CCH Resources Ltd.

Assessment Report

Geological Mapping
Geochemical Survey



Snark Claims 1 to 252
Tee Claims 1 to 8

115- P- 15

63°48' N 136°39' W



Mayo Area
Yukon Territory

D. R. Kennedy
March 21, 1980

090535

This report has been examined by the Geological [illegible] Unit and is recommended to [illegible] to be considered [illegible] the amount of

$ 32,810.00

J A Morin

[illegible] Geologist or
[illegible] Engineer

Consid[illegible] [illegible]rpretation work under Section 5[illegible] [illegible] Quartz Mining Act.

B.R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

Contents



Attached

Snark 1-252, Tee 1-8 ½ mile=1"

| | | | |
|---|---|---|---|
| Map TY-36 | Snark, Geology | 1:10,000 | 1979 |
| Map TY-37 | Sbark, Detail Geochem. Sn | 1: 5,000 | 1979 |
| Map TY-38 | Snark, Detail Geochem. W | 1: 5,000 | 1979 |
| Map TY-39 | Snark, Detail Geochem. Cu | 1: 5,000 | 1979 |
| Map TY-40 | Snark, Detail Geochem. Pb | 1: 5,000 | 1979 |
| Map TY-41 | Snark, Detail Geochem. Zn | 1: 5,000 | 1979 |
| Map TY-42 | Snark, Detail Geochem. Ag | 1: 5,000 | 1979 |

## Introduction

The Snark and Tee claims straddle the Boulder Creek drainage area and cover the upper portion of the May Creek drainage.

The Snark claims are owned by CCH Resources Ltd. of Toronto, Ont.; the Tee claims are optioned to CCH Resources Ltd. by A. Triggs of Whitehorse.

The work outlined in this report was conducted intermittently from June 3 to September 7, 1979;

Work exceeding $2,000.00 value was carried out on the Tee claims between August 28 and September 7, 1979.

SNARK & TEE (Exploration History)

Several Cu-Pb-Zn-Ag showings had been discovered and trenched in the Boulder Creek-May Creek area prior to 1977. Aho reported cassiterite in a pan concentrate taken from Boulder Creek and Archer Cathro refer to "in situ" cassiterite on the TEE group, (we feel the "cassiterite" is actually axinite). CCH found very high pan concentrate (THMC) values in Boulder Creek in 1977; up to 10% Sn and 1.93% $WO_3$. The SNARK group was staked for the Cortin Joint Venture in December, 1977, and later expanded, while the TEE group was optioned from A. Triggs of Whitehorse as a result of our 1978 results. There are 252 SNARK claims and 8 TEE claims.

In 1978 preliminary geochemistry and mapping confirmed the presence of tin, outlined several large areas of probable potential, and identified a number of acidic intrusions subsidiary to a circular granite stock.

Work in 1979 was confined to the south-western part of the group, where detailed mapping and geochemistry succeeded in defining two main target areas.

Geology

B. Paul mapped the south-west part of the claim group, as shown on Map Ty 35. The following account is taken from Paul's notes.

The area is underlain by moderately to gently-dipping quartzite, calcareous quartzite and gritstone of the Yukon group, which have been successively intruded by biotite granite, clinopyroxene granodiorite, dacite and felsite dykes.

Narrow north to north-westerly trending shear zones have developed in a number of areas which are the loci for Pb-Zn-Ag mineralisation. Sphalerite is widespread as disseminations in skarn and more pelitic metasediment, while scheelite occurs locally along granite-metasediment contacts. No tin minerals have been positively identified.

## Bedded Rocks

A stratigraphic column cannot be established for the area because of lack of exposure, discontinuity of the sedimentary beds, and alteration of the original lithologies.

Psammitic and Pelitic rocks are the most abundant sedimentary lithology. Micaceous quartzite, phyllite and argillaceous quartzite typical of the Yukon Group form a monotonous series with little in the way of marker horizons. In the north-west portion of the map area, the quartzites are highly calcareous, containing up to 50% limestone in small discreet interlayers. The pelitic rocks are occasionally altered to rusty hornfels near granitic contacts; they also tend to be altered in the vicinity of shear zones ("porcellanite"). Gritstone occurs tin the western and central portions of the map area. Feldspar fragments to 4 mm, quartz eyes to 3 mm, and the occasional schist fragment are diagnostic.

