ASSESSMENT REPORT ON THE GRAM MINERAL CLAIM LOCATED ON INGRAM CREEK

-for-

R. W. YORKE-HARDY & PAUL B. DOWNING
BOX 298,
VERNON, B.C.

-location-

N.T.S. MAP 82L/05E
VERNON MINING DIVISION
Province of British Columbia

-prepared by-

Y-H Technical Services Ltd.,
& Brian Callaghan, B.Sc.
Box 298
Vernon, B.C.
V1T 6M2

January 7, 1997

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Introduction

This report covers the preliminary geological mapping and prospecting for opal discovered along a powerline near Ingram Creek along the 505 logging road. Opal was discovered as a vesicle infilling in a sequence of lahars very similar to those hosting precious opal on the nearby Klinker/Ewer claims. Three days of mapping and prospecting were undertaken in order to determine if these similar lahars are favourable host rocks for precious opal as yet, undiscovered along this powerline.

Summary

The discovery of both jelly opal and a variety of opal with different base colours on the Gram claims indicates good potential for discovering significant precious opal in similar host rocks as those hosting precious opal discovered on the Klinker claims to the south and east of the Gram claims. Additional prospecting and detailed mapping is recommended in order to determine the structural controls for the formation and concentration of precious opal. Trenching and overburden removal is recommended in those areas where significant concentrations of opal are exposed in outcrops under the powerlines and along the 505 logging road access to Ingram Creek.

Location and Access:

The Gram claim is located some 33 kilometres west-north-west of the City of Vernon, British Columbia and is situated at the upper limits of Ingram Creek which drains north into the Salmon River approximately 10 kms. west of the town of Falkland, B.C..

The property is accessible via the Ingram Main forestry access road off Highway 97 N some 13 kilometres west of Falkland B.C. via Hwy. 97. The property is centred near the 14 kilometre mark on the 505 Road which commences at the 13 km. mark on the Ingram Main Road. The claims are located in the Vernon Mining Division - on map N.T.S. 82L/05E.

The property is presently accessible via two wheel drive during the period from early June to mid October. Snow cover commences in mid October and lasts until May.

Physiography and Vegetation:

The central portion of the Gram claim is situated over the ridge dividing the north and south forks of Ingram Creek. The claim ranges north to cover the southern flank of the ridge forming the north flank of the north fork of Ingram Creek. This mineral claim is transected diagonally from the south-west to the north-east by the 505 Road which follows the powerline north-easterly from the 13 km. marker on the Ingram Main forest access road. The highest ridge on the property is just over 1500 metres which is situated in the south-eastern corner of the 20 unit claim block and seperates the two forks of Ingram Creek.

GRAM PROPERTY

Upper Ingram Creek Area, B. C.
Kamloops/Nicola Mining Division

PROPERTY LOCATION MAP

Y-H TECHNICAL SERVICES LTD.

DATE:	SCALE	MAP No.
Nov 1996	1: 8,000,000	1

The powerline crossing the property originates at the Mica Dam and comes cross-country from the north-east past Enderby, passing south of Pinaus Lake enroute to the upper Salmon River Valley and Douglas Lake area between Westwold and Merritt B.C. then on to the B.C. lower mainland. The powerline is sub-parallel to the north fork of Ingram Creek as it crosses the property and is situated some 250 to 500 metres south of the creek. The powerline right-of-way is clear cut for widths ranging from 80 to 120 metres. Numerous rock outcrops occur along the powerline right-of -way and along the 505 Road.

The north fork of Ingram Creek drains south-west out of a series of low-lying grassy swamp areas one of which is approximately two kilometres in length. The north-east trending ridge situated to the north of the property rises from a maximum of 1300 metres in the north-west corner of the claim to an elevation of just over 1600 metres.

Portions of the property have been recently clear-cut logged and additional logging is presently occurring just to the south of the property. Some quantities of merchantable timber, mainly Douglas Fir and Lodgepole Pine, occur along the ridge dividing the two forks of Ingram Creek and along the north side of the north fork of Ingram Creek. Merchantable timber also occurs in portions of the valley bottom along the north fork of Ingram Creek. All logging in the area is recent and little or no second growth timber has developed.

