84-1197-12763

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

# ASSESSMENT REPORT TITLE PAGE AND SUMMARY

| TYPE OF REPORT/SURVEY(S) | TOTAL COST |
|---|---|
| Geological and Rock Geochemical | $3,243.00 |

AUTHOR(S) Ron Lane SIGNATURE(S) Ron Lane

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED December 3, 1984 YEAR OF WORK 1984

PROPERTY NAME(S) Tyaughton Property (encompasses Tungsten King and Tungsten Queen Showings)

COMMODITIES PRESENT Tungsten (Scheelite) and Antimony (Stibnite)

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN 00163, 00164, 00165

MINING DIVISION Lillooet NTS 92 O/2

LATITUDE 51°02' LONGITUDE 122°45'

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Westmin owned TY1 (10 units), TY2 (18 units), TY3 (18 units), TY4 (12 units), TY5 (1 unit), TY6 (9 units), TY 7 (12 units), TY8 (9 units).

F. Westbrook owned Cub (2 units), Wolf (4 units), Sandy 2-4 (3 units), Mercury 1A (1 unit), Queen Fractional (1 unit).

OWNER(S)

(1) Westmin Resources Limited

MAILING ADDRESS
P.O. Box 49066, The Bentall Centre
Vancouver, B.C. V7X 1C4

(2) Florence Westbrook

MAILING ADDRESS
Lillooet, B.C.

OPERATOR(S) (that is, Company paying for the work)

(1) Westmin Resources Limited

MAILING ADDRESS
as above.

(2)

MAILING ADDRESS

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

Tyaughton property is underlain by Mid Triassic or older Bridge River Group volcanics and sediments. Jurassic-Cretaceous Taylor Creek Group conglomerate, arkose and shale unconformably overlie. Dolomite-quartz-mariposite (DQM) rock is estimated to constitute 35% of the Bridge River stratigraphy in a northwest trending zone centered over the Tungsten King and Tungsten Queen showings. DQM rock has a close spatial relationship with anomalous soil and rock geochemical values defined on the property, and it hosts most of the property's known mineralization situated at the Tungsten King and Tungsten Queen showings. It appears to represent a product of late-stage hydrothermal alteration. The rock geochemical values defined to date likely represent typical concentrations of the metals to be found associated with the alteration. (over)

| TYPE OF WORK IN THIS REPORT | EXTENT OF WORK (IN METRIC UNITS) | ON WHICH CLAIMS | COST APPORTIONED |
|---|---|---|---|
| GEOLOGICAL (scale, area) | | | |
| Ground | 1:500 - 1.7 hectares | Cub | $2,443.00 |
| Photo | 1:240 - 53 m of adit mapped | Wolf | |
| GEOPHYSICAL (line-kilometres) | | | |
| Ground | | | |
| Magnetic | | | |
| Electromagnetic | | | |
| Induced Polarization | | | |
| Radiometric | | | |
| Seismic | | | |
| Other | | | |
| Airborne | | | |
| GEOCHEMICAL (number of samples analysed for ....) | | | |
| Soil | | | |
| Silt | | | |
| Rock | 21 samples for W., Au., Sb., Sn. | Cub (16 samples) Wolf (5 samples) | $ 800.00 |
| Other | | | |
| DRILLING (total metres; number of holes, size) | | | |
| Core | | | |
| Non-core | | | |
| RELATED TECHNICAL | | | |
| Sampling/assaying | | | |
| Petrographic | | | |
| Mineralogic | | | |
| Metallurgic | | | |
| PROSPECTING (scale, area) | | | |
| PREPARATORY/PHYSICAL | | | |
| Legal surveys (scale, area) | | | |
| Topographic (scale, area) | | | |
| Photogrammetric (scale, area) | | | |
| Line/grid (kilometres) | | | |
| Road, local access (kilometres) | | | |
| Trench (metres) | | | |
| Underground (metres) | | | |
| | | TOTAL COST | $3,243 |

| FOR MINISTRY USE ONLY | NAME OF PAC ACCOUNT | DEBIT | CREDIT | REMARKS: |
|---|---|---|---|---|
| Value work done (from report) | | | | |
| Value of work approved | | | | |
| Value claimed (from statement) | | | | |
| Value credited to PAC account | | | | |
| Value debited to PAC account | | | | |
| Accepted ..... Date | Rept. No. | | | Information Class |

# GEOLOGICAL AND ROCK GEOCHEMICAL ASSESSMENT REPORT

TYAUGHTON PROPERTY

CUB AND WOLF MINERAL CLAIMS

LILLOOET MINING DIVISION

NTS 92 0/2

LATITUDE: 51°02' LONGITUDE: 122°45'


OWNER OF CLAIMS: Florence Westbrook, Claims Optioned to Westmin Resources Limited

OPERATOR: Westmin Resources Limited

REPORT BY: Ron Lane

DATE: November 30, 1984

# OUTLINE

## A. SUMMARY

Scheelite and stibnite (W, Sb) occurring as a strata-bound deposit within a volcanic-sedimentary sequence is the exploration target.

Tyaughton property is underlain by Mid Triassic or older Bridge River Group volcanics and sediments. Jurassic-Cretaceous Taylor Creek Group conglomerate, arkose and shale unconformably overlie.

Dolomite-quartz-mariposite (DQM) rock is estimated to constitute 35% of the Bridge River stratigraphy in a northwest trending zone centered over the Tungsten King and Tungsten Queen showings. DQM rock has a close spatial relationship with anomalous soil and rock geochemical values defined on the property, and it hosts most of the property's known mineralization situated at the Tungsten King and Tungsten Queen showings. The origin of the DQM rock is controversial, however, in the writer's opinion it represents a product of late-stage hydrothermal alteration rather than syngenetic alteration of associated sediments and volcanics. The rock geochemical values defined to date likely represent typical concentrations of the metals to be found associated with the late-stage alteration.

