

MAP NO.: ASSESSMENT REPORT X

DOCUMENT NO: 093002

106 D /11,14

PROSPECTUS

MINING DISTRICT: Mayo

CONFIDENTIAL X

TYPE OF WORK: Geochemical Sampling

OPEN FILE

Geological Mapping
Trenching.

REPORT FILED UNDER: Archer Cathro & Associates (1981) Ltd.

DATE PERFORMED: July 27 - August 18, 1991

DATE FILED: December 27, 1991

LOCATION: LAT.: 64°43'N

AREA: Hart River Area

LONG.: 135°13'W

VALUE \$: 17,600.00

CLAIM NAME & NO.:

Nick 1 - 126, YB02115 - YB02240,
Nick 127 - 138, YB02726 - YB02737,
Nick 139 - 147, YB03207 - YB03215,
Nick 148 - 182, YB03216 - YB03250.

WORK DONE BY: Robert C. Carne and I. J. Talbot.

WORK DONE FOR: Falconbridge Limited and NDU Resources Ltd, Pak-Man Resources Inc,
2001 Resource Industries Ltd.

DATE TO GOOD STANDING:

REMARKS: # 106 D - Hart River Area

Geological mapping and sampling, prospecting and hand trenching was carried out on the property to test the western extent of the massive sulphide mineralization. The massive sulphide horizon is composed of vaesite (NiS₂), pyrite, minor sphalerite and minor bitumen. The program failed to find any economic mineralization. To date the maximum thickness discovered is 10 cm.

ARCHER, CATHRO

& ASSOCIATES (1981) LIMITED

CONSULTING GEOLOGICAL ENGINEERS

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VANCOUVER, B. C. V6B 1L8

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Report on
GEOLOGICAL MAPPING, GEOCHEMICAL
SAMPLING AND HAND TRENCHING
at the
NICK PROPERTY, YUKON



FALCONBRIDGE LIMITED
NDU RESOURCES LTD.
PAK-MAN RESOURCES INC.
2001 RESOURCE INDUSTRIES LTD.

Nick 1-126	YB02115-YB02240
Nick 127-138	YB02726-YB02737
Nick 139-182	YB03207-YB03250



NTS 106D/11 AND 106D/14

Latitude 64°43'N; Longitude 135°13'W

I.J. Talbot, B.Sc., L.L.B.

R.C. Carne, B.Sc., M.Sc.

December, 1991

093002

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 \$ 17,600.00.

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

500813

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SUMMARY AND RECOMMENDATIONS

The Nick property is located in central Yukon Territory and hosts a unique type of stratiform, shale-hosted, nickel-zinc-platinum-bearing massive sulphide deposit. The only other documented occurrence of this type is presently being mined in southern China.

The Nick deposit occurs in Lower to Middle Devonian shales within an erosional outlier of Selwyn Basin. The outlier is surrounded by carbonate rocks of Mackenzie Platform. The massive sulphide horizon lies within a transitional zone underlain by calcareous shale and overlain by phosphatic chert and non-calcareous shale.

The massive sulphide horizon is composed of vaesite (NiS_2), pyrite, minor sphalerite and minor bitumen. The mineralization occurs as banded concretions, spherulites, framboids, disseminations and aggregates. Maximum thickness discovered to date in natural exposures and diamond drill holes is 10 cm.

The Nick mineralization grades up to 5.8% nickel and is associated with a distinctive suite of trace metals, in particular: platinum (up to 1000 ppb), palladium (up to 390 ppb), silver (up to 16.4 ppm), gold (up to 98 ppb), rhenium (up to 61 ppm), zinc (up to 1.56%), molybdenum (up to 3950 ppm), arsenic (up to 3930 ppm), and selenium (up to 4500 ppm). At current metal prices, Nick mineralization grading 3 to 5% Ni has a gross value of more than \$400.00 (Canadian) per tonne. Metal grades are moderately uniform throughout the property and economic potential is contingent upon the discovery of a massive sulphide body several metres in thickness.

The geological setting and chemistry of the vaesite-bearing horizon suggests derivation from Red Sea-type brines. The closest analogy to the Nick mineralization is probably the Howards Pass deposits where approximately 500 million tonnes of material grading 7.5% Zn+Pb have been outlined by drilling.

These reserves occur in three small fault-bounded(?) "Third-Order Basins" within a larger Silurian shale basin. As the Nick area, the stratigraphic position of the sulphide mineralization is marked by a persistent, basin-wide, metalliferous horizon overlain by phosphatic chert at the transition from calcareous to siliceous sedimentation.

Exploration programs in 1988, 1989 and 1991 consisted of diamond drilling, regional prospecting and mapping, hand trenching, and geochemical sampling. A 5 sq km area at the east end of the property, which contains the Discovery Zone, was the focus of 1154 m of diamond drilling and detailed geological mapping in 1988 and 1989. Drill results suggest that the mineralization in this area is a continuous sheet-like body which ranges between 0.5 and 10 cm in thickness.

Geological mapping, prospecting and hand trenching in 1989 and 1991 was carried out to test the western extent of the mineralization. The stratigraphy on the property was found to be relatively continuous but, although several new showings were discovered, a continuous, sheet-like basin-wide massive sulphide body is evidently not present on the property.

The 1989 and 1991 mapping and hand trenching programs suggest that the thickness and distribution of the vaesite-bearing horizon is likely related to paleotopographic depressions on the Devonian seafloor. These depressions are believed to be the product of differential subsidence along growth faults.

Additional work should consist of basin analyses studies comprising detailed structural and stratigraphic mapping to identify areas with high mineral potential for additional diamond drilling. A proposed budget for this work follows.

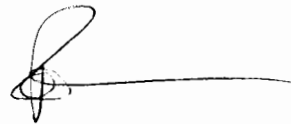
PROPOSED NICK PROPERTY 1992 EXPLORATION BUDGET

<u>Labour</u> - geologist for 50 days (office and field), field assistant for 25 days	\$15,000
<u>Helicopter</u> - 15 hours @ \$800/hr	12,000
<u>Orthophoto preparation</u>	12,000
<u>Office</u> - drafting, map printing	6,000
<u>Room and Board</u>	3,800
<u>Travel and Freight</u>	2,500
<u>Assessment Filing</u>	2,000
<u>Assays</u>	1,200
<u>Management</u>	2,000
	<u>\$56,500</u>
	Plus 7% GST -
	<u>3,955</u>
	TOTAL - <u>\$60,455</u>

Respectfully submitted,
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



I.J. Talbot, B.Sc., L.L.B.



R.C. Carne, B.Sc., M.Sc.

INTRODUCTION

This report details results of 1991 exploration on the Nick property as well as summarizing results of exploration programs carried out in 1988 and 1989. All three programs were conducted by Archer, Cathro & Associates (1981) Limited. The 1991 exploration was funded by Falconbridge Limited under a June, 1991 option agreement and consisted of geological mapping and hand trenching carried out between July 27 and August 18. The Authors' Statements of Qualifications are given in Appendix I with a list of personnel set out in Appendix II.

HISTORY

Evidence of base metal mineralization in the area of the Nick property was first recognized in 1977 when Geological Survey of Canada (GSC) Open File 418 reported strongly anomalous values for nickel, zinc and molybdenum from reconnaissance stream sediment samples. These samples were taken from creeks draining an 18 km long by 5 km wide area underlain by erosional remnants of Devonian black shale. The Nick mineralization was discovered in 1981 by Cominco geologists exploring the area for sedex lead-zinc-barium deposits. A specimen collected at that time from a 5 cm thick, conformable sulphide layer (the "Discovery Showing"), assayed 5.8% nickel and 0.8% zinc.

The area was first staked by the Cooke Yukon Syndicate in March, 1988 and optioned to Archer, Cathro in May of that year. The option was transferred in June, 1988 to a joint venture between NDU Resources Ltd. (50%), Pak-Man Resources Inc. (25%) and 2001 Resource Industries Ltd. (25%). In August and September, 1988 the joint venture carried out a program of geological mapping, geochemical sampling and diamond drilling (362 m in 4 holes) around the Discovery Showing.

Inco Limited optioned the Nick property from the joint venture in July, 1989 and performed 892 m of diamond drilling, geological mapping, prospecting and claim staking prior to terminating the option agreement in 1990.

PROPERTY LOCATION AND ACCESS

The Discovery Showing is located at 64°43'N and 135°13'W, within NTS claim sheet 106D/11, in the headwaters of the Hart River (Figures 1 and 2). It lies about 12 km northwest of the Hart Lake all-weather airstrip, suitable for DC-3 and smaller aircraft. Access is by helicopter from Hart Lake or the closest road, at McQuesten Lake, 70 km to the south. Hart Lake can be reached from McQuesten Lake by way of the Wind River winter road and a bulldozer trail along Nash Creek. The nearest airport and supply point is Mayo, 130 km to the south.

The 1988, 1989 and 1990 Nick exploration programs were serviced by a Bell Jet Ranger II helicopter on contract from Trans North Air of Whitehorse. The helicopter was based at Wernecke, 6 km north of Keno City and approximately 50 km northeast of Mayo. Helicopter and expediting expenses incurred in 1991 were time-shared by other Archer, Cathro projects at the nearby Blende and Carpenter Ridge properties.

