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COMINCO LTD.
TRAIL, B.C.

REPORT OF GEOLOGICAL, GEOCHEMICAL AND
GEOPHYSICAL SURVEYS ON THE HELG GROUPS
OF CLAIMS SITUATED TWELVE MILES SOUTHWEST
OF GRANBROOK IN THE FT. STEELE M.D., 49°11'5"SW

<u>Group</u>	<u>Number of Claims</u>	<u>Credit Requested</u>
Helg	32	32 years
Helg No. 1	40	40 "
Helg No. 2	30	30 "
Helg No. 3	40	40 "
Helg No. 4	16	16 "
		<u>158 years</u>

Work was carried out on the above groups in the period May 1st to September 30th, 1966.

REPORT BY

R.G. GIFFORD, UNDER THE SUPERVISION OF

J. RICHARDSON P. ENG.

RGG:sa
November 7, 1966

C O M I N C O L T D.
TRAIL, B.C.

REPORT OF GEOLOGICAL, GEOCHEMICAL AND
GEOPHYSICAL SURVEYS ON THE HELG GROUPS
OF CLAIMS SITUATED TWELVE MILES SOUTHWEST
OF GRANBROOK IN THE FT. STEELE M.D., 49°11'50"SW

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COMINCO LTD.
TRAIL, B.C.

EXPLORATION

WESTERN DISTRICT

REPORT OF GEOLOGICAL, GEOCHEMICAL AND
GEOPHYSICAL SURVEYS ON THE HELG GROUPS
OF CLAIMS SITUATED TWELVE MILES SOUTHWEST
OF CRANBROOK IN THE FT. STEELE M.D., 49°11'5"SW

1. SUMMARY

The located claims on which assessment work is requested as a result of geological, geochemical, and geophysical work performed during the period May 1st to September 30, 1966 is detailed below:

<u>Claim</u>	<u>Record No.</u>	<u>Credit Requested</u>	<u>Total</u>
<u>Helg Group - recorded owner Cominco Ltd</u>			
Daisy, Bonnet	6602, 03	-	-
Trillium, Violet	6604, 05	-	-
Larkspur, Figwart	6601, 06	-	-
Helg 1	6839	1 year each	1
Helg 2, 3	6840, 41	-	-
Helg 4-6	6842 - 44	1 year each	3
Helg 15, 20-24	7108, 13-17	" " "	6
Helg 25, 26, 30	7130, 31, 35	" " "	3
Helg 109, 110, 112	7307, 09, 11	" " "	3
Helg 121, 122, 123	7320, 21, 51	" " "	3
Helg 124 - 126	7322, 23, 24	" " "	3
Helg 127, 128, 130	7491, 92, 94	" " "	3
Helg 132	7496	" " "	1
Helg 301, 303, 305	7335, 37, 39	" " "	3
Helg 307, 309, 311	7341, 43, 45	" " "	3
		Total Years:	32

Helg No. 1 Group - recorded owner Cominco Ltd

Helg 31-38, 63	7276-83, 84	1 year each	9
" 85, 67, 69	7286, 88, 90	" " "	3
" 95 - 100	7292-97	" " "	6
" 212, 246, 247	7331, 32, 33	" " "	3
" 248-257, 400	7522-31, 80	" " "	11
" 402, 404, 406	7582, 84, 86	" " "	3
" 408-411	7588-91	" " "	4
" 492	7657	" " "	1
		Total Years:	40

Helg No. 2 Group - recorded owner Cominco Ltd

Helg 27, 28	7132, 33	-	-
" 39-42	7443-46	-	-
" 64, 66, 68	7285, 87, 89	-	-
" 70	7291	-	-
" 71-73, 211	7467, 68, 69, 97	1 year each	4
" 213, 214	7498, 99	" " "	2
" 215, 216, 314	7500, 01, 32	" " "	3
" 328, 329, 341	7544, 45, 47	" " "	3
" 353, 401, 403	7557, 81, 83	" " "	3
" 405, 407	7585, 87	" " "	2
" 459-464	7624-29	" " "	6
" 489-491	7654-56	" " "	3
" 511-514	7676-79	" " "	4
		Total Years:	30

Helg No. 3 Group - recorded owner Cominco Ltd

Helg 29	7134	1 year each	1
" 74	7470	" " "	1

<u>Claim</u>	<u>Record No.</u>	<u>Credit Requested</u>	<u>Total</u>
Helg 300, 302, 304	7334, 36, 38	1 year each	3
" 306, 308, 310	7340, 42, 44	" " "	3
" 315-325, 340	7533-43, 46	" " "	12
" 342-349, 352	7548-55, 56	" " "	9
" 354-359, 361	7558-63, 65	" " "	7
" 363, 369, 370	7567, 68, 69	" " "	3
" 372	7571	" " "	1
Total Years:			<u>40</u>

Helg No. 4 Group - recorded owner Cominco Ltd

Helg 43-48	7447-52	1 year each	6
" 75-79	7471-75	" " "	5
" 217, 218, 220	7502, 03, 04	" " "	3
" 229, 231	7505, 07	" " "	2
Total Years:			<u>16</u>

2. INTRODUCTION

The Helg groups of claims cover a lead-zinc prospect situated near Monroe Lake, twelve miles southwest of Cranbrook, B.C. Good access is provided by gravel and jeep road from Highway 3 at Green Bay junction.

The area surveyed is one of high relief, rising 3,000 feet out of the valleys of Lamb Creek and Moyie River. For the most part it is rough and precipitous but the upper levels, in conformance with an ancient upland surface, are gently sloped.

About 50 percent of the area shows outcrop. The balance is covered with a thin layer of overburden and timbered with fir, larch and lodge-pole pine. The area has been logged but there still remains some stands of merchantable fir and larch.

Boulders containing significant values in Pb and Zn occur on the property and the work in 1966 was directed toward locating the source of this material. The present report details the geological, geochemical and geophysical work undertaken between May 1st and September 30th, 1966 to guide this search.

3. GEOLOGICAL MAPPING

General

The entire area in this report was mapped at a scale of 1"=1320'. Control was provided by aerial photographs used in conjunction with Forest Series maps on which photo centres were plotted. Photos and maps were at a scale of 1"=1320'.

In addition much of the region bordering the report area was mapped to provide a better perspective. This additional work is shown on the accompanying map.

Detailed mapping by plane-table survey was done in the vicinity of the principal mineral showing at a scale of 1" = 50'. In its final form the map scale was reduced to 1" = 100' to allow continuity in presentation.

Bedded Rocks

The Helg groups of claims are underlain by sediments of middle Middle Aldridge age. Distinctly bedded sequences of argillite and quartzite characterize the formation. To aid local correlation the Middle Aldridge was subdivided into major sequences of "quartzite" and "argillite". The "quartzite" units are 300 to 500 feet thick and comprise beds of quartzite and argillite in roughly equal proportion. The "argillite" units are 100 to 200 feet thick and consist almost wholly of argillite beds.

