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GROVE EXPLORATIONS LTD. (N.P.L.)

REPORT

FRENCH MINE PROPERTY

HEDLEY, B.C.

W.M. Sharp, P. Eng. July, 1976

SET - 5.

July 26, 1976

President & Directors  
Gove Explorations Ltd. (N.P.L.)  
Suite 2002 - 1055 West Georgia Street  
Vancouver, British Columbia

Attention: Mr. J. D. Brown

Gentlemen:

Pursuant to your instructions, the undersigned hereby transmits his report "GEOLOGY & ORE POTENTIAL of the FRENCH MINE PROPERTY, HEDLEY, B.C., SIMILKAMEEN/OSOYOOS MINING DIVISIONS."

This report is based on the writer's personal examination during June 19-20 and July 19, 1976, on previous B.C. Government reports, but mainly on the large file of maps and data resulting from previous exploration-development-mining operations at the property -- and kindly loaned to the writer by Messrs. Gerald I. Burr and Edward Mullin of Princeton, B.C. All of the helpful assistance provided by Messrs. Burr, Mullin, and Brown is hereby thankfully acknowledged.

Yours truly,



W. M. Sharp, P. Eng.

WMS/sjb

REPORT  
GEOLOGY & ORE POTENTIAL  
of the  
FRENCH MINE PROPERTY  
near  
HEDLEY, B.C.  
in the  
SIMILKAMEEN & OSOYOOS MINING DIVISIONS  
(49°19'N., 120°-01' W.)  
(N.T.S. SHEET 92H/S.E.)  
for  
GROVE EXPLORATIONS LTD. (N.P.L.)  
VANCOUVER, B.C.  
by  
W. M. Sharp, P. Eng.  
North Vancouver, B. C.  
July, 1976

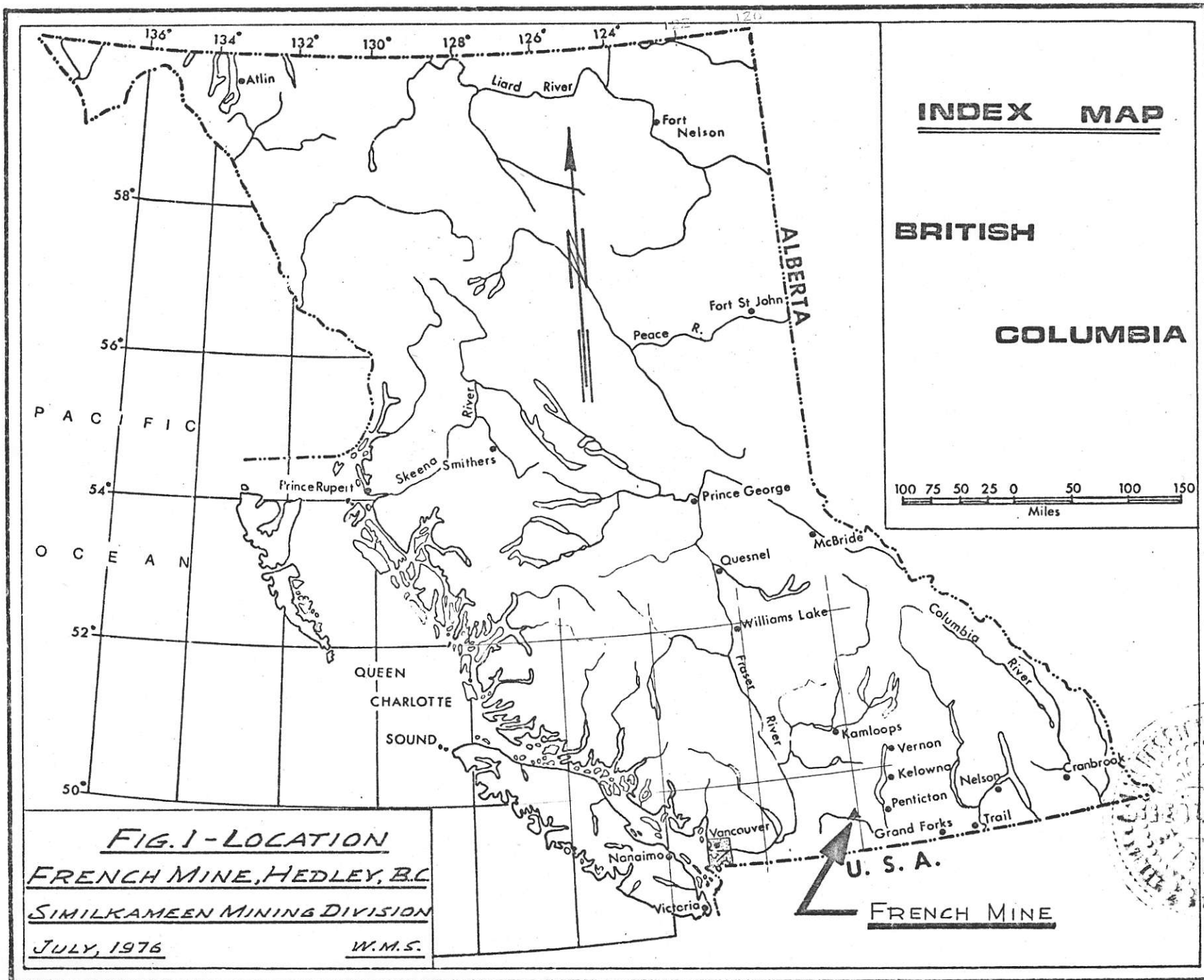
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	SEC. N.W.-1 )	in pocket
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	SEC. N.W.-4 )	
REFERENCE MAP:	OREGON CLAIM, ASSAY PLAN, SCALE 1" = 30', 15 FEB., 1944....	in pocket





SUMMARY & CONCLUSIONS

The French Mine property situates at about 4 straight-line miles southeast of Hedley, B.C. It is directly and easily accessible by road. The property comprises one block of 11 Crown-granted mineral claims and fractions plus 4 full-sized and 1 fractional located claims; all claims are contiguous. Foreseeable extensions of the French ore zone and possible zones paralleling it are quite adequately covered by the present claim group. The property is very favourably situated in regard to the various physical, geological, and economic factors which are expected to have a significant effect on the result of future exploration, development, and mining operations.

Small-scale development of the original (copper) showings was carried out between 1905-17 --- with low metal prices forcing a termination of this initial program. A major program, directed towards the exploration and development of both old and new showings was begun by the Kelowna Exploration Co. in 1949; production followed until 1955, with the ore going to this company's mill. Development and production were reinitiated by the Cariboo Gold Quartz Mining Company in 1956, and continued until May, 1961. The latter company constructed their own 50 ton/day 'cyanide' mill at Hedley to process the ore. The gross ore production from 1950-61 amounted to 84,926 tons, or 52,369 troy oz. of gold. This, at a gold price of \$35/oz. plus associated minor silver values, resulted in a return of \$1,863,570 from the gross production.

*0.616 g/ton*  
*0.62 g/ton*

The French orebodies, situating within the same general structural/lithological setting that hosted the

'Nickel Plate', 'Mascot', and 'Good Hope' mines, occurred in silicated limestone and tuff, or 'skarn'. Gold in the French ore occurs mainly in the 'free' state and in conjunction with bismuth telluride. The optimum development of the skarny rocks which host the mineralization takes place within the more strongly folded and fractured panels of bedding. Ore was (open -) stoped between the French and Cariboo faults, over an east-west (fold-axial) length of 700 feet, on individual lateral spreads or widths, of 30-100 feet, and on average thicknesses of 6-10 feet. Locally, ore occurring in some silicated crumpled and fractured sections of bedding was mined to heights exceeding 50 feet.

