MARN CLAIMS

1983 REPORT

NTS: 116 B/7

DAWSON MINING DISTRICT
YUKON TERRITORY

OWNER: NORANDA EXPLORATION CO. LTD.

AUTHOR: J. BICZOK

DATE: FEBRUARY, 1984

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 22,350.00.

K. Grapes

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

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF MAPS

CHAPTER ONE: INTRODUCTION

1-1: Location and Access

The MARN claims are located 55 km NNE of Dawson City, Yukon, in the Tombstone Mountains, part of the Ogilvie Range (Fig. 1). They are located at the head of Fireweed Creek, a tributary of the Chandindu River (Fig. 2).

During the past, access has been by helicopter from Dawson City or from a debarkation point on the Dempster Highway, 29 km to the east (Fig. 3). In the future, if the property warrants it, equipment could be hauled to the property by one of two routes:

1) Along the Tombstone River valley, from the Dempster Highway to the Chandindu River Valley (35 km), and then up the Chandindu and Fireweed valleys (10 km) to the property.
2) Along the Chandindu River road, a dirt track that crosses relatively flat terrain from Dawson City to the Chandindu River, roughly 15 km south of the property (Fig. 3). Equipment could then be hauled up the Chandindu and Fireweed Valleys approximately 16 km to the property.

Both routes should be relatively problem free. However, there may be some official objections to constructing a road along the Tombstone River valley. In the past this area has been considered as a potential site for a national park and disturbances such as road construction may be frowned upon.

1-2: History of the Claims

The original MARN 1-8 claims were staked by Mattagami Lake Mines Ltd., July 29, 1978. Only a brief period of exploration was carried out in 1978.

Figure 1

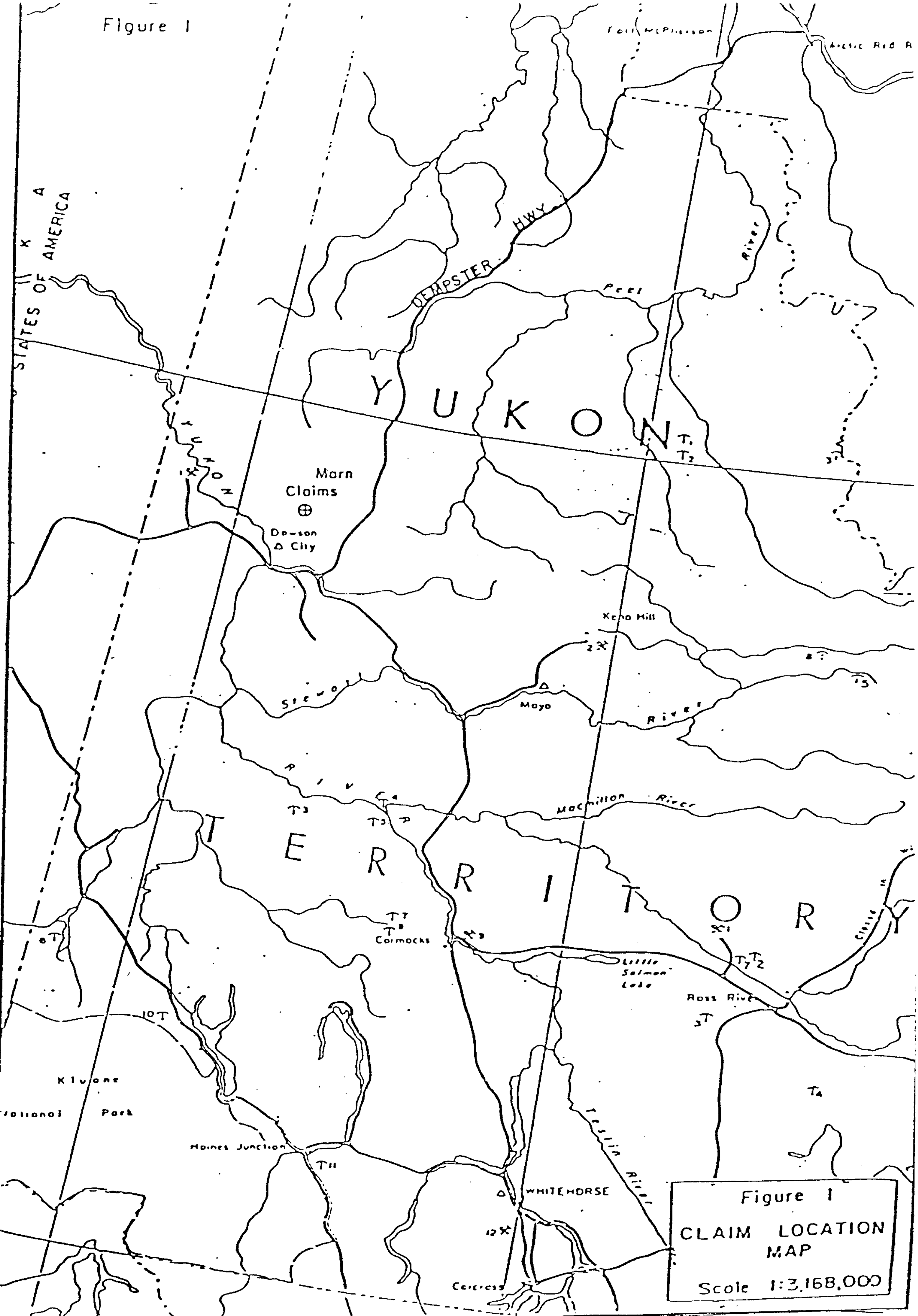
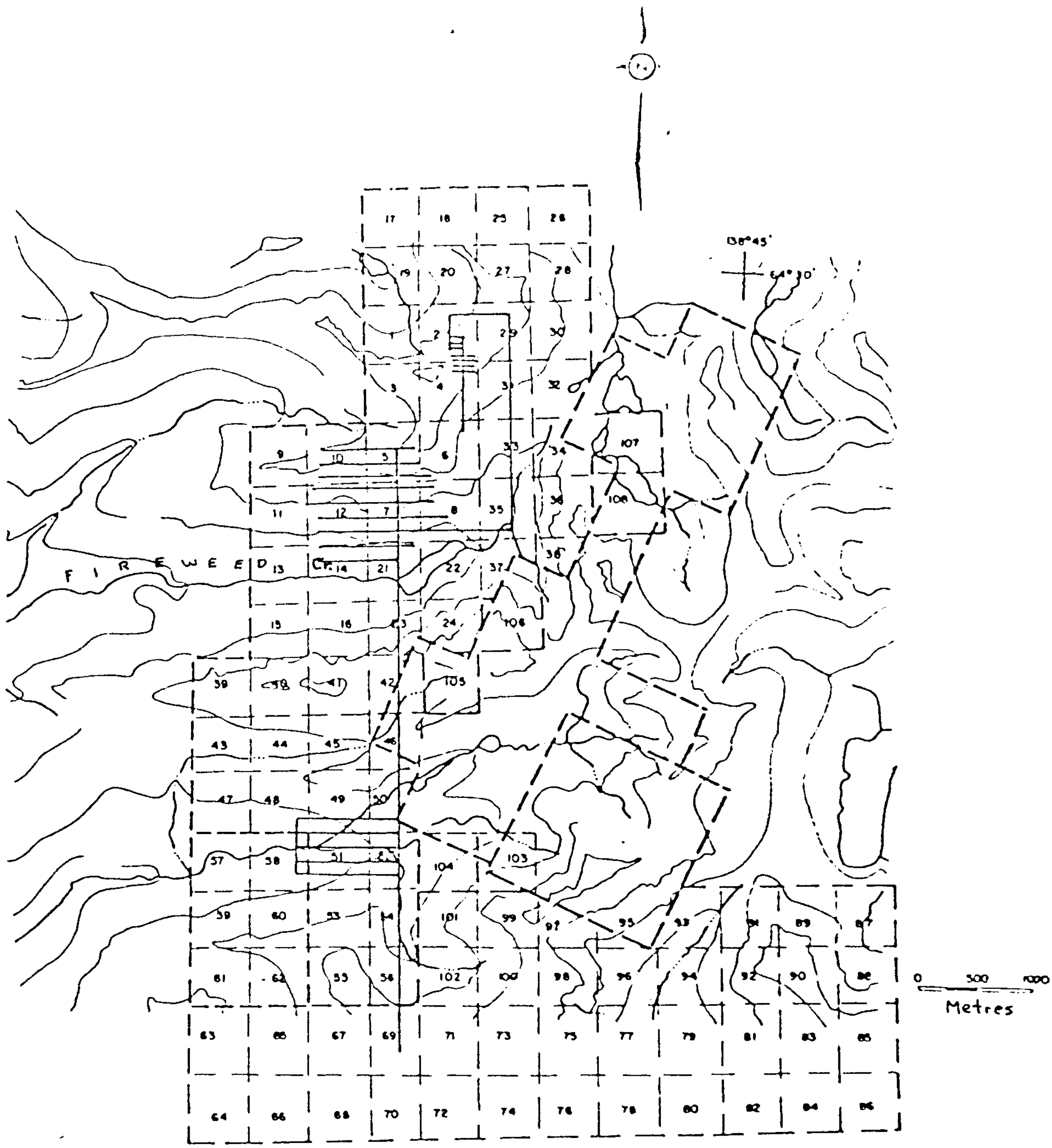


Figure 1
CLAIM LOCATION MAP
Scale 1:3,168,000



Morn Project
FIGURE 2
CLAIM MAP

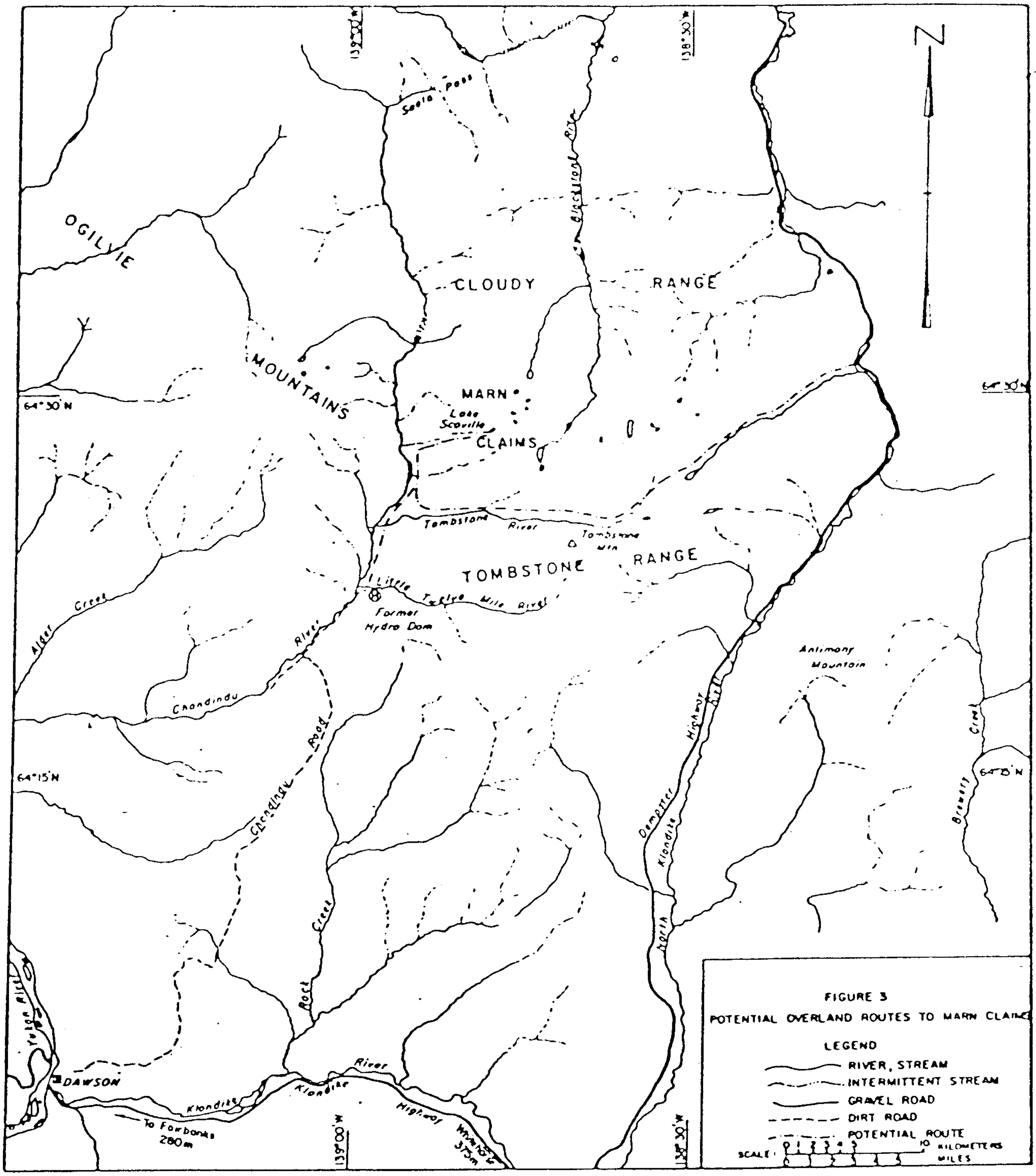


FIGURE 3
POTENTIAL OVERLAND ROUTES TO MARN CLAIMS

Following the initial work on the claims (June) in 1979, an additional 54 claims were staked in July-September.

On June 2, 1980, an additional 46 claims, MARN 63-108, were staked and MARN 29 and 30 restaked. The current claim status data is summarized in Table 1. Exploration work in 1980 consisted of geological mapping, grid layout, geophysical surveys (RADEM, Magnetometer, Crone Shootback), trenching and 1005 m of diamond drilling. As well, a topographic survey of the property was undertaken for the company by Hosford, Impey and Welter.

In 1981 an additional 1000 m of diamond drilling was completed and minor amounts of mapping and topographic surveys undertaken.

In 1982 a minor program of geological mapping was conducted on the southern MARN claims and along the north and east perimeters of the claim block.

1-3: Physiography

"This rock is strongly jointed vertically and weathers into ruinous wedge-shaped ridges, surmounted by lines of sharp pinnacles and lofty tower-shaped peaks." (McConnell, 1903, p.63)

The Tombstone Mountains are truly one of the most remarkable areas of the Cordillera. Areas underlain by intrusive rocks feature extremely steep relief averaging 3,000 ft. (900 m) high, are not uncommon in this area. The vertical jointing in the rock has led to the development of branching, razorback ridges, large pinnacles resembling hoodoos and large peaks towering above the ridges. Cirques and hanging valleys are common in this terrain. Fortunately, the MARN claims lie along the contact of the syenite with the Paleozoic sediments and here the terrain is not as rough, featuring broader valleys with gentler slopes and in some areas, a plateau type topography.

This area was not affected by continental glaciation but was subjected to local alpine glaciation. Glaciers emanating from the Tombstone Mountains travelled down the Chandindu River valley but apparently did not reach the Tintina Trench. Glacial drift mantles the lower slopes in the area up to 3,500 ft. (1,070 m), however all of the MARN claims are above this elevation, ranging from 4,100 ft. to 6,600 ft. (1,250 m - 2,000m).

TABLE ONE: MARN CLAIMS HISTORY and STATUS

Claim No.	Grant Number	Date of Staking	Recording Date	Transfer State	Work Expiry Date*
1-4	YA 31491-94	July 29, 1978	August 4, 1978	Complete to Noranda	January 4, 1996
5-8	YA 31495-98	July 29, 1978	August 4, 1978	Complete to Noranda	January 4, 1999
9-16	YA 47156-63	August 1, 1979	August 14, 1979	Complete to Mattagami	#9-13,15: Jan.4, 1995 #14, 16: Aug. 14,1991
17-20	YA 47164-67	August 1, 1979	August 14, 1979	Complete to Mattagami	January 4, 1992
21-24	YA 47600-03	September 7, 1979	September 10, 1979	Complete to Noranda	January 4, 1992
25-28	YA 47168-71	August 1, 1979	August 14, 1979	Complete to Mattagami	January 4, 1992
29-30	YA 50039-40	June 2, 1980	June 11, 1980	Complete to Mattagami	January 4, 1990
31-34	YA 47172-7	July 31, 1979	August 14, 1979	Complete to Noranda	#31,32: Jan.4, 1992 #33,34: Jan.4, 1991
35-36	YA 47176-77	July 31, 1979	August 14, 1979	Complete to Noranda	January 4, 1995
37-38	YA 47575-76	September 7, 1979	September 10, 1979	Complete to Noranda	January 4, 1992
39-46	YA 47265-72	August 17, 1979	N/A	Complete to Noranda	January 4, 1988
47-48	YA 47577-78	September 7, 1979	September 10, 1979	Complete to Noranda	January 4, 1992

* Expiry dates assumes acceptance of the work filed in this report.

TABLE ONE: Continued

Claim No.	Grant Number	Date of Staking	Recording Date	Transfer State	Work Expiry Date*
49-56 ✓	YA 47273-80	August 24, 1979	N/A	Complete to Noranda	January 4, 1988
57-62	YA 47643-48	September 16, 1979	September 18, 1979	Lapsed	Lapsed
63-66	YA 50041	June 2, 1980	June 11, 1980	Complete to Mattagami	Lapsed
67-75	YA 50045-53	June 2, 1980	June 11, 1980	Complete to Mattagami	January 4, 1987
76-96	YA 50054-74	June 2, 1980	June 11, 1980	Complete to Mattagami	Lapsed
97-104	YA 50075-82	June 2, 1980	June 11, 1980	Complete to Mattagami	January 4, 1987
105-106	YA 50083-84	June 2, 1980	June 11, 1980	Complete to Mattagami	January 4, 1988
107-108	YA 50085-86	June 2, 1980	June 11, 1980	Complete to Mattagami	January 4, 1989

* Expiry dates assumes acceptance of the work filed in this report

1-4: 1983 Work Program

During the summer of 1983, 13 BQ diamond drill holes totalling 1616.87 m were completed. Eleven holes numbered M-83-25 to M-83-35 were drilled in the Mini-Grid area (claim no. MARN 4) and succeeded in delineating this ore zone. Holes M-83-36 and 37 were drilled along the south side of the diorite sill on claim number MARN 8 in a successful attempt to intersect the TAHKANDIT limestone beneath it (Map 1).

No new geological mapping or other types of work were performed by company personnel. However, assistance was provided to Miss Isobel Brown, a graduate student at the University of Alberta, who is studying the deposit as the topic of her M.Sc. thesis. The firm of Hosford, Impey and Welter was retained to survey all drill hole locations in the Mini-Grid area as well as holes M-83-36 and 37.

CHAPTER TWO: GEOLOGY

2-1: General Geology

The geology of the claims has been discussed previously in numerous assessment reports (Biczok 1979; Biczok 1980; Biczok and Kemp 1981; Biczok 1981; Biczok 1982), and no new observations are presented in this report. The general geology is depicted in Fig. 4.

Briefly, the claims cover the contact of the Cretaceous, Mt.Brenner stock (diorite to quartz monzonite) with several sedimentary formations:

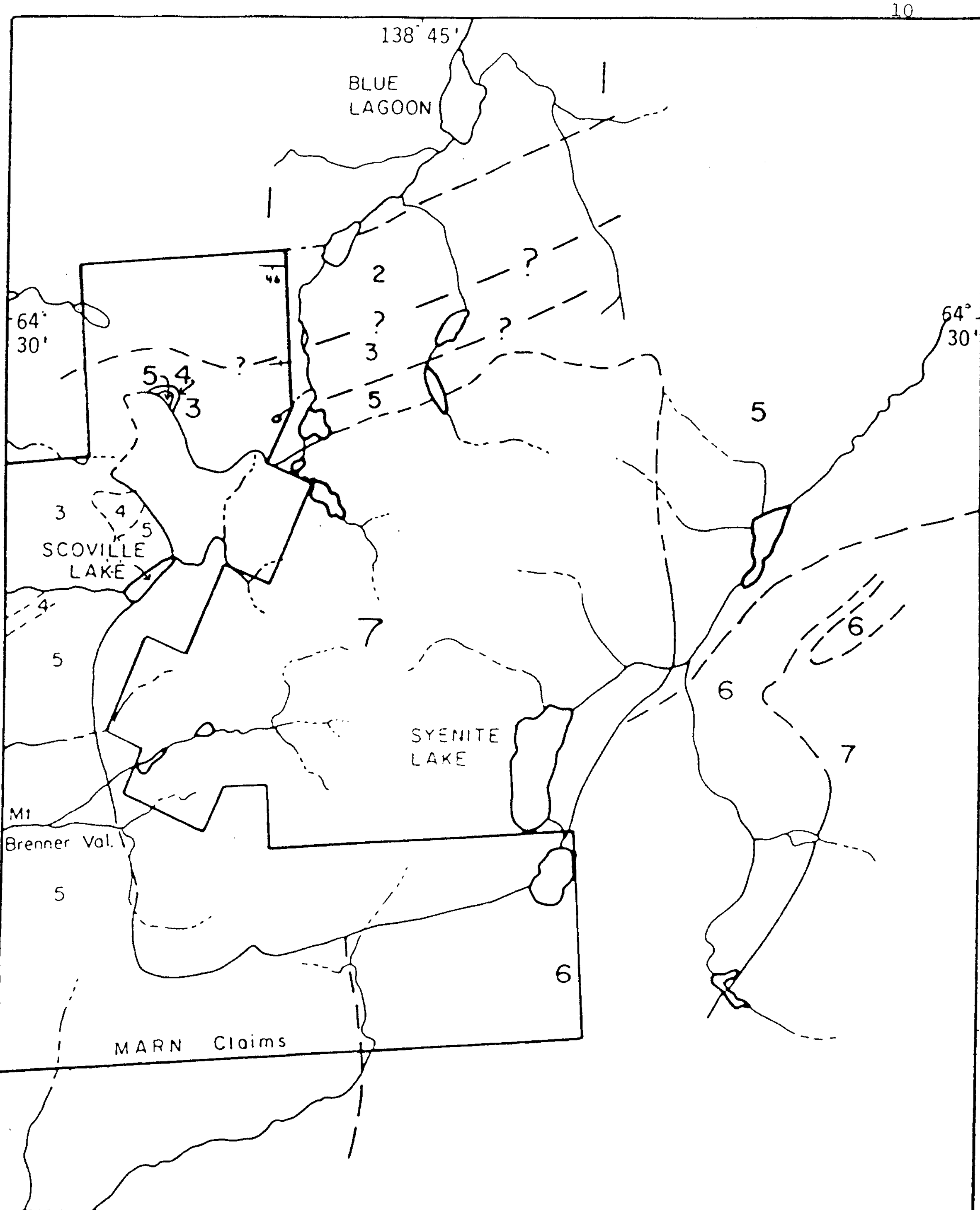
1) The Ordovician-Silurian Road River Formation which consists largesly of black chert and cherty shales;
2) The Devonian "Black Clastic" Formation comprised mainly of black shale;
3) The Permian Tahkandit Limestone;
4) The Jurassic "Lower Schist" Formation, a sequence of quartzite and slate;
5) The Cretaceous, Keno Hill Quartzite.

