

MAP NO.:
105 I 13

ASSESSMENT REPORT X
PROSPECTUS
CONFIDENTIAL X
OPEN FILE

DOCUMENT NO: 092990
MINING DISTRICT: WATSON LAKE
TYPE OF WORK: GEOLOGY,
GEOCHEMISTRY

REPORT FILED UNDER: NORANDA EXPLORATION COMPANY LIMITED

DATE PERFORMED: JUNE 23 AUGUST 31, 1991

DATE FILED: DECEMBER 11, 1991

LOCATION: LAT.: 62°50'N

AREA: MACMILLAN PASS

LONG.: 129°53'W

VALUE \$:3,200

CLAIM NAME & NO.: BOU 1-8

WORK DONE BY: G.C. MACKAY

WORK DONE FOR: NORANDA EXPLORATION COMPANY LIMITED

DATE TO GOOD STANDING:

REMARKS: THE ITSI PROPERTY WAS STAKED TO COVER A GOLD OCCURRENCE WITHIN FAULTS IN LOWER EARN GROUP AND ROAD RIVER FORMATION SHALES. THIS YEARS WORK INCLUDED DIAMOND DRILLING, TRENCHING AS WELL AS GEOCHEM AND MAPPING. THE VEINS ASSAYED TO 15 GPT AU 42 GPT AG AND 2.3% CU OVER UNSPECIFIED WIDTHS.



GEOLOGICAL & GEOCHEMICAL REPORT

ON THE

BOU 1 - 8 CLAIMS

Watson Lake Mining District

N.T.S.: 105 I/13

Latitude: 62 50'N

Longitude: 129 53'W

092990



Owner: Noranda Exploration Co. Ltd.
(no personal liability)

G.C. MacKay



This report has been examined by
the Geological Evaluation Committee
under Section 53 (4) Yukon Territory
Mining Act and is allowed for
representation work in the amount
of \$ 3,200.

R. J. Ouellette
for Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

TABLE OF CONTENTS

	Page
CHAPTER ONE : INTRODUCTION	
1-1 : Introductory Statement	3
1-2 : Location & Access	3
1-3 : Physiography & Vegetation	3
1-4 : History of Claims	5
1-5 : Previous Exploration	5
CHAPTER TWO : GEOLOGY	
2-1 : Regional Geology	8
2-2 : Property Geology	8
2-3 : Zone Geology	10
CHAPTER THREE: GEOCHEMISTRY	
3-1 : Rock Geochemistry	12
References	13
Statement of Costs	14
Statement of Qualification	15

LIST OF FIGURES

Fig. 1: Location Map	4
Fig. 2: Claim Map	6
Fig. 3: Regional Geology	16
Fig. 4: Property Geology (Cross Section Earn Group)	17
Fig. 5 a & b: Property Geology (Stratagraphic Section Road River Group)	18
Fig. 6: Sample Location & Geology Map	in pocket

CHAPTER ONE: INTRODUCTION

1-1: Introductory Statement

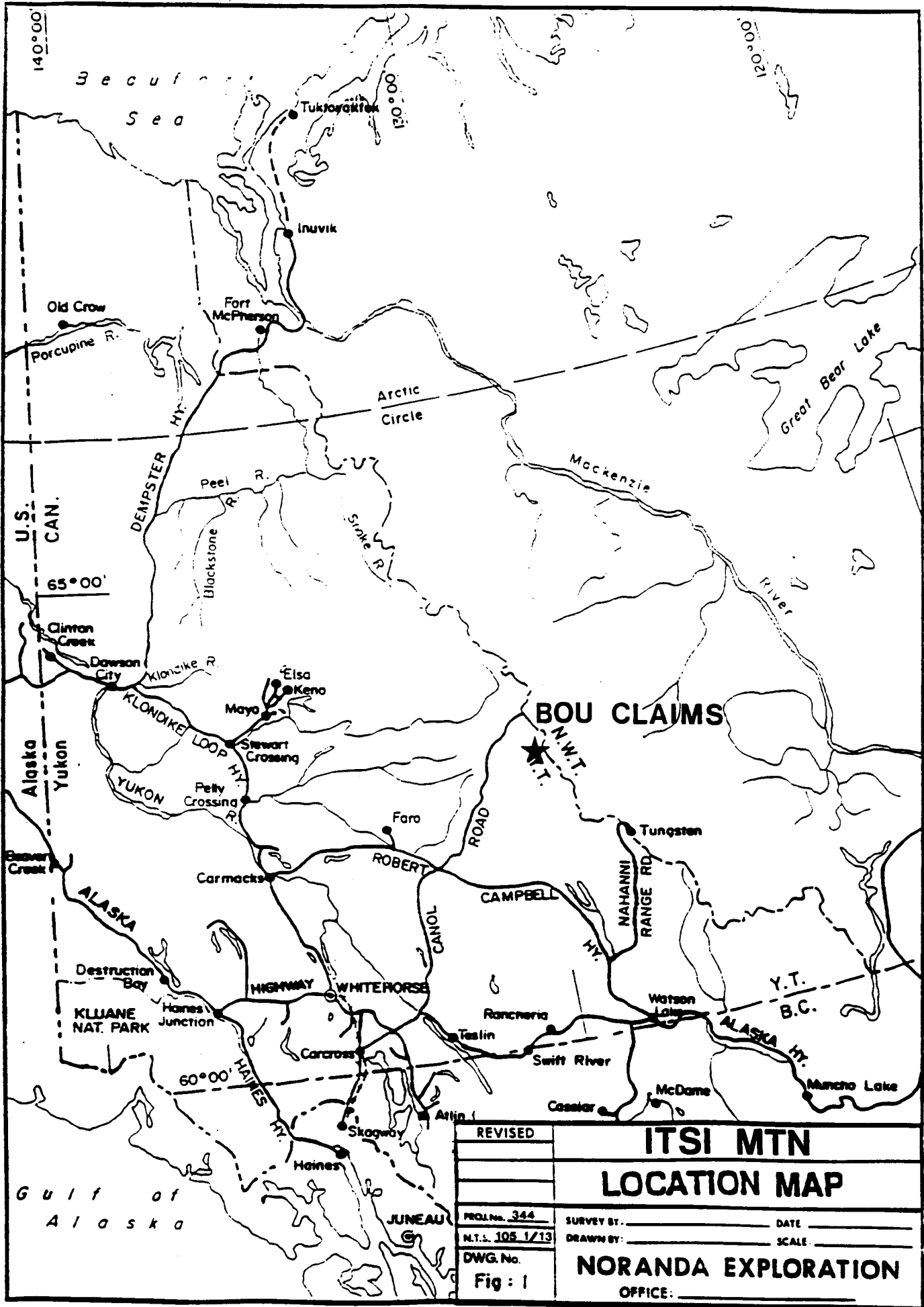
The Bou 1-8 (YB16320-27) are located approximately 160km northeast of Ross River, Yukon. The property, known as Itsi Mountain, was staked in 1989 to cover a previously known gold showing. It is 100% owned by Noranda Explorations Co. Ltd. and all work completed on the property (geological, geochemical and geophysical surveys) were conducted by or under the guidance of Noranda personnel.

