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Maps

1. Diagrametic Profile
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This report has been examined by the Geological Evaluation Unit.
Approved as to technical worth by:

J C Findlay
RESIDENT GEOLOGIST

Approved as to cost in the amount of $ 14,400.00

R G Redden
EDMONTON OFFICE

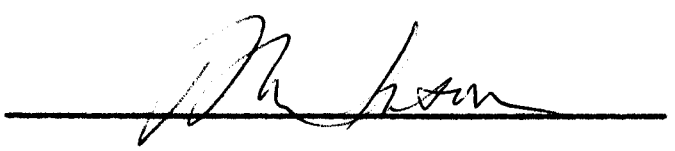
Accepted as representation work under Section 32(1) Yukon Quartz Mining Act.

James Smith
COMMISSIONER OF YUKON

Statement of Costs in Connection with Geological Mapping and Sampling of the Hi Claims

Flying Time (fixed wing)	$ 152.00	
Mapping and Sampling Labor	4,832.24	
Camp Operation	2,706.02	
Board Credit	88.00	
TOTAL	$7,602.26	
Add 25% Overhead	1,900.56	
Total		$ 9,502.82
Estimated assaying charges (400 samples)		400.00
Flying Time FH-1100 Helicopter 22:10 hours at $219.65		4,869.64
TOTAL		$14,772.46

Certified Correct:



Location

The Hi group is located in the Yukon Territory at the headwaters of the Pelly River, about 9.5 miles south west of Mount Wilson. The latitude is approximately 62°47', longitude 129°52'. More specific location is shown on claim sheet 105-I-13. (See accompanying map.)

General

Forty-eight Hi Claims were staked in late August 1967 following the discovery of low grade tungsten mineralization by M. MacDonald and G. Hogarth Jr., prospectors in the employ of Hudson Bay Exploration and Development Company Limited, Winnipeg, Manitoba. Title of the claims was subsequently transferred to the Company.

Following the discovery MacDonald and Hogarth sampled the drainage system in September 1967. No significant values were picked up in this survey.

Geological mapping and sampling was carried out during the 1968 field season by L. R. Larson, D. Kennedy, R. Armstrong, and R. de Carle, under the direct supervision of R. T. McIntosh. Mailing address for the above is c/o Hudson Bay Exploration and Development Company Limited, Flin Flon, Manitoba.

All work performed on the Hi claims has been on behalf of Hudson Bay Exploration and Development Company Limited.

Geological Mapping

A geological mapping program was undertaken during the 1968 field season to determine the most favorable horizons for the occurrence of tungsten mineralization and their extent. Mapping was done by L. R. Larson assisted by D. Kennedy.

A base map on a scale of 1/8 mile to the inch was prepared from aerial photographs. Geology was tied in to the more prominent topographical features by Brunton compass. Elevations were established with a surveying altimeter and contours run with an Abbey hand level.

Geology

The area is underlain by argillite, interbedded with thin to thick bedded limestone and siltstone, intruded by quartz monzonite. The sedimentary series is believed to be Devonian-Mississippian in age and the monzonite Cretaceous. (S.L. Blusson, Map 8-1967 G.S.C.)

Grey quartz biotite monzonite occupies the central part of the map area. It is roughly circular in section with a diameter of approximately 1,200 feet.

Argillite is the dominant rock type in the area. It is normally a fairly well-bedded dark grey to black argillaceous rock. In close proximity to the intrusive the argillite is quite rusty due to oxidization of fine pyrite and lesser pyrrhotite. In part it is altered to hornfels.

Limestone beds from a few inches to several feet in thickness occur interbedded with argillite. Alteration of the limestone is variable, from slight to garnet diopside siliceous skarn. Pyrrhotite with minor chalcopyrite and scheelite was noted. Scheelite is found in association with the garnet diopside skarn and skarn with pyrrhotite and chalcopyrite.

Siltstones grey to buff in color occur interbedded with the argillite.

