Box 9

FILE

92 - P - 9

REPORT

ON

DRILLING

TAWEEL MOLYBDENUM OPTION

1966

KAMLOOPS

MINING DIVISION

Vancouver, B.C.
January 19, 1967 S.N. Charteris

Jan. 30/67 Original to Dr. A. S. Dadson, Toronto

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BRITISH COLUMBIA
GEOLOGICAL SURVEY

FILE

REPORT ON THE DRILLING

OF THE TAWEEL MOLYBDENUM OPTION

KAMLOOPS MINING DIVISION

BRITISH COLUMBIA

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MAPS

In pocket.

REPORT ON THE DRILLING

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KAMLOOPS MINING DIVISION
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92-P-9

INTRODUCTION

The property was optioned in April and explored during the months of July, August and September in conjunction with the South Cariboo Project. We were offered the property immediately after Rio Tinto dropped their option. Rio was faced with an option payment to Calder and Jim plus heavy commitments at Lornex and so they reluctantly elected to drop this prospect.

LOCATION AND ACCESS

For location, see the accompanying 1" = 4 mile plan. Access is by a seventeen mile jeep road up the Lemieux Creek valley from Little Fort. A few days bulldozer work could improve this road to two wheel drive conditions.

PROPERTY

Rio Tinto surrounded the original 8 claims with an additional 42 claims on optioning the property. We dropped 11 claims leaving a 39 claim group. Details and descriptions of the claims are contained in the Calder-Jim/Falconbridge option.

OPTION TERMS

The terms of the option were:

(1) A six months free option.
(2) A $10,000 payment on December 1, 1966 to hold the option.
(3) A $20,000 payment on December 1, 1967 to hold the option.
(4) A $50,000 payment on December 1, 1968 to hold the option.
(5) A 3,000,000 share company to be formed by December 1, 1969 with one-half the vendors shares to be granted to the optionors.

ns Map 1-1963, "Quesnel Lake"

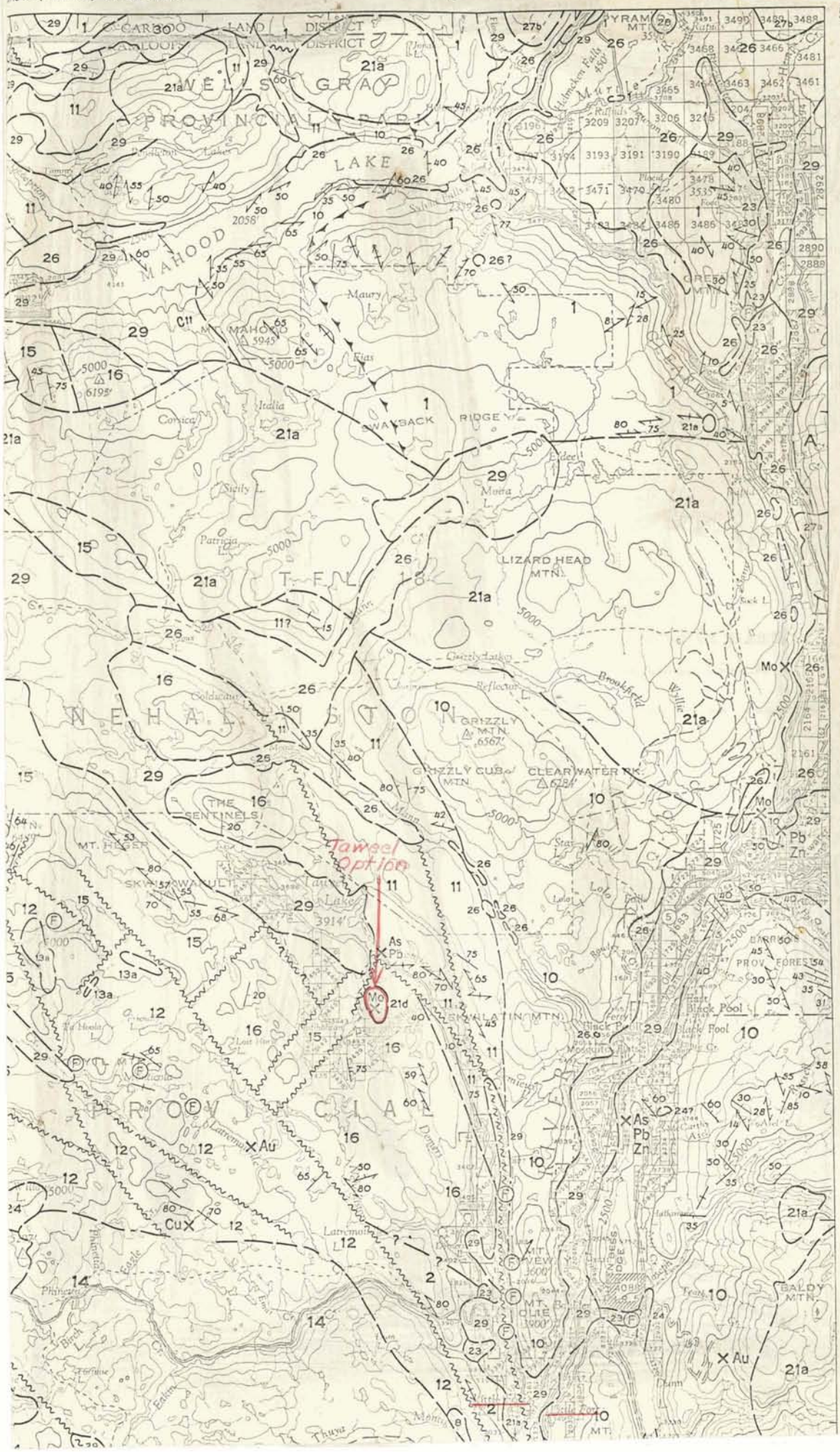
120°00'