1-2: Location and Access

The Bou 1-8 claim group is located in east central Yukon, approximately 160km northeast of Ross River on the divide of the headwaters of the Pelly and Ross Rivers. The property is located at Latitude 62 50'N, Longitude 129 53'W on the N.T.S. 105 I/13 mapsheet. Access to the property is currently by a 32km helicopter flight from the Jeff Creek pullout 180km north of Ross River on the North Canol Road. Ferry time from the helicopter base at Ross River to Jeff Creek is 50 minutes.

1-3: Physiography and Vegetation

The claims straddle an alpine ridge in the Itsi Range of the Selwyn Mountains. Elevations range between 1400m and 1900m. Northern slopes are often precipitous with good outcrop exposures. Ridge tops and southern slopes have a mixture of talus and grass cover with limited outcrop. Grass and moss are the only vegetation as the entire property exists above treeline. An alpine creek draining south into the Pelly River provides year round water at an elevation of 1700m. The same creek contains a



REVISED	
PROJ. No. 344	SURVEY BY: _____ DATE _____
N.T.S. 105 1/13	DRAWN BY: _____ SCALE _____
DWG. No.	
Fig: 1	

**ITS I MTN
LOCATION MAP**

NORANDA EXPLORATION
OFFICE: _____

VANCAL 11828

large snow patch year round at the elevation of 1680m.

1-4: History of the Claims

The property consists of eight contiguous mineral claims located in the Watson Lake Mining District, Yukon Territory.

These mineral claims are:

<u>CLAIM NAME</u>	<u>RECORD NUMBER</u>	<u>DATE RECORDED</u>
Bou 1-8	YB16320-27	August 28, 1989

Upon acceptance of this report the claims shall remain in good standing until August 28, 1999.

1-5: Previous Exploration

McMillan Pass was the first major discovery in the area of the Bou Claims. This base metal deposit is located approximately 40km to the north. Between 1951 and 1970, 7 million tons grading 8% lead, 8% zinc and 83 grams silver per ton were outlined by Hudson Bay Explorations and Development Co. Ltd.

Placer Dome Exploration Ltd. currently holds the Clea property 8km to the south of the Bou claims. Originally staked in 1960, this Tungsten, Copper, Zinc skarn has had a total of 715 metres of drilling in 82 holes. No major work has been done on the property since 1981. Reported high grade intercepts were 1.4% WO and 1.0% Cu over 2.23m in separate holes. No gold values were reported.

The Bou claims were originally staked as the SEL 1-8 and SEL 70 and 72 fractions. The entire Sel property (SEL 1-212) was originally discovered by Selwyn Syndicate through a regional prospecting program and staked in 1973. In 1974 and 1976 a base

metal oriented program consisting of soil geochemistry and trenching was undertaken by Trident Resources Inc..

The main zone, a series of quartz veins containing arsenopyrite, pyrite and chalcopyrite revealed trench values up to 15 grams per ton gold, 42 grams per ton silver and 2.30% copper. Sample intervals were not revealed. Due to metal prices at the time, the property was given a low priority for further expenditures.