Detailed Description of Rock Types - L. R. Larson

Argillaceous Rocks

The bulk of the sediments are slightly metamorphosed shales, consisting of argillites, slates, fine grained hornfels and fine grained knotted (andalusite porphyroblast) schists. Minor bands of coarser clastic sediments are present. These include fine grained felspathic greywacke, a slightly gritty dark siltstone, and thin bands of light grey quartzite. Thin bands of calcareous shale are common, seen as finely fibrous actinolite hornfels.

Thermal metamorphism has altered much of the argillaceous rock to fine grained hornfels, light grey to reddish in color. Adjacent to the silicified limestone beds a highly silicified shale resembling the hornfels is also present. Minor occurrences of fine grained knotted mica schist are sometimes found interbedded with minor medium grained hornfels. The distribution of these metamorphic rocks is widespread and not noticeably confined to the area of the quartz monzonite plug.

Light Grey Marbley Limestone

The most abundant type of calcareous rock is a thinly bedded, light grey to pale green marbley limestone, forming well defined units. Bedding ranges from 1/8" to 2" in thickness. Included in some marbley limestone units are thin shale layers, greenish and reddish grey skarn bands representing impure limestone, and interbedded layers of granular limestone described below.

Many units appear silicified to various degrees, the extreme case being a grey, light weathering rock with faint relict bedding and clear quartz blebs.

Minor sulphide mineralization, consisting of pyrrhotite and chalcopyrite, occurs in some marbley limestones, particularly in folded and faulted units, as fine lenses and bands on bedding planes.

Soft Grey Granular Limestone

Forming minor units is a soft, smoky grey, massive limestone, consisting of loosely cemented clear subhedral calcite crystals, medium to coarse grained, with considerable silty material. Many units of marbley limestone have thin interbedded layers of grey granular limestone, in other units they range up to fifty feet thick to form sub-units in a main clacareous unit consisting of marbley limestone, granular limestone and dark green skarn.

Diopside - Garnet Skarn

Associated with the limestone units is a dark green to dull brownish granular skarn consisting primarily of dark green diopside and lesser coarse garnet and idocrase. It is generally massive.

Two slightly different occurrences of dark skarn are found. Uniform beds of skarn occur within marbley limestone and at its boundaries, produced from impure phases and gradational contacts of the limestone. They are more brownish in color and tend to be hard and fine grained and have associated minor pyrrhotite and chalcopyrite.

A second type of skarn is a softer more granular massive rock. Heavy sulphides, pyrrhotite, chalcopyrite and minor tetrahedrite are more common although irregular and patchy in distribution. This skarn appears to be derived from the soft granular limestone. Many dark granular skarn beds have remnants of this limestone within. Skarn occurs locally where granular limestone beds are faulted and forms extensive units where the beds are repeatedly offset. The alteration is attributed to solutions migrating along fault planes.

Beds of granular limestone adjacent to the small quartz monzonite intrusive do not appear go be more estensively altered than elsewhere, except that the skarns may contain coarse tourmaline, idocrase, scapolite and visible scheelite.

Some occurrences of dark skarn, mainly in the southeastern Hi and eastern Min claims, are silicified much as the marbley limestones are. Silicified skarn and silicified limestones frequently occur together Sparse sulphide mineralisation is common.

Within the argillites there are minor thin beds of soft coarse grained actinolite hornfels, derived from a calcareous shale. It consists primarily of dark green-grey actinolite in small fibrous aggregates. These beds carry little or no mineralization.

Interbedded Silty Limestone and Argillite

In contact with some of the light marbley limestones are distinctive units of an alternating sequence of shale beds and dark grey gritty argillaceous limestone in cyclic repetition. The shale beds are from one to three inches thick while the calcareous units are generally slightly thicker. Some of the calcareous beds resemble the soft granular limestone. Others are darker, gritty and commonly contain fine needles of tourmaline. These units are most common towards the bottom of the mapped sequence (north).

Quarts Monzonite

Intruding the sedimentary sequence in the area is an intrusive plug of porphyritic quartz monzonite. The plug is roughly equidimensional, with sharp contacts. The rock is a medium brown-grey color, grading rapidly from fine grained, equigranular at the margin to a coarse grained

porphyritic rock. Grey, euhedral sodium-rich feldspar phenocrysts up to two inches in diameter occur in a medium to coarse grained groundmass of quartz, biotite and muscovite. Within well defined zones phemocrysts form up to 70 percent of the rock.

