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REPORT ON THE

ON THE

82M/12 MC CLAIM GROUP

CLEARWATER AREA, B.C.

BY

NELS VOLLO, P.ENG.

JAN. 25TH, 1991

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SUMMARY

The MC Group is located near Clearwater in the southern interior of B.C. It is underlain by a belt of predominantly volcanic rocks in which significent mineral deposits have been found, including the Chu Chua copper deposit and the presently producing Samotosum silver deposit. Attractive targets have been developed on the MC Group by previous operators. One of these was tested by 630m of diamond drilling in six holes in 1990. Stringer lead-zinc-silver mineralization, characteristic of the footwall alteration commonly associated with volcanogenic sulfide deposits, was encountered, together with strong conformable pyrite mineralization, but economic values were not intersected. The area of stringer mineralization should be explored along strike and down dip, using a gravity survey followed by diamond drilling. A second target is readily accessible and should be tested by diamond drilling.

LOCATION AND ACCESS

The MC Group is located about 10 km south of Clearwater, which is in turn about 100 km north of Kamloops, in the southern interior of B.C. It is accessible by an excellent new logging road from Clearwater (Figs. 1 and 2).

HISTORY AND PREVIOUS WORK

The property was first staked by Barriere Reef Resources, subsequent to the discovery of the Chu Chua copper deposit by Craigmont Mines, in 1978. Craigmont, for which the writer was Exploration Manager at the time, optioned the property and conducted an airborne Dighem II Electromagnetic and magnetic survey over it. Several EM conductors with moderate associated geochemical response were defined by ground follow up, but due to difficult access at that time, were not drilled. Craigmont's drilling on the adjoining Foghorn property to the south proved to be dissapointing and the option was dropped.

Esso Resources optioned the ground in 1982, but most of their work was concentrated on the Foghorn portion to the south, with very little work on the present MC Group. An EM survey (Genie) was done over the present "A" anomaly area and a road started towards it. The road was not completed and no drilling was done. The option was dropped and the claims eventually lapsed.

Subsequent to the discovery of the Samotosum orebody in 1987, the writer reviewed the data on the MC area, and on comparison with data on the Samotosum, determined the known anomalies to be attractive targets. A new logging road was found to provide excellent access and the present MC group was staked. The property was optioned to Pilgrim Holdings who completed more detailed geophysical and geochemical work in 1988, confirming the original Craigmont anomalies. They were unable to maintain their interest and Initial Developers Ltd. obtained an option on the property in March of 1990.

CLAIMS

Two additional claims were staked for protection and the property now consists of eight MGS claims, for a total of 94 units, and eight 2 post claims (Fig. 2) as follows:

MC-1	Rec. No.	7181	6 units	expiry	07/21/95
MC-2	" "	7232	20 units	"	08/13/93
MC-3	" "	7233	12 units	"	08/13/93
MC-4	" "	7234	20 units	"	08/13/93
MC-5	" "	7867	4 units	"	06/28/93
MC-6	" "	7868	6 units	"	06/28/94
MC-7	" "	9403	20 units	"	05/23/94
MC-8	" "	9585	6 units	"	07/07/94
DN-1 to 8	"	Nos. 7876-83	8 units	"	07/11/93

All are in the Kamloops Mining Division and held by the writer.

REGIONAL GEOLOGY

The MC group is underlain by rocks of the Devonian to Mississipian Eagle Bay and Fennell formations. The Eagle Bay formation consists mostly of felsic volcanic tuffs and ignimbrites and appears to be conformably overlain by the Fennell formation basalts and tuffites. The rocks dip westerly, forming the east limb of a syncline (Fig. 1). Numerous sulfide deposits are present in the Eagle Bay - Fennell rocks, but only a few are of economic size and grade. The Samotosum deposit, near Johnson Lake, has a reported reserve of 600,000 tonnes grading 1100 g/t Ag, 1.8 g/t Au, 1.20% Cu, 3.50% Zn and 1.70% Pb, and is presently in production. The Chu Chua deposit contains 2,000,000 tonnes grading 2.00% Cu and production is under consideration. The Harper Creek deposit contains about 100,000,000 tonnes grading 0.40% Copper.

PROPERTY GEOLOGY

Four attractive drill targets have been defined, referred to as "A", "B", "C" and "D" (Fig. 1). Target "A" was tested by the 1990 program. It is in the southeast corner of the property and is at the apparent contact between rhyolites of the Eagle Bay formation and overlying Fennell basalts. Graphitic and siliceous tuffites ("exhalative" sediments) up to 400m thick are present along the contact. The area, 1700m above sea level, is subalpine in character, partly swampy, with very little outcrop. Road construction turned up boulders of mineralized rhyolite breccia between lines 5+00N and 7+00N (Fig. 3). An outcrop of rhyolite tuff just east of the map area strikes about 340^{o} and dips 30^{o} west.

Target "B" is located 1500 metres west of "A" and is 600 metres from the end of a logging road (Fig. 8). Strong twin conductors, on thin graphitic tuffite horizons in Fennell basalts, strike northerly for 2000 metres. A 200 metre portion of one of the conductors is overlain by soils with strongly anomalous lead, silver, zinc and copper. This target is stratigraphicly equivalent to the Chu Chua deposit. Strong magnetic dipole affects on the basalt-tuffite contacts indicate dips to be to the west.

Target "C" is located 1500 metres NNW of "B" and is at the same stratigraphic horizon. A weak EM conductor coincides with anomalous silver and zinc in soils (Fig. 9).

Target "D" is located about 3000 metres northwest of "C", and is about 3000 metres from the nearest road. A strong EM conductor, about 800 metres in length, coincides with weakly anomalous silver and zinc in soils (Fig. 10).

1990 DRILL PROGRAM

Target "A" consists of three to four, very strong, closely spaced parallel Dighem II airborne conductors, confirmed on the ground by VLF, HLEM (Genie) and detailed MAX-MIN surveys. The conductors are accompanied by weak, but distinctly anomalous soil zinc, lead, copper and silver. The anomaly area is about 1200 metres long by 250 metres wide and strikes northerly. Dip appears to be to the west. Six holes totalling 630 metres were drilled to test this area (Fig. 3) and are shown on vertical sections (Figs. 4 to 7).

Hole 90-1 on Section 200 North (Fig. 4) collared in black tuffite, and after passing through a fault zone, ended in similar rock, but with 10 to 15% pyrite. Hole 90-2, on the same section, 125m further east, collared in black tuffite and, after passing through a fault zone, ended in siliceous tuffite with up to 20% pyrite and minor visible lead and zinc sulfides.

Hole 90-3, drilled on Section 400 North (Fig.5), collared in rhyolite and, after passing through a zone of graphitic and siliceous tuffite, entered a broad zone of altered rhyolite and andesite with ubiquitous stringer lead and zinc mineralization. The best interval assayed 2.48% zinc, 0.88% lead and 40.0 g/t of silver over two metres. Hole 90-4, on the same section, 90m west of 90-3, collared in black tuffite and intersected a 15m zone of siliceous tuffite, with up to 35% pyrite and minor lead and zinc sulfides, on the contact to altered rhyolite. The rhyolite is pyritized and contains minor lead-zinc sulfides. This section confirms the dip of the rhyolite-tuffite contact to be about 35° to the west.