CHAPTER TWO: GEOLOGY

2-1: Regional Geology

The Itsi Mountain property (Bou Claims) lies within the Selwyn Basin close to the western margin of the Early Cambrian-Middle Devonian MacKenzie platform. The area is underlain by: Ordovician to Silurian black graptolitic shales, siliceous shales, mudstone and minor limestone and chert of the Road River Group, Devonian to Mississippian black shales, siliceous shales and slates of the Earn Group; and several small (1-10km diameter), Cretaceous, post tectonic, biotite-quartz monzonite stocks as shown in figure 3 (Gordey, 1981).

Rocks within the Selwyn Basin and surrounding areas underwent a period of deformation from Late Jurassic to Early Cretaceous time (Tempelman-Kluit, 1980). This period of deformation produced north-east directed thrusting and north-west trending open folds (Tempelman-Kluit, 1980; Gordey et al, 1981).

Prospects within the area surrounding the Bou claims include: 1) the Clea a tungsten, copper, zinc skarn related to a Cretaceous stock 8km south of the Itsi Mountain property; and 2) the Tom a stratabound zinc, lead, silver deposit located about 40km to the north.

2-2: Property Geology

Outcrop exposure on the Itsi Mountain property is limited to ridge tops, north facing slopes and creek valleys. The property is underlain by sediments of the Road River and Earn Groups and intrusive rocks of the Selwyn plutonic suite. The sediments are

strongly folded with dominant northwest trending folds. Remnants of two and possibly three other phases of folding can be seen. Most beds strike north to northwest and dip steeply to moderately to the west.

The southeast portion of the property is underlain by Earn Group sediments. In the southern most part of the property folds within the Earn Group are completely overturned. The Earn Group sediments are cut by two northeast trending faults, in the centre of the property. To the northeast lower Earn Group sediments (siliceous, silver grey weathering black shale and siliceous-calcareous-baritic black shale) may be thrust northeastward over upper Earn Group sediments.

Remaining sedimentary outcrops on the property are part of the Road River Group. This group consists primarily of black shales, some of which are graptolitic, and minor siltstone and limestone. Most sediments within the Road River Group weather rusty brown to orange and are rich in iron and pyrrhotite with minor arsenopyrite. Within the Road River Group folds are outlined primarily by limestone horizons.

The remainder of the property is underlain by medium to coarse grained Cretaceous biotite-quartz monzonite of the Selwyn Plutonic Suite. Surrounding Road River Group sediments also appear to be bent around the intrusion.

All sediments on the property are cut by, vuggy quartz veins with inclusions of angular shale fragments up to 2cm in diameter. Quartz veins average 20cm wide, are often folded and may be

parallel to or cross-cut bedding.

The main mineralization on the property is located within a northwest-southeast trending fault zone which cuts the Road River Group sediments. This zone appears to be down dropped to the northwest by a northeast-southwest trending fault which also cuts the biotite-quartz monzonite. To the southeast the fault zone is cut off by a north-south trending fault with possible right lateral movement.

2-3 Zone Geology

The main mineralization on the Itsi Mountain property is located within a northwest-southeast trending fault zone which cuts black shales of the Road River Group. This zone has a strike length of 550m and a maximum width of 40m. The general strike of the fault zone is 120 degrees with a steep (~80 degrees) westerly dip. At the base of the slope the zone is made up of one large quartz vein about 5m wide; this vein fans out upslope into three and possibly four smaller veins with quartz stockwork and breccia. The width of alteration also increases upslope from 10m at the base to 40m at the top of the ridge. The fault zone is roughly parallel to bedding and ends abruptly to the southwest. To the northeast mineralization and alteration gradually fade away. The zone is faulted off to the northwest and southeast.

The main quartz vein within the zone is roughly vertical and strikes at 120 degrees, parallel to bedding. Most smaller quartz veins are perpendicular to bedding. Shale beds within the zone

and surrounding area show at least two phases of folding with fold axes trending northwest-southeast and northeast-southwest. The fault zone itself may lie in the hinge of a slightly overturned syncline (all beds dip to the west but parasitic-fold indicate an anticlinal hinge to the northeast).

Mineralization within the zone is mainly arsenopyrite pyrite chalcopyrite with Py, CPy, malachite, azurite and rare stibnite and pyrrhotite. There is abundant scorodite, some chlorite veins and blebs and minor epidote alteration within the quartz stockwork/breccia. In general, rocks surrounding the quartz veins are silicified on the south side and argillically altered on the north side. Open space filling and bladed calcite textures are evident in the upper part of the zone.

CHAPTER THREE: GEOCHEMISTRY

3-1: Rock Geochemistry

A total of 153 rock samples both outcrop and float were collected on the property. All samples were processed by Acme Analytical Lab using their 30 element ICP package plus Atomic Absorption for Au.



Respectfully submitted by,
Gordon Mackay
Geologist

REFERENCES

Gordey, S.P., 1981:

Geology of the Nahanni Map Area 105 I. GSC Open File 780.

Gordey, S.P., Wood, D. and Anderson, R.G., 1981:

Stratigraphic Framework of Southeastern Selwyn Basin, Nahanni Map Area, Yukon Territory and District of MacKenzie. GSC paper 81-1A, p. 395-398.

Tempelman-Kluit, D., 1980:

Geology and Mineral Deposits of Southern Yukon. Yukon Geology and Exploration 1979-80, p. 7-17.

