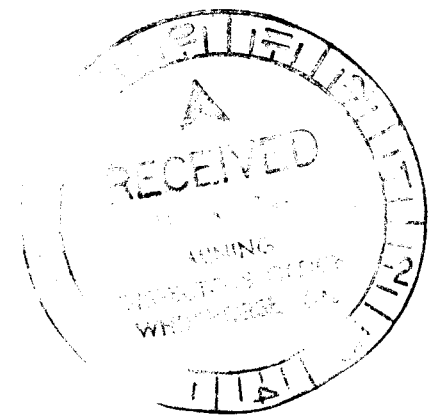




REPORT on the
D.C. Group of Claims
Map Sheet 115-G-2
Whitehorse M.D., Y.T.



by

P.H. Sevensma, Ph.D., P. Eng.

July 23, 1968.

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

D.B. Craig
RESIDENT GEOLOGIST

Approved as to cost in the amount
of \$ 3300 ⁰⁰

J.B. Jones
RESIDENT MINING ENGINEER

Accepted as representation work
under Section 53(4) Yukon Quartz
Mining Act.

[Signature]
COMMISSIONER OF YUKON

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ILLUSTRATION

TABLE I. - Summary of P.H.S. assays.

FIG. 1 - Location map, 1" = 20 miles.

FIG. 2 - Geology, 1" = 1,000'.

FIG. 3 - Magnetic Survey, 1" = 400'.

Report on the
D.C. Group of Claims
Map Sheet 115-G-2
Whitehorse M.D., Y.T.

1. INTRODUCTION

The D.C. group of claims covers a nickel-copper occurrence in the Kluane Range of the South Western Yukon, where several significant nickel deposits are at present under investigation.

This particular occurrence has been known for some time and has recently been restaked for further investigation.

2. HISTORY

The Dickson Creek nickel showing has been known for a number of years and became more generally recognized in the early 1950's at the time of the discovery of several new deposits in the Kluane Range.

Various reliable reports are available of high-grade selected samples of small pyrrhotite veins in a peridotite body, with assays of the order of 5% Ni, 0.8% Cu, 0.11 oz/t Pt and 0.13% Co being reported.

Other occurrences are known nearby to the North and North West, notably near Half Breed Creek.

3. PROPERTY

The property consists of claims D.C. 1 to 22, record numbers Y 24753 - Y 24774. They lie at elevations varying from 4700' to 6000', above timberline. Water supply is good, but there is no significant timber nearby.

4. GEOLOGY

The claim area has been mapped and a magnetometer survey conducted by members of the writer's staff, and Mr. T. Sadlier Brown, in charge of the field mapping, reports as follows:

Quote

A Geological Examination of the Dickson Creek Nickel Prospect, Duke River Area, Yukon Territory (115-G-2)

by T.L. Sadlier-Brown
June 21, 1968

Introduction

The Dickson Creek Nickel Property is a group of 22 contiguous claims (DC 1 - 22 incl.) located on and immediately north of Dickson Creek, a westerly flowing tributary of the Duke River on sheet 115-G-2.

The claims may be reached by helicopter or, as in the case of the present examination, by horse from the Alaska highway via one of the passes through the Kluane Range which lie to the north and east of Dickson Creek. A tractor road which will be suitable for four-wheel-drive vehicles is presently under construction from the highway to the Duke River just south of the head of Half Breed Creek. This should make the property accessible by truck as the valley of the Duke from this point to Dickson Creek, about 6 miles away, is fairly level and open and could be driven down fairly easily.

The claims are at an elevation of about 5000' and well above tree line although the valley of Dickson Creek does contain

several patches of Alder in sheltered places which can be used as campsites.

The examination was carried out between June 14 and 23, 1968 by T.L. Sadlier-Brown and Bruce Fulcher, accompanied by H. Verslucce and J. Shorty of Whitehorse. A reconnaissance geological map was prepared, all showings were examined and sampled, a reference grid was put in, and a magnetometer survey carried out.

Geology

Dickson Creek flows through an area underlain by a sequence of contorted sedimentary and volcanic rocks which have been intruded by basic dikes and are unconformably overlain by the gently dipping lavas of the St. Clare group (Tertiary).