Hole 90-5, drilled on Section 600 North (Fig. 6), collared in rhyolite and, after passing through a fault zone and pyritic tuffite, entered a 14m zone of altered rhyolite containing about 20% pyrite, some in near massive beds or bands. The hole remained in altered and pyritized rhyolite, with minor lead-zinc mineralization, to the end.

Hole 90-6, on Section 900 North (Fig. 7), drilled to test a nprtheasterly striking conductor (Fig. 3), collared in a green dacite or quartz basalt, probably in the Fennell formation. It entered black tuffite with minor pyrite and traces of lead-zinc mineralization in late quartz veins.

CONCLUSIONS

The drilling program confirms the presence of conformable sulfide mineralization at the contact between Eagle Bay rhyolites and Fennell basalts, and that a sequence of siliceous and graphitic tuffites up to 400m thick is present along this contact. Extensive silicification and zinc-lead-silver stringer mineralization occurs in the rhyolites, suggestive of a volcanogenic hydrothermal center. Conformable massive sulfide bodies of economic size and grade can reasonably be expected in this environment, either along the rhyolite-basalt contact, along strike or down dip, or within the tuffite sequence.

The drill program, correlated with the geophysical surveys, suggests that the tuffite sequence is thickest in the vicinity of Section 200 North, and that it thins rapidly northwards. The southward extention is not known with certainty, as the Max-Min survey extends only to Section 000. Previous VLF and HLEM surveys, however, suggest that tuffite does not extend much further south. The rapid change in thickness may be due to filling of an original fault bounded basin or graben, or to post depositional faulting or deformation.

RECOMMENDATIONS

Massive sulfide bodies should be explored for both along strike and down dip from the area of known stringer mineralization. This could be done using systematic pattern drilling on an initial spacing of 200 metres, and would require several thousand metres of drilling. Geophysical methods can reduce the amount of drilling by locating specific targets. Surveys based on electrical properties are not likely to be effective in this case because of strong masking from the conductive graphitic tuffites. Also, potential ecomomic sulfide bodies are likely to be zinc rich, judging from the known stringer mineralization, and therefore poor conductors. Gravity surveys, which detect density differences, can detect sulfide bodies of economic size to considerable depths, and would be most suitable in this case.

It is recommended that a gravity survey be done over the present grid, with readings at 25m intervals on lines spaced 100m apart. Targets developed by such a survey should be tested by diamond drilling.

The "B" anomaly should be tested by at least one 100 metre hole. Approximately 600 metres of roadbuilding would be required.

The "C" and "D" anomalies should be tested by at least one hole each. THis could probably best be done by a light helicopter supported rig.

