

N.T. 82-G-5

S U M M A R Y  
**REPORT**  
ON  
1965 EXPLORATION  
AT  
ST. EUGENE PROPERTY  
MOYIE, B.C.

FORT STEELE  
MINING DIVISION  
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SUMMARY REPORT OF  
1965 EXPLORATION AT ST. EUGENE PROPERTY  
MOYIE, B.C.

Vancouver, B. C.  
September 2, 1965

A. Burgoyne  
Geologist

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DRILL LOGS: Baltimore Grid DDH's 1B, 2B, 3B, 5B, 6B

Aurora Grid DDH's 2A, 3A, 4A, 5A, 7A

### MAPS ACCOMPANYING THIS REPORT:

1 M-65	Moyie Area, location of 1965 field work	1" = 1500'
1 B-65	Trenching, Pitting, Diamond Drilling, Baltimore Grid	1" = 200'
2 B-65	Geology, Baltimore Grid, and accompanying Cross Sections 1 to 3	1" = 200'
1 A-65	Road Improvement, Trenching, Diamond Drilling, Aurora Grid	1" = 200'
1 SA-65	Geochemical, Sandy Grid	1" = 200'
2 SA-65	Magnetometer, Sandy Grid	1" = 200'
3 SA-65	Self-Potential, Sandy Grid	1" = 200'
1 E-65	Geochemical, Edge Grid	1" = 200'
1 N-65	Geochemical, Northern Grid	1" = 200'
1 P-65	Geochemical, Pop Grid	1" = 200'
1 BK-65	Geochemical, Barkshanty Grid	1" = 200'
1 BR-65	Geochemical, Bear Grid & Society Girl	1" = 200'
1 R-65	Magnetometer, Road Bluff Grid	1" = 200'
1 W-65	Self-Potential, Wild Pig Grid	1" = 200'

SUMMARY REPORT OF  
1965 EXPLORATION AT ST. EUGENE PROPERTY  
MOYIE, B.C.

This year's exploration work had six objectives. They were:-

1. a) to complete a FS-2 Refraction Seismic Survey on the Etna Creek and Glencairn Creek fans and adjacent terraces.  
b) to complete a Hydrosonde Survey on Lower Moyie Lake.  
c) to determine refraction seismic depths on the lake at strategic locations to effect a tie-in between FS-2 and Hydrosonde work.
2. Trenching and pitting of several geophysical anomalies on the Aurora grid and several geochemical anomalies on the Baltimore grid.
3. Construction of a four-wheel drive road from the head of Etna Creek westwards to the Etna anomalous zone on the Aurora grid.
4. To complete approximately 2500 feet of wire line and packsack diamond drilling on the Aurora and Baltimore grids.
5. To locate an easterly extension of the St. Eugene veins north and east of the Baltimore grid.
6. To carry out detailed work on the claims on favourable topographic and geologic structures and on magnetometer anomalies located in the 1940's and on geochem anomalies located by reconnaissance work.

I FS-2 REFRACTION SEISMIC SURVEY AND HYDROSONDE SURVEY (Completed by Huntex of Toronto) (Note - Map 1 M - 65)

Approximately 7 miles of line were cut at 400-foot intervals, surveyed and chained for the FS-2 survey on the Etna Creek and Glencairn Creek fans and adjoining terraces. From FS-2 work completed on the Etna fan bedrock depths varied from 120 feet (at the fan apex) to over 250 feet (on the fan edge and on glacial eskers). No FS-2 work was done on the Glencairn Creek fan because of proximity to town dwellings.

The Hydrosonde Survey, comprising 16 miles of line at 400-foot intervals, was completed on Lower Moyie Lake. Survey control was accomplished by two shore based transits on previously surveyed stations. Cross-lines were marked by large yellow posts placed every 400 feet along both sides of the lake.

There is some question as to the exact depth of bedrock ascertained by the hydrosonde equipment; also, the amount of geology and structure revealed by the survey is largely interpretational. Eight underwater FS-2 depth determinations were done at strategic locations on the lake bottom so as to give sound wave velocities of surficial or otherwise deposits.

Apparently surficial deposits, depth to bedrock, faulting of major vertical displacement, and abrupt or large changes in lake bottom lithology should be revealed by the survey.

At time of writing, the results from the FS-2 and Hydrosonde surveys have not been returned by Huntac and thus no interpretations or conclusions of the above surveys can be given.

### II TRENCHING AND PITTING - BALTIMORE GRID (Note - Map 1 B - 65)

Five bulldozer trenches were completed on geochemical anomalies on the Baltimore grid. The only significant mineralized structure uncovered was at line 14W, 250'S where a foot-wide fracture zone (trending northeasterly and dipping steeply south) composed of limonite, goethite and manganese stained conglomerite-argillite was pitted for a distance of 12 feet. The best assays from this fracture ran 0.05% Pb (500 ppm) and 0.10% Zn (1000 ppm). The overlying soil gave about the same values.

#### Conclusions:

Probably most of the geochemical anomalies located on the conglomerite-argillite (which will be simplified to conglomeric for this report) are caused by thin, small fractures, carrying anomalous amounts of Pb and Zn. Most of these fractures within the conglomeric are thin (less than 5") and would definitely not be of economic significance. However, these fractures may represent the presence of a significant orebody located below the conglomerite and within the underlying argillites and argillaceous quartzites.

### III DIAMOND DRILLING - BALTIMORE (Note Map 1 B - 65 and Drill Logs)

On the Baltimore 1755 feet of diamond drilling were completed over 5 holes. The significant points ascertained by the drilling were (note drill logs):-

Hole B.1 - entered the Aldridge Argillites at approx. 86 feet. A west-

ward extension to the Society Girl vein may be indicated at the 173-foot depth.

Hole B.2 - went through 512 feet of conglomerite before entering the Aldridge argillites.

Hole B.3 - went through approx. 260 feet of Creston argillaceous quartzites before entering the Aldridge argillites. A wide fault zone from 500' - 560'.

Hole B.5 - drilled in Aldridge Argillites

Hole B.6 - from 3' - 5 $\frac{1}{2}$ ' a vein-like structure was penetrated which was composed of garnet in an epidote gangue. Minor amounts of carbonate, quartz, hornblende and visible galena. Assay gave 0.07% Pb and 0.37% Zn.

#### Geology - Baltimore (Note Map 2B - 65)

The Baltimore geology was remapped, the map and accompanying sections included in this report.

#### Conclusions

The drilling has proven the existence of a fault of major proportions that passes through the Baltimore from south to north, paralleling and east of the conglomerite - to the south this fault enters the Society Girl Gulch. The argillite horizon marking the top of the Aldridge Formation was correlated in all three deep drill holes (B.1, B.2, B.3). A vertical displacement on the above named fault of 200 - 250 feet has been calculated. The conglomerite is in the order of 475 feet at its thickest point. It is thought that this conglomerite is an extension of the Creston argillaceous quartzites (note map and cros sections) and may be an example of a local abrupt facies change.

The degree of folding within the conglomerite is unknown; to have attained its present geometric form a high degree of folding would be required. This does not seem too likely, as evidence of bedding is entirely absent. On the other hand the conglomerite may represent a topographic low which was filled. Jointing is confined to a general E-W direction dipping from 25 - 45° N and locally dipping steeply south, and to a general N-S direction dipping steeply east to west. The conglomerite may be thought of as a steeply dipping bowl faulted off at its north and northeast sides.

#### IV ROAD BUILDING AND TRENCHING - AURORA GRID (Note Map 1 A - 65)

The skid road on the south side of Etna Creek was cleared with a bulldozer (1-1/2 miles) and 3/4 of a mile of new road (suitable for 4-wheel drive) was constructed to give access to the anomalous Etna Zone.

Three bulldozer trenches each 200- 300 feet in length were excavated on the Aurora grid outside the Etna Zone to determine cause of self potential and magnetometer anomalies.

##### Conclusions

It appears that the self potential and magnetometer anomalies trenched are caused by pyrrhotitic-rich argillites and argillaceous quartzites horizons. The self potential method appears to outline the various argillite horizons. Most of the magnetometer anomalous values are likely caused by local lenses of pyrrhotitic and/or magnetite-rich sediments. However, it is concluded from more detailed magnetometer work done on the Aurora and other grids this summer that the "mag" is a good method for prospecting for "St. Eugene type veins". The self potential method was not found to be satisfactory.

#### V DIAMOND DRILLING - AURORA GRID (Note Map 1 A - 65 and Drill Logs)

Five packsack diamond drill holes over 664 feet were completed. Three of the holes were drilled on the anomalous Etna Zone, one hole on a magnetometer anomaly at line 20W, 550'S, and one hole (line 16W, 550'N) on an east-west trending magnetometer anomaly thought to represent a westward extension to the Guindon Vein.

##### Conclusions

All diamond drill holes were completed to their proposed depths except DDH 2.A (testing for the Guindon Vein) because of cessation of water supply - the hole probably didn't intersect the structure responsible for the magnetometer anomaly.

No intersection of a vein type structure was found in DDH 7.A (drilled on magnetometer anomaly at line 20W, 550'S).

In two of the three holes (DDH's 3.A and 4.A) drilled on the anomalous Etna Zone a vein-type structure (1 - 3' wide) was intersected which trends westerly and dips steeply south. Only the barest trace amounts of sphalerite and chalcopyrite were noted in a quartz, carbonate (minor) and pyrrhotite gangue. In the third hole (DDH A.5) a  $3\frac{1}{2}'$  weak fault zone was intersected.

This aforesaid vein structure is probably responsible for the magnetometer, self-potential, copper and zinc anomalies comprising the Etna Zone.

**VI DETAILED & RECONNAISSANCE PROSPECTING COMPLETED ON OTHER SHOWINGS  
ON THE PROPERTY**

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(1.) Two miles south of Moyie on a ridge between Sunrise and Farrell Creeks a piece of galena-bearing float was found near a geochem anomaly located last fall. Eight mineral claims were staked (Sandy Claims). The area was prospected in detail and covered by geochemical and geophysical surveys. Note Maps 1 SA, 2 SA, 3 SA, 4 SA (1965) and 1 M - 65. No significant values were located.

(2.) Four mineral claims were staked to tie in the company claims and the Edge Claims. Following this the Edge claims (4) were completely covered by a geochemical survey. No significant values were located. (Note Maps 1 M - 65, 1 E - 65.)

(3.) A grid was established north and east of the Baltimore grid (Northern grid) in an attempt to find an eastward extension to the St. Eugene veins. A reconnaissance geochemical survey was completed over 8 miles of line at 400-foot intervals. Some above background zinc values were obtained; however, no significant anomalies were obtained. Note Map 1 N - 65, 1 M - 65.

(4.) The following grids and surveys were located on anomalies (mag or geochem), favourable structures etc., located by previous geologists. Note Map 1 M - 65.

a) A geochem survey was located on the Pop #2 M.C. on a heavy metal anomaly located by E. Dodson in the late 1950's. No anomalous geochem values were obtained from the survey. Note Map 1 P - 65.

b) A geochem survey was located on the northeast corner of M.L. 38 C.G. on a magnetometer anomaly located by A. Smith in the late 1940's.

No anomalous geochem values were located. Note Map 1 BK - 65.

c) Geochem surveys were located on M.L. 18 and M.L. 17 on magnetometer anomalies located by A. Smith in the late 1940's. No significant geochem values were obtained from the surveys.

Note Maps 1 S - 65 and 1 BR - 65.

d) A magnetometer survey was conducted over the Road Bluff Breccia one mile south of Moyie. No anomalous mag readings were recorded.

Note Map 1 R - 65.

e) A self potential survey (Wild Pig grid) was conducted on a topographic break immediately east of the town of Moyie on the south side of Glencairn Creek. No significant values were found.

Note Map 1 W - 65.

## VII FINAL CONCLUSIONS

The diamond drilling and trenching program did not intersect any veins of economic possibilities, nor were any geochemical or geophysical anomalous values obtained from the many grids located in the Moyie area. However, at least from the diamond drilling completed on the Baltimore much structural information has resulted which has clarified the geologic picture. The geologic deductions made have been stated earlier in the report.

If an eastward extension is to be found to the St. Eugene ore shoot, the faulting, folding and lithologic control which is present on the Baltimore no doubt has had an influence on the ore shoot's character and location.

Deep surface drilling or moderate length holes from underground (Upper levels) would be required to determine the ore shoot's existence.