Carbonate rocks and skarn. Most of the carbonate rocks within the map area have been altered to skarn. Limestone bands are preserved within more pelitic rocks to the north-west, as mentioned above. They make up anywhere from 0-50% of the total rock and are representative of the carbonate occurrences within this area. No large thickness of limestones was noted. Soft dark-green chlorite-actinolite skarn is quite common. Major accessories are sphalerite and axinite, with minor garnet and chalcopyrite.

Chert. White sugary chert occurs in rubble towards the western part of the map area.

## Intrusive Rocks.

Intrusive rocks include a large north-trending mass of biotite-clinopyroxene granodiorite, younger (?) E-W trending dacite to rhyodacite dykes, and what is probably a felsite dyke.

Biotite granodiorite trends north-south, and weathers into tooth-shaped blocks. This rock, originally thought to be a biotite granite, was identified as a biotite-clinopyroxene granodiorite.

On the ridges south and to the north-east of the Boulder Creek camp the granodiorite occurs as a white to pinkish porphyritic phase with large feldspar phenocrysts. There is a suggestion that the intrusive becomes finer-grained and less porphyritic towards the margins.

Well-jointed plagioclase-biotite porphyry with a dark grey groundmass occurs along a ridge north-west of the Boulder Creek camp. It contains euhedral biotite (1-3 mm) and rounded plagioclase (1-4 mm) phenocrysts, and it may be a separate phase of the granodiorite, or possibly a finer-grained, altered equivalent which has crystallised in a different manner due to its constricted dyke-like configuration.

Dyking parallel to the contact of the granodiorite is common, while fragments of intrusive breccia are common in scree and outcrop in a number of localities. A typical breccia would consist of a varying percentage of angular to rounded metasedimentary fragments (5-25 cm) enclosed in a pink to greyish medium-grained granitic matrix. As the granodiorite intruded, it apparently "stoped" away fragments of the enclosing sediment, and a complete gradation exists from granodiorite with only a few small fragments, to a "crowded" breccia containing very little matrix. Several pieces of float were examined which contained rounded intrusive as well as metasedimentary fragments. A white Cu-stained intrusive was observed as float in Trench 10.

Dacite - Rhyodacite. Fine-grained greyish green dacite or rhyodacite dykes containing biotite to several mm in size were observed on the hill immediately north of Trench 10, and also in Trench 13. Nowhere are they exposed in outcrop, although scree mapping suggests they may extend down the hill towards May Creek in a roughly east-west orientation. No intrusive relationships were observed.

Felsite. A single 10 m wide felsite dyke was traced in scree over several hundred metres on the slopes east of May Creek. White in color, weathering light brown, it is similar to the dacite dykes, but probably contains some 1% sulphide (as arsenopyrite?). It appears to cut both granodiorite and metasediment.

## Structure.

The metasediments within the map area are all moderately to gently-dipping in a variety of orientations. In general, the strike and dip of the metasediments show some parallelism with the orientation of the granodiorite contact. Bedding is measurable in the skarnier areas and appears to be identical with the direction of schistosity. No local folds were observed.

The most noticeable structural elements on this portion of the SNARK group are the north-south (west of Boulder Creek camp) and east-west (main hill underlying TEE group) trending shear zones which are the loci for the Pb-Zn-Ag mineralisation. No more than one or two metres in width, they contain several varieties of Mn-stained fracture breccias which have been infilled with vuggy quartz. Although some of the breccia is anisotropic, more commonly it preserves the original shear direction by means of strongly oriented fractures.

## Alteration.

Most of the significant alteration in this area appears to be intrusive related. Skarn has been developed over a wide area, and boron metasomatism must have been widespread to produce the abundance of axinite skarn. As a rule the pelitic rocks are less affected by thermal metamorphism, although highly altered varieties (hydrothermally altered) occur near the shear zones and occasionally in contact with granodiorite (Trench 11). Silicification and hornfelsing of the pelitic rocks is fairly common immediately adjacent to the granitic contacts. Chlorite/amphibole/quartz/sulphide veining is common in the same area. The metasediments in the map area have been gossaned to a large extent, and this is indicated on the accompanying map (map Ty 35).