## B. INTRODUCTION

### 1. Commodity and Target

Tungsten and antimony, occurring as scheelite and stibnite in stratabound sediments and volcanics.

### 2. Location and Access

Southwestern British Columbia, 33 km northeast of Gold Bridge, within the Chilcotin Ranges of the Coast Mountains, along Tyaughton Creek.

N.T.S.: 92O/2, Latitude: 51°02', Longitude: 122°45'. Access is via highway through Lillooet and major logging roads (principally Marshall Lake Road) east of Carpenter Lake.

### 3. Tenure

Tyaughton Property consists of a 5.5 by 6.5 km area overlying Tyaughton, Relay, Mud and Noaxe creeks. It consists of 11 units optioned from Florence Westbrook and 89 units staked by Westmin (TY 1-8) adjacent to Westbrook's claims.

| Claim Name | No. of Units |
|---|---|
| F. Westbrook claims | |
| Cub | 2 |
| Wolf | 4 |
| Sandy 2, 3, 4 | 3 |
| Queen Fraction | 1 |
| Mercury 1A | 1 |

| Westmin claims | No. of Units |
|---|---|
| TY 1 | 10 |
| TY 2 | 18 |
| TY 3 | 18 |
| TY 4 | 12 |
| TY 5 | 1 |
| TY 6 | 9 |
| TY 7 | 12 |
| TY 8 | 9 |

4. History

Pre 1939 - Prospectors staked and explored occurrences of cinnabar along Tyaughton Valley.

1939 - Scheelite was discovered on property held by Mr. Edwin Phillips of Minto. Showings on the property were subsequently named Tungsten Queen and Tungsten King.

1940 - Mr. Phillips mined and shipped hand cobbed ore containing 17,000 lbs. of $WO_3$ from narrow open-cut and underground workings on the Tungsten Queen and Tungsten King.

1941 - Consolidated Mining and Smelting Co. of Canada Ltd. (Cominco) drove a short adit below the Tungsten Queen workings (referred to in this report as the Lower Tungsten Queen Adit) to test down-dip potential of W, Sb mineralization.

1965 - Canex conducted a regional exploration project east and west of the Tungsten Queen showing.

1968 - Bethlehem Copper optioned and staked mineral claims on and adjacent to the Tungsten Queen and Tungsten King

properties. Exploration was directed towards discovery of a mercury deposit. Work involved geochemical soil and silt surveys, magnetometer survey, geologic mapping, prospecting, and bulldozer trenching.

1977 - Nuspar Resources mapped and sampled Tungsten King and Tungsten Queen showings and diamond drill tested Tungsten Queen with a 5 hole program totalling 455 feet.

1980 - Western Mines conducted a regional silt sampling program in Tyaughton Creek area. Anomalous values lead to optioning claims held by F. Westbrook of Lillooet, which overlay the Tungsten Queen and Tungsten King showings. Area surrounding the Westbrook claims was staked as the Ty 1-8 mineral claims.

1981-82 - Western Mines evaluated Westbrook and TY claims by extensive soil geochemical sampling, geological mapping, trenching and rock sampling. Exploration target was stratabound tungsten-antimony mineralization.

## C. GEOLOGY

Property is underlain by Mid Triassic or older Bridge River Group volcanics and sediments. Jurassic-Cretaceous Taylor Creek Group conglomerate, arkose and shale unconformably overlie. Tertiary feldspar porphyry dykes intrude the sequence.

Bridge River rocks consist of carbonaceous argillite, chert, limestone, andesite/basalt flows and tuffs, serpentinite and dolomite-quartz-mariposite (DQM). Significant portions of the Bridge River Group rocks, particularily the carbon-rich argillites, have been sheared, faulted and tightly folded. Dolomite-quartz-mariposite rock (DQM) is estimated to constitute 35% of the Bridge River Group stratigraphy in a 0 to 350 m wide by 2500+ m long northwest trending zone centered over the Tungsten King and Tungsten Queen Showings. DQM rock has

a close spatial relationship with anomalous rock and soil geochemical values defined on the property, and it hosts most of the property's known mineralization situated at the Tungsten King and Tungsten Queen Showings.

The origin of the DQM rock is controversial. In the writer's opinion it represents a product of late stage hydrothermal alteration, which was introduced into tectonized argillite horizons. However, others feel the DQM represents an alteration event that took place syngenetically with shale deposition. The writer's opinions are based on field relationships observed at Tungsten King, Tungsten Queen, and several other locations associated with anomalous soil and rock W, Sb, As geochemical values. In brief, DQM is often associated with argillite which has been tectonically deformed, i.e. folded, sheared, brecciated and faulted. In places angular fragments of argillite in a matrix of DQM can be reassembled across narrow widths. Also, DQM often occupies shear zones crosscutting argillite beds, and in places, volcanic horizons, cherts, etc. However, in many places the argillite fragments are partially assimiliated by the DQM alteration, leaving a wispy interlaminated rock which could easily be interpreted as having been deposited or altered syngenetically. Also, preferential alteration of the tectonized argillite beds has imparted a distinct strata-bound character to the DQM rock.

Scheelite and stibnite mineralization on the property is almost exclusively confined to the Tungsten King and Tungsten Queen Showings, where it occurs as narrow late stage veins crosscutting the general trend of bedding and foliation in DQM rock and limestone. The veins of scheelite at Tungsten King were found to crosscut fabric of a small highly deformed and recrystallized limestone pod, which was likely derived through boudinage of a narrow (<5 m thick) limestone horizon interbedded with the volcanic sedimentary sequence. The scheelite was likely preferentially deposited in the limestone at the same time related fluids deposited stibnite in adjacent sheared and brecciated DQM rock.