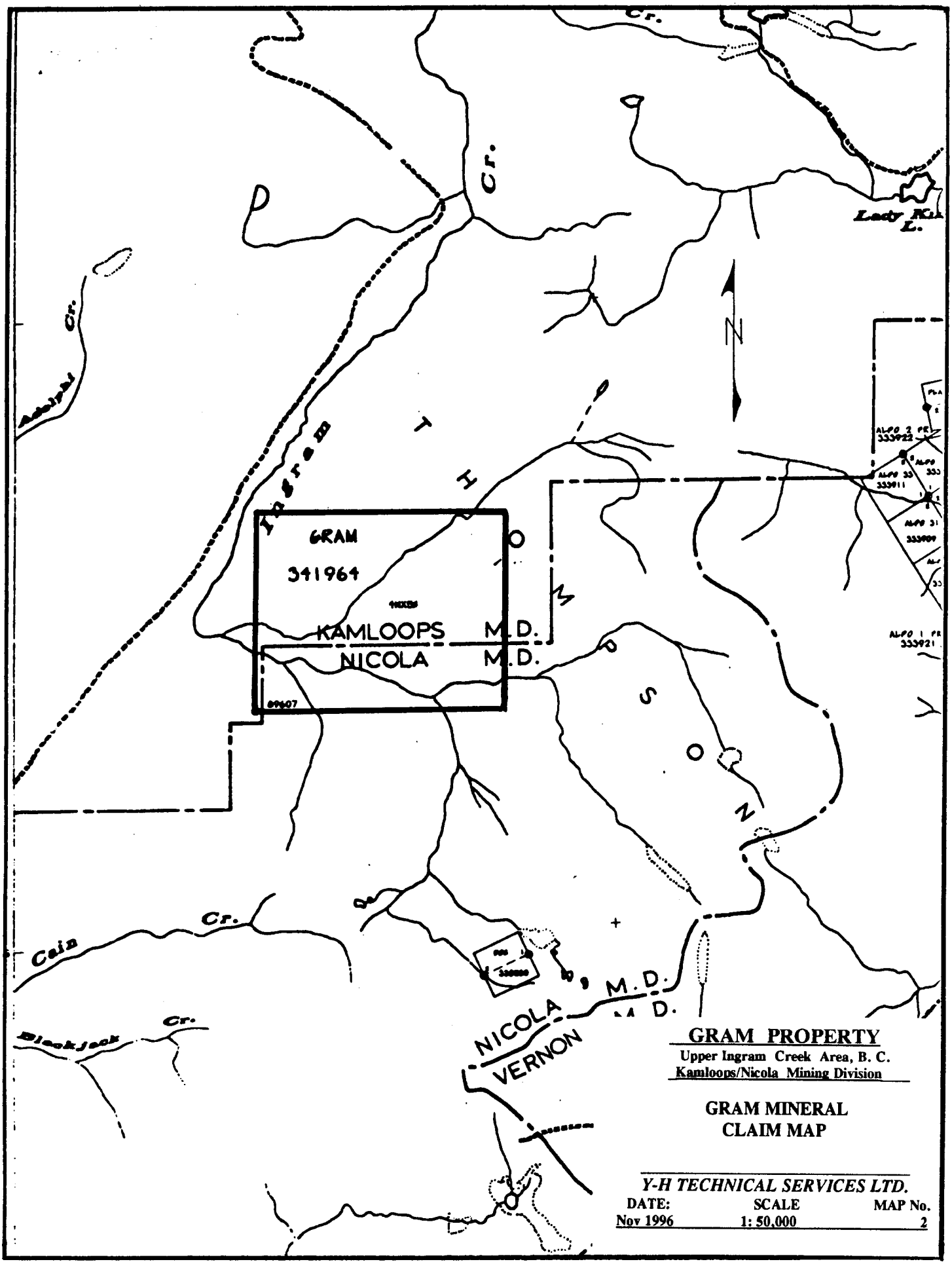
Property Description:

The Gram property is comprised of a single 20 unit four-post mineral claim. The L.C.P. for the claim is located some 400 metres south of the 13 km. marker on Ingram Main forest access road. See also the claim map (Map #2) for further information.

Claim Name	Units	Record #	Current Expiry Date
Gram	20	341964	October 27, 1997

The "owner of record" for the Gram claim is R. W. Yorke-Hardy. He holds the mineral title in trust jointly for himself and Paul Downing; with each of these individuals owning a 50% interest in the title.

The expiry date shown herein reflects the recent application of work supported by the filing of this report describing the preliminary geological fieldwork conducted during the 1996 season. The claim is recorded in the Kamloops Mining Division of British Columbia but is situated straddling the Kamloops-Nicola Mining Division boundary. The claim has been located in accordance with the requirements of the Mineral Act of the Province of British Columbia.