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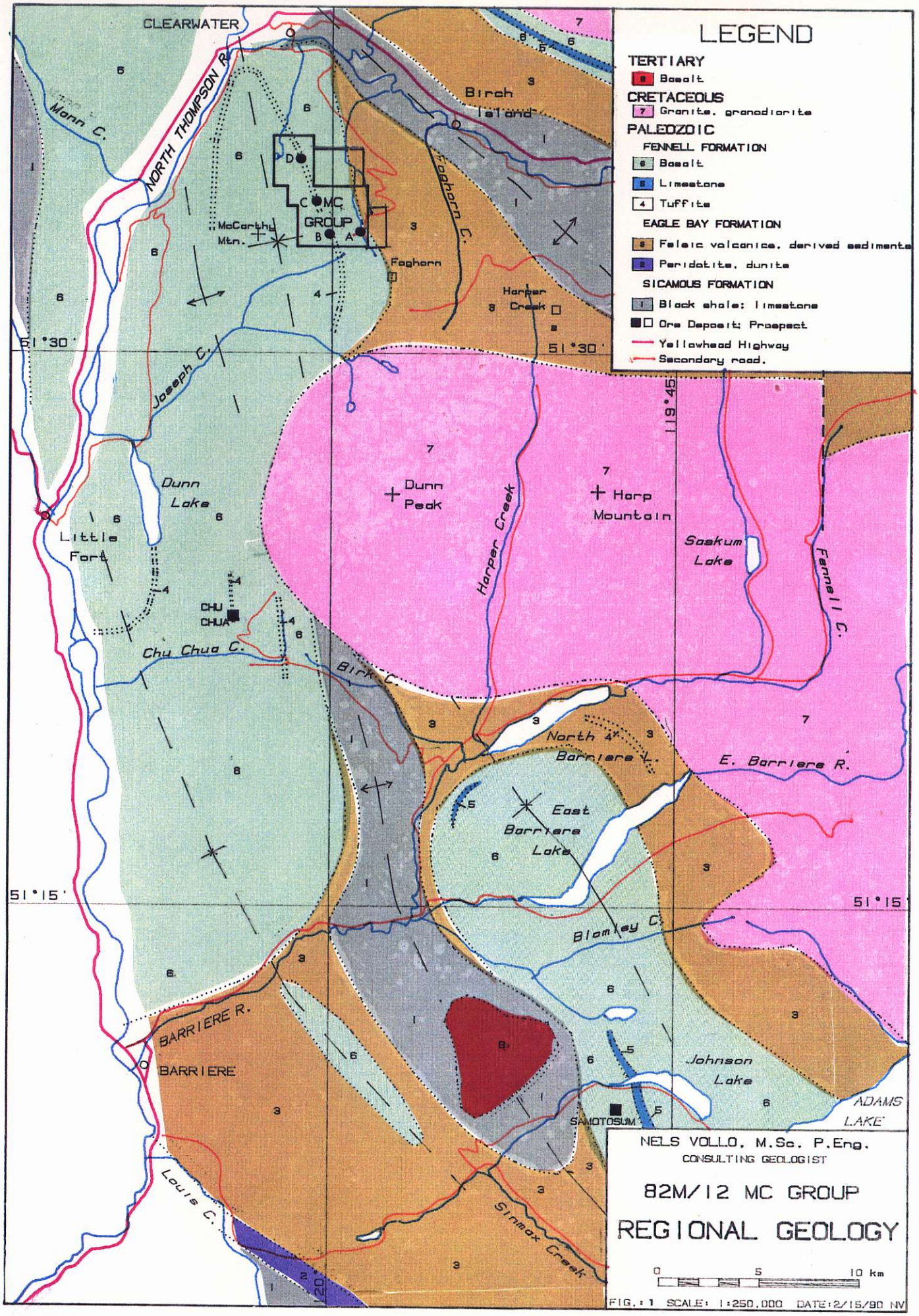
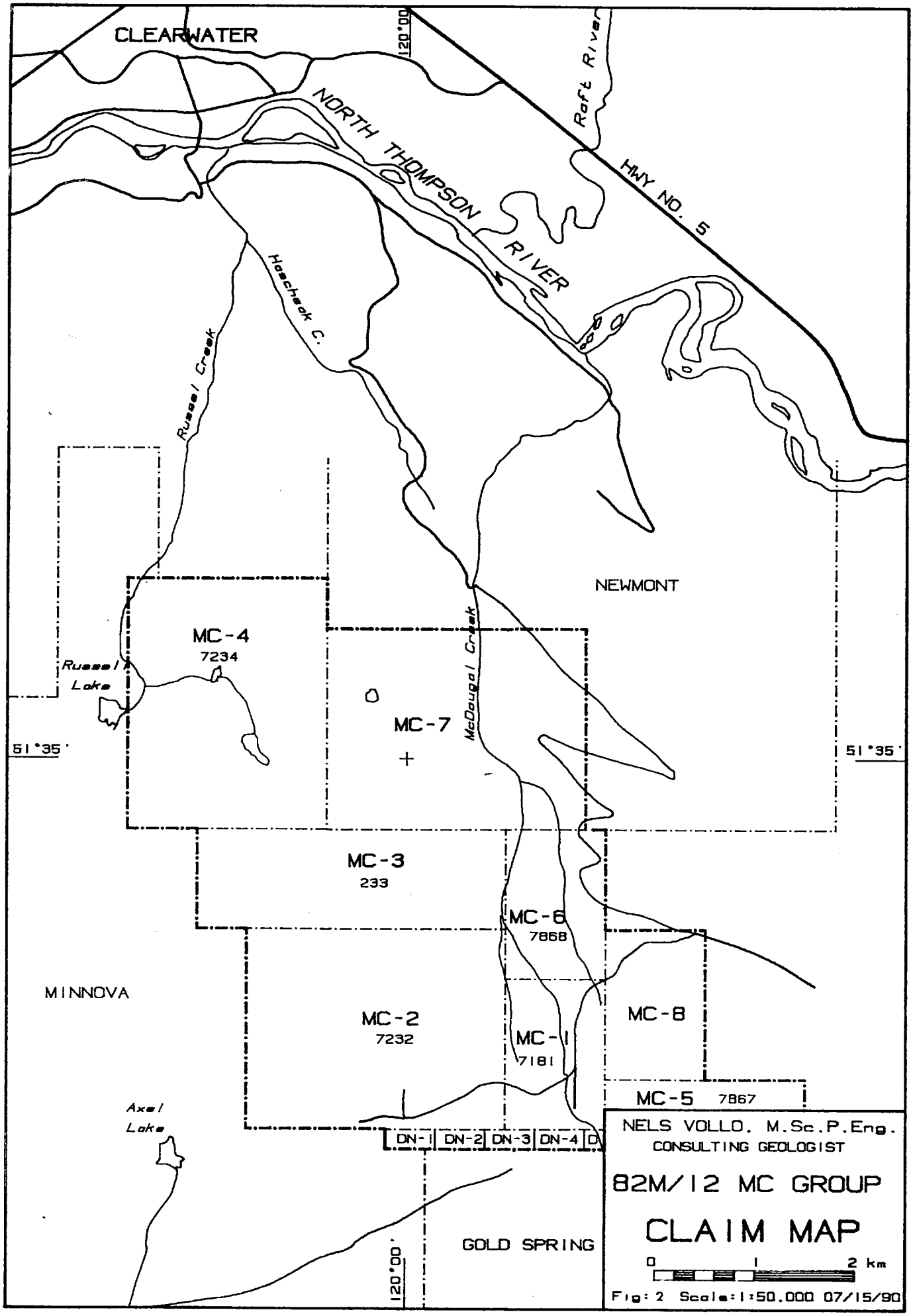
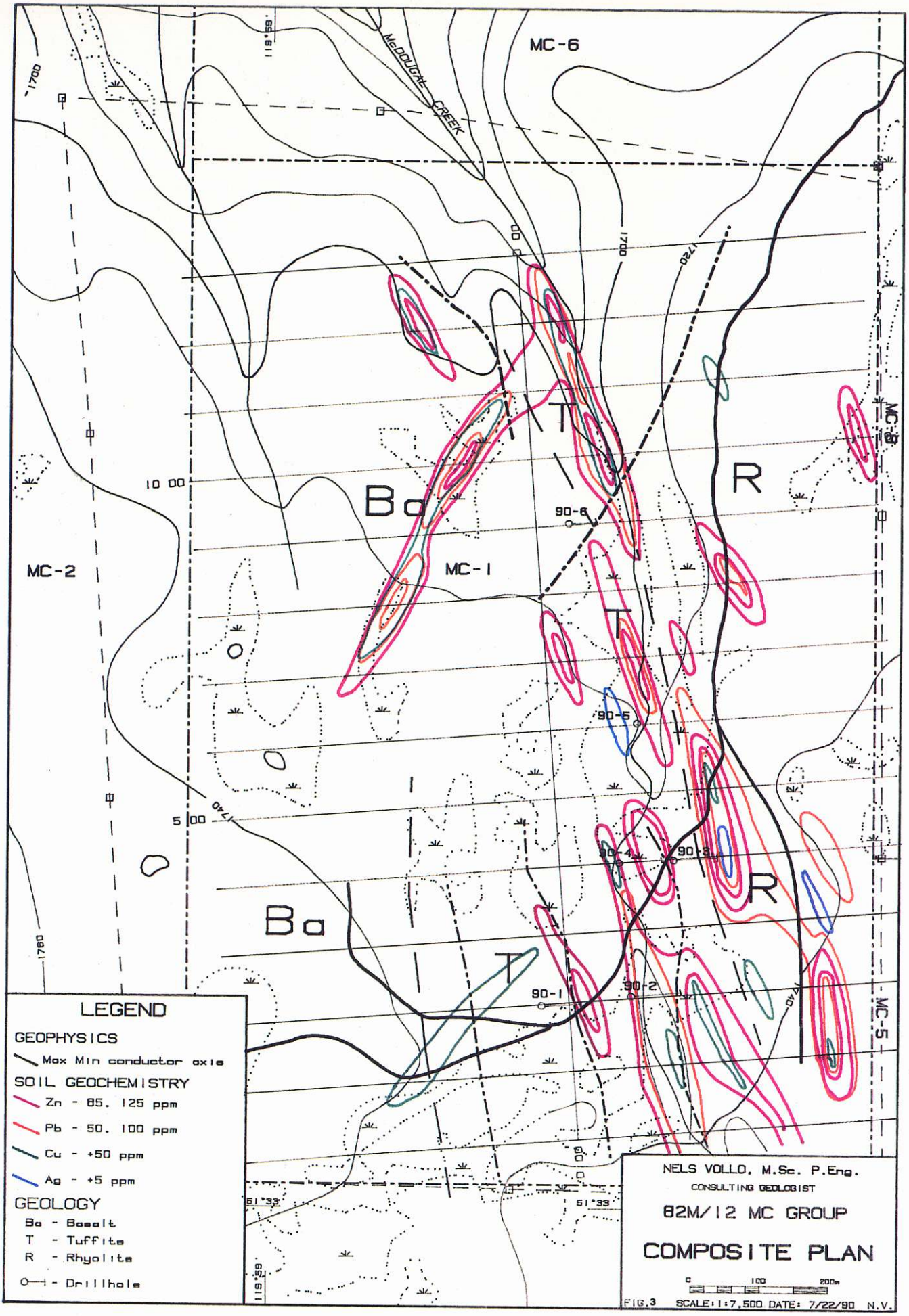
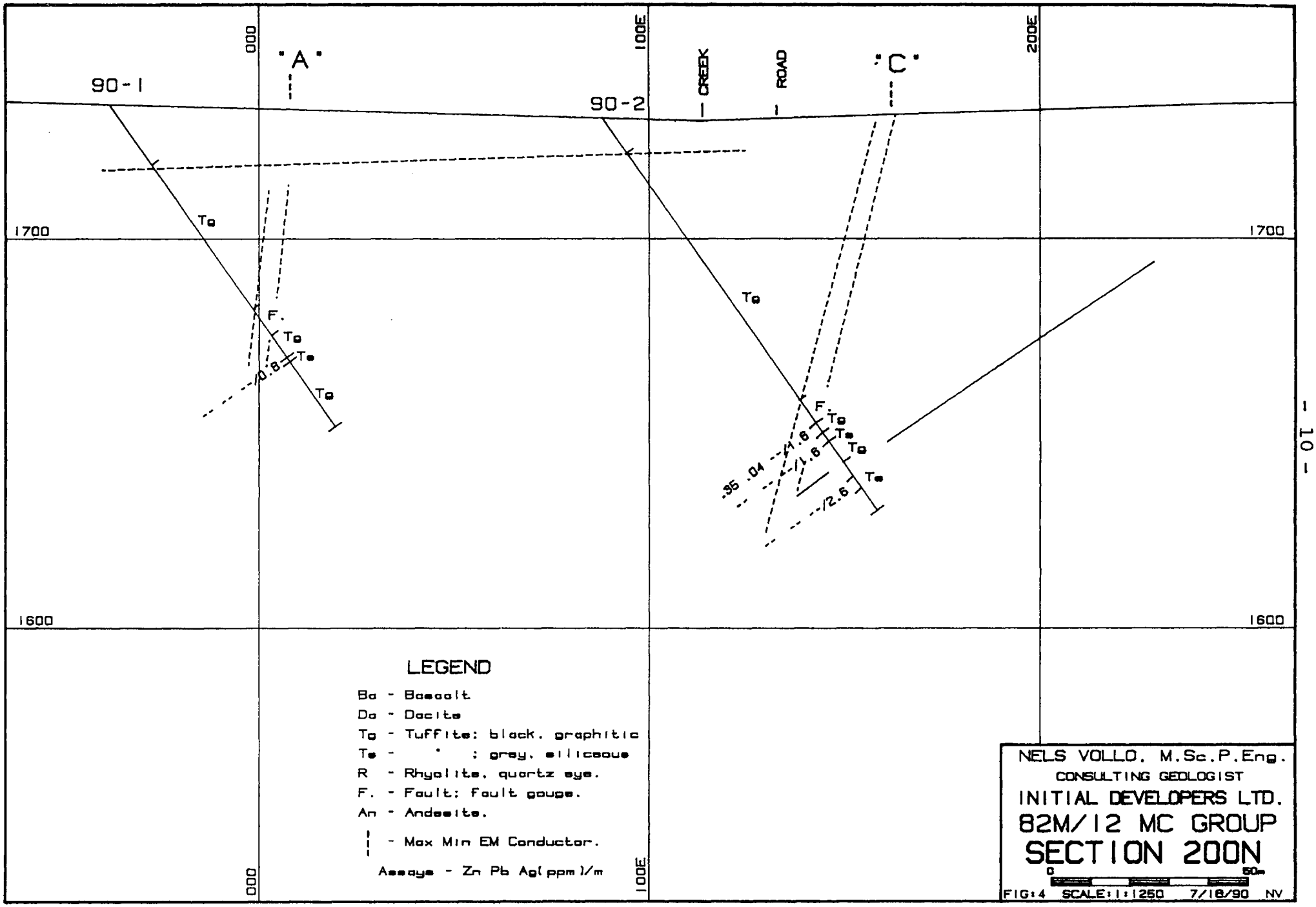
Nels Vollo, P.Eng
Jan. 25th, 1991