The property consists of 182 Nick claims (Figure 3) registered in the name of Archer, Cathro & Associates (1981) Limited with the Mayo Mining Recorder as follows:

<u>Claim Name</u>	<u>Record Numbers</u>	<u>Expiry Date*</u>
Nick 1-126	YB02115-YB02240	March 28, 1998
Nick 127-138	YB02726-YB02737	March 28, 1998
Nick 139-147	YB03207-YB03215	March 28, 1998
Nick 148-182	YB03216-YB03250	March 28, 1996

*assuming 1991 assessment application is accepted.

Initial examination has shown the claims are adequately staked, although insufficient surveying has been performed to confirm that no unstaked fractions are present. Claim posts have been stood up, mounded and tagged.

Figure 1

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

LOCATION MAP NICK PROPERTY, YUKON

FALCONBRIDGE LIMITED
NDU RESOURCES LTD.

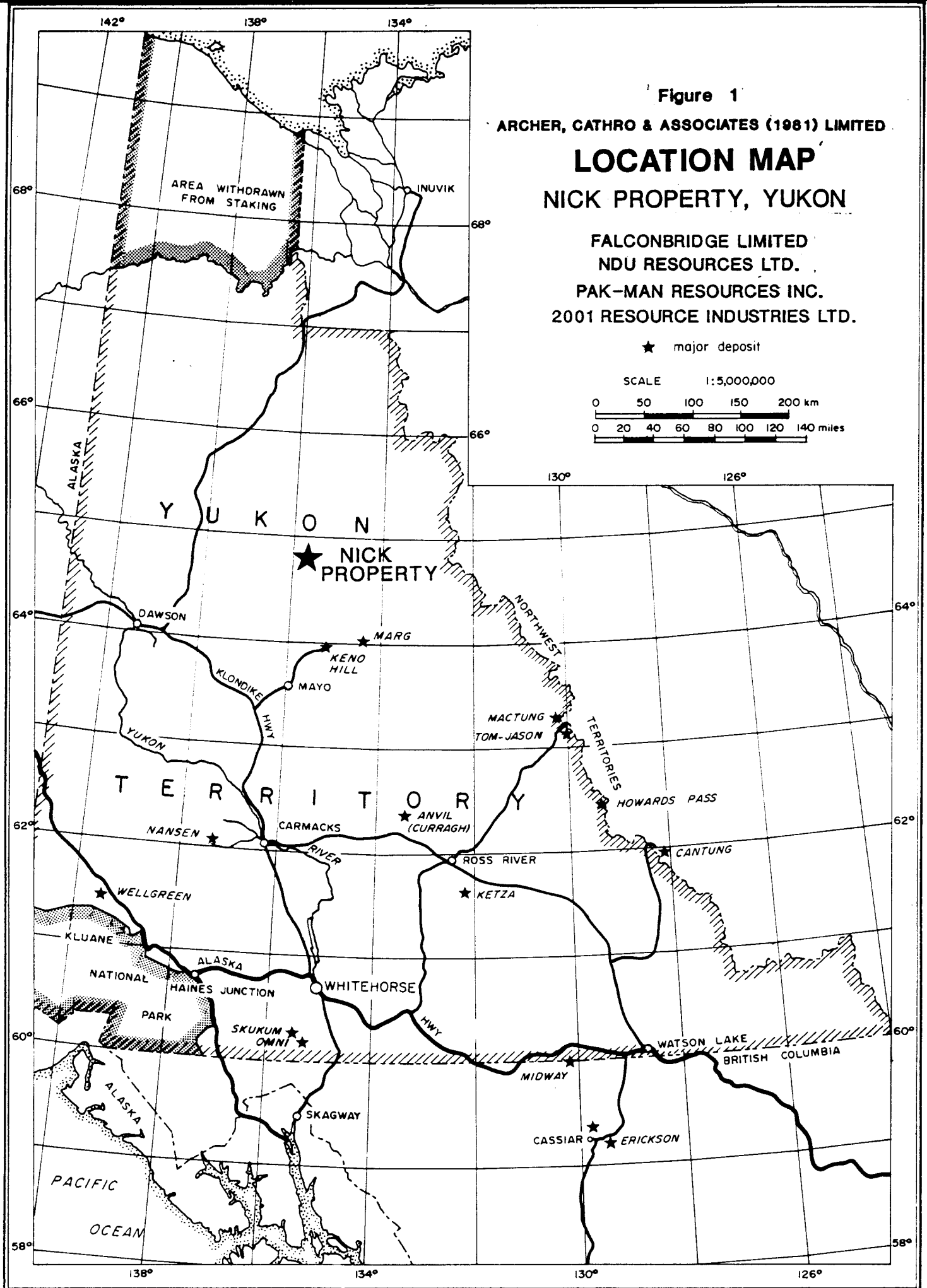
PAK-MAN RESOURCES INC.
2001 RESOURCE INDUSTRIES LTD.

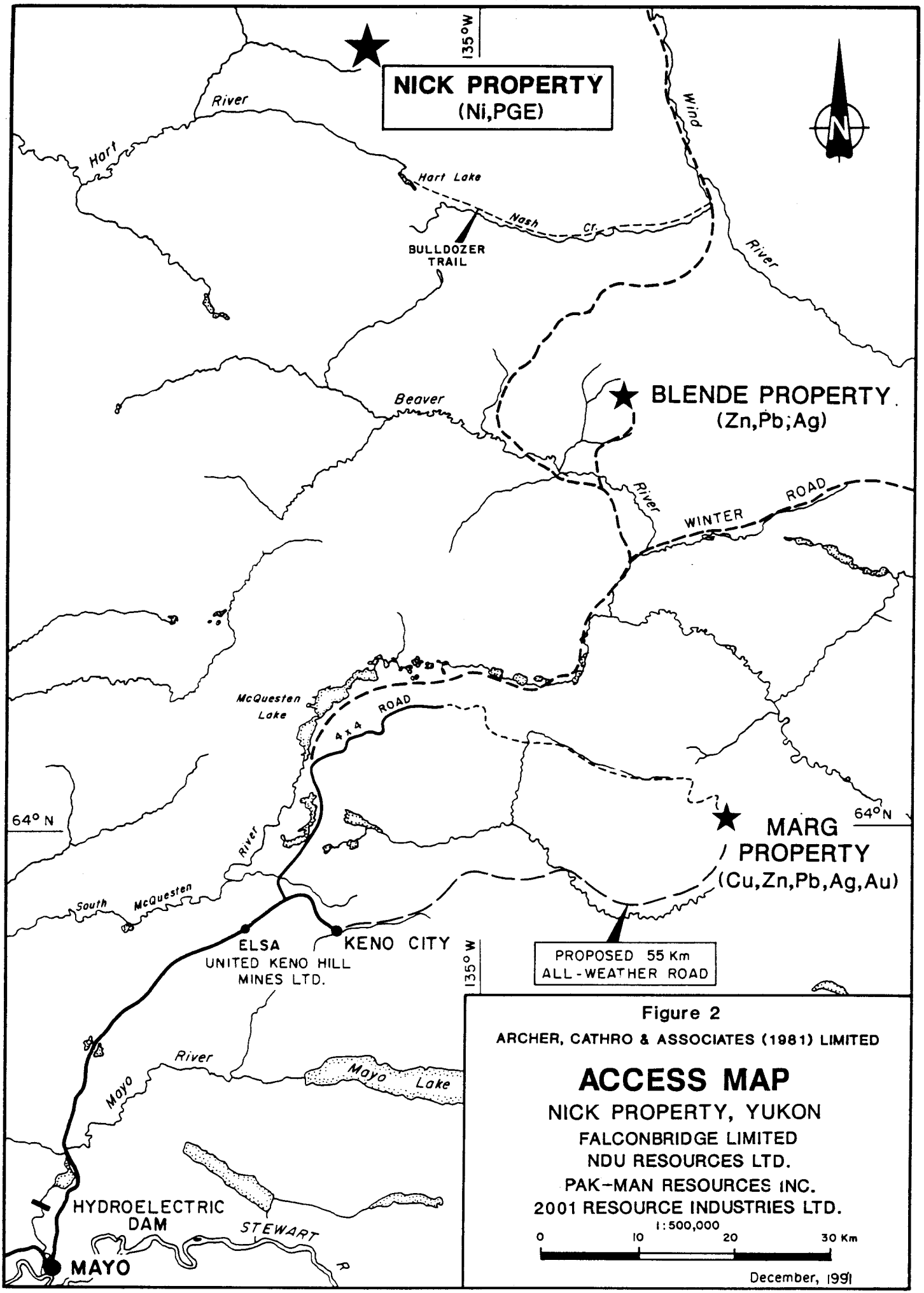
★ major deposit

SCALE 1:5,000,000

0 50 100 150 200 km

0 20 40 60 80 100 120 140 miles





NICK PROPERTY
(Ni, PGE)

BLENDE PROPERTY
(Zn, Pb, Ag)

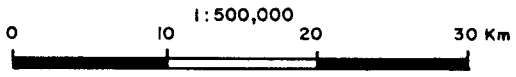
MARG PROPERTY
(Cu, Zn, Pb, Ag, Au)