52°00'

15'

45'

30'



LOCATION MAP -- -- TAWEEL OPTION -- -- Scale 1"= 4 miles

EXPLORATION HISTORY

Southwest Potash had an examination option on the ground in 1960 when they apparently mapped and sampled the exposures but did no physical work. In 1961 Bralorne-Pioneer optioned the property and did geochemical (T.H.M.), geological, magnetometer and I.P. surveys followed by limited diamond drilling in widely separated areas.

Rio Tinto in 1965 completed:

(1) Geochemical soil sampling at 50 foot intervals over 10½ miles of picket lines.
(2) Geochemical silt sampling of the drainage to the west of the claims.
(3) A magnetometer survey over the picket lines.
(4) 4,000 feet of bulldozer stripping that exposed large areas in the vicinity of the original trenching.
(5) Geological mapping on a scale of 1" = 200' of the central portion of the claims.

Reports and maps of all the above work are in the Vancouver files.

FALCONBRIDGE EXPLORATION - 1966

G. Bysouth re-mapped the areas of known molybdenite mineralization with emphasis on the structural controls to the mineralization. Field work was on a scale of 1" to 50 feet with picket line and transit control. We tested the structures indicated by Rio's and Bysouth's mapping with 2,032 feet of AX wire line drilling in pre-drill holes.

GEOLOGY AND MINERALIZATION

The following is a resumé from the writers' and Bysouths' observations supplemented with some details from Rio Tinto's report by F. Hus.

(a) General Geology

The property covers an oval stock of fine to medium grained leuco granite approximately 8,000 feet long and up to 4,000 feet wide. It intrudes thin bedded argillite with the development of a hornfels aureole up to 300 feet wide. Tertiary Basalt outcrops along the ridge to the north of the intrusive and in the valleys of Taweel Creek and Rong Creek. Rio Tinto considered the intrusive to be post basalt based on the minor carbonate and pyrite in the basalt. Such pyrite and carbonate is typical of fractured sections of the Tertiary basalt throughout the cariboo.

The molybdenum mineralization is confined to the central portion of the intrusive.

(b) Geology of the Intrusive

The leuco granite stock appears rudely zoned from the limited outcrops and diamond drill sections. The core of the stock is a uniform equigranular medium grained porphyritic granite with 65% to 70% subhedral white feldspars averaging 2 to 3 mm long, 1 mm wide and 30 to 35 percent spherules of quartz, 3 mm in diameter. Biotite is interstitial to the feldspar and is irregularly distributed with no relation to the zoning or to areas of mineralization.

Between the core and the margin is an annulus approximately 500 feet wide of mixed chilled rocks principly aplite and porphyritic aplite with irregular sub-pegmatoid phases along the margins of a few aplite masses. Dykes of aplite also extend into the hornfelsed sediments. The contact between the border zone and the core is well exposed on the hill north of Rong Lake between lines 6 and 7. It is gradational over a foot.

The stock is remarkably fresh from our visual and Rio Tinto's petrographic examinations. Hole F-1 near the centre of the core was unaltered throughout its length. Lazenby noted "sericite rich sections" in Hole No. 2 and kaolinization in Hole No. 4. Neither kaolinization nor sericitization are obvious in the vicinity of the mineralization. Except for occasional quartz veins, silicification is noticeably absent. The quartz flooding (intense replacement and silicification) associated with Newmont's Alice Arm deposit, Climax's Hudson Bay Mountain and Lucky Ship deposits has not been found near this intrusive.

(c) Mineralization

Only rare narrow quartz-molybdenite veinlets were encountered in the drill core, so the following observations are from the exposures in the trenches. Here molybdenite concentrations are confined to:

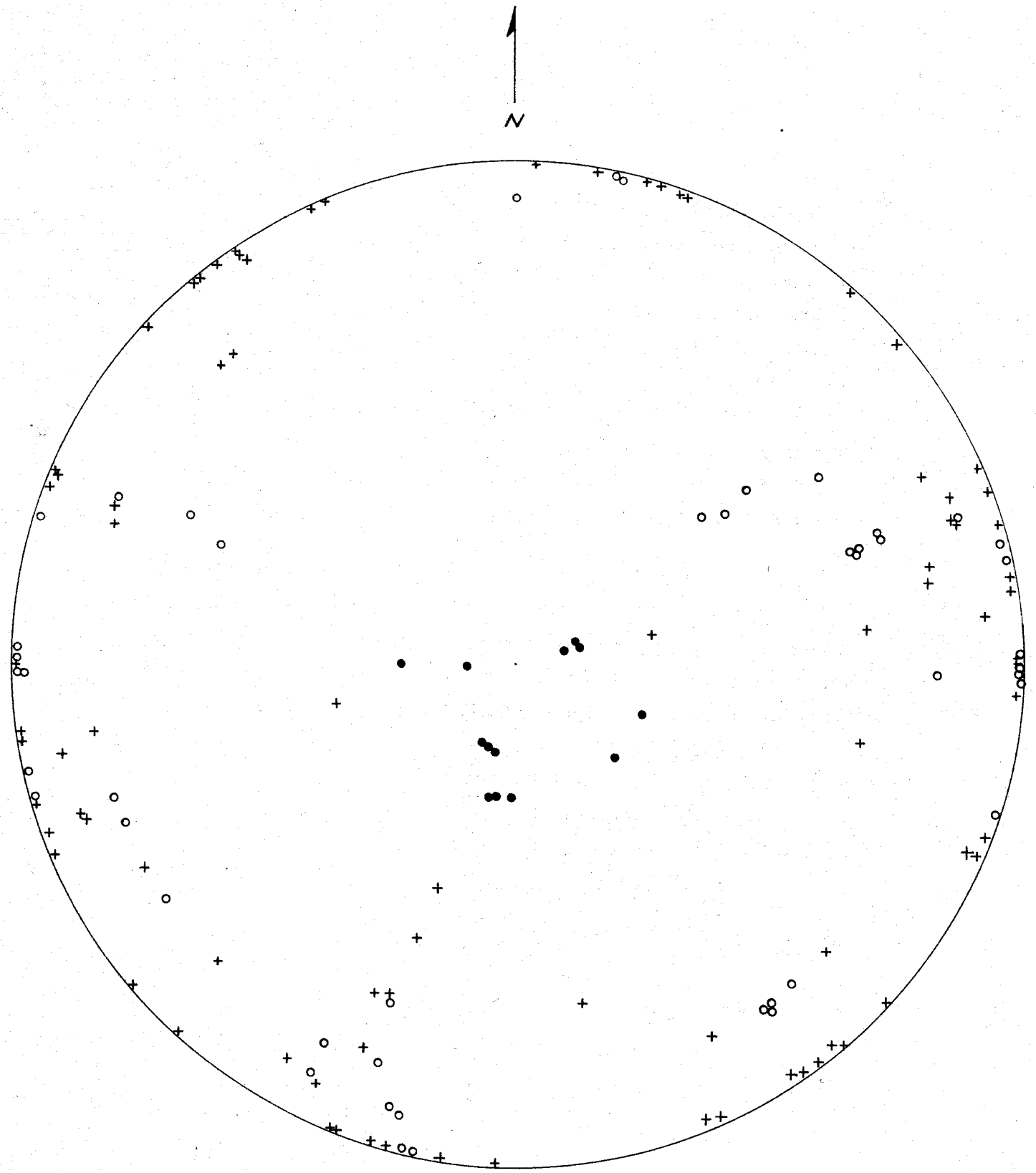
(1) Wide spaced quartz-molybdenite veins.

(2) Irregular disseminations of molybdenite in the porphyritic granite, usually where there are concentrations of feldspar.

(3) Pegmatic phases within the rhyolite where molybdenite occurs with pyrite and minor wolframite and bismuthite in quartz rich sections.

(4) As coatins on fine fractures.

Nowhere did the sampling of the trenching exceed .03% molybdenite over significant widths.



FALCONBRIDGE NICKEL MINES LTD.

TAWEEL OPTION

Lower Hemisphere Stereo Net Plot
of Lineal Elements

+ Faults o Joints • Sheeting

(d) Structure

Shears (faults) and parallel joints have a predominant northwest trend, parallel to the regional shearing in nearby Lemieux Creek and to the long axis of the intrusive. Detailed mapping however showed numerous other directions, especially N70W and N40E. These are shown on the 1"=50' and 1"=100' mapping by Bysouth and compiled on the Stereonet plot of the poles. Thus there is a near radial pattern to the fracturing discernible through the dominating northwest trend. These fractures converge between Rong Lake and the area between lines 6 and 7 in the vicinity of Drill Hole number 5.

The radial pattern suggested that a vertical movement was imposed on the stock - or, alternatively, there was a cauldera-type collapse. Such a centre could contain a tectonic or injection breccia, or a fracture concentration healed by quartz such as exists at Boss Mountain. Supporting the idea of vertical movement is the wide spread, low angle quartz healed sheeting (see stereonet).

RESULTS OF FALCONBRIDGE EXPLORATION

The geological mapping by Bysouth on a scale of 1"=50' and 1"=100' is in the folder of this report. Lazenby combined this mapping with the other data provided by Rio Tinto to produce the 1"=200' plan. We re-sampled the B horizon and we received the Rio Tinto soil samples. Both Rio's and our samples will be analyzed for trace amounts of molybdenum.