Throughout most of the claims the strata strike roughly north-south and dip to the east at a shallow angle. Within the northern claims however, the strata curve to the northeast, eventually trending east-west several kilometers northeast of the claims. Interpreting the geology is made more difficult by the similarities between several units, especially since they have been subjected to contact metamorphism.

A large diorite sill 800 m wide extends northwest from the Mt. Brenner stock and intrudes the metasediments at a slightly unconformable angle. Skarn mineralization is developed along, and beneath, the margins of this sill.

2-2: Detailed Geology

In the northernmost claims (north of Lake Scoville), the structural geology becomes fairly complex. South of the sill, the strata trend to the northeast and dip fairly steeply (approximately 45°) to the southeast. Since the Lower Schist unit overlies the Tahkandit Limestone, it is in contact with the Mt. Brenner stock. However, the north of the sill,the Tahkandit Limestone trends to the northwest and dips to the southwest at a shallow angle(25-28°). Therefore, the underlaying Devonian "black clastics"



LEGEND

7	MT. BRENNER STOCK	1	PRECAMBRIAN (or later) "GRIT UNIT"
6	KENO HILL QUARTZITE		
5	Jurassic LOWER SCHIST		
4	TAHKANDIT LIMESTONE		
3	DEVONIAN "BLACK CLASTIC" Fm.		
2	ROAD RIVER Fm.		

Fig. 4: GENERAL GEOLOGY, MARN CLAIMS

NTS 116 B/7

0 0.5 1.0
Km

may be closest to the stock, not the Lower Schist, as depicted by previous workers (L. Green, 1961; D. Tempelman-Kluit, 1969).

CHAPTER THREE: DRILLING

3-1: Introduction

The majority of the 1983 drilling program was designed to delineate the "Mini-Grid" ore zone on the north side of the diorite sill. In 1980 and 1981, 14 holes were drilled in this area and succeeded in defining the boundaries of the skarn zone across an 85 m width for a strike length of approximately 110 m (Fig. 5). The zone strikes 120°, dips from 15-30° SW. and crops out at it's eastern limit in Trenches 1 and 2. The northern edge marks the limit of the hydrothermal skarnification front, whereas the southern limit is defined by the intersection of the two subparallel diorite sills which occur immediately above and slightly below the ore zone. The north-west end of the zone remained open after the 1980-81 drilling and was the focus of the 1983 program.

Drilling in the Mini-Grid zone is extremely difficult, and consequently expensive, for a number of reasons. The nearest water source is 1200 m away and 450-600 m below the elevation of the drill set-ups. Consequently high-pressure drill hose and multiple pumping stations are required. The ground is locally quite fractured and therefore water return is non-existant. This can be a major problem in cold weather due to the severe permafrost which extends at least 100-150 m below surface. To overcome the permafrost one must use salt in the drilling water and/or heat the water, however, these techniques are of limited use since the water drains away through the fractured ground. The surface of the ground above the Mini-Grid zone consists of a 35-50° slope covered with highly unstable diorite boulders commonly ranging from 2-8 m in length. Preparing drill pads is therefore quite expensive and difficult. Because of this,only 2 pads were built in 1983 and the drillholes were "fanned out" from these, even though several holes would be drilled somewhat downdip.

3-2: Results

Individual drill logs are presented in Appendix One. Cross-sections of individual holes as well as several composite sections are presented in Figs. 6-9.

Generally the width and thickness of the Mini-Grid zone has remained fairly uniform to the northwest, however, the intersection of the upper and basal sills curves to the north cutting off the zone. A small area remains open (Fig. 5), however, the grade and thickness of mineralization decreases markedly in this direction. In addition, any extension of the ore zone in this direction would be exposed on a steep cliff face and this is not the case.

The middle sill which appears to have acted as a cap rock to the mineralizing solutions dies out to the northwest. In apparent response to this, the ore zone has become somewhat more diffuse. Generally mineralization occurs over a greater thickness but is of a lower grade.

Holes M-83-36 and 37 were drilled along the south margin of the diorite sill in an effort to intersect the Tahkandit Limestone beneath it. Hole 36 was terminated due to a deterioration in the set-up, however, hole 37 intersected the limestone at the predicted depth (about 230 m). The limestone is skarnified to a barren diopside-garnet assemblage, typical of a contact metamorphic skarn. There is no evidence of hydrothermal activity and it is doubtful that this type of skarn could contain economic mineralization in this area.

CHAPTER FOUR: CONCLUSIONS AND RECOMMENDATIONS

The 1983 drilling program on the Mini-Grid zone succeeded in doubling the previously known reserves. However, this is still not enough to be economically viable at current metal prices. Drilling through the south side of the sill succeeded in intersecting garnet-diopside skarn which was unfortunately barren. This type of contact metamorphic skarn mineralization is completely distinct from the hydrothermal skarn of the Mini-Grid and offers little hope of containing economic grades.

No further work is recommended on the MARN claims as long as gold prices remain low.

Respectfully Submitted,

John Biczok

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Biczok, J.L., 1979. Preliminary Report, MARN 1-8 Claims. Mattagami Lake Exploration Ltd. Assessment Report.

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McConnell, R.G., 1903. Prospecting in the Ogilvie Range, in Yukon Territory (compiled by H.S. Bostock, 1957); Geol. Surv. Can. Mem. 284, pp.62-64.

Tempelman-Kluit, D.J., 1969. Geology, Tombstone-Upper Klondike River, Yukon Territory. G.S.C. Map 1248 A to accompany G.S.C. Bulletin 180.

STATEMENT OF QUALIFICATIONS

I, John Biczok, of the City of Whitehorse, in the Yukon Territory, do hereby certify :

THAT I have been employed as a Geologist by Noranda Exploration Company, Limited (No Personal Liability) since October 1, 1982, and by Mattagami Lake Exploration Limited (No Personal Liability) (a Noranda subsidiary) for three years previous to that date;

THAT I am a graduate of Lakehead University in Thunder Bay, Ontario, with an Honours Bachelor of Science Degree in Geology;

THAT I am currently completing a Master of Science Degree in Geology with the University of Manitoba;

THAT I am a member of the Geological Association of Canada, and the Canadian Institute of Mining and Metallurgy;

THAT I supervised the work described in this report.

John Biczok

John L. Biczok
District Geologist
Noranda Exploration Co. Ltd. (N.P.L.)

MARN, 1983

STATEMENT OF COSTS

Helicopter Charter	$ 85,507.00
Helicopter Fuel Costs	6,982.00
Helicopter Total	$ 92,489.00
Drilling Contract Charges	$ 70,109.67
Drilling Fuel Charges	2,790.60
Drilling Salt Charges	1,900.60
Miscellaneous	775.66
Drill Pad Preparation (Contractor Fees)	6,380.00
Drilling Contractor Total	$ 81,956.53
Vehicle Rental	759.81
Vehicle Operations	3,986.84
Camp Supplies:	
Groceries	7,309.47
Lumber and Hardware	3,335.78
Expediting	2,598.00
Radio Rentals	1,503.90
Electronic Level Rental	1,427.00
Surveying (Contractor's Fees)	1,936.50
Freight	757.00
Assays	2,329.50
Wages (2 geologists, 1 cook, 1 pump tender)	38,852.73
Miscellaneous	3,795.10
Travel and Hotels	3,328.80
Report Writing & Technical Studies	2,571.00
Drafting	2,500.00
GRAND TOTAL	$ 251,436.96

A P P E N D I X   O N E

DRILL LOGS

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started JUNE 24, 1983	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no. 116 B/7
Hole no. M-83-25	Finished JUNE 29, 1983	Lat. 15, 928 N	Lat. 7,153,558	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing Vertical	Length 121.01 m	Dep. 10343 E	Dep. 605,845							Logged by J. Biczok
Dip - Collar -90°	Core size B Q	Elev. 1,902	Elev. 1919.6							Sheet 1 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS Cu (ppm)	ASSAYS Ag (ppm)	ASSAYS Au (ppb)	ASSAYS W (ppm)	
0	4.2			TALUS										
1.2	51.2	96%		BIOTITE DIORITE Homogenous, equigranular, massive, cretaceous, biotite diorite. Contains 25-30% medium-grained biotite, rest is mainly plagioclase. Minor calcite veins with chlorite alteration selvages in lower part. Some alteration to clay at lower contact.	BARREN									
51.2	71.0	93%		JURASSIC SCHIST Fairly homogenous, thinly laminated, argillaceous quartzite. Medium grey colour on fresh surface but weathers to rusty brown due to fine-grained disseminated Py and Po. Unit is fine-grained, generally hornfelsed but relatively unaltered to secondary minerals. Contact with diortie is altered for 1 m starting with black graphitic schist cut by calcite veinlets for 10 cm followed by friable clayey quartzite. Bedding at 30° to 38° to core axis (C.A.). Foliation nearly parallel to bedding but locally up to 60° to C.A.	Minor disseminated pyrite and pyrrhotite									
				51.59 - 51.78: Black graphitic schist cut by calcite veinlets	Calcite veinlets	J9001	51.59	51.78	0.19	320	3.0	53	2	
				51.78 - 51.98: Friable, clayey quartzite		J9002	51.78	51.98	0.20	425	1.8	28	2	
				60.48 - 60.57: Skarn veinlet with 15-20% coarse Py, 20% quartz, rest is actinolite		J9003	60.48	60.57	0.09	1650	4.2	45	14	
71.0	86.2			TAHKANDIT LIMESTONE Permian bioclastic, fine-grained limestone with interbedded chert and quartzite now pervasively skarnified. 75% of the formation is skarnified to a medium green coloured actinolite - diopside skarn or clayey hematite rich skarn. Non skarnified portions occur mainly in the lower part and probably were quartzite beds.	Pervasive skarnification									
				71.00 - 71.35: Chert pebble conglomerate at top of the formation. Not skarnified. Rounded chert pebbles 5-7 mm across.	0	J9004	71.00	71.35	0.35	136	0.8	37	4	
				71.35 - 71.66: Hematized skarn with minor actinolite and chalcopyrite. Abundant hematite coated fractures	Minor Cp	J9005	71.35	71.66	0.31	1580	3.7	700	3	

NORANDA EXPLORATION COMPANY LTD. PROPERTY MARN HOLE No. M-83-25 SHEET 2 OF 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS Cu 90	ASSAYS Ag (ppm)	ASSAYS Au (ppm)	ASSAYS W (ppm)	
				71.66 - 72.38: Mottled dark to light green actinolite-diopside skarn with minor hematite spots and fracture coatings	3 - 4% Cp	J9006	71.66	72.38	0.72	0.22	2.5	0.75	6	
				72.38 - 73.22: Actinolite> Diopside skarn. Friable abundant hematite on fractures, numerous calcite veinlets.	4 - 5% Cp	J9007	72.38	73.22	0.84	0.90	17.0	7.7	6	
				73.22 - 73.58: Clean, white quartzite	0 visible	J9008	73.22	73.58	0.36	0.39	4.5	6.2	2	
				73.58 - 75.01: Hi-grade skarn. Generally actinolite-diopside replacing limestone but also replaces quartzite. Some thin calcite veinlets at random angles plus coarse-grained quartz patches. Cp forms short veinlets (< 1 cm) at 20° to C.A. In lower half Cp veinlets are at 36° to C.A.		J9009	73.58	74.41	0.83	4.35	63.0	5.2	64	
						J9010	74.41	75.01	0.60	4.20	75.0	20.1	28	
				75.01 - 78.60: Hematized, clayey limestone, rusty colour throughout. Local green clay. Some irregular bands and veinlets at 45° to C.A.	0 visible	J9011	75.01	76.28	1.27	1.67	34.0	5.7	18	
						J9012	76.28	77.70	1.42	1.04	13.0	2.4	14	
						J9013	77.70	78.54	0.84	2.95	40.0	15.4	32	
				78.60 - 80.94: Unaltered grey quartzite cut by 5-7 mm calcite veinlets parallel to C.A.		J9014	78.54	79.14	0.60	0.45	10.0	1.4	10	
				80.94 - 81.69: Shear zone. Brown, clayey, slickenside limestone.	minor malachite	J9015	80.94	81.69	0.75	0.61	7.5	2.4	22	
				81.69 - 82.11: Clean quartzite member with a 2-3 cm wide quartz vein.	Tr. mal.	J9021	81.69	82.11	0.42	0.25	2.8	0.23	10	
				82.11 - 82.97: 80% is friable actinolite skarn with moderate hematite. Rest is clean, white quartzite.	Minor Cp	J9022	82.11	82.97	0.86	0.16	1.5	0.17	80	
				82.97 - 84.99: Fairly clean quartzite, locally calcareous. Only minor hematite on fractures. Contains 20 cm of the basal chert pebble conglomerate.	Tr. mal. Cp	J9023	82.97	84.99	2.02	0.11	2.1	1.10	L2	
				84.99 - 86.08: 2/3 is hematite rich altered limestone with local clay alteration. 1/3 is clean quartzite.	0 visible	J9024	84.99	86.08	1.09	0.35	0.8	2.80	2	
				86.08 - 86.46: Friable hematized actinolite skarn with biotite porphyroblasts.	0 visible	J9025	86.08	86.46	0.38	0.09	0.9	0.15	8	
				86.46 - 86.91: Altered (to clay and hematite) biotite porphyroblastic marble. Locally sheared, some calcite veinlet, subparallel to C.A.		J9026	86.46	86.91	0.45	0.03	0.5	0.13	4	
				86.91 - 87.78: Altered limestone, immediately above sill. Very abundant calcite veinlets up to 1.5 cm thick subparallel to C.A. Unit is a biotite schist with contorted foliation subparallel to C.A.	0	J9027	86.91	87.78	0.87	0.02	1.2	0.04	3	
87.78	121.01			BIOTITE DIORITE Medium-grained, equigranular biotite diorite. Contains 20% biotite. rest is mainly plagioclase,no visible quartz. Numerous skarnified xenoliths and calcite veinlets in upper portion. 88.61 - 88.91: Skarnified (act-Di) Diorite 92.98 - 93.28: Abundant green clay (tosudite?) along fractures and alteration of biotite to actinolite.	Barren									
	121.01			END OF HOLE										

NORANDA EXPLORATION COMPANY LTD.

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71.0	86.2			TAHKANDIT LIMESTONE Permian bioclastic, fine-grained limestone with interbedded chert and quartzite now pervasively skarnified. 75% of the formation is skarnified to a medium green coloured actinolite - diopside skarn or clayey hematite rich skarn. Non skarnified portions occur mainly in the lower part and probably were quartzite beds.	Pervasive skarnification									
				71.00 - 71.35: Chert pebble conglomerate at top of the formation. Not skarnified. Rounded chert pebbles 5-7 mm across.	0	J9004	71.00	71.35	0.35	136	0.8	37	4	
				71.35 - 71.66: Hematized skarn with minor actinolite and chalcopyrite. Abundant hematite coated fractures	Minor Cp	J9005	71.35	71.66	0.31	1580	3.7	700	3	

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started June 29, 1983	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS	NTS no. 116 B 7
Hole no. M-83-26	Finished July 1, 1983	Lat. 15, 928 N	Lat. UTM 7,153,558 N	Depth / Bearing / Dip / Depth / Bearing / Dip	Project no. 915
Bearing 018°	Length 96.90 m	Dep. 10, 343 E	Dep. UTM 605,845 E		Logged by J. Biczok & R. Kemp
Dip - Collar -70°	Core size BQ	Elev. 1902	Elev. 1919.6		Sheet 1 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS Cu (ppm)	ASSAYS Ag (ppm)	ASSAYS Au (ppb)	ASSAYS W (ppm)
0	1.2			TALUS									
1.2	45.8			BIOTITE DIORITE	Tr. Py.								
				Medium to coarse-grained, equigranular, grey biotite diorite. Small, subrounded to sub angular xenoliths at 6.3 m with associated Py									
				12.5 m: minor fault gouge and slips at 80° to C.A.									
				21.8 m: minor fault gouge and slips at 60° to C.A.									
				26.5 m: minor fault gouge and slips at 65° to C.A.									
45.8	65.4			JURASSIC SCHIST									
				Generally a fine-grained weakly bedded hornfelsed, grey argillaceous quartzite. Upper contact at 15° to C.A. Random rusty fractures, generally at 35 - 40° to C.A.									
				45.8 - 46.0: Upper contact zone. Upper part is pyritiferous (10% Py), rusty-brown in colour. Lower part is faulted and friable.									
				54.0 - 54.1: Bed of very fine-grained pyrite. Contact at 30° to C.A.									
				61.8 m: Foliation at 39° to C.A.									
						J9028	64.92	65.62	0.70	60	0.5	31	L2
65.4	78.6			TAHKANDIT LIMESTONE									
				Generally a white, fine-grained, bioclastic limestone with calcareous quartzite and chert pebble conglomerate interbeds. Locally skarnified.									
				65.4 - 66.05: Chert pebble conglomerate. Subrounded fine grained, granular chert pebbles to 2 cm in diameter in a fine-grained grey quartzite matrix.		J9029	65.62	66.05	0.43	126	0.4	41	L2
				66.05 - 66.75: Soft, friable limestone heavily altered to lime-green clay with local unaltered patches		J9030	66.05	66.75	0.70	116	1.0	3400	10
				66.75 - 68.30: Friable limestone heavily altered to clay and hematite. Dark brown in colour; locally porous, some rust coloured limestone relicts.		J9031	66.75	68.57	1.82	244	0.8	170	13
				68.30 - 70.70: Blocky, friable limestone locally altered to an olive green clay(or epidote?) with graphitic slips.		J9032	68.57	69.99	1.42	182	0.7	460	90
				70.70 - 73.74: White to grey limestone and quartzite	Minor	J9033	69.99	71.49	1.50	380	0.4	240	10
				with minor malachite along fractures at 73.3 m.	malachite	J9034	71.49	72.54	1.06	1760	2.1	7500	660
				Local alteration to clay and hematite.		J9035	72.54	73.74	1.20	350	0.4	195	4
				73.74 - 74.46: Biotite porphyroblastic white marble; approx. 15% medium-grained biotite in a massive white marble matrix.		J9036	73.74	74.46	0.72	168	0.5	380	38

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. M-83-26

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ASSAYS Cu (ppm)	Ag (ppm)	Au (ppb)	W (ppm)	
74.46	75.39			BIOTITE DIORITE SILL										
				Medium grained, equigranular biotite diorite, same as upper sill. Upper contact at 60° to C.A. Lower contact at 10° to C.A.		J9037	74.46	75.39	0.93	128	2.2	10	8	
75.39	78.63			TAHKANDIT LIMESTONE- High Grade Skarn										
				75.39 - 75.59: Contact of limestone with sill. Very black, friable limestone with 5 mm hematite spots.	1% malachite on fractures	J9038	75.39	75.59	0.20	11,000	29.0	740	4	
				75.59 - 76.04: Friable grey limestone cut by coarse grained calcite veins at 30° to C.A.		J9016	75.59	76.04	0.45	4,200	1.6	510	4	
				76.04 - 76.41: Limestone highly altered to clay and hematite, cut by numerous, thin (2 mm) calcite veinlets		J9017	76.04	76.41	0.37	13,200	16.0	6300	26	
				76.41 - 77.11: Very high grade skarn. Upper 80% is a quartz-Cp vein with local open space fillings and quartz crystals. Cp is interstitial to quartz. Lower 20% is chert pebble conglomerate. Much of the zone is cut by thin calcite veinlets plus and malachite, azurite and chrysocolla along fractures. Up to 10% coarse grained covellite over 10 cm.	Abundant chrysocolla, malachite, azurite, chalcopyrite; up to 10% covellite.	J9018	76.41	77.11	0.70	11.5%	120.0	19,900	70	
				77.11 - 77.41: Limestone altered to clay and hematite. Minor malachite and chrysocolla.	Minor mal. and chrys.	J9019	77.11	77.41	0.30	1.27%	79.0	10,400	34	
				77.41 - 77.56: Friable, actinolite skarn with 30-40% gypsum, (satin spar) veinlets, up to 1 cm thick, at 45° to C.A.		J9020	77.41	77.56	0.15	6.5%	95.0	6,100	42	
				77.56 - 78.63: Friable limestone with moderate alteration to clay and hematite. Trace malachite.	Trace mal.	J9039	77.56	78.63	1.07	6.100	16.5	2,400	14	
78.63	96.90			BIOTITE DIORITE										
				Equigranular coarse-grained biotite diorite. 15 - 20% biotite, rest is largely plagioclase. Local paucity of biotite produces a patchy appearance typical of the basal sill.										
		65%		78.6 - 89.3: Poor recovery due to blocky nature, local fault gouge. Heavy alteration of feldspar to clay in top 2 m.		J9040	78.63	80.16	1.53	3,300	3.1	1,500	6	
	96.90			END OF HOLE										

NORANDA EXPLORATION COMPANY LTD.

		FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						
Property MARN	Started			Depth	Bearing	Dip	Depth	Bearing	Dip	NTS no. 116 B/7
Hole no. M-83-27	Finished	Lat. 15,928 N	Lat. 7,153,558 N							Project no. 915
Bearing 018°	Length 115.2	Dep. 10,343 E	Dep. 605,845							Logged by R.Kemp
Dip - Collar - 45°	Core size BQ	Elev. 1,902	Elev. 1919.6							Sheet 1 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS				
0	2.1			TALUS - CASING										
2.1	48.35			BIOTITE DIORITE										
				Medium-grained equigranular biotite diorite. 20-25%										
				biotite, rest mainly plagioclase. Minor shear zones										
				at 10.0-10.3, 12.7, 32.6, 33.3, 42.3 and 43.4 m at										
				50-55° to C.A. Lower margin is chilled, hematized										
				and fractured contact at 90° to C.A.										
				45.4 - 45.8: Bleached zone with gradational contacts.	2% Po & Cp									
				Possible quartzite/marble xenolith.										
48.35	50.70			JURASSIC SCHIST										
				Fine-grained, grey, argillaceous quartzite. Hematite										
				as fracture coatings.										
				49.8: Up to 6% Pyrite blebs.	6% Py									
50.70	55.70			BIOTITE DIORITE										
				Medium-grained and equigranular. Core is blocky and										
				gritty. Upper contact at 40° to C.A., possibly										
				sheared.										
55.70	84.7			TAHKANDIT LIMESTONE	Tr. mal.									
				Intercalated clean, white quartzite (55-65%) and fine-										
				grained limestone. Limestone commonly hematized and										
				altered to red, yellow or brown colours.										
				56.1 and 56.7 m: malachite staining										
				60.9 - 63.6: BIOTITE DIORITE. Green clay epidote	1-15% Py									
				alteration along upper contact and green										
				pyritiferous clay at lower contact.										
				63.6 - 65.6: Biotite Porphyroblastic marble. Local										
				blocky and clay rich zones.										
				65.6 - 75.6: Limestone and intercalated quartzite.										
				68.5 - 68.8: BIOTITE DIORITE. Upper contact at										
				35° to C.A., lower contact at 70°										
				72.1 - 72.5: BIOTITE DIORITE: Upper and lower										
				contacts at 15° to C.A.										
				74.75 - 75.1: Chert pebble conglomerate. Fines										
				upward.										
				75.6 - 76.4: BIOTITE DIORITE. Gradational contacts,	Tr Py									
				trace Py										
				76.4 - 78.0: Fine grained, grey-green quartzite/marble	2-3% Py & Po									
				2-3% disseminated or blebby Py and Po										
				78.0 - 82.6: Chert pebble conglomerate.	Dissem. Py									
				82.6 - 83.2: Grey, mottled quartzite ?	Tr Po									
				Possibly minor garnet (?)										

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. M-83-27 Sheet 2 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS				
				83.2 - 84.7: Chert pebble conglomerate, possibly bleached.	Tr Py & Po									
84.7	115.2			DEVONIAN BLACK CLASTIC UNIT										
				Thinly bedded, black shale with minor chert. Some conglomeratic and fossiliferous sections.	1-2% dissem. Py									
				99.8 - 99.9: Fracture coated with Cp and Py										
	115.2			END OF HOLE										

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started July 6, 1983	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no. 116 B/7
Hole no. M-83-28	Finished July 9, 1983	Lat. 15,928 N	Lat. U.T.M. 7,153,558 N	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing 198°	Length 109.1 m	Dep. 10,343 E	Dep. 605,945 N							Logged by R. Kemp
Dip-Collar -70	Core size BQ	Elev. 1,902	Elev. 1919.6							Sheet 1 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS Cu (%)	ASSAYS Ag (ppm)	ASSAYS Au (ppb)	ASSAYS W (ppm)
0	0.9			TALUS									
0.9	75.3			BIOTITE DIORITE									
				Medium-grained, equigranular biotite diorite with 25%									
				biotite, rest is mainly plagioclase.									
				4.7 - 4.8: Fault gouge; friable									
				50.3: Fault gouge; soft and friable									
				73.2 - 75.3: Diorite becomes finer grained towards		J9041	73.50	74.30	0.80	0.011	0.3	3	4
				contact.									
				74.6 - 75.3: Fractures have thin hematite coatings with	Minor Cp	J9042	74.30	75.30	1.00	0.037	0.8	310	910
				1-2% Cp. Lower contact at 60° to C.A.									
75.3	83.3			JURASSIC SCHIST									
				Generally a fine-grained medium to dark grey argillac-									
				eous quartzite. Now largely hornfelsed. Lower 0.6 m									
				is weakly sheared and altered to clay.									
				75.3 - 75.9: Cross-cutting Cp-Actinolite veinlets	3% Cp	J9043	75.30	76.60	1.30	0.43	7.5	140	L5
				and 3-5% dissem. Cp									
				75.9 - 76.1: Quartzite cut by two, 1 cm wide Cp > Py > Qtz									
				veins with ½ cm wide bleached margins. Veins at									
				40 - 45° to C.A.									
				76.1 - 77.9: Quartzite with minor, local Cp blebs and	1% Cp	J9044	76.60	77.85	1.25	0.36	7.0	270	L5
				veinlets.									
				77.9 - 78.2: Quartzite cut by 30-40% veins of Cp > Qtz	15-20% Cp	J9045	77.85	78.90	1.05	5.30	89.0	3020	L5
				at random angles.									
				78.2 - 78.35: Fractured quartzite, minor hematite	0								
				78.35 - 78.90: Quartzite cut by 30-40% coarse grained	15-20% Cp								
				Cp-Qtz-Py veinlets up to 5 cm side. Pyrite is									
				fine-grained and contains some Cp veinlets at									
				45° to C.A.									
				78.90 - 79.70: 5% Cp-Qtz-Py veinlets to 1 cm	3% Cp	J9046	78.90	79.70	0.80	1.06	21.0	620	L5
				79.70 - 80.45: 60-70% fine to coarse-grained Cp and	40-50% Cp	J9047	79.70	80.45	0.75	10.30	190.0	3530	13,800
				minor fig. Py in pervasive veins and as dissemin-									
				ated grains									
				80.45 - 81.50: Quartzite with numerous hem. and Cp	1-2% Cp	J9048	80.45	81.60	1.15	1.00	19.0	270	70
				coated fractures at random angles									
				81.50 - 82.10: BIOTITE DIORITE		J9049	81.60	82.10	0.50	0.66	12.5	235	3,800
				Upper 40 cm is *highly sheared and carbonatized*									
				to friable rubble. Shears at random angles									
				L 45° to C.A.									

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. M-83-28 Sheet 2 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ASSAYS Cu (%)	Ag (ppm)	Au (ppb)	W (ppm)	
				82.10 - 82.60: Biotite Porphyroblastic Quartzite (?). 10% fine-grained biotite in a recrystallized quartzite resembling marble.		J9051	82.10	82.60	0.50	0.206	1.0	23	21	
				82.60 - 83.30: Sheared, friable rubble. Highly hematized, composition uncertain, may have been diorite.		J9052	82.60	83.20	0.60	4.4	100.0	960	34	
83.3	84.5			TAHKANDIT LIMESTONE Fine-grained clean, white quartzite and coarse-grained actinolite-quartz marble. Calcite-quartz veinlet sub-parallel to C.A. for 0.8 m. Some shearing in lower part. Trace Cp and malachite.	Tr Cp + Mal	J9053	83.2	84.70	1.50	0.279	5.2	1900	6	
84.5	109.1			BIOTITE DIORITE Medium to coarse-grained biotite diorite with some chloritization of biotite. 25-30% biotite+chlorite, rest is mainly plagioclase. Minor calcite veinlets at 30° to C.A.										

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES U.T.M.	DIP TESTS					NTS no. 116 B/7
Hole no. M-83-29	Finished	Lat. 15,948 N	Lat. 7,153,577	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing Vertical	Length 115.5	Dep. 10,330 E	Dep. 605,822							Logged by R. Kemp
Dip - Collar	Core size BQ	Elev. 1922.7	Elev. 1940.6							Sheet 1 of 1

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	Cu (%)	Ag (ppm)	Au (ppb)	W (ppm)
0	2.80			TALUS. CASING.									
2.80	74.10			BIOTITE DIORITE	0								
				Upper sill of medium-grained, massive, equigranular biotite diorite.									
74.10	90.70			JURASSIC SCHIST	Tr. Py & Hem.								
				Generally a fine-grained, grey weakly bedded argillaceous quartzite. Trace pyrite and hematite throughout.									
				74.1 - 74.7: Brecciated zone with quartz and calcite fracture fillings									
				74.7 - 76.7: Random hematite coated fractures.									
				76.7 - 90.7: Randomly spaced quartz±feldspar veinlets with Cp blebs. Locally 2% dissem. Cp. Veinlets at 50° to C.A. possibly parallel to bedding	Minor Cp	J9054	89.70	90.70	1.00	0.77	16.0	5,890	4
90.70	102.90			TAHKANDIT LIMESTONE									
				Generally white, fine-grained, bioclastic to pelletal limestone with intercalated clean, white quartzite.									
				90.7 - 92.2: Act.-Dp skarn, 20% Cp and Po	20% Cp & Po	J9055	90.7	92.2	1.5	0.68	9.3	3090	L5
				92.2 - 93.7: Act.-Dp skarn, 20% Cp and Po	20% Cp & Po	J9056	92.2	93.7	1.5	0.84	10.5	1400	L5
				93.7 - 95.2: Act.-Dp skarn, 30% Cp, Py & Po	30% Cp, Py Po	J9057	93.7	95.2	1.5	0.88	9.3	1650	L5
				95.2 - 96.2: Diopside-Actinolite skarn cut by Qtz-Fd-Asp vein	5-10% Cp & Po & 20% Asp	J9058	95.2	96.2	1.0	1.22	14.0	2400	70
				96.2 - 97.0: Dp-Act skarn, 30% Cp & Po	30% Cp & Po	J9059	96.2	97.0	0.8	0.08	L1.5	11,500	L5
				97.0 - 98.5: Dp-Act skarn	Tr Cp	J9060	97.0	98.5	1.5	0.06	L1.5	4500	L5
				98.5 - 99.9: Limestone, 80% altered to white clay		J9061	98.5	99.9	1.4	0.008	0.1	200	8
				99.9 - 101.4: Limestone; soft, friable, 50% white clay minor hematite		J9062	99.9	101.4	1.5	0.002	L0.1	50	3
				101.4 - 102.9: Barren limestone with local lime-green clay and hematite alteration		J9063	101.4	102.9	1.5	.010	L0.1	120	3
102.90	115.5			BIOTITE DIORITE									
				Coarse-grained, lower biotite diorite.									
				END OF HOLE AT 115.5									

NORANDA EXPLORATION COMPANY LTD.

		FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						
Property MARN	Started July 1									NTS no. 116 B/7
Hole no. M-83-30	Finished July 6	Lat. 15,948 N	Lat. 7,153,577	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing 018°	Length 98.45	Dep. 10.330 E	Dep. 605,822							Logged by R. Kemp
Dip - Collar -45°	Core size BQ	Elev. 1,922.7	Elev. 1940.6							Sheet 1 of 1

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS Cu (%)	ASSAYS Ag (ppm)	ASSAYS Au (ppb)	ASSAYS W (ppm)	
0	44.81			BIOTITE DIORITE	0									
				Generally medium-grained, equigranular; about 20-25% biotite, rest mainly plagioclase										
44.81	64.62			JURASSIC SCHIST										
				Generally fine-grained weakly bedded argillaceous quartzite. Abundant fine-grained, disseminated pyrite.										
				57.3: Disseminated Py and Hem.										
				62.18 - 64.62: Pervasive clay alteration, fractures common at the base										
64.62	92.35			TAHKANDIT LIMESTONE		9064	CORE DROPPED		0.43	0.31	3.5	2,540	L5	
				Originally a white limestone, locally pelletal or bioclastic, with intercalated clean white quartzite. Abundant skarnification (Actinolite - Diopside±Sulphides) and clay alteration.										
				64.62 - 70.10: Altered, green to black limestone and interbedded quartzite. Up to 30% Cp as disseminated blebs and grains from 64.62 - 68.27. Local gypsum veinlets.	30% Cp & Po									
				70.10 - 71.02: Biotite Diorite Dyke										
				71.02 - 73.15: Quartzite;calcite and hematite along fractures.										
				73.15 - 78.64: Marble; hematite along fractures										
				78.64 - 83.52: Limestone and quartzite										
				83.52 - 92.35: Intercalated fossiliferous limestone and chert pebble conglomerate. Minor pyrite and Cp at 86.26, marble from 87.8 - 89.3, conglomerate at 92.3										
92.35	98.45			DEVONIAN "BLACK CLASTIC" UNIT										
				Argillaceous quartzite with minor conglomerate/breccia										
				93.6 - 93.9: 60% Py and Po	60% Py & Po									
				93.9 - 95.4: 7% dissem. Py	7% Py									
	98.45			END OF HOLE										
				(The core from this hole was dropped from the helicopter and largely destroyed, therefore sampling is incomplete.)										

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started July 19, 1983	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS	NTS no. 116 B/7
Hole no. M-83-31	Finished July 21, 1983	Lat. 15,948 N	U.T.M. Lat. 7,153,577	Depth / Bearing / Dip / Depth / Bearing / Dip	Project no. 915
Bearing 018°	Length 112.17	Dep. 10,330 E	Dep. 605,822		Logged by R. Kemp, J. Biczok
Dip - Collar -70°	Core size BQ	Elev. 1,922.7	Elev. 1940.6		Sheet 1 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	Cu (%)	Ag (ppm)	Au (ppb)	W (ppm)
0	2.3			TALUS									
2.3	52.4			BIOTITE DIORITE Typical medium-grained equigranular massive biotite diorite of the upper sill.									
52.4	54.6			JURASSIC SCHIST Argillaceous quartzite.									
54.6	57.2			BIOTITE DIORITE Lower contact at 50° to C.A., upper contact at 60° to C.A.									
57.20	80.46			JURASSIC SCHIST Argillaceous quartzite. Blocky core from 77.1 to 80.1m									
				80.16 - 80.46: Dark grey, argillaceous quartzite with abundant malachite fracture coatings.	2% Mal.	J9076	80.16	80.46	0.30	0.235	4.6	1900	10
80.46	91.67			TAHKANDIT LIMESTONE Generally a white bioclastic to pelletal limestone with interbedded clean, white quartzite and chert pebble conglomerate. Heavily skarnified in upper part.									
				80.46 - 81.11: High grade skarn. 20-30% Cp, 1% Asp. plus local coarse-grained quartz. The skarn may be a vein replacing conglomerate. Minor calcite and gypsum veinlets at 80 - 90° to C.A.	20-30% Cp, 1% Asp.	J9077	80.46	81.11	0.65	3.16	63.0	56,300	0.73%
				81.11 - 82.11: Act-Di-Cp Skarn. ½ is soft, friable Act-Cp skarn, ½ is hard Di skarn with 10% Cp and 1-2% Po. Cut by several 2-3 mm wide satin spar gypsum veinlets at 80-90° to C.A.	5-10 % Cp	J9078	81.11	82.11	1.00	1.19	17.0	11,500	.034%
				82.11 - 82.73: Very hard Di skarn with 25-30% Cp, locally 10-20% Po, minor Py, minor calcite veinlets at 80° to C.A.	30% Cp, 10% Po	J9079	82.11	82.73	0.62	2.40	36.0	11,300	.005%
				82.73 - 83.61: Weakly skarnified limestone with local hematizations. Upper and lower parts are Hem-Act-Cp skarns. 5-7% Cp over top 10 m. Several gypsum veinlets at 90° to C.A.	< 1% Cp overall	J9080	82.73	83.61	0.88	0.49	4.3	1,250	.045%
				83.61 - 84.11: Hard Di skarn with 5% disseminated Cp and 20-30% Po as dissem. grains and one vein, 1 cm wide	5% Cp 20-30% Po	J9081	83.61	84.11	0.50	0.50	4.0	4,500	0.18%
				84.11 - 84.83: Top 20 cm is hard Di-Cp skarn, rest is friable Act-Cp±Hem	2-3% Cp	J9082	84.11	84.83	0.72	0.78	8.0	1,780	0.08%
				84.83 - 85.27: Top 15 cm is barren quartzite, rest is Qtz-Cp-Po skarn with hematite coating. Qtz crystals are euhdral, up to 1 cm long	15-20% Cp	J9083	84.83	85.27	0.44	2.00	42.0	42,600	.007%

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. M-83-31 Sheet 2 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ASSAYS Cu (%)	Ag (ppm)	Au (ppb)	W (ppm)
				85.27 - 86.40: Top ½ is very friable, actinlite skarn/ powder cut by gypsum veinlets; lower ½ is quartzite and barren Di skarn. Veinlets at 90° to C.A.	5% Cp over 12 cm	J9084	85.27	86.40	1.13	0.572	5.5	1,900	.006%
				86.40 - 87.78: Barren Di skarn with minor actinolite skarn and barren white quartzite	0	J9085	86.40	87.78	1.38	.039	0.7	91	2
				87.78 - 89.48: White to brown, friable soft limestone with local pervasive hematite.	0	J9086	87.78	89.48	1.70	0.066	0.8	275	6
				89.48 - 90.83: Granular, soft white limestone with weak hematization; minor clean quartzite. Local quartz veins up to 5 mm wide, parallel to C.A.	0	J9087	89.48	90.83	1.35	66ppm	0.5	92	12
				90.83 - 91.67: Granular, soft white limestone, ½ with moderate hematization; minor biotite porphyro-blastic marble	0	J9088	90.83	91.67	0.84	134ppm	0.7	42	3
91.67	101.80			BIOTITE DIORITE									
				Largely sheared and altered; medium to coarse-grained patchy diorite where fresh (patchy appearance due to inhomogeneitics in biotite distribution)									
				91.67 - 92.42: Minor shearing and alteration to friable clayey rubble.	0	J9089	91.67	92.42	0.75	0.06	0.5	33	4
				93.38 - 101.50: Fault zone in diorite.Classic fault gouge with pebbles in a clayey matrix. Numerous slick-ensides, very friable and altered									
101.80	112.17			DEVONIAN "BLACK CLASTIC" UNIT									
				Argillaceous quartzite and shale; thinly bedded, very little alteration in veins.									
				101.80 - 102.50: Graphite schist/shear zone. Very black moderately friable, intensely sheared.									
				102.50 - 110.0: Mainly thin bedded (at 70° to C.A.) grey quartzite with minor shale.									
				108.70 - 109.20: BIOTITE DIORITE DYKE	Minor Cp on fractures								
				110.0 - 112.17: Black, thinly bedded shale. Relatively soft, argillaceous, minor Py	2% Py								
	112.17			END OF HOLE									

NORANDA EXPLORATION COMPANY LTD.

Property	MARN	Started	July 21	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES U.T.M.	NTS no.	116 B/7
Hole no.	M-83-32	Finished	July 23	Lat. 15,948 N	Lat. 7,153,577	Project no.	915
Bearing	018°	Length	97.8 m	Dep. 10,330 E	Dep. 605,822	Logged by	R. Kemp
Dip - Collar	-48°	Core size	BQ	Elev. 1,922.7	Elev. 1940.6	Sheet	1 of 1

DIP TESTS

Depth	Bearing	Dip	Depth	Bearing	Dip
97.8		-50°			

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS
0	2.8			TALUS. CASING						
2.8	47.4			BIOTITE DIORITE						
				Typical medium-grained, equigranular, massive biotite diorite of the upper sill						
				2.8 - 12.4: Badly fractured, blocky core, probable fault zone. Numerous slickensides, quartz-calcite veinlets and abundant gouge.						
				12.4 - 19.2: Locally blocky and slickensided.						
				30.8 - 33.3: Friable, fractured zone with Qtz-Cc veinlets.						
				46.9 - 47.4: Somewhat friable and hematized.						
47.4	65.6			JURASSIC SCHIST						
				Fine-grained, weakly bedded, argillaceous grey quartzite. Trace Py and Hem throughout.						
				59.4 - 59.5: Possible fault gouge.						
				63.1 - 65.5: Blocky core with clay and fault breccia.						
65.6	91.9			TAHKANDIT LIMESTONE						
				Generally white, to light brown, limestone, pervasively altered to clay and hematite. Generally barren.						
				65.5 - 69.2: Fault zone cutting limestone. Very rubbley, clayey, brecciated, etc.	0					
				69.2 - 69.5: Limestone	0					
				69.5 - 71.0: BIOTITE DIORITE	0					
				71.0 - 71.9: Limestone altered to green clay.	0					
				71.9 - 73.3: Biotite, porphyroblastic quartzite with hematite spots.	0					
				73.3 - 75.9: Calcareous quartzite.	0					
				75.9 - 76.2: BIOTITE DIORITE	0					
				76.2 - 77.1: Biotite porphyroblastic quartzite/marble with hematite spots.	0					
				77.1 - 82.3: Calcareous quartzite and limestone	0					
				82.3 - 83.2: Limestone altered to green clay.	0					
				83.2 - 90.2: Marble. Sheared and altered at 88.7 - 89.9, 91.1 - 91.4	0					
				90.2 - 91.9: Chert Pebble Conglomerate	0					
91.9	97.8			DEVONIAN "BLACK CLASTIC" UNIT	0					
				Argillaceous quartzite. Barren						
	97.8			END OF HOLE						

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started July 23	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no. 116 B/7
Hole no. M-83-33	Finished July 26	Lat. 15,948 N	Lat. 7,153,577 U.T.M.	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing 198°	Length 140.2	Dep. 10,330 E	Dep. 605,822							Logged by R.Kemp
Dip - Collar -70°	Core size BQ	Elev. 19227	Elev. 1940.6							Sheet 1 of 1

METRES		% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES			ASSAYS				
From	To						From	To	Length					
0	2.8			TALUS. CASING										
2.8	60.6			BIOTITE DIORITE										
				Typical medium-grained, equigranular, massive homogenous biotite diorite. Becomes coarser-grained with depth. Position of lower sill uncertain.										
60.6	62.0			60.6 - 62.0: Transition to coarse-grained diorite. Gradual change marked by some alteration.										
				71.0: Small rusty zone, minor Cp, at 35-40° to C.A. May be a vein.	1.5% Cp									
				72.0 - 77.8: Bleached zone. Lower part is fractured with Cp-Chrys. (?) filled fractures at 45° to C.A.	5-6% Cp									
				79.8: Rusty vein with L 1% Cp	Tr. Cp									
				81.6 - 82.1: Zone of rusty fractures with abundant Cp	10% Cp over .5 m									
				82.1: Dark graphitic material										
				87.6 - 89.4: Blocky and rusty-brown zone. Calcite veinlets and graphitic material at 88.2. Fractures contain a metallic blue mineral (covellite?) at 88.7. Possibly faulted from 89.1 - 89.4	Minor Covellite ?									
				96.8 - 97.2: Rusty fractures with L 1% Cp and Po										
				134.1 - 134.6: Felsic Dyke. Upper contact at 5° to C.A., lower contact at 5-8° to C.A. Dyke is white in colour, leucocratic (less than 2-3% biotite), fine-grained, equigranular, probably a syenite.										
				134.8 - 135.4: Felsic Dyke. Lower contact at 16° to C.A., lower one obscured.										
	140.2			END OF HOLE										

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started July 23	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no. 116 B/7
Hole no. M-83-34	Finished July 30	Lat. 15,948 N	Lat. U.T.M. 7,153,577	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing 308°	Length 156.6	Dep. 10,330 E	Dep. 605,822							Logged by R. Kemp
Dip - Collar -50°	Core size BQ	Elev. 1922.7	Elev. 1940.6							Sheet 1 of 1

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS				
0	2.3			TALUS. CASING										
2.3	156.6			BIOTITE DIORITE										
				Medium to coarse-grained, equigranular, massive biotite diorite.										
				45.0 - 46.7: Felsic Dyke. White, leucocratic (≤ 3% Biotite) Syenite (?) dyke. Upper contact at 45° to C.A., lower contact at 30°.	0									
				69.8 - 70.0: Rusty, vuggy zone. No sulphides	0									
				72.7 - 72.9: Rusty, clayey zone.	0									
				75.6: Quartz filled fracture with 1-2% Pyrite blebs.	Tr. Py									
				76.2: Blocky core. Rusty fractures with 1% Cp & Py in quartz	Tr. Cp									
				76.7: Qtz filled fracture with Cp blebs.	Minor Cp									
				77.35 - 77.55: Vuggy zone with qtz, Py & Cp; locally to 80% Py and Cp	Py & Cp									
				82.5 - 85.7: Hematite coated fractures with some Py										
				88.5 - 88.9: Fault gouge with slickensides										
				90.8 - 93.3: Blocky core with cross cutting fractures of Qtz-Calcite										
				111.4: Fracture filled with Asp.(?)	Minor Asp									
				132.4: Malachite stained fracture	Tr. Mal									
	156.6			END OF HOLE										

NORANDA EXPLORATION COMPANY LTD.

