2

GEOLOGICAL AND GEOPHYSICAL REPORT
ON THE MAXWELL CREEK GROUP

LOCATED IN THE KAMLOOPS MINING DIVISION
AT CO ORDINATES
51° 51' N; 119° 41' E

BY
T.D. Lewis, P. Eng.
(Kamloops, B.C.)

NORANDA EXPLORATION COMPANY, LIMITED
(No Personal Liability)

July, 1982

N.T.S. 82M/13E

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES AND MAPS

MAXWELL CREEK PROPERTY

INTRODUCTION

On November 23, 1981, Noranda Exploration Company, Limited, optioned from Andy Horne, a group of mineral claims which have become known as the Maxwell Creek Group. The property was staked by Mr. Horne, a prospector from Chase, B.C., to cover suspected copper mineralization in an old forest burn at the headwaters of Maxwell Creek.

Noranda's aim on the property was to trench a coincedent VLF-EM conductor, and a magnetometer anomaly. These anomalies also had a copper soil anomaly and copper bearing float downhill.

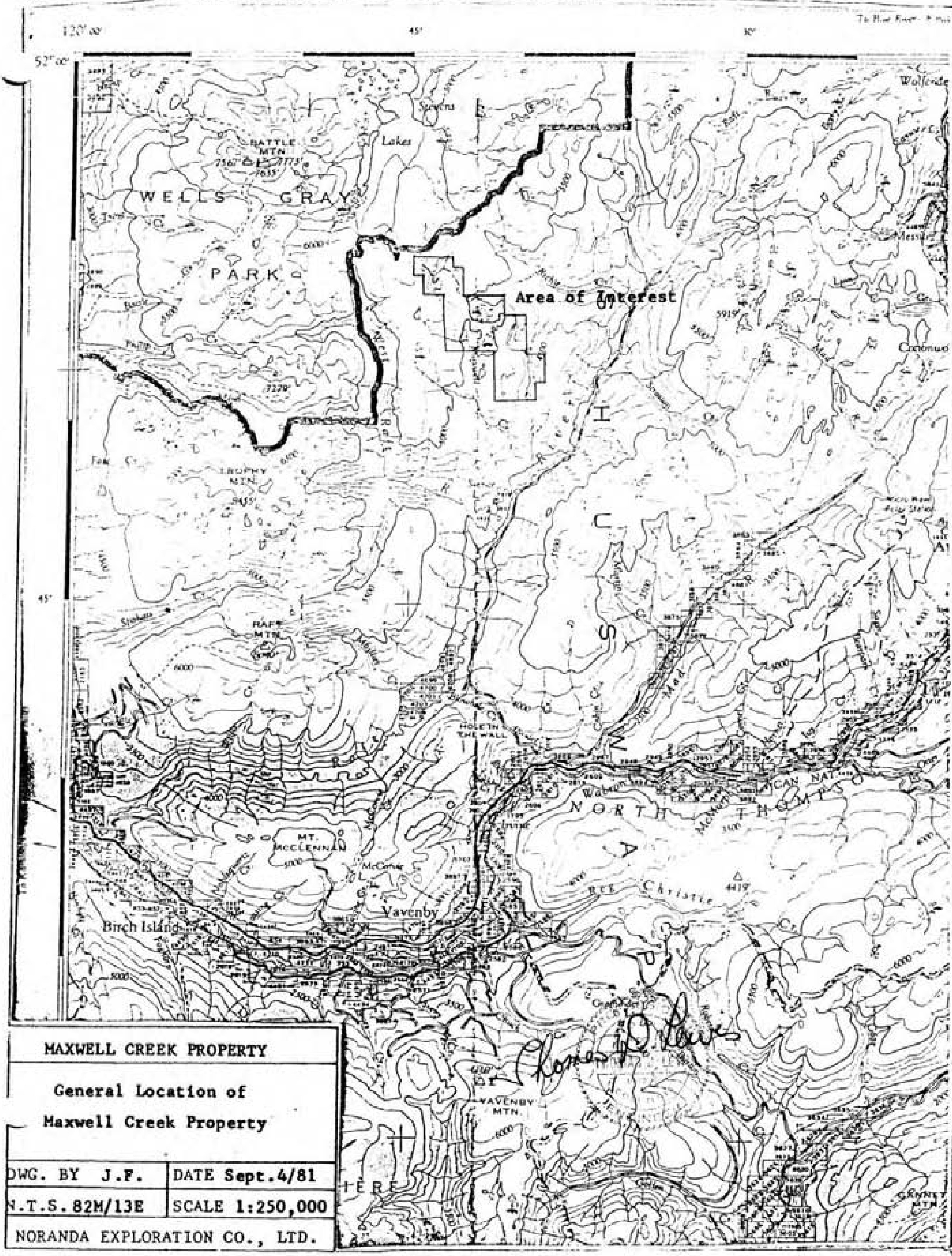
LOCATION AND ACCESS

The property is located on the east side of Maxwell Creek, in an old forest fire burn. Maxwell Creek is a southeast flowing tributary of the Raft River. It empties into the Raft a few kilometres northeast of Silence Lake. The Raft River in turn drains southwesterly to join the Thompson River at the village of Clearwater, in southcentral British Columbia.