Ore within the West Copper Zone is distinctive, in that it comprises disseminated and fracture-filling bornite/chalcopyrite with associated gold/silver values. It occurs as both tabular bodies and irregular swells in skarny host rocks developed from more or less folded and fractured limy sediments adjacent to the French fault zone. The currently indicated ore reserves within this particular zone are estimated to be 9624 tons, grading 0.15 oz./ton in gold, 3.0 oz./ton in silver, and 2% copper. The writer's current estimate of the general ore potential of the property, based on the past production and the possibility that at least one repetition of the French ore structure will occur within the extensive panel of favourable sediments adjoining the mine, is approximately 100,000 tons @ 6/10 oz. gold per ton. On the basis of this general potential the writer considers that the following recommendations are fully warranted. In regard to these recommendations the writer notes that the cost of searching for 'blind' orebodies by drilling and tunnelling methods

alone could be prohibitive. Hence, on the basis of probable association of base metal sulphides with at least parts of such prospective orebodies, the writer proposes the use of geophysical methods -- if preliminary tests indicate that they might be adaptable.

### RECOMMENDATIONS

#### STAGE I

- (a) Explore and develop indicated ore within West Copper Zone; concurrently, carry out mining and stockpiling operations where integration of this with exploration-development operations is advisable and feasible.
- (b) Undertake indicated orientation surveys, and follow-up with a preliminary program of combined geological-geophysical-geochemical exploration for possible 'blind' ore zones outward of the mine workings.

#### STAGE II

- (a) Test or explore <sup>lateral and</sup> depth extensions of existing copper showings and/or possible mineralization indicated by I (b) exploration --- via surface diamond drilling.
- (b) Explore for possible extensions of French ore zone to east of Cariboo, and also for depth-extensions of West Copper Zone, and 'glory-hole' copper showings --- via underground diamond drilling if indicated by comparisons of underground vs. surface drilling costs.

#### STAGE III

- (a) Step-out exploratory diamond drilling and delineation-drilling of targets indicated by Stages I and II exploration.

STAGE III (continued)

(b) Provision --- for required extensions of geological and geophysical investigations.

STAGE IV

Open --- probably to include drifting, crosscutting, etc.

ESTIMATED COSTS

*WMS Initial Spore - 502.50*  
*WMS Initial Rept. - 1795.53*  
*(prior to charges below) S.F. #2298.03*  
*WMS Invoices*

STAGE I (Re (a): estimate 1-month minimum).

(a)	Loader & Operator--all found basis	\$ 3,000	
	Compressor, rock drill, steel, hoses, etc., rent & operation	1,200	
	Wages--/miner, 22 1/2 shifts @ \$80/shift	1,800	
	Explosives--estim. 1000 (tons) x 2 lbs. x 50¢	1,000	
	Supervision--periodic basis	600	
	Vehicle rental & operation--periodic basis	600	
	Motel & meals--33 man-days	1,000	
	Provision--overhead & contingencies, @ 20%	1,840	
(b)	Grid preparation-- 5 mi. @ \$150/mi.	750	
	i.P. Survey--gross cost, 5 mi. @ \$1000/mi.	5,000	
	Provision for V.L.F. or standard EM check-surveys	1,000	
	Provision for geochemical surveys	(1,250)	
	Geological mapping, supervision, map & report-prep.	2,500	
	Provision for overhead, omissions, & contingencies, @ 16%	3,460	

*11,040*  
*11.04/T*  
*20/T*  
*Subst 500-750*  
*(\$1312.65)*  
*(Inv. F&E)*

TOTAL, STAGE I \$25,000

*Total Stage I - 2nd chgs*

STAGE II

(a)	Surface dia.-drilling--1000' @ \$16/ft., gross cost	\$16,000	
(b)	Underground dia.-drilling--800' @ \$15/ ft. gross cost	12,000	
	Provision for core-sampling & assaying	500	
	Provision for geological engineering	1,000	
	Provision for supervision--periodic basis	800	
	Provision for travel & accommodation	1,500	
	Provision for overhead, omissions & contingencies, @ 10%	3,200	

*by Nov 30/76 only*  
*199' done*

*\$794.97*  
*(Inv. F&E)*

TOTAL, STAGE II \$35,000


*WMS*

STAGE III

(a)	Surface drilling--3500' @ \$16/ft.	\$56,000
	Underground drilling--1000' @ \$15/ft.	15,000
	Sampling & assaying	1,000
(b)	General provision for extended investigations	5,000
	Geological engineering, supervision	2,500
	Travel & accommodation	2,500
	Overhead, omissions, & contingencies, @ 10% approx.	8,000
	<b>TOTAL, STAGE III</b>	<b>\$90,000</b>

STAGE IV - open

Respectfully submitted



---

W. M. Sharp, P. Eng.

*WMS*

## INTRODUCTION

Prior to its acquisition by the present optionors the French (Oregon) property had been extensively developed, and its high grade gold orebodies mined -- initially, as a 'sweetener' for the Nickel Plate mine production, and latterly as the source of feed for the small 'French' mill at Hedley.

The gold-silver-copper mineralization at the French property occurs as disseminations and open-space fillings in firm competent skarn/limestone rocks. Mining--mainly underground--was done by open-stope methods, and all of the existing tunnels and stopes are safely accessible without major difficulty.

The writer, along with Mr. J. D. Brown, examined the mine showings and records during June 19-20, and July 19, 1976. In this, the above were very helpfully assisted by the owners, Messrs. G. I. Burr and E. Mullin of Princeton, B.C., and also, to a very significant extent, by Mr. J. Biggs of Penticton, B.C. -- former Mine Superintendent at this property. During these two days, field work by the writer comprised local surface and underground mapping and check-sampling in conjunction with inspections of geological maps, sections, and other records left by the former operating companies. Since the examination the writer has compiled the detailed composite maps and sections accompanying this report - based on the several sets of highly detailed geological, development, drilling, and assay maps kindly loaned to the writer by Mr. Burr. This, with the objective of providing currently-representative composite plans and sections of the main and



westerly workings, has required the expenditure of considerable office time -- much of it on pantographic reductions, fitting, and reconciling detail on the various sub-sets of maps and sections comprising the Kelowna/Cariboo map set.

The writer's secondary references for this report include:

- (a) Geological Survey of Canada Memoir 243, by H.M.A. Rice.
- (b) B.C. Dept. of Mines, Annual Reports, 1950-61.
- (c) Geological Survey of Canada Map 568-A. 'Hedley', 1 in. = 1 mi.

#### PROPERTY

##### (a) Location, Access, & Mine Workings

The mine workings, generally trending east-west and lying between 3785-4000 foot elevations, situate at about 4 straight-line miles southeast of Hedley, B.C.; more locally, they lie closely east of Cahill Creek.

The mine is on the 'Oregon' mineral claim. From Hedley, it is reached via Highway 3 for about 1 1/2 miles, thence northward and eastward via the Nickel Plate and French roads for about 6 1/2 miles.

The mine was developed from three adit levels --- the 3920 (Kelowna) adit, the 3835 (Granby) adit, and the 3785 (Cariboo) adit. These are all connected by the generally through-going, flatly-east plunging series of stopes and connecting stope-raises and ore-passes.



(b) Physical Features & Climate

The Hedley area situates within the deeply dissected southerly end of the Interior Plateaux. The area is one of high relief - amounting to about 5000 feet -- between the Similkameen Valley bottom and the summit of Lookout Mtn. The French property, on the broad S.E. slope of Nickel Plate Mtn., situates at an elevation where hill-slopes break from moderately to steeply southward towards the main valley bottom. Also, it locates near the lower boundary of the regional up-land forest belt --- above the lower belt of grass and sage brush range-land.

At the elevation of the property the annual precipitation, as rain and snow, is moderate; however, it is significantly greater than that within the dry-belt zone of the lower slopes and valley bottom. The annual temperature range is approximately minus-30 to plus -100 degrees F.

(c) Claims

The property consists of 11 Crown-granted mineral claims and fill-in fractions plus 4 full-sized and 1 fractional located claims. All are contiguous, and together comprise one block of sufficient area to cover all extensions of the French ore zone and geologically-possible, parallel zones of similar gold-silver-copper mineralization within skarny rocks to the north of it. Claims comprising the property are detailed in the following schedule.