Property MARN	**Started** July 30	**FIELD CO-ORDINATES**	**SURVEYED CO-ORDINATES**	**DIP TESTS**	**NTS no.** 116 B/7
Hole no. M-83-35	**Finished** August 2	**Lat.** 15,948 N	**Lat.** U.T.M. 7,153,577	Depth / Bearing / Dip / Depth / Bearing / Dip	**Project no.** 915
Bearing 330°	**Length** 124.36	**Dep.** 10,330 E	**Dep.** 605,822		**Logged by** J. Biczok
Dip - Collar -50°	**Core size** BQ	**Elev.** 1922.7	**Elev.** 1940.6		**Sheet** 1 **of** 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS Cu (%)	ASSAYS Ag (ppm)	ASSAYS Au (ppb)	ASSAYS W (ppm)	
0	2.0			TALUS CASING										
2.0	49.07			BIOTITE DIORITE	0									
				Typical medium-grained, equigranular massive biotite										
				diorite of the upper sill. 20-25% biotite, rest is										
				mainly plagioclase.										
49.07	52.73			JURASSIC SCHIST	0									
				Sheared, granular, dark grey quartzite. Generally										
				soft, consists of loosely cemented quartz grains										
				sheared at 70° to C.A.; more massive in lower 2 m.										
52.73	67.21			BIOTITE DIORITE	0									
				Medium-grained, equigranular, biotite diorite, same as										
				the upper sill. Generally massive but local shears										
				containing pink clay at 55.17 - 56.08 and 62.48-62.79										
67.21	86.15			JURASSIC SCHIST										
				Light to medium grey, fine grained argillaceous										
				quartzite; generally horfelsed and weakly bedded.										
				70.26: Minor Py blebs	Minor Py									
				73.97 - 74.28: BIOTITE DIORITE DYKE										
				83.82 - 85.65: BIOTITE DIORITE DYKE with biotite										
				porphyroblastic marble xenoliths up to 40 cm long										
				85.65 - 86.15: Quartzite with Py-Cp stringers	Minor Py &Cp									
86.15	115.21			TAHKANDIT LIMESTONE										
				Originally fine grained, bioclastic to pettletal										
				white limestone with intercalated quartzite and chert										
				pebble conglomerate. Now largely skarnified (Act-Di)										
				or altered to clay and hematite										
				86.15 - 86.95: Beginning of skarn zone. High grade	10% Cp	9065	86.15	86.95	0.80	2.75	45.0	20,330	130	
				Act-Di-Qtz-Cp-(Py) skarn. Soft, friable, local										
				minor shears.										
				86.95 - 87.54: 1/3 is Diopside skarn, rest is	Minor Cp	9066	86.95	87.54	0.59	0.24	2.8	340	L50	
				biotite porphyroblastic marble and quartzite.										
				87.54 - 89.31: Soft, biotite porphyroblastic marble	Tr. Cp	J9067	87.54	89.31	1.77	0.107	1.3	345	6	
				and minor clean quartzite. Some 1-2 mm wide										
				Cc veinlets at 75° to C.A.										
				89.31 - 89.56: Clayey, hematized marble, dark brown	Barren	J9068	89.31	89.56	0.25	0.05	1.0	365	L2	
				in colour. Minor random shears.										
				89.56 - 90.44: Diopside-Actinolite Skarn with 1/3	5% Cp	J9069	89.56	90.44	0.88	1.29	11.0	1,230	50	
				green-brown actinolite mud.										

NORANDA EXPLORATION COMPANY LTD.

Property: MARN   Hole no. M-83-35   Sheet 2 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ASSAYS Cu (%)	Ag (ppm)	~~Ag~~ Au (ppb)	W (ppm)
				90.44 - 91.13: Very hard, massive Po-Cp-Diopside Skarn with 10-15% Po, 5-7% Cp, rest is Di and Qtz.	10-15% Po 5% Cp	J9070	90.44	91.13	0.69	0.86	8.8	585	5
				91.13 - 91.85: Po-Cp-Di skarn. Virtually solid Po (75-85%) and Cp (10-15%) with minor Diopside	85% Po,10%Cp	J9071	91.13	91.85	0.72	1.31	12.0	1,270	150
				91.85 - 93.13: Di-Po-Cp skarn. Very hard. Cp varies from 0-10%, averages 5%. 10% Po	5% Cp,10% Po	J9072	91.85	93.13	1.28	0.81	6.5	1,370	130
				93.13 - 93.94: Relatively barren diopside skarn and clean quartzite (50-50)	1% Cp	J9073	93.13	93.94	0.81	0.146	1.3	355	24
				93.94 - 95.30: Generally medium green, mottled diopside skarn. Relatively barren and hard.	1% Cp	J9074	93.94	95.30	1.36	0.062	0.6	290	5
				95.30 - 95.58: Zone of numerous gypsum veinlets, 1-4mm wide at 45° to C.A., and coarse, colliform pyrite. Minor friable actinolite skarn.	15% Py,2% Cp	J9075	95.30	95.58	0.28	0.67	5.5	11,180	150
				95.58 - 96.18: Hard, barren fine grained diopside skarn	0	J9090	95.58	96.18	0.60	0.031	0.6	615	70
				96.18 - 96.63: Soft, clayey, white limestone powder/ mud	0	J9091	96.18	96.63	0.45	0.051	0.5	735	6
				96.63 - 96.99: Soft, very hematized limestone. Evidence of hematizing solutions replacing fine grained diopside skarn.	0	J9092	96.63	96.99	0.36	0.004	0.4	725	4
				96.99 - 97.84: Soft, white, friable, clayey limestone. Minor pink-beige hematite alteration.	0	J9093	96.99	97.84	0.85	29ppm	0.2	30	2
				97.84 - 100.28: Barren limestone and quartzite									
				100.28 - 107.59: Generally highly fractured, locally sheared and hematized limestone. Minor marble. Fractures and shears at random angles..									
				107.59 - 110.64: BIOTITE DIORITE. Medium grained equigranular, massive.									
				110.64 - 115.21: Very hematized and locally sheared zone. Possibly was a biotite porphyroblastic marble.									
115.21	121.31			BIOTITE DIORITE Medium grained, equigranular.									
121.31	124.36			DEVONIAN "BLACK CLASTIC" UNIT Argillaceous quartzite, minor shale									
	124.36			END OF HOLE									

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started August 13, 1983	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no. 116 B/7
Hole no. M-83-36	Finished August 15, 1983	Lat.	Lat. 7,152,638 U.T.M.	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing 320°	Length 86.28	Dep.	Dep. 606,060							Logged by J. Biczok
Dip - Collar -80°	Core size BQ	Elev.	Elev. 1505.7							Sheet 1 of 1

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS				
0	12.80			CASING										
				9.14 - 14.63: Ice										
14.63	86.28			BIOTITE DIORITE										
				Rubbly mixture of talus and ice for top 15 metres.										
				Typical medium grained equigranular diorite below that.										
	86.28			END OF HOLE. Drilling stopped due to caving beneath the drill.										

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started August 16, 1983	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no. 116 B/7
Hole no. M-83-37	Finished August 21, 1983	Lat.	Lat. U.T.M. 7,152,580	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 915
Bearing 320°	Length 243.23	Dep.	Dep. 606,077							Logged by J. Biczok
Dip - Collar -80°	Core size BQ	Elev.	Elev. 1494.7							Sheet 1 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS				
0	4.6			TALUS;CASING										
4.6	4.9			Rubble. Red, intensely hematized.										
4.9	215.49			BIOTITE DIORITE	Minor									
				Medium to coarse grained, equigranular biotite diorite	molybdenite									
					in scattered									
					quartz									
				7.62 - 14.33: Fault zone. Upper 5 m is highly	veinlets									
				hematized rubble	throughout									
				14.33 - 17.37: Moderately sheared diorite										
				41.45 - 43.59: "Syenite" Dyke. White leucocratic										
				dyke with 5% biotite, minor quartz, rest is										
				coarse grained feldspar.										
				90.8 - 104.85: "Syenite" Dyke. Fine grained grey to										
				white; 3-5% fine grained biotite in a fine to										
				medium grained groundmass.										
				115.21 - 120.09: "Syenite" Dyke. 5-7% medium grained										
				biotite in a medium to coarse grained groundmass.										
				122.83 - 135.33: Cataclastic zone. Strong shear										
				foliation, biotite recrystallized into coarse										
				grains, local alteration of plagioclase into										
				light green clay.										
				135.33 - 137.16: Fault Rubble. Sheared diorite with										
				local calcite veinlets.										
				137.16 - 141.17: Porphyritic Diorite Dyke (?) 5-10%										
				medium grained plagioclase phenocrysts in a										
				fine grained grey groundmass. 5-10% Biotite										
				141.17 - 152.40: Weak to moderate shear foliation										
				161.54 - 172.52: Composition uncertain.	3-4% Py									
				3-4% f.g. Py in a m.g. groundmass comprised										
				largely of feldspar. Possibly marble or a										
				white syenite.										
				175.87 - 176.63: Fault Gouge.										
				198.42 - 199.64: Shear zone. Green-grey clay										
				alteration of diorite is intense.										
				200.56 - 202.08: Fine grained grey quartzite with	3-4% Py									
				3-4% Py. Hornfelsed xenolith										

NORANDA EXPLORATION COMPANY LTD.

Property: MARN | Hole no.: M-83-37 | Sheet 2 of 2

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ASSAYS				
215.49	220.98			Garnet-Diopside Skarn Predominantly a thinly banded garnet > diopside skarn. Massive bands of fine to medium grained red, anhedral garnet range from 3 mm to 1.5 cm in width and are separated by < 5 mm wide bands of fine grained, green diopside. Approxiamtely 25% of the section consists of white, granular marble with 20-50% fine to medium grained garnet porphyroblasts. Medium grained wollastonite forms local bands up to 1½ cm wide. The upper contact zone consists of .3-.5 m of fine grained, grey, diopside in contact with the diorite at 45° to the C.A. The lower contact zone consists of grey, fine grained quartzite which has a diffuse contact with the diorite. Banding of the skarn is generally at 60-70° to the C.A.										
220.98	243.23			BIOTITE DIORITE Medium to coarse grained, generally equigranular biotite diorite.										
				E.OH. @ 243.23 m.										

091517

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started Sept. 12, 1985	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS	NTS no. 116 B/7, 10
Hole no. DDH-M-85-1	Finished Sept. 23. 1985	Lat. 12192.3N	Lat.	Depth / Bearing / Dip / Depth / Bearing / Dip	Project no. 619
Bearing	Length 380.34 m	Dep. 9355.7E	Dep.		Logged by A.C. Eunson
Dip - Collar Vertical	Core size NQ 71.67 m BQ 71.67 m EOH	Elev.	Elev.		Sheet 1 of 4

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS ppb Au	ppm Ag	ppm Cu/Zn	ppm Pb/W	ppm Bi/As
0				OVERBURDEN: Boulders of Hornblende Plagioclase Diorite. Sand layer near bottom of layer.										
31.10	298.40			JURASSIC "SCHIST": This unit consists of mainly argillaceous rocks. There are layers of black shales, dark grey silt-stones, greywackes, shale chip conglomerates and minor arkoses.										
				31.10-37.25: Black to dark grey shales. Dissem. pyrrhotite and thin layers of 0.1 to 3 mm thick. Also with quartz as fracture fillings. Po layers occur every 0.5 m or so. Small needles 0.25x4 mm of sillimanite compose about 10% of the rock. They are oriented parallel to layering. This section graphitic.										
				Foliation 30° to C.A.										
				34.75-35.23: No sillimanite.										
				36.90-37.85: No sillimanite.										
				37.25-66.19: SHALE CONGLOMERATE. 5-10% of rock, composed of pyrrhotite and shale fragments. Fragments are angular and 2 mm to several cm.										
				Foliation 30° to C.A., locally to 60° (large fragments)										
				37.25-37.33: Brecciated section 8 cm thick, angular shale fragments. Quartz healed.										
				39.30-40.10: Layers 75° to core axis.										
				39.30: Small fault, slickensides, fault gouge, blocky core.										
				40.10: Truncated layers.										
				41.15: Breccia - quartz healed 3 mm thick.										
				66.19-82.40: Massive dark grey siltstone ≈0.2 mm grain size. 15-20% quartz? faint layering. Trace disseminated pyrrho-tite. Occasional po nodules occur in "trains" and clusters.										
				72.25-72.35: Breccia zone, quartz healed. Foliation 30° to C.A.										
				73.20: Mylonite 1 mm thick										
				73.75: " " "										
				82.40-86.35: Greywacke-(Quartzite) argillaceous with num-erous (2%) shale fragments. Fragments tabular and aligned @ 60° to C.A. Some have thin (.5 mm) relict weathering rind.										
				83.40: Breccia, some mylonite										
				83.90: Breccia, vuggy with calcite mortar.										
				86.35-106.50: Shale chip Conglomerate. Bedding 45° to 20° to C.A.										
				≈98.00: Small shear, core blocky, slickensides, shear 15° to core axis.										
				98.55: As above.										
				≈100.00: As above.										
				104.40: Sample taken for conductivity test.										

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. DDH-M-85-1 Sheet 2 of 4

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ppb Au	ppm Ag	ppm Cu/Zn	ppm Pb/W	ppm Bi/As
				106.50-108.71: Dyke - intermediate volcanic. Very fine-grained, hard, siliceous, 2 mm chilled margins but contacts irregular. About 15% hornblende phenocrysts 1-2 mm. Sometimes replaced by pyrite.										
				108.91-298.40: Quartzite - argillaceous, laminated. Some sequences of about 5 cm show gradational bedding, indicating tops are uphole. Occasional pyrrhotite chunks. Some evidence of penecontemporaneous deformation. Also rare po layers some 2-3 cm thick. Arkosic sections 0.5 to 2 mm grain size with shale chips. At about 250 m depth the rock becomes more massive. Arkose + siltstone layers become rare. At about 260 m depth, narrow calcite veinlets (joint fillings) become common. Also pyrrhotite layers and disseminations become ubiquitous.										
				109 m: Bedding 20° to C.A.										
				168 m: Bedding 50° to C.A.										
				200 m: Bedding 90° to C.A.										
				260 m: Bedding 35° to C.A.										
				288 m: Bedding 55° to C.A.										
				114.00: Small shear - slickensides of pyrite and green gouge.										
				115.46: Slickensides in blocky core										
				123.40-124.20: Slickensides in blocky core.										
				131.97-133.50: Dyke intermediate volcanic. Upper contact 75° to C.A. Lower contact 45° to C.A.										
				187.20-187.31: Vuggy quartz filled fractures.										
				190.67: Calcite veinlet - irregular fracture filling										
				193.21: Calcite veinlet - irregular fracture filling										
				200.35-200.90: Near vertical shear zone. Calcite veinlets and slickensides.										
				221.10: Small fracture - slickensides										
				256.30-263.65: Near vertical shear - slickensides										
				267.35: 6 mm quartz veinlet. Shear 35° to C.A.										
				272.40-296.60: Strong shear zone - calcite healed breccia. Clayey mylonite with fragments. Dissem. and veinlet pyrite.										
				286.04-286.48: Silicified (cherty) zone. Reacts to HCl, stringers of py and po.										
				287.40-288.80: Buff chert - vague contacts, "ghost" layers probably silicified zone.										
				291.00-291.25: Limey chert - cataclastic texture. Foliation 30° to C.A.										
				293.20-294.90: Limey cherts		93501	293.0	294.0	1 m	40	0.6	64/172	14/1	16/1060
				295.60-296.00: " "										
				297.20-297.80: " "										

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. PDH-M-85-1 Sheet 3 of 4

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ppb Au	ppm Ag	ppm Cu/Zn	ppm Pb/W	ppm Bi/As
298.40	343.50			TAHKANDIT FORMATION: Composed mainly of grey to light grey limestones. Some chert pebble conglomerates and cherts. This section also has several breccia zones and 2 m basic dyke.										
				298.40-298.70: Cataclastite - dark grey matrix with 0.1 mm to 1.0 cm rounded, elongate chert fragments. Rock is 75% fragments.		93502	298.4	299.0	0.6 m	50	0.4	20/212	18/1	10/332
				298.70-299.0: Cataclastite - grey matrix with 75% 0.1 mm to 1.0 cm rounded, elongate chert fragments. Matrix reacts with HCl. Foliation 30° to C.A.										
				299.00-299.65: Limestone - dark grey to medium grey coloured fine-grained with 30% subrounded 0.1 to 3.0 mm chert pebbles.		93503	299.0	299.7	0.7 m	20	0.2	6/44	12/1	62/62
				299.65-302.75: Mafic Dyke - 30% plagioclase 20% hornblende 50% fine-grained groundmass. Soft ≈ 3. Lower contact 85° to C.A. 20 cm chilled margins. No visible effect on limestone.		93504	300.38	301.38	0.5 m	40	0.2	30/118	32/1	24/98
				302.75-316.57: Limestone-chert pebble conglomerate. Some coarse sections with 3 to 10 mm pebbles comprising 60% of rock. At about 306 m pebbles become rare and calcite veinlets become more frequent.										
				302.75-302.90: Coarse sections										
				303.50-304.45: " "										
				307.00: Minor brecciation with calcite veinlets.										
				307.14-307.26: Coarse pebbly section.										
				307.63-307.95: Calcite veining up to 1 cm and some vugs.										
				307.99-308.10: Coarse pebbly section.										
				308.14-308.31: Calcite veining and brecciation. Slight foliation 45° to 25° to C.A.		93505	308.05	309.05	1.0 m	10	0.2	6/48	18/1	66/24
				309.03-309.20: Calcite veining and brecciation with some fragments of green "fresh looking" limestone.										
				310.22: 1 cm thick fracture. Calcite with 2 mm green gouge centered in vein. 20° to C.A.										
				310.80: 4 cm thick light green limestone.										
				311.37: 1 cm thick calcite vein cut by fracture, lined with green gouge.										
				312.21-312.32: Massive calcite.										
				312.99-313.14: Calcite with 50% 3.0 mm - 3.0 cm green limestone blocks.										
				313.50-313.76: As above										
				313.90: As above for 2 cm.										
				314.15-315.85: As above		93506	314.7	315.7	1.0 m	130	0.2	6/220	36/1	60/384
				316.57-317.15: As above										
				316.90-319.30: Rock very soft and friable.										
				317.15-319.30: (some core lost, boundaries estimated) Chert pebble conglomerate. 0.5-3.0 mm rounded pebbles in friable, clayey matrix. About 20% pebbles. Matrix grades from dark grey at top of sequence to light grey at bottom. Does not react to HCl. Last 5 cm of sequence has no pebbles.										
				319.30-319.50: Light green chert.										
				319.50-321.18: Massive, light grey, fine-grained limestone.										
				320.75: 2 cm breccia, 20% angular chert fragments 2-4 mm in size. Foliation 45° to C.A.										

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. DDH-M-85-1 Sheet 4 of 4

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ppb Au	ppm Ag	ppm Cu/Zn	ppm Pb/W	ppm Bi/As
				321.18-321.54: Grey and black cherts.										
				321.54-322.50: Greenish, grey, calcareous, soft, friable mylonite? or dyke? Some stubby, hexagonal crystals, milky white ±0.5 mm to 0.1 mm, about 25% of rock. Some pyrite in fractures.		93507	321.7	322.5	0.8 m	10	0.8	60/84	20/5	32/60
				322.50-323.10: Layered grey limestone and black chert. Layers are a few cm thick.										
				323.10-324.13: Grey limestone.										
				324.13-324.53: Same as 321.54-322.50 m. Some slickensides. Limestone bleached for 5 mm @ contact. Becomes progressively harder to bottom of section.										
				324.53-329.33: Dyke - hard, calcareous grey-green colour with hornblende phenocrysts. Same as 106.50-108.91 m.										
				329.33-333.75: Grey limestone.		93508	331.0	332.0	1.0 m	50	0.2	10/54	22/1	32/170
				333.75-336.70: Dark grey fossiliferous limestone, mainly brachiopod shells and some crinoid parts.										
				336.70-343.49: Light grey, occasionally pebbly limestone. Trace pyrrhotite as blebs.										
				343.12-343.31: Pebbly section. At contact (70° to C.A.) three rip-up? clasts of pink chert.		93509	342.48	343.48	1.0 m	80	0.2	12/72	4/1	52/262
343.49	380.43			ROAD RIVER FORMATION: Buff, grey and black cherts, occasional vertically fractured (to contacts) well healed breccias. Usually only a few cm thick. Rare pyrrhotite and pyrite layers in black cherts. Chert layers are 1-2 metres thick. Some carbonate filled joints.		93510	343.48	344.48	1.0 m	50	0.4	48/124	12/20	12/40
				357.72-357.98: Chert pebble conglomerate - 2-4 mm rounded clasts in grey matrix. About 70% clasts.										
	380.43			END OF HOLE.										

NORANDA EXPLORATION COMPANY LTD.