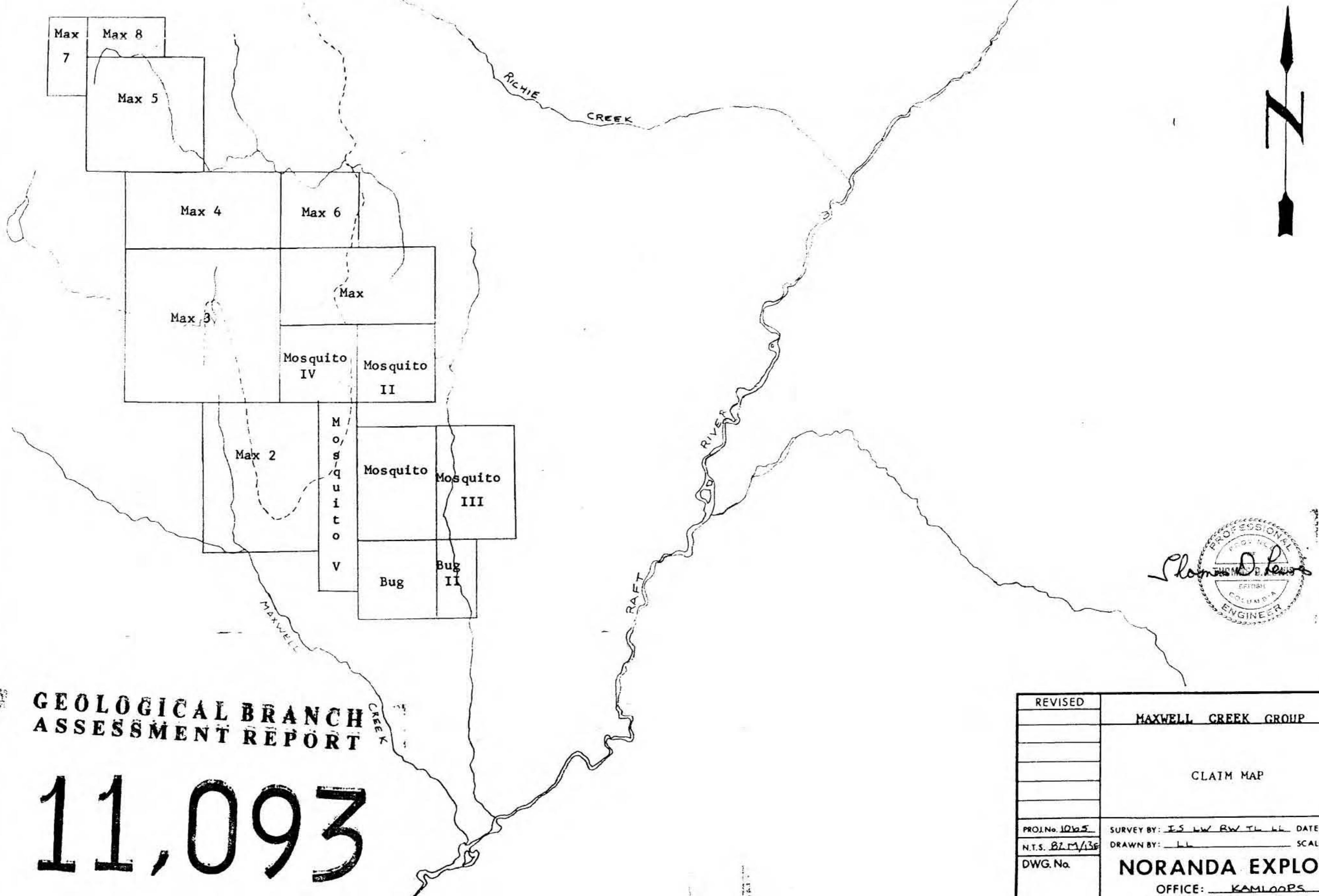
Access to the property is by good logging road leading up the west side of the Raft River from highway 5, just a few kilometres north of Clearwater. At Silence Lake, the Raft River road branches towards the northeast, and another good road leads up the southwest side of Maxwell Creek. This road passes the Dimac Tungsten Mine, and crosses to the east side of Maxwell Creek about 10 kilometres from the minesite. The road then follows southerly along the east side of Maxwell Creek for a few kilometres, and then swings northeasterly to a large forest fire burn and the Maxwell Creek property.

CLAIMS AND OWNERSHIP

The property has been grouped to form the Maxwell Creek Group comprised of 92 units. The claims are all within the Kamloops Mining District. The following claims make up the Maxwell Creek Group:



MAXWELL CREEK PROPERTY	
General Location of Maxwell Creek Property	
DWG. BY J.F.	DATE Sept.4/81
N.T.S. 82M/13E	SCALE 1:250,000
NORANDA EXPLORATION CO., LTD.	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,093

REVISED	MAXWELL CREEK GROUP
	CLAIM MAP
PROJ.No. 1065	SURVEY BY: IS LW RW TL LL DATE: JUNE, JULY 82
N.T.S. 82M/13E	DRAWN BY: LL SCALE: 1:50000
DWG. No.	NORANDA EXPLORATION
	OFFICE: KAMLOOPS

VANCAL - 9581

P.J.A.