Determination of the tentative stratigraphic position of rocks

in the report area is based on comparison with stratigraphy that was detailed in previous work eight miles to the south at St. Eugene mine. Factors considered in the correlation included (1) uppermost extent of diorite sill intrusion (useful only as a general positioning), (2) presence of a conglomerate unit (uncertain reliability since other similar-looking units in the region are at widely separated stratigraphic levels), and (3) tentative identification of an argillite marker unit.

A conglomerate unit near the top of Hill 6600 is noteworthy due to the rarity of such material in the region. The unit is 100 to 200 feet thick and comprised of elongate shaly fragments in an argillaceous matrix.

Another unit of interest is characterized by its non-bedded nature. It lies near the main mineral showing and may be useful as a local stratigraphic marker. The unit is 100 to 200 feet thick and consists of inter-mixed argillaceous and quartzitic material with a zone of abundant pyrrhotite. Bedding is either lacking or obscure.

A generalized stratigraphic column for the area reported on is given below:

<u>Top of Section</u>	<u>Thickness (approx.)</u>
Quartzite, argillite	200'
Conglomerate	150'
Quartzite, Argillite	800'
Diorite sill (local)	2'
Quartzite, argillite	700'
Non-bedded unit	150'
Quartzite, argillite	1500'
Diorite sill	150'
Quartzite, argillite	150'
<u>Base of Section</u>	
Total Thickness:	<u>3800'</u>

Structure

Bedding attitudes in general are northwest in strike and fifteen degrees northeast in dip. Minor variations in attitudes are brought on by local gentle folding.

The most distinctive structural feature in the report area is the Moyie Fault. It is a high angle reverse fault and brings Aldridge rocks into contact with younger Kitchener rocks.

The fault strikes northeast across the southern margin of the property. On the Aldridge side the bedding steepens rapidly from fifteen degrees northeast a half mile away to vertical at the fault. On the Kitchener side the bedding change is less rapid, going from thirty degrees at three miles distant to again vertical at the fault.

Many quartz veins parallel the fault zone. The only mineralization noted was pyrite which is abundant in the sheared rock but sparse in the veins.

Glacial striae trend N35°E at the main prospect. The direction of movement of the ancient ice surface at this level is uncertain but from the lay of the land it seems likely that it was to the northeast, i.e. down the valley of Lamb Creek.

Mineralization

Two types of mineralization are present. Of greatest interest is the replacement lead-zinc type of deposit as evidenced by the small sulphide lens seen on Helg 27 claim and in float material of similar nature further afield. Quartzite and argillite host the mineralization which includes pyrrhotite, sphalerite, galena, bournonite, and sparse chalcopyrite.

Of lesser interest is the quartz vein mineralization that crosscuts the Aldridge sediments. Typically the veins are sporadic in occurrence, narrow in width and limited in extent. They are usually only weakly mineralized with galena, sphalerite and chalcopyrite.

Intrusive Rocks

Diorite is the only intrusive present. It intrudes the sediments at two stratigraphic levels and is sill-like in both instances.

The lower sill is about 150 feet in thickness and lies at the lowermost elevations of the property. Some quartz veins with sparse sulphide mineralization are present.

The upper sill where observed is only two feet in thickness. It may represent the edge of a thicker body.

4. GEOCHEMICAL SURVEY

General

Both stream and soil sampling were undertaken in the report area. Stream sampling was confined as far as possible to active stream beds and an attempt was made to avoid organic contamination. Soil samples were of quarter-pound size and were taken from till material about 1½ feet below surface.

After collection, all samples were dried and screened to pass 80 - mesh. An 0.1 gram portion of this size fraction was used for all assay procedures.

The cold extractable (Cx) total heavy metal content was determined in only the stream samples. Both stream and soil samples were analyzed by hot extraction (Hx) and atomic absorption methods for their lead, zinc, and copper content.

The cold extraction test uses a buffer designed to displace loosely held copper, lead, zinc cobalt, nickel, and a few other less common elements. Because of greater sensitivity toward zinc the results are recorded in terms of parts per million zinc equivalents by matching with a set of daily prepared zinc standards. Replicate analyses can be obtained within ± 30%.

The hot extraction tests use a vigorous digestion in acid to liberate essentially all the metal present in rock and sulphide particles. Metal content was determined by comparison with a suitable set of daily prepared color standards. Replicate analyses can be obtained within ± 20%.

The atomic absorption test used aqua regia to leach absorbed metal from rock and sulphide particles. Spectrum absorption methods were employed to determine individual metal content.

Samples for Cx total heavy metal analysis were treated with ammonium citrate buffer and dithizone, and then vigorously shaken for a specified time. Heavy metal in the solution causes a coloration varying from green through purple to red.

Samples for Hx copper analysis were digested by hot perchloric acid, diluted, buffered, and then biquinoline solution added. Copper in the solution causes a red coloration of varying intensity. Some advantages of the biquinoline method over the more common dithizone method are (1) more specific for copper and less liable to interference from zinc, (2) relatively stable color standards which do not require daily preparation, and (3) a color range before dilution of 10-3000 ppm thereby eliminating a need for many dilutions.

Samples for Hx zinc analysis were digested by hot aqua regia, diluted, buffered with sodium acetate and sodium thiosulfate, and then dithizone (diluted in toluene) added. Zinc in the solution causes

a color progression from green to purple to red.

Samples for Hx lead analysis were digested by hot aqua regia, diluted, buffered with ammonium citrate-hydroxylamine hydrochloride, and then potassium cyanide and dithizone (diluted in chloroform) added. Lead in the solution causes a color gradation from blue to red.

Stream Sampling

Samples of active stream sediments as a rule were collected at one-quarter mile intervals on all stream channels draining the Helg groups.

Anomalous values for Cx total heavy metal were obtained in the Semlin and Gold Hill regions. All anomalies were weak. The Semlin anomaly is attributable to known minor quartz-galena veins.

Notably, no Cx response was obtained in drainage off the main prospect where mineralized debris and outcrop is plentiful. Factors in this situation that perhaps inhibited the Cx method include (1) steep stream gradients, (2) poorly developed stream beds, (3) seasonal stream flow, and (4) increased zinc mobilization due to abundance of iron sulphide in mineralized zone.

Soil Sampling

Soil samples were normally taken at 100-foot intervals on three parallel lines spaced 400 feet apart. Lines were 4,800 feet in length commencing at 12+00N and ending at 60+00N. This is the same grid as used in the geophysical survey and is designated the Daisy Grid.

Sampling was with bar and auger from a depth of $1\frac{1}{2}$ feet below surface. This gave samples from the underlying parent till approximately one foot below its top. About fifteen to twenty samples per man per day could be taken. Analyses were made for hot extractable Pb-Zn-Cu.

The till contains many boulders and abundant pebbles floating in a silty matrix. The coarse material hindered auger sampling. Six to ten inches of soil overly the till.

Three significant lead anomalies were located in the grid. Most of the surveyed area was weakly anomalous in lead. One anomaly is situated downslope from the expected trace of known mineralization. Another anomaly is situated on the expected trace of mineralization, and the third anomaly contains an extreme value of 16,000 ppm.

Only one significant zinc anomaly showed in the survey. Background zinc values were low. The lone zinc anomaly is coincident with the lead anomaly situated downslope from the expected trace of mineralization.