It should be remembered that geochemically speaking (Note Map 3B, 1964) the conglomerite body (east of and uphill from the St. Eugene veins) is quite anomalous and although diamond drilling didn't intersect any significant mineralization the possibility for ore deeper down in the more favourable rocks would seem great. On the other hand the anomalous values over the conglomerite may represent a dispersion halo about the stoped-out St. Eugene ore shoot; although the great areal extent of the anomaly would make this look implausible.

Vancouver, B.C.  
September 2, 1965

A. Burgoyne  
A. Burgoyne,  
Geologist.

PROPERTY ST. EUGENE - DDH 1B - BALTIMORE GRID

DDH 1B

HOLE NUMBER

1

SHEET NUMBER

TO

## DIAMOND DRILL RECORD

LOCATION: LAT 23963.97  
 DEP 31232.16  
 ELEVATION OF COLLAR 5086.8'  
 DATUM Baltimore Grid, L.L.W., 340'S  
 BEARING N 35° E  
 DIRECTION AT START: DIP -55°

STARTED 10 May, 1965  
 COMPLETED 16 May, 1965  
 ULTIMATE DEPTH 393'  
 PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT	To test for westward extension of Society Girl Vein in Aldridge Quartzites.							
0 - 8	Overburden							
8 - 51	Creston Formation - Argillaceous Quartzites with a few small layers of pure quartzite & argillite. No bedding apparent. Fine to med grained. Pyrrhotite content approx. 3%. Occasional pods (1-2" diam.) of iron altered material. much pyrrhotite alteration parallel to bedding planes. B.T.C. 35°.							
8 - 9	Iron stained, med grained argillaceous quartzite							
9	3" layer of soft argillite, bedding approx. 1/8" thickness							
9½ - 11	Quartzite							
13 - 13½	Argillite							
16 - 16½	Argillite							
51 - 86	Gradation from Creston to Aldridge Formation. Composed of alternating layers of Argillite and Argillaceous Quartzite. B.T.C. 43°							
52 - 56½	Argillite							
59 - 65½	"							
67 - 69	"							
72½ - 74	"							
75 - 75½	"							
76 - 77	"	The Argillites have much slumped bedding and are very thin bedded ( 1/8") where bedding can be recognized.						
78 - 78½	"							
87½ - 96	"							
77 - 78	Fracture zone - 6 fractures $\frac{1}{2}$ to 1" wide composed of quartz-carbonate-pyrrhotite	F.T.C. 10°						

PROPERTY

HOLE NUMBER DDH 1B

SHEET NUMBER 2

SECTION FROM TO

## DIAMOND DRILL RECORD

LOCATION: LAT.  
DEP.

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING  
DIP

STARTED

COMPLETED

ULTIMATE DEPTH

PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
86 - 393	Aldridge argillite. Black-grey. Fine grained. Quite thin beds $\frac{1}{4}$ ". Abundant pyrrhotite along bedding planes with minor pyrite and biotite. Numerous pyrrhotitic fractures and veinlets. Pyrrhotite content in rock averages 1-2% except where noted. B.T.C. $40^{\circ}$ The odd layer of argillaceous quartzite is present.							
103 - 104	Brecciated, epidotized quartz-carbonate fracture vein							
106 - 107 $\frac{1}{2}$	Argillaceous quartzite							
110 $\frac{1}{2}$	Fracture vein, 2" wide. Epidote, quartz, pyrite, pyrrhotite, minor carbonate. V.T.C. $15^{\circ}$							
127 $\frac{1}{2}$	Fracture 3/4" wide. Epidote, kaolinite, V.T.C. $20^{\circ}$							
134	Fracture 1/2" - epidote, carbonate, kaolinite, pyrite, pyrr. V.T.C. $25^{\circ}$							
157 - 158	Fracture vein epidote, quartz, pyrrhotite, tr. galena V.T.C. $20^{\circ}$ (?)							
162	Fracture 3/4" quartz, epidote, tr. galena, V.T.C. approx. $20^{\circ}$							
163 $\frac{1}{2}$	" " " "	"	"	" "				
164 $\frac{1}{2}$	" " " "	"	"	" "	7			
167 $\frac{1}{2}$	" $1\frac{1}{4}$ " " "	"	"	" "				
171 - 173	5 to 6 $1\frac{1}{8}$ " wide epidotized quartz pyrite fractures							
171 - 189	Area of many fractures, some small veins, brecciation common. Epidote, quartz, carbonate, biotite, pyrite, pyrrhotite being the main mineral composition. V.T.C. 10-200 approx.							

PROPERTY

 DDH 1B  
 HOLE NUMBER 3  
 SHEET NUMBER  
 SECTION FROM \_\_\_\_\_ TO \_\_\_\_\_

## DIAMOND DRILL RECORD

 LOCATION: LAT.  
 DEP.

STARTED \_\_\_\_\_

ELEVATION OF COLLAR.

COMPLETED \_\_\_\_\_

DATUM \_\_\_\_\_

ULTIMATE DEPTH \_\_\_\_\_

 DIRECTION AT START: BEARING \_\_\_\_\_  
 DIP \_\_\_\_\_

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
173½ - 174½	Quartz-epidote, brecciated, pyrrhotite	)						
177	" " , pyrite, pyrrhotite 2" wide	)						
179 - 179½	" " " "	)	FRACTURES					
184	" " " "	)						
188 - 189	" " " " several fractures	)						
	Tr Sphalerite							
	The fracture-vein from 173-174½ may represent the westward extension of the Society Girl Vein V.T.C. 20-30° (?)							
250	Pyrrhotite content has decreased gradually from 1-2% to less than 0.5%. Pyrite is to be seen only along bedding planes.							
275 - 300	Argillaceous quartzite							
276 - 276½	Fractures 8 approx. 1/8-1/16" wide entirely of carbonate Tr sphalerite, tr chalcopyrite							
304½ - 305	Fracture vein, brecciated, Fe stained carbonate quartz, 5% pyrite and pyrrhotite V.T.C. 20° (?)							
334½ - 336½	Vein. composed of quartz, biotite, pyrrhotite, carbonate, epidote. Brecciation. V.T.C. 15° (?) Westward extension to Society Girl Vein (?)							
358 - 371	Fault zone. Core recovery approx 60%. Chlorite, pyrite ? Hornblende? epidote, kaolinite common. Expressed on surface by northerly trending depression immediately west of Upper Tunnel of Society Girl. Fault dips westerly.							Recovery 94%

PROPERTY ST. EUGENE - Baltimore Grid

DDH 2B

HOLE NUMBER

1

SHEET NUMBER

TO

SECTION FROM

## DIAMOND DRILL RECORD

LOCATION: LAT 25216.64  
 DEP 30723.83  
 ELEVATION OF COLLAR 5054.0  
 DATUM Baltimore Grid, L1560'W, 350'N  
 DIRECTION AT START: BEARING N 13° E  
 DIP -73°

STARTED May 17, 1965  
 COMPLETED June 3, 1965  
 ULTIMATE DEPTH 560'  
 PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT	Test for sulphide carrying vein(s) (as indicated by high geochemical anomaly) in underlying Aldridge Quartzites in proximity to northerly trending fault.							
0 - 3	Overburden							
3 - 512	Conglomerite - Argillite. Fragments of quartzite & argillite dispersed throughout a massive non-bedded argillite. The fragments would average from 0.5 - 2% of the rock content. Size of the fragments vary from sand size to 1/2". Fracturing and faulting being quite common. Pyrite and pyrrhotite content being very low (<0.2%) compared to argillites or quartzites. Graded bedding in that as the bottom of the conglomerate-argillite is neared the pebble frequency increases and they become slightly larger.							
3 - 10'	Rock with much Fe stain, oxidized pyrrhotite, manganese stain							
10')								
15'}	Thin (1/8") pyrrhotite filled fractures F.T.C. 20°							
25 - 30'	Fault zone - rock extremely fractured with no core from 27-29'. Zone with small amounts of hornblende epidote, pyrrhotite, carbonate.							
49 - 50'	Strong fracture zone - rock extremely broken							
81 - 83'	Ten to twelve hairline quartz-filled fractures F.T.C. 90°							
100 - 111'	Possible fault. No core 107'-110'. Hornblende, pyrite, pyrrhotite, carbonate present.							

PROPERTY

ST. EUGENE - Baltimore Grid

HOLE NUMBER DDH 2B

2

SHEET NUMBER

SECTION FROM

TO

## DIAMOND DRILL RECORD

LOCATION: LAT.

STARTED

DEP.

COMPLETED

ELEVATION OF COLLAR

ULTIMATE DEPTH

DATUM

PROPOSED DEPTH

DIRECTION AT START: BEARING

DIP

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
122 - 132'	Possible fault zone (?)							
155½ - 157½	Fracture zone of country rock							
188 - 193	Fracturing of country rock							
229 - 232½	) Fracture zones of country rock. Possible							
267 - 270½	) fault zones.							
273 - 296½	Fault zone							
282 - 284	No core							
284 - 296½	7% core recovery							
313 -	rosette marcasite ?							
356 - 418	strong fracturing of country rock							
510 - 512	Contact zone between conglomerite-argillite underlying argillite. Strong fracturing present and may indicate a bedding fault							
512 - 560	Argillite. Aldridge Formation. Black-grey colour. Distorted and slumped bedding. Fine grained. B.T.C. 85°. Pyrrhotite & pyrite along bedding planes. Beds approx $\frac{1}{2}$ -1" thick. The upper part of this argillite (512-520') may be correlated (?) to Hole 1B from 86'.							
	Recovery 79.1%							

PROPERTY ST. EUGENE - Baltimore Grid

HOLE NUMBER DDH 3B

SHEET NUMBER 1

SECTION FROM \_\_\_\_\_ TO \_\_\_\_\_

## DIAMOND DRILL RECORD

LOCATION: LAT 25296.03  
 DEP. 31004.44  
 ELEVATION OF COLLAR 4994.3'  
 DATUM Baltimore Grid L1400W, 625'N  
 BEARING N 30° W  
 DIRECTION AT START: DIP -54°

STARTED June 4, 1965  
 COMPLETED June 24, 1965  
 ULTIMATE DEPTH 561'  
 PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT	Test for sulphide carrying vein(s) (indicated by high geochemical anomaly) in underlying quartzites in proximity to a northerly trending fault.							
0 - 6	Overburden							
6 - 263	Argillaceous quartzite with local layers of quartzite & argillite.  Lt grey to black. Med hardness. Fine to med grained. Bedding thickness (where argillites predominant) from $\frac{1}{4}$ - 1" and alternate in colour from grey to black. Core recovery in this horizon approx 70%. Colour & hardness much like conglomerite of Hole 2B.  B.T.C. - 50', 34°; 75', 30°; 100', 45°; 125', 45°; 175', 35° 200', 30°; 225', 20°; 250', 22°; 260', 35°.							
40'	1/4 quartz fracture F.T.C. 40°, perpen to bedding							
55 - 65	Rock silicified with green chloritic stain.  60' 3/4" quartz fracture FTC 22° and dipping perpen to bedding							
65 - 70	Slumped bedding in argillites							
86'	Minor fracturing F.T.C. 23° & perpen to B.T.C. angle, carbonate pyrite, trace chalcopyrite							
90 - 100	Fault-fractured, 30% core recovery							
100 - 177	Soft, thin bedded argillaceous quartzite							
145 - 155	35% core recovery, possible fault zone							
180 - 190	Several thin ( $\frac{1}{4}$ ") carbonate fractures, with quartz, chlorite & biotite perpen to bedding at 45°. Possible alteration assoc. with sill at 187'							

ST. EUGENE - Baltimore Grid  
PROPERTY

DDH 3B

HOLE NUMBER

2

SHEET NUMBER

SECTION FROM

TO

# DIAMOND DRILL RECORD

LOCATION: LAT \_\_\_\_\_  
DEP \_\_\_\_\_  
ELEVATION OF COLLAR \_\_\_\_\_  
DATUM \_\_\_\_\_  
DIRECTION AT START: BEARING \_\_\_\_\_  
DIP \_\_\_\_\_

STARTED \_\_\_\_\_  
COMPLETED \_\_\_\_\_  
ULTIMATE DEPTH \_\_\_\_\_  
PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
187 - 187½	Hornblende diorite sill, green fine grained contacts slightly silicified, conformable to bedding							
190 - 200	Quartzite 192' 4" of green silicified quartzite							
210 - 222	60% C.R. Possible fault zone 210' typical green argillaceous quartzite banding of Creston Formation							
234½	3/4 hornblende diorite band, fine grained, green, and conformable to bedding							
252½	Rock locally altered green & brown (due to biotite)							
262½ - 263	Bedding fault, brecciation, pyrrhotite							
263 - 560	Argillite, soft, light grey to black, fine grained, thin bedded (1/16" - 1/4") bedding planes quite pronounced relative to above argillaceous quartzites. Pronounced pyrrhotite and pyrite content parallel to bedding planes. Core recovery greater (approx 90%) than in overlying argillaceous quartzites. B.T.C. 300', 50°; 325', 50°; 350', 55°; 375', 55°; 400' 50° → 475' 65° → 500-65° → 525-50° → 560-53°.							
	Top of this horizon thought to be correlatable to argillite horizon in Hole 2B at 512' and Hole 3B at 86'.							
	265' 4" band of hornblende diorite or dioritized sediment conformable to bedding							