Rock chip sampling of the showings and adjacent stratigraphy has returned anomalous but economically unattractive amounts of W and Sb. These anomalous values could reflect much greater concentrations of strata-bound W-Sb mineralization at depth. However, in the writer's opinion it is more likely the values simply reflect late stage hydrothermal activity, and mineralization cannot be expected to be found within the area in much greater concentrations than already observed at Tungsten King and Tungsten Queen.

## D. EXPLORATION - 1984

### 1. Tungsten King: Trenching, Mapping & Sampling

Three cat trenches totalling 270 m, which exposed 200 m of outcrop, were dug at Tungsten King. The objective was to assess the potential of and the interrelationships between scheelite bearing limestone and stibnite bearing dolomite-quartz-mariposite (DQM) outcropping 75 m apart. The trenches were mapped at 1:500 scale and 16 two meter channel samples were taken of DQM exposed in the trenches. Samples were geochemically analyzed by Chemex Labs Ltd. of Vancouver for W, Sb, Au and Sn. Gold analysis was by fire assay and atomic absorption finish (detection limit 5 ppb). Results were very disappointing. W ranged from 4 to 14 ppm, Sb ranged from 100 to 550 ppm except for one value of >1000, Au ranged from <5 to 50 ppb, and Sn values were negligible (1 ppm). Refer to Figure 4.

### 2. Tungsten Queen: Underground Rehabilitation, Mapping & Sampling

An adit driven approximately 30 m below the Tungsten Queen showing by Cominco in 1941 (lower Tungsten Queen adit) was re-opened by backhoe, mapped and sampled. Five, 4 meter long channel samples were taken of DQM in the adit. Samples were analyzed by Chemex for W, Sb, Au and Sn. Results were disappointing. W values ranged from 6 to 17 ppm, Sb values ranged from 170 to 370 ppm, Au values ranged from <5 to 20 ppb, and Sn values were negligible (1 ppm). Refer to Figure 5.

F. APPENDIX I

STATEMENT OF QUALIFICATIONS

CERTIFICATION

I, Ron Lane, of 7673 Sutton Place, N. Delta, British Columbia, do hereby certify that:

- I graduated form the University of Alberta in 1971 with a Bachelor of Science Degree in Geology.

- Since graduation, I have been engaged in mineral exploration on a continuous bsis in British Columbia, Yukon, Northwst Territories, southern Africa and Italy.

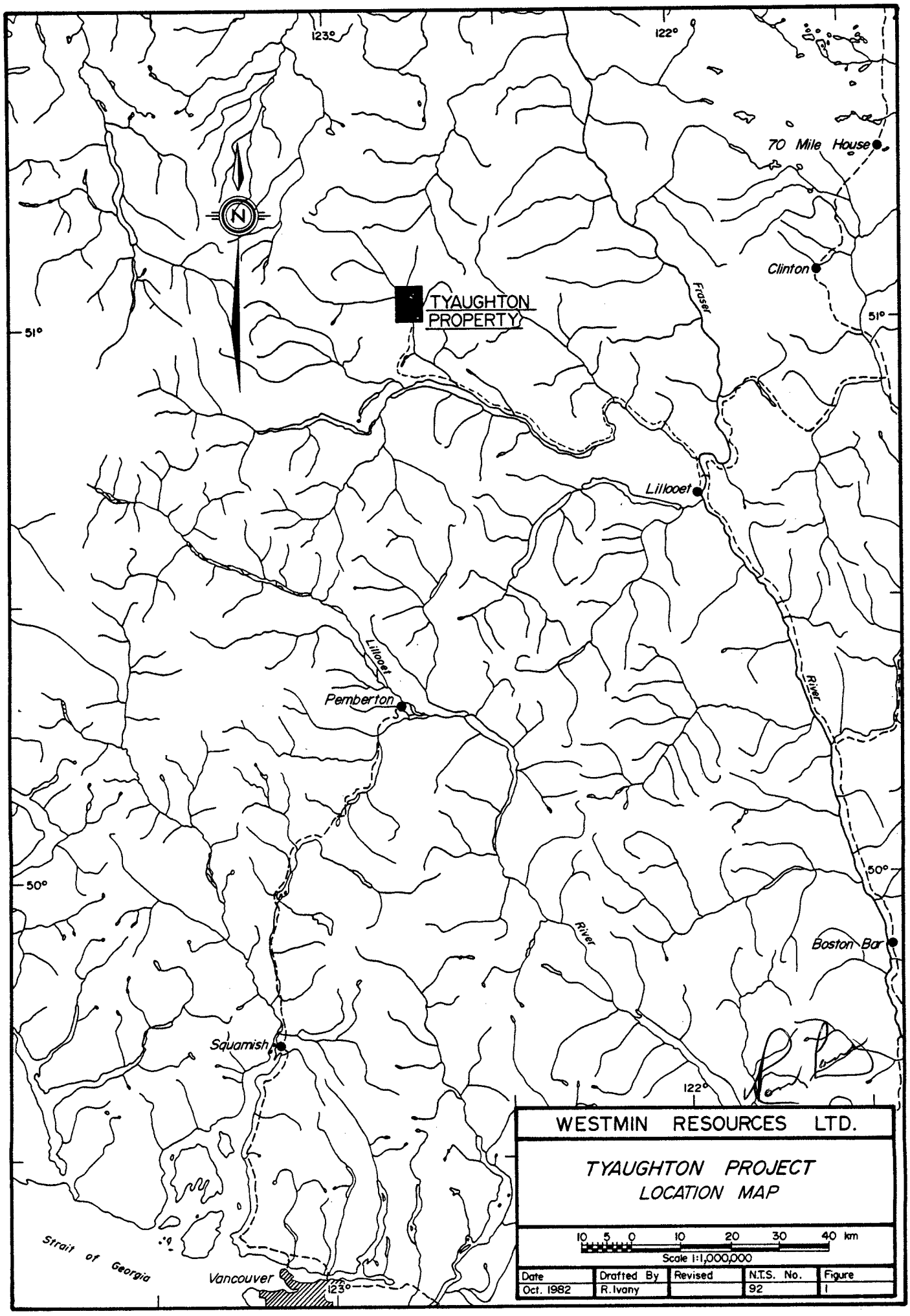
- I am currently employed by Westmin Resources Limited, the owner and operator of the claim group covered in this report. This report is based on my personal knowledge and mapping of the property.