LEGEND
TERTIARY
8 Basalt
CRETACEOUS
7 Granite, granodiorite
PALEOZOIC
FENNELL FORMATION
6 Basalt
5 Limestone
4 Tuffite
EAGLE BAY FORMATION
3 Felsic volcanics, derived sediments
2 Peridotite, dunite
SICAMOUS FORMATION
1 Black shale; limestone
Ore Deposit; Prospect
Yellowhead Highway
Secondary road.
CLEARWATER
NORTH THOMPSON R.
Mann C.
Birch Island
Foghorn C.
McCarthy Mtn.
MC GROUP
Foghorn
Harper Creek
51°30'
Joseph C.
Dunn Lake
Little Fork
CHU CHUA
Chu Chua C.
Dunn Peak
Harper Creek
Horp Mountain
119°45'
Saskum Lake
Fennell C.
Birk C.
North Barriere L.
E. Barriere R.
East Barriere Lake
51°15'
Blomley C.
BARRIERE R.
BARRIERE
Johnson Lake
ADAMS LAKE
SAHOTOSUM
Louis C.
Sinmox Creek
120°
NELS VOLLO, M.Sc. P.Eng.
CONSULTING GEOLOGIST
82M/12 MC GROUP
REGIONAL GEOLOGY
0 5 10 km
FIG.: 1 SCALE: 1:250,000 DATE:2/15/90 NV


CLEARWATER
120°00'
Raft River
NORTH THOMPSON RIVER
HWY NO. 5
Hasheek C.
Russel Creek
NEWMONT
MC-4
7234
Russel Lake
MC-7
McDougal Creek
51°35'
51°35'
MC-3
233
MC-6
7868
MINNOVA
MC-2
7232
MC-1
7181
MC-8
MC-5 7867
Axel Lake
DN-1 DN-2 DN-3 DN-4 D
GOLD SPRING
120°00'
NELS VOLLO. M.Sc.P.Eng.
CONSULTING GEOLOGIST
82M/12 MC GROUP
CLAIM MAP
0 1 2 km
Fig: 2 Scale: 1:50.000 07/15/90

82M/12MC2


MC-6
MC-2
MC-1
MC-3
MC-5
McDOUGAL CREEK
Ba
T
R
90-1
90-2
90-3
90-4
90-5
90-6
1700
1720
1740
1760
10 00
5 00
51°33'
119°59'
LEGEND
GEOPHYSICS
Max Min conductor axis
SOIL GEOCHEMISTRY
Zn - 85. 125 ppm
Pb - 50. 100 ppm
Cu - +50 ppm
Ag - +5 ppm
GEOLOGY
Ba - Basalt
T - Tuffite
R - Rhyolite
Drillhole
NELS VOLLO. M.Sc. P.Eng.
CONSULTING GEOLOGIST
82M/12 MC GROUP
COMPOSITE PLAN
0 100 200m
FIG.3 SCALE: 1:7,500 DATE: 7/22/90 N.V.