## PROPERTY

DDH 3E

**HOLE NUMBER**

三

# DIAMOND DRILL RECORD

**LOCATION:** LAT \_\_\_\_\_  
DEP \_\_\_\_\_  
**ELEVATION OF COLLAR:** \_\_\_\_\_  
**DATUM:** \_\_\_\_\_

**STARTED** \_\_\_\_\_  
**COMPLETED** \_\_\_\_\_  
**ULTIMATE DEPTH** \_\_\_\_\_  
**PROPOSED DEPTH** \_\_\_\_\_

PROPERTY

ST. EUGENE - Baltimore Grid

DDH 5B

HOLE NUMBER

1

SHEET NUMBER

TO

SECTION FROM

## DIAMOND DRILL RECORD

LOCATION: LAT. 25100.99  
 DEP. 29596.99  
 ELEVATION OF COLLAR 4858.1  
 DATUM Baltimore Grid L2LW, 350'S  
 BEARING N 35° E  
 DIRECTION AT START: DIP. -35°

STARTED June 18, 1965  
 COMPLETED June 23, 1965  
 ULTIMATE DEPTH 119'  
 PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT	To test for vein(s) under high geochemical anomaly							
0 - 119	Argillite. (Upper Aldridge Formation) Colour light grey to black. Fine to medium grained. Alternating beds of black and light grey argillite from $\frac{1}{4}$ " to $\frac{1}{2}$ " thick. Development of pyrrhotite parallel to bedding planes. B.T.C. 8°							
6 - 9	Argillite thihly fractured and filled with iron oxides							
11 - 12	" " " " " " " "							
17 $\frac{1}{2}$	" " " " " " " "							
33 - 34	" " " " " " " "							
45 - 46	" " " " " " " "							
51 $\frac{1}{2}$ - 53	Zone of quartz-pyrrhotite & pyrite veinlets F.T.C. 25° (?) )							
54 - 55 $\frac{1}{4}$	Quartz veinlets parallel to bedding ) Possible vein zone							
65	Quartz veinlet ( $\frac{1}{4}$ " thick) parallel to bedding							
67 - 68 $\frac{1}{4}$	Quartz - pyrrhotite vein-fracture V.T.C. parallel to bedding							
81 $\frac{1}{2}$	Thin hairline carbonate fractures over 2", randomly oriented							
106 - 108	Zone of fracturing parallel to bedding composed of 10% milky white carbonate							
119	END OF HOLE							

PROPERTY

ST. EUGENE - Baltimore Grid

HOLE NUMBER DDH 6B

SHEET NUMBER 1

SECTION FROM TO

## DIAMOND DRILL RECORD

LOCATION: LAT. 25163.25  
 DEP. 29640.58  
 ELEVATION OF COLLAR 4863.0  
 DATUM Baltimore Grid L24W, 275'S  
 BEARING N35°E  
 DIRECTION AT START: DIP -35°

STARTED June 24, 1965  
 COMPLETED July 1, 1965  
 ULTIMATE DEPTH 123'  
 PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT	To test for vein(s) under high geochemical anomaly							
0 - 123	Argillite (Aldridge Formation). Colour light grey to black.  Fine to medium grained. Alternating beds of dark (black) and light grey argillite from $\frac{1}{4}$ " - $\frac{1}{2}$ " thick. Development of much pyrrhotite parallel to bedding planes. Approx 0.2% conglomerite pebbles scattered randomly throughout the argillite - however, pebble (conglomerite) frequency decreases with depth. B.T.C. 7°. The average grain size is slightly larger than what would be expected for an argillite - the rock may be called an argillaceous quartzite							
0 - 3	Green oxidized material composed of epidote, pyrrhotite with a few specks of galena							
3 $\frac{1}{4}$ " - 4 $\frac{1}{4}$ "	Weathered, oxidized, fractured argillite with much iron oxide							
4 $\frac{1}{4}$ " - 5 $\frac{1}{2}$ "	Vein like structure composed of epidote, hornblende, garnet, carbonate, quartz and with approx 0.5% visible galena (expressed on surface by a 2" wide quartz vein)							
5 $\frac{1}{2}$ - 10	Rock fractures composed of oxidized pyrrhotite - grading to no fractures past 10'. F.T.C. approx 10° - 30°.							
14	Two $\frac{1}{4}$ " bedding plane fractures composed of garnet, quartz, pyrrhotite epidote.							
16	One fracture as at 14' except with trace galena							

## **PROPERTY**

DDH 6B

**HOLE NUMBER**

SHEET NUMBER

2

# **DIAMOND DRILL RECORD**

**LOCATION:** LAT \_\_\_\_\_  
DEP \_\_\_\_\_

**STARTED**

**EL E V A T I O N   O F   C O L L A R**.....

**COMPLETED** \_\_\_\_\_

DATUM \_\_\_\_\_

**ULTIMATE DEPTH**

**BEARING** \_\_\_\_\_

**DIRECTION AT START:** BEARING \_\_\_\_\_  
**DIP:** DIP \_\_\_\_\_

**PROPOSED DEPTH** \_\_\_\_\_

PROPERTY St. Eugene - Aurora Grid

DDH 2A

SHEET NUMBER 1

3

# **DIAMOND DRILL RECORD**

LAT. 29724.04  
LOCATION: DEP 19886.05  
ELEVATION OF COLLAR  
DATUM Aurora Grid L16W, 550' N  
DIRECTION AT START: BEARING N 11° E  
DIP -50°

STARTED	June 8, 1965
COMPLETED	June 12, 1965
ULTIMATE DEPTH	91'
PROPOSED DEPTH	

PROPERTY ST. EUGENE - Aurora Grid

DDH 3A

1

HOLE NUMBER

SHEET NUMBER

SECTION FROM

TO

## DIAMOND DRILL RECORD

LOCATION: LAT. 28295.10  
 DEP. 18490.26  
 ELEVATION OF COLLAR 4316.1'  
 DATUM Aurora Grid L32W 1250'S  
 BEARING N 14° E  
 DIRECTION AT START: DIP -35°

STARTED May 14, 1965  
 COMPLETED May 17, 1965  
 ULTIMATE DEPTH 151'  
 PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT:	To determine cause of coinciding geochemical and geophysical highs within anomalous Etna Zone and to test for south dropping vein(s).							
1 - 151	Argillite. Grey-black colour. fine grained. alternating bands of black and grey argillite. Beds 1/20" - 1/4" thick. 2-3% pyrrhotite content. Numerous pyrrhotite and quartz fractures - hairline thickness. Frequency from 2 to 5 over 1'. FTC 60-90°. BTC 30°							
0 - 10	Surface altered argillite with much iron oxide							
10 - 19	Rock very fractured & locally altered & brecciated mineralization where present consists of quartz, kaolinite, carbonate, pyrite, pyrrhotite							
11½ - 12½	No core							
12½ - 13½	Possible fault vein. Composition as above (10-19')							
	V.T.C. approx. 80° (?)							
30½ )								
65 )	Tr. chalcopyrite							
76 )								
77 )	carbonate fractures 1/4" wide F.T.C. 20°							
77½	carbonate fractures Tr chalcopyrite F.T.C. 20°							
92½	Epidote fract. parallel to bedding 1/4" wide							
151	END			Recovery 96%				

PROPERTY

ST. EUGENE - Aurora Grid

HOLE NUMBER

DDH 4A

SHEET NUMBER

1

SECTION FROM

TO

## DIAMOND DRILL RECORD

LOCATION: LAT. 28231.21  
 DEP. 18558.15  
 ELEVATION OF COLLAR 4283.8  
 DATUM Aurora Grid L 31 W 1300S  
 BEARING N 13° E  
 DIRECTION AT START: DIP -30°

STARTED May 18, 1965  
 COMPLETED May 26, 1965  
 ULTIMATE DEPTH 150'  
 PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT:	Same as DDH 3A							
2½ - 150	Argillite. Lithologic description same as for Hole 3A. Development of pyrrhotite along bedding planes. B.T.C. 15° - 20°							
0 - 2½	No core - overburden							
2½ - 5½	Surface altered argillite with much iron oxide							
32	1/8" pyrrhotite fracture F.T.C. 5°							
34	Soft sediment crumpling							
41 - 41½	Four hair thin pyrrhotite fractures							
47½	1/2" quartz-pyrrhotite-epidote fracture F.T.C. 90°							
55 - 57½	Fracture - vein zone with several quartz veinlets - the largest being 6" wide. Mineralization predominantly quartz with minor carbonate and epidote and approx 6% pyrrhotite. Brecciation evident V.T.C. 90° ?							
62½	Tr chalcopyrite in 1/4" quartz-carbonate fracture							
84	Tr chalcopyrite in 1/2" quartzite layer							
92 - 92½	Vein fracture - carbonate-quartz V.T.C. 90°							
139	Tr chalcopyrite in 1/4" pyrrhotite bedding fracture							
150	END							
	Recovery 95.5%							

PROPERTY ST. EUGENE - Aurora Grid

DDH 5A

DDH 5A

SHEET NUMBER

1

# DIAMOND DRILL RECORD

LAT. 27984.51  
LOCATION: DEP. 19156.46  
ELEVATION OF COLLAR 4152.4'  
DATUM Aurora Grid L24W, 11440'S  
BEARING N 114° E  
DIRECTION AT START: DIP 0° flat

STARTED May 27, 1965  
COMPLETED June 2, 1965  
ULTIMATE DEPTH 119'  
PROPOSED DEPTH

ST. EUGENE - Aurora Grid

PROPERTY

DDH 7.

HOLE NUMBER

1

SHEET NUMBER

SECTION FROM

TO

## DIAMOND DRILL RECORD

LOCATION: LAT. 28735.24  
 LOCATION: DEP. 19745.41  
 ELEVATION OF COLLAR  
 DATUM Aurora Grid, L20W, 550'S  
 DIRECTION AT START: BEARING N14°E  
 DIP -45°

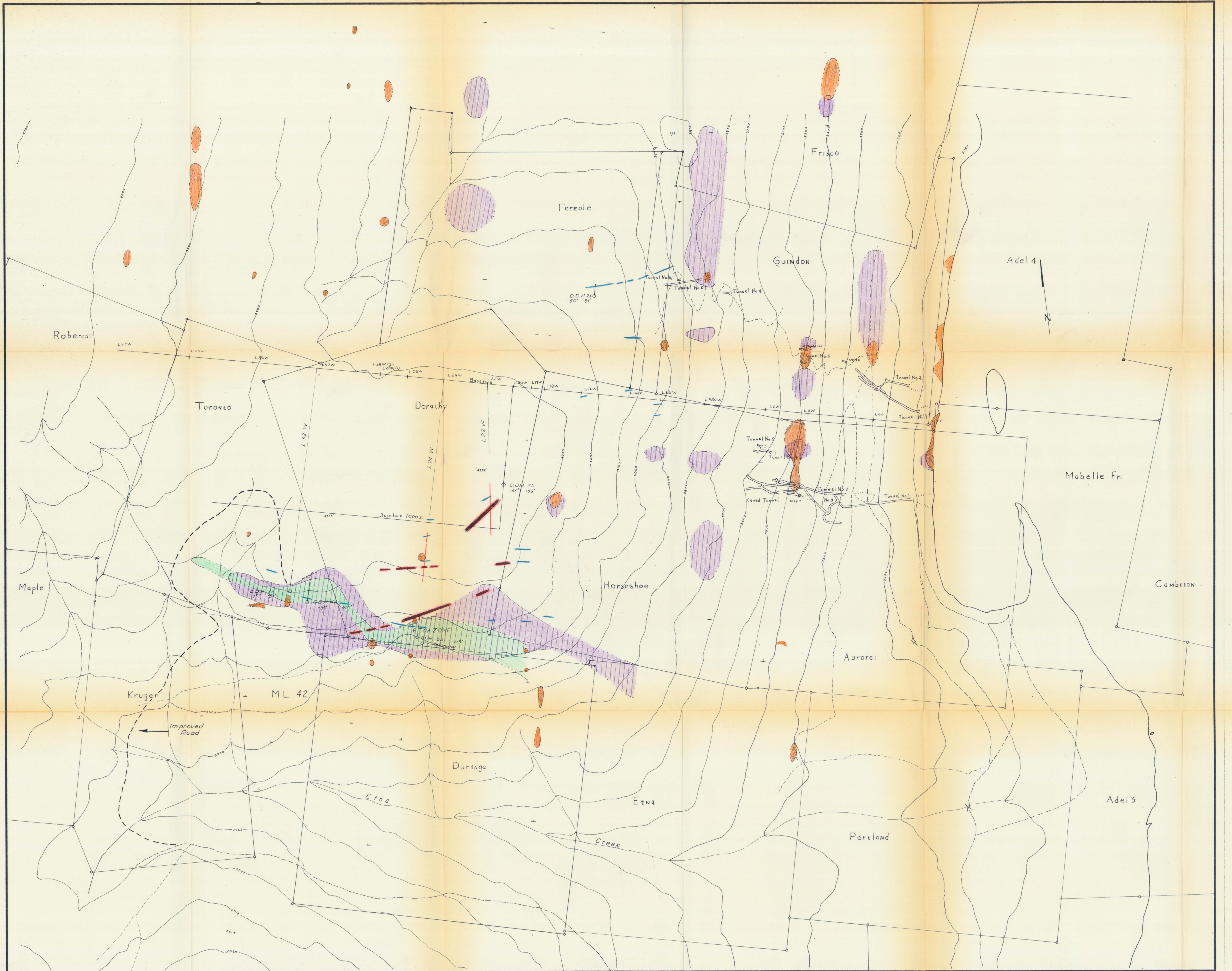
STARTED June 3, 1965  
 COMPLETED June 7, 1965  
 ULTIMATE DEPTH 153'  
 PROPOSED DEPTH