The oldest rocks in the area are the palaeozoic schists, limestones, shales, and cherts which underly the southern half of the claim group. On the mountainside south of the Creek these have a fairly general southerly dip but where they occur in the creek valley they are usually faulted, folded, and steeply dipping in various directions.

The rocks on the mountainside to the south are dominantly rusty weathering limestones, black (and minor red) shales, and chloritic schists. These are shown on the G.S.C. Map (J.E. Muller, Map 1177A 1966) as thrust over the rocks which occupy the creek valley and comprise the host for the known mineralization in the area.

Unit 2 on the accompanying map consists mainly of chert, limestone, schist, minor black shale, tuff and basic lavas.

Although sulphide mineralization occurs in all of these rock types except shale, the chert appears to be the most abundant in the mineralized areas. It is a medium grey to greenish grey banded rock often interbedded with thin strata of what may be tuff, limestone and basic volcanics.

Limestone occurs as thin impure bands within the chert or as well bedded buff weathering horizons forty or fifty feet thick.

Schists are generally white or light greyish green in colour and are composed of white mica, chlorite and other light coloured silicates - like actinolite and tremolite.

Shearing is not uncommon in these rocks and is generally observed in the vicinity of mineralization.

The rocks of unit 2 have been cut by intrusions of two types, gabbro and peridotite (field names). The gabbro is massive medium grained grey green rock consisting of up to 40% dark or medium grey feldspar and dark green pyroxene.

The peridotite is dark green, medium grained and contains about 10% grey green feldspar. Calcite veins, serpentine and disseminated pyrrhotite often appear in it and some evidence of banding parallel to the contacts but well within the dike was observed. Intense shearing in the peridotite occurs in at least one outcrop. The rock is generally quite magnetic and is readily traceable with a magnetometer.

The 4 mile G.S.C. geological map shows the basic rocks as an elongated body striking for about three miles southeast along the north side of the Duke River to a point just north of Dickson

Creek $1\frac{1}{2}$ miles above its mouth. Mapping within the claim group has extended this an additional 4000 feet to the southeast and there are indications that it may go further.

On the banks of Dickson Creek the peridotite forms a dike between 150 and 180 feet wide and paralleled at both contacts by bands of gabbro from 1 to 10 or more feet wide. In the vicinity of line 40 W, 10 + 00 S the peridotite becomes concealed by alluvial material in the bed of Dickson Creek, which it appears to follow to about 17 W, 5 + 00 S. The gabbro to the north, however, widens to a body that may be several hundred feet across. Several occurrences of sulphide minerals were observed near the contact between this body and the chert and schist host rocks.

The youngest rocks in the area are the layered volcanics of the St. Clare Group. They occur in much of the northern part of the property and form the range of mountains to the north and east of Dickson Creek. They also outcrop along the lower part of the creek to about 6000 feet above its confluence with the Duke at which point they are in faulted contact with the limestone and shale of unit 1.

The volcanics are mainly reddish brown vesicular and amygdaloidal basalts with a moderate northerly dip. Some fragmental material was, however, observed near the east end of the grid and some massive extensively jointed material occurs in the block in the lower part of Dickson Creek.

Mineral Showings

Sulphide mineralization is of three types and has been observed in six general localities on the claim group.

Areas 1, 2, and 6 are showings of disseminated pyrrhotite and minor chalcopyrite in the peridotite dike.

Areas 3, 4, 5, and 6 are occurrences of massive or nearly massive pyrrhotite with minor chalcopyrite and pyrite in veins and lenses in and near the cherty rocks of unit 2.

In Areas 4 and 6 chalcopyrite and pyrite occurs disseminated and in stringers in the chert. It is generally close to the massive sulphides.

Showings are described below under the numbers given them on the accompanying map. Assay values given for nickel are for sulphide contained metal only.

Area 1.