<u>"Crown Grants":</u>	<u>Name-M.C.</u>	<u>Lot or Record No.</u>	<u>Mining Division</u>	<u>Registered Owner/Holder</u>
	Oregon	70 <sup>3</sup> <del>5</del> S	Similkameen	Edward Mullin & .G. Burr of Princeton, B.C.
	Savage	704 S	"	"
	Hope	112 S	"	"
	Tat	3870 S	"	"
	Nal	3871 S	"	"
	Key	3872 S	"	"
	Two Sisters	3873 S	"	"
	Oregon Fraction	3874 S	"	"
	Winchester Fraction	3875 S	"	"
	Sun	3876 S	"	"
	Moon	3877 S	"	"
<u>"Locations":</u>				
	<i>Bot?</i> -Dot	7054 E	Osoyoos	"
	Dry	7055 E	"	"
	Mayfly	7056 E	"	"
	Wasp	7057 E	"	"
	Centi-pede Fr.	7058 E	"	"

All claims appear to be in good standing. Specific details of the Agreement between the optionors and Grove Exploration Ltd. (N.P.L.), whereby the latter may eventually acquire the property, are available at its registered office or from its principals.

(d) Exploration/Mining Facilities

All mining equipment and fixtures were sold following the shut-down of operations in May, 1961.

Consequently the existing mine plant comprises only 'fixed' items such as the adits and other mine workings, the access road, and the water supply -- all of which are quite accessible and useable. In addition, the stand of Interior fir on the claims, held by the optionors and available to the Company, comprises the best material for surface structures and mine timber.

The regional source of exploration services and major items of mining and milling equipment is Vancouver -- some 200 highway miles from the property. Local sources of mine labour, smaller items of mining and construction equipment and supplies are located at Princeton and Penticton -- respectively at some 30 and 50 miles from the property. Exploration-drilling contract services are available from Merritt, Kamloops, and Vancouver.

#### HISTORY & PRODUCTION RECORD

The showings, situating in what now comprises the 'West Copper Zone', were discovered around the year 1905. Intermittent development work was done on them between 1905-17 -- latterly by the Granby Copper Co. However, this was not continued due to the fact that copper, the metal of main economic interest at the time, did not appear to be present in sufficient quantity or grade at the then-existing low price-levels.

In 1949 Kelowna Exploration Co. Ltd. optioned the 'Oregon' property from F. H. French, drove the 3920 adit, and began production in 1950. Production continued until September, 1955, when it was terminated due to the closure of both the Nickel Plate mine and mill.

In 1956 Cariboo Gold Quartz Mining Company Ltd. acquired a controlling interest in the property, and formed 'French Mines Ltd.' to operate it. This company resumed development by driving the 3785 adit, rehabilitating other workings, and by building a new haul-road. They also constructed a 50 ton/day 'cyanide' mill at Hedley. Production by Cariboo G.Q.M.C. began on August 26, 1957 and continued until May 21, 1961.

The amount of copper-gold ore mined prior to 1950 is not known. Official records show subsequent production as follows:

<u>Years</u>	<u>Company</u>	<u>Dry Tons Ore</u>	<u>Troy Oz. Gold</u>	<u>\$ Product Au/Ag</u>
1950-55	Kelowna Ex.	32,463	25,960	947,540
1957-61	Cariboo G.Q.	52,463	26,409	916,030
Totals, 1950-61		84,926	52,369	\$1,863,570

The right to explore and mine the property was acquired by Grove Explorations Ltd. (N.P.L.) in the Spring of 1976, under the terms of an option granted by Messrs. Burr and Mullins. Currently, preparations for a preliminary mining program are being made.

#### GENERAL GEOLOGIC SETTING

In general, the Princeton map area is predominantly underlain by rocks of the Nicola volcanic/sedimentary Group and the Coast Intrusive system. Within the Hedley-Nickel Plate Mtn. area the Nicola Group is represented by a distinctive series of sediments which, above their granodiorite basement, comprise the Red Top, Sunnyside, Nickel Plate, Red Mountain, and Aberdeen formations. Of these, the Sunnyside limestone and the

'Nickel Plate' assemblage of limestone-argillite-quartzite-chert-breccia-tuff comprise the principal host rocks containing the gold ore deposits of the Nickel Plate, Mascot, French, and other mines and prospects within the Hedley camp.

The orebodies of Nickel Plate Mtn., which includes the French property within its S.E.-extended lower slopes, occur in garnet-pyroxene skarn or in more-or-less silicated limestone and related limy sediments. This particular rock assemblage occupies a west-dipping wedge which situates between its granodiorite floor and the steeply west-dipping Bradshaw (or '20-mile') thrust-fault. In more detail, this wedge of sediments has been sliced, folded, and crumpled by flatter subsidiary thrust-faults, and complexly intruded, altered, and mineralized by a system of gabbro dykes and sills which root in the 'Climax' and 'Toronto' stocks. The assemblage is further complicated by transverse folding and crumpling on W.N.W.-trending, steeply-dipping axial planes. The resulting trough-and-nose complex, particularly where it occurs in the gabbro sill-dyke zone, or within the zone of transition from skarn to limestone ('marble-line'), furnishes one of the principal structural controls for the Nickel Plate mineralization --- the latter mainly comprising disseminated, gold-bearing arsenopyrite (loc. pyrrhotite) which preferentially replaces certain of the lime-silicate minerals comprising the skarny host rocks.

#### DETAILS-MINE GEOLOGY

The French gold-silver-copper mineralization also occurs within the general 'Nickel Plate' section of

sediments and tuffs. The local assemblage, however, occupies a N.E.-opening embayment on the contact of the main granodiorite body. The bulk of the ore mined to date has derived from a section of typically crumpled, fractured, and altered limestone and limy tuff which ranges from about 15 to 60 feet in thickness. Skarn zones within this panel are predominantly bedding-controlled, but frequently spread upward into higher bedding sections by way of steeply-dipping fold-related faults and fracture zones. The main limestone/skarn horizon is underlain and overlain by thicker panels of soft-schistose to hard-silicified interbedded tuff and argillite containing occasional strong, but at least locally barren bands of limestone. The mined ore section appears to have been localized to the favourable beds lying immediately above a footwall zone (channel ?) of shearing and brecciation and, more locally, to steep tension fractures and faults along axes of folding and crumpling. Several features of the French structural geology are similar to those which controlled the Nickel Plate/Mascot ore deposition.

The French mine ore beds, like the Nickel Plate structures are strongly folded to crumpled along westerly to northwesterly-trending axes. The gross deposit is a composite of several generally-connecting ore lenses, or masses having highly irregular outlines. Successive vertical cross-sections drawn normal to the local axial trend of the mineralization show that the bulk of the ore occurs as lateral 'spreads' on major (basal) skarn beds, but that a significant portion of it occurs as 'swells' and 'prongs' extending above (and below) these beds via crumple axes and faults -- frequently involving 'offsetting' on the latter. Locally, it also occurs along higher or lower skarn beds, which frequently connect with the main or subsidiary ore beds via the above-noted types of 'channel-structures'.

Within the upper and westerly one-third of the mine (Sec 0 to + 12) ore beds tend to dip flatly southward (out-of-the-hill), or to be flatly arched. Within the lower two-thirds of the mine (East Sec. II to XVIII) the general bedding section dips to the north and northeast -- generally ranging between  $15^{\circ}$ - $50^{\circ}$  with the steeper dips occurring within the deeper, more northerly workings. Five cross-sections (Kelowna Ex. IV-VIII) interpret the main bedding structure to be a large drag-fold, 'overturned' to the north. Within the upper and relatively flatter limb of this structure the ore occurs within two distinct skarn layers -- separated by 5'-25' of relatively unaltered sediments. Locally, the upper and lower ore beds merge via zones of fracturing and/or crumpling. In general, ore outlines tend to become more tabular and simpler towards the east end of the mine workings. However, it is fairly apparent that the relatively more massive and higher-grade mineralization tends to relate to the more highly folded sections of the mine bedding structure -- more particularly in arched or drag-folded, faulted, or crumpled and fractured sections of mixed green and brown skarn. Within most of the ore mined the gold is not associated with sulphide mineralization, but occurs free and in conjunction with bismuth telluride. Some free gold is visible. Generally, the best values occur in skarn comprising mixture of brownish garnet and streaky green pyroxene.