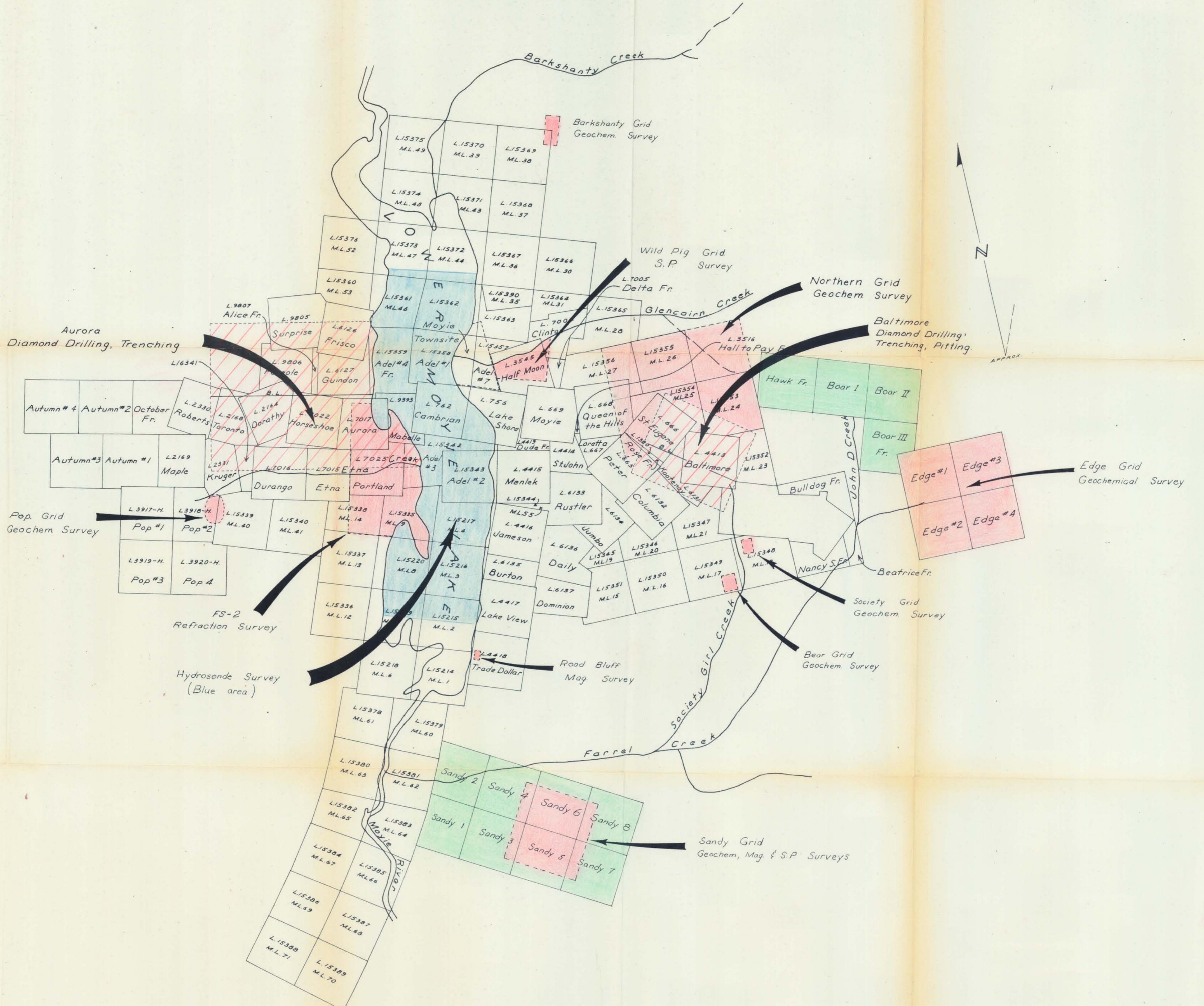
DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE				
OBJECT	To determine cause of high magnetometer anomaly							
0 - 153	Argillite. Grey-black. Fine grained. Alternating black and grey layers which average 1/4" thick. Consolidation of pyrrhotite along bedding planes. 2-3% disseminated pyrrhotite. B.T.C. 35° Fracturing minor and generally absent							
0 - 30	Rock has a very slight green hue due to oxidation of pyrrhotite							
0 - 21	Weathered and altered with much leached pyrrhotite							
22 - 25	Fracture zone, 15% core recovery							
52	1" layer rusty coloured quartzite							
70½	Tr chalcopyrite							
59½	Pyrrhotite, quartz, minor breccia, 1/4" wide fracture F.T.C. 60°							
65 - 70	Seven hairline quartz-pyrrhotite fractures F.T.C. 60°							
141½	Tr chalcopyrite in a 3/8" pyrrhotite-quartz fracture F.T.C. 0-5°							
153	END							
	Recovery 94%							

LEGEND

- claim line
- adits and dump
- copper anomaly - 30 ppm contour
- zinc anomaly - 150 ppm contour unless noted
- lead anomaly - 100 ppm contour
- magnetometer anomaly
- self-potential anomaly
- road
- trail
- stream
- diamond drill hole
- trench

Note: The bearings of all diamond drill holes are approximately N18° E





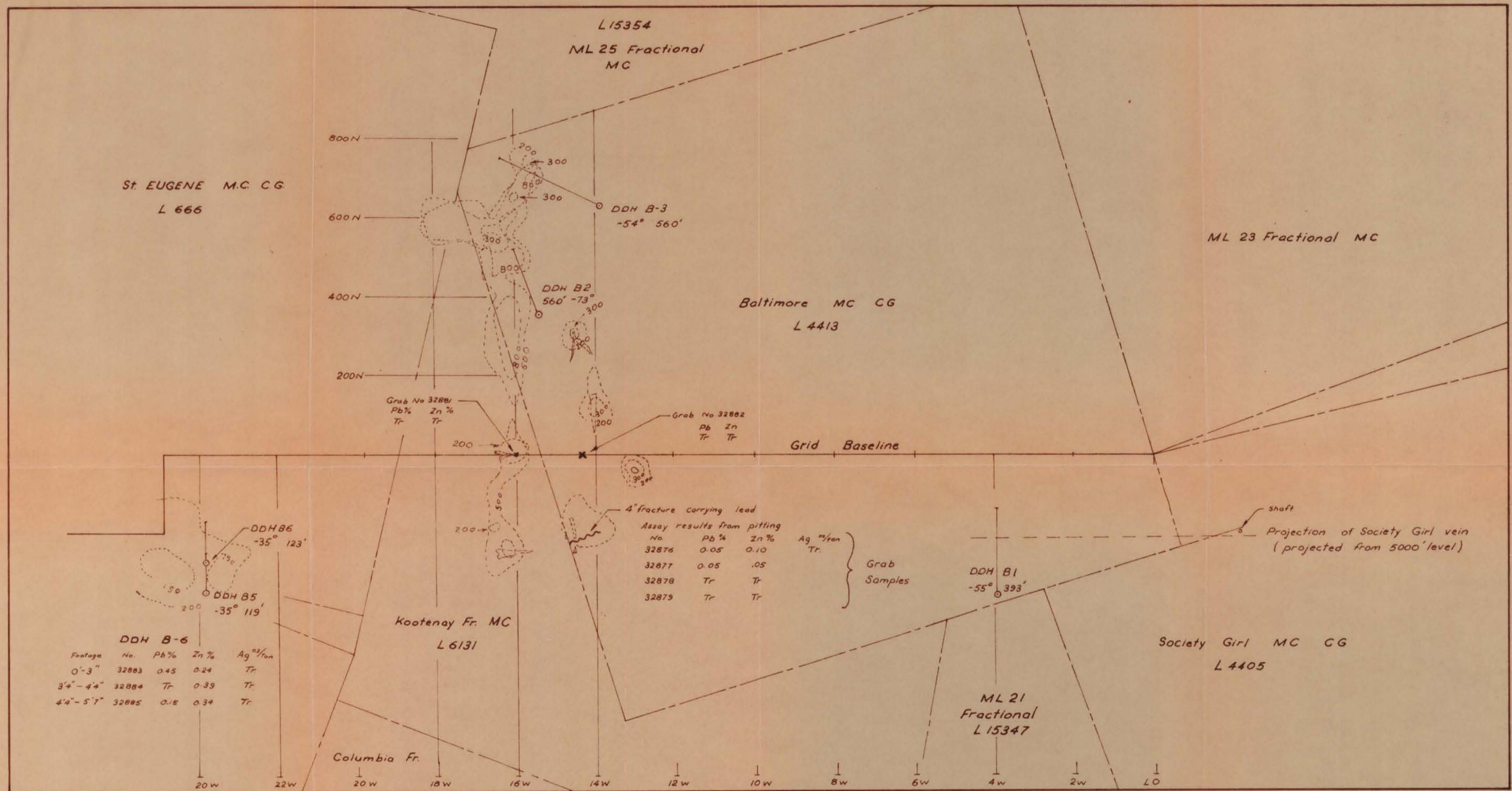
1500 0 1500 3000 4500 6000 7500 9000 10500 12000 13500  
750

SCALE: 1 INCH TO

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY . . ST. EUGENE  
LOCATION . . MOYIE, B.C.

WORKING PLACE . . MOYIE, B.C.  
TYPE OF MAP . . LOCATION OF 1965 FIELDWORK  
BASED ON . .

DATE . . SEPT. 1, 1965  
DRAWN BY . . A. GERUN  
DATE OF WORK . . MAY-JUNE 1965



Note: The border of this map fits over the outline on map 2B-65, and the scale of this map is the same as 2B-65.