Associated with the intrusive are a number of fine grained granitic dikes up to 15 feet thick, vertical in attitude. They are similar to the intrusive in composition, resembling its fine grained phase.

Structure

The sediments have a general strike to the northwest with dips varying from 25° to 45° southwest in the southern part of the area to 80° southwest in the north.

Faults have been broadly classified into three systems (F1, F_2, F_3) (see accompanying sterogram) on the basis of their attitudes and displacement.

The major system (F_1) has an average strike of N 50° W, dipping 36° SW. It is associated with and grades to strong tight folding. These faults have attitudes nearly the same as the bedding, being of slightly steeper dip. Movement appears to be largely strike slip, to the southeast on northeast or lower blocks. On the east side of the Hi group there is a minor system of small faults (F_2), striking N 24° E and dipping 64° SE. Apparent movement is upward on the east blocks. The third system (F_3) includes many small near-vertical faults observed as small offsets in limestone and skarn beds. In some areas the movement is predominantly northward on the west blocks; in others no pattern was discerned. A number of faults were seen to offset

previously deformed sequences. Since some skarn alteration is also associated with the obviously later faults, it may be assumed that all major deformation was pre-mineralisation.

Sampling

Sampling of all possible skarn and limestone beds was carried out in conjunction with mapping by R. de Carle and R. Armstrong.

Values in percentage WO_3 are plotted on the accompanying map. In all some 530 samples were collected. Due to the very rugged nature of the terrain it was not possible to channel sample all beds. In most cases representative grab samples of the skarn were taken. Where particular beds showed visible scheelite under the mineral light an effort was made to chip channel the horizon.

One bed of dark grey green garnet diopside skarn shown on Hi 30 (Y-22030) gave values from 0.1 to 0.5 percent WO_3. Highest value was 1.5 percent WO_3 on Hi 11 near the quartz monzonite contact. Other scattered values range up to 1 percent.

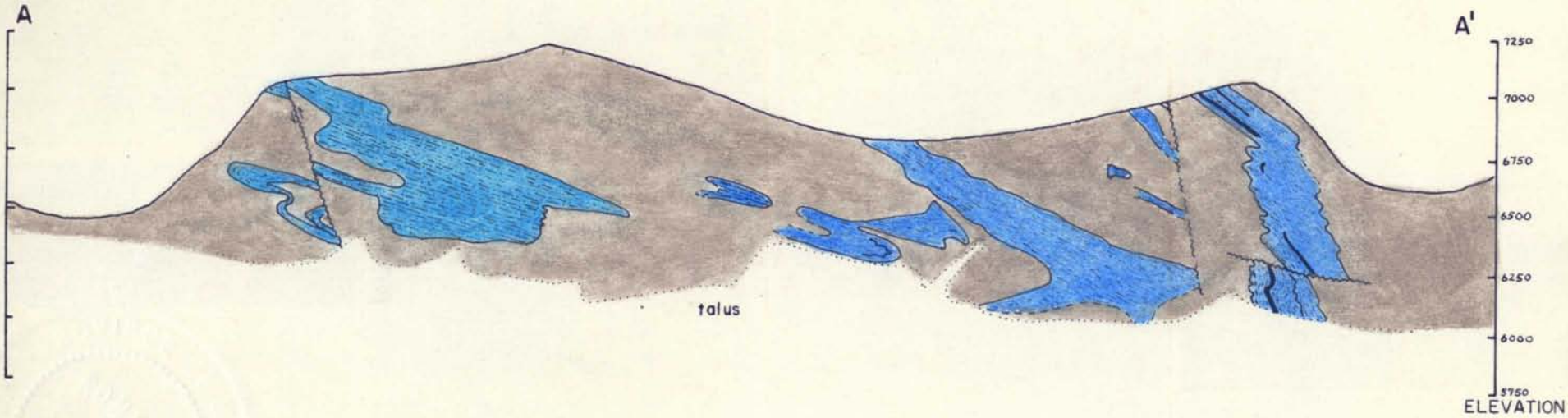
Conclusions and Recommendations

Results of the sampling program were very disappointing. It is recommended that further work on the Hi Claims be limited to detailed check sampling of the skarn beds with values in the order of one percent. Such a program would require two men for one to two weeks.