PROPOSED 55 Km
ALL-WEATHER ROAD

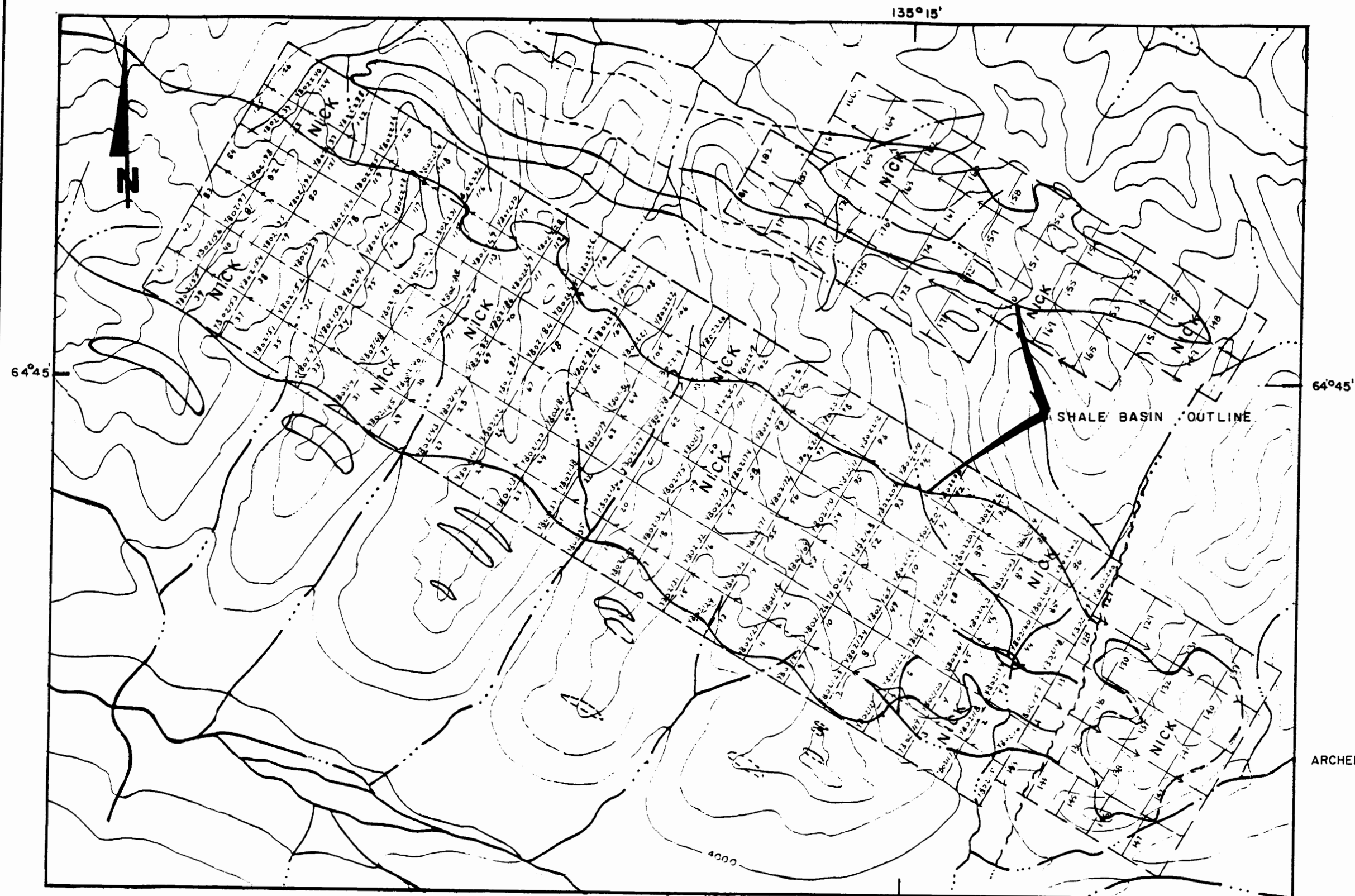
Figure 2
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

ACCESS MAP

NICK PROPERTY, YUKON
FALCONBRIDGE LIMITED
NDU RESOURCES LTD.
PAK-MAN RESOURCES INC.
2001 RESOURCE INDUSTRIES LTD.



December, 1991



64°45' 64°45'

SCALE = 1 : 41,600



Figure 3
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
CLAIM MAP
NICK PROPERTY
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

REGIONAL GEOLOGY

The Nick Property is located within MacKenzie Platform tectonic province at the east end of an outlier of Paleozoic shale. This outlier is separated from age-equivalent carbonate rocks by regional-scale faults to the north, southeast and east (Figure 4, Plate 1). These faults are the reactivated margins of a graben that was the locus of Ordovician to Devonian deep water sedimentation within the platform. The basinal shales are very similar to well documented age-equivalent Road River Group and Earn Group strata of Selwyn Basin in east-central Yukon.

Cretaceous Laramide regional compression has resulted in vertical, northerly-verging, open to isoclinal folds with NNW-trending axes. Devonian shales which host the stratiform nickel mineralization are preserved in the keels of two parallel synclines.

No intrusive rocks are present in the area.

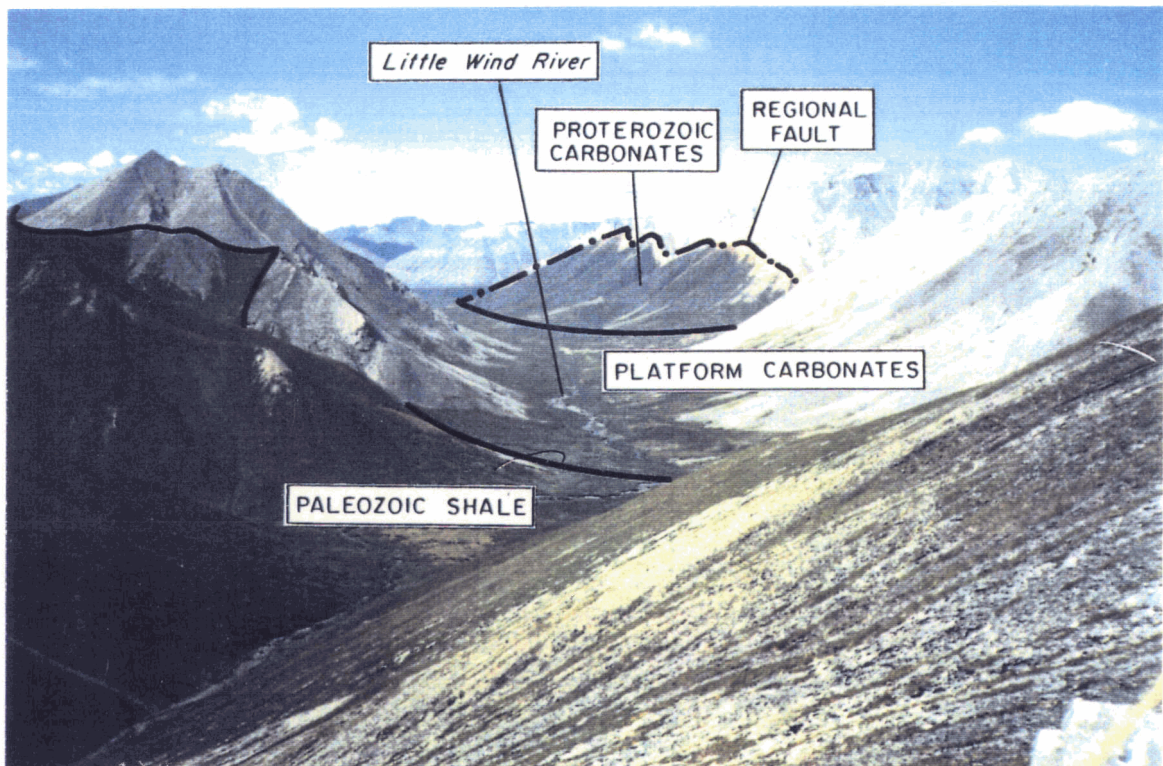


Plate 1: View north-northwest from Nick 163 claim.