The gross bedding section containing, but extending northward and eastward and, for a limited distance southward of the French stopes appears to have a general and moderate northerly dip. Evidence from surface mapping indicates that pronounced folding or crumpling also occurs



within the general section, and that at least some of the beds involved are limestones which lie stratigraphically above and below the French ore horizon. On the basis of the above evidence, and on the general possibility that typical 'crumple structures' tend to occur throughout the gross 'Nickel Plate' bedding section, the writer believes that there are good possibilities for the occurrence of non-outcropping, 'Nickel Plate-type' ore zones within the boundaries of the claim group. The immediate extensions of mineralization, or of favourable skarn layers into the walls of existing stopes comprise more direct, but relatively smaller exploration targets. However, the faulted extension of the French ore zone, which is assumed to lie east of and under the Cariboo fault, constitutes a high-priority exploration target.

Stoping was accomplished over an E-W distance of some 700 feet --- being limited to the west by the French fault zone, and to the east by the Cariboo fault. The former, comprising separate steeply southeast-dipping and northwest-dipping parallel faults, effects moderate displacements via 'slumping' (?) of the contained 'block' of sediments. The 40° westerly-dipping Cariboo fault on the other hand, on the basis of evidence from internal structures, appears to be an oblique-slip fault on which the relative displacement of its hanging wall block was to the N.N.E. and slightly upward -- perhaps 15°-20°. The apparent displacement on the fault and the symmetry of major drag-folding within the 'mine-panel' of bedding both appear to be harmonious and the result of a general N.N.E.-directed crowding-stress -- such as might be expected to result from the intrusion of the large mass of granodiorite to the south or, more generally, to the same 'transverse' stresses that caused the 'Nickel Plate' fold system.



The pattern of minor drag-folds and shear-fractures within the Cariboo fault, plus the fact that they have not been entirely obliterated, suggests that only a moderate amount of displacement has taken place. Consequently, the faulted extension of the French ore zone -- assuming that such an extension exists -- should not be too far to the south and below the 3785 level. The writer suspects that at least a significant proportion of the fault displacement was post-ore; however, verification of this will hinge on the results of the proposed exploratory diamond-drilling from such stations as can be obtained at a reasonable cost.

The 'ore beds' within the presently stoped area of the mine generally ranged between 6 ft. and 10 ft. in thickness. More locally, and mainly within the westerly one-third of the mine, blocks of ore within strong crumple/fracture zones were mined to heights of 50 feet, or more -- frequently resulting in break-throughs to the surface, or 'glory-holes'. Individual tabular ore bodies were mined over lateral widths which ranged from about 30 to 100 feet. Locally, the composite cross-sectional width of stopes, or of ore-grade mineralization, reached 200 feet.

The mineralization in the West Copper Zone includes disseminated and fracture-filling bornite/chalcopyrite in skarns occurring adjacent to the main branch of the French fault and, less conspicuously, in beds situating within 150 feet southeast of it. Mineralization within this zone is characterized by the relative abundance of copper sulphides -- as compared to the bulk of the non-sulphide type of ore mined during 1955-61. In the past, ores with a significant copper content, although carrying appreciable amounts of gold and silver, were left un-mined because of their effect as cyanicides on precious-metal recoveries made by the French mill.

*Rece: p. 78 - The ore consists of bornite, chalcopryrite, arsenopyrite, and pyrrhotite, in a met. ls. country of quartz, garnet, epidote (+ white to greenish & brownish pyroclones (& amphiboles?))*

Ores adjacent to the French fault result from replacements and fracture-fillings in skarn, and occur as near-tabular to highly irregular masses. The bedding section involved tends to vary from simple west-dipping to highly warped, crumpled, and fractured. The more irregular masses or 'swells' of ore are generally the result of combined fracture-filling and replacement mineralization. Ore widths, as interpreted on the accompanying set of vertical sections from N.W.-0 through N.W.-4, range between 5 ft. and 20 ft. Drill-hole intersections of copper mineralization (via K-28, K-29 etc.) shown further west on the original mine sections indicate that there is a possibility that significant extensions of the mineralization occur to the west, across the fault. This westerly area, however, is relatively untested or unexplored; hence, the data are insufficient to warrant the inclusion of such possible extensions in the current ore estimates. The present information indicates that the west zone copper mineralization, although best developed near the fault, is not fundamentally controlled by it. Consequently it is not expected to persist much below the horizon at which the basal section of the mine skarn zone impinges on the fault.

#### ORE ESTIMATES - WEST COPPER ZONE

The basic data for these are contained in the accompanying set of Sections N.W.-0 through N.W.-4. Based on a host rock comprising nearly equal parts of garnet, pyroxene, and calcite + quartz, and an average 5% content of bornite/chalcopyrite, the ore tonnage - factor is estimated at 10.3 cu. ft. per ton. Indicated tonnages are as follows:

Sec. N.W.-0, N.E. side only	231 tons	
Sec. N.W.-0 1/2	1604 "	
Sec. N.W.-1	1854 "	
Sec. N.W.-2	1726 "	
Sec. N.W.-3	1421 "	
Sec. N.W.-4, S.W. side only	382 "	<u>7218 tons</u>

This, expanded by 1/3 for probable waste dilution = 9624 tons

A weighted-average grade is estimated from the following samples and assays shown on Dwg. No. F-2:

Sample/Assay No. or Location	Measured Length, ft.	Au, oz./ton	Ag, oz./ton	Cu %
(1)	6.0	0.02	N.A.	1.72
(2)	6.0	tr.	N.A.	1.62
(4)	6.0	0.13	N.A.	0.82
d.d.h. K-26, cut 50%	6.0	tr.	8.8	8.7
(7)	7.0	0.01	N.A.	1.61
(8)	7.0	0.21	N.A.	3.36
(9)	7.0	0.05	N.A.	4.74
(16)	7.0	0.01	N.A.	2.10
(17)	6.0	0.03	N.A.	6.80
(18)	6.0	0.01	N.A.	1.12
(20)	6.0	0.14	N.A.	0.41
(21)	5.0	0.16	N.A.	1.60
d.d.h. F-4	10.0	0.82	6.38	2.38
'Copper-Cut'; avg. of 2	8.0	0.60	2.37	1.29
Upper Skarn, Sec.+4	8.0	0.048	1.65	1.28
3910 outcrop, Sec.-1	9.0	0.80	4.5	4.4

(Abbreviations: N.A. = not assayed; tr. = trace, d.d.h. = diamond drill hole).

The calculated weighted-average grade, taking oz./ton Ag @ 3/2 x % Cu, is Au, 0.2 oz./ton; Ag, 4.0 oz./ton; Cu, 2.7%. Indicated mineable reserve, including the above - noted allowance for dilution = 9624 tons @ Au, 0.15 oz./ton; Ag, 3.0 oz./ton; Cu, 2%.

With gold @ U.S. \$110.00 per oz. x 0.15 = \$16.50  
 silver @ U.S. \$4.50 per oz. x 3.0 = \$13.50  
 copper @ U.S. \$0.74 per lb. x 40 = \$29.60

Gross Value	\$59.60 per ton, U.S.
or approx.	\$58.40 " " funds
	Can.funds

The writer's preliminary estimate of the net smelter value of the recoverable content of the ore is approximately \$41.00 per ton, Can. funds.