R. T. McIntosh.

Approved:

R. L. Price, Prof. Engineer
Manitoba and Saskatchewan



shale, argillite

light bedded limestone

interbedded light ls. & grey granular ls.

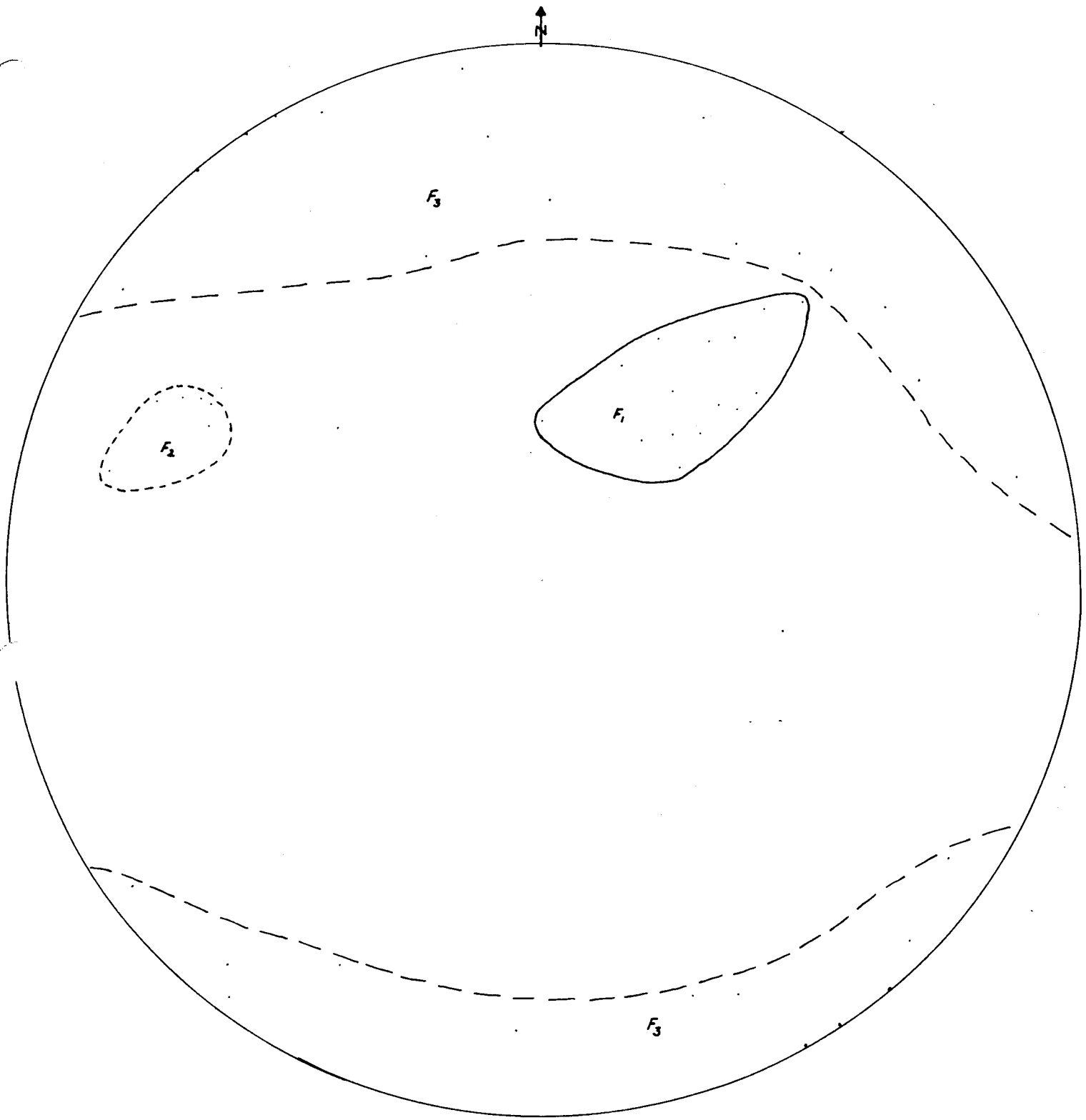
diopside-garnet skarn

DIAGRAMMATIC VERTICAL PROFILE A-A'