All copper values were low as expected.

5. ELECTROMAGNETIC SURVEY

The EM survey was run using a horizontal loop ABEM minigum instrument operating at a frequency of 3520 c.p.s. Both the in-phase and out-of-phase fields are measured as a percentage of the "normal" primary field at the receiver, and both components are measured to an accuracy of one percent on scales employing one percent per scale division.

Coil separation was 200 feet giving a penetration depth in the order of 80 feet. Readings were taken at 100-foot intervals in most cases and were plotted at a point midway between receiver and transmitter.

Survey control was provided by a cut and chained base line running N50°W and 4,800 feet in length, commencing at 12+00N and ending at 60+00N. Crosslines were run by chain and compass normal to the base line at headings of N40° E and S40°W and spaced 400 feet apart. This is the same grid as

used in the geochemical survey and designated the Daisy Grid.

Gentle dipping metasediments underlie the surveyed area. Some beds contain from five to ten percent pyrrhotite. The depth of overburden is shallow along the sides of the grid but likely much greater at the center, perhaps greater than the penetration of the instrument.

No significant conductors are present. Shortened cables and misalignment of coils due to rugged topography resulted in frequent erratic in-phase readings that were detrimental to the survey.

6. CONCLUSIONS

The EM survey showed no significant conductors. Such lack of response is inconclusive as much of the bedrock surface underlying the grid may be beyond the penetration depth of the instrument.

Soil geochemistry outlined an anomalous zone downslope from the expected trace of mineralization, another close to the same trace, and a third that contained an extreme value in lead.

Stream sediment geochemistry points out an anomalous zone in the Semlin Creek area that is attributable to known vein mineralization.

Vein-type mineralization found in the course of geological work was not economically important due to poor grade and lack of continuity.

ATTACHMENTS:

- (1) Statement of Expenditures.
- (2) Statutory Declaration Relating to Expenditures.
- (3) Map - Halg Grouping Plan, 1:50,000.
- (4) Map - General Geology, 1" = 1320'.
- (5) Map - Geology at Prospect, 1" = 100'.
- (6) Map - Soil Geochemistry and EM Survey, 1" = 200'.
- (7) Map - Stream Geochemistry, 1" = 1320'.

Report by:

R.G. Gifford
R.G. Gifford
Geological Engineer

Endorsed by:

J. Richardson
J. Richardson
Professional Engineer

RGG:sa

Trail Expl'n Office, Western District

November 7, 1966

Distribution: Mining Recorder (Cranbrook) (2)✓
Western Exploration, Trail (2)

COMINCO LTD.
TRAIL, B.C.

GEOLOGICAL,
1966 GEOCHEMICAL/AND GEOPHYSICAL SURVEY EXPENDITURES
HELG GROUP, HELG NOS. 1 TO 4 GROUPS - FORT STEELE M.D.

HELG GROUP - (Geochemical and Geophysical)

GEOCHEMICAL SURVEY

Soil Survey

D. Colins, D. Chatterson, Assistants, 40 man-days at \$20/day during period July 16 - August 4, 1966. \$ 800

Supervision

R. Gifford, Geologist, J. Richardson P. Eng., 8 man-days at \$40/day during period July 16 - September 6, 1966. 320

Board and Room - 48 man-days at \$6/day 288

Transportation - Truck rental 20 days at \$6/day 120

Assay

189 Cu-Pb-Zn hot extractions for soil survey at 50¢/metal/assay 234

Total: \$ 1,812

GEOPHYSICAL SURVEY

Linecutting and Chaining

F. Felder, B. Vaile, Assistants, 8 man-days at \$20/day during period June 6-7, 1966. \$ 160

EM Survey

F. Felder, B. Vaile, 20 man-days at \$20/day during period June 8-17, 1966. 400

Supervision

R. Gifford, Geologist, J. Richardson, P. Eng., G. Tikkanen, Geophysicist, 12 man-days at \$40/day during period June 6-17, 1966. 480

Board and Room - 40 man-days at \$6/day 240

Transportation - Truck rental 14 days at \$6/day 84

Instrument Rental

ABEM Minigun, 1/2 month at \$150/month 75

Total: \$ 1,439

EXPENDITURE - HELG GROUP

Geochemical Survey \$ 1,812

Geophysical Survey \$ 1,439

TOTAL: \$ 3,251

HELG NO. 1 GROUP - (Geological and Geochemical)

GEOLOGICAL SURVEY

Geological Work

R. Gifford, Geologist, 28 man-days at \$40/day during period
May 1 - Sept. 30, 1966. \$ 1,120

D. Colins, Assistant, 18 man-days at \$20/day during period
June 19 - Sept. 20, 1966. 360

E. Pinchbeck, D. Pighin, Assistants, 36 man-days at \$20/day
during period May 9 - July 31, 1966. 720

Supervision

J. Richardson, P. Eng., 3 man-days at \$40/day during period
May 1 - Sept. 30, 1966. 120

Board and Room - 85 man-days at \$6/day 510

Transportation

Truck rental, 2 vehicles, 50 days' total at \$6/day 300

Total: \$ 3,130

GEOCHEMICAL SURVEY

Stream Sediment Survey

H. Freund, A. Birkeland, Assistants, 20 man-days at \$20/day
during period August 18 - Sept. 6, 1966. \$ 400

Supervision

R. Gifford, Geologist, J. Richardson, P. Eng., 4 man-days at
\$40/day during period July 16 - Sept. 6, 1966. 160

Board and Room - 24 man-days at \$6/day 144

Transportation - Truck rental 10 days at \$6/day 60

Assay

Equipment and supplies for cold extraction chemical analysis: 48
76 Cu-Pb-Zn hot extractions for stream sediment survey at
50¢/metal/assay 114

Total: \$ 926

EXPENDITURE - HELG NO. 1 GROUP

Geological Survey \$ 3,130

Geochemical Survey 926

TOTAL: \$ 4,056

HELG NO. 2 GROUP - (Geological)

GEOLOGICAL SURVEY

Geological Work

R. Gifford, Geologist, 26 man-days at \$40/day during period
May 1 - September 30, 1966. \$ 1,040

D. Colins, Assistant, 20 man-days at \$20/day during period
June 19 - September 20, 1966. 400

E. Pinchbeck, D. Pighin, Assistants, 33 man-days at \$20/day
during period May 9 - July 31, 1966. 660

Helg No. 2 Group (cont'd.)