GENERAL ORE POTENTIAL

In view of the restricted extent of past exploration, and the consequent lack of specific data on which to base an ore estimate, present estimates of the ore potential of the property must be based on the geological probability of a repetition of the structural/lithological conditions that produced the French ore zone. The writer considers that such a repetition is quite probable --- based on the fact that the property situates within the general 'Nickel Plate' structural/lithological setting, and that several features of the French mine structure resemble those which hosted the orebodies of the Nickel Plate, Mascot, and Good Hope mines. With this, the writer infers one repetition, at least, of the French mine structure within the property, and an ore potential equivalent to that previously mined plus the currently indicated ore reserve plus possible extensions. On this basis the general ore potential would be about 100,000 tons @ 6/10 oz. gold per ton - with or without a generally significant copper content.

Respectfully submitted,



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W. M. Sharp, P. Eng.




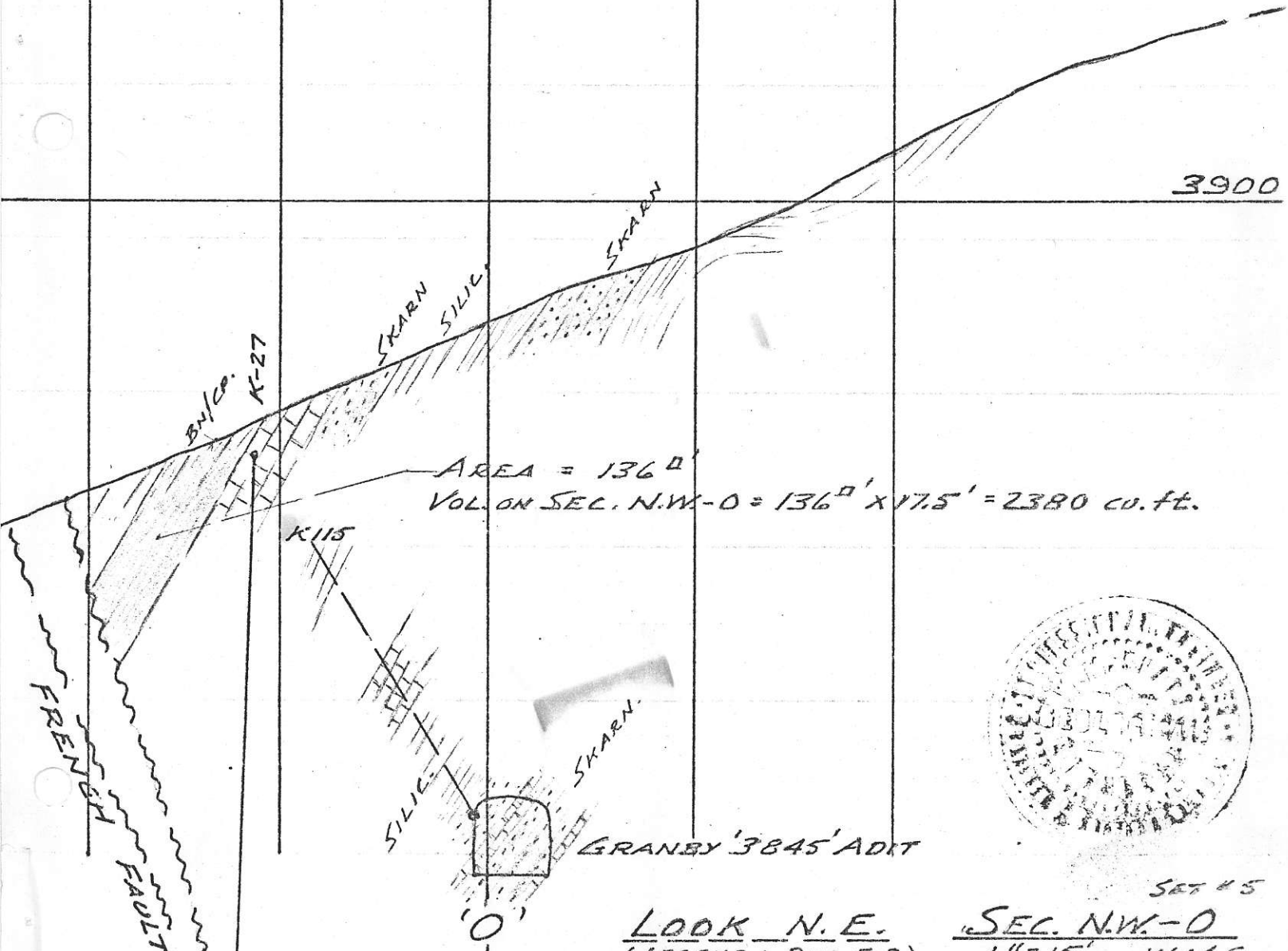
FRENCH MINE  
HEDLEY, B.C.

SEC.  
'0'

'-2'      '-1'      '+1'      '+2'

LEGEND, N.W.-0 --- N.W.-4

-  INDICATED ORE BLOCK
- K-1, ETC. KELOWNA EX. CO. DIA. DRILL HOLE.
- F-1, ETC. FRENCH (ORIG.) DIA. DRILL HOLE
- BN BORNITE
- CP CHALCOPYRITE
- SILIC. SILICIFIED
- H.G. HIGH-GRADE
- 10'N. DETAIL @ 10' NORTH OF SECTION.
- 10'S. DETAIL @ 10' SOUTH OF SECTION.



AREA = 136 sq'  
VOL. ON SEC. N.W.-0 = 136 sq' x 17.5' = 2380 cu. ft.



LOOK N.E.      SET # 5  
SEC. N.W.-0  
(LEGEND: DWG. F-2)      1" = 15' W.M.S.