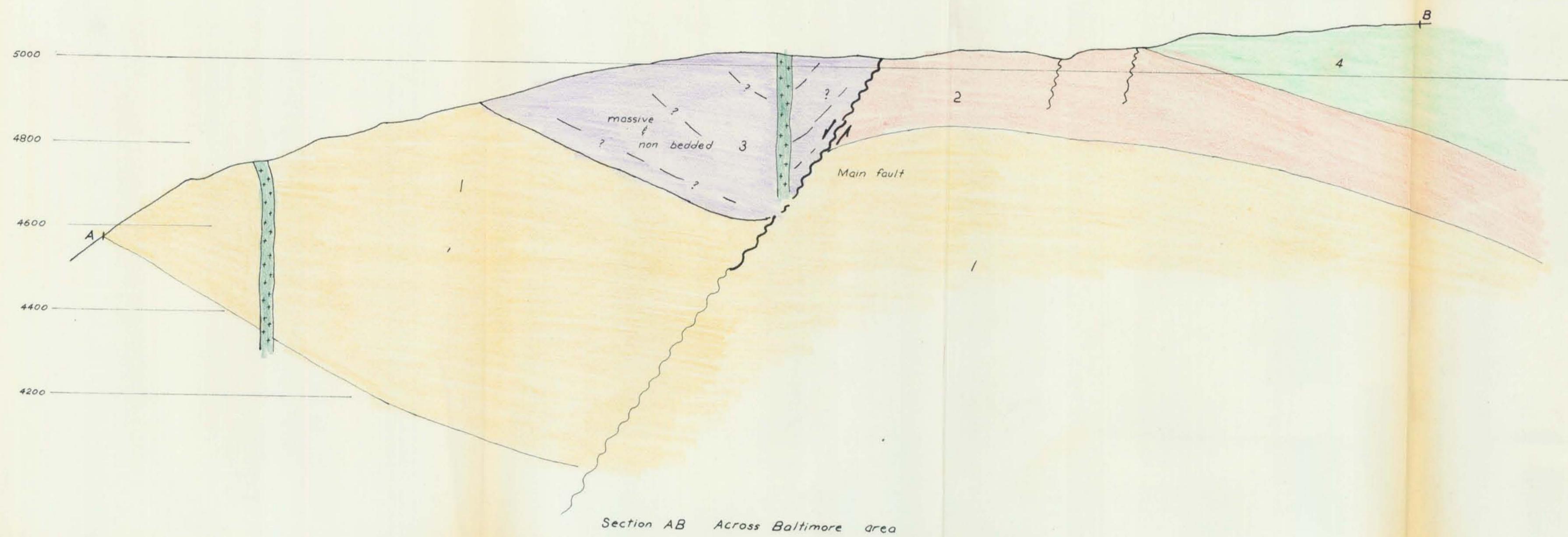
MAP 1B-65

NT 82-6-5

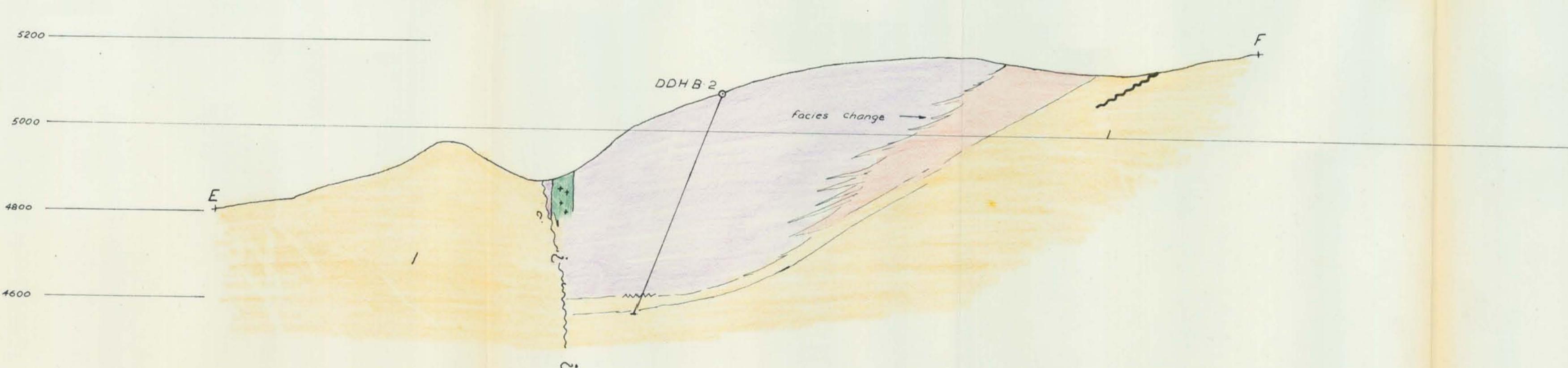
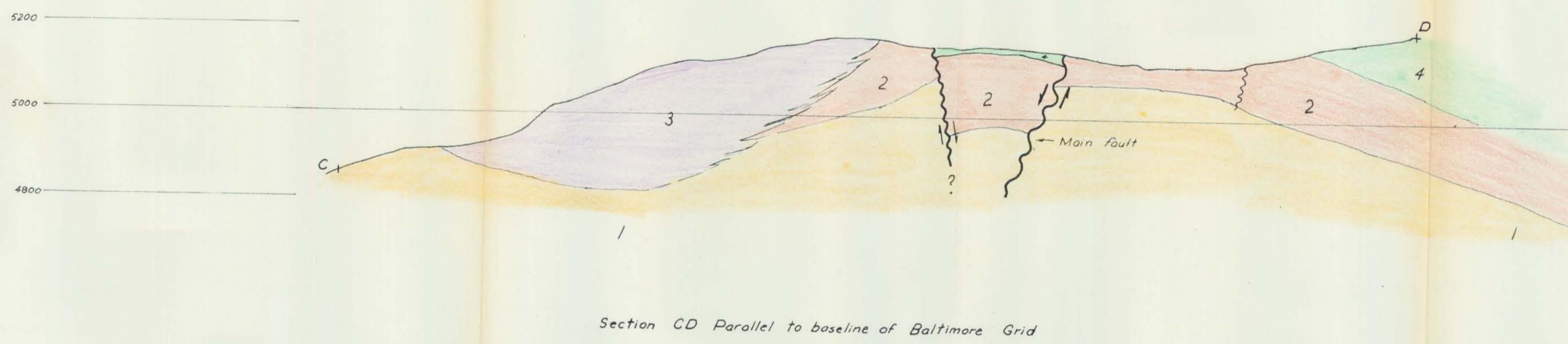
COMPANY... FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY.. ST. EUGENE MINING CORP.  
LOCATION.. MOYIE, B.C.

WORKING PLACE.. BALTIMORE GRID  
TYPE OF MAP.. TRENCHING, DIAMOND DRILLING  
BASED ON.. ANOMALY (GEOCHEM.)

DATE.. SEPT 1965  
DRAWN BY.. A. GERUN  
DATE OF WORK.. MAY-JUNE 1965



Note: See map 2B-65 for legend.



200 0 200 400 600 800 1000 1200 1400 1600 1800  
100  
SCALE: 1 INCH TO

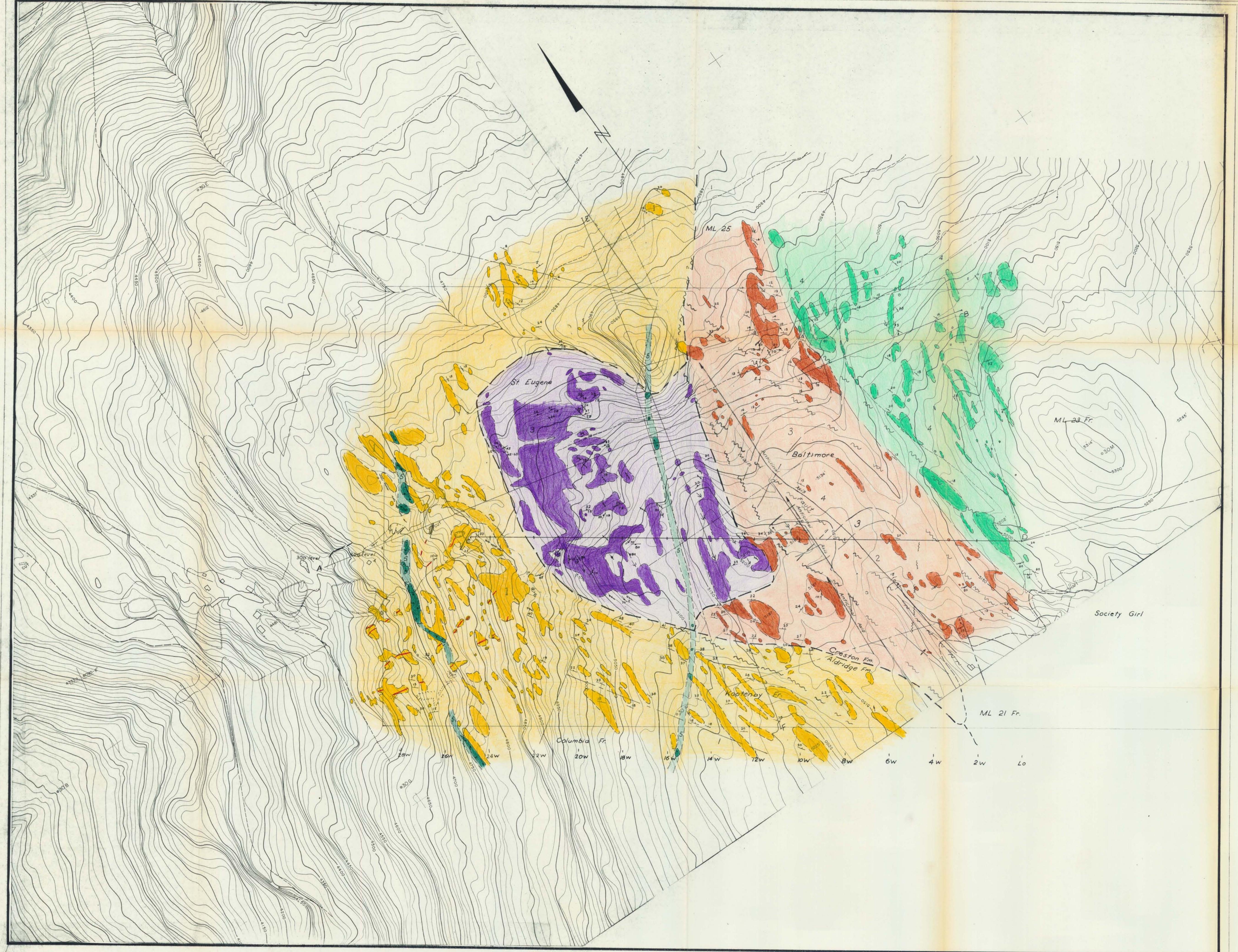
COMPANY .. FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY .. ST. EUGENE MINING CORP.  
LOCATION .. MOYIE, B.C.

WORKING PLACE .. BALTIMORE GRID AREA  
TYPE OF MAP .. GEOLOGY CROSS SECTIONS TO 2B-65  
BASED ON .. A. BURGOYNE

DATE .. SEPT. 1965  
DRAWN BY .. A. GERUN  
DATE OF WORK .. AUG. 1965

—LEGEND—

- 5 Hornblend-diorite dykes and sills
- 4 Creston Formation. Medium to dark grey and pale greenish-grey interbedded argillite and quartzite; moderate parting; mud cracks.
- 3 Massive, medium to dark grey argillite; no bedding or parting; contains small ( $\frac{1}{8}$ " -  $\frac{1}{4}$ ") disseminated conglomerate fragments. This unit is probably a facies change of 2, below.
- 2 Argillaceous quartzite to silty argillite; fine to medium bedding; massive weathering; light grey to black
- 1 Aldridge Formation - Argillites to thin bedded argillaceous quartzites; thin parting, rusty weathering.
- +— Fracturing; inclinal, vertical
- +— Bedding: inclinal, vertical; horizontal
- +— Jointing, inclined
- +— Strike and dip of quartz vein
- Fold plunge
- +— Fault: defined, inferred
- +— Formation Contact: defined, approx.
- +— Adit, dump
- +— Trench, Pit
- +— Claim boundary
- +— Road, Trail
- +— Glacial Striae
- +— Vein: Quartz, quartz-sulphide average width less than 3"



200 0 200 400 600 800 1000 1200 1400 1600 1800

MAP 2B-65

SCALE: 1 INCH TO

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.

PROPERTY . . ST. EUGENE MINING CORP.

LOCATION . . MOYIE B.C.