Property MARN	Started Sept. 26, 1985	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no. 116 B/7
Hole no. DDH-M-85-2	Finished Oct. 9, 1985	Lat. 12188N	Lat.	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no. 619
Bearing	Length 487.39 m	Dep. 9610E	Dep.							Logged by S.J. Mackay
Dip - Collar -90° vertical	Core size NQ 0-119.00 m BQ 119.0-487.39	Elev.	Elev.							Sheet 1 of 6

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS ppb Au	ASSAYS ppm Ag	ASSAYS ppm Cu/Zn	ASSAYS ppm Pb/W	ASSAYS ppm Bi/As
0	44.84			OVERBURDEN: Monzonite and diorite boulders in fine-grained sand.										
44.84	435.67	100		JURASSIC "SCHIST": Slate to fine-grained phyllite, quartzite, and minor interbedded limestone at base.										
				44.84-46.00: Sheared laminated to thinly bedded silty argillite. Shear foliation parallel to bedding C.A. 20°.										
				46.00: Small scale tight isoclanal fold. Axial plane CA 45°.										
				46.82-49.02: Numerous 0.5-2 mm silty infillings of fractures Often highly contorted as well as discontinuous over short distances.										
				47.92: Limonite and clay alteration along fractures.										
				48.55-50.78: Shear texture - some relict boudin like quartzite fragments 1-5 mm long.										
				50.78-55.51: Interbedded silty arg. and buff to brown-red laminated fine-grained biotite quartzite. Truncated laminations. C.A. 45°.										
				51.96-52.10: White quartzite dyke, sharply truncate lam. in biotite quartzite as well as distorting those at margin.										
				52.46: Limonite and clay coated fractures.										
				53.46: Irregular quartzite dyke.										
				55.51-66.78: Interbedded speckled slate, beds up to 6 cm thick, and fine-grained buff coloured lam. siltstone. Speckled slate contains crystals of fibrolitic sillimanite up to 2 mm long x 0.5 mm wide. 20-30% in the slate beds and rare to absent in the more siliceous siltstone beds. Crystals often have prismatic ends. Sequence contains various soft sediment deformation features including small scale drag folds, load grooves and rip up clasts. Laminated siltstone also cut by quartzite dykes <1 cm wide which truncate sharply at upper and lower slate contact. Crossbeds and soft sed. features indicate beds are right way up. C.A. 45°.	3% po									
				66.68-66.78: Biotite, chlorite and clay alteration. Minor calcite in fractures. Slickensides at contact with dyke.										
				66.78-72.81: Dyke-sill.										
				66.78-68.32: Fine-gr. biotite hornblende diorite dyke. Mesocratic with some coarser grained sections.	py 2%									
				67.26: Actinolite, quartz, calcite and Po. Pod in fracture 1 cm x 3 cm.	po 5%	93511	67.26	67.41	0.15	100	0.4	30/120	36/1	24/382
				67.41: Actinolite, quartz, calcite and po filled fracture.	po 15%									
				68.32-70.59: Hornblende diorite dyke. Hbld. laths up to 1.5 cm 30%. Flow oriented C.A. 45°. Minor diss. po and 1 mm wide calcite veinlets in fractures.										

NORANDA EXPLORATION COMPANY LTD. Property ....MARN........ Hole no. ....DDH-M-85-2........ Sheet ...2....of...6....

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ASSAYS				
			-	70.59-72.81: Contact C.A. 25°, with sheared black po bearing	Up to 20%		—		—					
				slatey arg. Shearing parallel to contact. Some boudin	py locally									
				like features. Po occurs as discrete blebs and disseminations.										
				Chlorite and slicks on fractures.										
				72.81-93.23: Dyke-Sill										
				73.06-73.41: Fractured med. gr. hbld diorite with chlorite	py 2%									
				limonite, calcite, clay and py alteration along fractures.										
				74.96-75.06: Locally calcareous.										
				75.72: Contact between fine gr. diorite and coarser gr.										
				hbld plag. porphyritic diorite-monzonite (mafics ~25%, plag										
				phenos ~40%). Flow oriented C.A. 55°										
				87.40-93.23: Contact grades to finer gr. darker version of										
				above. Many fractures most of which have slicks, calcite,										
				clay, chlorite and minor py. Diorite gets finer gr. to										
				chilled margin at contact with slates.										
				93.23-93.30: Hornfelsed contact - slates, minor secondary	py 5%									
				clay and calcite alteration.										
		95		93.30-98.70: Sheared black silty argillite-slate. Few										
				primary bedding features preserved.										
				95.77-95.97: Shear zone - chlorite, graphite and carbonate										
				along shear fractures. C.A. 20°. Quartz fragments preserved										
				as brecciated fragments as well as boudins (5 cm x 10 cm)										
				in the argillites.										
				98.70: Decrease in amount of quartzite and silt sequence										
				becomes massive black slate-phyllite with locally faint										
				laminations. C.A. 45°-60°. 3 dominant cleavages 40°, 30°,										
				20°. Often contain calcite and chlorite. Fine sillimanite.										
				104.50-104.60: 10 cm wide shear zone C.A. 45°. Chlorite	Up to 20%									
				and green talc?. Slicks	py locally									
				117.80-117.83: Po, chert lens C.A. 45°										
				121.09: Faint lam. and po blebs C.A. 45°										
				123.70: Vertical fracture with green talc? on surface.										
		90		133.73-140.15: Fractured broken and sheared zone. Graphite,										
				quartz and calcite sealed fractures, some of which have										
				been re-fractured.										
		90		137.55-138.13: Quartz-slate breccia, C.A. 45°. Slate	po 5%									
				breccia fragments 1 mm -5 cm long with yellow clay altera-										
				tion rim. In grey amorphous quartz vein material. 5% po										
				mainly in re-fractured zones with slicks.										
				138.08: Well formed open space filled po rosettes.										
				138.78: Quartz slate breccia vein 2 cm wide, C.A. 20°										
				139.44: 5 mm wide fracture filling vein of quartz and clay.										
				C.A. 20°. Slicks on lower surface.										
				Above sequence contains may fine silicified fractures.										
		95		140.15-142.12: Dyke: Silicified, green, 1-2 mm long py										
				blebs elongated. Possibly replacing hbld laths.										
				141.70-141.80: Massive mesocratic section of dyke cut by										
				hairline fractures.										
				141.80-142.12: Fresh dyke material, 30% hbld laths 1 mm in										
				size fining down to 10 cm wide chilled margin.										
				142.12-195.64: Black slate - phyllite locally chert and										
				po rich.										
		100		142.91-143.03: 40% po in slate. Occurs as disseminations	po 40%									
				in patches and blebs up to 5mm and as hairline fracture fillings, CA 45°										

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. DDH-M-85-2 Sheet 3 of 6

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ppb Au	ppm Ag	ppm Cu/Zn	ppm Pb/W	ppm Bi/As
				150.31-15.70: Faint irregular laminations, C.A. 20°										
				150.70: Unit here has an increase in Po occurring as wisps,										
				lenses and nodules of fine gr. Po aggregates ± chert ± pyrite.										
				These often have a red brown oxidized rim or contact around										
				them.										
				Dominant cleavage is 20° many are calcite sealed.										
				161.54-167.48: Calcite and slicks on cleavage planes.										
				Locally coarse gr. sillimanite.										
				167.48-173.02: Prevalent compaction deformation.										
				173.12-173.22: Po and chert nodule or bed.	Po 20%	93512	173.12	173.22	0.10	60	3.4	740/162	8/40	22/152
				178.30-183.89: Nodules up to 10 cm chert and po section in										
				general appears to be more cherty.										
				195.64-372.32: Laminated and Interbedded Argillite (Slate-										
				Phyllite) Quartzite to Greywacke. Much soft sed. deformation										
				and brecciation. Chlorite and carbonate on fractures.										
				196.34: C.A. 70°										
		100		197.00: Arg. quartzite C.A. 90° just above C.A. 45° beds										
				sharply truncated.										
				201.00-206.62: Lam. quartzite to beds 25 cm true thickness										
				C.A. 45°										
				202.62-212.36: Soft sed. deformation features indicate beds										
				right way up. This is confirmed by graded sequences. Two										
				dominant cleavages 20° and 45°. Calcite ± pyrite sealed.										
				213.51-213.53: Calcite vein 50% angular slate fragments up										
				to 2 cm long.										
		100		216.55-216.70: Quartzite, good fining upwards sequence.										
				215.81: 2 cleavages both are quartz sealed C.A. 15° cuts										
				and offsets C.A. 20°. Angle b.t. both is 70°.										
				216.75: 2 cleavages, C.A. 20° and C.A. 45° which displays										
				faint slicks. Both are calcite coated.										
				216.65-223.58: Argillaceous quartzite beds thicken to 50 cm										
				and comprise 70% of the sequence. C.A. 40-45°										
				243.39: Py, Po and chert lenses stepped down by C.A. 25°										
				opposite to bedding.										
				244.88-245.18: Shear and fracture zone C.A. 30°										
				Interbedded argillaceous quartzite, weakly graded to lami-										
				nated sequences and black argillite. C.A. 45-60°										
				267.15-267.79: Good development of fibrolitic sillimanite										
				in argillite beds between quartzite.										
				267.79-269.44: Dyke - C.A. 70°. Quartz biotite diorite	Po 5%									
				with 5% diss. po.										
				Argillaceous quartzite. Graded sequences indicate right										
				way up C.A. 60°										
				295.96: 0.5-1 cm quartz calcite vein. Faint banding and										
				open space filled.										
				305.54-308.57: Dyke C.A. 75°. Fine to medium gr. hbld										
				diorite. Hbld laths 30%. Cut by calcite filled fractures										
				at various angles 0.1-2 mm wide.										
				Argillaceous content increases.										
		90		312.10-312.32: Shear zone - polished and chloritized faces										
				parallel to C.A. Minor calcite and gouge.										
		95		312.92-314.65: Breccia shear zone - polished slicks with										
				green white talc developemnt.										
				Argillaceous content ≫ Quartzite										

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. DDH-M-85-2 Sheet 4 of 6

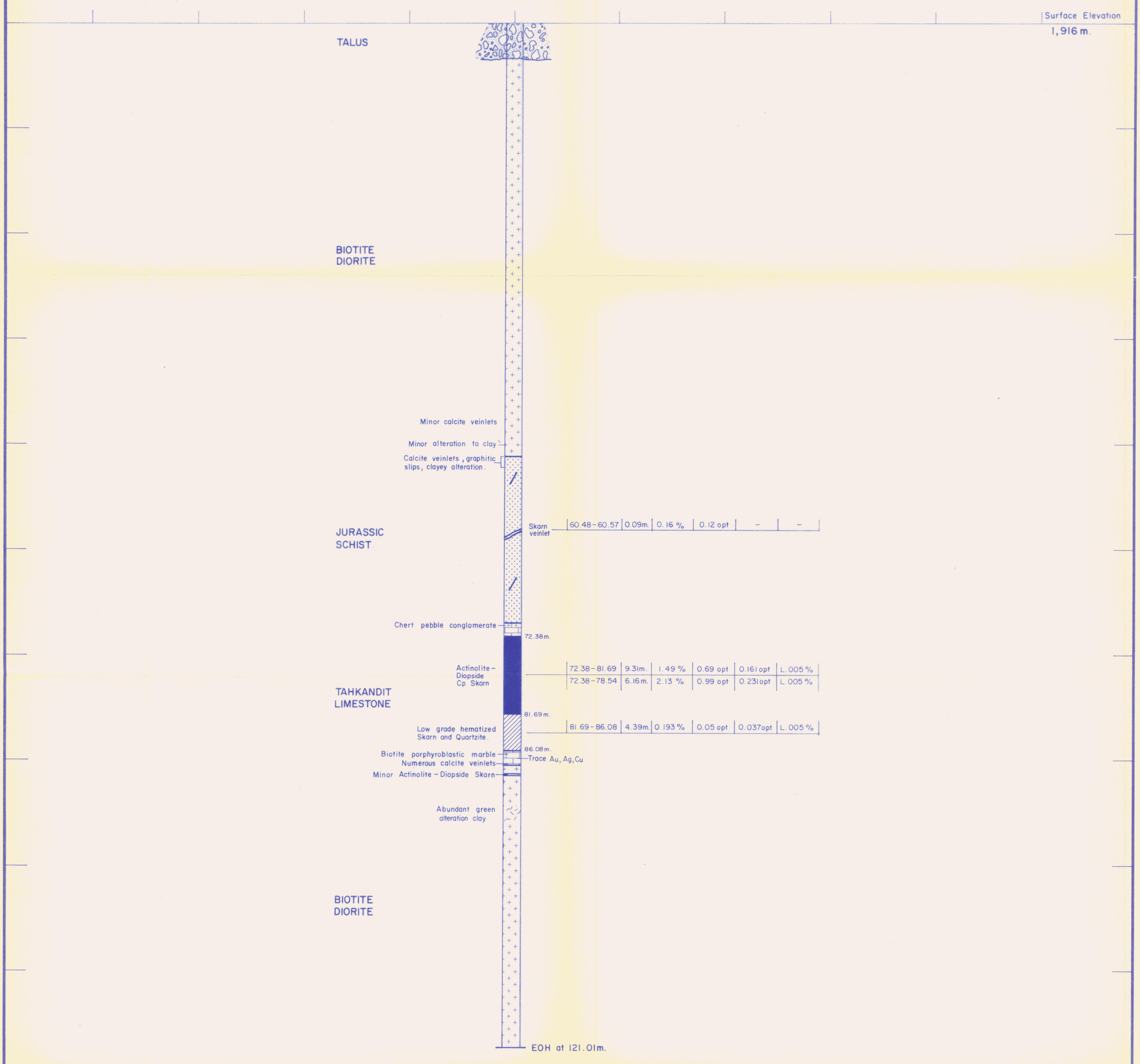
METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ppb Au	ppm Ag	ppm Cu/Zn	ppm Pb/W	ppm Bi/As
		90		317.29-319.00: Broken section - polished faces as well as slicks. Talc.										
		90		324.74-325.80: Sheared and brecciated zone C.A. 45° sub-parallel to beds.										
				325.44-325.60: Good development of fault gouge.										
		100		326.70: Interbedded argillite (slate-phyllite) and argillaceous quartzite. C.A. 45°.										
		95		336.71-337.84: High angle shear and breccia zone. Polished and striated face. C.A. 0-20°. Quartz and light blue vitreous gypsum? coatings.										
				338.39: Core angle of beds becomes much more variable 20-60°. Fractures often have calcite and talc coatings. Argillite content increases.										
		90		361.50-365.20: Well broken section. Intermittent fault gouge.										
		100		366.80-372.32: Mainly slatey phyllite with quartzite beds being very thin to laminated.										
				372.32-396.60: Massive black slatey phyllite, fine gr. sillimanite development. Scattered py, po chert nodules, lenses and laminations.										
		95		391.62-391.90: Shear zone C.A. 15°. Associated bands of clay, chlorite, calcite and quartz as well as minor pyrite. 2 cm true thickness.										
		100		392.87-395.00: Dyke - fine gr. slightly porphyritic hbld. plag. 0.2-1 mm phenos, 40% plag. 20% hbld diorite. C.A. 70° top, C.A. 45° bottom.										
				392.57-392.77: Sillimanite crystals up to 1.5 mm 20%										
				392.77-392.87: Hornfels contact.										
				396.60-424.36: Interbedded limestone and cherty argillite (slate).										
				396.60-396.70: Limestone beds are laminated light grey to white in colour, micritic and argillaceous. Core angles are irregular ranging from 5 to 45° to 80°. Greatest true thickness for a bed is 30 cm.										
				398.22-399.45: Limestone with 5% py disseminated and in blebs.	Py 5%	93513	399.15	399.45	0.30	10	0.2	16/24	10/1	62/22
		100		404.86-404.95: Py and quartz in fractures.	Py 10%	93514	404.86	404.95	0.09	10	0.6	58/118	18/1	22/176
				409.15-416.05: Limestone is peletal to mottled.										
				414.80-415.00: 1-6 mm wide quartz sulphide vein in cherty arg. (slate) with diss. po.	Po 30% Py 10%	93515	414.80	415.00	0.20	10	0.6	116/44	24/2	16/12
				416.05-423.60: Greater development of phyllite in more argillaceous beds. C.A. 45°.										
				423.87-423.96: Dyke: Hbld Diorite? appears to follow foliation.	Po 15%	93516	423.87	423.96	0.09	50	0.4	72/100	20/20	28/178
				424.36-435.67: Quartzite - fine gr. buff coloured hornfelsed. Fine gr. diss. po as well as blebs and fracture fillings.	Po 3%									
				425.26-425.36: Amphibole? calcite and py filled fracture 2 cm true width. Zoned with amphibole? concentrated on outer rim. Minor fine gr. epidote? C.A. 45°		93517	425.26	425.36	0.10	40	0.4	50/492	30/1	20/78
		95		429.10-429.90: Limonite and clay in fractures. C.A. 15°										
		100		434.13-434.24: First bed of Tahkandit type limestone. Dark grey laminated argillaceous to white mottled. No chert though. Wavy contact. C.A. ~60°										

NORANDA EXPLORATION COMPANY LTD. Property MARN Hole no. DDH-M-85-2 Sheet 5 of 6

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	Length	ppb Au	ppm Ag	ppm Cu/Zn	ppm Pb/W	ppm Bi/As
				434.24-435.67: Quartzite - buff faintly banded po 5%, bottom 15 cm has matrix supported white grey chert breccia fragments up to 3 mm coarsening down. Some Po wisps and disseminations. Beds C.A. 45°.	Po 5%	93518	435.24	435.67	0.43	10	1.2	18/390	14/1	22/26
435.67	476.19			TAHKANDIT LIMESTONE: Chert pebble argillaceous limestone, locally fossiliferous and mottled.										
				435.67-435.92: White to grey black argillaceous limestone with 5% diss. py and po occurring in sparse blebs around chert fragments. Chert fragments are similar to those in unit above. 0.1 mm-4 mm subround to angular. Sequence is interbedded argillaceous limestone fine gr. micritic and matrix supported chert pebble breccia- conglomerate.		93519	435.67	435.92	0.25	10	0.4	8/94	8/1	64/28
				436.42-436.52: Foliation type texture around intraformational boudin shaped fragments as well as larger chert grains. Argillaceous limestone has a salt and pepper appearance. C.A. 55° possibly related to recrystallization.										
		100		438.03-440.41: Fine gr. arg. limestone with minor detrital chert.										
				440.41-440.95: More defined beds of white-light grey micritic limestone and fossiliferous beds containing crinoid stems. Section here is mottled and generally more porous. C.A. 75°		93520	440.41	440.95	0.54	10	0.2	4/32	10/1	30/8
				440.95-445.00: Fine gr. arg. limestone with minor detrital chert. Some cherty argillaceous bands 10 cm true thickness C.A. 70°										
				445.00-445.40: Amount of chert fragments increases. Fragments are generally subround to angular and up to 1 cm in size. Most fractures have regrown calcite.										
				445.40-446.83: Salt and pepper argillaceous limestone with minor chert.										
				446.83-452.18: Chert pebbles increase to 40%, grain size avg. 5 mm., grading and sorting is poor to non-existant.										
				448.88-449.38: 1 cm wide calcite vein. Faint banding with minor talc and silica. C.A. 05°		93521	448.88	449.38	0.50	10	0.2	6/38	6/1	56/14
				452.18-452.40: Black chert irregular banding as well as fractured.										
				452.40-452.50: Dyke - fine gr. biotite hornblende diorite.	Po 5%									
				452.50-453.23: Chert fragment dominated argillaceous limestone appears to fine downward from 1 cm fragments to 0.2 cm.										
				453.23-453.96: Argillaceous limestone. Fine gr. appears to be slightly recrystallized.		93522	453.23	453.96	0.73	10	0.2	6/20	20/2	54/18
				453.96-453.99: Contact with diorite dyke. Pale green, very fine grained. Diopside or epidote. 3% Po in blebs.	Po 3%	93523	453.96	453.99	0.03	80	0.2	6/62	32/1	24/262
				453.99-455.29: Dyke- Fine gr. diorite.		93524	453.99	454.12	0.13	10	0.4	32/74	18/2	20/44
				455.29-457.19: More massive bedded white crystalline limestone with some grey interbeds. Mottled. Effervesces right up to contact with dyke. Some darker patches are calcareous chert.										
		100		457.19-458.33: Laminated argillaceous chert with minor limestone.										

NORANDA EXPLORATION COMPANY LTD. Property ....MARN........ Hole no. ......DDH-M-85-2...... Sheet ...6....of..6.....

METRES From	METRES To	% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES From	METRES To	METRES Length	ASSAYS ppb Au	ASSAYS ppm Ag	ASSAYS ppm Cu/Zn	ASSAYS ppm Pb/W	ASSAYS ppm Bi/As
				458.33-461.89: Argillaceous limestone with minor detrital chert. Darker in colour than sections with abundant detrital chert.		93525	459.64	459.74	0.10	30	0.2	10/48	20/1	10/120
				461.69-462.05: Vein - 3 cm wide C.A. 5°, calcite with minor quartz. Some faint banding. Associated with small pyrolusite growths. Brecciated and clay altered fragments also occur. Vein separates dyke and limestone.		93526	461.69	462.05	0.36	10	0.2	16/48	16/1	46/40
				461.70-465.89: Dyke - fine gr. diorite. Clay and limonite alteration C.A. 85°.		93527	462.05	462.69	0.64	20	0.2	24/138	34/1	28/30
				461.70-462.69: Degree of alteration decreases.										
				465.89-466.84: Argillaceous limestone, black, fine gr., some bedded chert sections.										
				466.84-469.05: Argillaceous limestone. Fossiliferous brachiopods.										
				469.05-471.60: Argillaceous and mottled limestone with minor chert interbeds 10 cm thick.										
				471.60-473.78: Recrystallized argillaceous limestone. Certain sections are fairly porous.		93528	471.60	472.54	0.94	10	0.2	6/54	18/1	52/14
				473.71-473.78: 2 thin <1 mm Py veins in silicified or cherty section of limestone. C.A. 70°		93529	473.71	473.78	0.07	880	0.2	12/1080	178/1	50/402
				473.78-474.28: Increase in amount of detrital chert in mottled argillaceous limestone.										
				474.28-474.34: Dyke - fine gr. diorite. C.A. 20°		93530	474.24	474.34	0.10	10	0.4	30/74	18/2	18/24
				474.34-476.19: Argillaceous limestone with minor detrital chert increasing slightly towards clasts, white to grey brown, up to 1 cm in size, subround to angular. Appears to be derived from underlying formation. Basal contact is angular unconformity. C.A. contact 80°		93531	475.04	475.44	0.40	10	0.4	10/146	42/1	58/36
476.19	487.39			ROAD RIVER FORMATION: Interbedded black chert and argillite with minor sillimanite development. C.A. irregular 45-80°.										
				477.15-478.30: Dyke - diorite										
	487.39			END OF HOLE.										