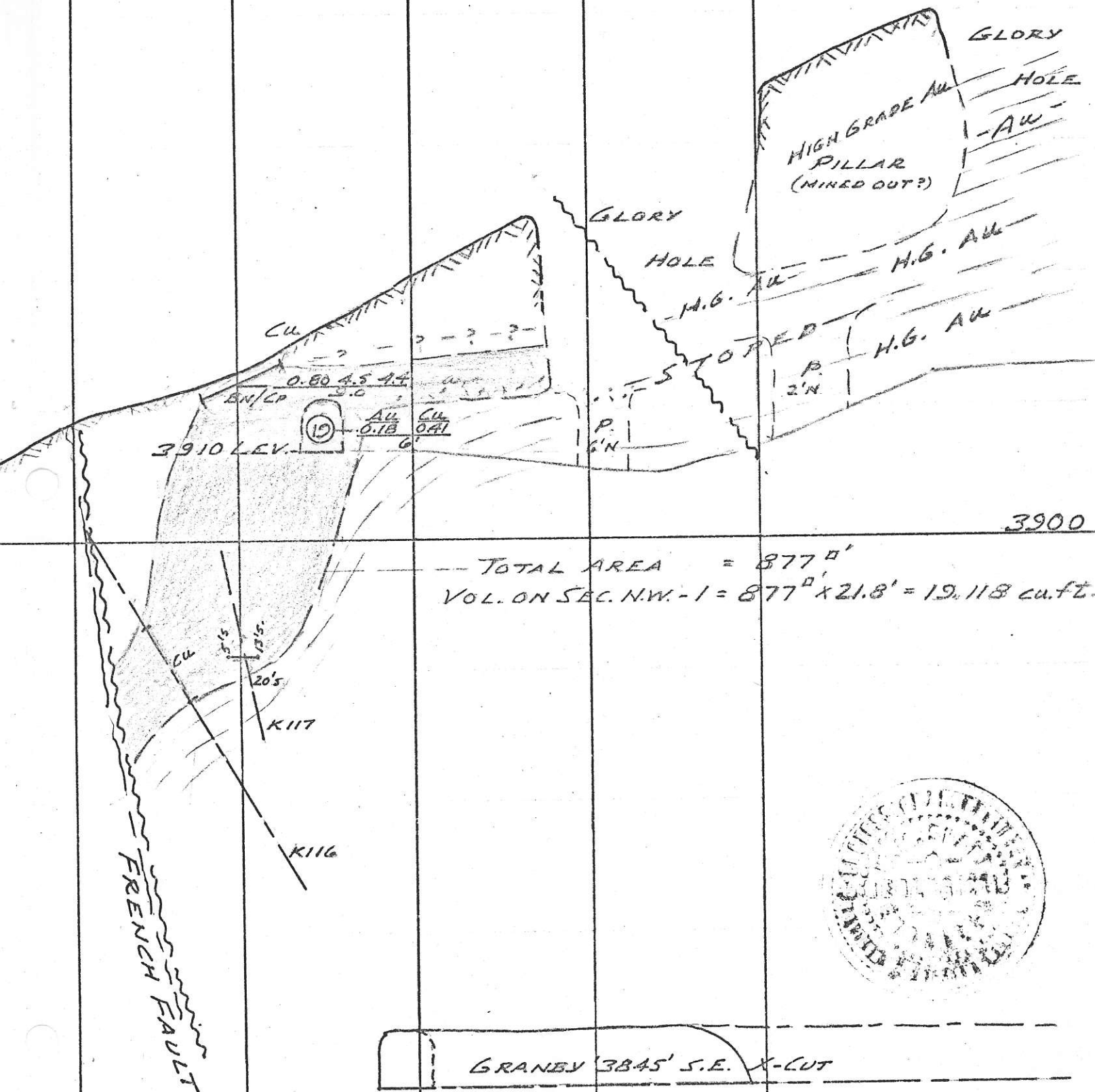




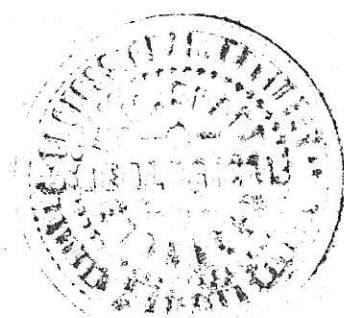
FRENCH MINE,  
HEDLEY, B.C.

'-2'      '-1'      '0'      '+1'      '+2'

DIP FLAT N.E.  
CP & BN.



TOTAL AREA = 877 sq'  
VOL. ON SEC. N.W.-1 = 877 sq' x 21.8' = 19,118 cu.ft.



LOOK N.E.  
(LEGEND: DWG. F-2)

SEC. N.W.-1  
1" = 15' W.M.S.









CERTIFICATE

I, WILLIAM M. SHARP, with business and residential addresses in North Vancouver, British Columbia

DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of British Columbia with a M.A.Sc. (1950) degree in Geological Engineering.
2. I am a Registered Professional Engineer in the Province of British Columbia, Reg. No. 2164.
3. I have practiced my profession since 1950; and as geological consultant since 1964.
4. I have personally examined the showings on the French Mine property on consecutive visits during June and July, 1976 for Grove Explorations Ltd. (N.P.L.). *replace by: from June through October,*
5. This report is based on my personal examinations, the mine file of geological data, and on B.C. Government reports.
6. I have no direct interest in the property or securities of Grove Explorations Ltd. (N.P.L.), nor do I own or expect to own any securities of this Company.

W. M. Sharp

W. M. Sharp, P. Eng.

North Vancouver, B.C.

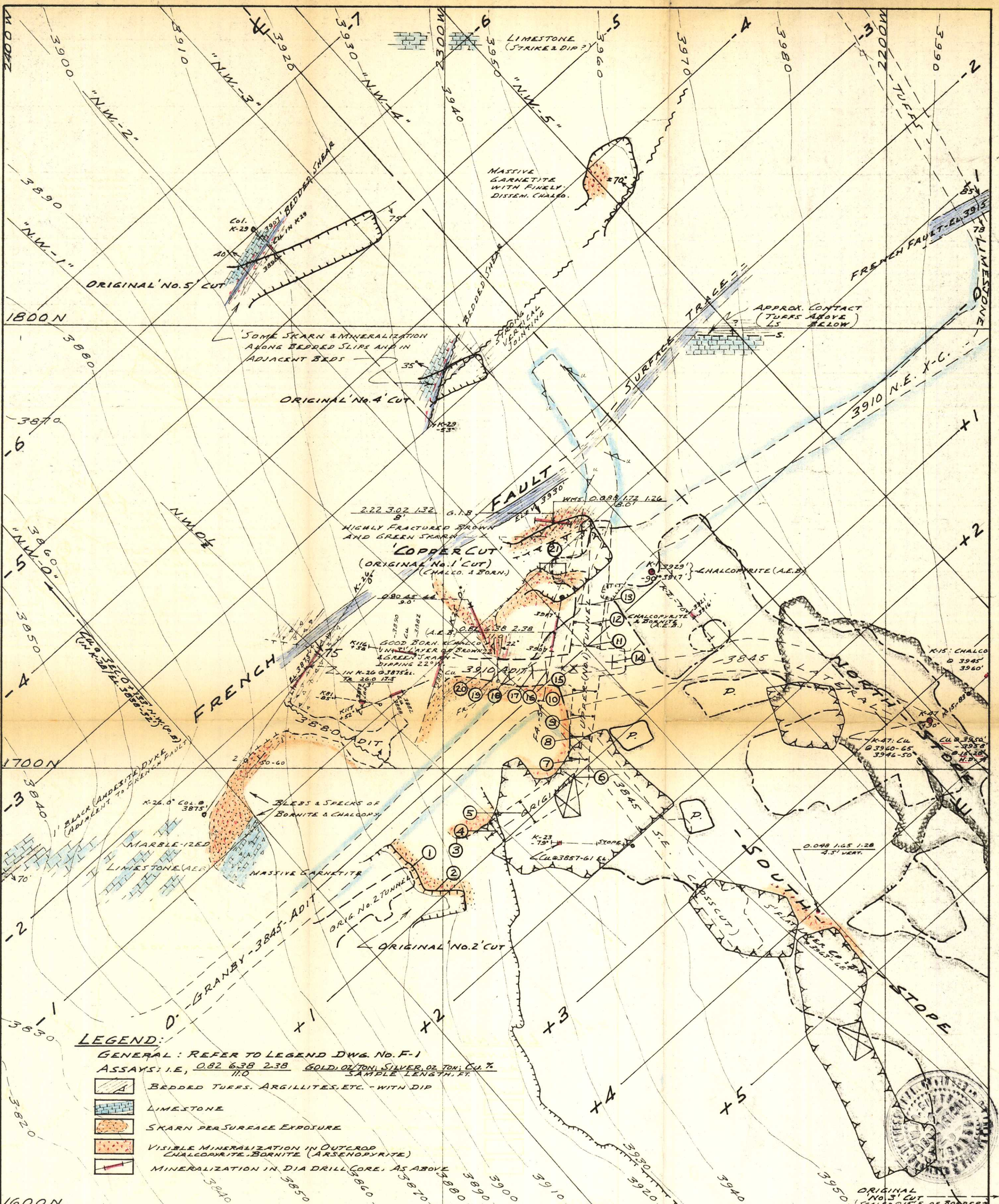
~~July 26,~~ 1976.

*October 25*

*WMS*







**LEGEND:**

GENERAL: REFER TO LEGEND DWG. NO. F-1

ASSAYS: I.E.  $\frac{0.82 \ 6.38 \ 2.38}{11.0}$  GOLD, OZ/TON; SILVER, OZ/TON; CU %  
SAMPLE LENGTH, FT.