LEGEND

Ba - Basalt
Da - Dacite
Tg - Tuffite: black, graphitic
Te - " : grey, siliceous
R - Rhyolite, quartz eye.
F. - Fault: Fault gouge.
An - Andesite.
| - Max Min EM Conductor.
Assays - Zn Pb Ag(ppm)/m

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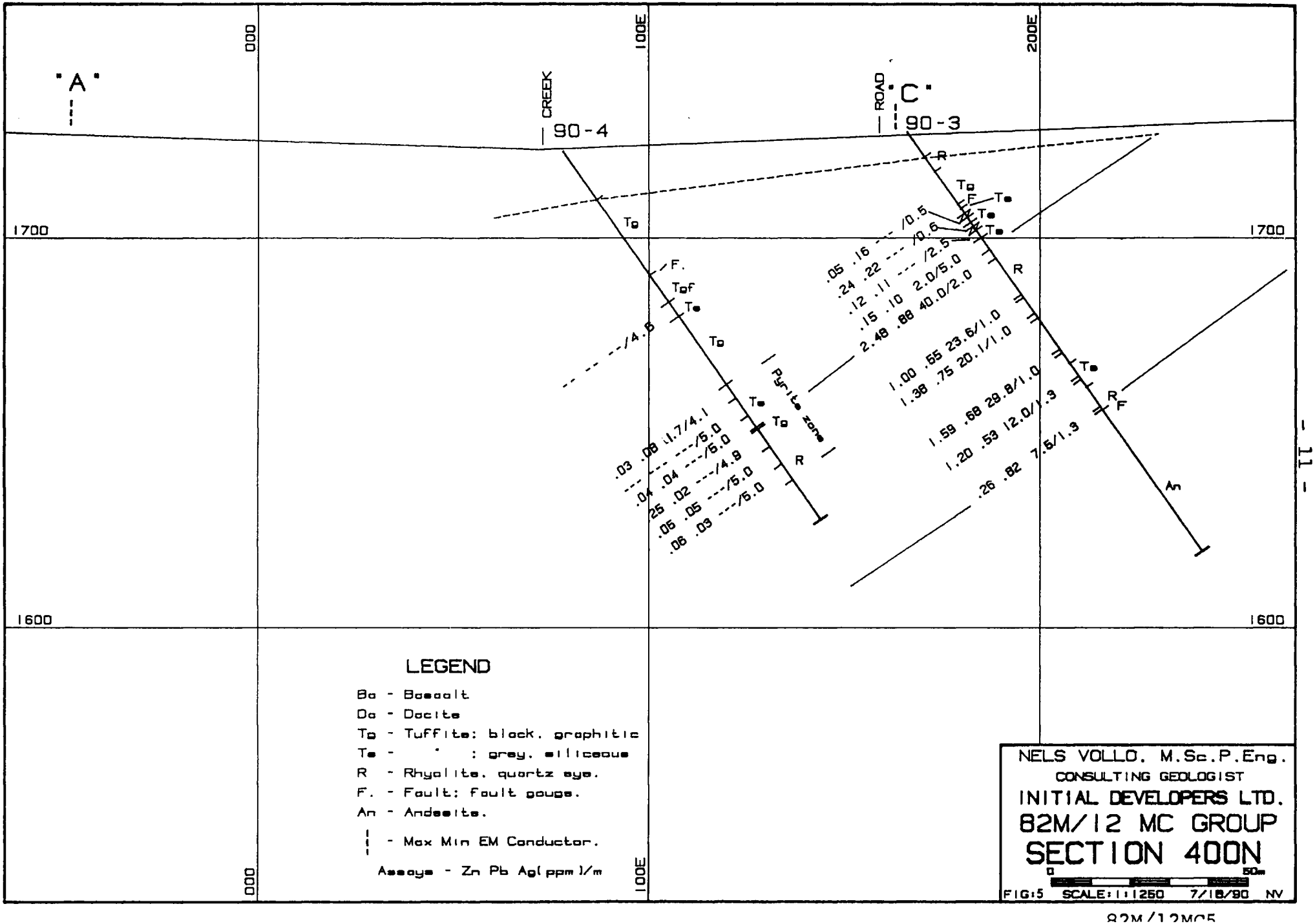
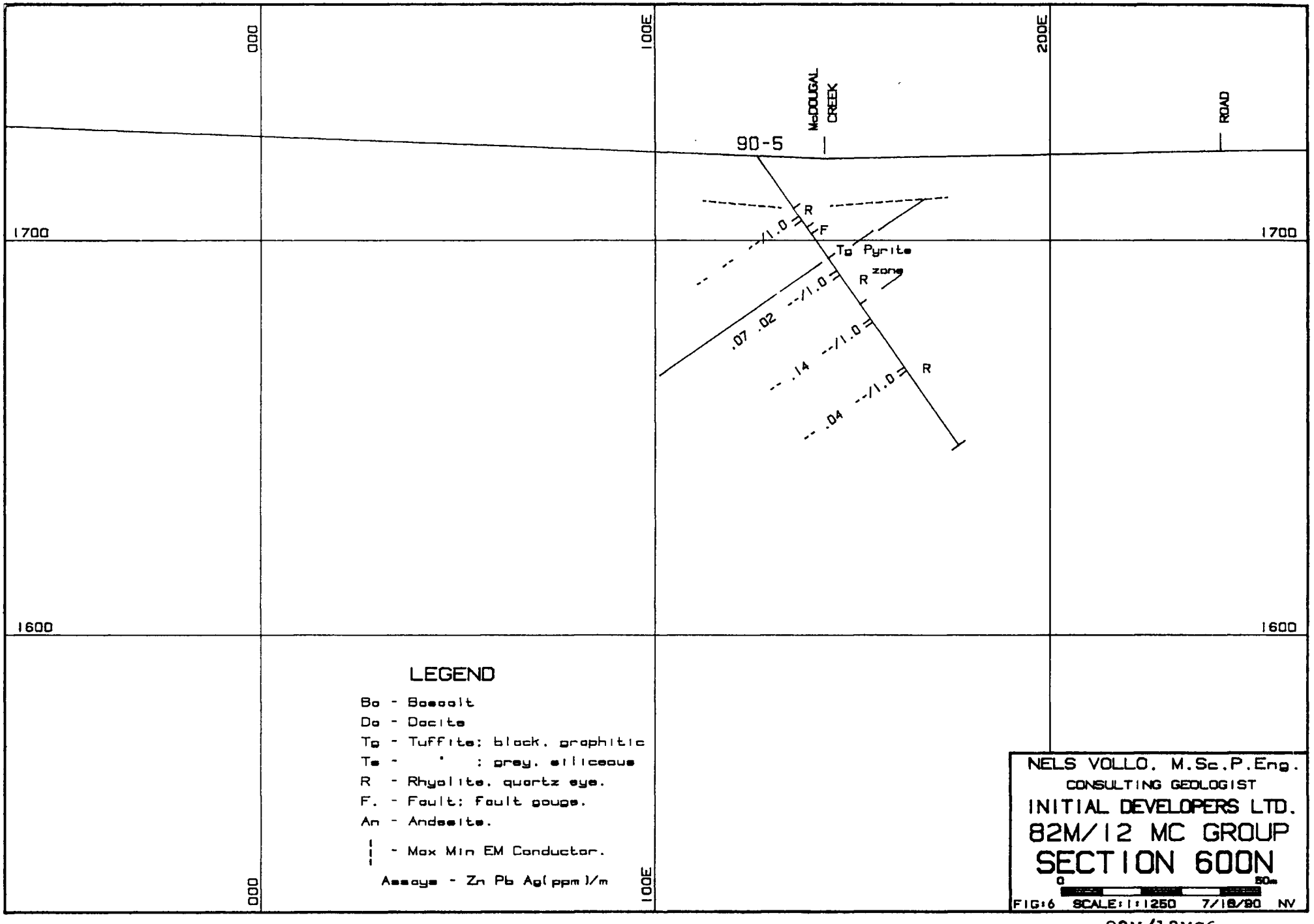
CONSULTING GEOLOGIST
INITIAL DEVELOPERS LTD.
82M/12 MC GROUP
SECTION 200N
0 50m
FIG:4 SCALE:1:250 7/18/90 NV