LOOKING SSE

HI CLAIMS, YUKON

SCALE 1" = 1/8 mile (APPROX)



STEREOGRAM OF FAULT ATTITUDES
(POLES TO FAULT PLANES)

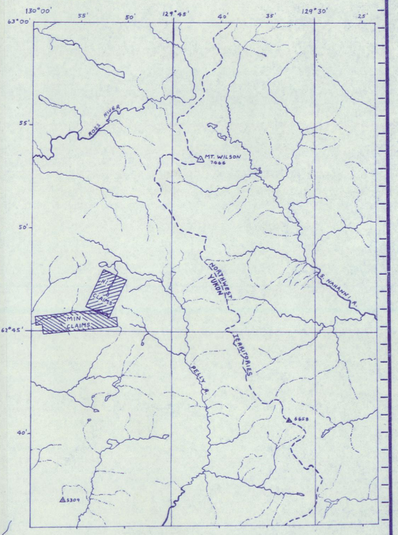
HI & MIN CLAIM AREAS, YUKON

F_1: AVGE. N 50°W/36°SW
F_2: AVGE. N24°E/64°SE
F_3: AVGE. N-S / VERT.

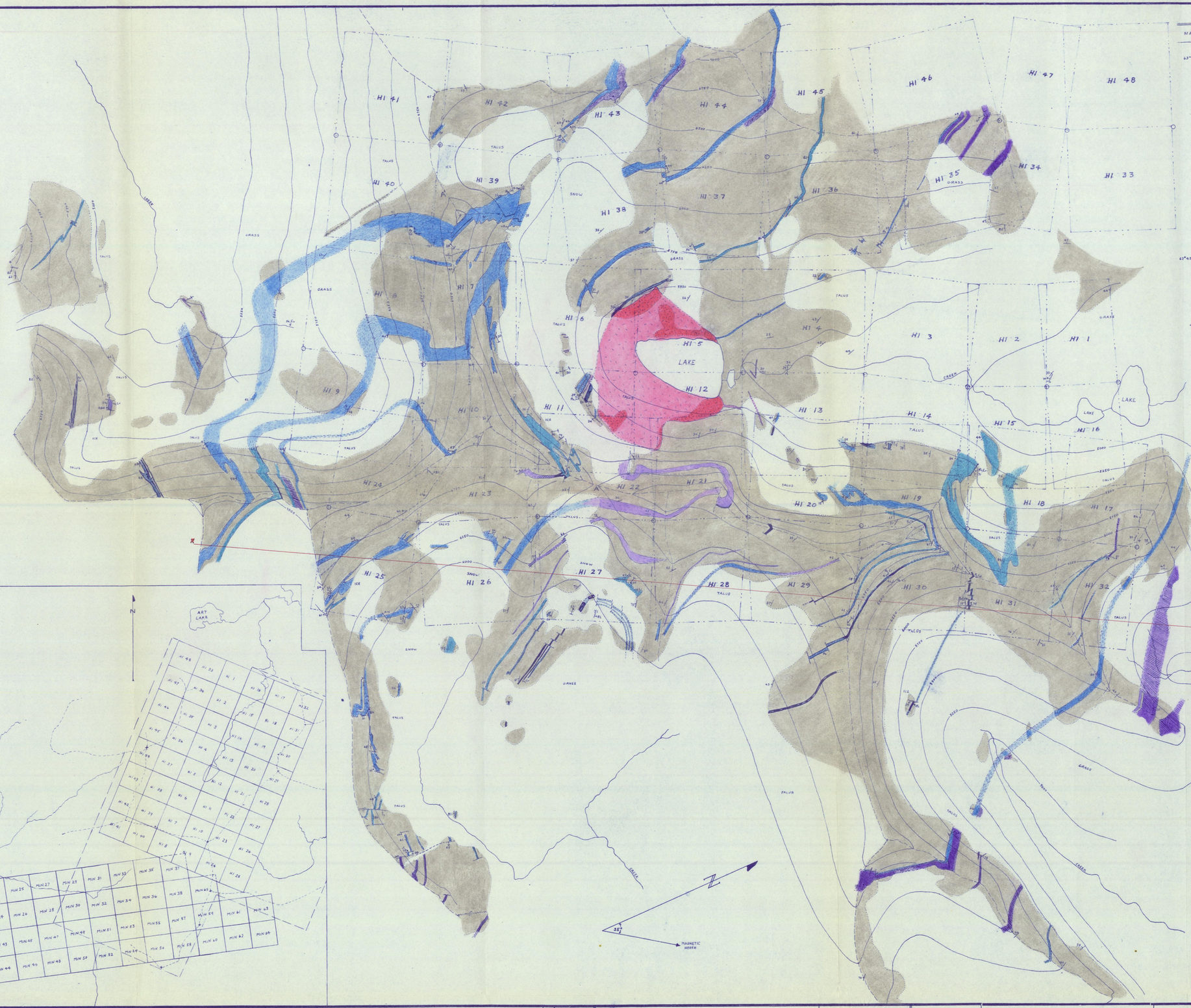
OCTOBER, 1968 L.R.L.