STATEMENT OF COSTS

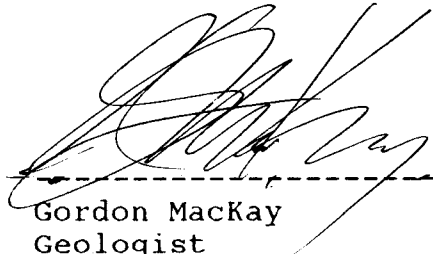
Dave Kelsch Solie Hunt

LABOUR	60 mandays at \$150./day	\$ 9,000.
HELICOPTER	20 hrs at \$800./hr	16,000.
REPORT PREPARATION		<u>1,000.</u>
	TOTAL	\$26,000.

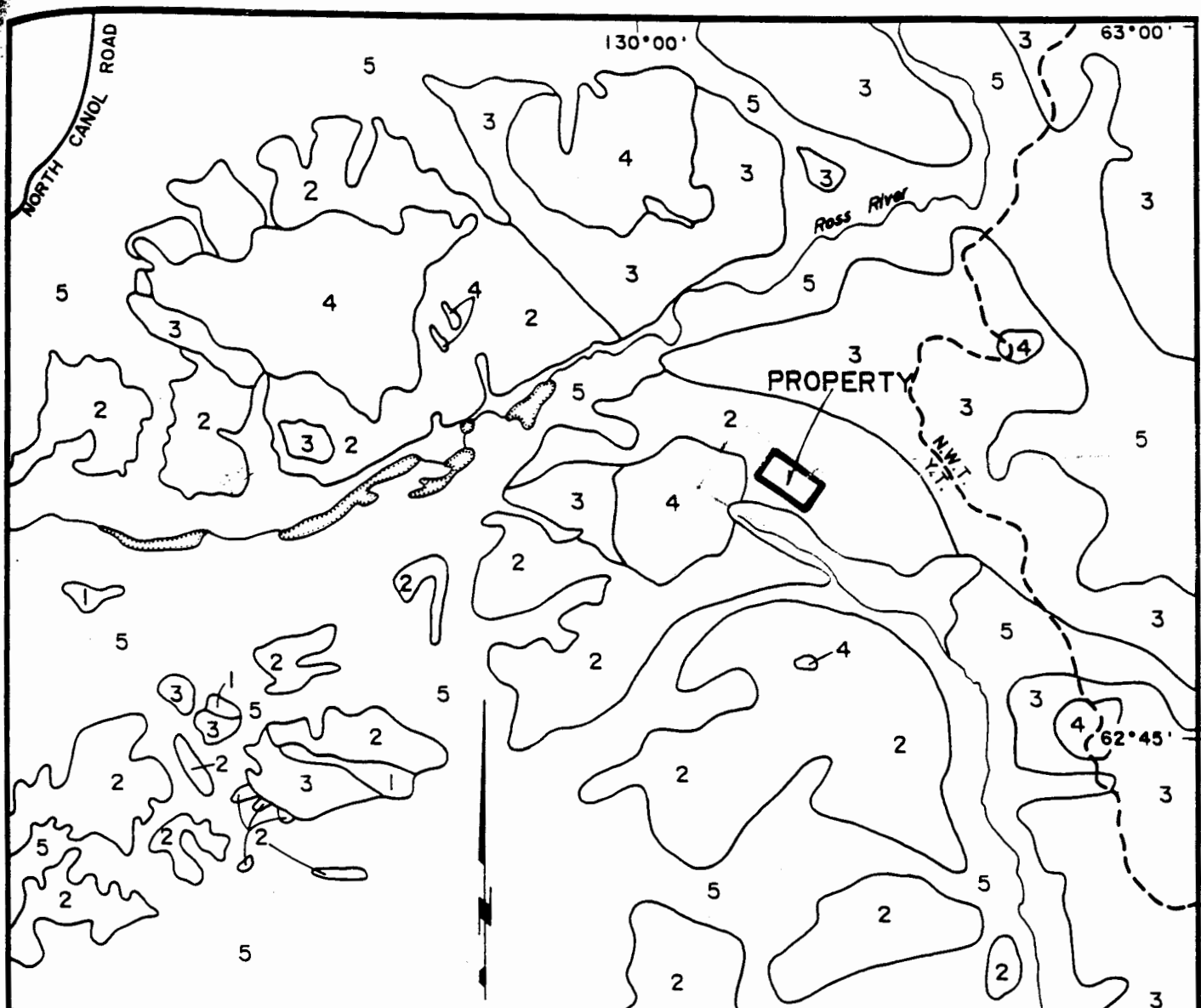
STATEMENT OF QUALIFICATION

I, Gordon MacKay of the City of Whitehorse, Yukon, do hereby certify that:

1. I have been an employee of Noranda Exploration Company Limited, (npl) in Whitehorse, Yukon since May 1988.
2. I am a graduate of the University of British Columbia with a B.Sc. in Geology.
3. I supervised work on the claims during 1990.