Claims and Ownership Cont'

CLAIM NAME	RECORD NUMBER	RECORD DATE	UNITS
Max 2	3629 (7)	July 3/81	12
Max 3	1777 (3)	March 30/79	16
Max 4	1778 (3)	March 30/79	8
Max 5	1779 (3)	March 30/79	9
Max 6	1780 (3)	March 30/79	4
Max	1593 (11)	Nov. 23/78	8
Mosquito II	139 (10)	Oct. 22/75	4
Mosquito III	1717 (2)	Feb. 16/79	6
Mosquito IV	1731 (3)	March 9/79	4
Mosquito V	1732 (3)	March 9/79	5
Mosquito	68 (7)	July 15/75	6
Bug	69 (7)	July 21/75	4
Bug II	1718 (2)	Feb. 16/79	2
Max 7	1955 (7)	July 24/79	2
Max 8	1956 (7)	July 24/79	2

CONTROL GRID

A 9.3 kilometre flagged grid was established on the Maxwell Creek Property using chain and compass methods. East-west lines were established at 50 metre intervals with control stations at 25 metre intervals.

REGIONAL GEOLOGY

The area is underlain by northly trending rocks of the Shuswap Metamorphic Complex of uncertain age. Rocks seen in the area consist of: quartz-biotite gneiss, quartz-mica schist, amphibolite, quartzite, marble, skarn, pegmatites, and granodiorite.

PROPERTY GEOLOGY

The Maxwell Creek property is underlain by five main rock types. They consist of: quartz-muscovite schist, quartz-biotite schist, biotite-epidote-quartz schist, amphibolite, and a granodiorite with associated pegmatites and feldspar porphyry dykes.

Property Geology Cont'

The metasedimentary group of rocks generally strike northwesterly with near vertical dips. The presence of the granodiorite and suspected faults, has disturbed the metasediments near the intrusion thus producing local trends nearly perpendicular to the regional strike.

Sulphide mineralization consisting of mainly pyrrhotite, with pyrite and chalcopyrite was found in several locations. The sulphides are confined to a quartz-biotite schist, and occurs as blebs parallel to the foliation, and disseminated along fracture surfaces.

Trenching and prospecting yielded copper grades of 0.1% to 0.4% Cu across 5 metres. Present information suggests the sulphides are a result of contact metasomatism, and are low grade. However, deep overburden hindered trenching leaving many conductors untested, and true widths of mineralized rock undetermined.

GEOPHYSICAL SURVEYS

INTRODUCTION:

Two geophysical surveys were performed, namely: magnetometer, and VLF-EM.

MAGNETOMETER SURVEY:

The magnetometer survey was carried out by L. Warner and T. Lewis, during early July, 1982. The magnetometer used was a Scintrex Model MF-2, which was manufactured by Scintrex of Concord, Ontario. This instrument records the relative vertical component of the magnetic field in gammas.

FIELD PROCEDURE:

Readings were initially recorded along the baseline at 50 meter intervals in order to establish a series of base stations. Then recordings were made at 25 meter intervals along the crosslines for a total of 13.1 line kilometers. Differences in readings recorded at the base stations from the original were plotted against time in order to remove any diural variation.

PRESENTATION OF RESULTS:

The relative field strength readings recorded during the magnetometer survey were reduced and plotted on a grid map at a scale of 1:2500. Values were adjusted to make them greater than zero, and contoured at 300 gamma intervals.

DISCUSSION OF RESULTS:

The magnetometer survey revealed several anomalies. Most of the anomalies trend north to northwest, and coorelate well to the geology.

On Line 293N, trenching indicated the magnetometer highs were caused by disseminated pyrrhotite parallel to the foliation in a quartz-biotite schist. Chalcopyrite up to 0.4% Cu was found associated with the pyrrhotite.

Another anomaly exists west of the baseline, stretching from Lines 496N to 498 + 50N. This anomaly was trenched and is partly exposed, and was found to contain mineralization similar to that found on Line 293N.

Finally, one other anomaly between Lines 497N and 498N was found. This anomaly remains untested.

VLF-EM SURVEY

INTRODUCTION:

The receiver used for the survey was manufactured by Sabre Electronic Instruments Limited, of Burnaby, B.C. The transmitter is located in Seattle, Washington, and transmits at a frequency of 18.6 kHz. The VLF is a Model 27.

During the course of the survey, the tilt angle null (in degrees) and field strength were recorded at 25 meter intervals. A total of 15.4 line kilometers were surveyed.

FIELD PROCEDURES:

With the V.L.F. receiver held horizontally, the instrument is rotated in the plane until a null is observed. In this position, the coil axis points in the direction of the transmitter. This defines a vertical plane, perpendicular to the transmitter.