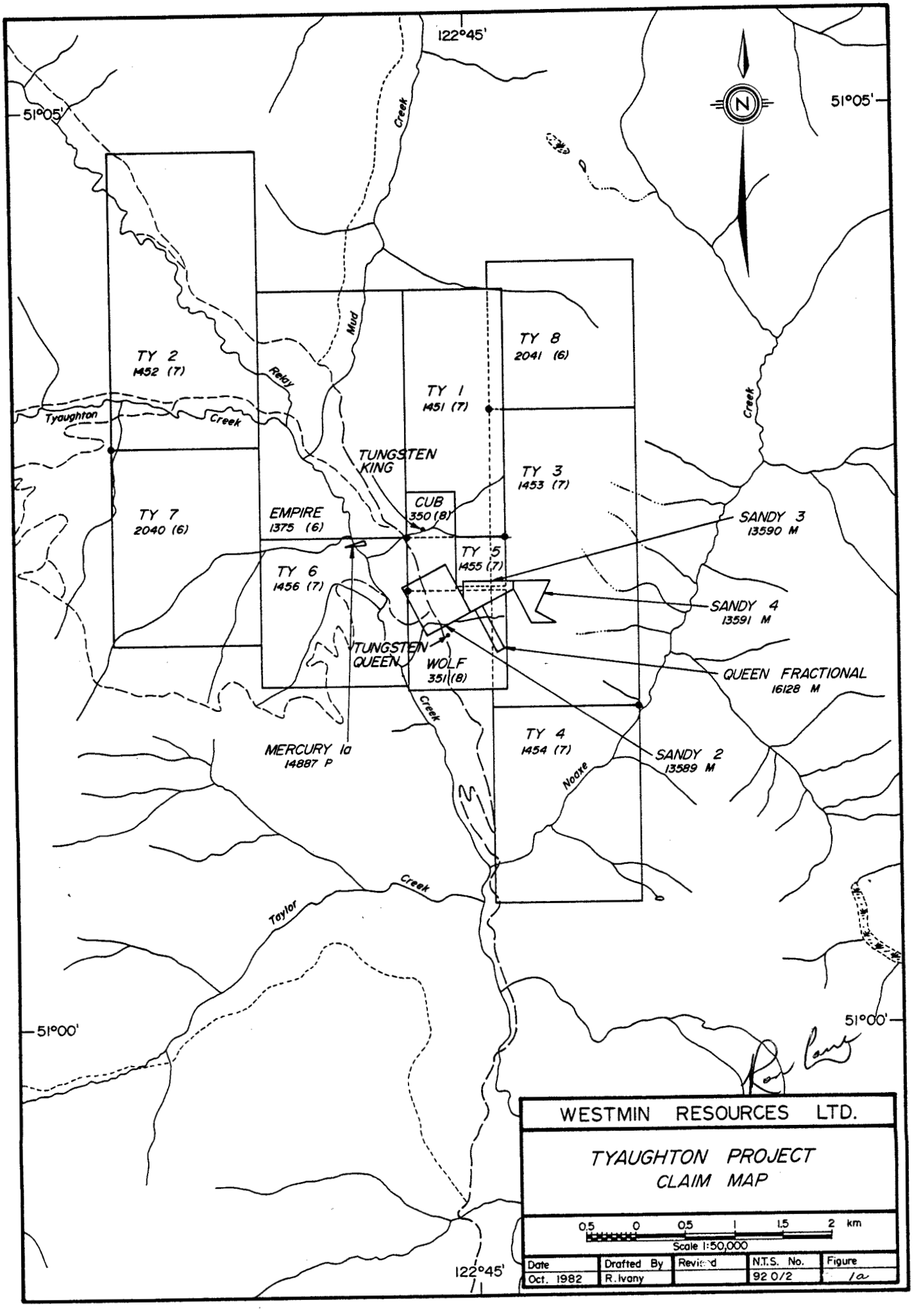
Ron W. Lane

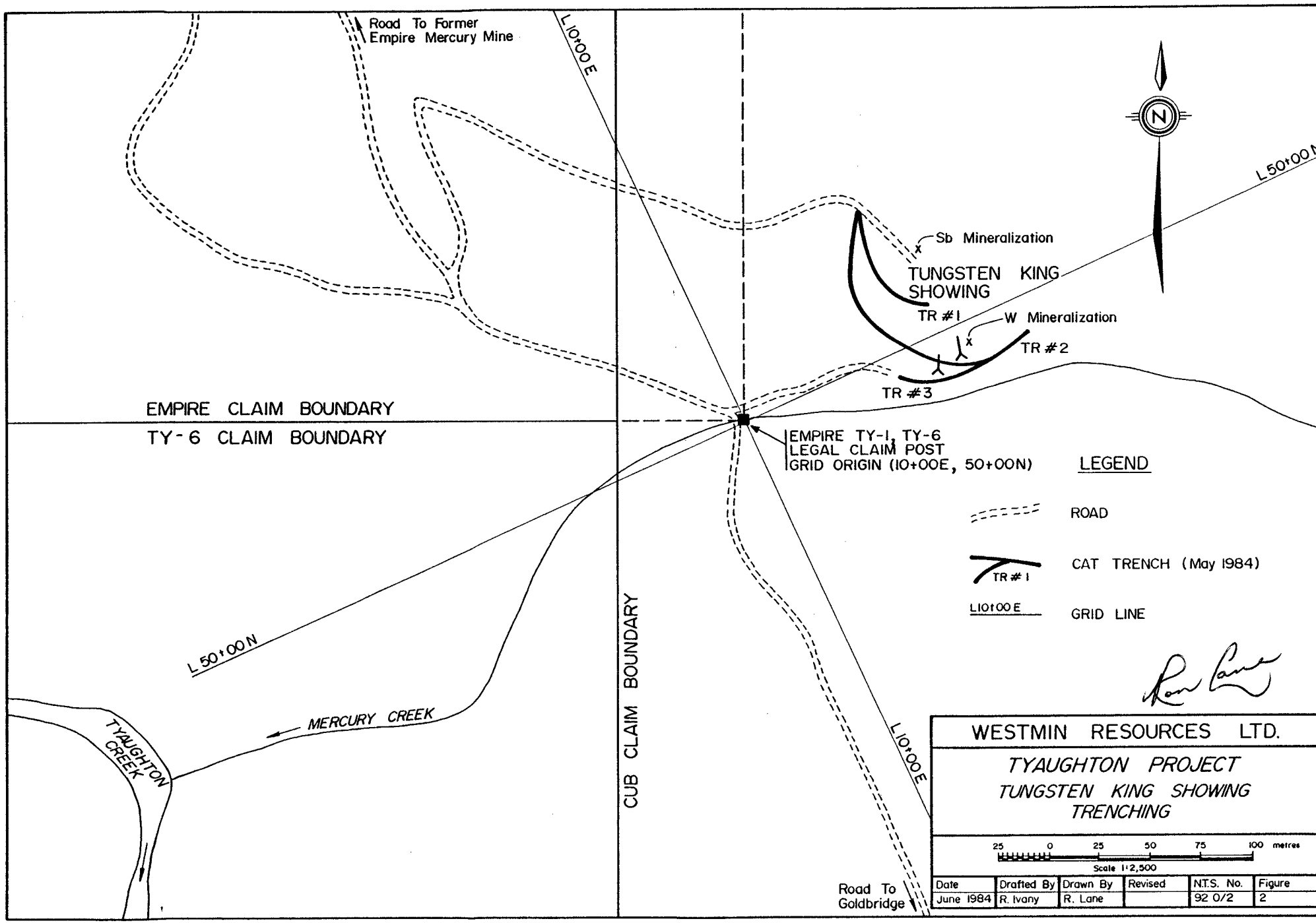
## G. APPENDIX II

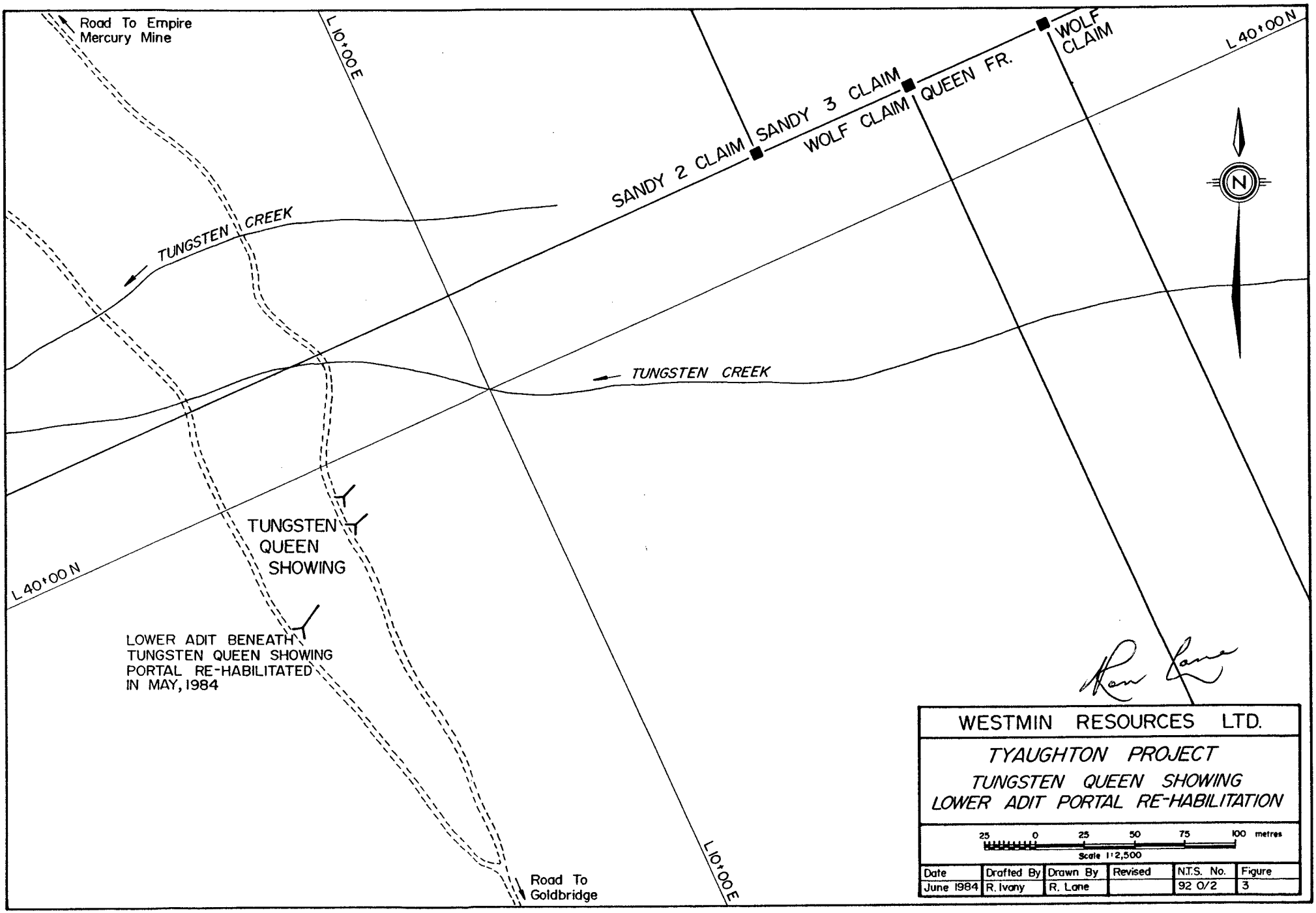
### STATEMENT OF COSTS

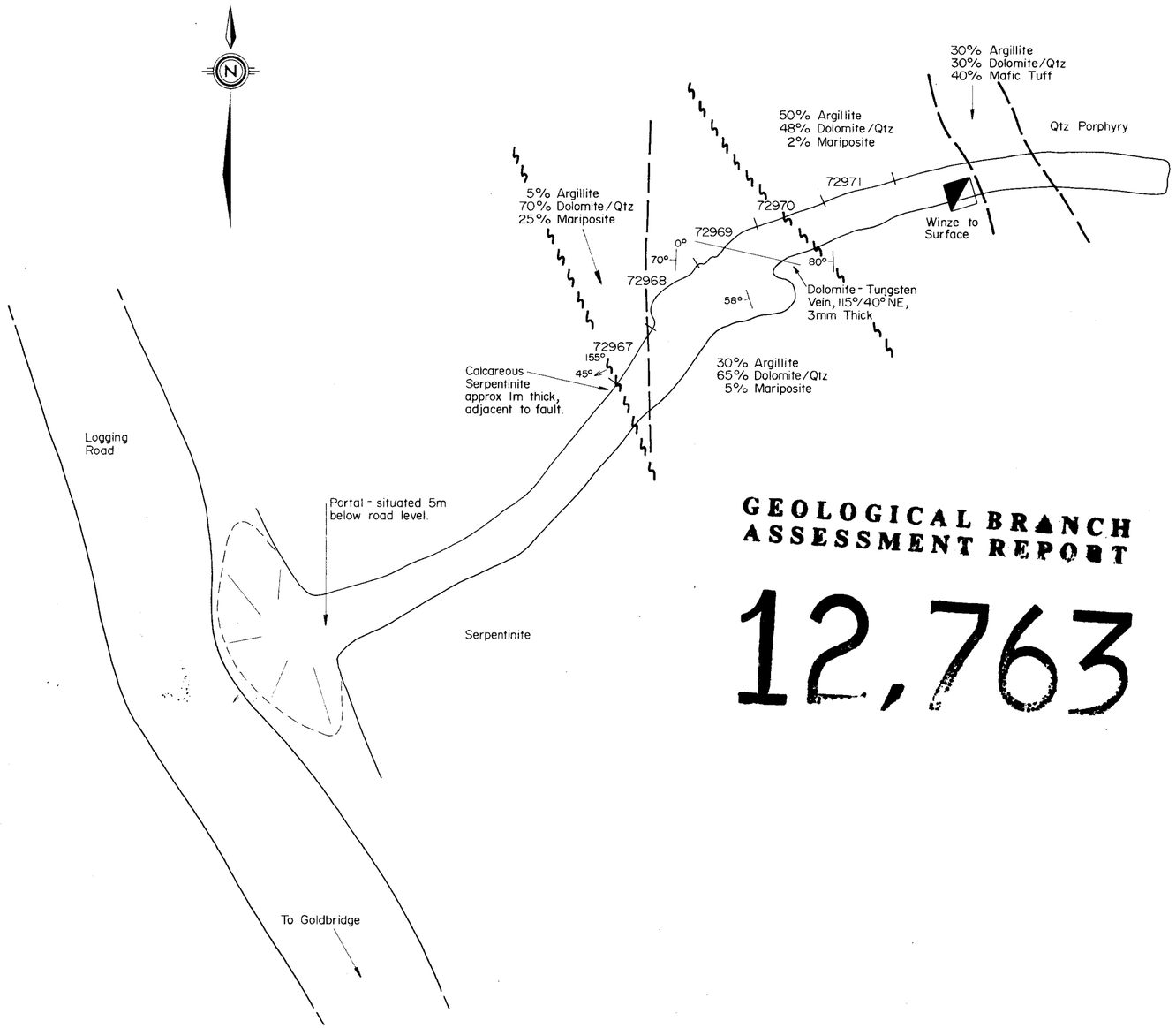
| | |
|---|---|
| Camp expense - food and accommodation | $ 400 |
| Rock geochemical analysis | |
| 21 samples analyzed for Au, W, Sb, Sn | 388 |
| Salaries | |
| Geologist (RWL) - 5 field days (October 22-26), 2 office days | 880 |
| Technician (MM) - 6 field days | 540 |
| Travel Expenses | 80 |
| Vehicle (4 x 4) | |
| Rental | 300 |
| Gas and repairs | 315 |
| Drafting | |
| Labour | 320 |
| Materials | 20 |
| | $3,243 |


123°
122°
70 Mile House
N
Clinton
TYAUGHTON
PROPERTY
Fraser
51°
51°
Lillooet
Lillooet
River
Pemberton
50°
50°
River
Boston Bar
Squamish
122°
Strait of Georgia
Vancouver
123°
WESTMIN RESOURCES LTD.
TYAUGHTON PROJECT
LOCATION MAP
10 5 0 10 20 30 40 km
Scale 1:1,000,000
Date | Drafted By | Revised | N.T.S. No. | Figure
Oct. 1982 | R. Ivany | | 92 | 1