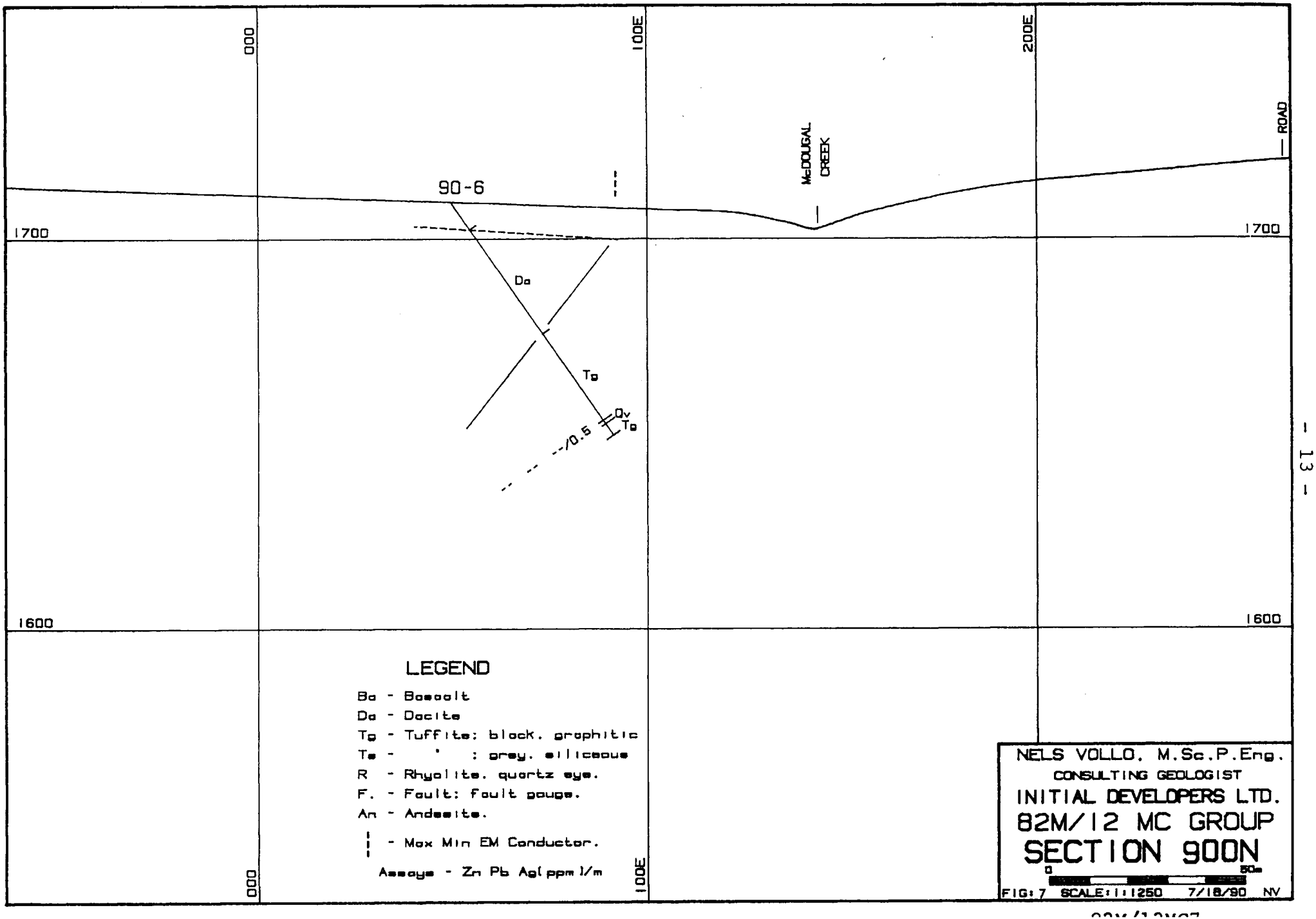
82M/12MC4


"A"
000
100E
200E
CREEK
ROAD
90-4
90-3
"C"
1700
1600
Tp
F.
TpF
Te
R
Pyrite zone
An
/4.6
.03 .08 11.7/4.1
/5.0
.04 .04 /5.0
.25 .02 /4.9
.06 .05 /5.0
.06 .09 /5.0
.05 .16 /0.5
.24 .22 /0.6
.12 .11 /2.5
.15 .10 2.0/5.0
2.48 .88 40.0/2.0
1.00 .55 23.6/1.0
1.38 .75 20.1/1.0
1.59 .68 29.8/1.0
1.20 .53 12.0/1.3
.26 .82 7.5/1.3
LEGEND
Ba - Basalt
Da - Dacite
Tp - Tuffite: black, graphitic
Te - " : grey, siliceous
R - Rhyolite, quartz eye.
F. - Fault: fault gouge.
An - Andesite.
- Max Min EM Conductor.
Assays - Zn Pb Ag(ppm)/m
NELS VOLLO, M.Sc.P.Eng.
CONSULTING GEOLOGIST
INITIAL DEVELOPERS LTD.
82M/12 MC GROUP
SECTION 400N
0
50m
FIG:5 SCALE:1:1250 7/18/90 NV