Cr.
Cr.
Lady
L.
Adolphi Cr.
N
GRAM
341964
KAMLOOPS M.D.
NICOLA M.D.
Cain Cr.
Blackjack Cr.
NICOLA
VERNON
M.D.
GRAM PROPERTY
Upper Ingram Creek Area, B. C.
Kamloops/Nicola Mining Division
GRAM MINERAL
CLAIM MAP
Y-H TECHNICAL SERVICES LTD.
DATE:
Nov 1996
SCALE
1: 50,000
MAP No.
2

Gram Property History:

Common opal (amber jelly to brown opaque) was noted by Peter Read in 1994 during his mapping of rock outcrops under the powerline traversing the area. Read was at that time conducting work for the G.C.S. related to mapping of the base of the Eocene aged rocks throughout this region. This information was released to the public at the Cordilleran Round-up in January 1995.

The Gram claim was located in late 1995 as a result of prospecting work conducted by R. W. Yorke-Hardy who noted numerous occurrences of agate, white to brown opaque common opal and honey to amber colored jelly opal in fractures and vesicles within various volcanic rock units.

The general proximity of these claims to the recently discovered precious opal deposit located on the Klinker/Ewer property approximately 10 kilometres to the south-east and to reported occurrences of jelly opal on the Flash and Red Rock claims along the powerline approximately 7 to 8 kilometres to the north-east combined with similar geology and the discovery of common opal were the reasons for staking these claims.

Okanagan Opal Inc., the owners of the Klinker/Ewer property which is presently under option to Canadian Northern Lites Inc.; also holds the Alpo claims which cover an extensive Miocene aged(?) "lake basin environment" hosting layers of bentonite clay, diatomaceous earth and minor "opalized" sediments interbedded with ryholite ash tuff located approximately 6 - 7 kilometres to the east of the Gram claim.

Also, an occurrence of palagonite is recorded on the west flank of Tuktakamin Mtn. north of Pinaus Lake.

This entire region was heavily staked during a "staking rush" in 1988 which occurred as a result of gold discovered by Huntington Resources on the Brett property located farther to the south on Whiteman Creek. No other mineral exploration has been noted in the area except on the Way 1 mineral claim located west of the Klinker/Ewer property. It saw grassroots exploration for gold in 1988-89 and is being retained by Big I Development, a Vancouver based junior mining company, because of the property's potential to host Brett/Huntington epithermal type gold mineralization in the underlying Eocene volcanics.

Regional Geology

The Gram claims are underlain by an extensive basal sequence of crudely bedded clast and matrix supported lahars and ash to lapilli tuff units of the Eocene Kamloops Group.

These basal sediments and waterlain volcanic rocks form a thick continuous basin that extends approximately 150 kilometres from Trepanier on the west side of Okanagan Lake to Kamloops.