The diamond drill logs are in the appendix. Summary logs follow:

HOLE	BEARING	DIP	DEPTH	LITHOLOGY
F-1	230°	-45°	540'	Massive unaltered Quartz Porphyry cut by rare quartz-molybdenite fractures.
F-2	050°	-45°	650'	Massive quartz porphyry with some sericite alteration.
F-3	230°	-45°	126'	"Chloritized greenstone" - actually a hornfelsed argillite.
F-4	050°	-45°	436'	0-101 - Hornfelsed argillite. 101-436 - Aplite with k feldspar patches, occasional molybdenite bearing stringers 262'-268'.
F-5	050°	-45°	288'	Quartz Porphyry. 0 - 137 - massive, dense, unfractured. 137 - 140 - kaolinized. 160 - 167 - kaolinized. 167 - 215 - Intense feldspathization. 260 - 265 - Graphite seams. Hole stopped when drill broke down.

Alteration comparable to the sericite alteration in hole F-2 and the potash feldspar impregnation of holes F-4 and F-5 is not exposed in the surface outcroppings and trenches. Hole F-5 was not seen by the writer but it is reported that the kaolinization was the cause of ppor core recovery in this hole. The intense "k" feldspar impregnation in this hole also indicates intense late stage hydrothermal activity. The "graphite seams" in hole F-5 seems out of place since the rare sedimentary inclusions are completely hornfelsed with no residual carbon. We had returned the property to the owners on the understanding that the hole F-5 intersected only massive unaltered, barren quartz porphyry.

CONCLUSIONS AND RECOMMENDATIONS

(1) We have not located any concentration of fracturing on the property such as our structural interpretation suggested.

(2) The lack of concentration of molybdenite may be due to the lack of silicification and a paucity of quartz veining, i.e. a deficiency of free quartz in the mineralizing medium. Thus molybdenite tends to be in open fractures and was not concentrated in a siliceous phase. In all the significant molybdenum deposits in this Province, the molybdenite is concentrated in a siliceous envelope or in a multitude of quartz veins.

(3) There remains a possibility that a sheared kaolinized zone containing molybdenite exists in the vicinity of hole F-5. At the first opportunity we will recover this drill core and have it assayed. If there is significant molybdenum, we will try to re-negotiate an option.

S.N. Charteris

Vancouver, B.C.
January 19, 1967

PROPERTY TAWEEL OPTION

HOLE NUMBER F-1

SHEET NUMBER 1

SECTION FROM 0 TO 540

DIAMOND DRILL RECORD

LOCATION: ~~XXX~~ LAT 20' E. of Line 8, 910' S.
DEP

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING 230°
DIP -45°

STARTED 11 July, 1966

COMPLETED

ULTIMATE DEPTH 540'

PROPOSED DEPTH 500 (±)

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
0 - 82	Casing.							
- 540	Quartz - feldspar porphyry.							
- 142	Hard fine grained. Quartz phenocrysts →1/10". Epidote							
	& minor pyrite along joints. Occasional quartz-pyrite							
	& quartz-molybdenite stringers 30-45° to core.							
- 164	Larger phenocrysts. Some → 1/4" giving mottled appearance							
- 181	More highly weathered. Rusty otthoclase pseudomorphs							
	& some epidote pseudomorphie after feldspar. Minor							
	molybdenite along joints.							
- 226	As 0 - 142							
- 246.5	As 164 - 181							
- 288	As 0 - 142 Aplite dykes 263-264, 269-270.							
- 291	As 164 - 181.							
- 328	As 0 - 142. Slight increase in concentration of							
	quartz stringers with minor pyrite from 307 - 319.							
- 338	White colored. Feldspar heavily kaolinized.							
- 540	As 0 - 142 @ 499 large pyrite-filled vug. with							
	weathered tourmaline, fluorite, & minor molybdenite.							
	END OF HOLE.							
	H.S.L.							

N.M.B. - FORM A

PROPERTY TAWEEL OPTION

HOLE NUMBER F-2

SHEET NUMBER 1

SECTION FROM 0 TO 650

DIAMOND DRILL RECORD

LOCATION: ~~KMX~~ 90' bearing 315° from Line 7, 1500'S
~~NRX~~

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING 050°
DIP -45°

STARTED 4 August 1966

COMPLETED

ULTIMATE DEPTH 650

PROPOSED DEPTH 650

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
0 - 35'	Casing							
- 650'	Quartz-feldspar porphyry. Lighter and darker							
	sections as in F-4. Sericite rich sections.							
	Occasional quartz-molybdenite stringers, epidotized							
	sections, pyrite stringers & aplite dykes.							
	END OF HOLE.							
	H.S.L.							

N.M.P.-FORM A

PROPERTY TAWEEL OPTION

HOLE NUMBER F-3

SHEET NUMBER 1

SECTION FROM 0 TO 126

DIAMOND DRILL RECORD

LOCATION: ~~KM~~ 70' E of line 6, 1470' S
~~MSP~~

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING 230°
DIP -45°

STARTED 11 September 1966

COMPLETED 13 September 1966

ULTIMATE DEPTH 126'

PROPOSED DEPTH 500 (±)

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
0 - 15	Casing.							
- 126	Solft banded chloritized greenstone with serpentinized slip faces 30° to core for first 30 ft. (≈ every 2 inches). Minor pyrite along joints. Felsite dykes @ 104 - 109.5 and 117 - 119.							
	END OF HOLE.							
	H.S.L.							