## Geochemical Methods

All of the samples were collected directly below the organic layer, though occasionally the humus layer was in excess of 0.3 m and at these locations humus samples were inevitable.

The -80 mesh fraction was analysed for Sn, W, Cu, Pb, Zn and Ag, by Bondar-Clegg and Co. in their Whitehorse and Ottawa laboratories.

Tin was analysed by ammonium iodide fusion, 1 NHCl leach, followed by atomic absorption spectrophotomety, the technique developed by Stanton and further described by A. Smith of the GSC.

Tungsten was sintered with $Na_2 Co_3$ followed by colourimetric analysis using zinc diphiol.

Copper, Lead, Zinc and Silver were treated in the standard way with $HNO_3$ - NHCl and analysed by atomic absorption spectrophotomety.

The XRF unit in Ottawa used for tin check analyses is a discrete-scan instrument.

## 1979 Geochemical Results

Most of the area mapped in detail was covered by a 50 m x 50 m soil geochemistry grid, and the samples analysed for Sn, W, Cu, Pb, Zn, Ag. The plots of these elements are included as maps Ty 37-42.

Tin values in excess of 100 ppm appear to flank the satellite intrusive on the west side of the TEE group hill, and be associated with the main granodiorite to the north and north-west.

Zinc greater than 500 ppm is generally sympathetic with tin, but frequently more widespread.

Silver values in excess of 10 ppm are scattered sporadically with the Sn-Zn anomalies, but the main Ag anomalies lie to the west of May Creek headwaters, with only a small Zn component. These silver anomalies are remarkably strong, rising to 41 ppm, the main anomaly being some 250 m long and 75 m wide.

Tungsten shows a similar distribution to Sn. Though the general tenor is low, few values reaching 100 ppm.

Copper follows the Sn-Zn-W pattern, several values being greater than 200 ppm.

Lead values are patchy, a few very high spot anomalies up to 1600 ppm coincident with known showings. There is a weak Pb-Ag association over the main Ag anomaly west of May Creek.

No geochemical work was done beyond the detail grid outline shown on Map Ty 35.

Recommendations

1) The source of the tin and silver anomalies must be found and identified. This will require some detailed prospecting, and probably trenching. Microscope work will be necessary to evaluate the tin mineralisation.

2) The remainder of the property should be mapped and sampled in some detail.

D.R. Kennedy

Vancouver, B. C.
March 21, 1980.

D. R. Kennedy
Project Geologist

Statement of Qualifications

The work on the Snark & Tee claims was carried out under the supervision of A. Woodsend, Field Manager, North and D.R. Kennedy, Project Geologist.

Mr. Woodsend is Field Manager, North for CCH RESOURCES LTD. He holds a B.Sc. (Hons.) Degree in Geology from Southampton University, England, and has practiced his profession continuously for nine years in a variety of countries and geological environments.

Mr. Kennedy is a Project Geologist for CCH RESOURCES LTD. He holds a B.Sc. Degree from Acadia University, Wolfville, Nova Scotia, and has practiced his profession as a mineral exploration geologist for the past ten years. Mr. Kennedy is a member of the Geological Association of Canada and the Canadian Institute of Mining and Metallurgy.

Mapping on the Snark & Tee groups was conducted by B. Paul, currently an M.Sc. student at University of Winnipeg. Soil sampling was carried out by H. Happyjack of Miquelon, Quebec, M. Warwick of London, Ont., T. Hawke and K. Patton of Lindsay, Ont. and R. Mitchell of Vancouver, B. C.