The receiver is then held in this vertical plane (operator facing the transmitter) and rotated until a minimum signal is observed. The dip angle of the null is read on the receiver inclinometer and recorded. The following sign convention is used:

1) Top of the coil axis to the right of operator - sign positive
2) Top of the coil axis to the left of operator - sign negative

PRESENTATION OF RESULTS:

The VLF-EM dip angle results are plotted on a grid plan map at a scale of 1:2500. The resultant dip angles are shown as continuous profiles with a vertical scale of 1cm = 20°. In addition the data have been filtered using the Fraser Method, and the filtered data plotted.

DISCUSSION OF RESULTS:

The filtered data, in turn has been contoured at 5 degree intervals. The anomalies generally trend north to northwest, and appear geologically controlled.

However, the VLF-EM trends have not been explained. Known low grade chalcopyrite and pyrrhotite did not respond. The anomalies that exist do not coincede with the magnetometer highs.

Therefore a series of north to northwest trending conductors remain to be tested. These exist between lines 498N to beyond line 504N.

These anomalies appear to border on the east side of the diorite pluton. They occur as discontinuous pods, rather than a continuous band as one would expect in a stratigraphic conductor like graphitic schist; for example.

SUMMARY AND CONCLUSION:

1. Trenching in the area established the existence of low grade chalcopyrite-pyrrhotite mineralization hosted within a quartz-biotite schist. It is probable this is remobilized or contact metasomatic mineralization as a result of the emplacement of the diorite intrusion.
2. Further trenching in the area can be ruled out due to the depth of overburden (+7.0 meters).
3. Although the low grade chalcopyrite-pyrrhotite fully explains the magnetometer anomalies, the VLF-EM conductor remains unexplained. On further observation, is the VLF-EM conductor appears to coincede with magnetic lows.

APPENDIX I

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Thomas D. Lewis of the City of Kamloops, Province of British Columbia, do certify that:

1. I have been employed as a geologist by Noranda Exploration Company, Limited since April, 1979.

2. I am a graduate of Queen's University with a Bachelor of Applied Science in Geology (1975).

3. I am a member of the Association of Professional Engineers of the Province of British Columbia.

4. I am a member of the Canadian Institute of Mining and Metallurgy.

PROFESSIONAL PROVINCE OF THOMAS D. LEWIS BRITISH COLUMBIA ENGINEER

Thomas D. Lewis, P. Eng.,
Geologist,
Noranda Exploration Company, Limited
(No Personal Liability)

APPENDIX II

STATEMENT OF COST

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT MAXWELL CREEK DATE January 13, 1983

TYPE OF REPORT Geology and Geophysics

a) Wages:

No. of Days	23	
Rate per Day $	117.07	
Dates From:	June 19, 1982 - December 31, 1982	
Total Wages	23 x $ 117.07	2,692.53

b) Food and Accomodation:

No of days	23	
Rate per day $	29.68	
Dates From:	June 19 - December 31, 1982	
Total Cost	23 x $ 29.68	682.64

c) Transportation:

No of days	23	
Rate per day $	47.79	
Dates From:	June 19 - December 31, 1982	
Total Cost	23 X $ 47.79	1,099.26

d) Instrument Rental:

Type of Instrument		
No of days		
Rate per day $		
Dates From:		
Total Cost	X $	

Type of Instrument		
No of days		
Bate per day $		
Dates From:		
Total Cost	X $	

f) Analysis
(See attached schedule)

g) Cost of preparation of Report

Author	234.14
Drafting	234.14
Typing	117.07

h) Other:
Contractor

Total Cost $5,509.78

e) Unit costs for	Geology		
No of days	23		
No of units			
Unit costs	34.44 / Day		
Total Cost	23 ×	34.44	792.09

Unit Costs for Geophysics		
No. of Units	9.3 Km	
Unit Cost	458.89	
Total Cost	9.3 X 458.89	4,267.69
		$5,059.78

APPENDIX III

HORIZONTAL LOOP EM SURVEY

FOLLOW-UP ELECTROMAGNETIC SURVEY

INTRODUCTION:

In December, 1982, Noranda performed a Horizontal Loop EM survey to test a VLF-EM conductor detected earlier in the year. The operators were: Lyndon Bradish, Kevin Lillie and Ivor Saunders, all employees of Noranda Exploration Company, Limited.

EQUIPMENT AND METHODS:

The instrument used was a Max-Min EM manufactured by Apex Parametrics Limited.

The instrument consists of a transmitting coil and a receiving coil connected by a reference cable either 25, 50, 100, 150, 200 or 250 meters in length.

The transmitting coil produces a primary electromagnetic field (e.m.f.) at either 222, 444, 888, 1777 or 3555 Hz which is capable of inducing a current within a conductive body. This current in turn produces its own e.m.f. which is termed the "secondary". The receiving coil measures the total intensity of the primary e.m.f. plus any resultant secondary e.m.f. It also breaks the component by means of the reference cable.

Two coils are used as an in-line system traversing across the presumed geological strike. If the two coils straddle a conductor, the primary and resultant secondary field oppose each other causing a decrease in total field strength or a negative reading. In shallow overburden, a positive shoulder will occur when both coils are just off to one side of the conductor.