N. M. P. - FORM A

PROPERTY TAWEEL OPTION

HOLE NUMBER F-4

SHEET NUMBER 1

DIAMOND DRILL RECORD

SECTION FROM 0 TO 436

LOCATION: ~~XX~~ EXT 70' E of Line 6, 1470'S

~~XX~~ DEP

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING 050°

DIP -45°

STARTED 16 September 1966

COMPLETED 22 September 1966

ULTIMATE DEPTH 436'

PROPOSED DEPTH 550 (±)

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
0 - 18	Casing.							
- 99	Banded chloritized greenstone (tuff?) banding							
	30° to core. Minor pyrite & less molybdenite along							
	occasional slip faces parallel to banding.							
- 100.5	Hard light grey-green aplite.							
- 101.5	Fine grained greenstone.							
- 156	Hard fine grained light grey quartz feldspar porphyry							
	with aplitic groundmass. Quartz & pink K feldspar							
	phenocrysts → 1/10". Some feldspar kaolinized. Epidote							
	& minor pyrite along joints. Minor molybdenite along							
	joints at 107',138'. Aplite dykes 108-109, 112-113,							
	128 - 128.5.							
- 168	As above but darker in color. (more mafic?)							
- 191	As 101.5 - 156							
- 194	As 168 - 191							
- 202	As 101.5 - 156							
- 216	As above, but more heavily kaolinized & epidotized							
- 224	As 101.5 - 156							
- 255	Darker in color & greater % K feldspar.							
- 436	Inter-mixed sections of light and dark colored quartz feldspar porphyry. Darker due to greater percentage of mafics. Pinker due to greater percentage of pink feldspar, whiter due to more kaolinization. Aplite dyke 269-273. Molybdenite-bearing quartz stringers → 1/10" thick @ 262,266,274, 283, 284.							
	END OF HOLE. MSS.L							