## STATEMENT OF EXPENDITURES

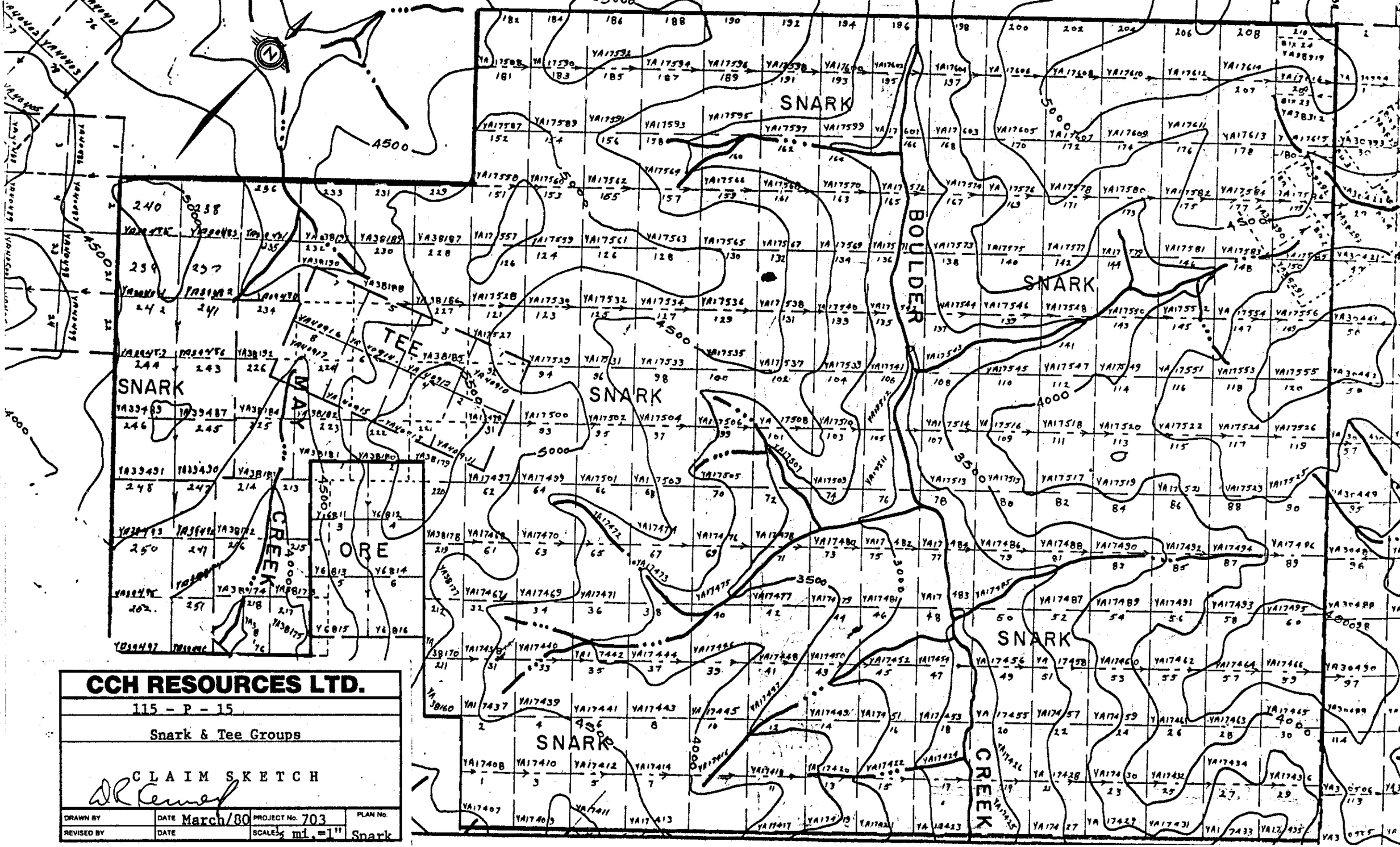
| | | |
|---|---|---|
| 1448 | samples analysed for Sn,W,Cu,Zn,Ag @ $10.00/sample | $14,480.00 |
| 654 | samples analysed for Sn,W,Cu,Pb,Zn,Ag @ $10.65/sample | 6,965.00 |
| 87 | assistant days @ $45.00/day | 3,915.00 |
| 15 | geologist days @ $60.00/day | 900.00 |
| 2 | supervision days @ $75.00/day | 150.00 |
| 8 | hours helicopter @ $400.00/hr. | 3,200.00 |
| | drafting and interpretation | 2,000.00 |
| | food and supplies 100 man days @ $12.00/day | 1,200.00 |
| | | $32,810.00 |

Please note that over $2,000.00 work was carried out on the Tee claims between August 28 and September 7, 1979.

D. R. Kennedy

Vancouver, B. C.
March 21, 1980.