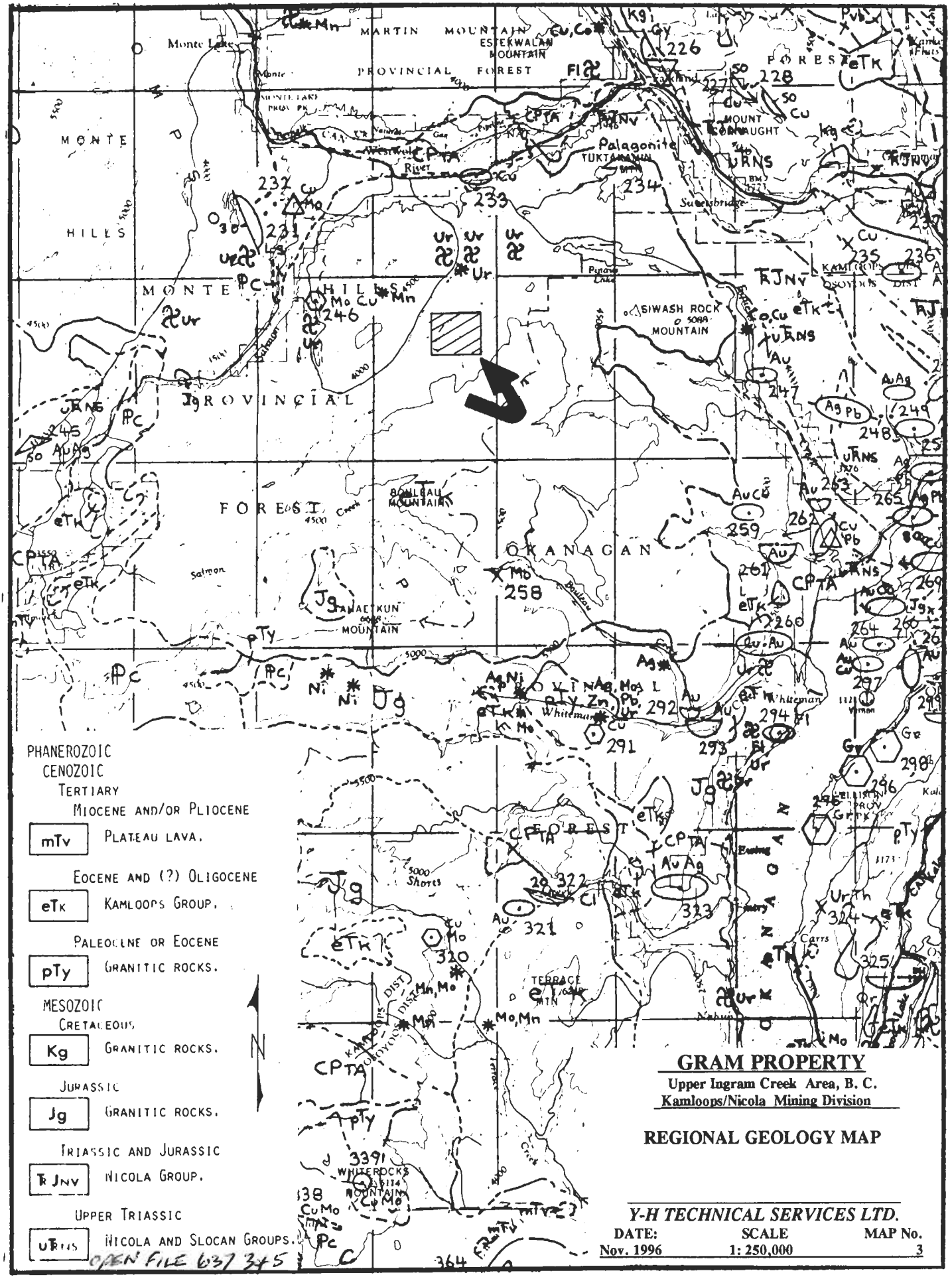
These opal bearing lahars and sediments are thought by Read 1995 to represent basal sequences of the Tranquille Formation that are overlain by tuffaceous sediments associated with rhyolite flows and tephra that may have generated the silica rich solutions for the formation of opal. The overlying silica bearing sediments consist of a thin sequence, up to 30 metres in thickness of opalized tuffaceous shale and siltstone that extends at least 4 kilometres and are exposed in outcrops along the Mcgregor logging road to the south of the Gram claims. Devonian to Permian meta-andesites of the Harper Ranch Group represent the oldest sequences of rocks that occur to the south of the Gram claims in Ewer Creek. They consist of brecciated volcanic rocks with large angular clasts in a clastic groundmass.

Estekwalan and Tuktakamin mountains to the north of the Gram claims represent the highest peaks with exposures of volcanic rocks that have a minimum thickness of 600 metres.

1996 Geological Mapping

Mapping of portions of the Gram claims, using a Silva Ranger Compass and Topolite Belt Chain for control was carried out at a metric scale of 1:2000 over an area that had demonstrated the highest concentrations of common opal. Any rock exposures along road cuts were plotted including the locaton of claim posts on a 1:15,000 Forestry Cover Map Sheet.

The geological mapping was conducted by the writer. Time was devoted during the 2.5 days of field work to prospecting during the brief mapping programme and several additional areas of common opal occurrences were discovered. (See map 5). A classification of the different forms of opal are provided (see Appendix I).



GRAM PROPERTY

Upper Ingram Creek Area, B. C.

Kamloops/Nicola Mining Division

REGIONAL GEOLOGY MAP

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Property Geology

The Gram claims are underlain by a predominantely northeast trending belt of clast supported basaltic/andesitic lahars of the Tranquille Formation in an area of rock outcroppings well exposed due to clearing of trees for the power lines that are situated along the southside of the main 505 logging road to Ingram Creek at Kilometre 14.5. Matrix supported lahars with sandy tuffaceous weakly stratified beds, occur as fairly continuous linear structures that are exposed in road cuts along the 505 logging road and are interspersed with fairly narrow exposures of amygdaloidal andesitic/basaltic flows that dip to the northwest . These flows with predominant amygdule fillings of agate coated with a green zeolite possible celedonite appear as possible discontinuous dyke or sill- like bodies that appear to be overlain by the more clast supported lahars that drape and slump over the sometimes irregular contacts with the basaltic/andesitic flows.

These flows that are exposed along roadcuts and under the powerlines do not appear to crosscut the stratigraphy. Tops of these weathered flows are scoriaceous and are more massive and fresher with depth.