- BEDDED TUFFS, ARGILLITES, ETC. - WITH DIP
- LIMESTONE
- SKARN PER SURFACE EXPOSURE
- VISIBLE MINERALIZATION IN OUTCROP  
CHALCOPRITE, BORNITE (ARSENOPYRITE)
- MINERALIZATION IN DIA DRILL CORE, AS ABOVE

BROWN 1944 SAMPLE No.	AU OZ/TON	Ag OZ/TON	CU %	BROWN 1944 SAMPLE No.	AU OZ/TON	Ag OZ/TON	CU %
(1)	0.02	-	1.72	(12)	0.02	-	0.55
(2)	TR.	-	1.62	(13)	0.03	-	0.49
(3)	0.02	-	0.72	(14)	0.17	-	1.22
(4)	0.13	-	0.82	(15)	0.02	-	3.52
(5)	0.30	-	0.44	(16)	0.01	-	2.10
(6)	TR.	-	TR.	(17)	0.03	-	6.80
(7)	0.01	-	1.61	(18)	0.01	-	1.12
(8)	0.21	-	3.36	(19)	0.06	-	0.41
(9)	0.05	-	4.74	(20)	0.14	-	0.41
(10)	0.08	-	11.10	(21)	0.16	-	1.60
(11)	TR.	-	3.06				

W. M. SHARP, P.Eng. CONSULTING GEOLOGICAL ENGINEER  
NORTH VANCOUVER, B.C.

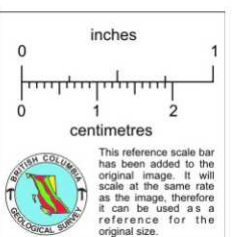
**GROVE EXPLORATIONS LTD.**

**FRENCH MINE — HEDLEY, B.C.**

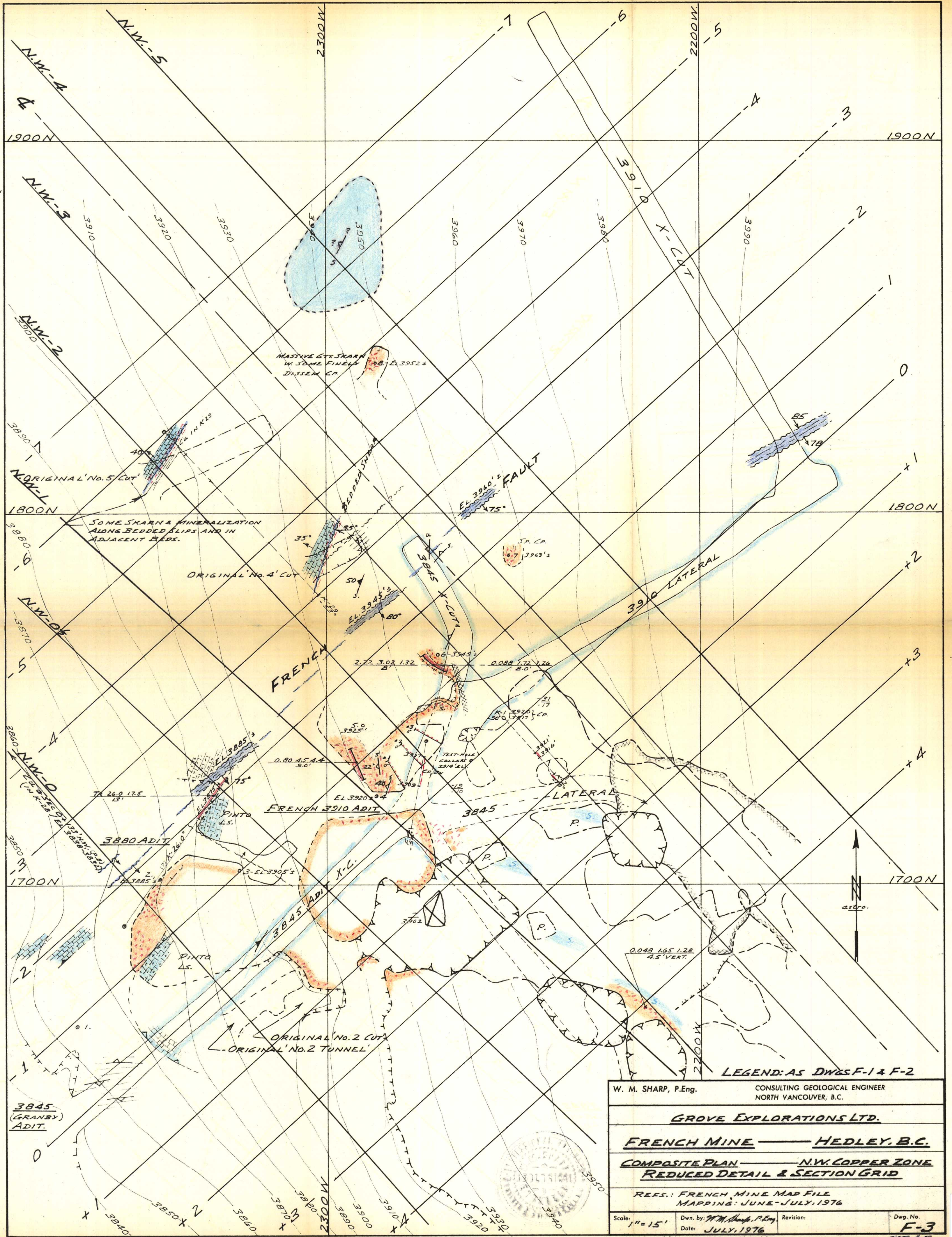
**COMPOSITE PLAN  
WORKINGS, GEOLOGY, & SAMPLING DETAILS**

REF. FRENCH MINE MAP FILE

Scale: 1" = 15' Dwn. by: W.M. Sharp, P.Eng. Date: JULY, 1976 Revision: Dwg. No. F-2 SET 45