Gordon MacKay
Geologist



LEGEND

QUATERNARY

5 Glacial drift, alluvium

CRETACEOUS

4 SELWYN PLUTONIC SUITE
Quartz monzonite

DEVONO-MISSISSIPPIAN

3 EARN GROUP
Black shale, argillite and chert

ORDOVICIAN AND SILURIAN

2 ROAD RIVER GROUP
Black graptolitic shale and chert

CAMBRO-ORDOVICIAN

1 RABBITKETTLE FORMATION
Shaly limestone, calcareous phyllite

REVISED

ITSI MOUNTAIN

REGIONAL GEOLOGY

PROJ. No. 344

SURVEY BY: D. KELSCH

DATE: NOVEMBER 1990

N.T.S. 105 1/13

DRAWN BY: HANDEMAN

SCALE: 1: 250,000

DWG. No.

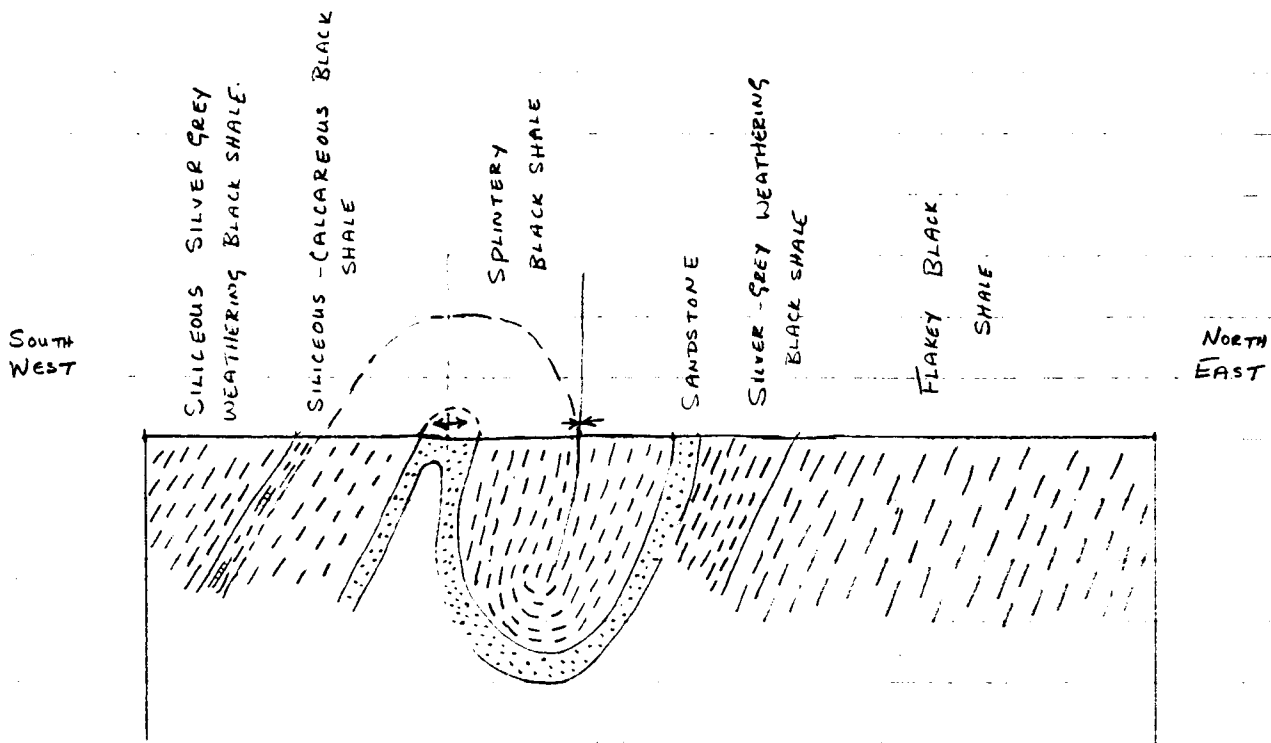
NORANDA EXPLORATION

OFFICE: WHITEHORSE

MODIFIED AFTER GSC MAP 19-1967 and 8-1967

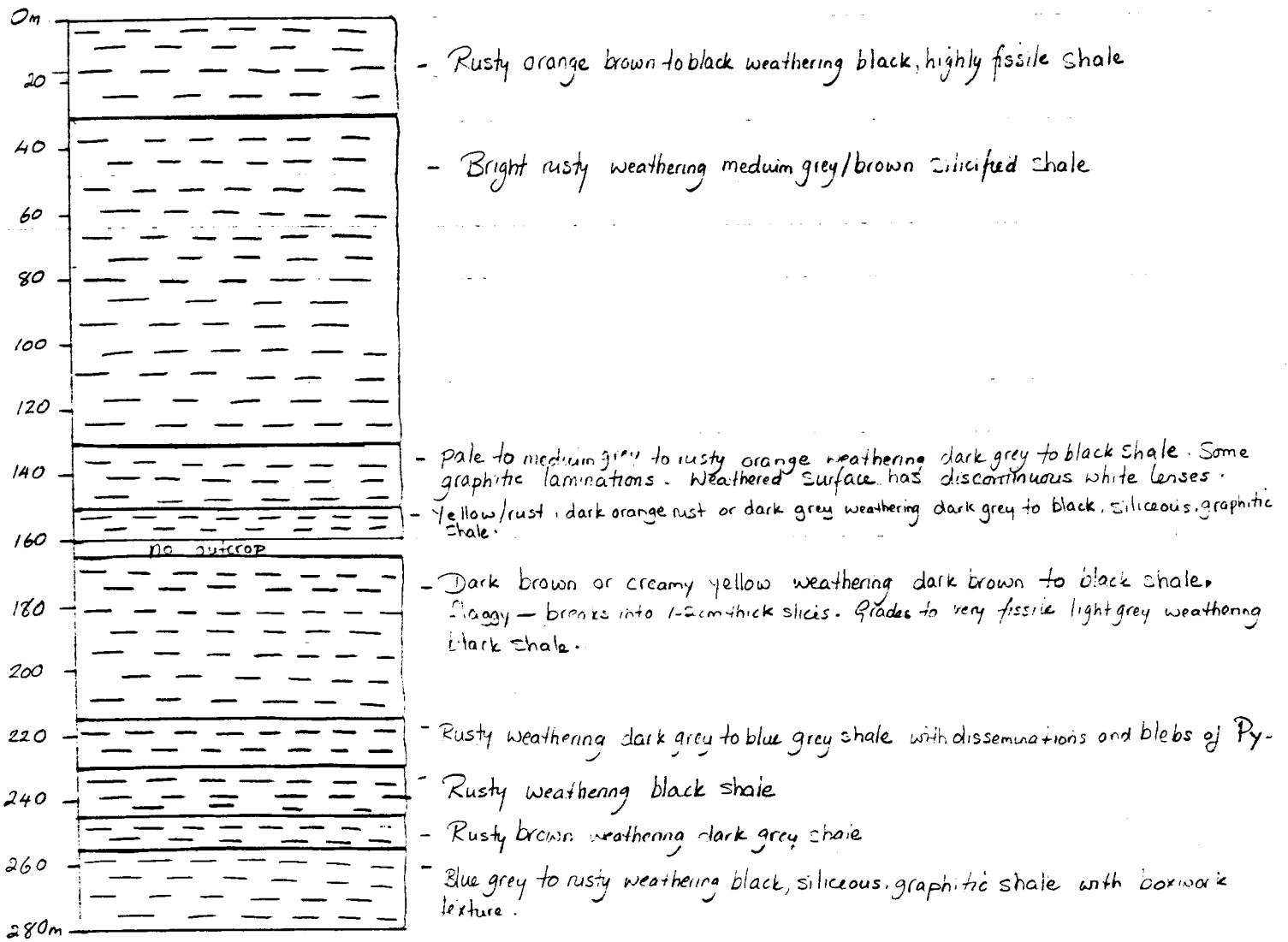
Fig 3

CANADAL TIER 1



Scale: 1: 10,000

Figure 4: Cross-section through the Earn Group. See fig. 2 for location of cross-section and fig. 3 for stratigraphy