122°45'
51°05'
51°00'
N
Creek
Mud
Relay
Tyaughton
Creek
Taylor
Creek
Noaxe
Creek
TY 2
1452 (7)
TY 1
1451 (7)
TY 8
2041 (6)
TY 3
1453 (7)
TY 7
2040 (6)
TY 6
1456 (7)
TY 5
1455 (7)
TY 4
1454 (7)
TUNGSTEN KING
EMPIRE
1375 (6)
CUB
350 (8)
TUNGSTEN QUEEN
WOLF
351 (8)
MERCURY Ia
14887 P
SANDY 3
13590 M
SANDY 4
13591 M
QUEEN FRACTIONAL
16128 M
SANDY 2
13589 M
WESTMIN RESOURCES LTD.
TYAUGHTON PROJECT
CLAIM MAP
0.5 0 0.5 1 1.5 2 km
Scale 1:50,000
Date
Oct. 1982
Drafted By
R. Ivany
Revised
N.T.S. No.
92 O/2
Figure
1a


Road To Former
Empire Mercury Mine
L10+00E
L50+00N
Sb Mineralization
TUNGSTEN KING
SHOWING
TR #1
W Mineralization
TR #2
TR #3
N
EMPIRE CLAIM BOUNDARY
TY-6 CLAIM BOUNDARY
EMPIRE TY-1, TY-6
LEGAL CLAIM POST
GRID ORIGIN (10+00E, 50+00N)
LEGEND
ROAD
TR #1
CAT TRENCH (May 1984)
L10+00E
GRID LINE
L50+00N
MERCURY CREEK
TYAUGHTON CREEK
CUB CLAIM BOUNDARY
L10+00E
Road To
Goldbridge
WESTMIN RESOURCES LTD.
TYAUGHTON PROJECT
TUNGSTEN KING SHOWING
TRENCHING
25 0 25 50 75 100 metres
Scale 1:2,500
Date
June 1984
Drafted By
R. Ivany
Drawn By
R. Lane
Revised
N.T.S. No.
92 O/2
Figure
2


Road To Empire
Mercury Mine
L 10+00 E
SANDY 2 CLAIM
SANDY 3 CLAIM
WOLF CLAIM
QUEEN FR.
WOLF CLAIM
L 40+00 N
TUNGSTEN CREEK
TUNGSTEN CREEK
N
TUNGSTEN
QUEEN
SHOWING
L 40+00 N
LOWER ADIT BENEATH
TUNGSTEN QUEEN SHOWING
PORTAL RE-HABILITATED
IN MAY, 1984
Road To
Goldbridge
L 10+00 E
WESTMIN RESOURCES LTD.
TYAUGHTON PROJECT
TUNGSTEN QUEEN SHOWING
LOWER ADIT PORTAL RE-HABILITATION
25 0 25 50 75 100 metres
Scale 1:2,500
Date
June 1984
Drafted By
R. Ivany
Drawn By
R. Lane
Revised
N.T.S. No.
92 O/2
Figure
3






## LEGEND

72969 — ROCK GEOCHEMICAL CHANNEL SAMPLE SAMPLE LENGTH = 4m

GEOLOGICAL CONTACT

45° / 155° — FAULT, ATTITUDE 155°/45°

70° / 0° — STRIKE & DIP

| SAMPLE # | W (ppm) | Au (ppb) | Sb (ppm) | Sn (ppm) |
|---|---|---|---|---|
| 72967 | 17 | 5 | 170 | 1 |
| 72968 | 12 | 5 | 200 | 1 |
| 72969 | 7 | 20 | 370 | 1 |
| 72970 | 6 | 10 | 190 | 1 |
| 72971 | 11 | 5 | 170 | 1 |

**Westmin Resources Limited**
MINING DIVISION

| | |
|---|---|
| Work By | R. Lane |
| Date Drafted | November 1984 |
| Drafted By | R. Ivany |
| Date Revised | |
| Revised By | |
| N.T.S. Number | 92 O/2 |