Supervision

J. Richardson, P. Eng., 4 man-days at \$40/day during period May 1 - Sept. 30, 1966. \$ 160

Board and Room - 83 man-days at \$6/day 498

Transportation

Truck rental, 2 vehicles, 33 days' total at \$6/day 198

Instrument Rental

Kern Self-Reducing Alidade and Plane Table equipment, 1 month at \$60/month 60

Total: \$ 3,016

EXPENDITURE - HELG NO. 2 GROUP

Geological Survey TOTAL: \$ 3,016

HELG NO. 3 GROUP - (Geological and Geochemical)

GEOLOGICAL SURVEY

Geological Work

R. Gifford, Geologist, 27 man-days at \$40/day during period May 1 - Sept. 30, 1966. \$ 1,080

D. Colins, Assistant, 19 man-days at \$20/day during period June 19 - Sept. 30, 1966. 380

E. Pinchbeck, D. Fighin, Assistants, 36 man-days at \$20/day during period May 9 - July 31, 1966. 720

Supervision

J. Richardson, P. Eng., 3 man-days at \$40/day during period May 1 - Sept. 30, 1966. 120

Board and Room - 85 man-days at \$6/day 510

Transportation - Truck rental, 2 vehicles, 50 days' total at \$6/day 300

Total: \$ 3,110

GEOCHEMICAL SURVEY

Stream Sediment Survey

H. Freund, A. Birkeland, Assistants, 20 man-days at \$20/day during period August 18 - September 6, 1966. \$ 400

Supervision

R. Gifford, Geologist, J. Richardson P. Eng., 4 man-days at \$40/day during period July 16 - Sept. 6, 1966. 160

Board and Room - 24 man-days at \$6/day 144

Transportation - Truck rental 10 days at \$6/day 60

Assay - Equipment and supplies for cold extraction chemical analysis. 48

76 Cu-Pb-Zn hot extractions for stream sediment survey at 50¢/metal/assay 114

Total: \$ 926

Helg No. 3 Group (cont'd.)

EXPENDITURE - HELG NO. 3 GROUP

Geological Survey	\$ 3,110
Geochemical Survey	926
TOTAL:	<u>\$ 4,036</u>

HELG NO. 4 GROUP - (Geological)

GEOLOGICAL SURVEY

Geological Work

R. Gifford, Geologist, 15 man-days at \$40/day during period May 1 - Sept. 30, 1966.	\$ 600
D. Colins, Assistant, 8 man-days at \$20/day during period June 19 - Sept. 20, 1966.	160
E. Pinchbeck, D. Pighin, Assistants, 20 man-days at \$20/day during period May 9 - July 31, 1966.	400

Supervision

J. Richardson, P. Eng., 2 man-days at \$40/day during period May 1 - Sept. 30, 1966.	80
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<u>Board and Room</u> - 45 man-days at \$6/day	270
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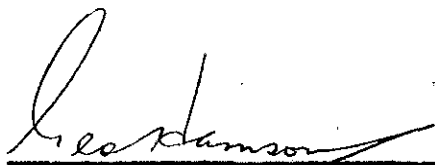
<u>Transportation</u> - Truck rental, 2 vehicles, 20 days' total at \$6/day	120
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Total: \$ 1,630

EXPENDITURE - HELG NO. 4 GROUP


Geological Survey	TOTAL: <u>\$ 1,630</u>
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Endorsed by:



G. Hamson
Accountant, Tadanac Operations

This is Exhibit "A" to the Statutory Declaration of Robert Gordon Gifford, declared before me the 10th day of NOVEMBER, A.D. 1966.


A Commissioner for taking Affidavits
for the Province of British Columbia.

CANADA)
PROVINCE OF BRITISH COLUMBIA) STATUTORY DECLARATION RELATING TO
TO WIT:) EXPENDITURES ON A GEOLOGICAL, GEO-
CHEMICAL AND GEOPHYSICAL SURVEY OF
CERTAIN MINERAL CLAIMS LOCATED IN THE
FORT STEELE MINING DIVISION

I, ROBERT GORDON GIFFORD, Geological Engineer, of
the City of Trail, in the Province of British Columbia, DO
SOLEMLY DECLARE:

1. That I am the person who prepared a geological,
geochemical and geophysical report as a result of surveys carried
out on certain mineral claims by Cominco Ltd., as agents for the
owners of the said claims.
2. That copies of the said report are being filed with
the Mining Recorder at Cranbrook.
3. That attached hereto and marked with a letter "A"
upon which I have signed my name at the time of declaring hereof,
is a statement of expenditures incurred in connection with the
geological, geochemical and geophysical survey of the said claims.

AND I MAKE this solemn declaration conscientiously
believing it to be true and knowing it is the same force and
effect as if made under oath and by virtue of the Canada Evidence
Act.

DECLARED before me at the
Municipality of Tadanac, in the
Province of British Columbia
this 10 day of
November, A.D. 1966.


A Commissioner for taking Affidavits
for British Columbia



COMINCO LTD.
TRAIL, B.C.