WORKING PLACE . . BALTIMORE GRID

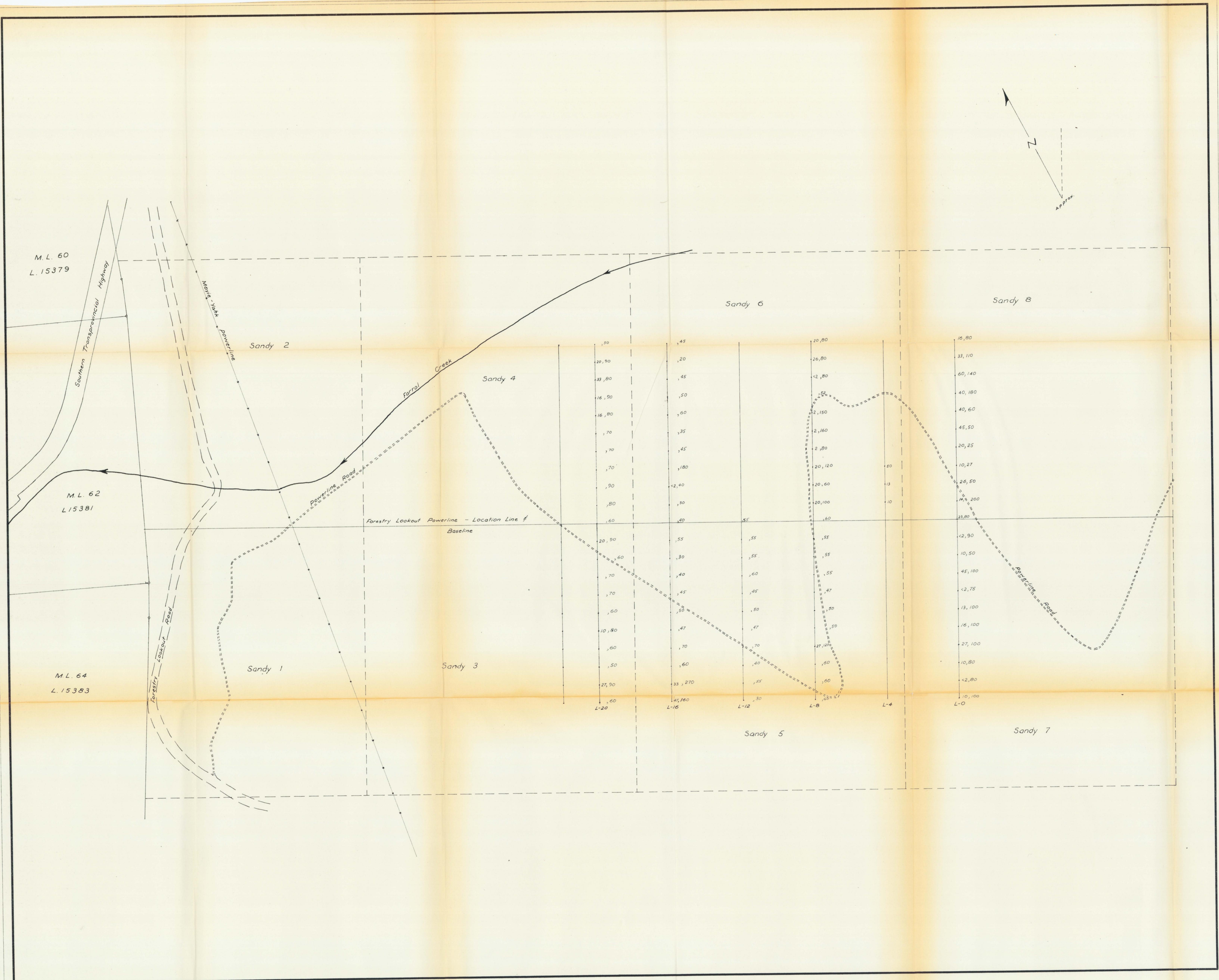
TYPE OF MAP . . GEOLOGY

BASED ON . . A. BURGOYNE

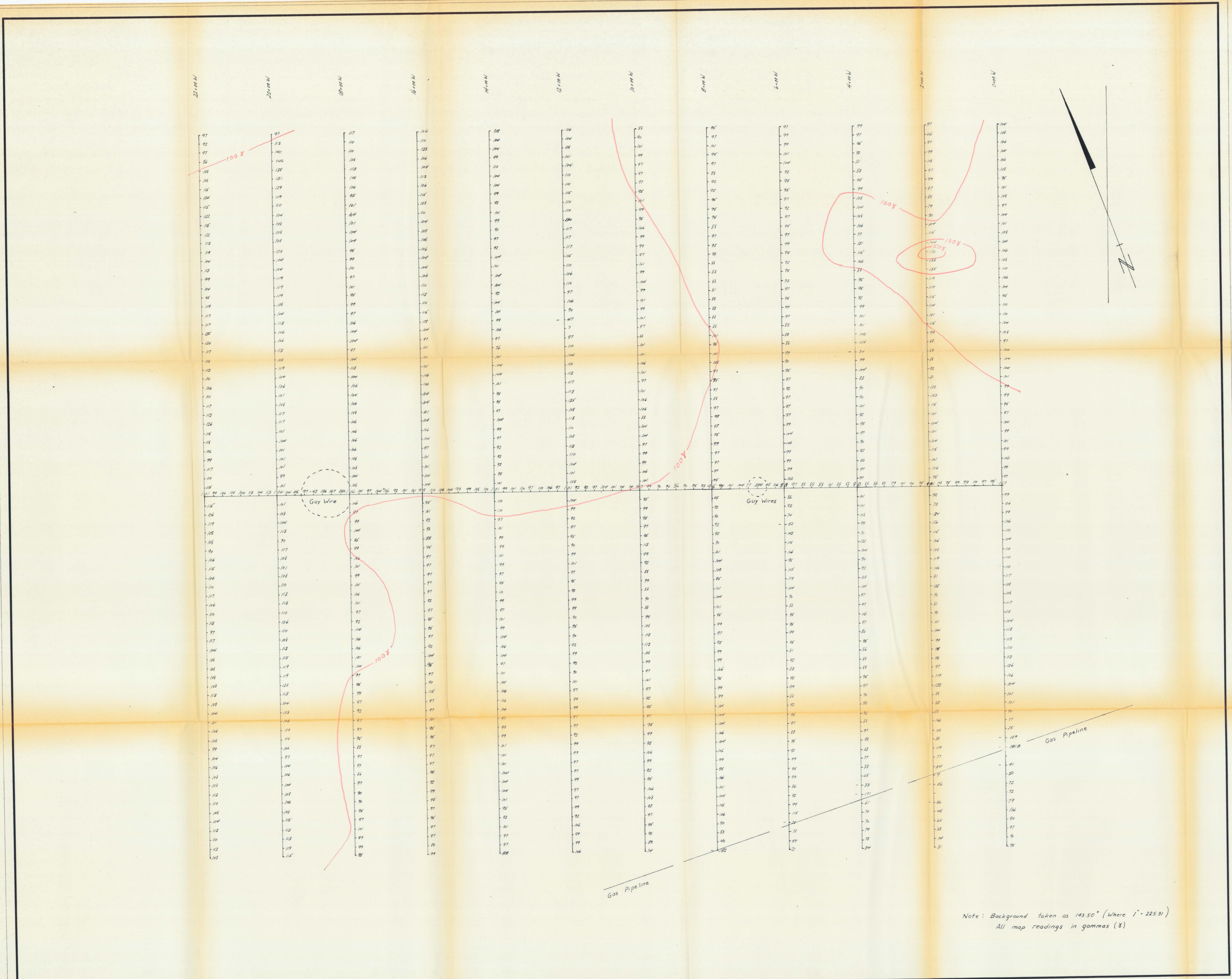
DATE . . SEPT. 1965

DRAWN BY . . A. GERUN

DATE OF WORK . . AUG. 1965



Soil Sampling:  
A. Gerun  
W. Walker



100 0 100 200 300 400 500 600 700 800 900  
50

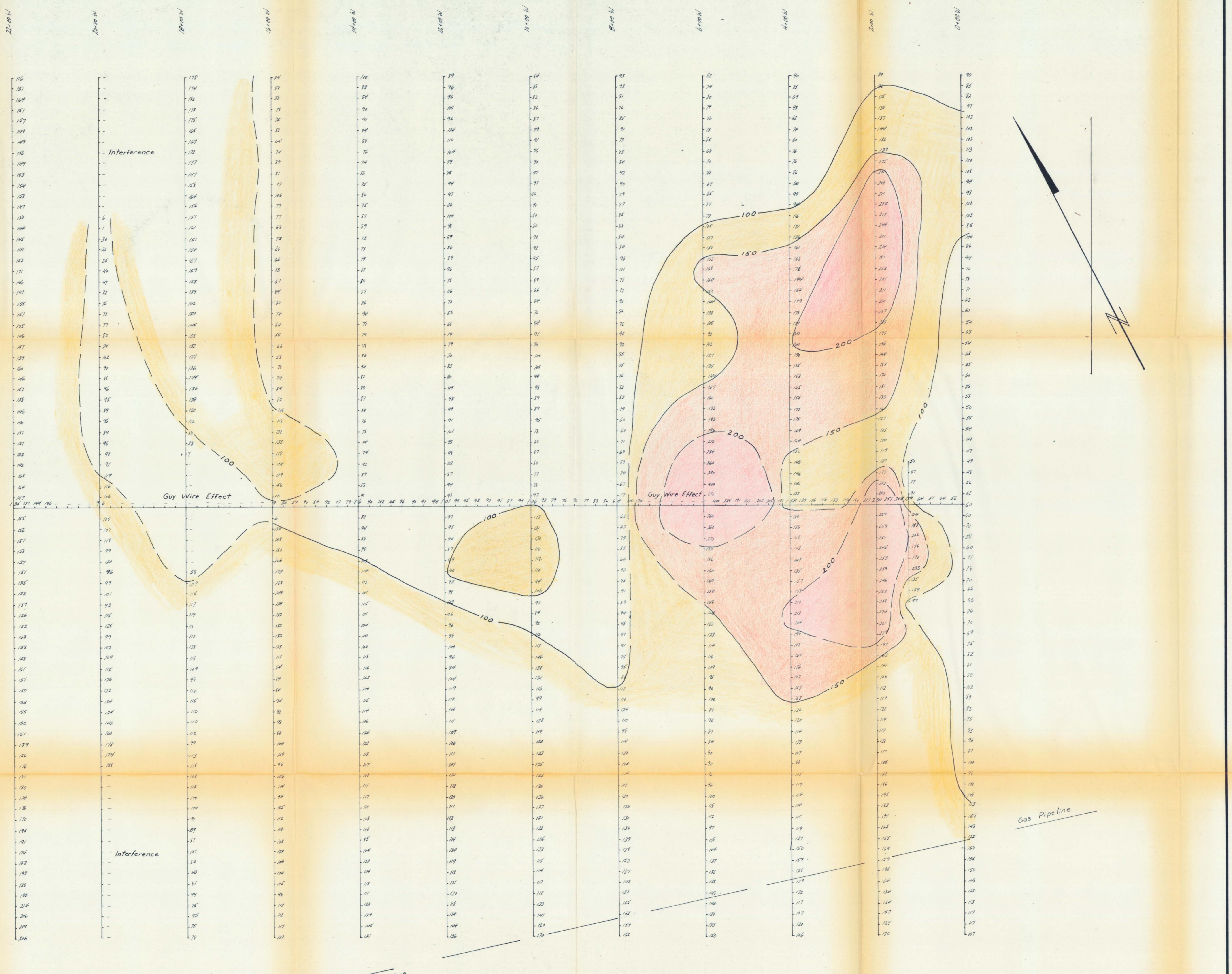
SCALE: 1 INCH TO

MAP 2S-65

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY . . SANDY GRID  
LOCATION . . MOYIE B.C.