Legend - Symbols

Intersection of high-grade Skarn mineralization

Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

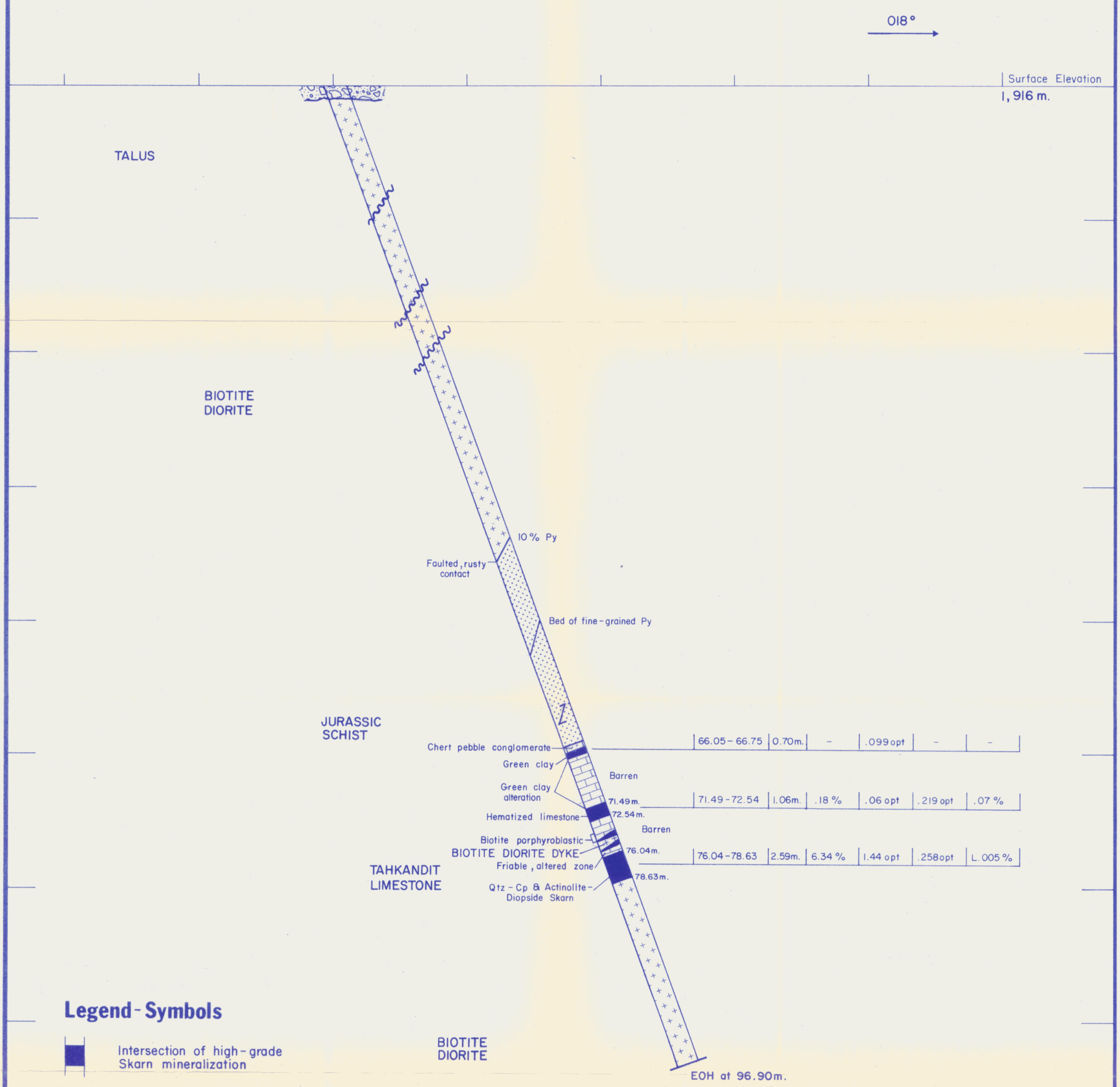
Foliation

Bedding

0 2.5 5 10 15 20 metres

REVISED	MARN CLAIMS (MINI GRID ZONE)	
	DDH Section No. M-83-25	
	LATITUDE 15,928 N	BEARING Vertical
	DEPARTURE 10,343E	DIP AT COLLAR – 90°
PROJ. No. 915	SURVEY BY: JB	DATE: JUN 83 – DEC 83
N.T.S. 116-B-7 & 10	DRAWN BY: AI	SCALE: 1: 250
DWG. No.	NORANDA EXPLORATION	
	OFFICE: Whitehorse	

091517



Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)
66.05 - 66.75	0.70m.	-	.099 opt	-	-
71.49 - 72.54	1.06m.	.18 %	.06 opt	.219 opt	.07 %
76.04 - 78.63	2.59m.	6.34 %	1.44 opt	.258 opt	L.005 %

Legend - Symbols

Intersection of high-grade Skarn mineralization

Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

Foliation

Bedding

0 2.5 5 10 15 20 metres

REVISED	
	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. M-83-26
	LATITUDE 15,928N BEARING 018°
	DEPARTURE 10,343E DIP AT COLLAR -70°
PROJ. No. 915	SURVEY BY JB, RK DATE JUL 83 - DEC 83
N.T.S. 116-B-7 & 10	DRAWN BY AI SCALE 1:250
DWG. No.	NORANDA EXPLORATION
	OFFICE Whitehorse

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Legend - Symbols

Intersection of high-grade Skarn mineralization

Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

Foliation

Bedding

0 2.5 5 10 15 20 metres

REVISED

MARN CLAIMS (MINI GRID ZONE)

DDH Section No. M-83-27

LATITUDE 15,928N BEARING 018°

DEPARTURE 10, 343E DIP AT COLLAR -45°

PROJ. No. 915

N.T.S. 116-B-7 & 10

DWG No

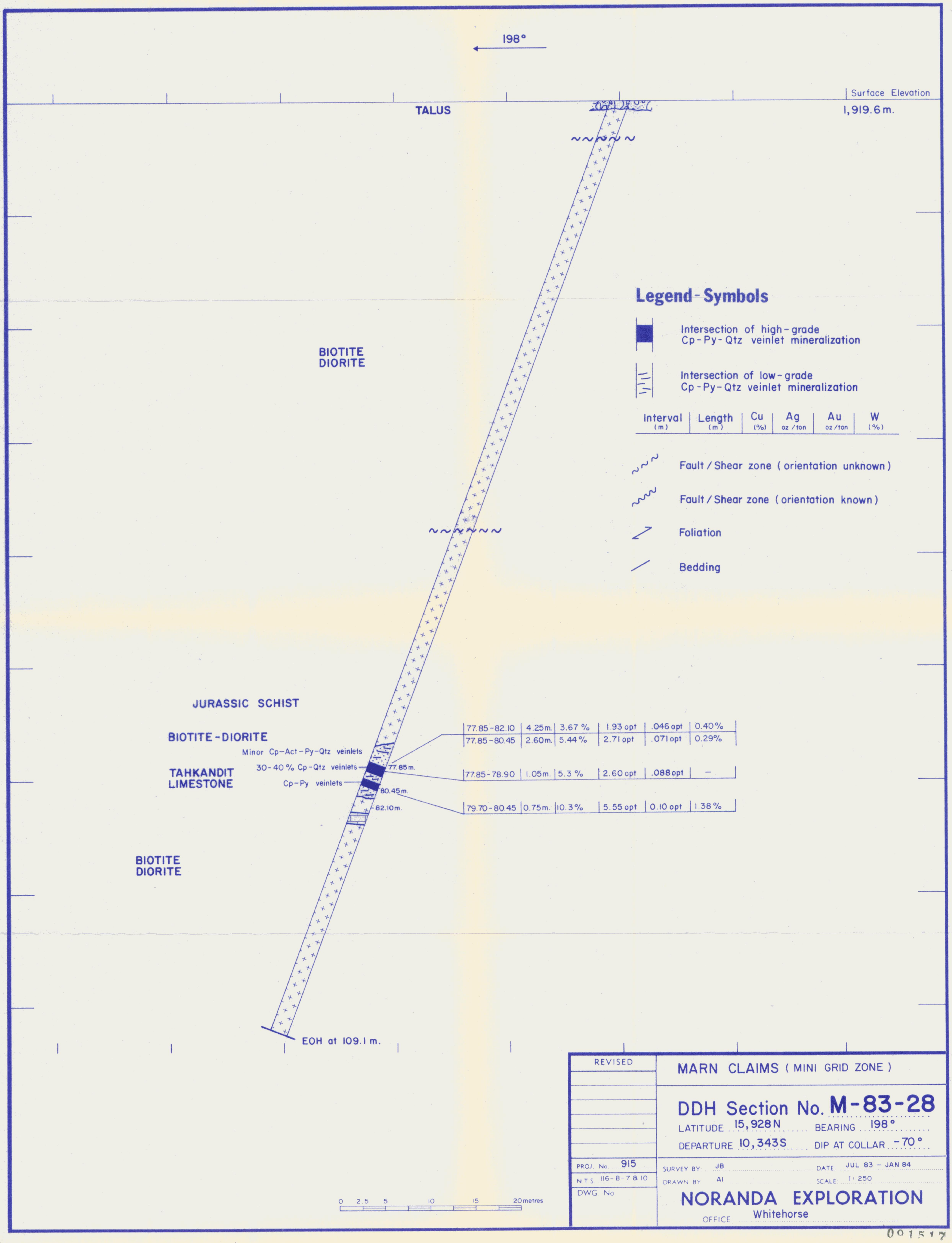
SURVEY BY RK DATE JUL 83 - DEC 83

DRAWN BY AI SCALE 1:250

NORANDA EXPLORATION

OFFICE Whitehorse

09157



Legend - Symbols

- Intersection of high-grade Cp-Py-Qtz veinlet mineralization
- Intersection of low-grade Cp-Py-Qtz veinlet mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)
77.85-82.10	4.25m.	3.67 %	1.93 opt	.046 opt	0.40%
77.85-80.45	2.60m.	5.44 %	2.71 opt	.071 opt	0.29%
77.85-78.90	1.05m.	5.3 %	2.60 opt	.088 opt	–
79.70-80.45	0.75m.	10.3%	5.55 opt	0.10 opt	1.38 %

- Fault / Shear zone (orientation unknown)
- Fault / Shear zone (orientation known)
- Foliation
- Bedding

REVISED

MARN CLAIMS (MINI GRID ZONE)

DDH Section No. M-83-28

LATITUDE 15,928 N BEARING 198°

DEPARTURE 10,343 S DIP AT COLLAR -70°

PROJ. No. 915

N.T.S. 116-B-7 & 10

DWG No.

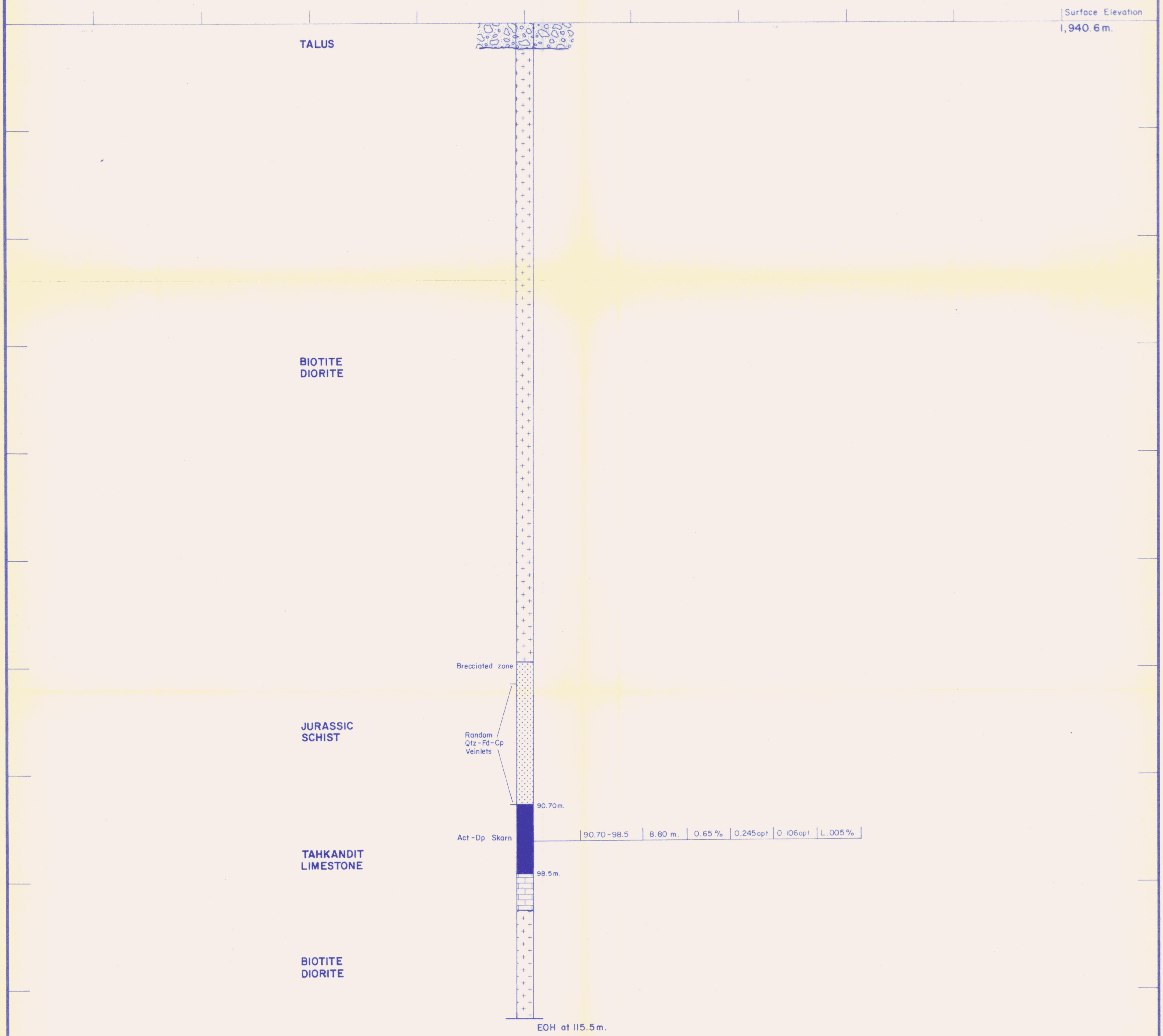
SURVEY BY JB DATE: JUL 83 – JAN 84

DRAWN BY AI SCALE: 1 : 250

NORANDA EXPLORATION

OFFICE Whitehorse

001517



Legend - Symbols

- Intersection of high-grade Skarn mineralization
- Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

- Fault / Shear zone (orientation unknown)
- Fault / Shear zone (orientation known)
- Foliation
- Bedding

0 2.5 5 10 15 20 metres

REVISED	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. **M-83-29**
	LATITUDE 15,948N BEARING Vertical
	DEPARTURE 10,330E DIP AT COLLAR -90°
PROJ. No. 915	SURVEY BY: RK DATE: JUL 83 - JAN 84
N.T.S. 116-B-7 & 10	DRAWN BY: AI SCALE: 1:250
DWG No.	NORANDA EXPLORATION
	OFFICE Whitehorse

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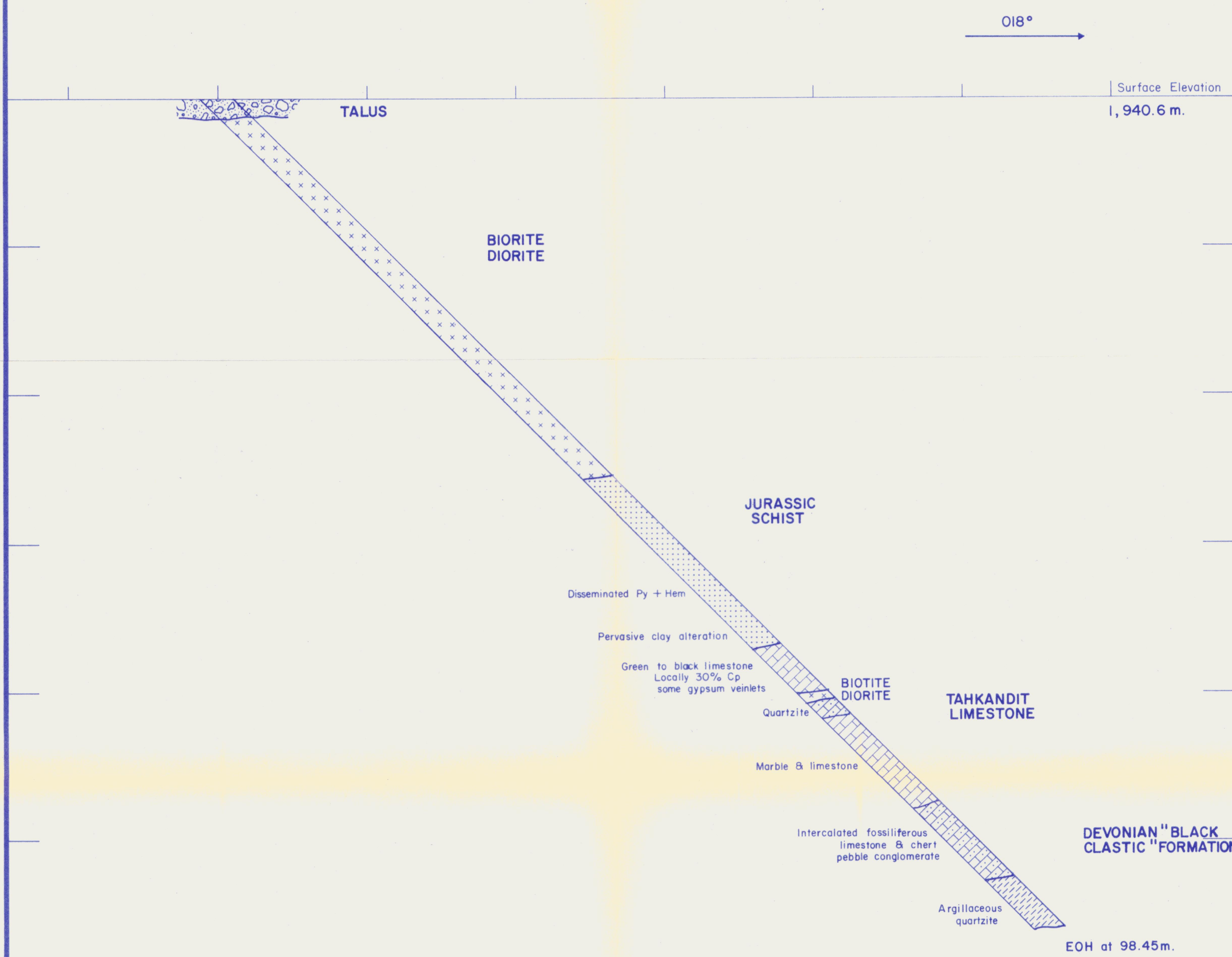

NOTE : The core from this hole was dropped by a helicopter consequently there are no assays.

Legend - Symbols

Intersection of high-grade Skarn mineralization

Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

Foliation

Bedding

0 2.5 5 10 15 20 metres

REVISED	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. **M-83-30**
	LATITUDE 15,948 N BEARING 018°
	DEPARTURE 10,330 E DIP AT COLLAR - 45°
PROJ. No. 915	SURVEY BY JB, RK DATE JUL 83 - JAN 84
N.T.S. 116-B-7 & 10	DRAWN BY AI SCALE 1:250
DWG No	NORANDA EXPLORATION
	OFFICE Whitehorse

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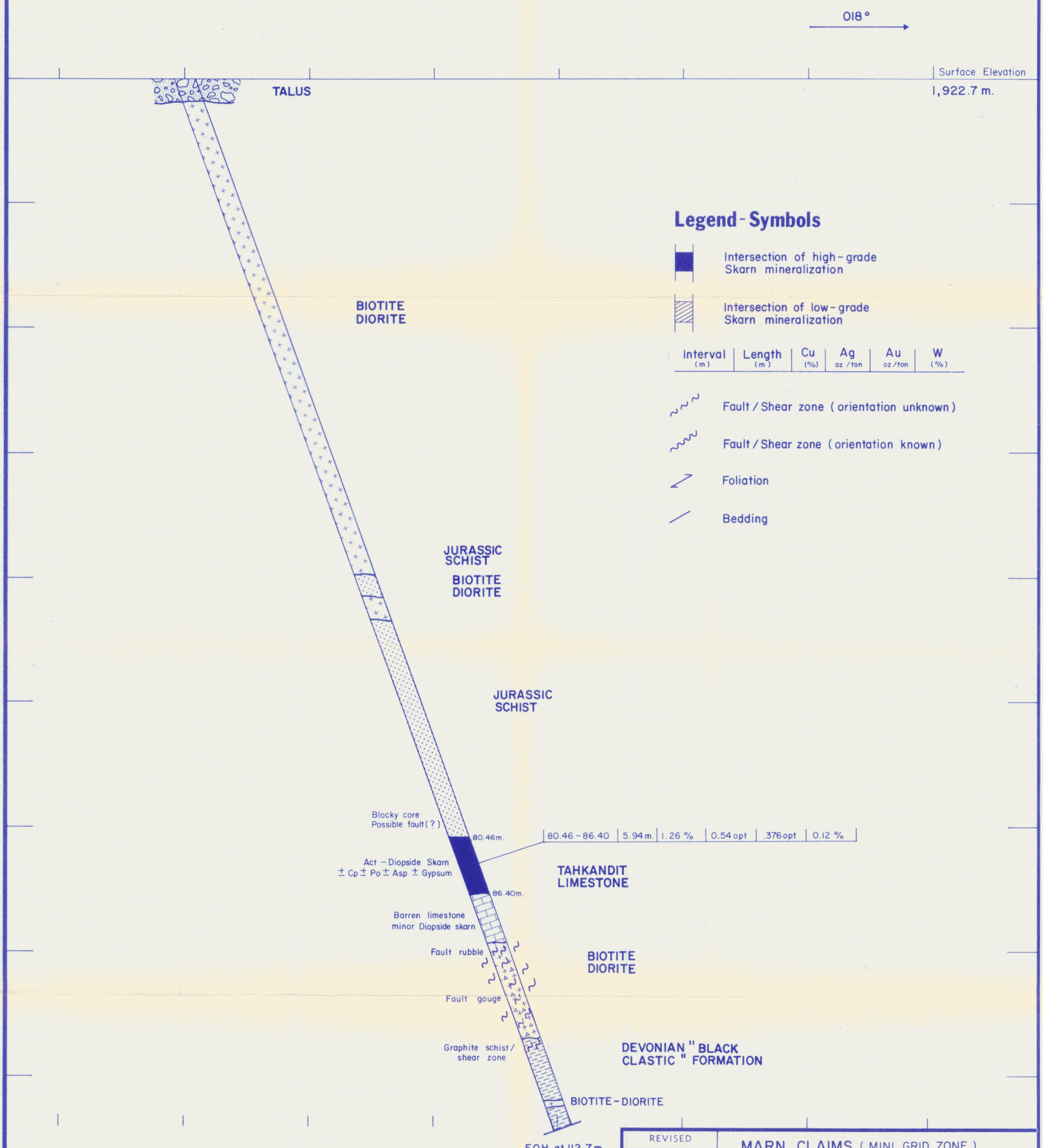