Line 56W, 12 + 00S. The showing is on the north side of Dickson Creek in the peridotite dike which is about 150 feet wide at this point. Pyrrhotite and minor amounts of chalcopyrite are disseminated in what appears to be a vertical band or bands parallel to the strike of the intrusive and indicated by a reddish to rusty weathering colour. Elsewhere the rock surfaces are black or dark green. The most prominent band is about 6 feet wide and occurs in the interval 98' - 118'. Malachite stain and some sulphide mineralization occurs in the dike and the host rocks sporadically for about 1000 feet southeast along the strike. Serpentine is fairly common in the peridotite here although appreciably more was observed at Area 2.

Table: Area 1

Assay Values for Chip Sample from North to South Across 138 ft. of Peridotite Dike

<u>Sample No.</u>	<u>From</u> - <u>To</u>	<u>Interval</u>	<u>Cu %</u>	<u>Ni %</u>	<u>Description</u>
A.0007	0 20	20	.01	.125	Massive Peridotite
A.0008	20 23	3	tr	tr	Massive Gabbro
	23 43	20			Covered
A.0009	43 63	20	tr	.16	Massive Peridotite
	63 73	10			Covered
A.0010	73 98	25	tr	.14	Massive Peridotite
A.0011	98 118	20	.02	.145	Massive Peridotite Incl. 6' Rust Weathered.
A.0012	118 138	20	.03	.145	Massive Peridotite
Weighted average across 138 feet: Cu .01, Ni .11					

Assay Value for Chip Sample Along Strike of Dike

A.0006	56W - 48W	1000	.03	.15	Massive Peridotite.
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Area 2.

40W, 8 + 00S. This showing is located about 1200 feet southeast along the dike from Area 1. The peridotite dike at this point is about 180 feet wide and bound on both sides by narrow strips of gabbroic rocks. Pyrrhotite and chalcopyrite are disseminated throughout parts of the ultramafic which appears to be extensively serpentinized in this area. A few narrow veins of soft fibre asbestos and a number of serpentinized shears cut the peridotite. Two wide shears near the centre of the dike strike at

130° and appear to roughly parallel its contacts. They have contributed to extensive weathering and crumbling of the adjoining peridotite.

A chip sample was taken from north to south across 140 feet of dike rock. Results are tabled below:

Table: Area 2.

Chip Sample Across 140' of Dike

<u>Sample No.</u>	<u>From - To</u>	<u>Interval</u>	<u>Cu %</u>	<u>Ni %</u>	<u>Description</u>
	0 40	40	-	-	Covered
A.0013	40 70	30	tr	.145	Peridotite, Outcrop and Slide Material
A.0014	70 100	30	.08	.215	Sheared Peridotite and Serpentine, Red Rust Stain.
A.0015	100 130	30	.10	.165	Sheared Peridotite, Strong Shear at 100'
A.0016	130 180	50	.07	.18	Peridotite and Gabbro Contact with Chert

Weighted average across 140 feet, Cu .064, Ni .18,

Beyond this locality to the southeast the dike follows the creek bed and is covered by alluvial materail for about 13,000 feet.

Area 3.

26 W, 8 + 00S. Mineralization in this area consists of massive pyrrhotite, pyrite, and minor chalcopyrite in narrow veins and lenses trending at about 54° in a well fractured and rust stained banded chert. The showing is located just opposite the mouth of the tributary of Dickson Creek flowing from the north about 10,000 feet east of the Duke River. The sulphides are exposed on cliff faces and in talus within 100 feet or so of the assumed contact with the ultramafic body in the creek bed. The largest mineralized area

consists of a patch of massive or nearly massive pyrrhotite with disseminated chalcopyrite apparently associated with a volcanic fragmental lens and a limestone band within the chert formation. The area is about 15' in vertical extent and 5' wide and occurs on a cliff face.

Table: Area 3

Assay Values For #3 Area

<u>Sample No.</u>	<u>Description</u>	<u>Cu %</u>	<u>Ni %</u>
A.0001	Volcanic Fragmental, Representative Sample from South Side Dickson Creek	.02	.095
A.0005	Massive Sulphide Grab Sample from Showing in Chert	.12	tr

Area 4.

28W, 0 + 00S. The occurrence is located about 500 feet up the west side of the creek joining Dickson Creek from the north near the #3 showing. It consists of lenses and veins of massive pyrrhotite, pyrite and chalcopyrite in sheared cherty and schistose rocks near the contact with a gabbro body. A grab sample of massive sulphide (# 0004) ran - Cu .18, Ni tr.