An indication of the conductivity of the body can be obtained by measuring the ratio of the in-phase to the out-of-phase. As the conductivity of the body decreases the stronger the out-of-phase component will be.

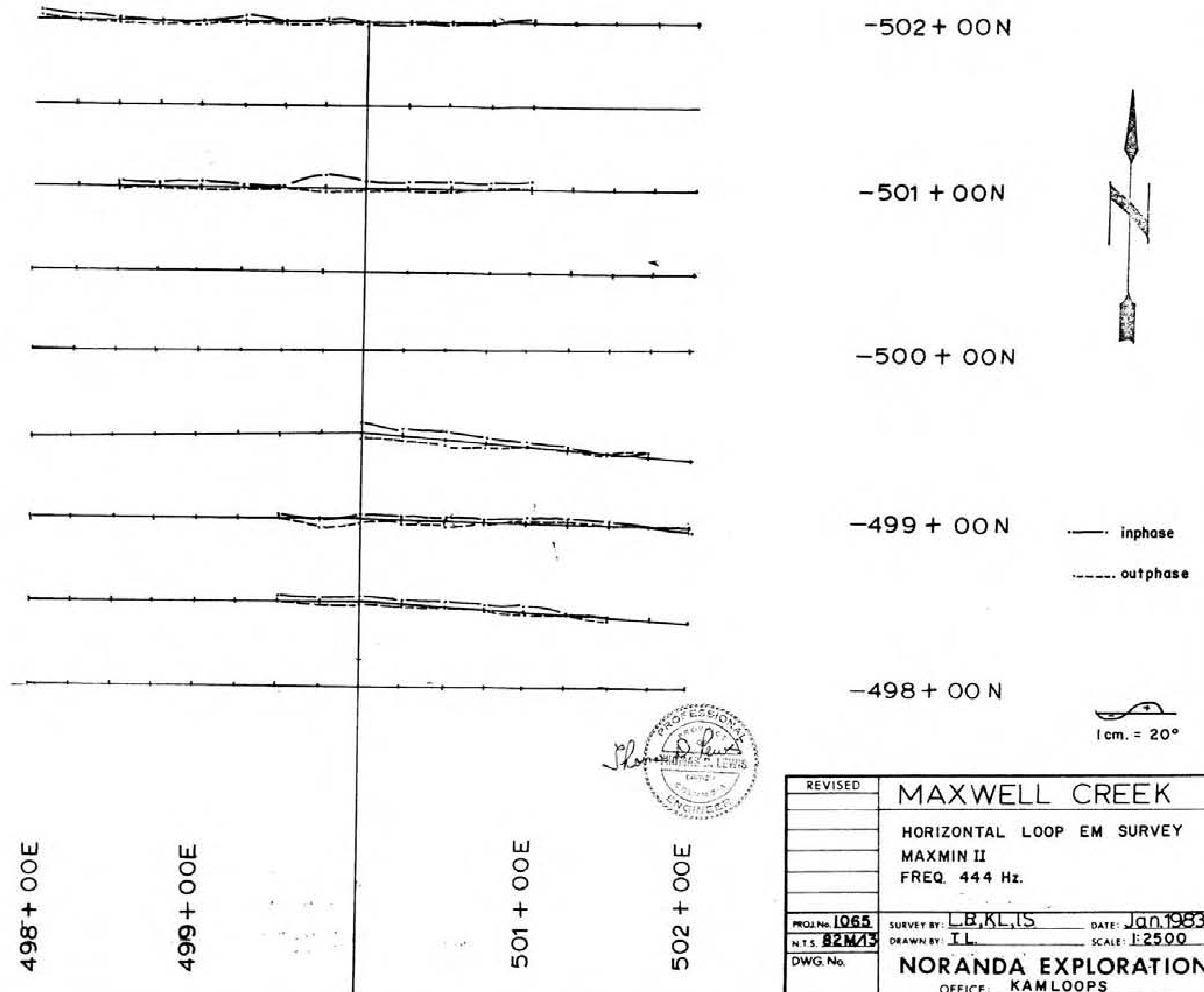
The range of penetration of the primary field is normally considered to be approximately one-half the coil separation; however, other factors such as conductive overburden and topography must also be taken into consideration.

PRESENTATION OF RESULTS:

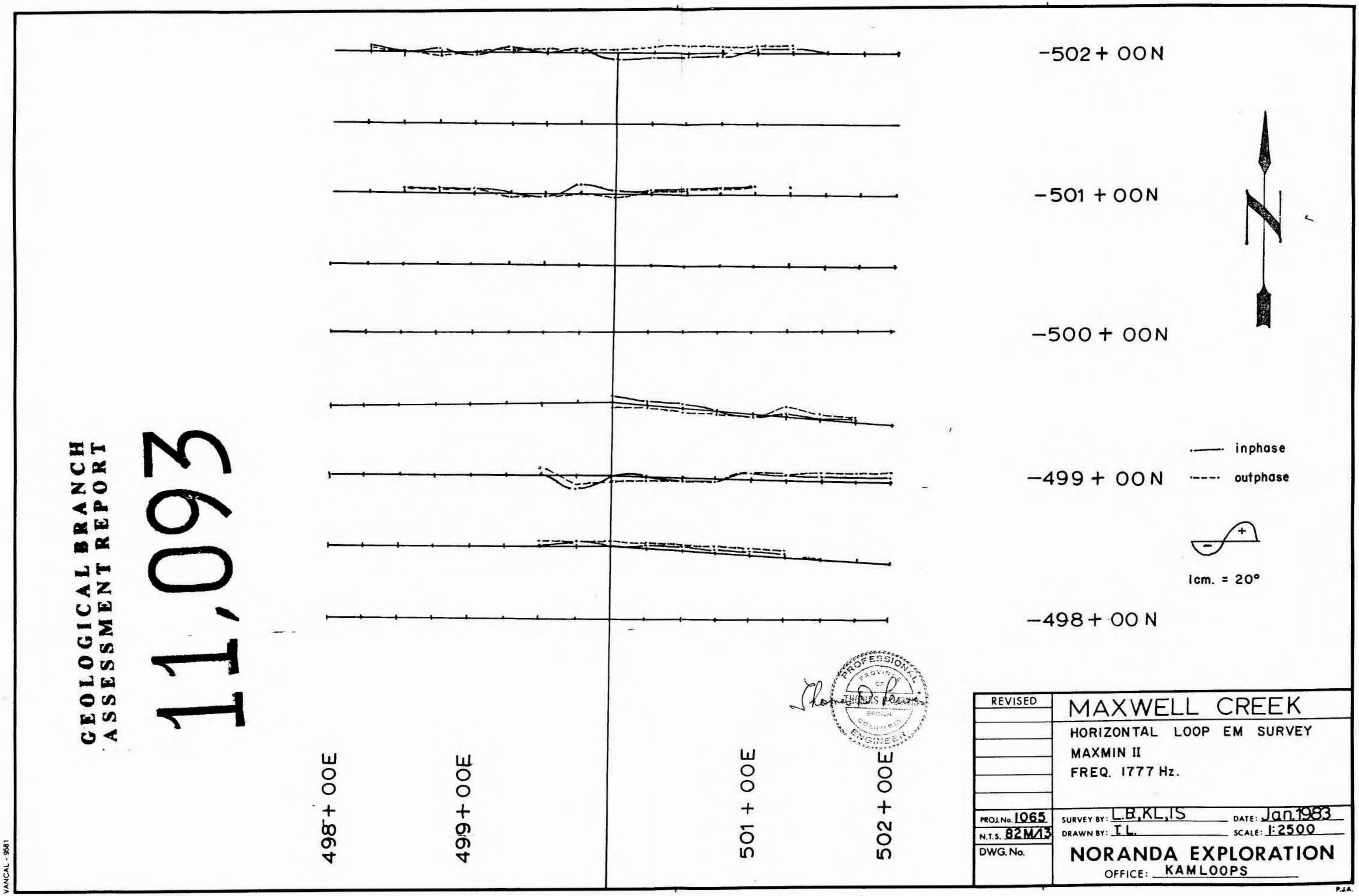
The profiles of the Horizontal Loop EM survey were plotted on two 1:5,000 scale drawings (see dwgs. 1&2, in appendix III). These results suggest the absence of a massive sulphide type conductor in the area tested.

RECOMMENDATIONS AND CONCLUSIONS:

1. The possibility of massive sulphide mineralization in the area tested appears minimal.
2. The option should be dropped, and the property returned to Mr. Andy Horne.