LEGEND

DEVONIAN TO CARBONIFEROUS

13 Black shale, chert and minor limestone

SILURIAN (?) TO MIDDLE DEVONIAN

12 Dark grey-weathering, black, thin-bedded, platy limestone

DEVONIAN

10 Light grey limestone and dolomite

ORDOVICIAN AND SILURIAN

9 Road River Formation: Black chert and black argillite

8 Grey- and buff-weathering dolomite and limestone

PROTEROZOIC

2 Dolomite, slate, minor phyllite and quartzite

1 Argillite, slate and phyllite

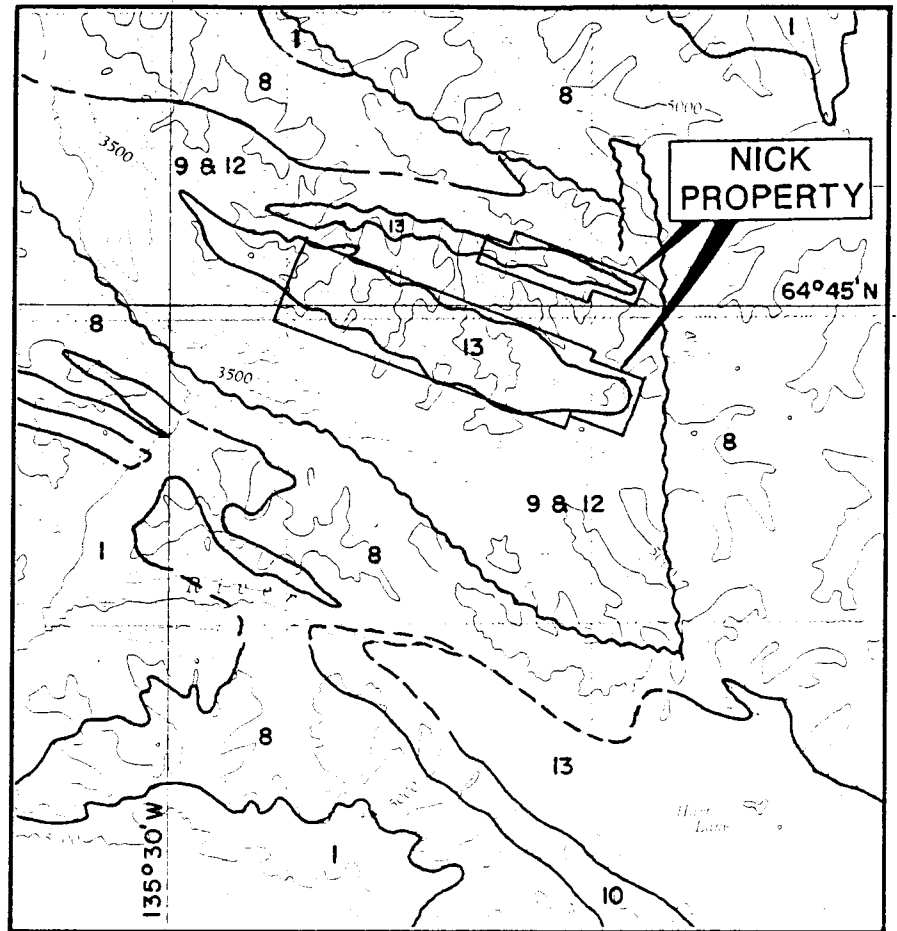


FIGURE 4

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

REGIONAL GEOLOGY

NICK PROPERTY, YUKON

FALCONBRIDGE LIMITED

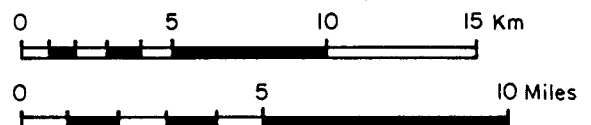
NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.

2001 RESOURCE INDUSTRIES LTD.

From GSC Map 1282 A and Memoir 364
by L.H. Green, 1972

SCALE 1:250,000



December, 1991

PROPERTY GEOLOGY

STRATIGRAPHY

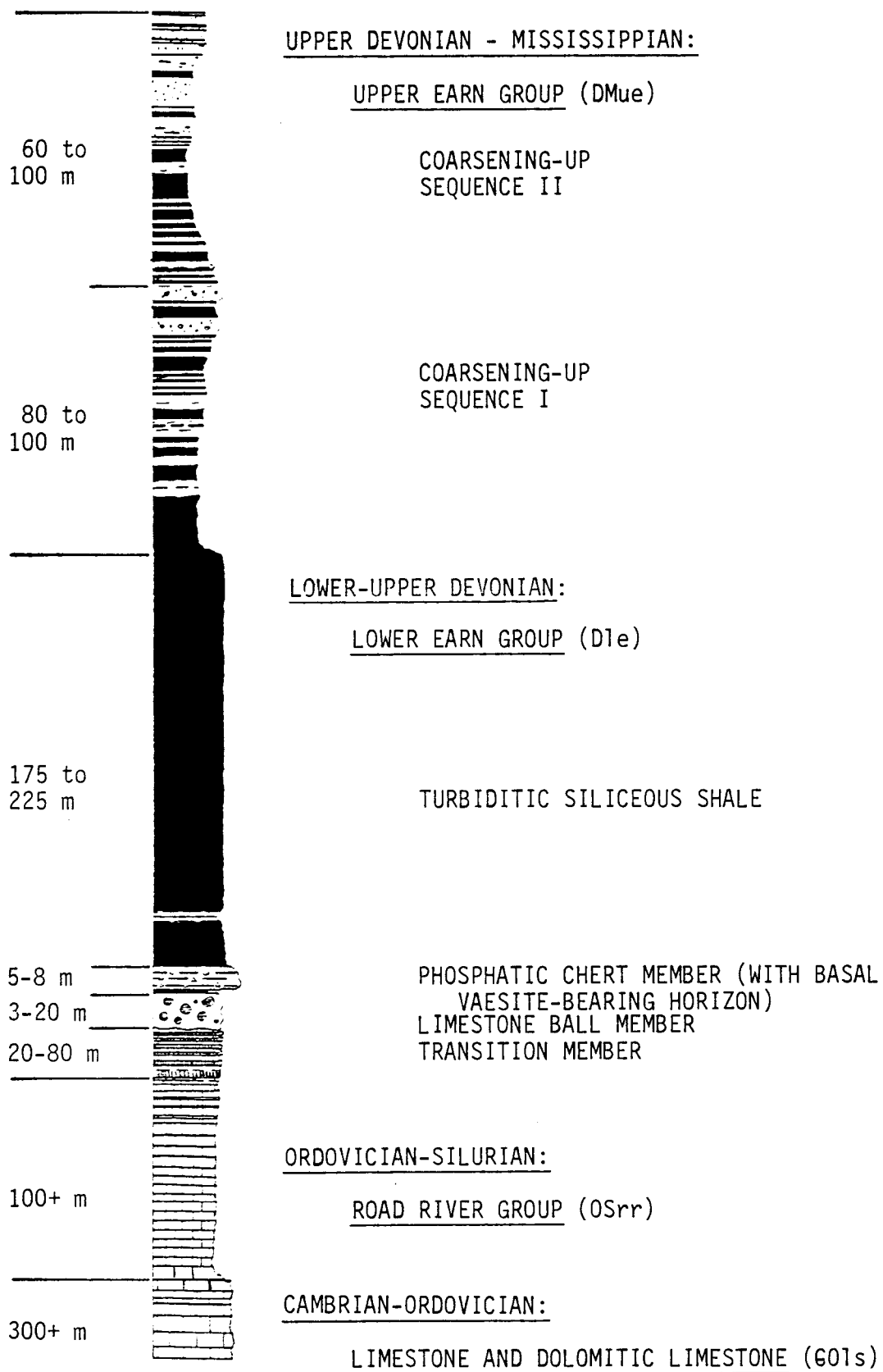
Nickel mineralization on the Nick property occurs as a conformable massive sulphide horizon located at the stratigraphic contact between Lower and Middle Devonian strata. The Lower Devonian and older calcareous units are overlain by Middle Devonian non-calcareous and fine-grained clastic rocks. The calcareous rocks have been correlated, in part, with Road River Group and older strata in the Selwyn Basin. The siliciclastic units which overlie the nickel-bearing horizon have been assigned to the Earn Group. These correlations are based on results of conodont age determinations on rocks collected from the Discovery Showing area in 1989 by the GSC. Direct comparison with detailed stratigraphic descriptions of similar successions at Macmillan Pass and Howards Pass along the Yukon-Northwest Territories border have also aided age determinations. Stratigraphic relationships between the units with their approximate thicknesses are shown on Figure 5. The field relationships are illustrated on Plate 2. Property geology and Discovery Showing area detailed geology are shown on Figures 6 and 7, respectively. A schematic cross section across the central part of the property is presented in Figure 8.

Unnamed Cambrian and Ordovician Carbonate Rocks (CO1s)

The oldest rocks in the immediate property area are an unnamed sequence of medium to light grey weathering dolomitic limestones and shales (Unit OS1s). These rocks are thin- to thick-bedded dolomitic limestones grading upward into calcareous shales. This sequence is at least several hundred metres thick although the base is not seen within the mapped area.