Area 5.

24W, 3 + 00S. Located on the north bank of Dickson Creek, this showing consists of small veins or lenses of massive sulphide, mainly pyrrhotite, in the chert just east of the gabbro contact.

Area 6.

17W, 4 + 00S. Sparse disseminated pyrrhotite occurs in a small outcrop of peridotite on the south side of Dickson Creek. The peridotite is dark green and massive resembling the occurrences

at Area 1 and 2. A representative sample of this material (# A.0002) ran Cu .01, Ni .17 .

The chert wall rock immediately south of this occurrence is also mineralized but with massive pyrrhotite, probably similar to showings described earlier. A sample (A.0003) of this material ran Cu .25, Ni tr.

Magnetometer Survey

During the period of the examination a magnetic survey was carried out by B. Fulcher using a Sabre portable vertical component magnetometer.

An anomalous area averaging about 2000 gammas above background and having a peak value of 5000 gammas above background, conforms well with the observed position of the peridotite dike. The anomaly is between one and two hundred feet wide, over 68,000 feet long and appears to be open at both ends. The most extreme magnetic highs are in areas of known sulphide mineralization although several apparently related highs have their sources obscured by overburden.

North of the strong magnetic linear and in the vicinity of lines 28W, 32W, and 36W, south of the base line, is an area of above background magnetics which may be related to a salient of peripheral gabbroic rocks in the area.

Discussions and Recommendations

Sulphide mineralization in the Dickson Creek area appears to be closely related to a peridotite dike cutting the sedimentary and volcanic rocks in the creek valley. Mineralization occurs either disseminated in the peridotite or as massive bodies of unknown dimensions in the adjacent rock, primarily a cherty band. Present

information suggests that encouraging Ni values are to be found only within the peridotite while copper values are at best in the mineralized chert where they generally run about .1% or slightly more.

As a Cat D 7E is understood to be available on the property trenching to the east and west of the known showing area is recommended as the immediate course likely to produce direct information most efficiently. Areas recommended for Cat work are:

1. Line 64W from 8S to 13S.
2. Exposure in vicinity of 17W, 5S and overburden covered area along # 2 BL from about 15W to 16W.
3. Magnetic high at about 4W, 1S to 4S.

Prospecting should be carried out further to the east of the present grid along the possible extension of the magnetic anomaly.

Line cutting and the magnetic survey should be extended to line 100W.

Unquote

5. ECONOMIC POSSIBILITIES

The writer examined the property on June 27, 1968, and took a number of check samples in critical locations, the list of which is attached as table 1.

Assaying of these samples was done by Coast Eldridge, report No. A. 3-S, 2-68-189, dated July 10, 1968.

In the area of samples 37 and 38, there is a higher than average pyrrhotite content in patches and veinlets in intensely sheared peridotite. The outcrop is conspicuous by patches of yellowish-green stain typical of nickel occurrences. The main shearing is striking to the SE.

The writer's samples consisted of pyrrhotite-bearing serpentized peridotite without the secondary staining.

Sample 41 was taken of a "normal" outcrop of serpentinite with very little pyrrhotite.

As a result of all the sampling carried out on the claims by Mr. Sadlier-Brown and by the writer, it is concluded that the normal values in the peridotite are of the order of 0.05 - 0.10% Cu and 0.10 - 0.20% Ni.

Where enrichment occurs due to concentrations of pyrrhotite apparently related to major NW - SE shears, the overall grade increases to about 0.35 - 0.40% Ni and 0.20 - 0.40% Cu.

In addition, in the area between 4200' W and 1600' W and south of the peridotite dyke, there are two types of other sulphide occurrences in the chert wall rock.

The first consists of massive pyrrhotite lenses. Sample 39 was taken from a lens about 10' thick x 15' long of irregular shape. Sample 40 was taken from float about 1100' East of sample 39.

The second type of occurrence consists of irregular stringers of chalcopyrite, mostly from 1" - 4" wide, distributed vandomly in the chert, and estimated to assay about 2 - 4% Cu.