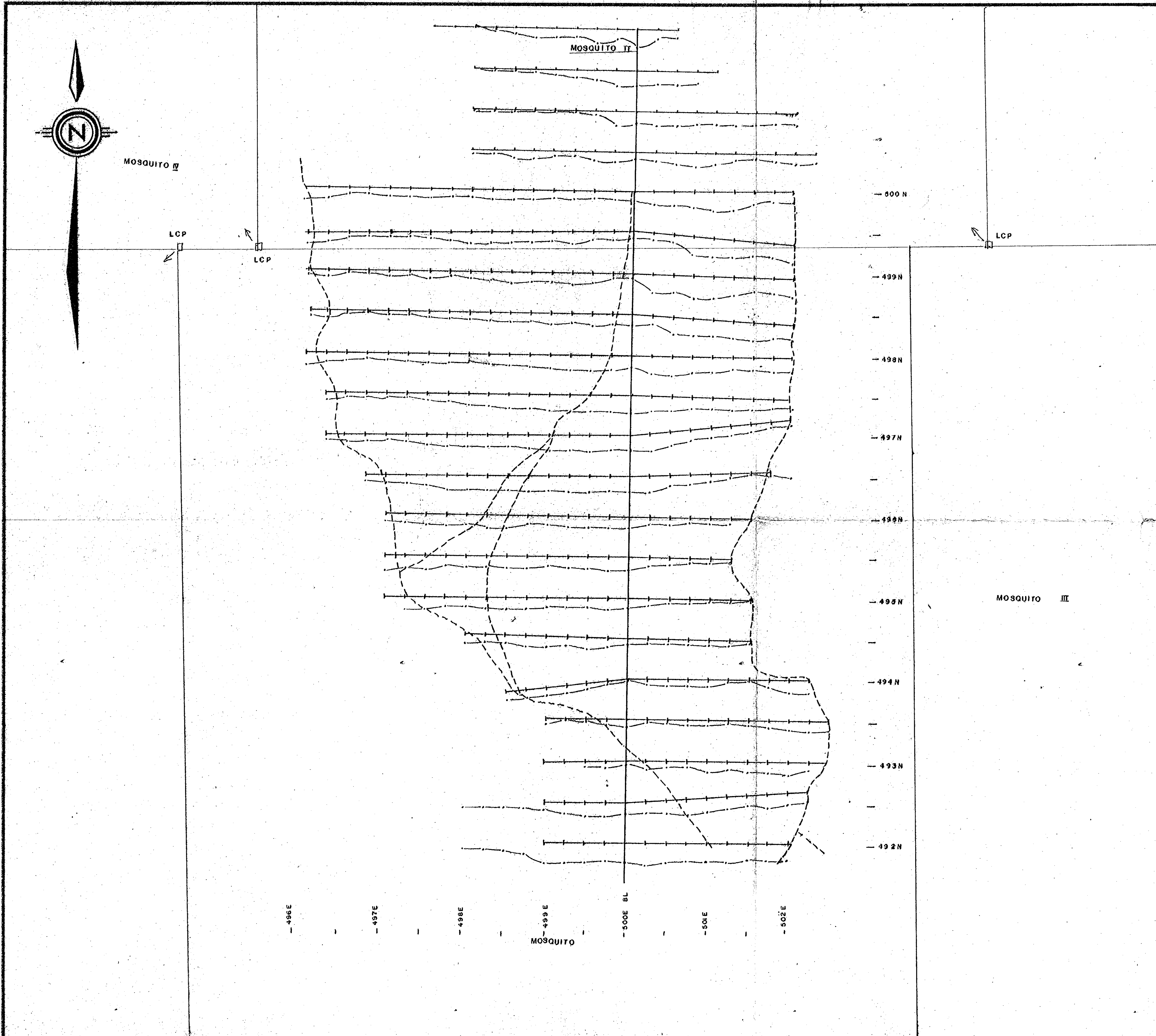


REVISED	MAXWELL CREEK
	HORIZONTAL LOOP EM SURVEY MAXMIN II FREQ. 444 Hz.
PROJ. No. 1065 N.T.S. 82M/13 DWG. No.	SURVEY BY: L.B, K.L, I.S. DATE: Jan. 1983 DRAWN BY: T.L. SCALE: 1:2500 NORANDA EXPLORATION OFFICE: KAMLOOPS



-502 + 00N
-501 + 00N
-500 + 00N
-499 + 00N
-498 + 00N
498 + 00E
499 + 00E
501 + 00E
502 + 00E
inphase
outphase
1cm. = 20°
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,093
PROFESSIONAL
ENGINEER
REVISED
MAXWELL CREEK
HORIZONTAL LOOP EM SURVEY
MAXMIN II
FREQ. 1777 Hz.
PROJ.No. 1065
N.T.S. 82M/13
DWG. No.
SURVEY BY: L.B,KL,IS
DRAWN BY: I.L.
DATE: Jan.1983
SCALE: 1:2500
NORANDA EXPLORATION
OFFICE: KAMLOOPS
VANCAL - 9581


MOSQUITO II
MOSQUITO IV
MOSQUITO III
MOSQUITO
LCP
CLAIM BOUNDARY
500 N
499 N
498 N
497 N
494 N
493 N
LEGEND
ROCK TYPES
1 quartz muscovite schist
2 quartz biotite schist
3 amphibolite
4 diorite
SYMBOLS:
foliation
fault
outcrop
geological contact
trench
logging road
cp chalcopyrite
po pyrrhotite
py pyrite
4 cp - po float
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,093
To Accompany: Geological & Geophysical Report on the
Maxwell Creek Group located in the Kamloops Mining Division, B.C.,
By: T.D. Lewis, P.Eng.
REVISED
MAXWELL CREEK
GEOLOGICAL PLAN
PROJ. No 1065
N.T.S. 82M/13E
DWG No
82M-13E-82-18
SURVEY BY T.L., L.L.
DRAWN BY T.L.
DATE JULY 1982
SCALE 1:2500
NORANDA EXPLORATION
OFFICE KAMLOOPS