BILL OF MATERIAL

MARK	NO.	SIZE & SHAPE	LENGTH FT.	LENGTH INS.	REMARKS



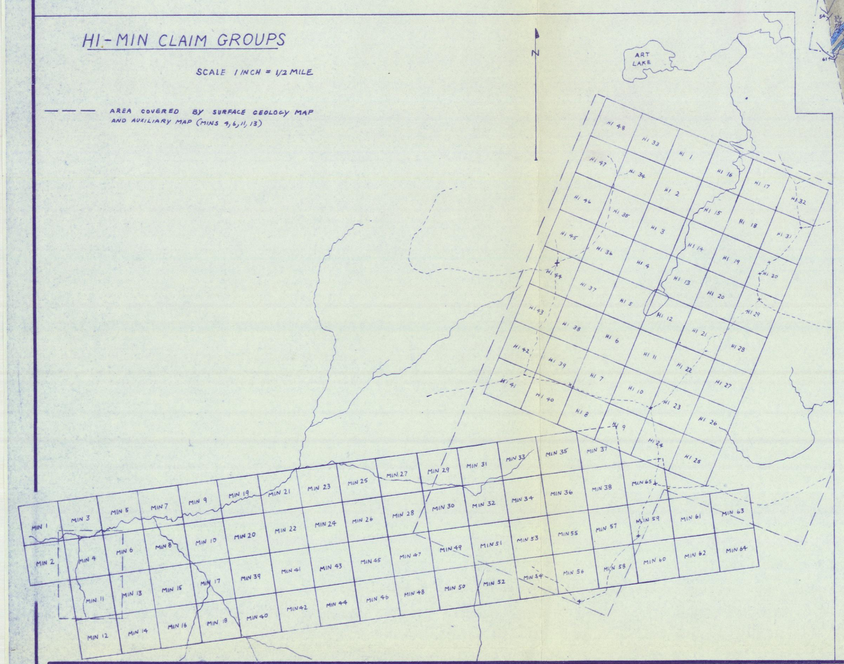
KEY MAP: NAHANNI R. AREA, YUKON - N.W.T.
SCALE 1" = 4 MILES



HI-MIN CLAIM GROUPS

SCALE 1 INCH = 1/2 MILE

AREA COVERED BY SURFACE GEOLOGY MAP AND AUXILIARY MAP (MINS 9, 6, 11, 13)



LEGEND

- QUARTZ MONZONITE INTRUSIVE.
- GRANITIC DIKES.
- LIGHT GREY TO GREENISH MARBLY LIMESTONE, THINLY BEDDED.
- LIGHT GREY SILICEOUS TO CHERTY LIMESTONE, SILICIFIED WITH MINOR PURE QUARTZ PATCHES.
- GREY CAMBLY CALCITE-CRYSTAL LIMESTONE, GRADES TO DARKER GREY SILTY LIMESTONE.
- INTERBEDDED LIGHT MARBLY LIMESTONE AND GREY CRYSTALLINE LIMESTONE.
- DARK GREEN DIOPSIDE-GARNET SKARN.
- DARK GREY-GREEN SILICEOUS SKARN.
- ALTERNATING INTERBEDDED DARK GREY SILTY LIMESTONE AND SHALE, BEDS 2"-4".
- SHALES, ARGILLITES, AND SLATES, WITH MINOR BANDS OF SILTSTONES, ARKOSES, AND QTZITES.