These two types of occurrences are most abundant in the area where the gabbro is strongly developed. Intense alteration of the gabbro occurs around 2400' - 2800' W, slightly South of the base-line.

In summary, there are a number of sub economic nickel, copper and pyrrhotite occurrences apparently associated with strong shearing in the area where the gabbro forms a partially altered plug, between about 1600' and 4400' W.

Regionally, this mineralization is associated with a near E-W trend of the peridotite "dyke" and associated formations, whereas the normal trend is NW.

Significant nickel occurrences (Quill Creek, Micro) are also associated with nearly E-W striking segments of the NW trending peridotite belt.

In this particular area between 1600' W and 4400' W, there is in fact a primary geochemical high in nickel and copper associated with a partially altered gabbro plug in the form of a halo of sub-economical copper and nickel showings. This halo is centered about near the junction of the creeks at 2800' W.

Further assessment of the economic potential of this local area requires some careful detailed prospecting and geological mapping as the local copper showings may be related to a specific structure that warrants electromagnetic investigation.

This area of interest extends from about 1600' W to 4400' W and from about 2000' N to 2000' S.

6.. RECOMMENDATIONS

Detailed geological mapping and prospecting in the area of the gabbro plug is recommended, to assess the existence of a possible structural control related to more concentrated mineralization.

This work should decide whether an electromagnetic investigation is warranted to assess the presence of a significant conducting mass in this local area.

The cost of mapping and prospecting is estimated at about \$2,000 overall, including transportation.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'P. H. Sevensma', written over a horizontal line.

P. H. Sevensma, Ph.D., P.Eng.

Vancouver, B.C.
July 23, 1968.

TABLE I

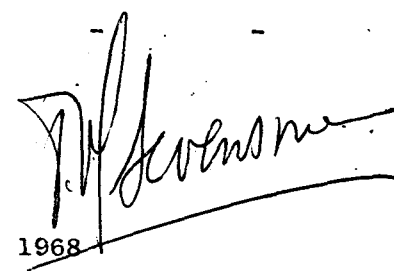
SAMPLES TAKEN JUNE 27, 1968 BY P.H. SEVENSMA ON
THE D.C. GROUP OF CLAIMS, 115-G-2, WHITEHORSE M.D., Y.T.

No.	Location	Width	Cu	Ni	Pt	Pb	Zn	Ag	Au
37	4,200'W, 1,000'S Serp. + Pyrrh.	3'	.23	.38	tr	-	-	-	-
38	4,150'W, 1,000'S Serp. + Pyrrh.	20'	.38	.39	tr	-	-	-	-
39	2,800'W, 800'S Pyrrh. lens 10'x15'	10'	.37	.01	-	.34	.15	.1	tr
40	1,700'W, 350'S Pyrrh. float	?	.97	tr	tr	-	-	-	-
41	1,700'W, 400'S Black Serpentine 20' x 50'		.07	.19	-	-	-	-	-