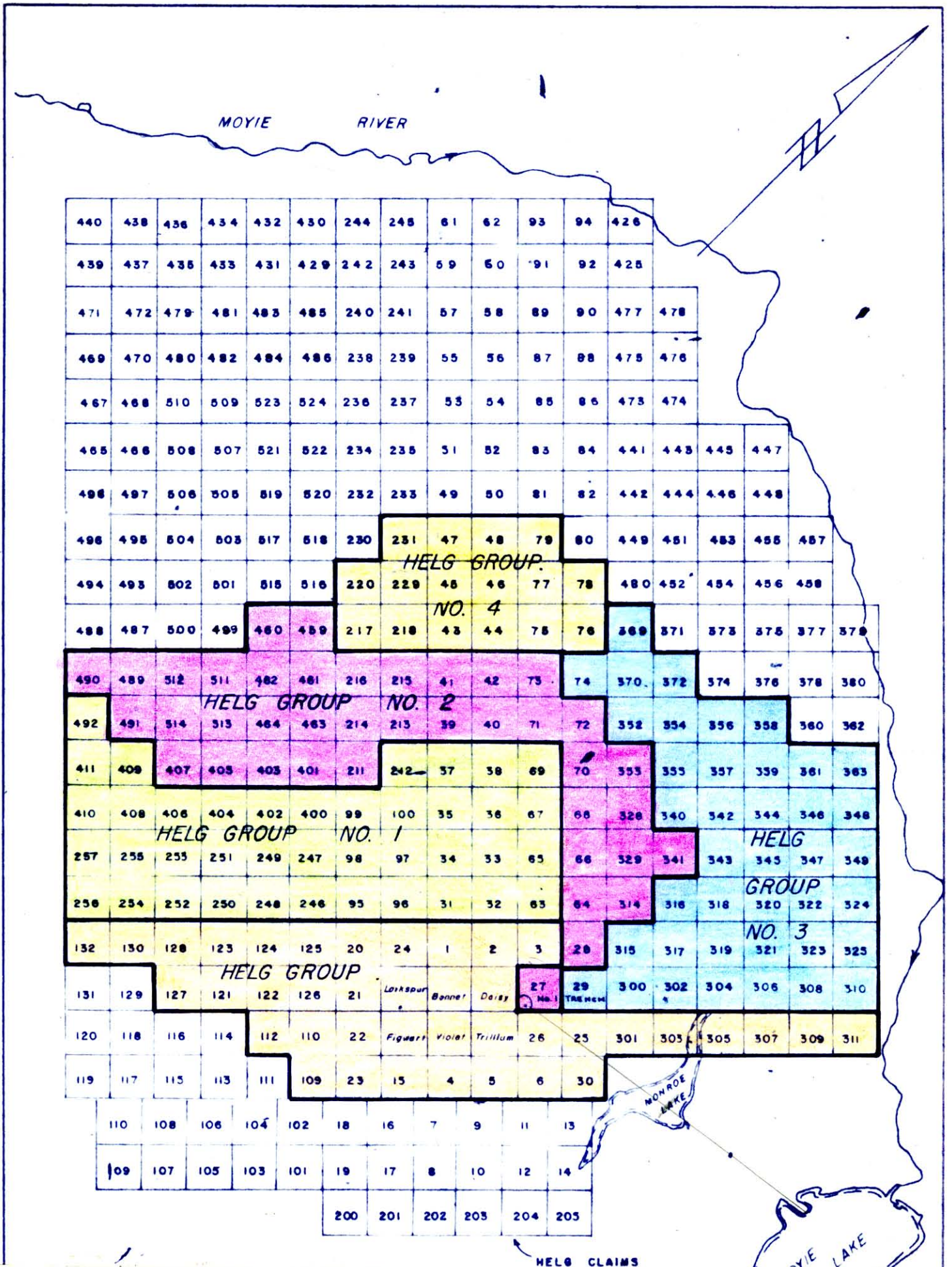
STATEMENT OF QUALIFICATIONS

R.G. Gifford was responsible for conducting the geological, geochemical and geophysical survey described herein. Gifford is a graduate Geological Engineer of U.B.C. and has been employed in geological field work since 1951. During this time he has worked as a mine geologist and on various field projects as an exploration geologist. I consider him a competent and experienced geologist.



J. Richardson
Professional Engineer

JR:mc
Trail Expl'n Office, Western District
November 7, 1966

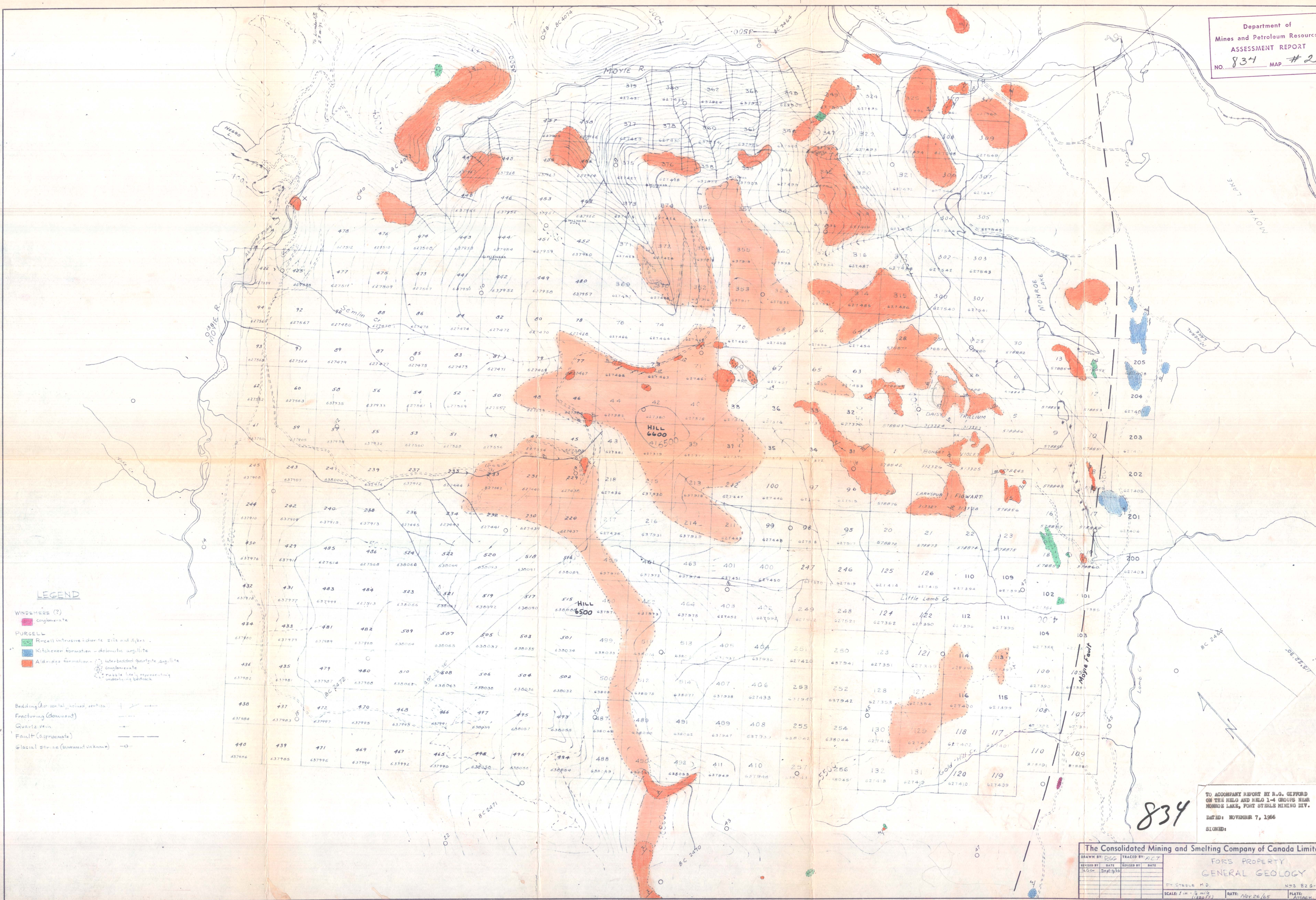


TO ACCOMPANY REPORT BY R.G. GIFFORD
 ON THE HELG AND HELG 1-4 GROUPS NEAR
 MONROE LAKE, FORT STEELE MINING DIV.
 DATED: NOVEMBER 7, 1966

SIGNED: *R.G. Gifford*



The Consolidated Mining and Smelting Company of Canada Limited			
DRAWN BY: <i>R.G.G.</i>	TRACED BY:		
REVISED BY:	DATE:	REVISED BY:	DATE:
FORS PROPERTY		HELG GROUPING PLAN	
Ft. Steele M.D.		N.T.S. 82-G-5	
SCALE: 1: 50,000		DATE: SEPT. 1966	
		PLATE ATTACH (3)	



LEGEND

- WINDERMERE (?)
 - conglomerate
- PURCELL
 - Rosell intrusive - diorite sills and dykes
 - Kitchener formation - dolomitic argillite
 - Aldridge formation - interbedded quartzite, argillite, conglomerate
 - muscle like representing underlying bedrock
- Bedding (for vertical, normal, reverse)
- Fracturing (downward)
- Quartz vein
- Fault (approximate)
- Glacial storage (assumed unknown)

834

TO ACCOMPANY REPORT BY R.G. GIFFORD
ON THE HILL AND HILL 1-4 GROUPS NEAR
MONROE LAKE, POST STEELE MINING DIV.
DATED: NOVEMBER 7, 1966
SIGNED:

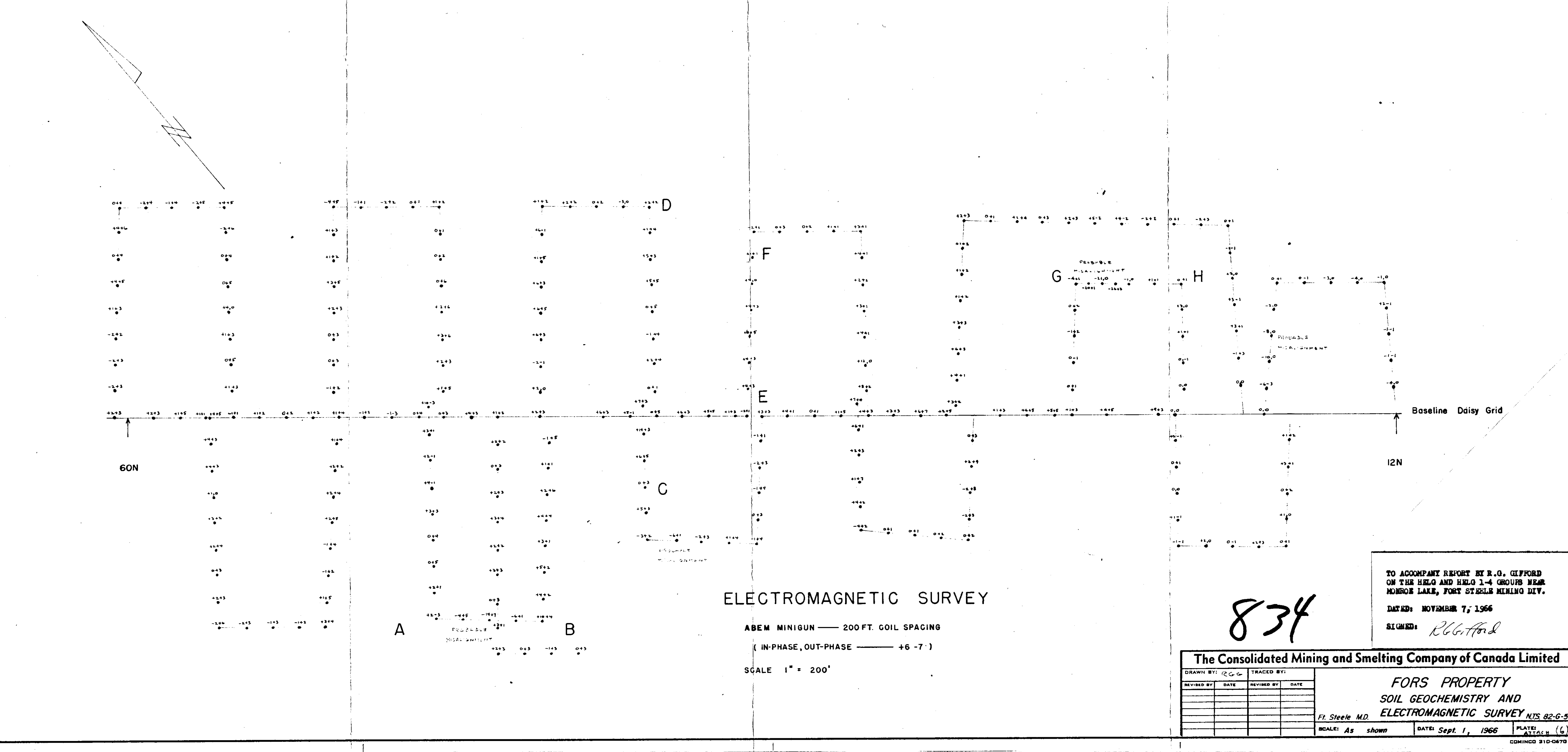
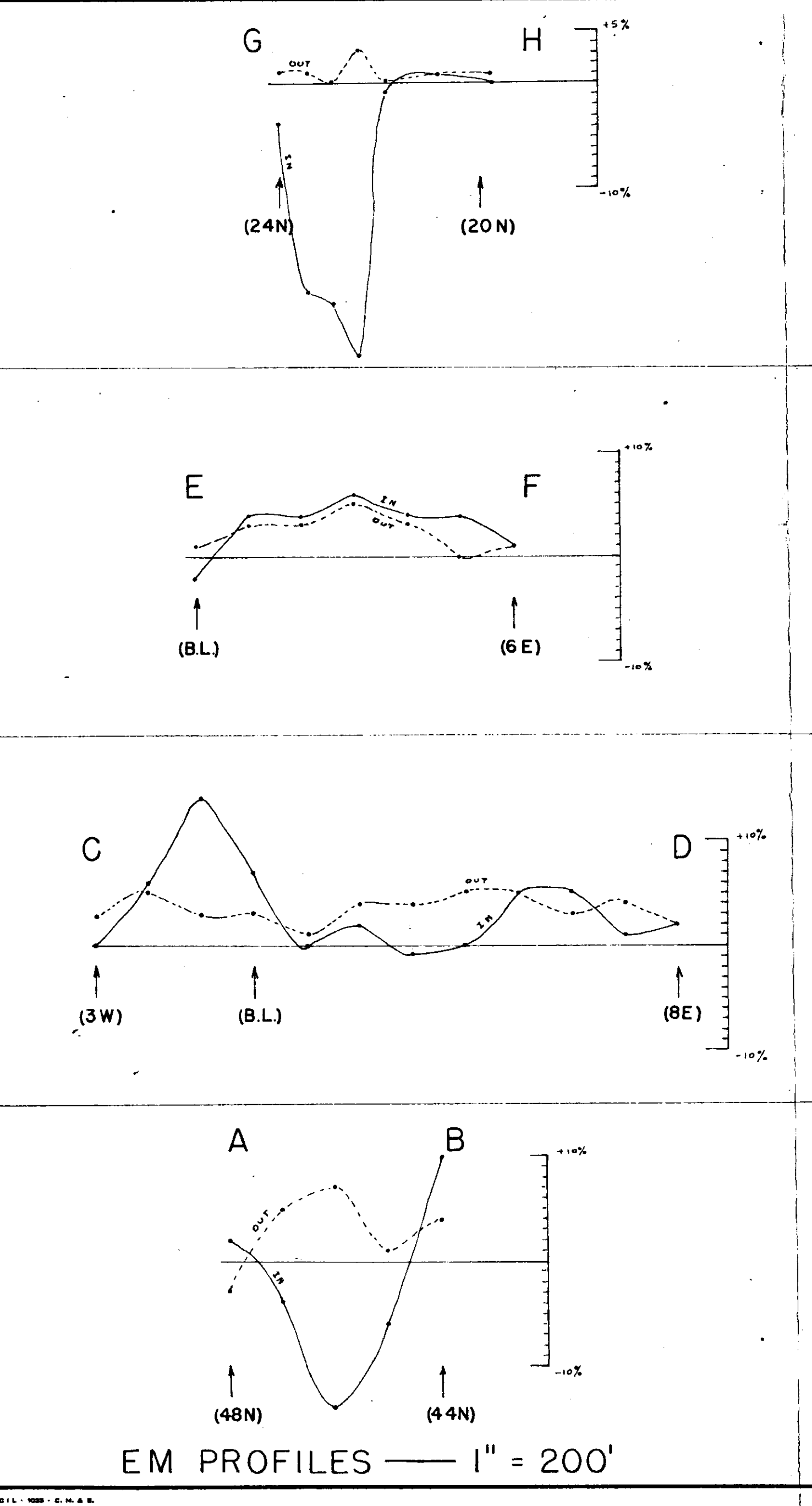
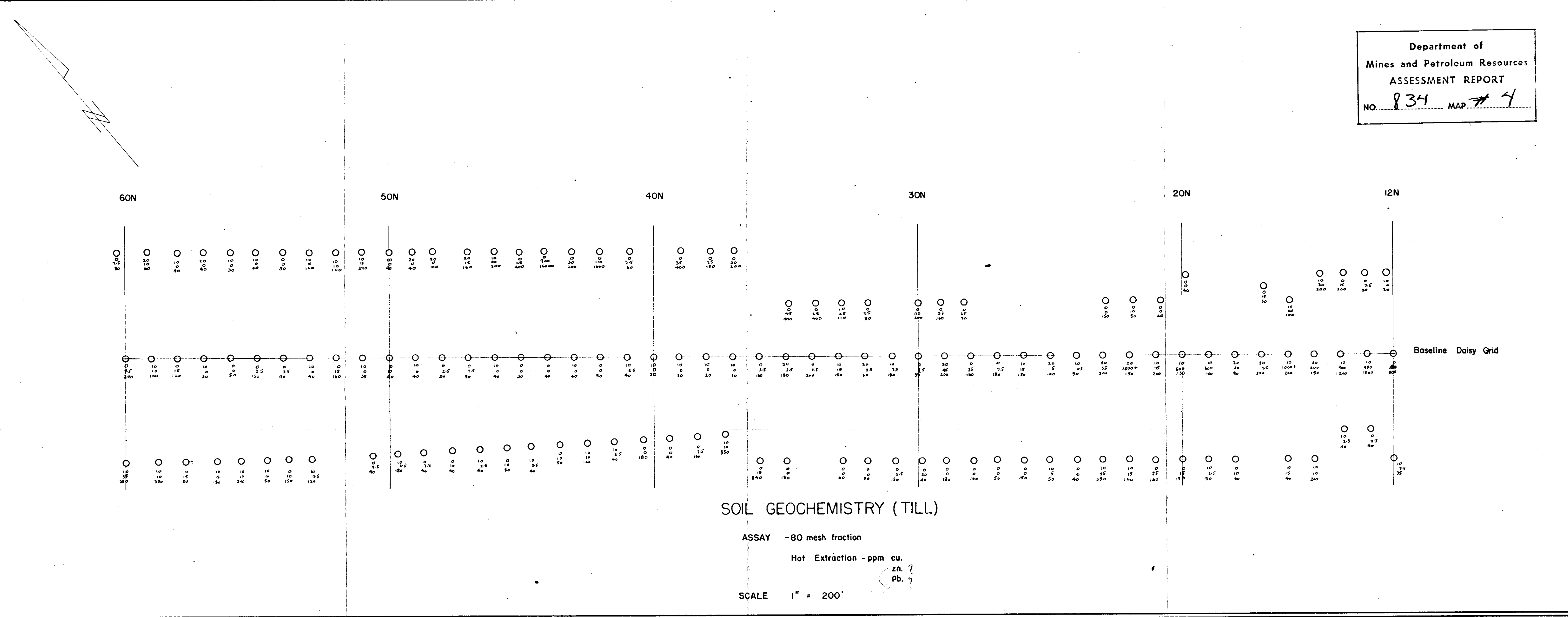
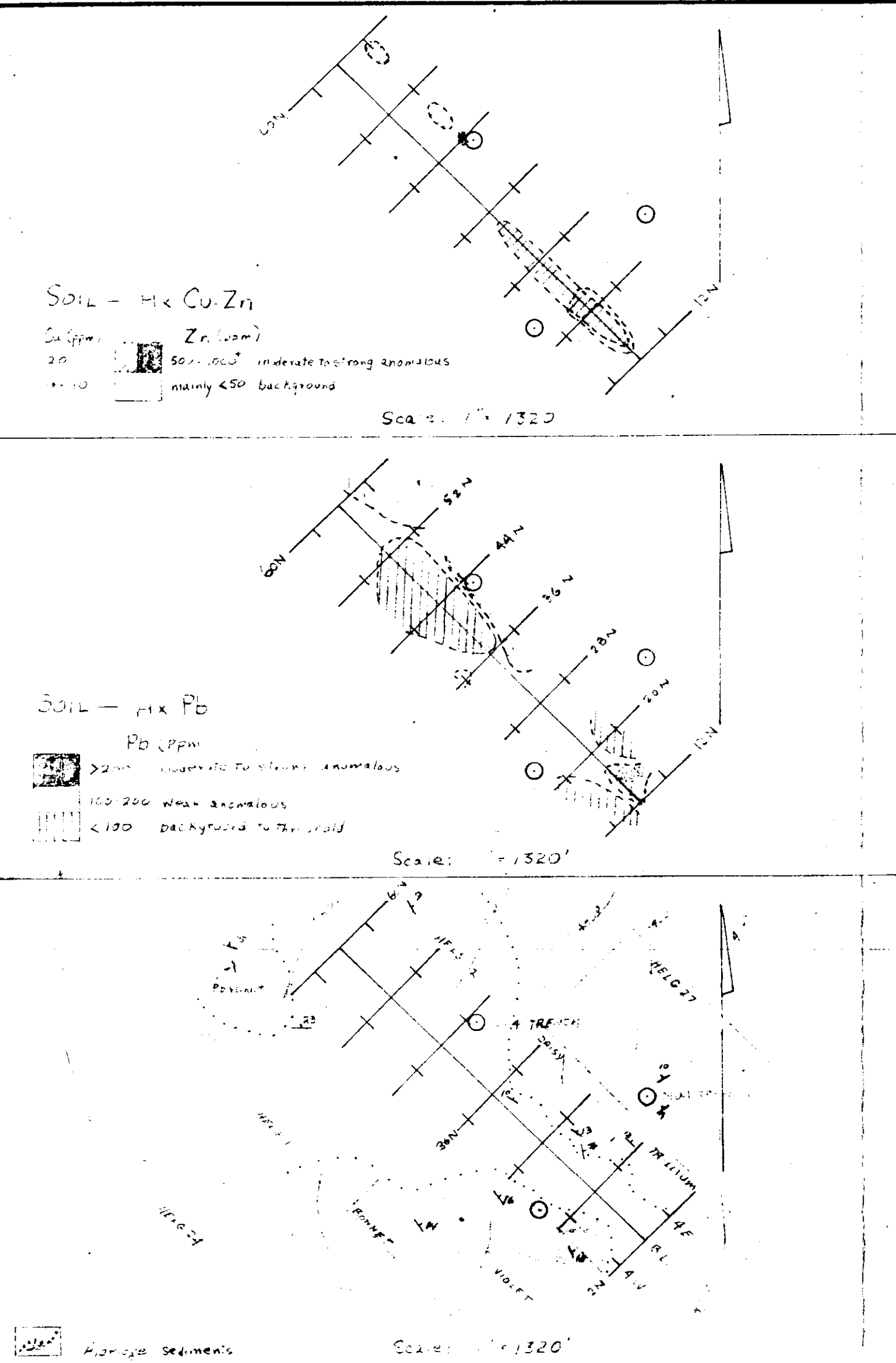
The Consolidated Mining and Smelting Company of Canada Limited			
DRAWN BY: RGG		TRACED BY: RCT	
REVISED BY:	DATE:	REVISED BY:	DATE:
TSCG	12/1/66		
FORS PROPERTY GENERAL GEOLOGY			
FT STEELE M.D.		N53 828-5	
SCALE: 1 in = 1/2 mile (1:31680)		DATE: Nov 26/65	
		PLATE: GEOCH. (4)	