FIGURE 5

NICK PROPERTY: STRATIGRAPHIC COLUMN



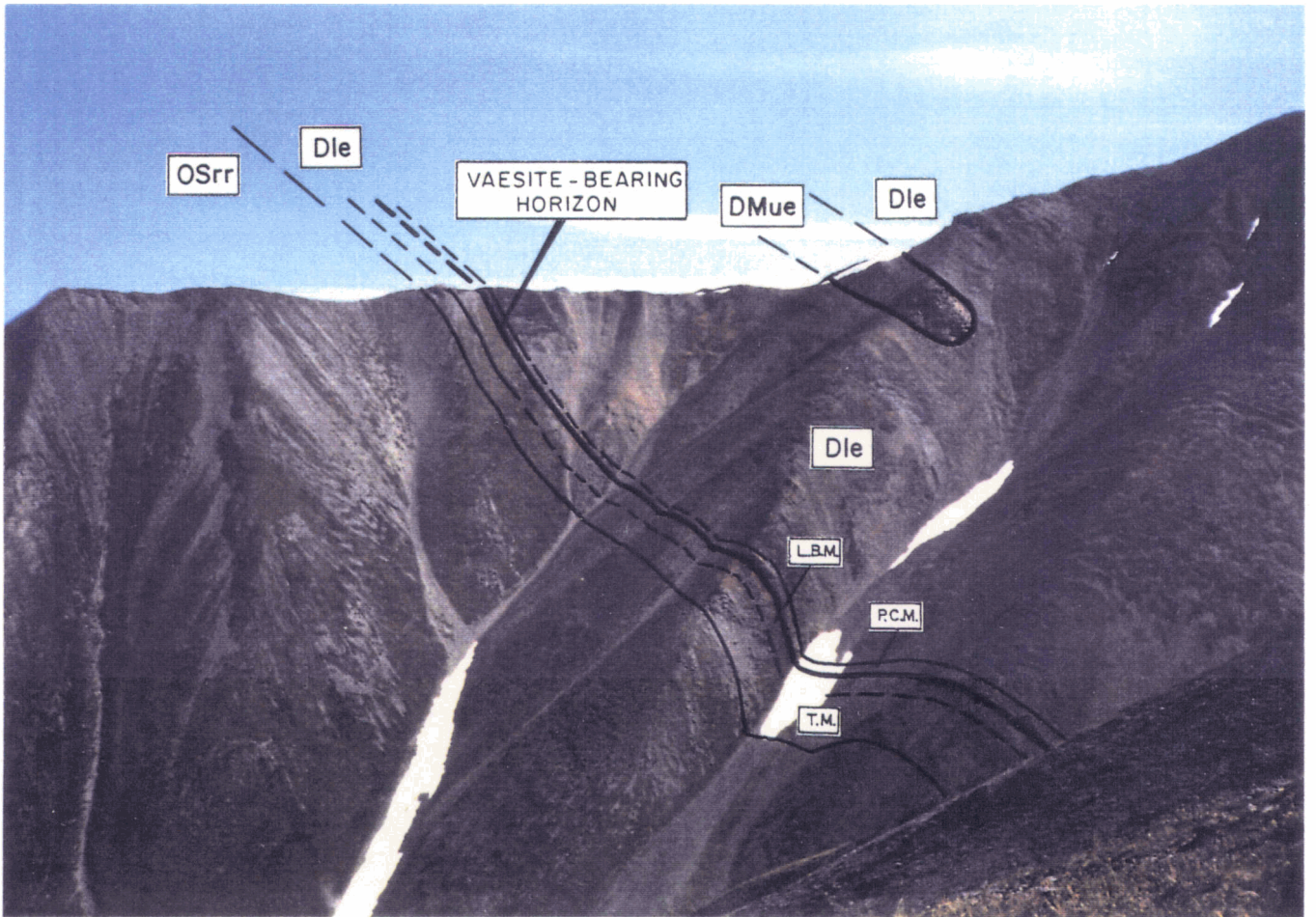


Plate 2: Typical field relationships, looking eastward, Nick property.

Road River Group (OSrr)

The Road River Group is characterized by relatively resistant Silurian to Lower Devonian, dark grey to black weathering, black calcareous graptolitic shales and shaley limestones. The rocks are medium bedded at the base of the unit, grading into thin bedded near the top. The shales generally have a fairly well developed axial plane cleavage. The Road River strata is greater than 100 m thick, grading conformably into overlying Earn Group strata.

Lower Earn Group (Dle)

The Lower to Upper Devonian Lower Earn Group is composed of three informally named members and one unnamed member. These are not shown individually on the geology maps (Figures 6 and 7) but they are differentiated on the stratigraphic column (Figure 5). The base of the Earn Group is the Transition Member. This unit is a variably resistant assemblage of thin-bedded, dark grey to medium grey-brown weathering, black calcareous and cherty shales. The Transition Member strata often has moderately well developed axial plane cleavage. The thickness of the unit varies from a minimum of about 20 m at the east end of the property to a maximum of about 80 m in the west. Property mapping in 1989 and 1991 identified several areas of local thickness variations.

The Limestone Ball Member is a unique unit because of its unusual texture, composition and enigmatic genesis. The rock is a dark grey weathering, black, moderately resistant siliceous mudstone. About 35 to 40% of the unit consists of light grey weathering, medium grey, laminated micritic limestone spheroids or "balls" ranging between 5 cm and 1.5 m in diameter (Plate 3). The limestone balls have sharp contacts with enclosing siliceous shales and banding is subparallel to the bedding in the shales. Immediately surrounding rocks "drape" around the balls (Plate 4). Occasionally the limestone balls are concentrically zoned with a laminated micritic limestone core and either a sparry calcite or

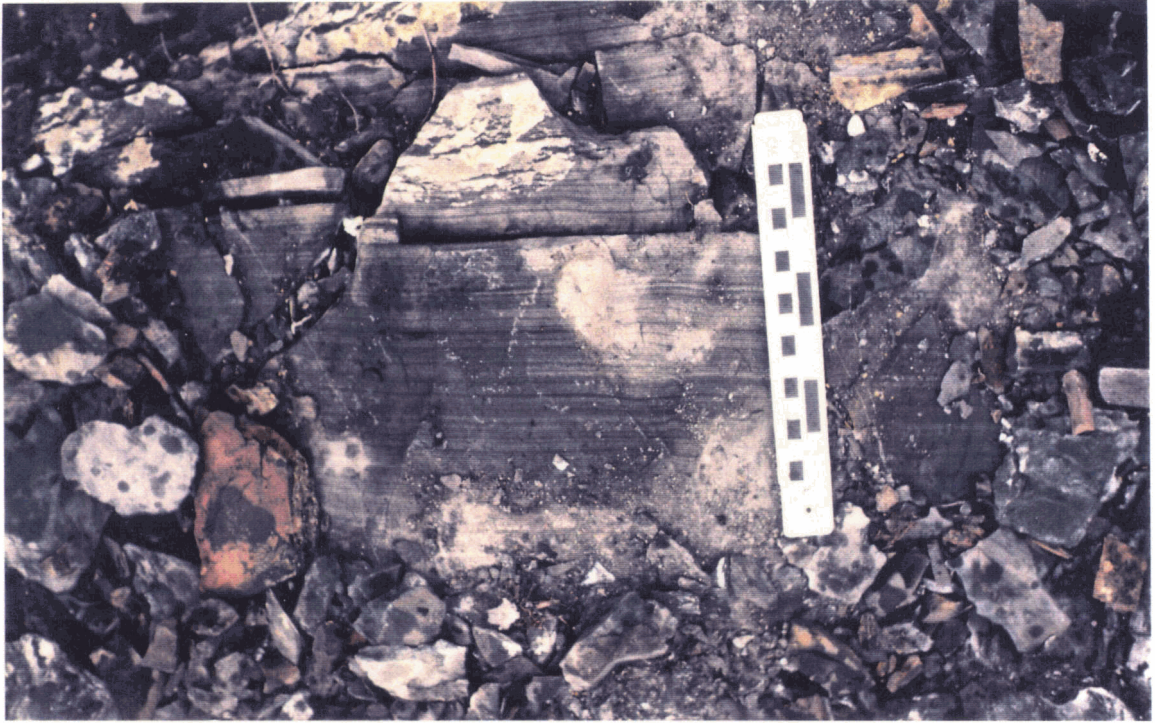


Plate 3: Laminated limestone ball on north limb of main syncline.



Plate 4: View southwesterly of the Limestone Ball Member at the Discovery Showing.

recrystallized aragonite rim. The balls probably formed as concretions during diagenesis.

Preliminary conodont determinations for this unit suggested a Givetian (Middle Devonian) to Frasnian (Upper Devonian) age range, however, the conodonts are an unusual deep water fauna not previously identified in the Selwyn Basin and this age determination is suspect.

The Limestone Ball Member is an integral part of the vaesite-bearing horizon and mineralization event. The widespread distribution of the vaesite horizon and Limestone Ball Member 20-120 cm below the mineralization suggests a genetic link. Similar carbonate concretionary structures are present in the footwall of the Chinese deposits.

The 5 to 8 m thick black Phosphatic Chert Member often exhibits a white to lime-green surface precipitate (Plate 5). This precipitate is commonly found in suspension in drainages downstream of the unit (Plate 6). The very resistant Phosphatic Chert Member is irregularly thin to medium bedded and displays well developed axial plane cleavage and jointing. The upper contact is usually talus covered but in drill core it is gradational over several metres. The lower contact is sharp. The generally recessive, nickel-bearing sulphide horizon occurs near the base of the Phosphatic Chert Member, about 20 to 120 cm above the top of the Limestone Ball Member.