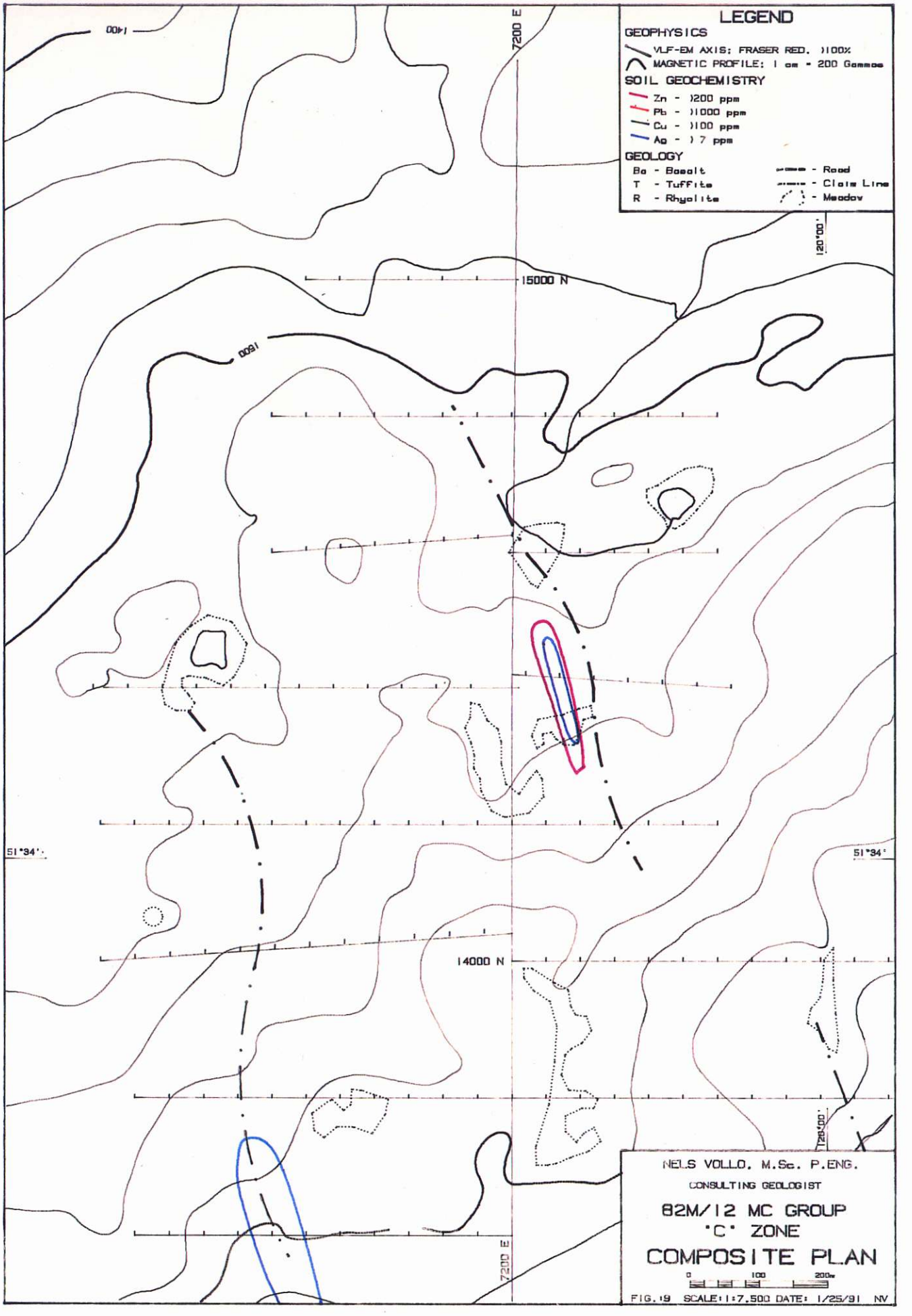
82M/12MC5

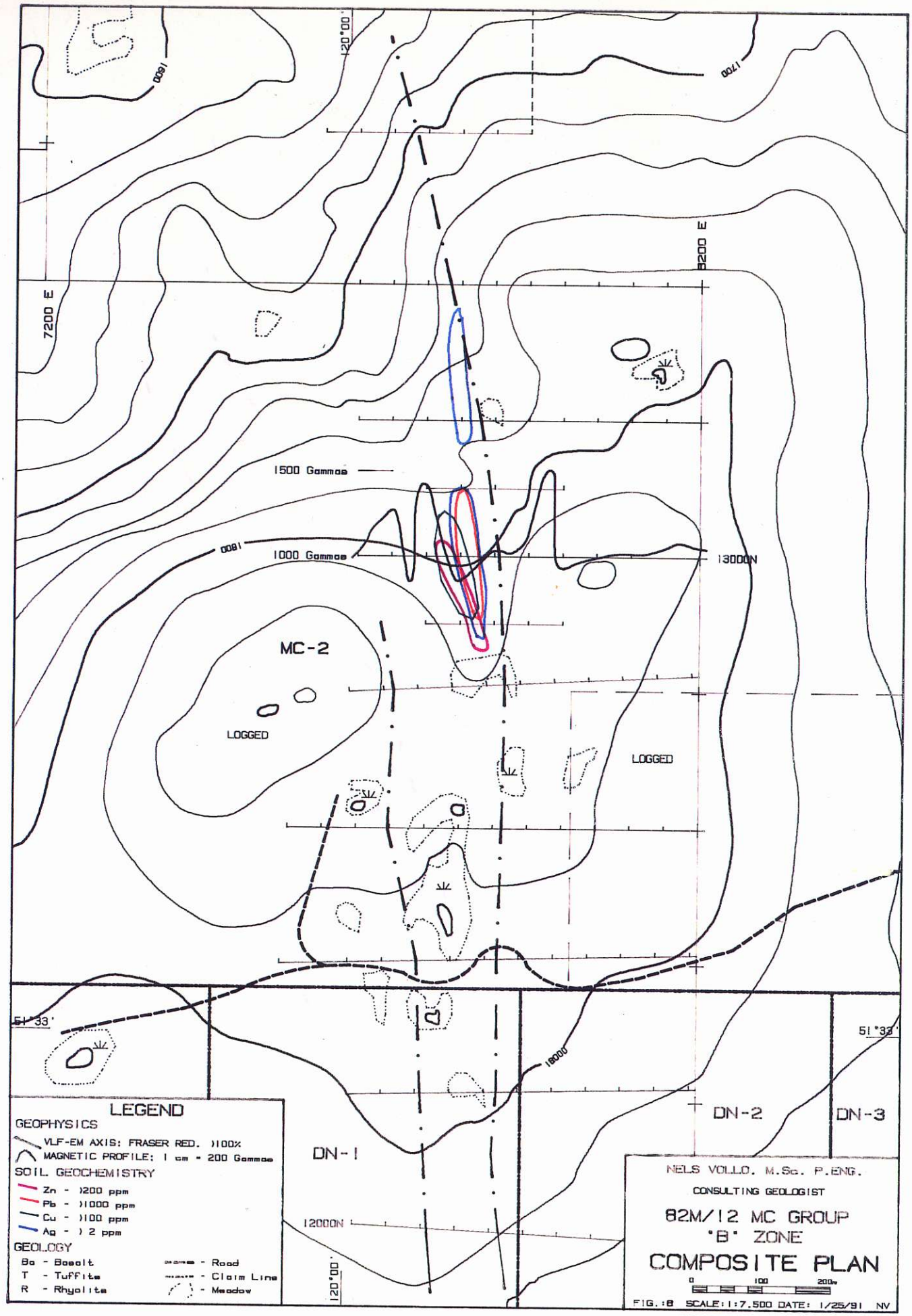

000
100E
200E
McDOUGAL CREEK
ROAD
90-5
1700
1600
R
F
/1.0
Tp Pyrite zone
.07 .02
.14
.04
LEGEND
Bo - Basalt
Do - Dacite
Tp - Tuffite: black, graphitic
Ts - " : grey, siliceous
R - Rhyolite, quartz eye.
F. - Fault: Fault gouge.
An - Andesite.
- Max Min EM Conductor.
Assays - Zn Pb Ag(ppm)/m
NELS VOLLO, M.Sc.P.Eng.
CONSULTING GEOLOGIST
INITIAL DEVELOPERS LTD.
82M/12 MC GROUP
SECTION 600N
0
50m
FIG:6 SCALE:1:1250 7/18/90 NV