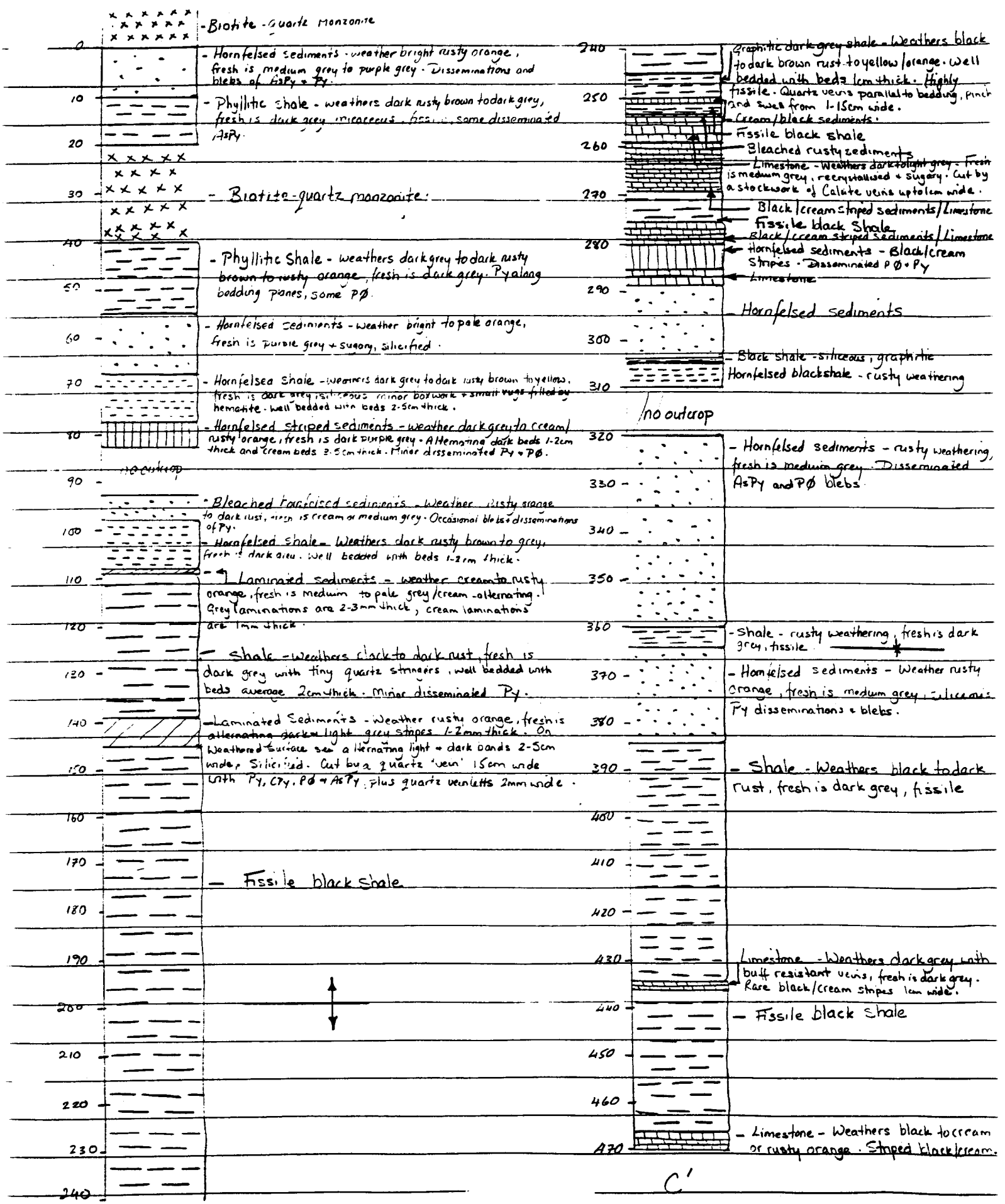
Scale: 1:2,000

Figure 5a: Stratigraphic section through the Road River Group (B-B' on fig 2)

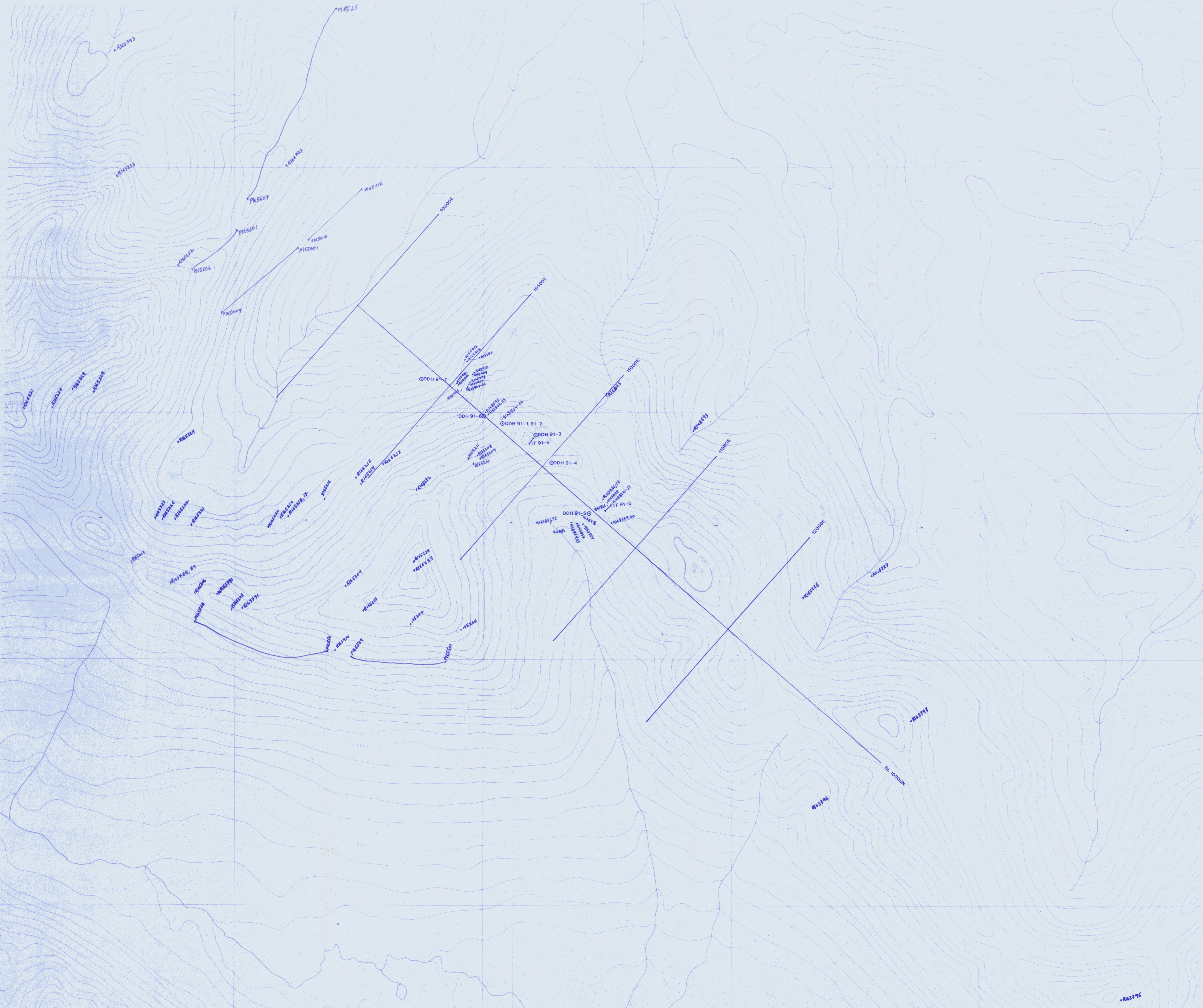
Figure 5b. Stratigraphic Section through the Road River Group (C-C' on fig. 2)