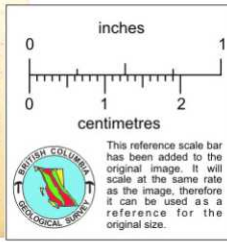




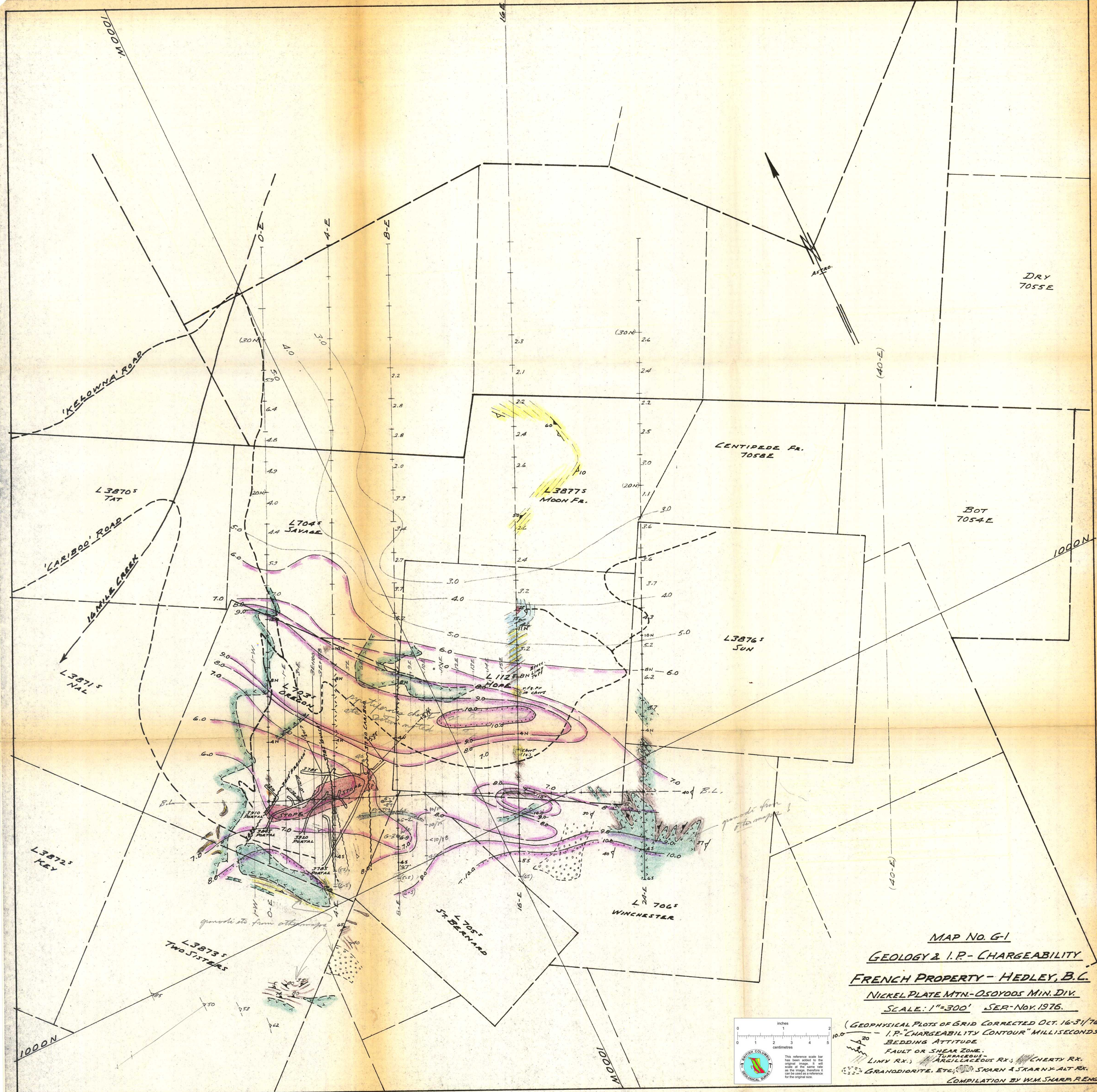


LEGEND: AS DWGS F-1 & F-2

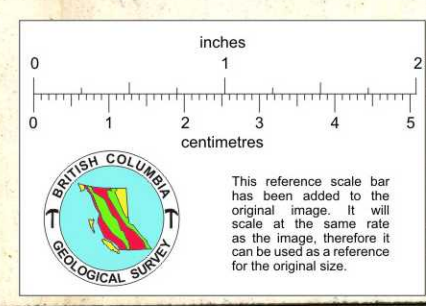
W. M. SHARP, P.Eng.		CONSULTING GEOLOGICAL ENGINEER NORTH VANCOUVER, B.C.	
<b>GROVE EXPLORATIONS LTD.</b>			
<b>FRENCH MINE — HEDLEY, B.C.</b>			
<b>COMPOSITE PLAN — N.W. COPPER ZONE</b>			
<b>REDUCED DETAIL &amp; SECTION GRID</b>			
REFS.: FRENCH MINE MAP FILE MAPPING: JUNE-JULY, 1976			
Scale: 1" = 15'	Dwn. by: W.M. Sharp, P.Eng.	Revision:	Dwg. No. <b>F-3</b>
Date: JULY, 1976		SET 45	



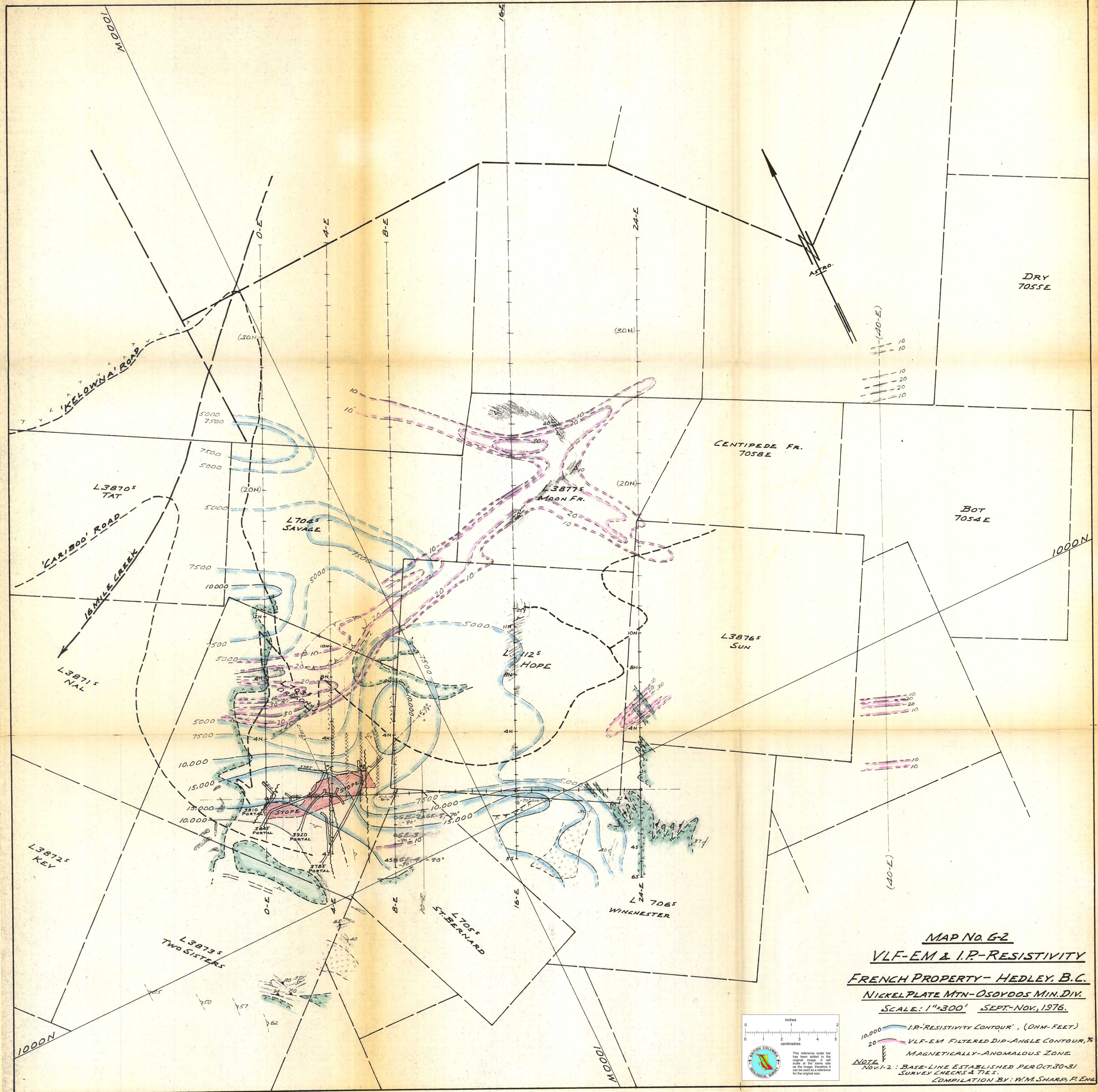




**MAP NO. G-1**  
**GEOLOGY & I.P. - CHARGEABILITY**  
**FRENCH PROPERTY - HEDLEY, B.C.**  
**NICKEL PLATE MTN. - OSOYDOS MIN. DIV.**  
**SCALE: 1"=300' SEP. NOV. 1976.**  
 (GEOPHYSICAL PLOTS OF GRID CORRECTED OCT. 16-31/76)  
 I.P. CHARGEABILITY CONTOUR MILLISECONDS  
 BEDDING ATTITUDE  
 FAULT OR SHEAR ZONE  
 LIMY RX. ARGILLACEOUS RX. CHERTY RX.  
 GRANODIORITE, ETC. SKARN & SKARNY ALT. RX.  
 COMPILATION BY W.M. SHARP, P.E.N.G.







**MAP NO. G-2**  
**VLF-EM & I.P.-RESISTIVITY**  
**FRENCH PROPERTY - HEDLEY, B.C.**  
**NICKEL PLATE MTN - OSOYDOS MIN. DIV.**  
**SCALE: 1"=300' SEPT.-NOV., 1976.**

10,000 — I.P.-RESISTIVITY CONTOUR, (OHM-Feet)  
 20 — VLF-EM FILTERED DIP-ANGLE CONTOUR, %  
 MAGNETICALLY-ANOMALOUS ZONE

**NOTE**  
 NOV. 1-2: BASE-LINE ESTABLISHED PER OCT. 30-31  
 SURVEY CHECKS 4 & 7 E.S.  
 COMPILATION BY: W.M. SHARP, P. ENG.

