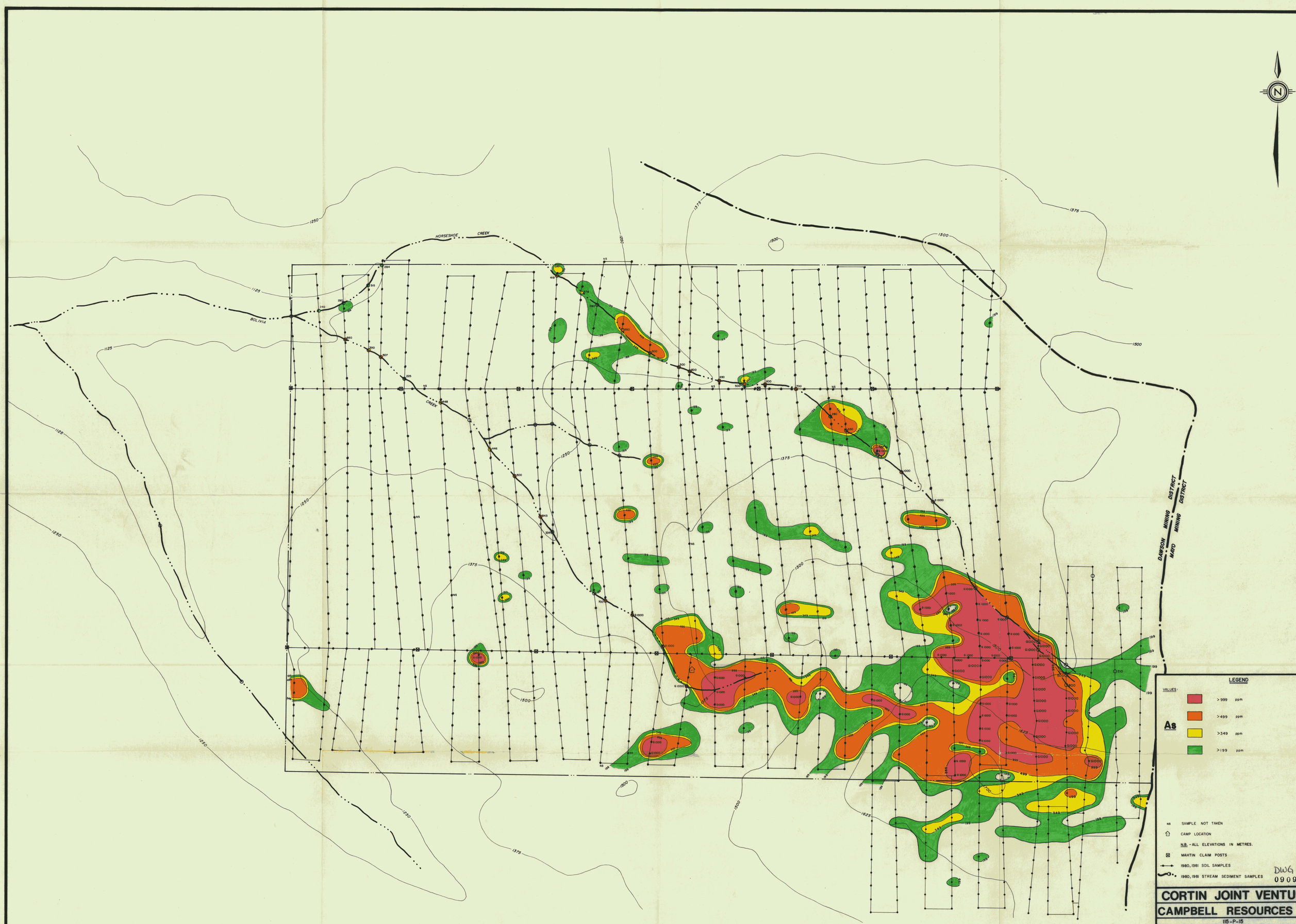
CORTIN JOINT VENTURE
CAMPBELL RESOURCES INC.

115-P-15

MAHTIN GROUP

DETAILED SOIL GRID — Ag

SCALE 1:5000	DRAWN BY DFN	DATE — JAN. 13, 1981	PLAN NO.	
FIELD YEAR 1980	REVISED BY	DATE	713-6	



DWG 401
090956

CORTIN JOINT VENTURE
CAMPBELL RESOURCES INC.

115-P-15

MAHTIN GROUP

DETAILED SOIL GRID — As

SCALE 1:5000	DRAWN BY DFN	DATE JAN. 16, 1981	PLAN NO. 713-7
FIELD YEAR 1980	REVISED BY	DATE	

HORSESHOE CREEK

BOLIVIA

DAWSON MINING DISTRICT

MAYO MINING DISTRICT

LEGEND

- As — SOILS >1000 ppm
- SOILS >500 ppm
- STREAM SEDIMENTS >1000 ppm
- STREAM SEDIMENTS >500 ppm
- Sn — SOILS >50 ppm
- SOILS >20 ppm
- 24 — STREAM SEDIMENTS >20 ppm VALUES ONLY
- 180, 0.25 % — 1979 SAMPLES (POSITION APPROX.) STREAM SEDIMENTS GIVEN IN ppm, P.H.M.C.'S (PARTIAL HEAVY MINERAL CONCENTRATE) IN %
- W — SOILS >12 ppm
- Cu — SOILS >300 ppm
- Ag — SOILS >3 ppm

N.B. - ALL ELEVATIONS IN METRES.

- MAHTIN CLAIM POSTS
- 1980, 1981 SOIL SAMPLES
- 1980, 1981 STREAM SEDIMENT SAMPLES

DWG 396
090956

CORTIN JOINT VENTURE
CAMPBELL RESOURCES INC.

115-P-15

MAHTIN GROUP

COMPILATION GEOCHEMISTRY

SCALE 1:5000	DRAWN BY DFN/RC	DATE 17/03/81	PLAN NO. 713-10
FIELD YEAR 1980	REVISED BY	DATE	