D. R. Kennedy
Project Geologist



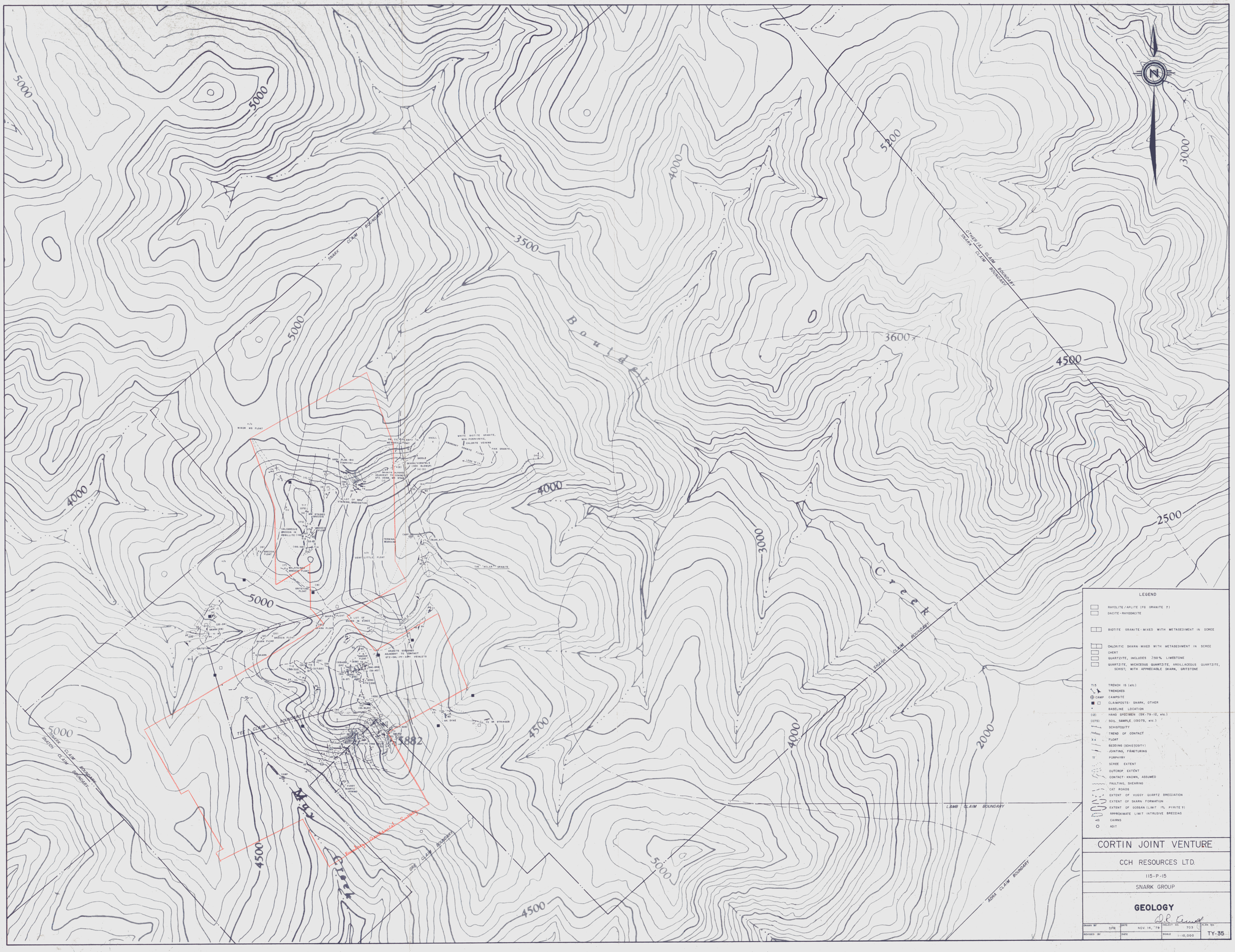

# CCH RESOURCES LTD.

115 - P - 15

Snark & Tee Groups

CLAIM SKETCH

| | | | |
|---|---|---|---|
| DRAWN BY | DATE March/80 | PROJECT No. 703 | PLAN No. |
| REVISED BY | DATE | SCALE ½ mi. = 1" | Snark |