GEOLOGICAL BRANCH
ASSESSMENT REPORT

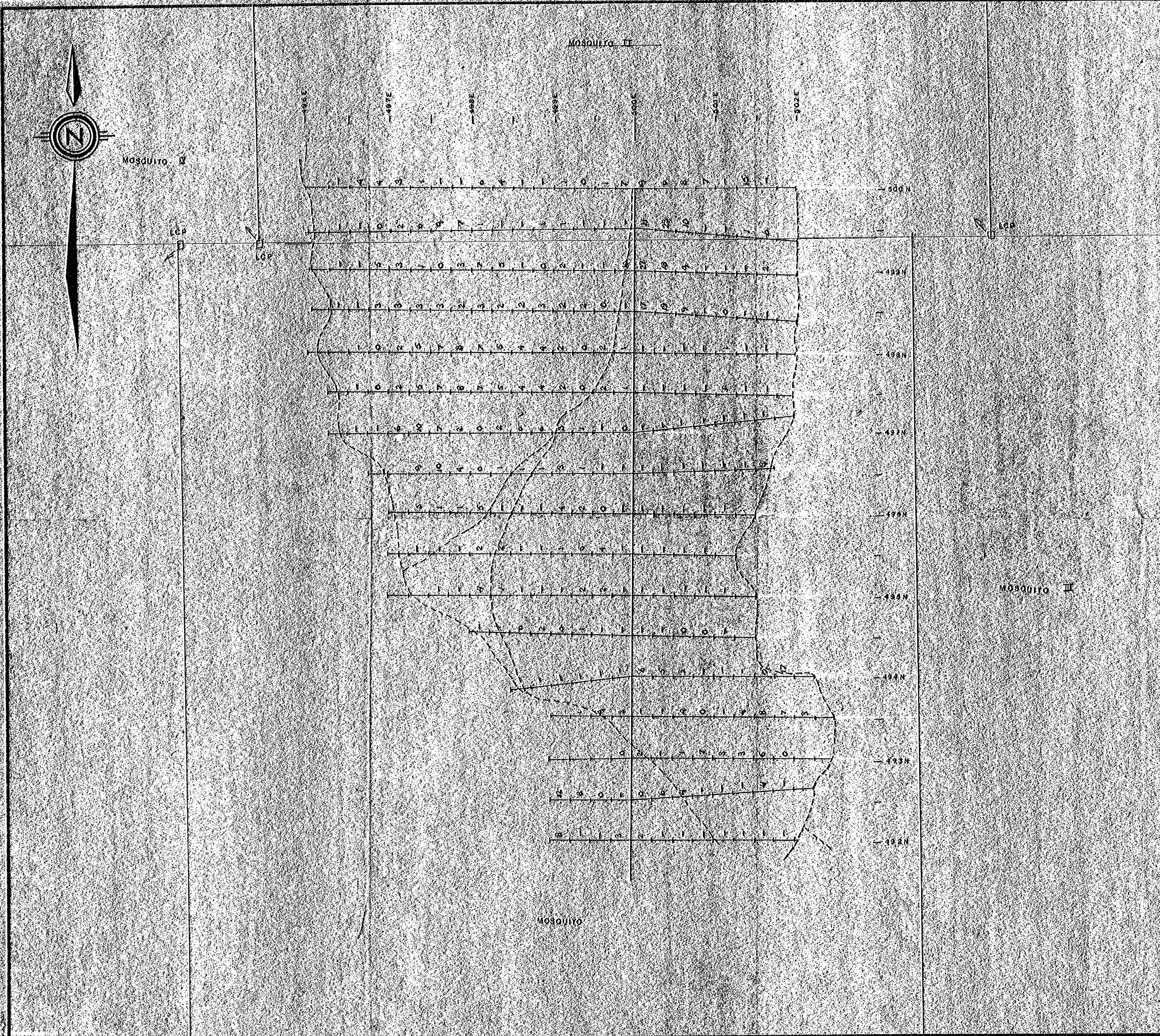
11,093

To Accompany: Geological & Geophysical Report on the Maxwell Creek Group located in the Kamloops Mining Division, B.C., By: T. D. Lewis, P. Eng.

REVISED	MAXWELL CREEK
	V.L.F. SURVEY, PROFILE
	SEATTLE 1cm = 20°
PROJ. No. 1065	SURVEY BY: IS, RW DATE: JULY 1982
N.T.S. 82M/13E	DRAWN BY: IS SCALE: 1:2500
DWG. No. 82M-13E-82-19	NORANDA EXPLORATION OFFICE: KAMLOOPS

To Accompany: Geological & Geophysical Report on the Maxwell Creek Group located in the Kamloops Mining Division, B.C., By: T.D. Lewis, P.Eng.

REVISED	MAXWELL CREEK
	MAGNETOMETER SURVEY
PROJ. No. 1066	L. WARNER — DATE JULY 1982
N.T.S. 82M/13E	DRAWN BY R. WIEWEL — SCALE 1:2500
DWG. No. 82M-13E-8020	NORANDA EXPLORATION OFFICE KAMLOOPS



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,093

To Accompany: Geological & Geophysical Report on the Maxwell Creek Group located in the Kamloops Mining Division, B.C., By: T.D. Lewis, P.Eng.

REVISED	
	MAXWELL CREEK
	V.L.F. SURVEY: FILTERED DATA
PROJ. No. 1066	SURVEY BY: R. WIEWEL DATE: JULY 1982
N.T.S. 82M/13E	DRAWN BY: R. WIEWEL SCALE: 1:2500
DWG. No. 82M.13E 82.21	NORANDA EXPLORATION OFFICE: KAMLOOPS