LEGEND

- RIDGE, PEAK
- 6800 — TOPOGRAPHIC CONTOURS, INTERVAL 200'
- BOUNDARY OF ROCK OUTCROP
- LITHOLOGIC CONTACT DEFINED (INTERPRETED)
- FAULT TRACE-DIRECTION OF DIP (INTERPRETED)
- 30 — STRIKE AND DIP OF BEDDING (VERT.)
- PLUNGE OF MINOR FOLD AXES

MINERALIZATION

- Po (Cm) PYRRHOTITE (MASSIVE)
- Cu (Cc) CHALCOPYRITE (HEAVY TO MASSIVE)
- D.D.H. ⊙ DIAMOND DRILL HOLE COLLAR
- CLAIM BOUNDARY AND CORNER

SCALE IN FEET
0 400 800 1200 1600

REVISIONS No.	MADE BY	DATE	DESCRIPTION
1			
2			
3			
4			

REVISIONS No.	MADE BY	DATE	DESCRIPTION
5			
6			
7			
8			

REFERENCES DWG. No.	DESCRIPTION

REFERENCES DWG. No.	DESCRIPTION

		DATE
DRAWN BY:	L.R. LARSON	SEPT/OCT. 1968
CHECKED BY:		
APPROVED BY:		
APPROVED BY:		

HUDSON BAY MINING & SMELTING CO. LTD.
FLIN FLON OFFICE

SURFACE GEOLOGY
HI & MIN CLAIMS
YUKON TERRITORY

SCALE: 1" = 1/8 mile

DWG. No. A-1156A

LAKE

LAKE

LAKE

LEGEND

Ridge, peak

Creek

ASSAYS IN PERCENT WO_3

MAGNETIC NORTH

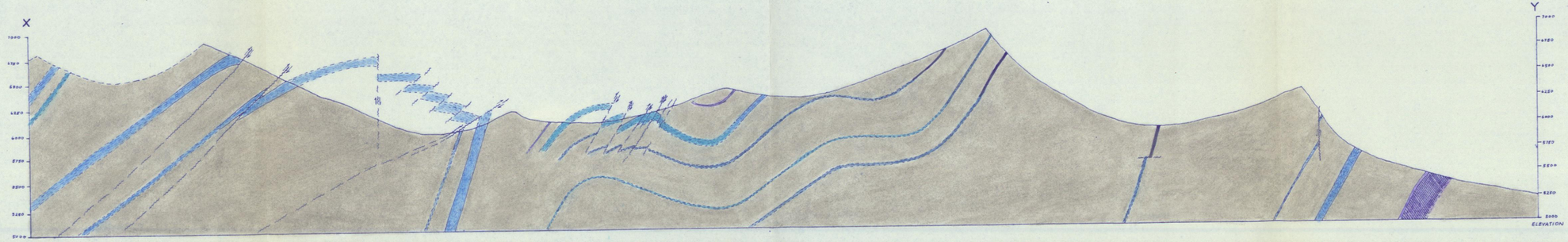
	DATE
DRAWN BY: L. R. L.	OCT. 1968
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

HUDSON BAY MINING & SMELTING CO. LTD.
FLIN FLON OFFICE

SAMPLE PLAN
(ROCK SAMPLE ASSAYS)
HI & MIN CLAIMS
YUKON

SCALE: 1" = 1/8 mile

DWG. NO.
A-1156C



DATE OCT. 1968	HUDSON BAY MINING & SMELTING CO. LTD. FLIN FLON OFFICE	GEOLOGIC CROSS SECTION X-Y LOOKING WNW HI CLAIMS YUKON	SCALE: 1" = 1/8 mile NO VERTICAL EXAGGERATION DWG. NO. A-1156B