The uppermost member of the Lower Earn Group is an unnamed, 175 to 225 m thick sequence of silver-grey to blue-grey weathering, dark grey to black, rhythmically banded, siliceous mudstone. Silt content decreases upward within each bed. Limy beds are common near the base of the unit while rusty-ochre weathering pyritic sub-units are common higher in the section. The pyrite occurs as thin (5 mm to 1.5 cm) interbeds and pervasive disseminations. An orange precipitate with greater than 15% iron is common in creek beds draining the

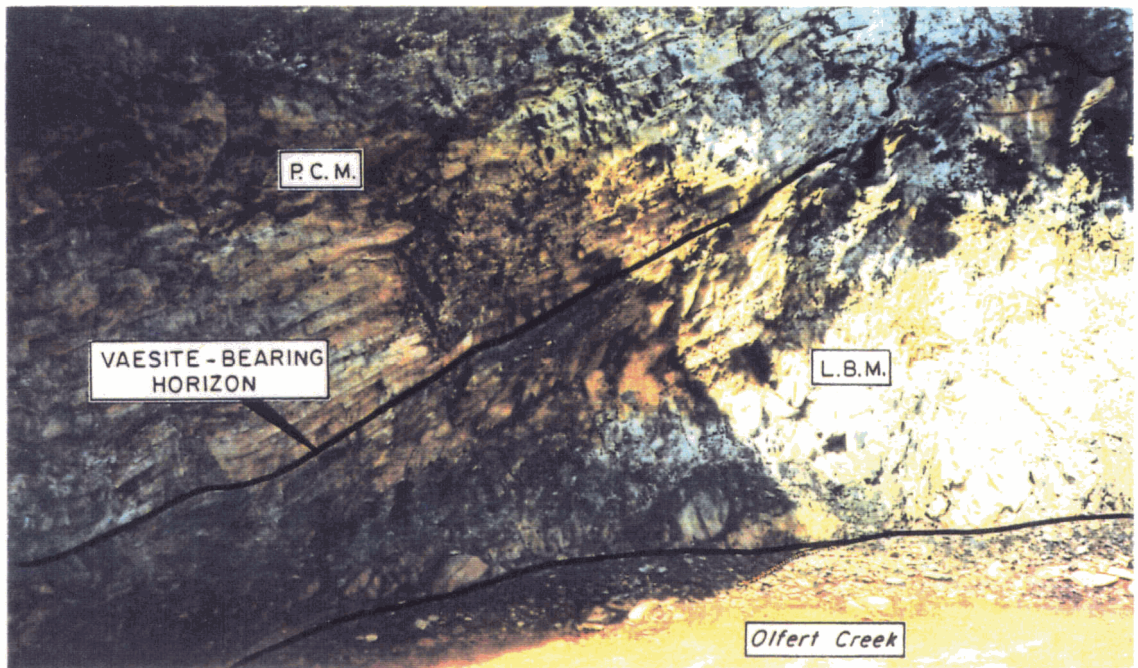


Plate 5: White precipitate on the Phosphatic Chert Member, Gorge Showing

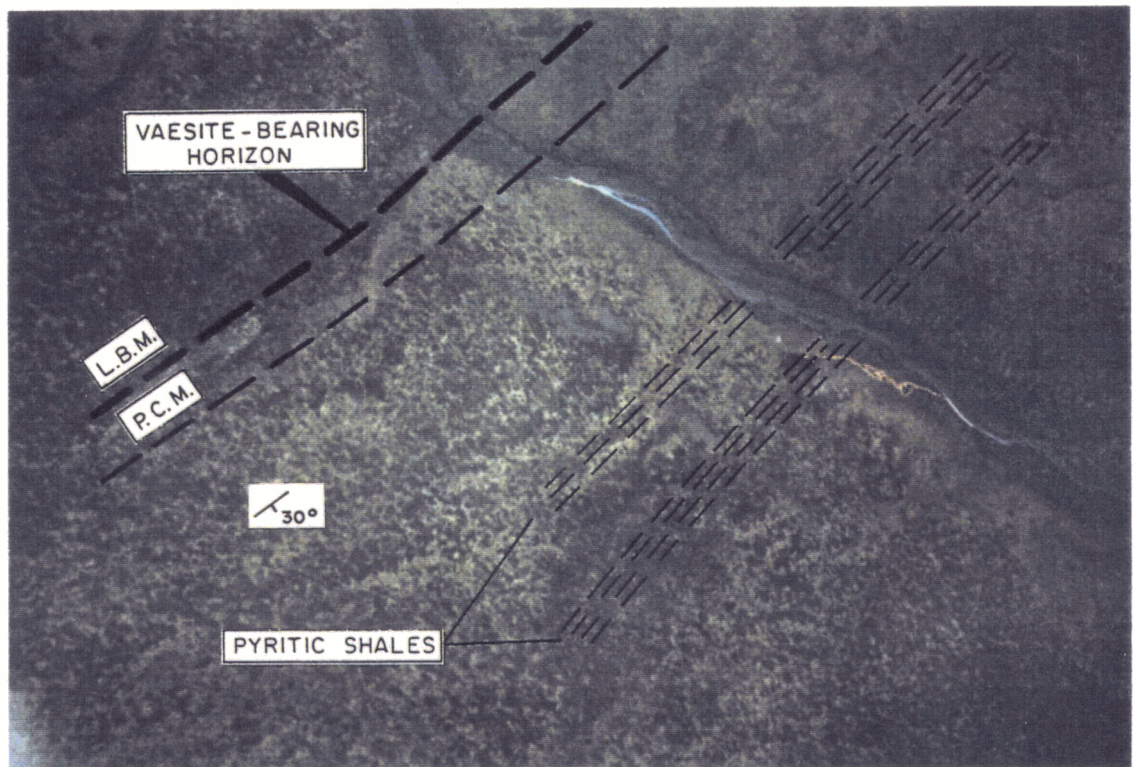


Plate 6: White suspension in waters of Mawer Creek, 300 to 350 m upstream of Drill Site N-88-4/89-4X. This occurs immediately downstream of the projected surface trace of the Phosphatic Chert Member. The reddish precipitate occurs below pyritic beds in the upper part of the Lower Earn Group.

pyritic units (Plate 7). These cherty rocks have well developed, wide spaced axial plane cleavage and jointing producing distinctive blocky talus. The unit is also readily distinguished by a black lichen growth not present on other lithologies in the area.

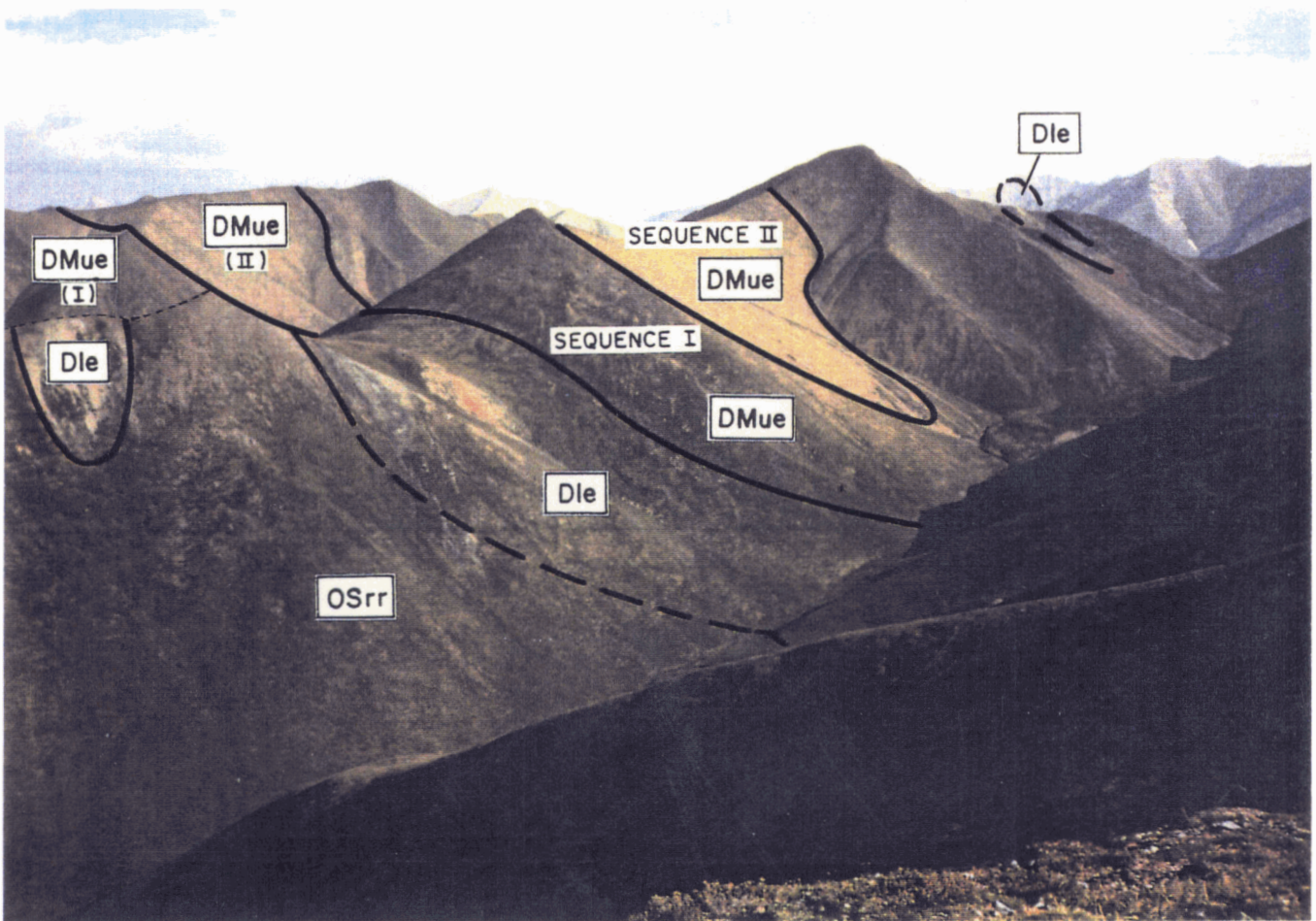


Plate 7: Looking northwesterly at the main syncline.