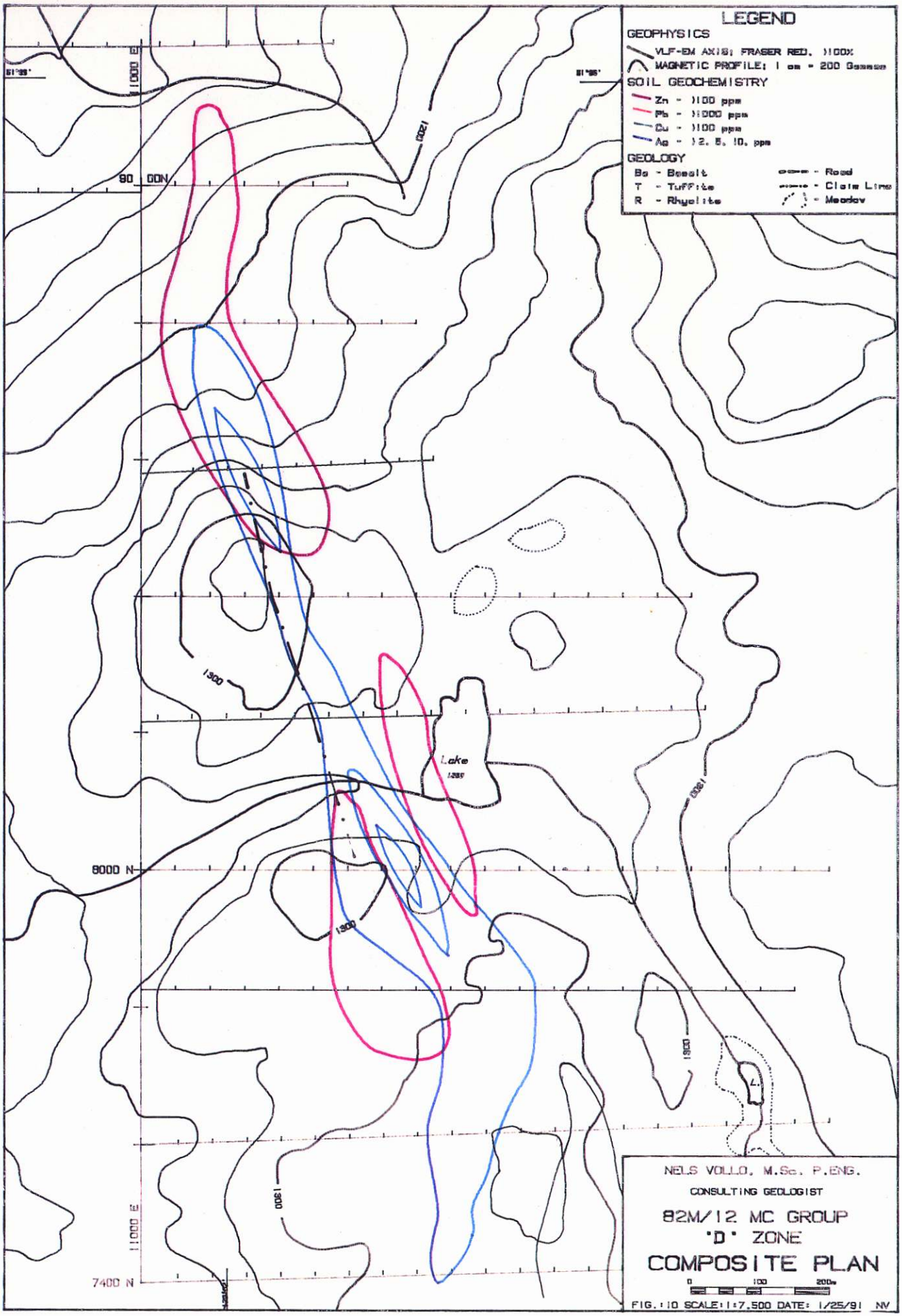
82M/12MC6


000
100E
200E
McDOUGAL CREEK
ROAD
90-6
1700
1700
Da
Tg
Qv
Tg
10.5
1600
1600
000
100E
LEGEND
Ba - Basalt
Da - Dacite
Tg - Tuffite: black. graphitic
Ts - ' : grey. siliceous
R - Rhyolite. quartz eye.
F. - Fault: fault gouge.
An - Andesite.
- Max Min EM Conductor.
Assays - Zn Pb Ag(ppm)/m
NELS VOLLO. M.Sc.P.Eng.
CONSULTING GEOLOGIST
INITIAL DEVELOPERS LTD.
82M/12 MC GROUP
SECTION 900N
0
50m
FIG: 7 SCALE: 1:1250 7/18/90 NV

82M/12W07


LEGEND
GEOPHYSICS
VLF-EM AXIS; FRASER RED.)100%
MAGNETIC PROFILE; 1 cm = 200 Gammas
SOIL GEOCHEMISTRY
Zn -)200 ppm
Pb -)1000 ppm
Cu -)100 ppm
Ag -) 7 ppm
GEOLOGY
Ba - Basalt
T - TuffFite
R - Rhyolite
- Road
- Claim Line
- Meadow
7200 E
15000 N
14000 N
51°34'
120°00'
1400
1600
NELS VOLLO. M.Sc. P.ENG.
CONSULTING GEOLOGIST
82M/12 MC GROUP
"C" ZONE
COMPOSITE PLAN
0 100 200m
FIG.19 SCALE:1:7,500 DATE: 1/25/91 NV


1600
1700
120°00'
8200 E
7200 E
1500 Gammas
1800
1000 Gammas
13000N
MC-2
LOGGED
LOGGED
51°33'
51°33'
18000
DN-1
DN-2
DN-3
12000N
120°00'
LEGEND
GEOPHYSICS
VLF-EM AXIS: FRASER RED. 100%
MAGNETIC PROFILE: 1 cm = 200 Gammas
SOIL GEOCHEMISTRY
Zn - 200 ppm
Pb - 1000 ppm
Cu - 100 ppm
Ag - 2 ppm
GEOLOGY
Ba - Basalt
T - Tuffite
R - Rhyolite
- Road
- Claim Line
- Meadow
NELS VOLLO. M.Sc. P.ENG.
CONSULTING GEOLOGIST
82M/12 MC GROUP
"B" ZONE
COMPOSITE PLAN
0 100 200m
FIG.:8 SCALE: 1:7,500 DATE: 1/25/91 NV


LEGEND
GEOPHYSICS
VLF-EM AXIS; FRASER RED.)100%
MAGNETIC PROFILE; 1 cm = 200 Gammas
SOIL GEOCHEMISTRY
Zn -)100 ppm
Pb -)1000 ppm
Cu -)100 ppm
Ag -)2, 5, 10, ppm
GEOLOGY
Ba - Basalt
T - Tuffite
R - Rhyolite
Road
Claim Line
Meadow
11000 E
90 DDN
1200
1300
Lake
8000 N
7400 N
NELS VOLLO, M.Sc. P.ENG.
CONSULTING GEOLOGIST
82M/12 MC GROUP
"D" ZONE
COMPOSITE PLAN
0 100 200m
FIG.: 10 SCALE: 1:7,500 DATE: 1/25/91 NV