Exposures of pink, purple coloured coarse matrix supported debris flows with sub-angular scoria and aphanitic clasts up to 1 metre were mapped to the north of the powerline along a northeast trending road cut. Part of the outcrop appears matrix supported with fine grained silty red brown laminae. This outcrop is in contact with a vesicular maroon to brown coloured aphanitic unaltered basalt/andesite with large cavities. Small vesicles in this flow are infilled with a white botryoidal zeolite coating.

No opal or agate was seen. The oxidized outcrops may represent a horizon between two flows.

Map Unit a - Lahar

Approximately 30% to 40 % of the detailed mapped area of the power lines is underlain by a coarse to sandy matrix supported high energy lahar with clasts up to 1.5 metres. The coarse matrix supported grey to purple coloured lahars consist of 15% to 20% scoria, 40% to 60% aphanitic basalt and andesite clasts and 15% to 20% ash to lapilli matrix material. The more sandy tuffaceous matrix material is light brown in colour with minor manganese oxide staining surfaces.

Map Unit b - Lahar

Approximately 25% of the exposed outcrop consists of clast supported lahar material with mostly clasts consisting of bleached scoria, aphanitic basalt and andesite.

Map Unit c - Scoria, basalt/andesite

Approximately 35% of exposed rock consists of grey to bleached brown aphanitic to amygdaloidal basalt. Stretched cavities are invariably infilled with agate covered with a green coating of possibly celedonite. Common opal occurs as amygdule fillings.

White to grey agate, white common, opaque grey/ black, opaque red caramel to brown and translucent clear to light blue jelly opal have been located in outcrop exposures under the powerlines(see map 5).

Opal infills cavities in mostly scoria with large stretched cavities up to 7 cms in length in outcrop exposure located at approximately 375 metres along a 400 metre traverse to the southwest under the powerline. Cavities are infilled with minor common off white banded opal with opaque brown layers with translucent jelly. Grey agate also infills cavities that are coated with a earthy green layer of celedonite.

Another significant infilling of opal occurs along the 505 roadcut approximately 187 metres from the 14.5 kilometre junction. Common white opal and blue base colour translucent opal occurs as a vesicle infilling near a contact with a basaltic flow rock and a matrix supported lahar with approximately 40% to 50% bleached, light brown scoria clasts supported in a coarse, sandy matrix. Scoria cavities are coated with green possibly celedonite. Structural controls for the formation of opal as vesicle infillings at this location maybe solution channels along fractures at or near the contact between basaltic scoria and lahars.

Several field observations can be made from the preliminary exploration of the property. In general , the opal discovered on the Gram claims occurs as a vesicle infilling. Fracture infillings have not been located at the outcrop scale as yet. Also, opal in a variety of base colours coexists with agate coated with green celedonite in the same outcrops. The white crystalline zeolite is noticeably absent where opal occurs with agate. The preferred orientation of amygdaloidal basalts/andesites is approximately 200 degrees and they appear as narrow sill or dyke flows that contain common opal and agate most noticeably infilling stretched cavities. Other more massive and extensive outcroppings of basalt are void of any silica emplacement. This would possibly suggest episodic emplacement of these basalts that predate or post date opal mineralization.

Conclusions and Recommendations

The results of a three day preliminary exploration programme on portions of the Gram claims has been encouraging with the discovery of common opal in four separate outcroppings in a study area that extends in a northeast, southwest direction for approximately 600 metres by 150 metres and exhibits an approximate 20 metre vertical sequence of flat lying waterlain sediments and volcanics that host agate and opal. The occurrence of widespread agate as an amygdule filling in scoria, with these recently discovered vesicle fillings of common opal with a variety of base colours, indicates the potential for discovering precious opal in basaltic/andesitic lahars. The stratigraphic setting and depositional environment of the host rocks on the Gram claims are very similar to the recently discovered precious opal occurrences hosted in waterlain sediments and basaltic/andesitic lahars on the Klinker/Ewer claims.

A programme of detailed mapping and prospecting along surveyed grid lines over the area of the power lines with the greatest concentration of common opal and agate is recommended to determine the main structural controls for the formation of common and precious opal. The target areas for precious opal on the Gram claims may include undercutting the intersection of fracture sets related to faulting at or near the contact margins between the northeast trending lahars with porous tuffaceous matrix material and the upper scoria of the basaltic/andesitic dyke or sill-like flows.

Removal of overburden and trenching is also recommended in those areas with higher concentrations of opal associated with intersecting structures at lower depths to locate possible concentrations of precious opal.