N. M. P. - FORM A

PROPERTY TAWEEL OPTION

HOLE NUMBER F-5

SHEET NUMBER 1

SECTION FROM 0 TO 288

DIAMOND DRILL RECORD

LOCATION: ~~LAT~~ 200' E of line 6, 150' S.
~~DEP~~

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING 050°
DIP -45°

STARTED 19 September 1966

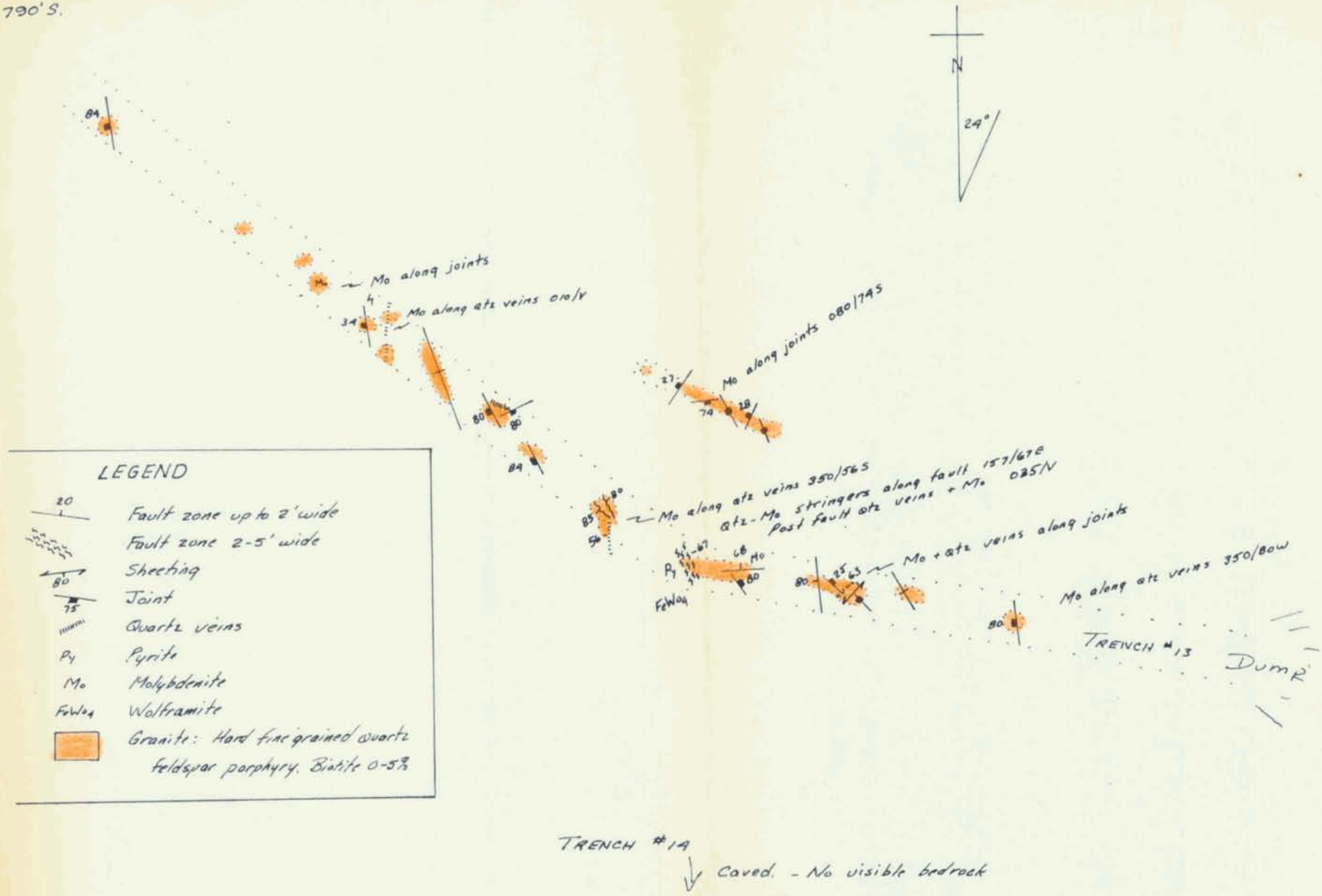
COMPLETED 9 October 1966

ULTIMATE DEPTH 288'

PROPOSED DEPTH 500 (±)

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
0 - 60	Casing.							
- 167	Hard fine grained quartz-feldspar porphyry. Epidotized							
	sections. Occasional quartz-pyrite & quartz-							
	molybdenite stringers. @ 137' = 1/8" graphite stringer							
	20° to core. Softer-more heavily kaolinized to 140'							
	155'-160' = 5% biotite. 160'-167'= 20% recovery							
	260'-265' - graphite seams.							
- 215	As above but coarser grained. Pink K. feldspar							
	phenocrysts $\frac{1}{4}$" - $\frac{1}{2}$".							
- 288	As 0 - 167. Aplite dyke 242-243							
	@ 288 - broken crank shaft. HOLE STOPPED.							
	H.S.L.							

N.M.P.-FORM A



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TAWEEL OPTION

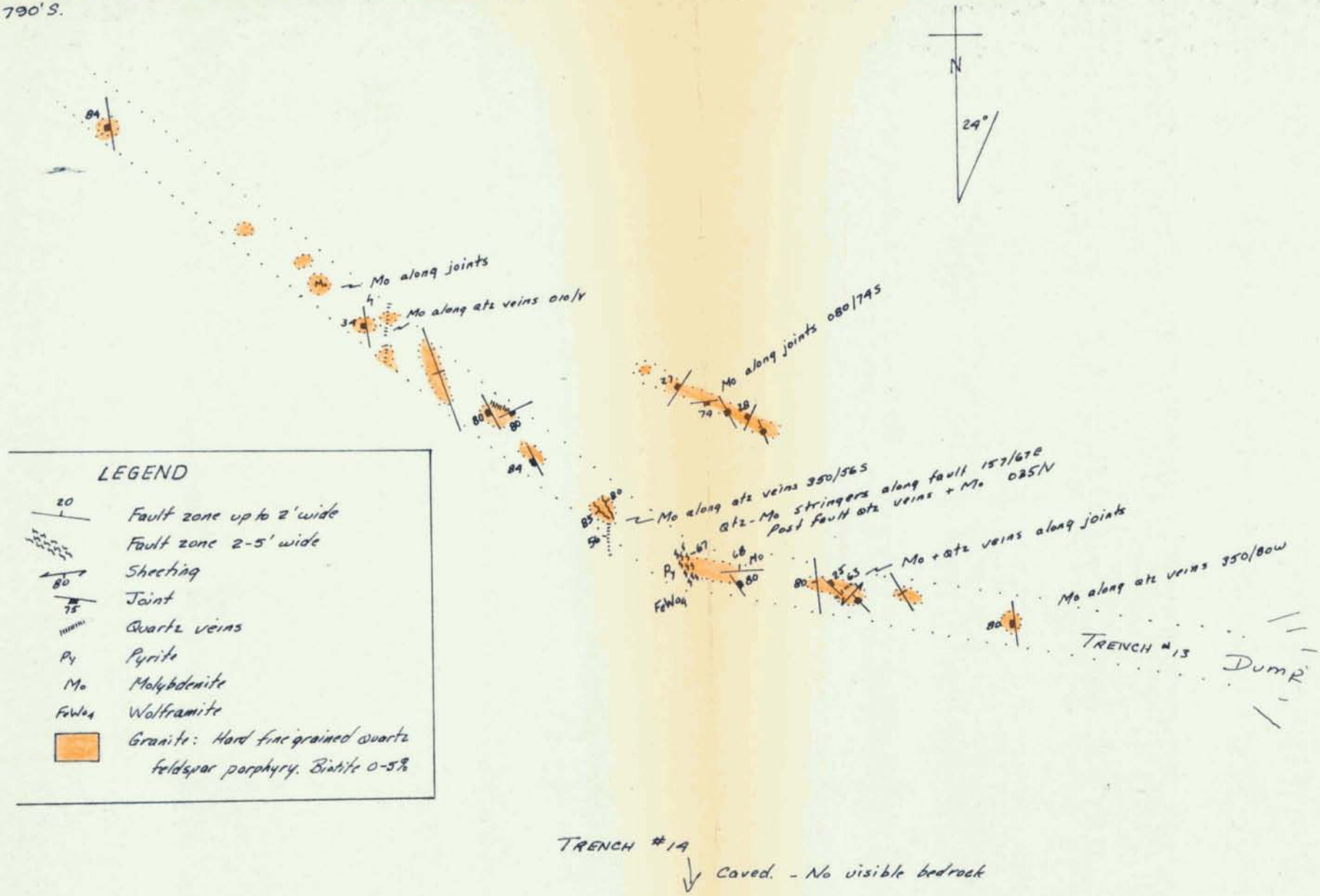
MAP REF. NO. 92-P.9

TRENCH 13

CHAIN & COMPASS PLAN

SCALE :: 1 IN. : 50 FT.