LEGEND

- RHYOLITE / APLITE (FG GRANITE ?)
- DACITE - RHYODACITE
- BIOTITE GRANITE - MIXED WITH METASEDIMENT IN SCREE
- CHLORITIC SKARN MIXED WITH METASEDIMENT IN SCREE
- CHERT
- QUARTZITE, INCLUDES ≥50% LIMESTONE
- QUARTZITE, MICACEOUS QUARTZITE, ARGILLACEOUS QUARTZITE, SCHIST; WITH APPRECIABLE SKARN, GRITSTONE
- Ti5 TRENCH 15 (etc.)
- TRENCHES
- CAMP CAMPSITE
- CLAIMPOSTS: SNARK; OTHER
- BASELINE LOCATION
- (12) HAND SPECIMEN (SK-79-12, etc.)
- (075) SOIL SAMPLE (13075, etc.)
- SCHISTOSITY
- TREND OF CONTACT
- X x FLOAT
- BEDDING (SCHISTOSITY)
- JOINTING, FRACTURING
- PORPHYRY
- SCREE EXTENT
- OUTCROP EXTENT
- CONTACT: KNOWN, ASSUMED
- FAULTING, SHEARING
- CAT ROADS
- EXTENT OF VUGGY QUARTZ BRECCIATION
- EXTENT OF SKARN FORMATION
- EXTENT OF GOSSAN (LIMIT 1% PYRITE ?)
- APPROXIMATE LIMIT INTRUSIVE BRECCIAS
- CAIRNS
- ADIT

# CORTIN JOINT VENTURE

CCH RESOURCES LTD.