834

TO ACCOMPANY REPORT BY R.G. GIFFORD
ON THE HEG AND HEG 1-4 GROUPS NEAR
HONOR LAKE, FORT STEELE MINING DIV.
DATED: NOVEMBER 7, 1966
SIGNED: R.G. Gifford

The Consolidated Mining and Smelting Company of Canada Limited			
DRAWN BY: RGG	TRACED BY: CME		
REVISED BY: DATE	REVISED BY: DATE		
DATE: Nov 7/66			
BY: STEELE M.D.		NTS 826-5	
SCALE: 1" = 100'		DATE: SEPT 5 1966	
		PLATE: 5	
EDMONTON 210-0670			



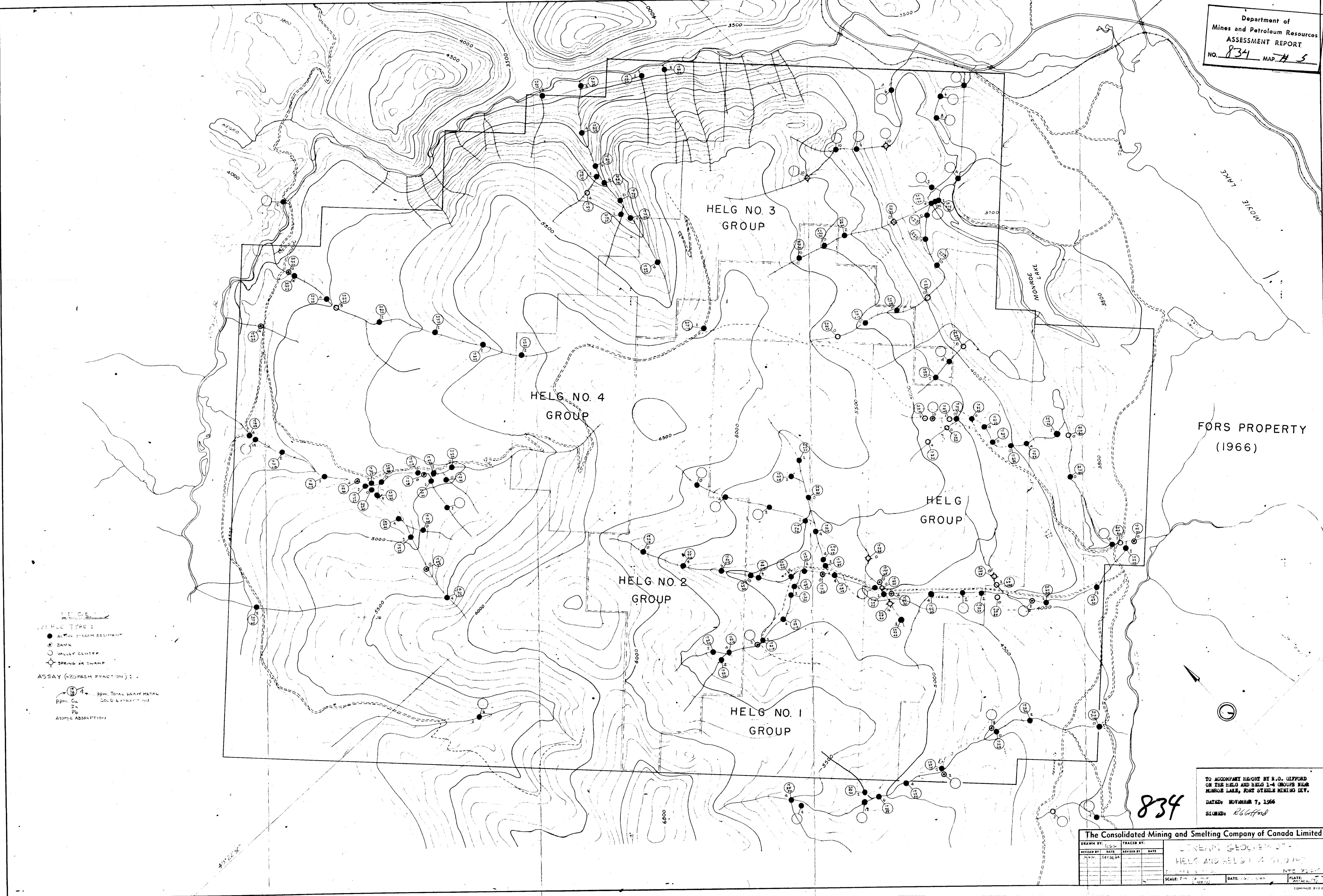
TO ACCOMPANY REPORT BY R.G. GIFFORD
ON THE HELD AND HELD 1-4 GROUPS NEAR
MORSE LAKE, FORT STEELE MINING DIV.
DATED: NOVEMBER 7, 1966
SIGNED: R.G. Gifford

834

The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY: R.G.G.	TRACED BY:
REVISED BY:	REVISED BY:
DATE:	DATE:

FORS PROPERTY
SOIL GEOCHEMISTRY AND
ELECTROMAGNETIC SURVEY NTS 82-G-5
FL Steele M.D. DATE: Sept. 1, 1966
SCALE: As shown



FILE TYPE:
 ● ACTIVE STREAM BEDDING
 ○ BANK
 ○ VALLEY CLUSTER
 ○ SPRING OR SWAMP

ASSAY (40 MESH FRACTION):
 (15) ppm. TOTAL HEAVY METAL
 (15) ppm. Cu
 (15) Zn
 (15) Pb
 ATOMIC ABSORPTION
 (15) ppm. TOTAL HEAVY METAL
 (15) ppm. Cu
 (15) Zn
 (15) Pb
 COLD EXTRACTION

FORS PROPERTY
(1966)

TO ACCOMPANY REPORT BY H.O. CLIFFORD
ON THE HELG AND HELG 1-4 GROUPS NEAR
MONROE LAKE, FORT STEELE MINING DIV.
 DATED: NOVEMBER 7, 1966
 SIGNED: R.G. Clifford

834

The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY: lcc	TRACED BY:
REVISED BY: DATE	REVISED BY: DATE
10/30/64	10/30/64
STREAM GEOMORPHOLOGY	
HELG AND HELG 1-4 GROUPS	
SCALE: 1" = 100'	DATE: 10/30/64
PLATE: 5	PLATE: 5