2/11/66
H.S.L.



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TAWEEL OPTION

MAP REF. NO. 92-P-9

TRENCH 13

CHAIN & COMPASS PLAN

SCALE :: 1 IN. : 50 FT.

2/11/66
H.S.L.

MOOSE LAKE

3+00N

LOST CREEK

LINE 1

LINE 4

13+00S

15+00S

TAWEEL CREEK

33+00N

GREEN CREEK

32+00N

31+00N

29+00N

28+00N

25+00N

22+00N

20+00N

16+00N

10+80N

X Top Mt

4100

4200

4300

4400

4500

4600

Base Line

LINE 0

LINE 1

LINE 2

LINE 3

LINE 4

LINE 5

LINE 6

LINE 7

LINE 8

LINE 9

LINE 10

LINE 11

LINE D

10+00E

LINE C

10+00E

LINE A

19+00E

RONG LAKE

MOLLY CREEK

Road to Little Fox

ROSE CREEK

A ROSE CREEK

B. CREEK

61°35'30"

LEGEND

- SWAMP, BOG
- CREEK
- 4000 — CONTOUR - Interval 25 ft.
- JOINT (vertical)
- LOW ANGLE SHEETING
- FAULT ZONE, Less than 2 ft. wide
- FAULT ZONE, 2-5 ft. wide
- FAULT ZONE, Greater than 5 ft. wide
- Probable extension of known fault zone
- Probable fault
- BASALT, Fine grained homogeneous, in some places porphyrytic, little epidote & chlorite alteration
- ARGILLITE, Thinly bedded, fissile, slightly regionally metamorphosed
- HORNFELS, Thermally metamorphosed argillite, intense carbonitization
- APLITE, RHYOLITE; PORPHYRYTIC APLITE, RHYOLITE & GRANITE (Central area - aphanitic aplite, commonly with quartz phenocrysts)
- LEUCOGRANITE; Even grained, occasionally some biotite (Central area - uniform composition of quartz, perthite, albite: occasional biotite, up to 5%, varying qtz. feldspar ratio: abrupt textural variations)

Mo	Molybdenite	Fe.Wo	Wolframite	Diamond drill hole
Py	Pyrite	F	Fluorite	
Bi.S	Bismuthinite		Qtz. vein	

SCALE

One inch = 200 feet

FALCONBRIDGE NICKEL MINES LTD.

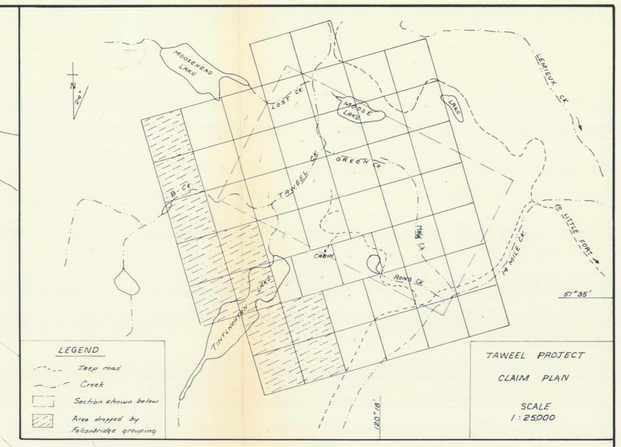
TAWEEL OPTION

DETAILED GEOLOGY by G. BYSOUTH

Remainder traced from Rio Tinto geology plan

17/11/66

HSL



MAP REF. NO.: 92-P

LEGEND

- Quartz veins
- Joint
- Low angle shearing
- Fault zone less than 2' wide
- Fault zone 2-5' wide
- Fault zone greater than 5' wide
- Probable extension of known fault zone
- Probable fault
- Mo — Molybdenite
- Py_1 — Pyrite
- Bi.S — Bismuthinite
- FeW_4 — Wolframite
- F — Fluorite
- GRANITE: uniform composition of quartz, perthite, albite, occasional biotite up to 5% Varying quartz-feldspar ratio: Abrupt textural variations
- APLITE: Fine grained to aphanitic, commonly with quartz phenocrysts.