Scale: 1:1,000

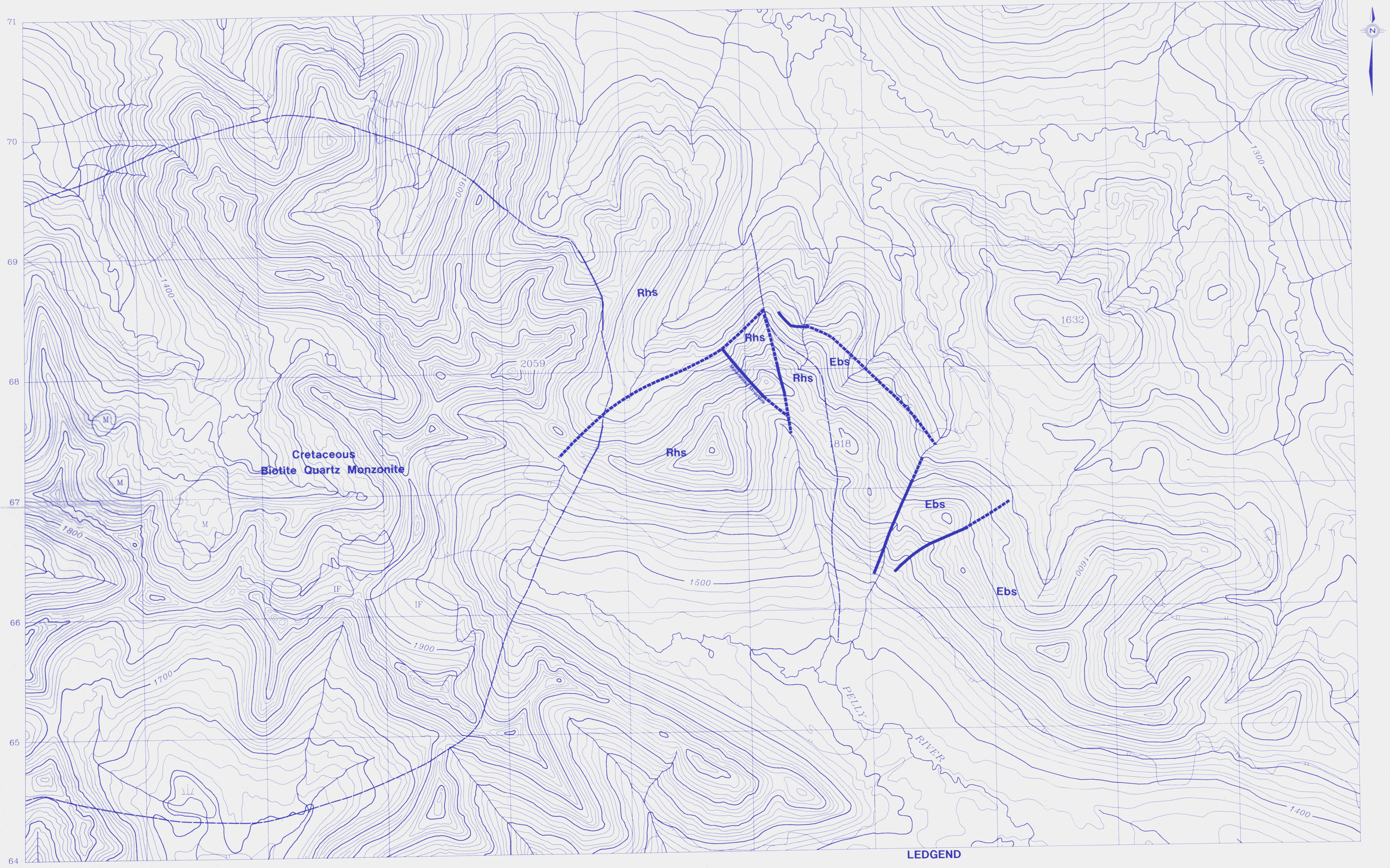
C



C'



REVISED	MAP 1157/3 (209)	
ITSI PROPERTY		
SAMPLE LOCATION		
092990		
PROJ. No. 344	SURVEY BY	DATE Nov 1991
N.T.S. 1:5000	DRAWN BY	SCALE 1:5000
NORANDA EXPLORATION		
OFFICE		



LEDGEND

Middle Devonian to Mississippian:
EARN GROUP Ebs

Black shale, minor interbedded calcareous baritic shales, minor sandstone

Ordovician to Silurian
Road River Group Rhs

Hornfelsed sediments, black shale and siltstone, minor limestone and limy sediments

Geological contact ——— defined approximate
 Fault ——— defined approximate

Metres 200 100 0 200 400 600 800 Metres

REVISED	ITSI PROPERTY		
	GEOLOGY		
	092990		
PROJ. No. 344	SURVEY BY J. Hunt	DATE JUNE 1991	
NTS 105-1/13	DRAWN BY J. Serwin (ACAD)	SCALE 1:10,000	
DWG No. 2	NORANDA EXPLORATION		
	OFFICE: VANCOUVER		