REVISED	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. M-83-31
	LATITUDE 15,948 N BEARING 018°
	DEPARTURE 10,330 E DIP AT COLLAR -70°
PROJ. No. 915	SURVEY BY RK, JB DATE JUL 83 - JAN 84
N.T.S. 116-B-7 & 10	DRAWN BY AI SCALE 1:250
DWG. No	NORANDA EXPLORATION
	OFFICE Whitehorse

091517

Legend - Symbols

Intersection of high-grade Skarn mineralization

Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

Foliation

Bedding

0 2.5 5 10 15 20 metres

REVISED	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. **M-83-32**
	LATITUDE 15,948 N BEARING 018°
	DEPARTURE 10,330 E DIP AT COLLAR -48°
PROJ. No. 915	SURVEY BY: RK, JB DATE: JUL 83 – FEB 84
N.T.S. 116-B-7 & 10	DRAWN BY: AI SCALE: 1:250
DWG No.	**NORANDA EXPLORATION** OFFICE Whitehorse

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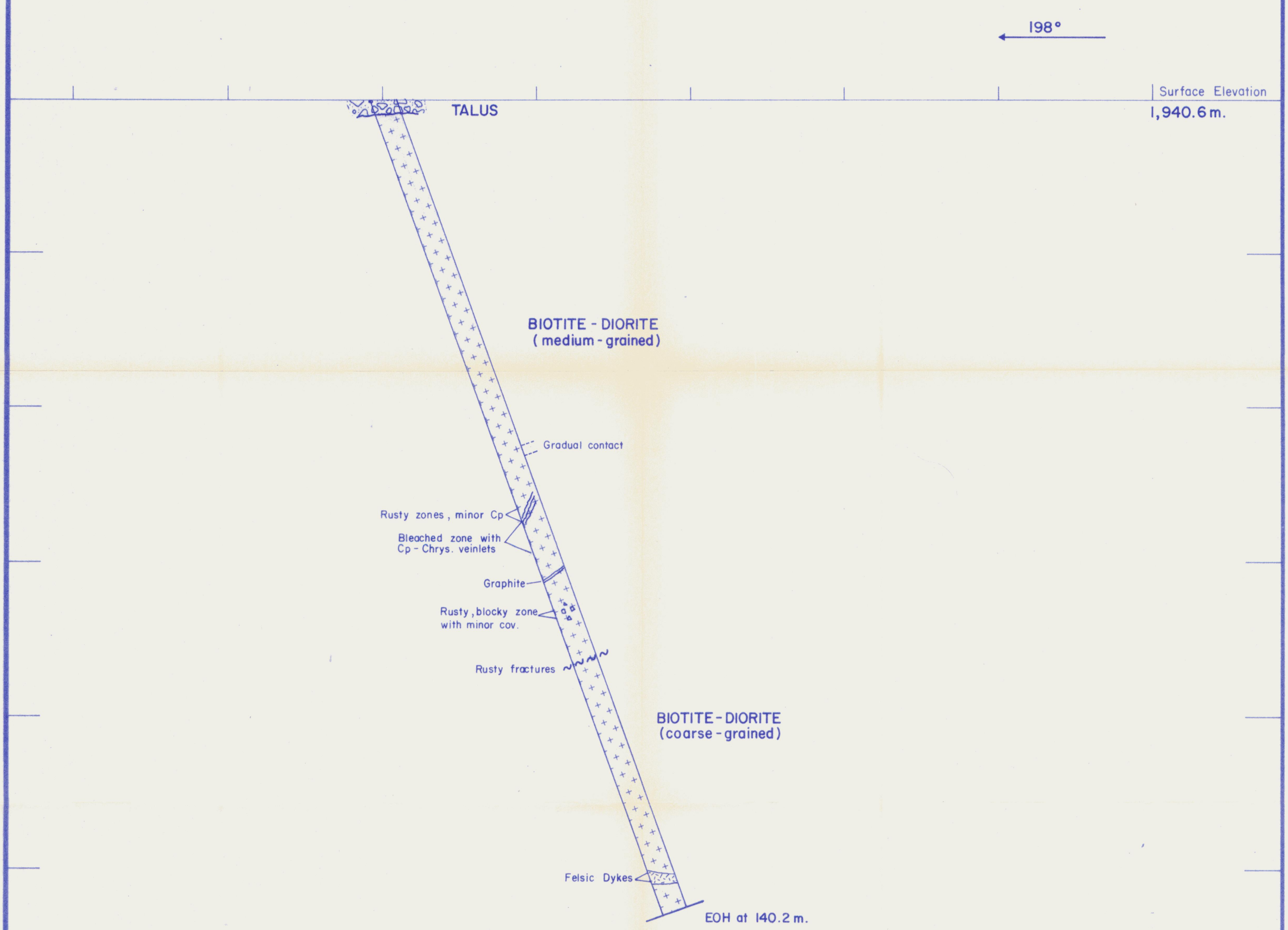


Legend - Symbols

Intersection of high - grade Skarn mineralization

Intersection of low - grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz / ton	Au oz / ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

Foliation

Bedding

0 5 10 20 30 40 metres

REVISED

MARN CLAIMS (MINI GRID ZONE)

DDH Section No. **M-83-33**

LATITUDE 15,948 N BEARING 198°

DEPARTURE 10,330 E DIP AT COLLAR - 70°

PROJ. No. 915

N.T.S. 116 - B - 7 & 10

DWG. No.

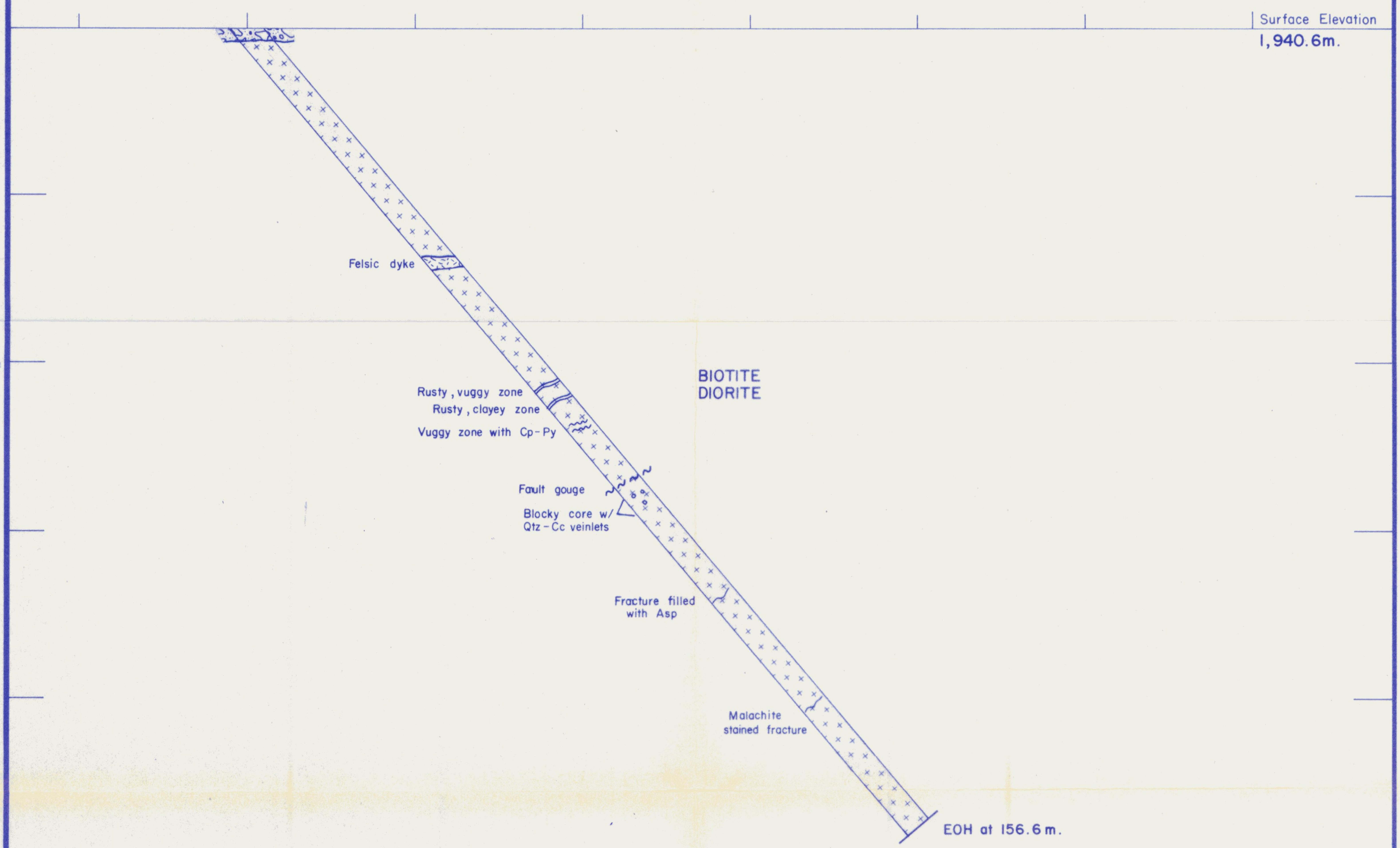
SURVEY BY RK DATE JUL 83 - FEB 84

DRAWN BY AI SCALE 1 : 500

NORANDA EXPLORATION

OFFICE Whitehorse

091517



Legend - Symbols

Intersection of high-grade Skarn mineralization

Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

Foliation

Bedding

0 5 10 20 40 metres

REVISED	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. M-83-34
	LATITUDE 15,948N BEARING 308°
	DEPARTURE 10,330E DIP AT COLLAR -50°
PROJ. No. 915	SURVEY BY: RK DATE: JUL 83 - FEB 84
N.T.S. 116-B-7 & 10	DRAWN BY: AI SCALE: 1:500
DWG. No.	NORANDA EXPLORATION
	OFFICE Whitehorse

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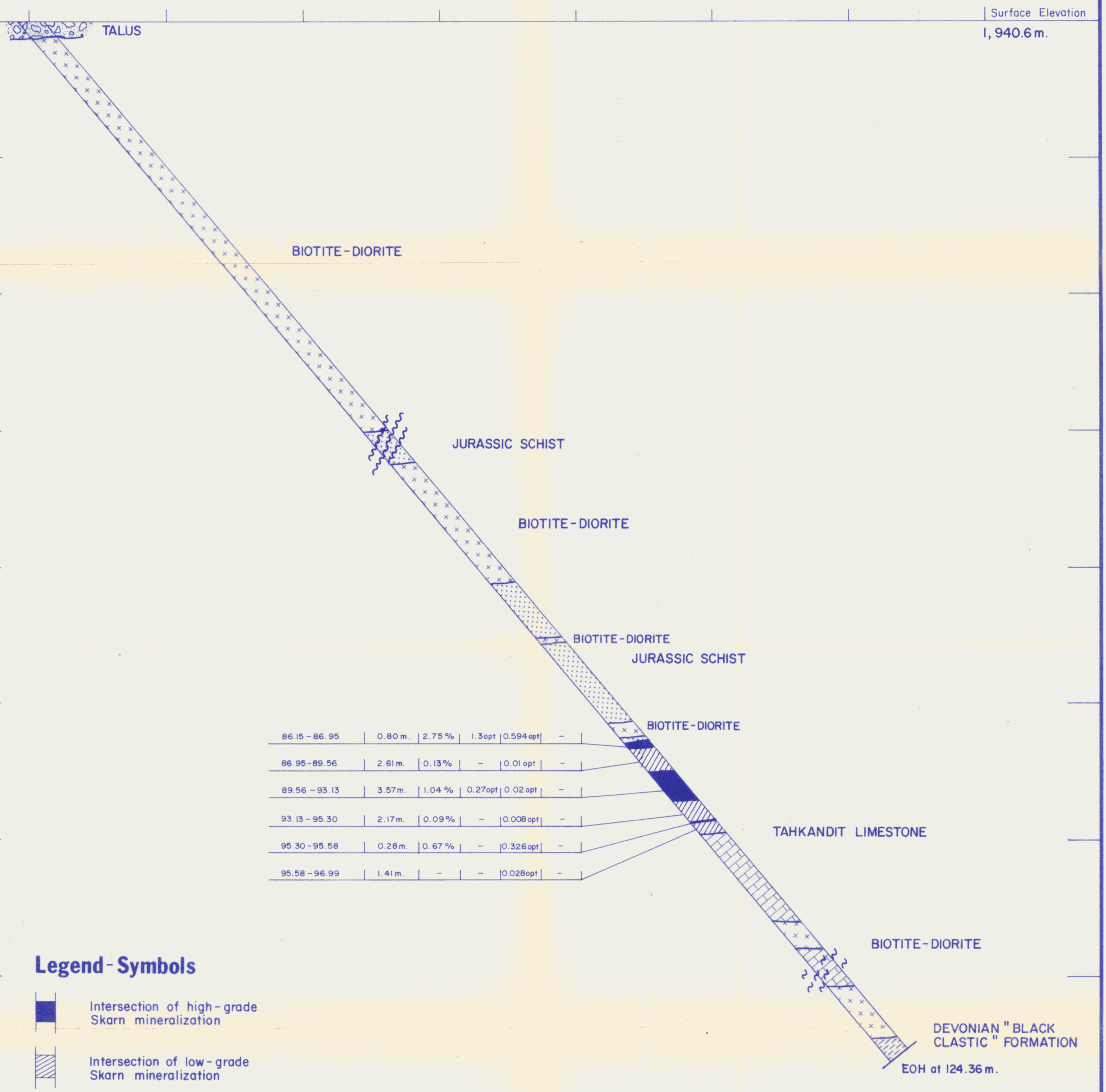

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)
86.15 - 86.95	0.80 m.	2.75 %	1.3 opt	0.594 opt	-
86.95 - 89.56	2.61 m.	0.13 %	-	0.01 opt	-
89.56 - 93.13	3.57 m.	1.04 %	0.27 opt	0.02 opt	-
93.13 - 95.30	2.17 m.	0.09 %	-	0.008 opt	-
95.30 - 95.58	0.28 m.	0.67 %	-	0.326 opt	-
95.58 - 96.99	1.41 m.	-	-	0.028 opt	-

Legend - Symbols

- Intersection of high-grade Skarn mineralization
- Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

- Fault / Shear zone (orientation unknown)
- Fault / Shear zone (orientation known)
- Foliation
- Bedding

0 2.5 5 10 15 20 metres

REVISED	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. M-83-35
	LATITUDE 15,948 N BEARING 330°
	DEPARTURE 10,330E DIP AT COLLAR -50°
PROJ. No. 915	SURVEY BY: DATE: AUG 83 - FEB 84
N.T.S. 116-B-7 & 10	DRAWN BY: AI SCALE: 1:250
DWG. No	**NORANDA EXPLORATION**
	OFFICE Whitehorse

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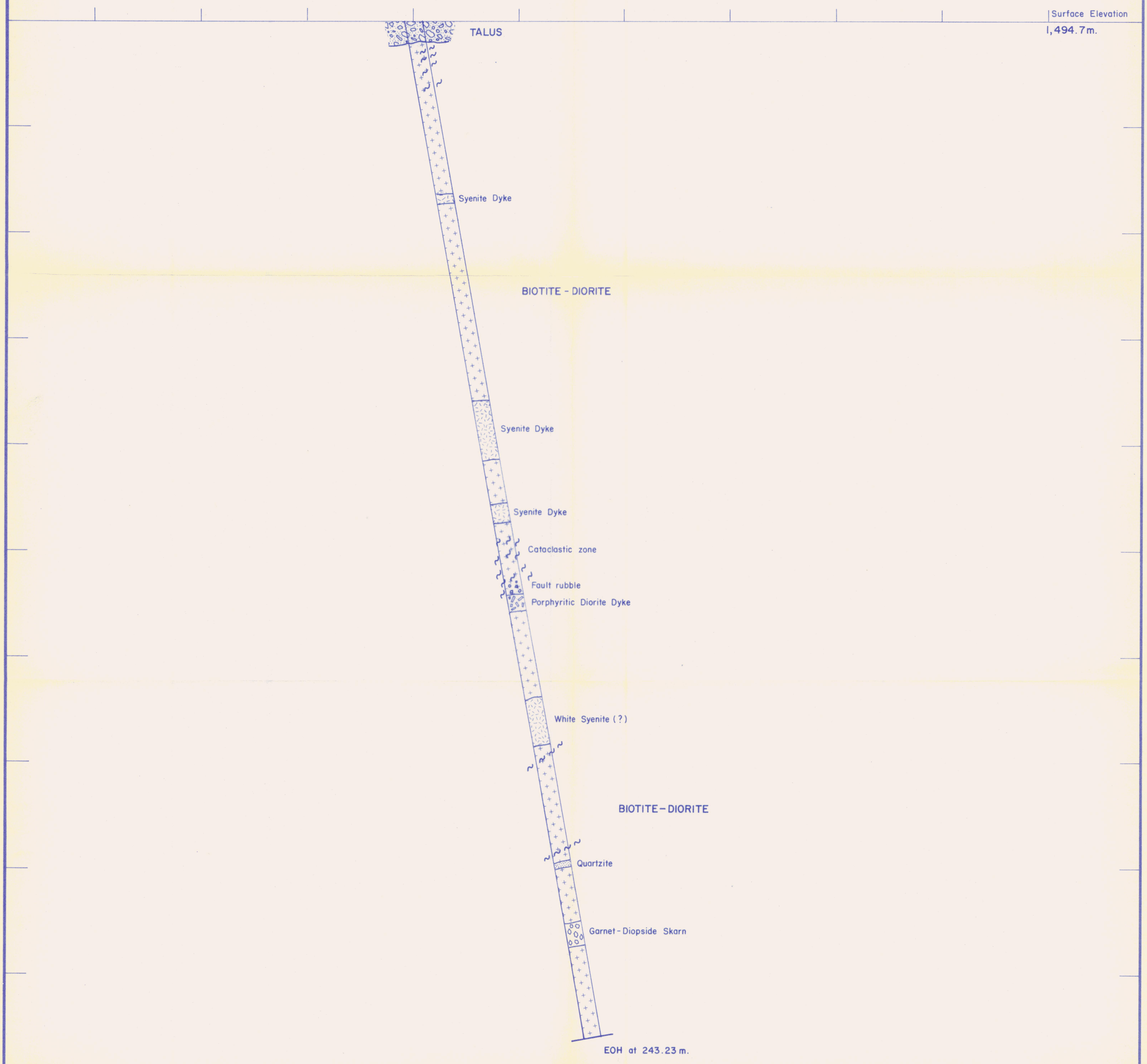

Legend - Symbols

Intersection of high-grade Skarn mineralization

Intersection of low-grade Skarn mineralization

Interval (m)	Length (m)	Cu (%)	Ag oz/ton	Au oz/ton	W (%)

Fault / Shear zone (orientation unknown)

Fault / Shear zone (orientation known)

Foliation

Bedding

0 5 10 20 40 metres

REVISED	
	MARN CLAIMS (MINI GRID ZONE)
	DDH Section No. **M-83-37**
	LATITUDE 7,152,580 UTM BEARING 320°
	DEPARTURE 606,077UTM DIP AT COLLAR -80°
PROJ. No. 915	SURVEY BY DF, JB DATE JUL 83 - FEB 84
N.T.S. 116-B-7 & 10	DRAWN BY AI SCALE 1:500
DWG No	**NORANDA EXPLORATION**
	OFFICE Whitehorse

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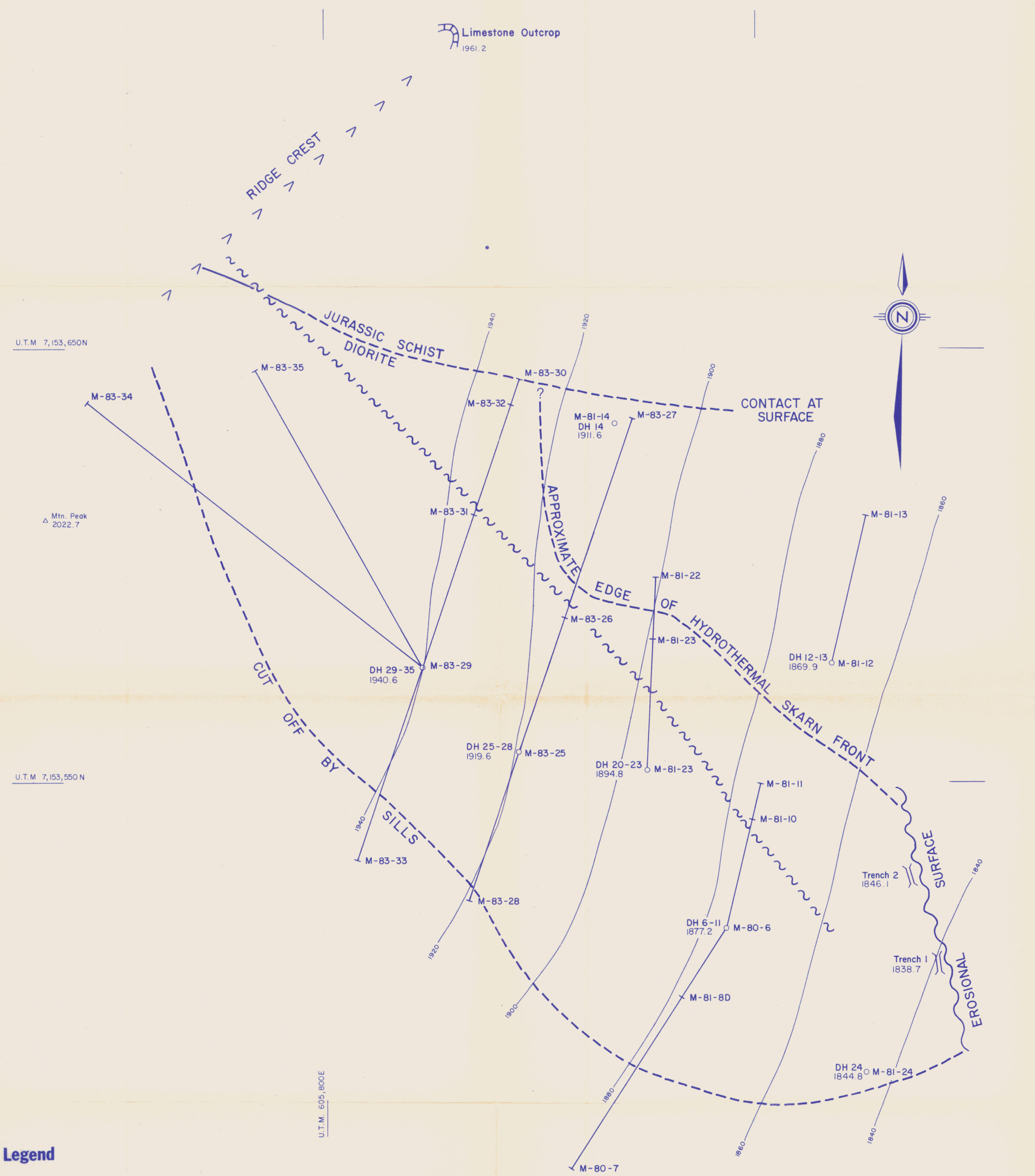


Legend

M-80-6
1877.2

Drill hole location with year, hole number and elevation.