Upper Earn Group (DMue)

The Upper Devonian to Mississippian Upper Earn Group is composed of two lithofacies. A basal fine-grained, recessive, black carbonaceous siltstone coarsens upward into chert pebble conglomerate approximately 80 to 120 m from the base. This member, called Sequence I, is overlain by a beige weathering, fine-to medium-grained, coarsening upward, siltstone sequence 60 to 100 m in thickness, called Sequence II. The coarser-grained units form small cliffs and peaks. Cleavage is generally well developed, especially within finer-grained rocks. The top of the Upper Earn Group has been eroded in the Nick claims area and total thickness is unknown.

Recent Sediments

Quaternary glacial drift mantles most of the valley bottoms and flats. Hillsides and mountain tops are covered by only a thin mantle of talus. The till is locally derived and is rich in carbonate boulders and shale fragments with a matrix of clay and rock flour. Glacial overburden thicknesses of approximately 15 m were encountered in Drill Holes 13 and 16 at the east end of the property but average thickness is less than 5 m.

STRUCTURAL GEOLOGY

Structural geology in the Nick area is dominated by regional-scale folding and faulting. Evidence of two deformational events is seen in the Nick shale basin. The first is a Laramide (Cretaceous) compressional event widespread throughout central Yukon. In the Nick area, the major structures are the main syncline, an open fold with tight flanking folds and a tight northern syncline with isoclinal flanking folds. Fold axes trend at 110 to 130°. The main syncline is composed of smaller-scale upright folds in the west, changing gradationally to north-verging overturned folds in the east. The north syncline is overturned to the north along its length. Small-scale parasitic isoclinal folds with the same orientation as the regional folds occur in the limbs of both synclines.

Axial plane cleavage is well developed in the hinge zones and less well developed in the limbs of the large-scale folds. Fetid quartz-carbonate veins with weak malachite and azurite staining are sometimes present in the hinge areas. Oblique jointing is strong in Earn Group rocks but poorly developed in the Road River Group strata. Tabular breccia zones mapped in outcrop and hand trenches and intersected in drill core are oriented at a 5 to 20° angle to bedding. These breccias usually occur in the Phosphatic Chert Member 3 to 10 m above the mineralized horizon. They were probably generated during flex-slip folding by ductility contrast between the cherts and enclosing shales.

A second weak, passive folding event overprints the regional fold pattern at right angles and is only evident in upper portions of the fold limbs in the main syncline.

The abrupt facies change between Road River Group shales and age-equivalent platformal carbonates was likely fault controlled. The Nick claim block is located at the east end of an east-west trending, westerly-deepening(?) graben. The basin-margin faults have been subsequently reactivated and are shown on GSC geology maps as regional-scale faults. The Back Creek Fault (Figure 7, Plates 8 and 9) is the only basin-margin fault within the project area.

The Discovery Fault, a smaller-scale northerly-trending normal fault located in the east part of the property, has a 50 to 80 m normal displacement with the west side down. Results from detailed mapping and drilling suggest that the Upper Earn Group shales thicken abruptly to the west across the Discovery Fault. This phenomenon is also observed at Macmillan Pass where it is attributed to post-mineral differential subsidence across growth faults and is genetically linked with Upper Devonian sedex lead-zinc-barium deposits.

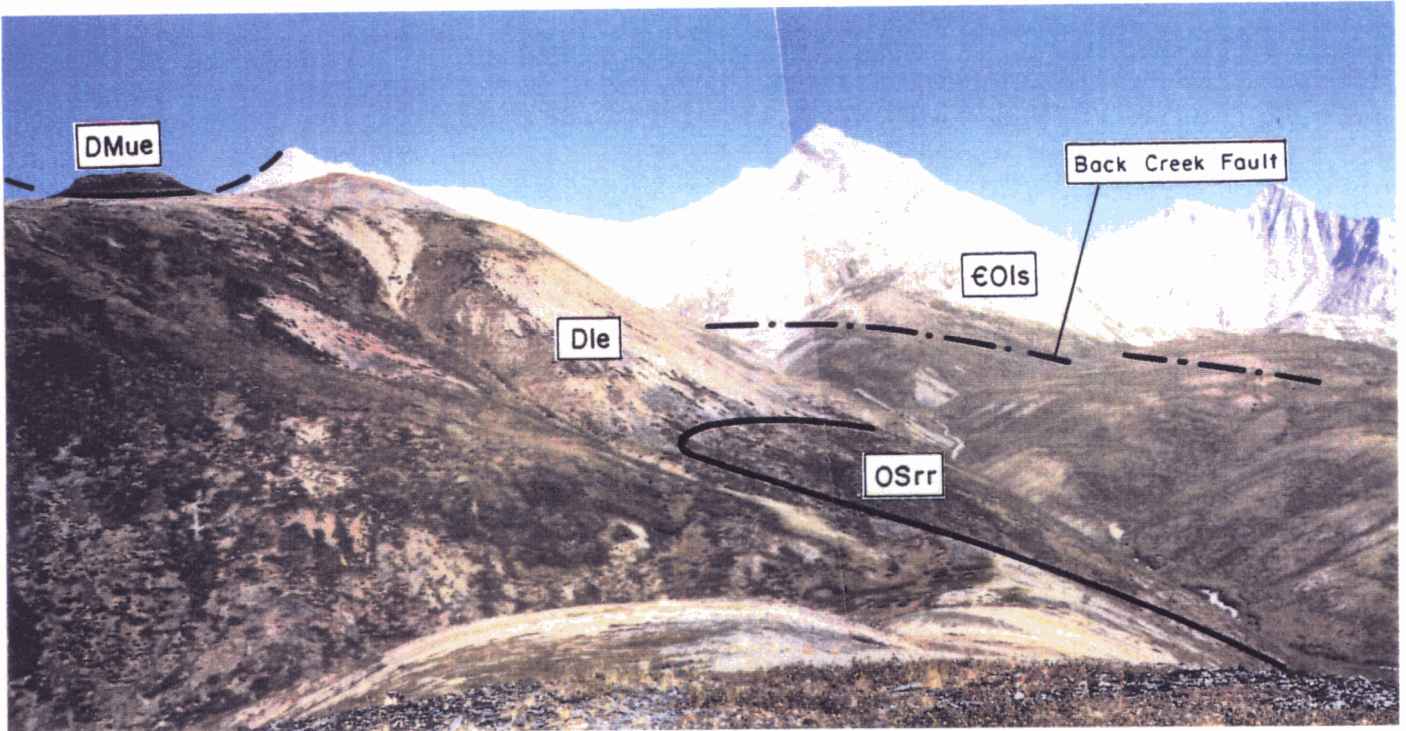


Plate 8: Looking northwest up Back Creek. Carbonate strata occur to the northeast across Back Creek Fault.

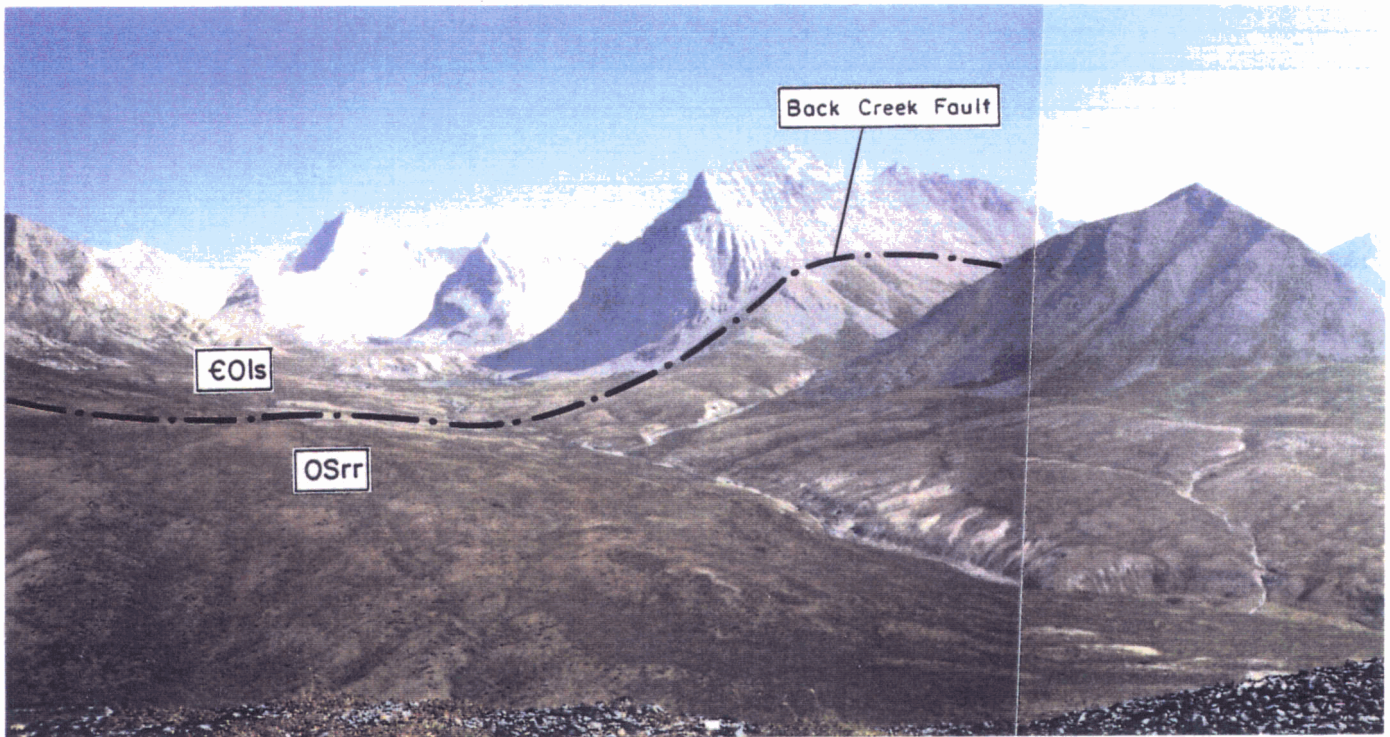


Plate 9: View of Back Creek Fault, southeast of the property.