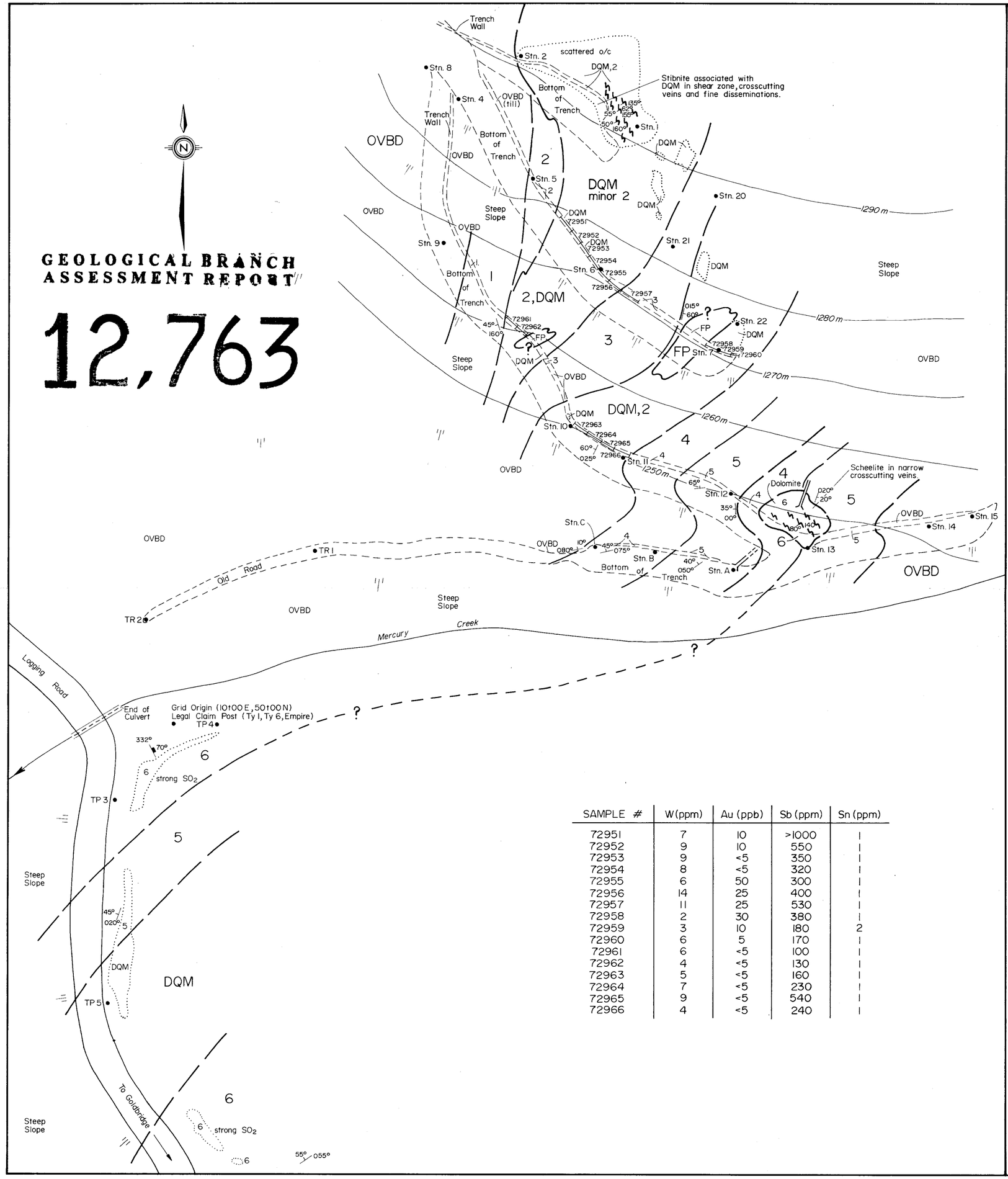
# TYAUGHTON PROJECT
## TUNGSTEN QUEEN SHOWING LOWER ADIT

4.8 2.4 0 4.8 9.6 14.4 m
SCALE 1:240

Figure 4

GEOLOGICAL BRANCH
ASSESSMENT REPORT

# 12,763




| SAMPLE # | W(ppm) | Au (ppb) | Sb (ppm) | Sn (ppm) |
|---|---|---|---|---|
| 72951 | 7 | 10 | >1000 | 1 |
| 72952 | 9 | 10 | 550 | 1 |
| 72953 | 9 | <5 | 350 | 1 |
| 72954 | 8 | <5 | 320 | 1 |
| 72955 | 6 | 50 | 300 | 1 |
| 72956 | 14 | 25 | 400 | 1 |
| 72957 | 11 | 25 | 530 | 1 |
| 72958 | 2 | 30 | 380 | 1 |
| 72959 | 3 | 10 | 180 | 2 |
| 72960 | 6 | 5 | 170 | 1 |
| 72961 | 6 | <5 | 100 | 1 |
| 72962 | 4 | <5 | 130 | 1 |
| 72963 | 5 | <5 | 160 | 1 |
| 72964 | 7 | <5 | 230 | 1 |
| 72965 | 9 | <5 | 540 | 1 |
| 72966 | 4 | <5 | 240 | 1 |

## LEGEND

TERTIARY

FP — FELDSPAR PORPHYRY DYKE

MID TRIASSIC OR OLDER

BRIDGE RIVER GROUP

1 — DOLOMITIC ARENITE
Light green, weathers light to medium brown, consists mainly of of feldspar grains, subordinate rounded quartz, 2% mica and 1-5% chips of argillite or chert. Dolomitic matrix, grain size 0.1-1.0 mm.

2 — ARGILLITE
Dark grey to black, laminated to thin bedded, often sheared and tectonically brecciated.

3 — ANDESITE
Medium green to purplish grey, weathers tan, buff, rusty green, up to 2% disseminated pyrite.

4 — ARGILLITE - CHERT - TUFF
Approximately 70% argillite, 25% chert, 5% mafic tuff. Argillite and chert are dark grey to black and thinly interbedded; mafic tuff is yellow to light green and unevenly distributed.

5 — ARGILLITE - CHERT
Approximately 75% argillite and 25% chert, dark grey to black and thinly interbedded.

6 — LIMESTONE
Medium grey, weathers light grey, often strong $SO_2$ when broken. At Tungsten King Showing limestone is intensely brecciated, recrystallized and sheared. Minor amounts of scheelite occur in narrow shear zones and thin variably orientated veins in a small boudinaged (?) limestone pod.

DQM — DOLOMITE - QUARTZ - MARIPOSITE
Approximately 80% dolomite, 15% quartz and 5% mariposite, however proportions vary. Dolomite is iron rich and weathers rusty brown. DQM is almost always associated with sheared and tectonically brecciated argillite (and chert), although pure DQM may occur in veins. Ratio of DQM to argillite ranges from <5% to >95%. DQM appears to intrude and partially assimilate the argillite.

72951 72952 — Rock Geochemical Chip Sample (sample length = 2m)

•Stn. 2, •TP 3 — Flagged Mapping Stations

1280m — Topographic Contours (in metres)

Adit

Direction Of Steep Slope

Outcrop

140° 80° — Fault, Attitude (140°/80° SW)

Geologic Contact

**Westmin Resources Limited**
MINING DIVISION

| | |
|---|---|
| Work By | R. Lane |
| Date Drafted | December 1984 |
| Drafted By | R. Ivany |
| Date Revised | |
| Revised By | |
| N.T.S. Number | 92 O/2 |

# TYAUGHTON PROJECT

## TUNGSTEN KING SHOWING

10 5 0 10 20 30 m
SCALE 1:500

Figure 5