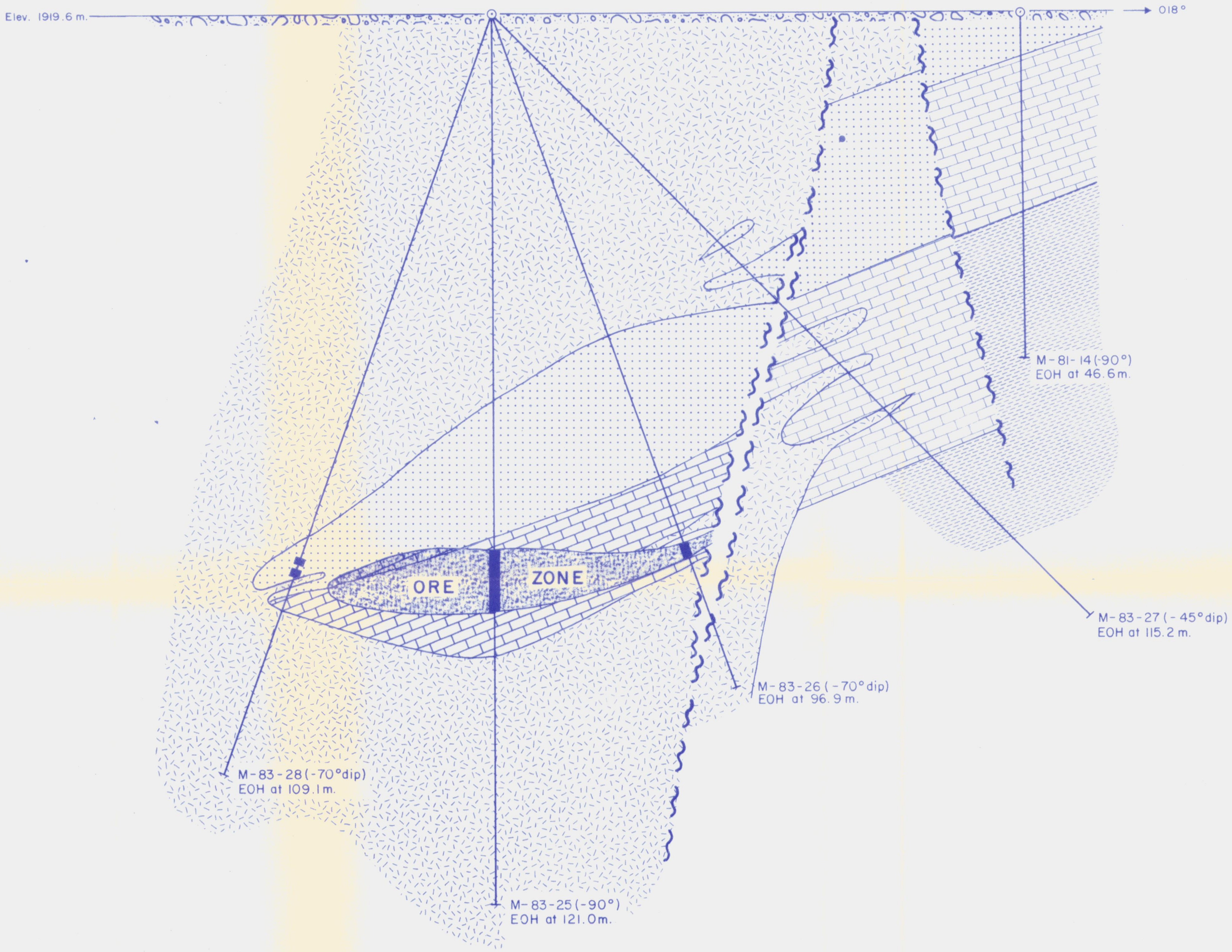
Fault zone.

Contour intervals : 20 m.

0 5 10 20 40 metres

REVISED	MARN CLAIMS
	PLAN MAP OF MINI-GRID ORE ZONE & 1980-83 DRILLING
PROJ. No. 915	SURVEY BY: ..... DATE: NOV 1983
N.T.S. 116-B-7	DRAWN BY: AI SCALE: 1:500
DWG. No.	**NORANDA EXPLORATION** OFFICE: Whitehorse

091517



GEOLOGICAL LEGEND

CRETACEOUS

MT. BRENNER STOCK: Diorite

JURASSIC

"LOWER SCHIST": Argillaceous Quartzite

PERMIAN

TAHKANDIT LIMESTONE: Bioclastic limestone and quartzite

DEVONIAN

"BLACK CLASTIC UNIT": Argillaceous quartzite and shale

Fault (Assumed)

Mineralized Intersection

Geological Contact (Defined, Assumed)

SCALE
1:500

Metres 10 5 0 10 20 30 Metres

REVISED	MARN CLAIMS
	CROSS·SECTION OF DRILL HOLES 25-28 FACING NORTHWEST
PROJ. No. 915	SURVEY BY: J.B. DATE: Aug. /83
N.T.S. 116 B/7 & 10	DRAWN BY: [signature] SCALE: 1:500
DWG. No. 1	NORANDA EXPLORATION OFFICE: Whitehorse

VANCAL 11919

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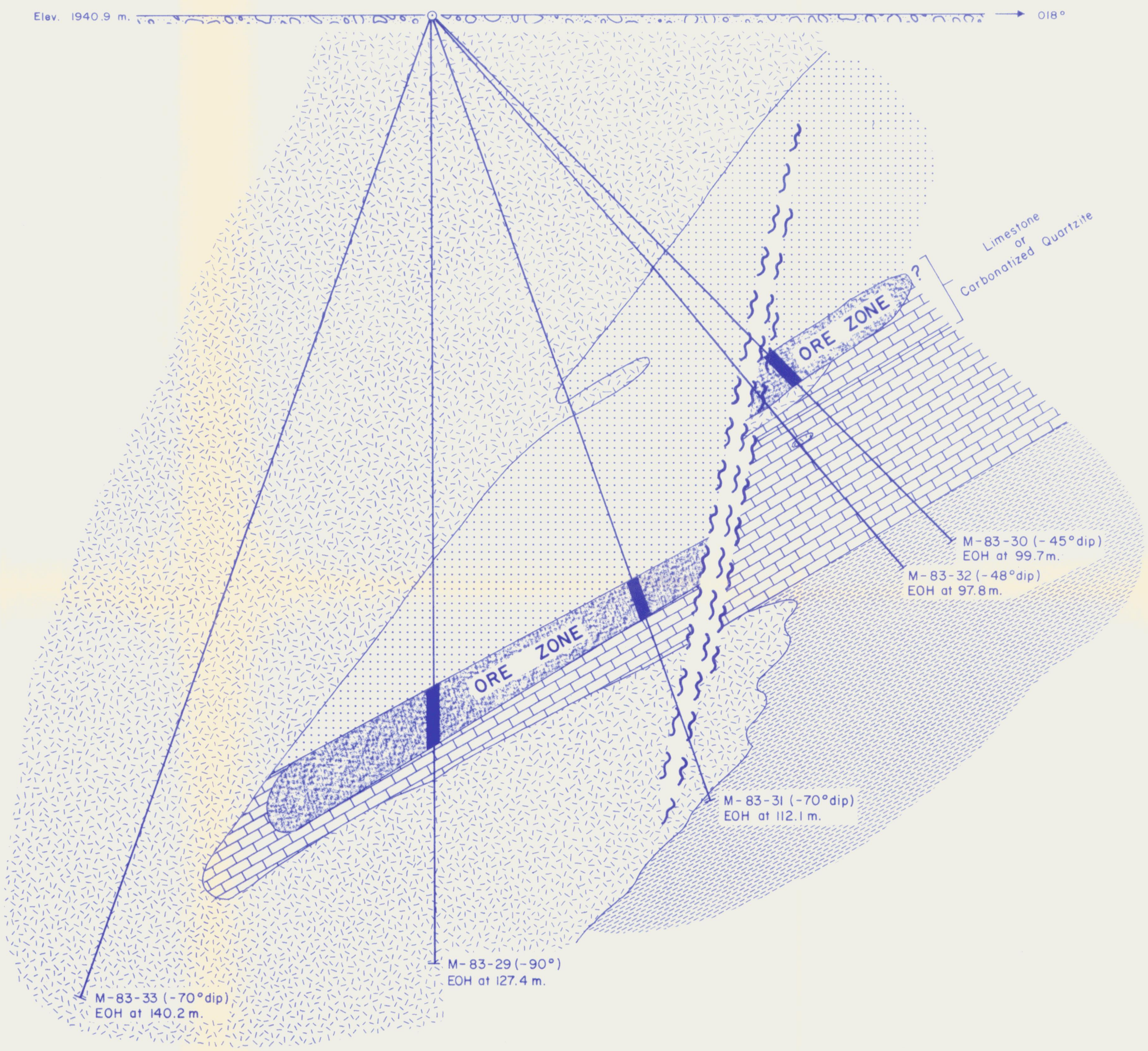


GEOLOGICAL LEGEND

CRETACEOUS
MT. BRENNER STOCK: Diorite

JURASSIC
"LOWER SCHIST": Argillaceous Quartzite

PERMIAN
TAHKANDIT LIMESTONE: Bioclastic limestone and quartzite

DEVONIAN
"BLACKCLASTIC UNIT": Argillaceous quartzite and shale

Fault (Assumed)

Mineralized Intersection

Geological Contact (Defined, Assumed)

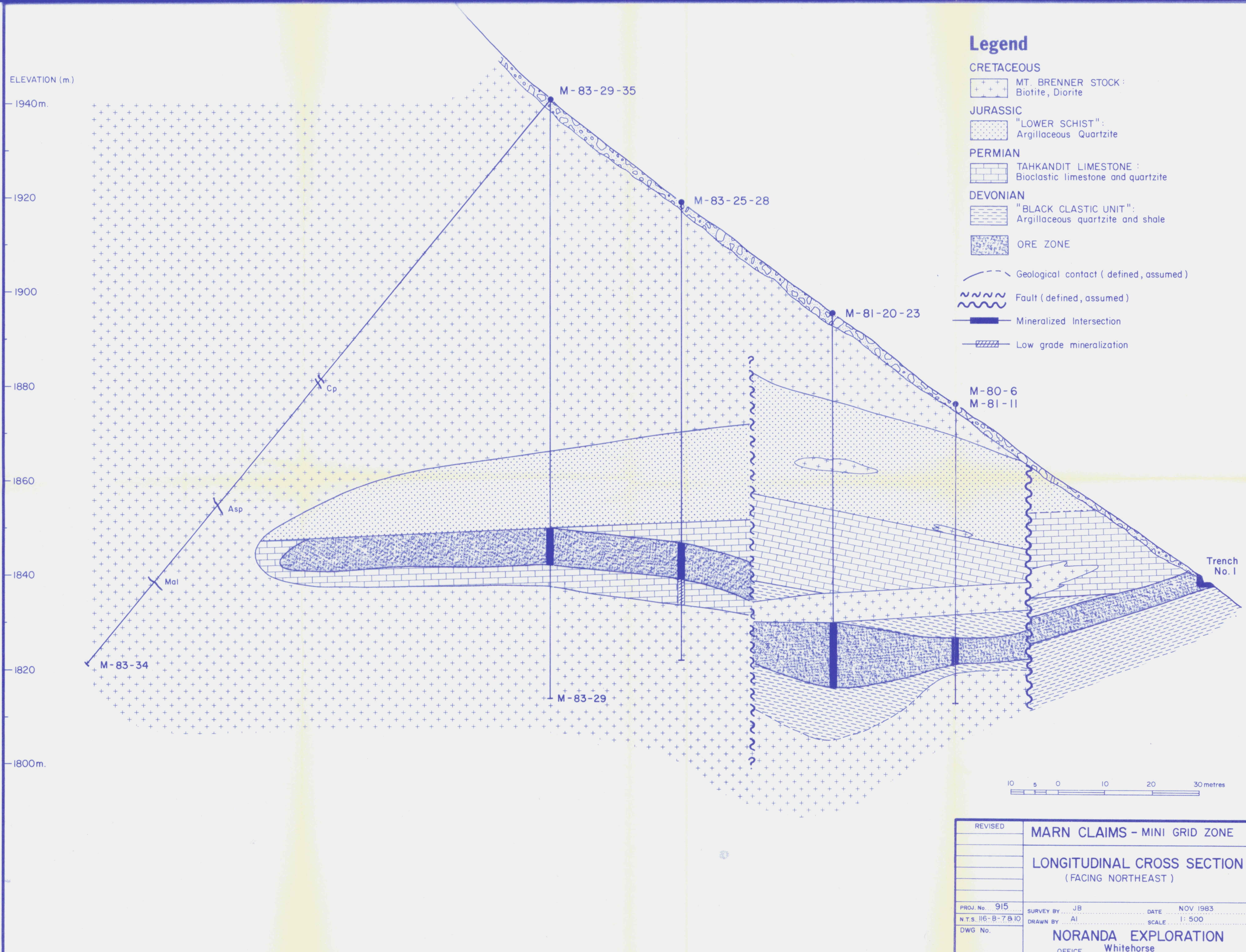
SCALE
1:500

Metres 10 5 0 10 20 30 Metres

REVISED	MARN CLAIMS
	CROSS·SECTION OF DRILL HOLES 29-39 FACING NORTHWEST
PROJ. No. 915	SURVEY BY: J.B. DATE: Aug./83
N.T.S. 116 B/7 & 10	DRAWN BY: [signature] SCALE: 1:500
DWG. No. 2	NORANDA EXPLORATION OFFICE: Whitehorse

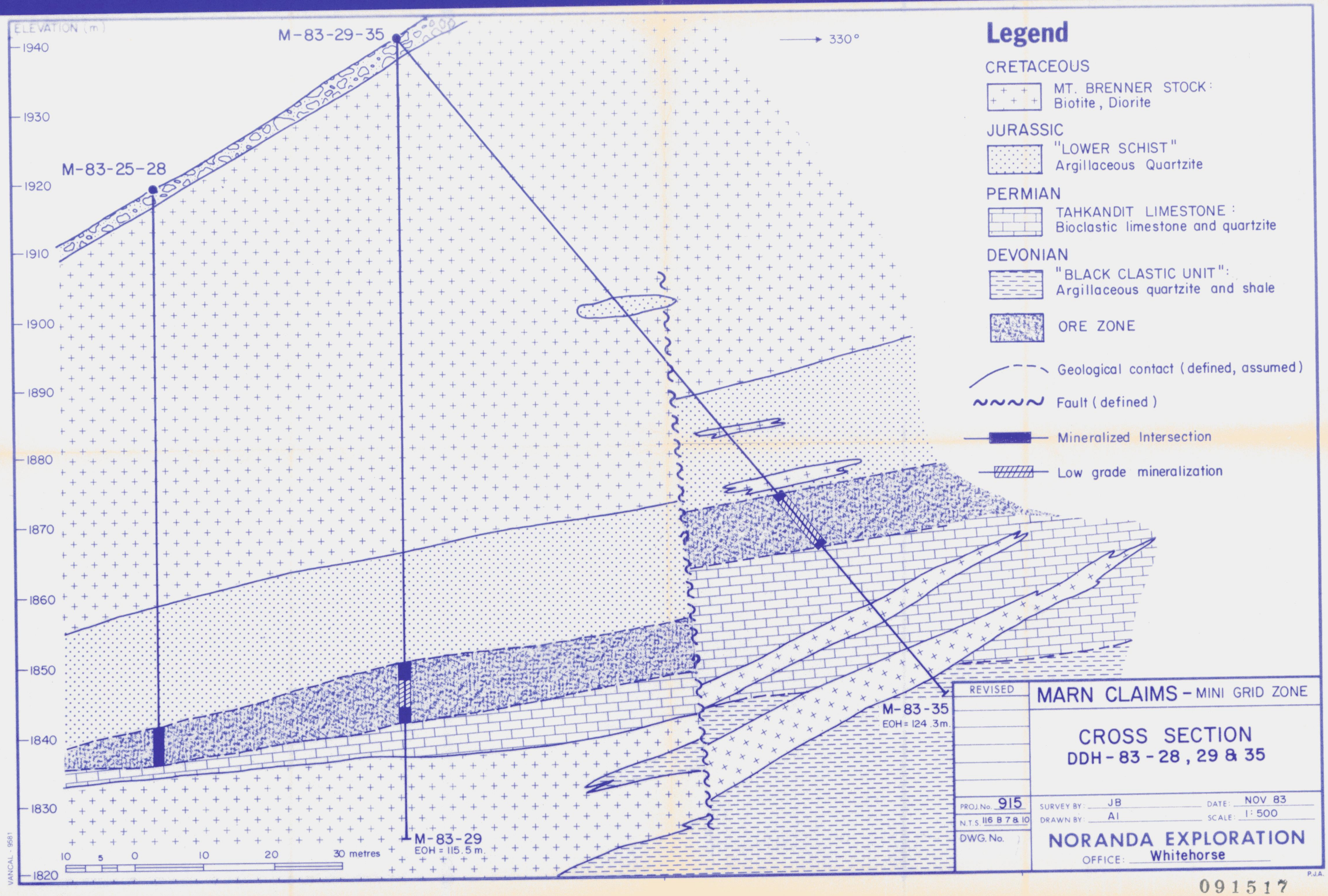
VANCAL 1919

091517



ELEVATION (m)
1940m.
1920
1900
1880
1860
1840
1820
1800m.
M-83-29-35
M-83-25-28
M-81-20-23
M-80-6
M-81-11
M-83-34
M-83-29
Cp
Asp
Mal
Trench No. I
Legend
CRETACEOUS
MT. BRENNER STOCK: Biotite, Diorite
JURASSIC
"LOWER SCHIST": Argillaceous Quartzite
PERMIAN
TAHKANDIT LIMESTONE: Bioclastic limestone and quartzite
DEVONIAN
"BLACK CLASTIC UNIT": Argillaceous quartzite and shale
ORE ZONE
Geological contact (defined, assumed)
Fault (defined, assumed)
Mineralized Intersection
Low grade mineralization
10 5 0 10 20 30 metres
REVISED
MARN CLAIMS - MINI GRID ZONE
LONGITUDINAL CROSS SECTION
(FACING NORTHEAST)
PROJ. No. 915
N.T.S. 116-B-7,8,10
DWG No.
SURVEY BY JB
DRAWN BY AI
DATE NOV 1983
SCALE 1: 500
NORANDA EXPLORATION
OFFICE Whitehorse

091517



ELEVATION (m)
1940
1930
1920
1910
1900
1890
1880
1870
1860
1850
1840
1830
1820
M-83-29-35
M-83-25-28
330°
M-83-29
EOH = 115.5 m.
M-83-35
EOH = 124.3 m.
10 5 0 10 20 30 metres
Legend
CRETACEOUS
MT. BRENNER STOCK: Biotite, Diorite
JURASSIC
"LOWER SCHIST" Argillaceous Quartzite
PERMIAN
TAHKANDIT LIMESTONE: Bioclastic limestone and quartzite
DEVONIAN
"BLACK CLASTIC UNIT": Argillaceous quartzite and shale
ORE ZONE
Geological contact (defined, assumed)
Fault (defined)
Mineralized Intersection
Low grade mineralization
REVISED
MARN CLAIMS - MINI GRID ZONE
CROSS SECTION
DDH - 83 - 28, 29 & 35
PROJ. No. 915
N.T.S. 116 B 7 & 10
DWG. No.
SURVEY BY: JB
DRAWN BY: AI
DATE: NOV 83
SCALE: 1:500
NORANDA EXPLORATION
OFFICE: Whitehorse
P.J.A.
VANCAL - 9581
091517

Firewood Creek
LAKE SCOVILLE
El 1279m
MOUNT BRENNER STOCK
MOUNT BRENNER STOCK
Lake El 1490m
Lake El 1541m
Limit of Detailed Mapping
Limit of Detailed Mapping
MINERAL FAULT
MINI GRID
SURVEY LINE 10,000 E
SURVEY LINE 10,825 E
LINE 10,450 E
LINE 14,600 N
15,000 N
15,500 N
16,000 N
16,150 N
9,400 E
9,500 E
10,375 E
10,500 E
10,600 E
LEGEND
(Prismacolor) CRETACEOUS
929 [4] Mount Brenner Stock Monzonite, Diorite
JURASSIC
930 [3] Jurassic Schist Quartzite, minor shale
PERMIAN
913 [2] Tahkandit Limestone
AGE UNCERTAIN
903 [1] Ia: Polymictic Conglomerate, Ib: Shale, slate, quartzite (Formerly mapped as Road River Formation, may possibly be of Devonian - Mississippian age.)
Scree slope / boulders
Diamond Drill Hole
Rock outcrop
Geological contact : defined, assumed
Jointing
Bedding
Foliation
Fault
Elevations in Metres
Contour interval 50 metres
0 25 50 100 200 metres
REVISED
MARN CLAIMS (MINI GRID ZONE)
1983 Geology & Diamond Drill Holes
PROJ. No. 915
N.T.S.
DWG. No.
SURVEY BY:
DRAWN BY: D.R. BULL
DATE OCT 81 - FEB 84
SCALE 1:2500
NORANDA EXPLORATION
OFFICE Whitehorse
091517