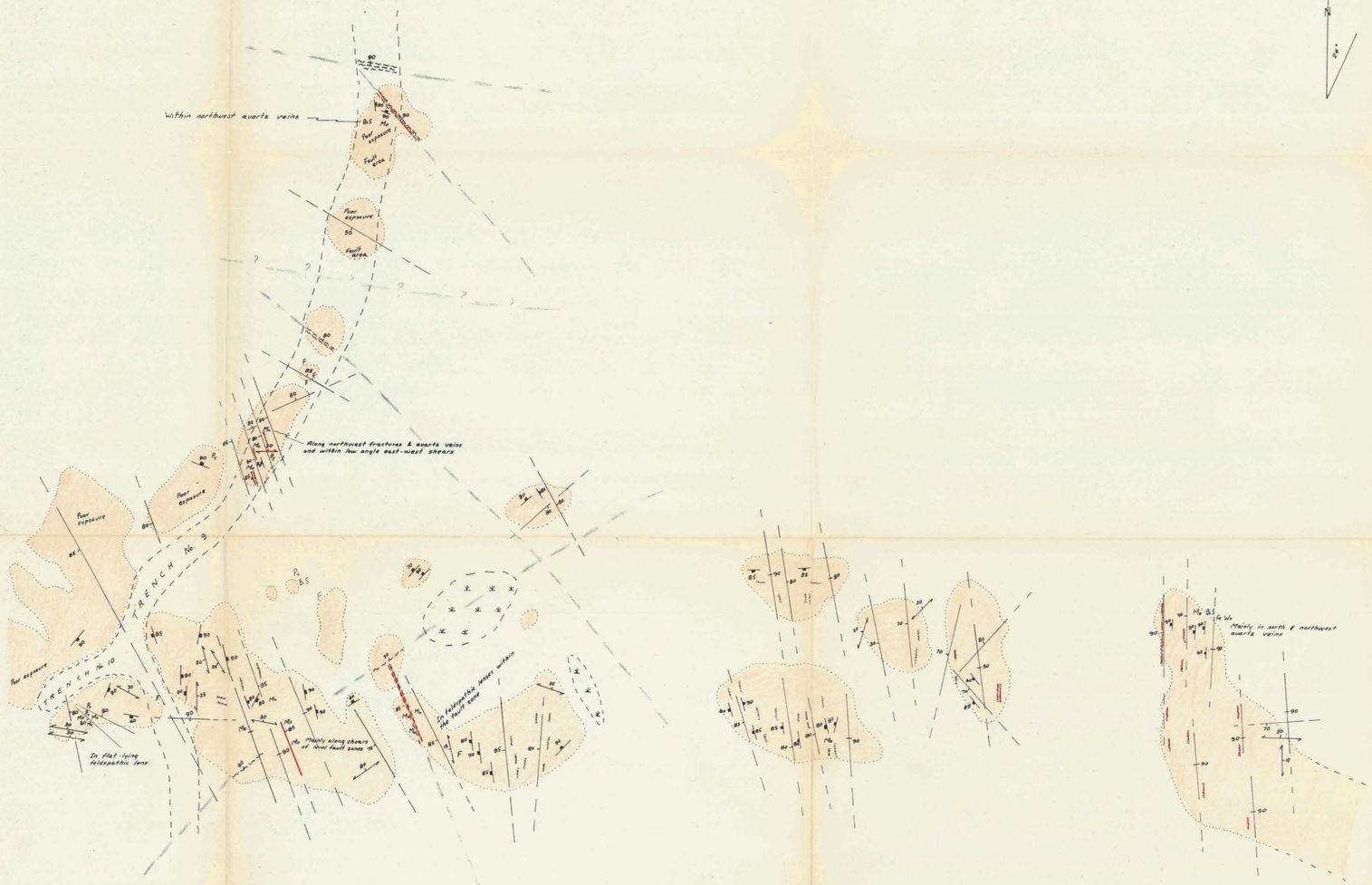
SCALE: 1 INCH TO 100 FEET

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.
PROPERTY . . TAWEEL OPTION
LOCATION . . MAIN EXPOSURE AREA

WORKING PLACE . .
TYPE OF MAP . . STRUCTURE & MINERALIZATION PLAN
BASED ON . . MAPPING BY G. BYSOUTH

DATE . . 1/11/66
DRAWN BY . . MC
DATE OF WORK . . AUGUST, 1966

MAP REF. NO.: 92 - P



LEGEND

- Fault zone up to 2' wide
- Joint
- Sheeting: Generally low angle
- Fault zone: 2-5' wide
- Probable extension of known fault zone
- Probable fault
- Fault zone greater than 5' wide
- Mo — Molybdenite
- Py — Pyrite
- BiS — Bismuthinite
- FeWo4 — Wolframite
- F — Fluorite
- Quartz veins

Granite: Uniform composition of quartz, perthite albite? with veining quartz-feldspar rarely; Abrupt textural variations common (i.e. aplite & quartz porphyry); Occasional blocks, veins, & small dykes of aplite: Biotite often present but always less than 1% Clay alteration within large fault zones.

SCALE: 1 INCH TO 50 FEET

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.
PROPERTY . . TAWEEL OPTION
LOCATION . . MAIN OUTCROP AREA EAST OF TRENCH 9

WORKING PLACE . .
TYPE OF MAP . . PLAN
BASED ON . . MAPPING BY G. BYSOUTH

DATE . . 24/10/66
DRAWN BY . . HSL
DATE OF WORK . . AUGUST, 1966