COST STATEMENT

Management/Administration:	
R. W. Yorke-Hardy	
1 man days at $300.00 per day	$ 300.00
Geological Work:	
Brian Callaghan	
3 man days at $250.00 per day	$ 750.00
Geological Field Assistant:	
Jack Zackodnik	
3 man days at $175.00 per day	$ 525.00
Support Costs:	
Vehicle costs - 4 days at $75.00/day	$ 300.00
Field Supplies - flagging, thread	$ 75.00
Room & Board - 7 man days at $50.00 per day	$ 350.00
Misc. Field Equipment -	$ 25.00
Report Preparation:	
R. W.Yorke-Hardy	
1 man day at $300.00 per day	$ 300.00
Brian Callaghan	
2 man days at $250.00 per day	$ 500.00
Drafting:	
Brian Callaghan	
1.5 man day at $250.00 per day	$ 375.00
Typing and printing	$ 200.00
TOTAL ----------	$3,700.00

BIBLIOGRAPHY

Read, Peter B. (1995)	Industrial Mineral Potential of the Tertiary Rocks, Vernon(82L) and Adjacent Map Areas. Part of Geological Fieldwork 1995- A Summary of Field Activities and Current Research (Paper 1996-1).
Yorke-Hardy, Robert W. (1995)	Internal Report-Technical Report on the Property "Exploration and Development-1994".

Statement of Qualifications

I, Robert W. Yorke-Hardy, of Vernon British Columbia, do hereby certify that:

1. I am a Mining Technologist residing at 330 Stepping Stones Road, Vernon, British Columbia. I am the owner/operator of Y-H Technical Services Ltd. of P.O. Box 298, Vernon, B.C., an exploration services company. In total I have accumulated 29 years of experience in Mining/Mineral Exploration and related industries. Y-H Technical Services Ltd. provides management services to R.W. Yorke-Hardy and Paul B. Downing on the Gram claim.

2. I am a graduate of the British Columbia Institute of Technology, Burnaby, British Columbia and a registered charter member of the Association of Applied Science Technologists and Technicians of British Columbia. I have practiced my profession for 25 years.

3. This report is based on work performed by myself, under my direction or other wise in my presence. The total value of the work performed has been outlined in the forgoing Cost Statement. This sum is to be considered as eligible expenses incurred on the Gram claim during the period from September 17 to 23, 1996 and on the preparation of this report.

4. This report is based on knowledge and experience gained over the period 1991 to the present. I am familiar with the geology of the Gram claim area and surrounding district.

5. I, Robert W. Yorke-Hardy am a 50% owner in the Gram mineral claim.

Y-H Technical Services Ltd.,

R. W. Yorke-Hardy, A.Sc.T.

January 7, 1997

STATEMENT OF QUALIFICATIONS

I, Brian Callaghan reside at 989 Curtis Road, Kelowna, B.C..

I graduated from Brandon University, Manitoba in 1980 with a Bachelor of Science Degree in Geology.

I have worked continuously as a Geologist since 1980.

I am presently self employed as a Geological Consultant.

Under contract with Y-H Technical Services Ltd., of Vernon, B. C., I mapped the geology on the Gram mineral claim during the period September 17 to 23, 1996. I am familiar with the geology in the vicinity of the Gram claim and this report is based on knowledge and experience gained over the period 1993 to the present working with Y-H Technical Services Ltd..

I have no interest, direct or indirect, in the Gram property or Y-H Technical Services Ltd.; nor do I expect to receive any.