WORKING PLACE . . MOYIE B.C.  
TYPE OF MAP . . CONTOUR  
BASED ON . . MAGNETOMETER (ASKANIA I)

DATE . . JUNE 15, 1965  
DRAWN BY . . R.M.  
DATE OF WORK . . MAY-JUNE 1965

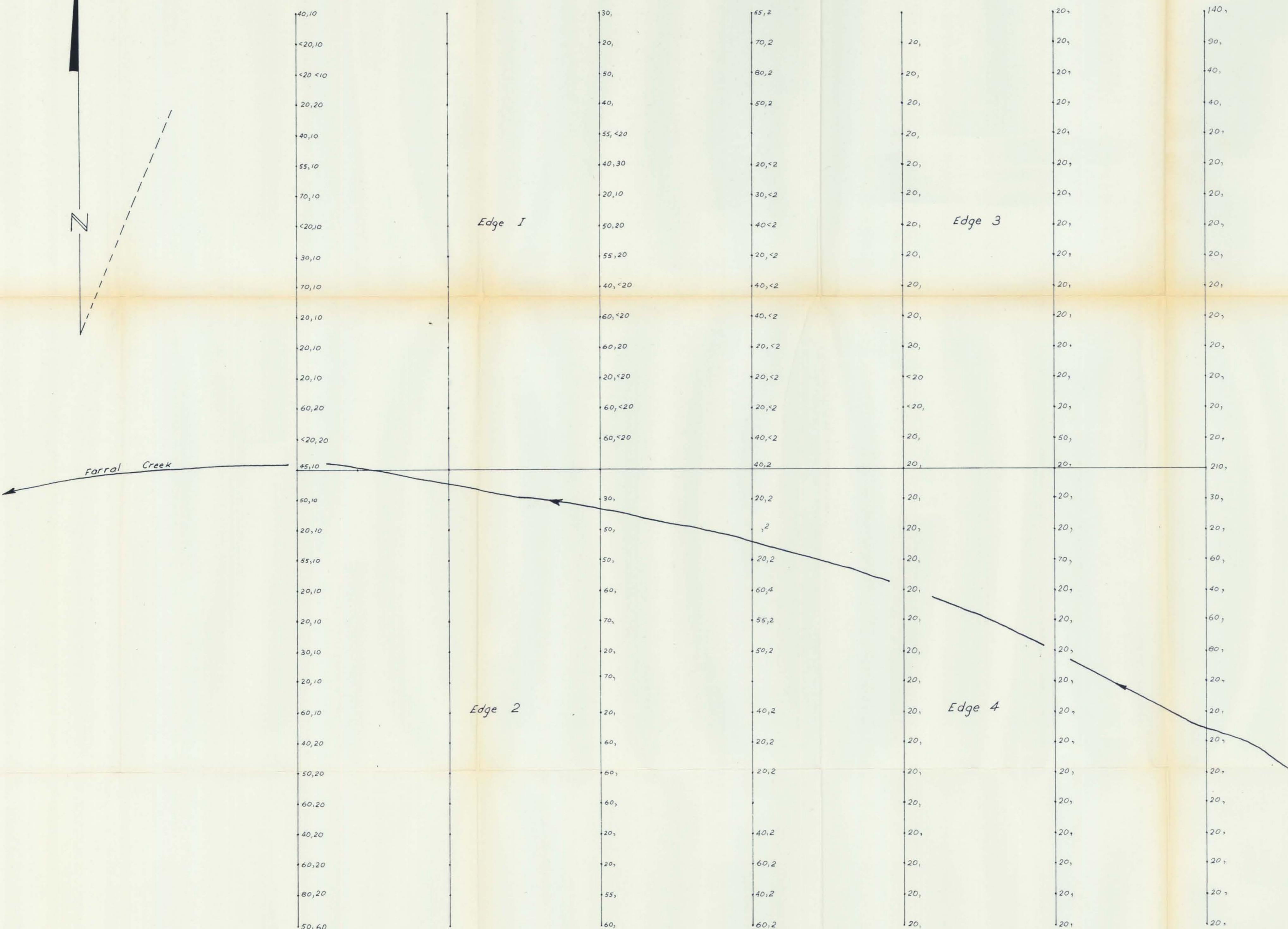


100 0 100 200 300 400 500 600 700 800 900  
SCALE: 1 INCH TO 30

COMPANY .. FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY .. SANDY GRND  
LOCATION .. MOYIE B.C.

WORKING PLACE .. MOYIE B.C.  
TYPE OF MAP .. CONTOUR  
BASED ON .. SELF POTENTIAL (SHARPE P-6)

DATE .. JUNE 15, 1965  
DRAWN BY .. R.M.  
DATE OF WORK .. MAY 1965



Soil Sampling: R. Smithson  
A. Gerun

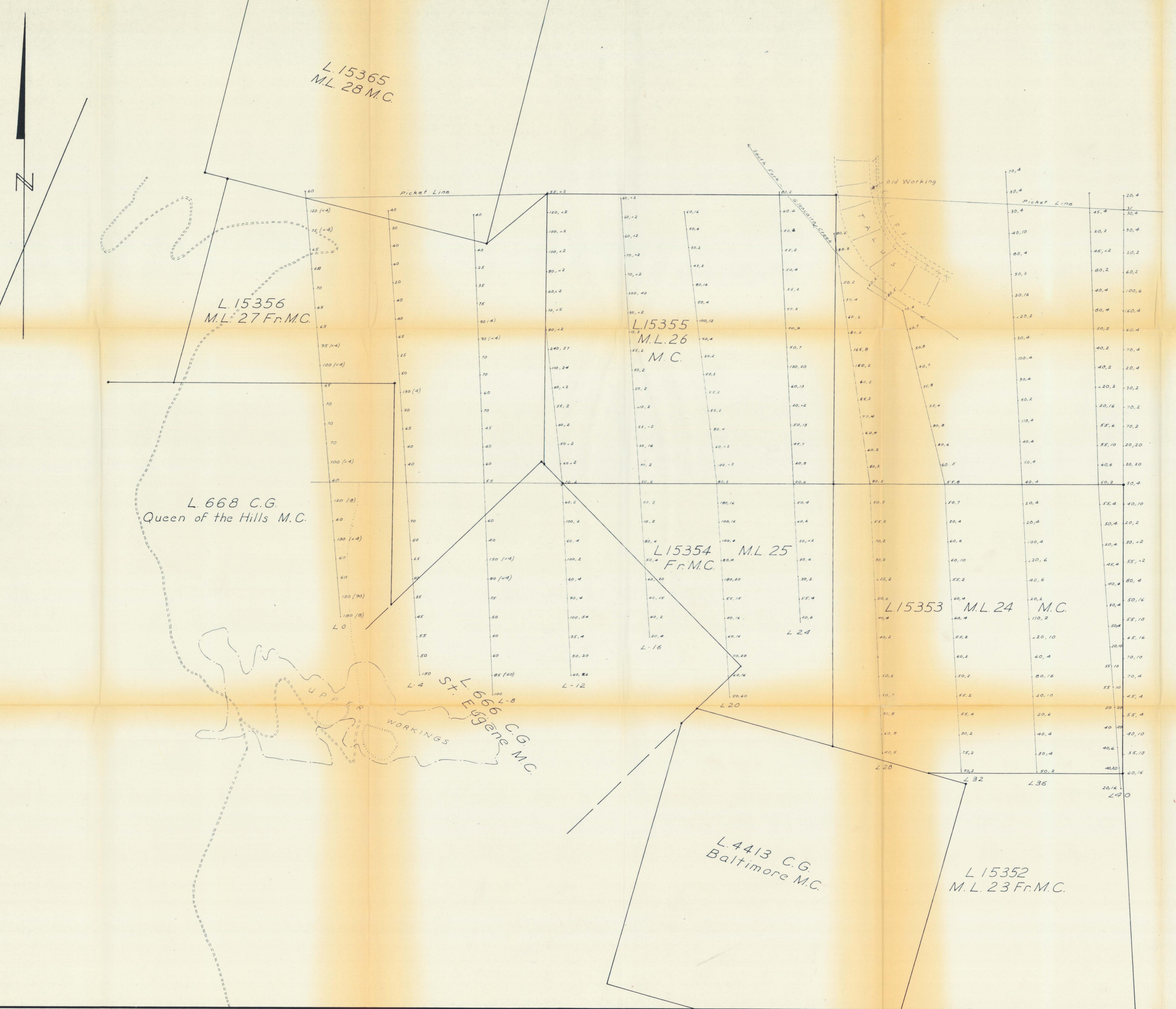
200 0 200 400 600 800 1000 1200 1400 1600 1800  
100  
SCALE: 1 INCH TO

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY . . ST. EUGENE MINING CORP.  
LOCATION . . MOYIE, B.C.