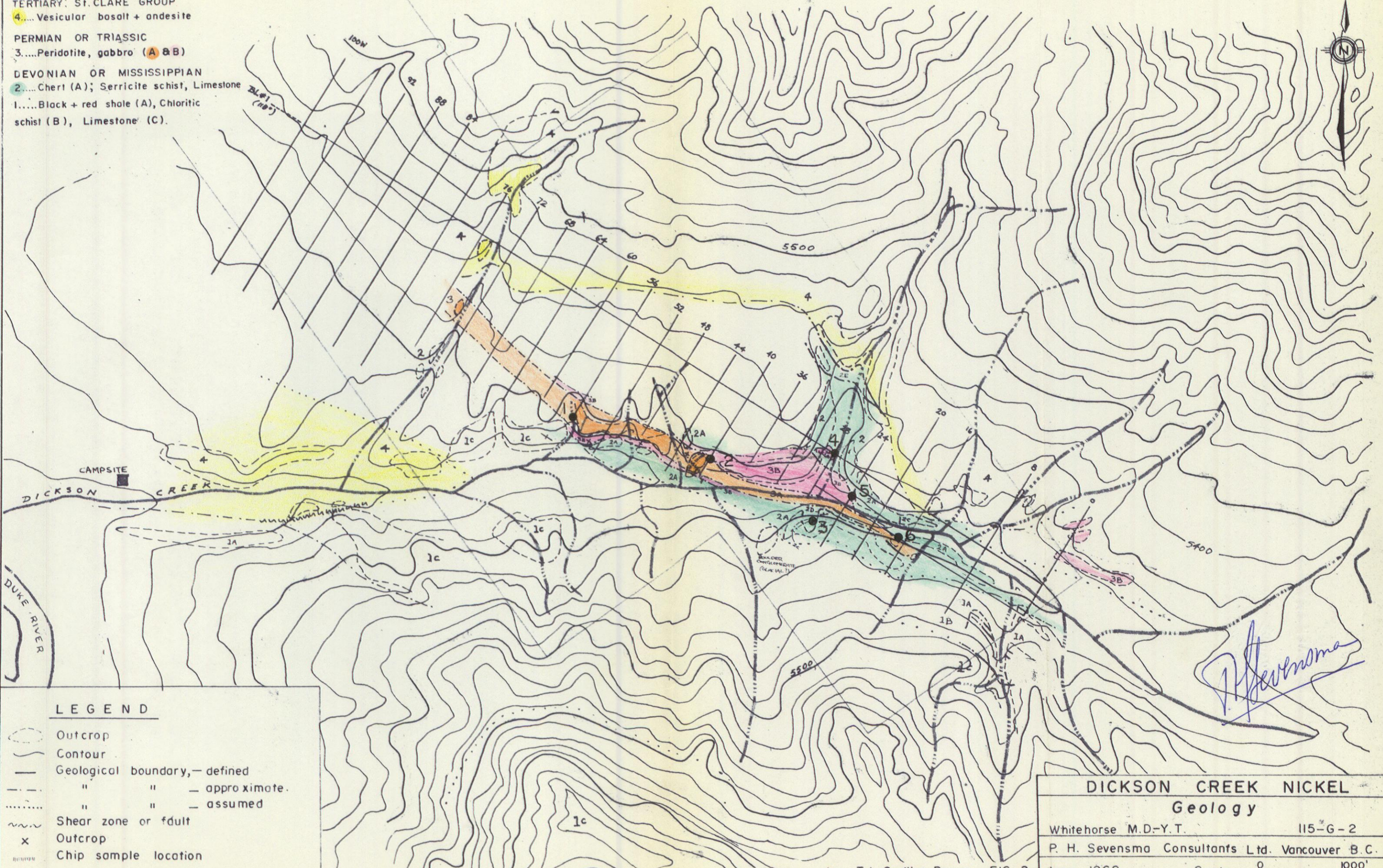
- = Not assayed

All five assays by Coast Eldridge, Report No.189, July 10, 1968

All other sixteen assays in this report by Whitehorse Assay Office,
Report 4575 - 16, July 9, 1968.



TERTIARY: ST. CLARE GROUP
 4..... Vesicular basalt + andesite
 PERMIAN OR TRIASSIC
 3..... Peridotite, gabbro (A & B)
 DEVONIAN OR MISSISSIPPIAN
 2..... Chert (A); Serricite schist, Limestone
 1..... Black + red shale (A), Chloritic schist (B), Limestone (C).