Sincerely,

Brian Callaghan, B.Sc., Geology

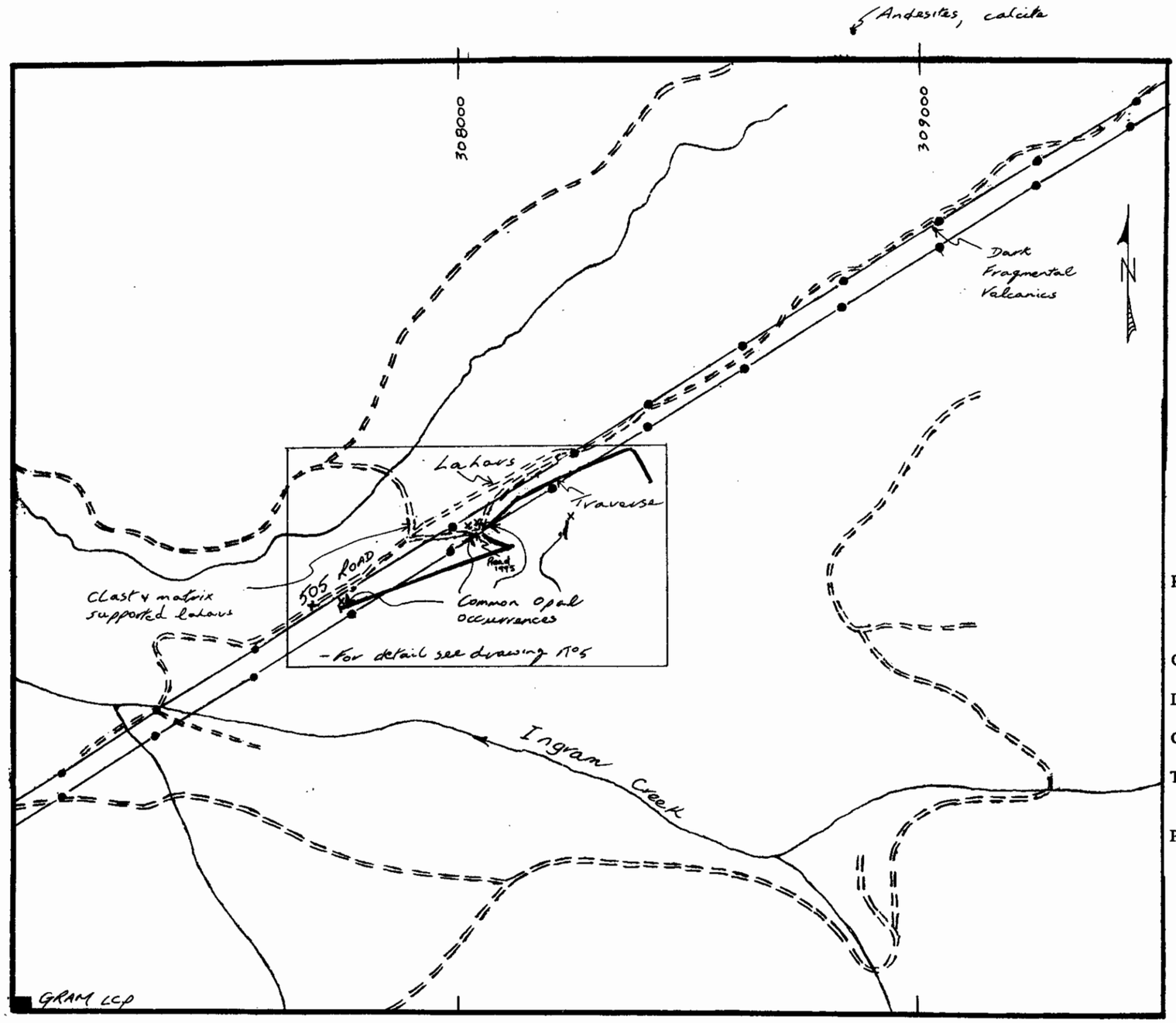
January 7, 1997

APPENDIX I

COMMON OPAL (no play of color)

DESCRIPTION		OPAQUE	TRANSLUCENT	TRANSPARENT
BASE COLOR	CODE	4	5	6
BLACK	A	black base color	black base color	faces up black
ORANGE	B	orange base color	orange base color	orange base color
RED	C	n/a	red base color	red base color
AMBER	D	n/a	amber	amber
YELLOW	E	n/a	yellow base color	yellow base color
CLEAR	F	n/a	semi-clear	clear
WHITE	G	white	semi-white	n/a
GREEN	H	green	n/a	n/a
SALMON/PINK	I	salmon/pink	n/a	n/a
CARAMEL	J	caramel	caramel	n/a
BROWN	K	brown	brown	n/a
BLUE	L	blue	n/a	n/a

Opal Description Table (As per Yorke-Hardy 1994)



General Legend

Roads
-Public Road
-logging road

Trails
-old skid trails
-old skid trails -foot

Creek or Draw Definite

Bluffs or Steep

Lake/Pond

Swamp or Muskeg

Claim Boundaries

Claim Post

Topographic Contour
-w/ elevation 1250

Contour interval 20m

Powerline

Towers

GRAM CLAIMS

Upper Ingram Creek Area B.C.
Kamloops / Nicola MD

GEOLOGY
MINERAL CLAIMS

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LEGEND

Tertiary

EOCENE
Kamloops Group

a Low to high energy lahar, sandy tuffaceous matrix
- maybe coarse matrix supported, clasts weathered, andesitic/basaltic

b Low to high energy lahar, clast supported, clasts weathered, andesitic/basaltic

c Grey black basaltic/andesitic flows - may be dykes or sills, scoriaceous, massive