WORKING PLACE . . EDGE GRID  
TYPE OF MAP . . GEOCHEM (ZINC left, LEAD right)  
BASED ON . . PACE / COMPASS GRID

DATE . . AUG. 1965  
DRAWN BY . . A. GERUN  
DATE OF WORK . . SEPT. 1965

MAP IE-65

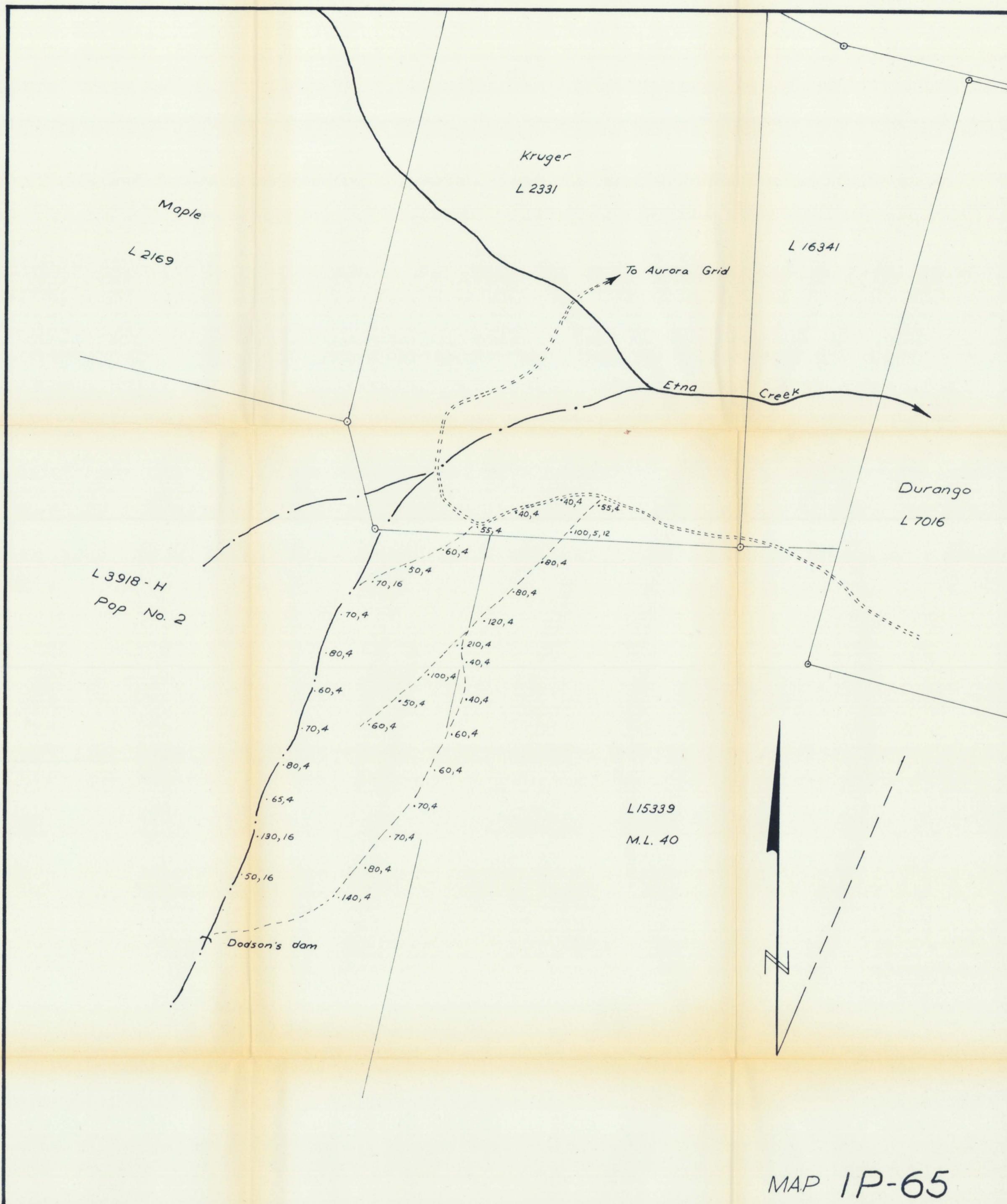


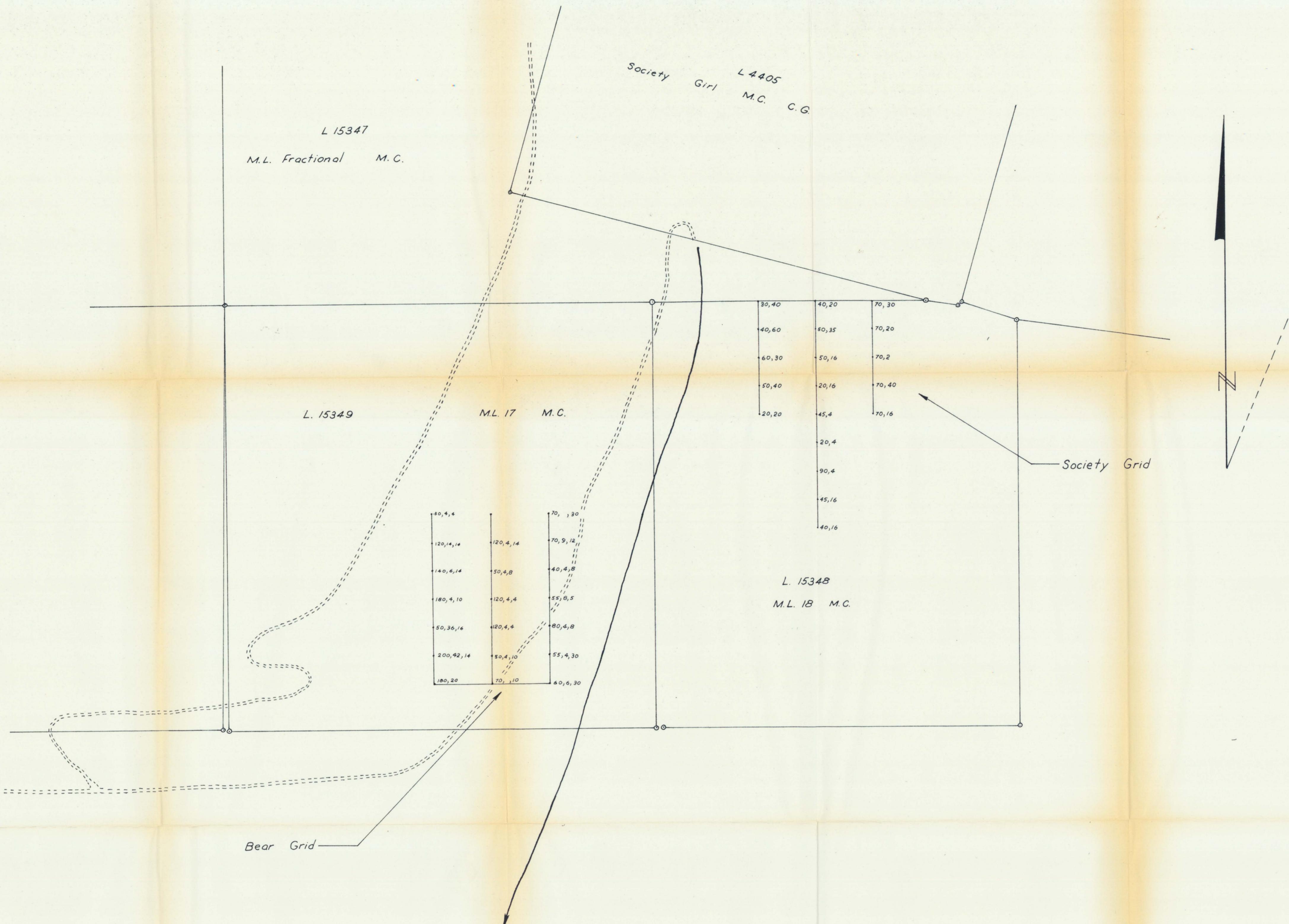
200 0 200 400 600 800 1000 1200 1400 1600 1800  
100  
SCALE: 1 INCH TO

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY . . ST. EUGENE  
LOCATION . . MOYIE BC.

WORKING PLACE . . NORTHERN GRID  
TYPE OF MAP . . GEOCHEM-VALUES IN P.P.M ZINC DRAWN BY . . D. H. HELGESEN  
BASED ON . . PACE & COMPASS GRID DATE OF WORK . . JUNE-JULY-1965

82-G-5  
MAP REF. NO.:  
IP-65  
IBk-65





Note: All roads and streams are sketched.

Soil sampling by: R. Smithson  
A. Gerun

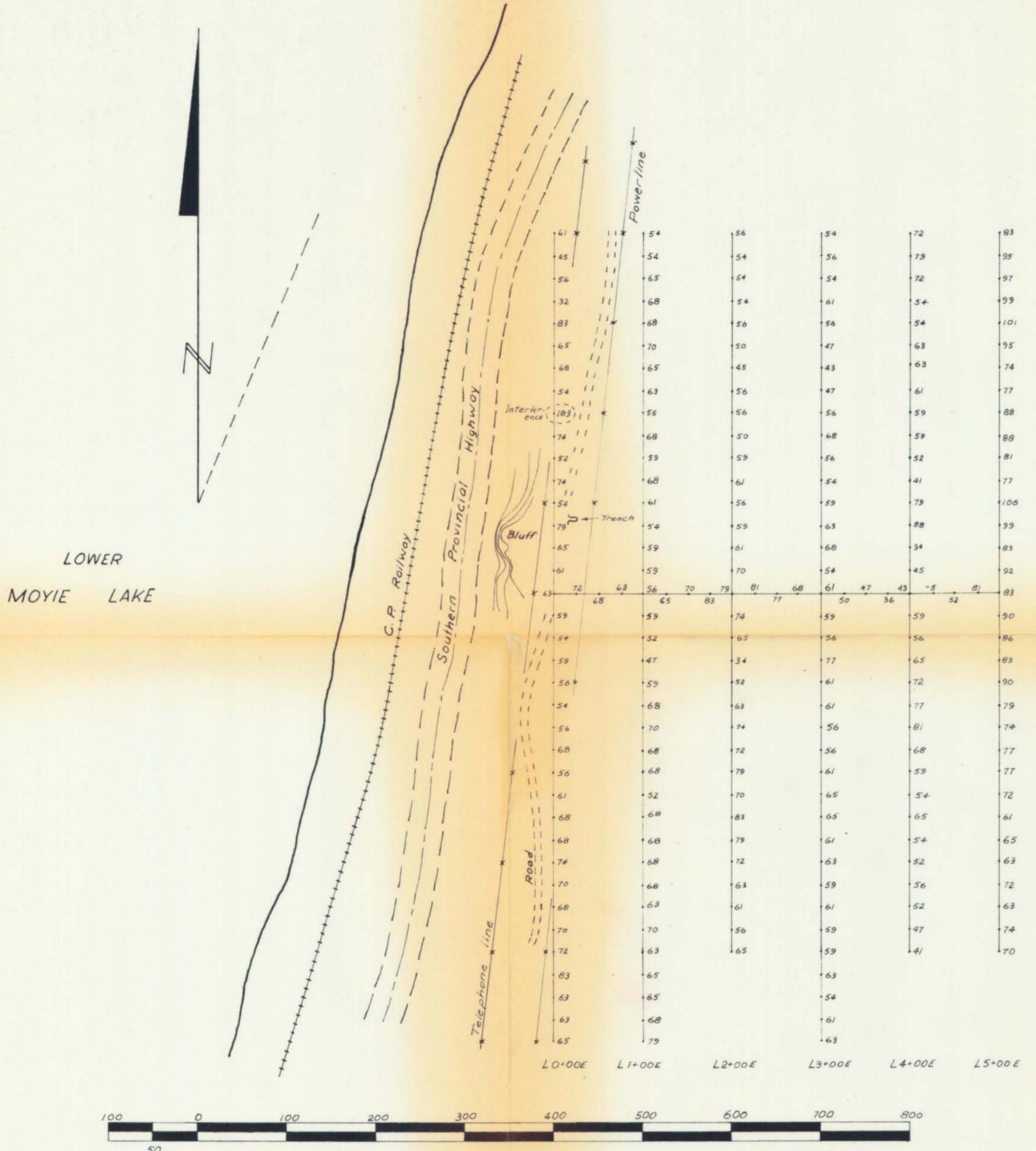
200 0 200 400 600 800 1000 1200 1400 1600 1800  
SCALE: 1 INCH TO  
100

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY . . ST. EUGENE MINING CORP.  
LOCATION . . MOYIE, B.C.

WORKING PLACE . . SOCIETY & BEAR GRIDS  
TYPE OF MAP . . CONTOUR MAP  
BASED ON . . GEOCHEM. SURVEY

DATE . . SEPT 1965  
DRAWN BY . . A. GERUN  
DATE OF WORK . . JULY 1965

MAP - 1Br-65



Note: Background taken as  $143.70^\circ$

Instrument : Askania I

Work by: D. Thomson  
R. Macdonald π  
A. Gerun

MAP IR-65  
NT 82-G-5

**COMPANY.. FALCONBRIDGE NICKEL MINES LTD.**

*PROPERTY.. ST. EUGENE*

LOCATION.. MOYIE, B.C.

WORKING PLACE.. ROAD BLUFF GRID

TYPE OF MAP.. CONTOUR

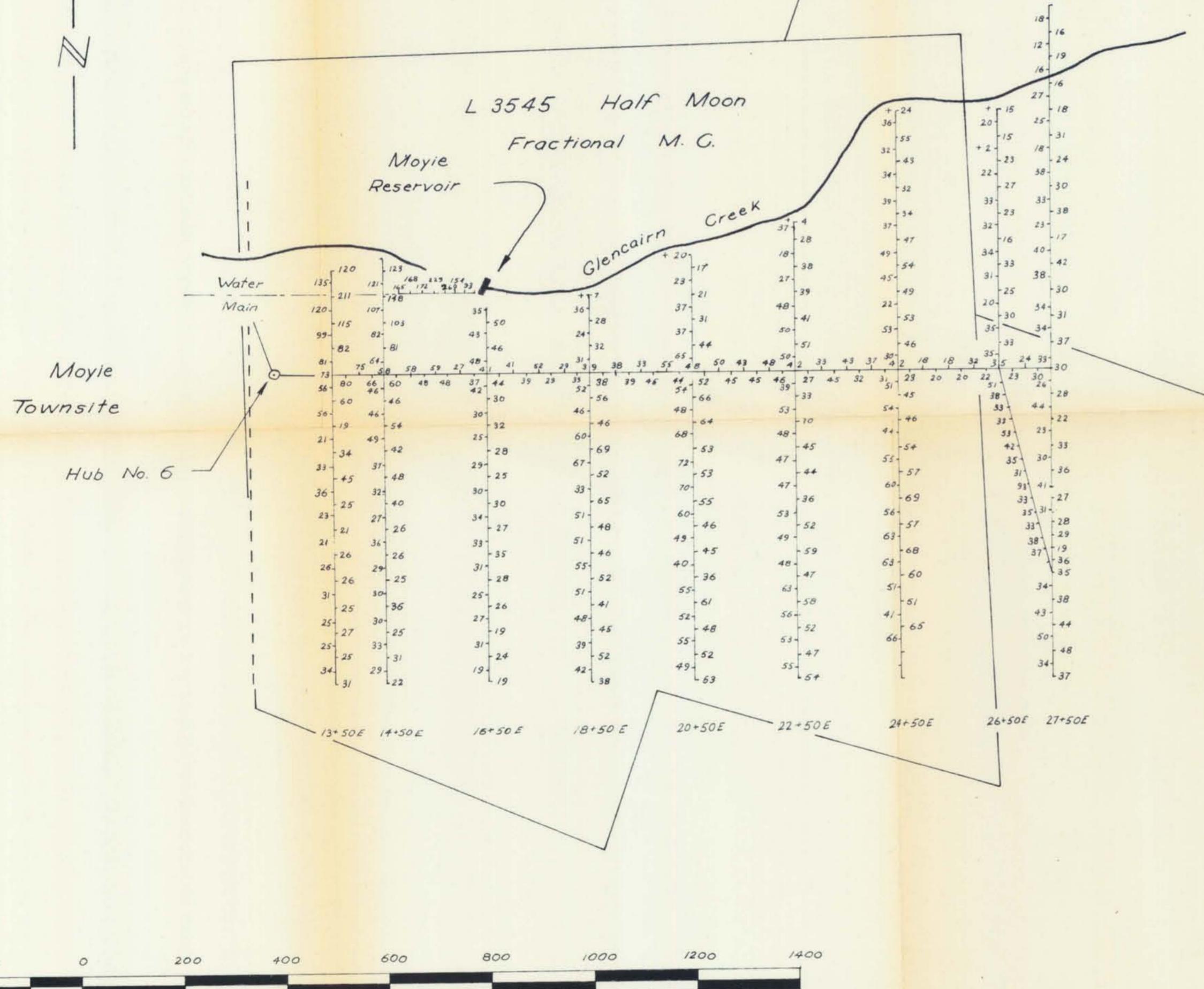
BASED ON.. MAGNETOMETER SURVEY

DATE.. SEPT. 1965

DRAWN BY.. A. GERUN

DATE OF WORK.. JUNE 1965

Note: All potentials taken w.r.t 27+50E  
0+00N with arbitrary potential  
of -30 millivolts.



Work by : R. Macdonald  
L. Bond  
S. Presunka

Instrument: Sharpe VP-6

COMPANY.. FALCONBRIDGE NICKEL MINES LTD.  
PROPERTY.. ST. EUGENE MINING CORP.  
LOCATION.. MOYIE, B.C.

WORKING PLACE.. WILD PIG GRID  
TYPE OF MAP.. SELF-POTENTIAL VALUES (Millivolts)  
BASED ON.. PACE & COMPASS GRID

DATE.. SEPT. 2, 1965  
DRAWN BY.. A. GERUN  
DATE OF WORK.. MAY 1965

MAP 1W-65  
82-6-5