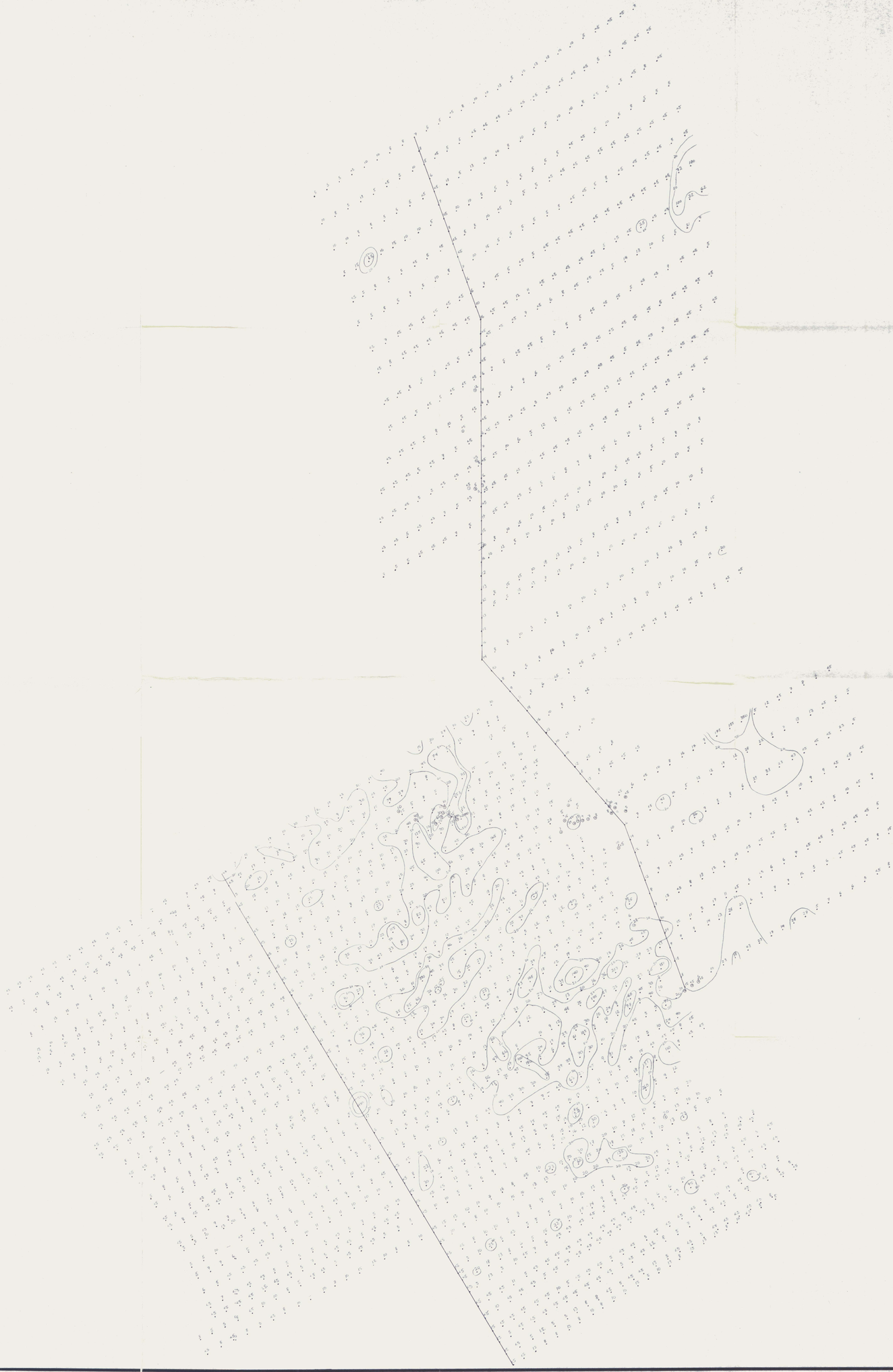
115-P-15

SNARK GROUP

## GEOLOGY

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY | DFR | DATE | NOV. 14, '79 | PROJECT NO. | 703 |
| REVISED BY | | DATE | | SCALE | 1:10,000 |

PLAN NO. TY-35



SCALE IN METRES

100 0 100 200 300 400

CORTIN JOINT VENTURE

**CCH RESOURCES LTD.**

115-P-15

SNARK GROUP

SOIL GEOCHEMISTRY

Sn RESULTS in ppm

| | | | | |
|---|---|---|---|---|
| DRAWN BY DK | DATE Nov. 79 | PROJECT # 703 | | PLAN No. TY-37 |
| REVISED BY | DATE | SCALE 1:5000 | | |

SCALE IN METRES

100 0 100 200 300 400

CORTIN JOINT VENTURE

**CCH RESOURCES LTD.**

115 - P - 15

SNARK GROUP

SOIL GEOCHEMISTRY

W RESULTS in ppm

| | | | |
|---|---|---|---|
| DRAWN BY: D.K. | DATE: Nov. 79 | PROJECT No: 703 | PLAN No. TY-38 |
| REVISED BY: | DATE: | SCALE: 1:5000 | |

SCALE IN METRES

100 0 100 200 300 400

CORTIN JOINT VENTURE

**CCH RESOURCES LTD.**

115 - P - 15

SNARK GROUP

SOIL GEOCHEMISTRY

Cu RESULTS in ppm

D.K. Kennedy

| | | | |
|---|---|---|---|
| DRAWN BY DK | DATE Nov. 79 | PROJECT No. 703 | PLAN No. TY-39 |
| REVISED BY | DATE | SCALE 1:5000 | |

SCALE IN METRES
100 0 100 200 300 400

CORTIN JOINT VENTURE

**CCH RESOURCES LTD.**

115 - P - 15

SNARK GROUP

SOIL GEOCHEMISTRY

Pb RESULTS in ppm

| | | | |
|---|---|---|---|
| DRAWN BY D.K | DATE Nov. 79 | PROJECT No. 708 | PLAN No. TY-40 |
| REVISED BY | DATE | SCALE 1:5000 | |

SCALE IN METRES
100 0 100 200 300 400

CORTIN JOINT VENTURE

**CCH RESOURCES LTD.**

115-P-15

SNARK GROUP

SOIL GEOCHEMISTRY

Zn RESULTS (in ppm)

D.K. Cowell

| | | | |
|---|---|---|---|
| DRAWN BY D.K. | DATE Nov. 79 | PROJECT No 703 | PLAN No. TY-41 |
| REVISED BY | DATE | SCALE 1:5000 | |


SCALE IN METRES

100 0 100 200 300 400

CORTIN JOINT VENTURE

**CCH RESOURCES LTD.**

115 - P - 15

SNARK GROUP

SOIL GEOCHEMISTRY

Ag RESULTS

| | | | |
|---|---|---|---|
| DRAWN BY DK | DATE Nov. 79 | PROJECT No. 703 | PLAN No. TY-42 |
| REVISED BY | DATE | SCALE 1:5000 | |