d Tuffaceous sandstone sediment, stratified

General Legend

Roads
- -Public Road
- -logging road

Trails
- -old skid trails
- -old skid trails -foot

Creek or Draw Definite

Bluffs or Steep

Lake/Pond

Swamp or Muskeg

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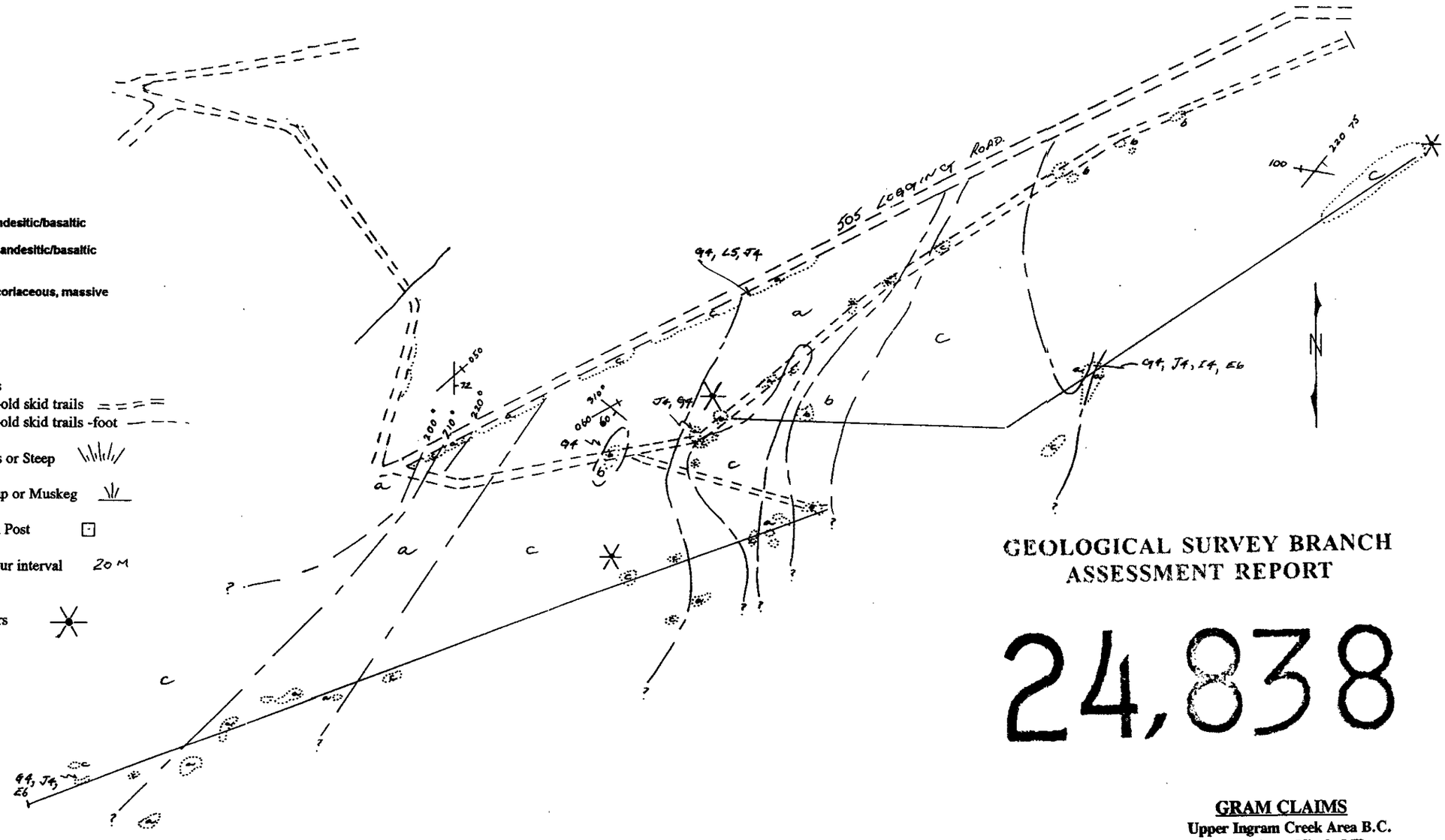

Geological Symbols

Outline of outcrop

Bedding ; Vertical, Inclined, Overturned

Fractures ; Vertical, Inclined

Opal Occurrence (type code) - G4, L5

Assumed Contact

Faults - inferred

0 20 40 100 metres

Scale 1:2000

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

24,838

GRAM CLAIMS
Upper Ingram Creek Area B.C.
Kamloops/Nicola MD

Geological Mapping
Powerline Opal Showing
505 Road, Km 14.5

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DATE:	SCALE	DRAWING No.
Nov. 1996	1:2000	5