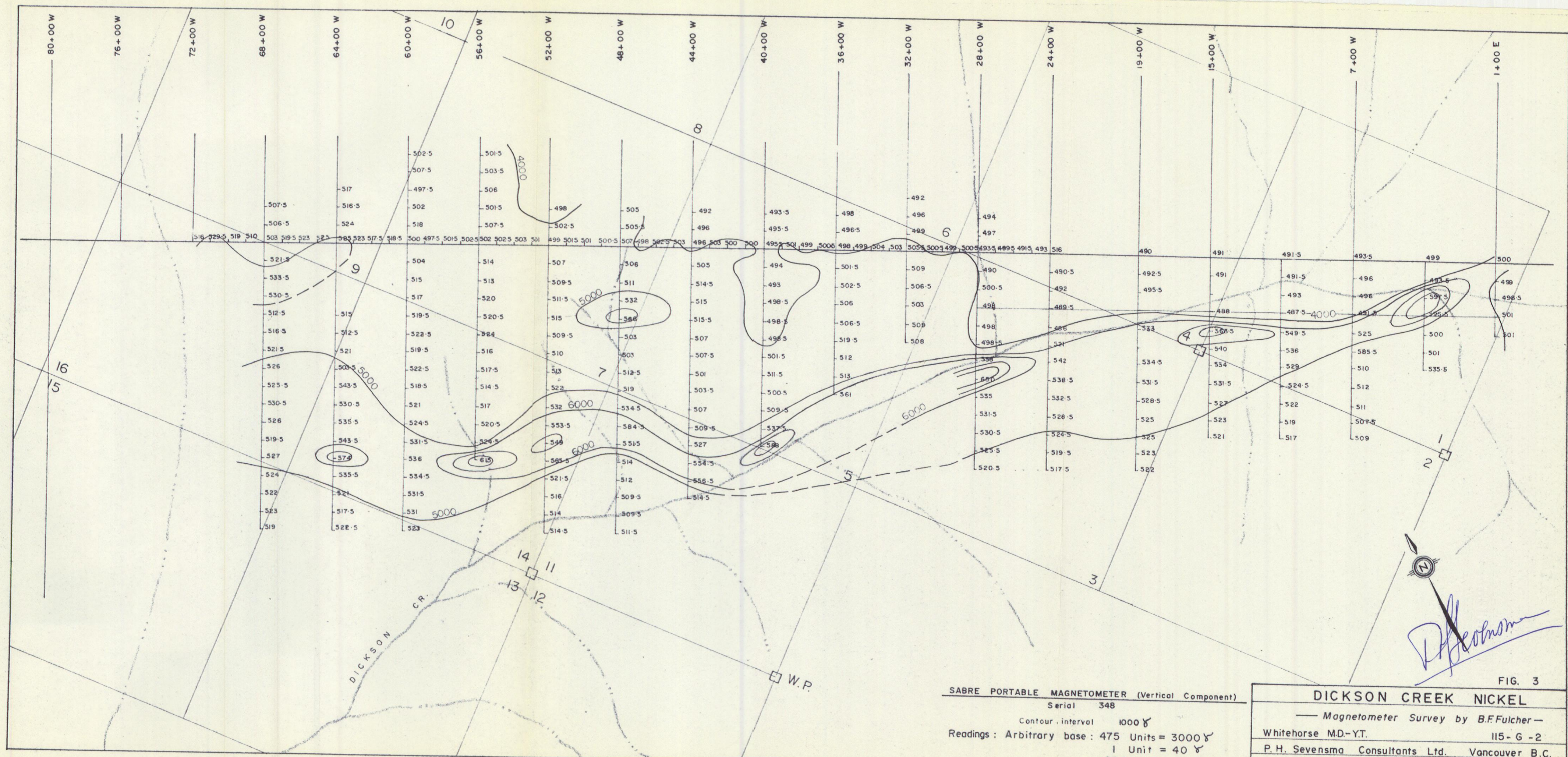


LEGEND

	Outcrop
	Contour
	Geological boundary, — defined
	" " — approximate
	" " — assumed
	Shear zone or fault
	Outcrop
	Chip sample location

DICKSON CREEK NICKEL
Geology
 Whitehorse M.D.-Y.T. I15-G-2
 P. H. Sevensma Consultants Ltd. Vancouver B.C.
 June 1968, Scale: 0 1000'

Geology by T.L. Sadler-Brown. FIG. 2



SABRE PORTABLE MAGNETOMETER (Vertical Component)
 Serial 348
 Contour interval 1000 γ
 Readings: Arbitrary base: 475 Units = 3000 γ
 1 Unit = 40 γ
 600 Units = 8000 γ

FIG. 3
DICKSON CREEK NICKEL
 — Magnetometer Survey by B.F. Fulcher —
 Whitehorse M.D.-Y.T. I15-G-2
 P.H. Sevensma Consultants Ltd. Vancouver B.C.
 June 1968, Scale 0 400'