Other relatively small-scale reverse and normal faults have been recognized near Olfert Creek in an area of detailed mapping. Reconnaissance mapping elsewhere on the property is not detailed enough to predict whether or not these structures are more widespread than observed to date, but five other major northerly-trending topographic linears are formed by drainages that crosscut the regional physiographic and structural trend in the west and central part of the property.

MINERALIZATION

Vaesite-bearing Horizon

The Nick mineralization consists of a thin massive sulphide horizon that occurs near the base of the Middle Devonian Phosphatic Chert Member, directly above the Limestone Ball Member.

The zone is readily oxidized and is very recessive. Discoveries of surface mineralization to date have all been in creek beds or cliff faces. Only the east end of the main syncline has been tested by diamond drilling where true thickness of the vaesite-bearing horizon ranges from several mm to 10 cm. The thickness variations are probably an original depositional or diagenetic feature rather than structural in nature since the strata is only gently folded.

Nickel and zinc grades of the vaesite-bearing massive sulphide horizon intersected in drill core or in unoxidized outcrops range from 1.42 to 5.80% and 0.38 to 1.56%, respectively, averaging about 4.4% Ni and 1% Zn. Variations in grade are probably due to dilution by barren wallrock which is difficult to separate from the thinner sulphide intersections. Locations of surface showings are given on Figure 7. Nickel values for the 1988 and 1989 drill intersections are listed on Figure 9. Cross sections of drill holes 88-1 through 88-3 are presented in Figure 10. Geological information from the 1989 drill holes is contained in Figures 11 through 20.

The vaesite-bearing horizon is also anomalous in platinum (up to 1000 ppb), palladium (up to 390 ppb), gold (up to 98 ppb), silver (up to 16.4 ppm), molybdenum (up to 3950 ppm), copper (up to 2530 ppm), arsenic (up to 3930 ppm), phosphorous (up to 8700 ppm) and uranium (up to 280 ppm). Results of Scanning Electron Microscope studies by the GSC have confirmed selenium and rhenium values of up to 0.45% and 61 ppm, respectively. These metals occur as solid solution phases in vaesite. The rarer platinum group elements (osmium, rhodium, ruthenium and iridium) occur in trace levels only.

Detailed analyses of Hole N-88-4 drill core by L. Hulbert of the GSC show that lower and upper contacts of the horizon are abrupt with no dispersion of the constituent metals into either the footwall or hanging wall strata.

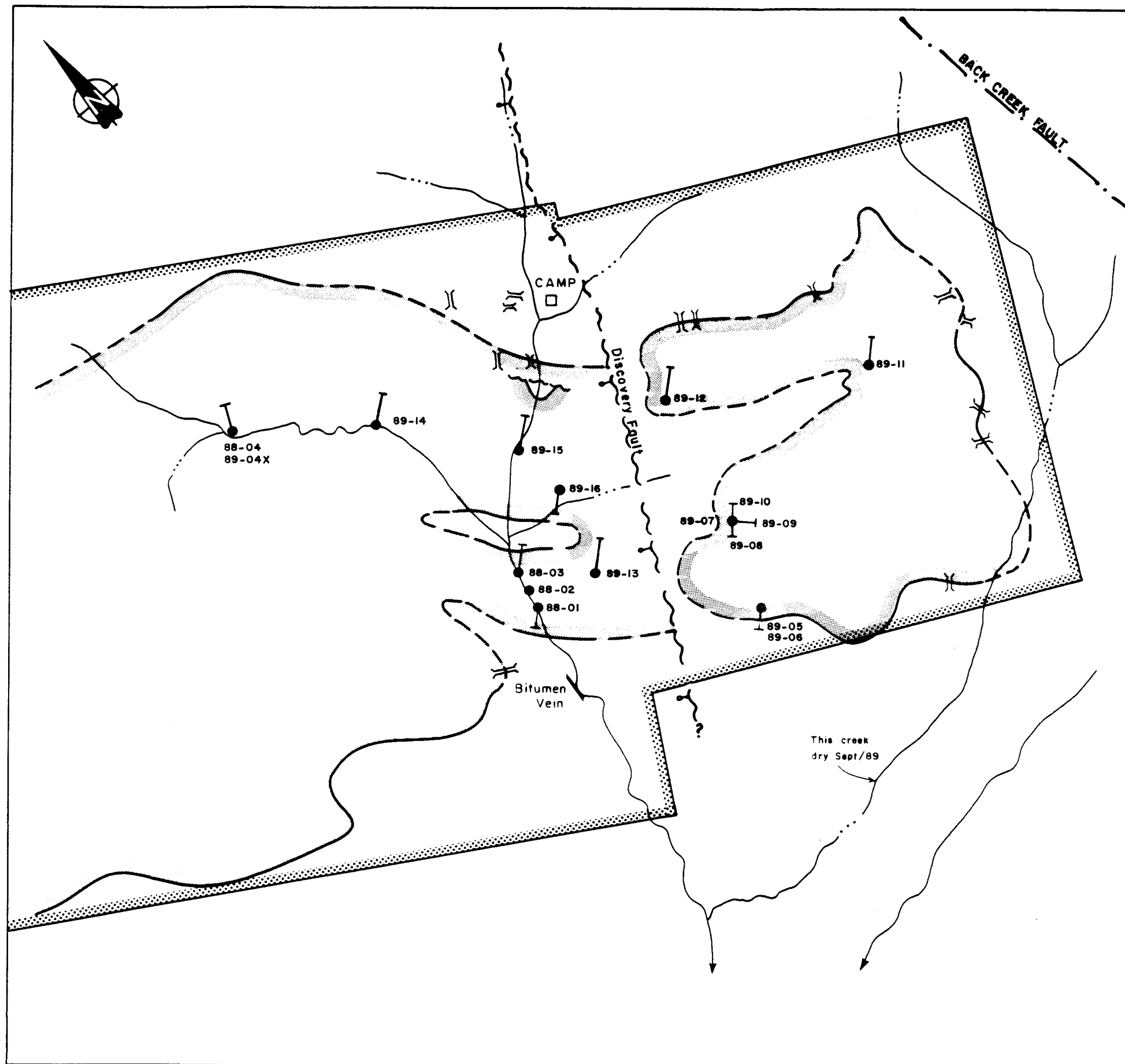
Petrographic studies carried out on samples from the Discovery Showing outcrop and drill core in 1988 identified four major sulphide species in the following average volumetric proportions: 46% pyrite (FeS₂), 10% vaesite (NiS₂), 2% melnikovite (FeS₂- a low temperature form of pyrite) and 2% wurtzite (ZnS₂- a low temperature polymorph of sphalerite). Phosphatic, carbonaceous, biogenic(?) chert and amorphous silica are the major gangue minerals. Vaesite is a relatively rare member of the pyrite group. It is a grey metallic mineral with a specific gravity of 4.5 g/cc and a stoichiometric nickel content of 47.2%.

Sulphide minerals occur as disseminations, framboids and aggregates in a siliceous matrix and compact, sub-colloform disrupted monomineralic bands and masses. However, even the more monomineralic sections are the products of complex intergrowths of various sulphide minerals.




Thin pyrite beds in the hanging wall sequence have different trace element signatures than the vaesite horizons and it is likely that the pyrite beds and the vaesite horizons are the products of different genetic processes. Averages of geochemical analyses of a number of pyrite- and vaesite-bearing samples analyzed by the GSC in 1988 are presented in Table 1 following.

TABLE 1
COMPARISON BETWEEN PYRITE AND VAESITE HORIZONS

<u>Ni</u> <u>(ppm)</u>	<u>Pt</u> <u>(ppb)</u>	<u>Pd</u> <u>(ppb)</u>	<u>As</u> <u>(ppm)</u>	<u>Ba</u> <u>(ppm)</u>	<u>Co</u> <u>(ppm)</u>	<u>Cu</u> <u>(ppm)</u>	<u>Mo</u> <u>(ppm)</u>	<u>Pb</u> <u>(ppm)</u>	<u>Sulphur</u> <u>Isotopes</u> <u>S(o/oo)</u>
<u>Vaesite Horizon:</u>									
45,600	310	150	2990	10	128	65	2650	80	-11 to -14
<u>Pyrite Layer:</u>									
36	20	<4	10	350	3	33	34	498	+11 to +19



LEGEND

-  Vaesite horizon and hanging wall chert (known, assumed)
-  1989 hand trench
-  Completed drill hole

HOLE	AZIMUTH	INCL.	LENGTH (m)	DEPTH OF INTERSECT (m)	TRUE THICKNESS (cm)	% NI
88-01	225°	-50°	77.4	59.1	10.0	2.90
88-02	-	-90°	85.3	-	not recov.	-
88-03	045°	-46°	55.2	43.2	2.5	5.00
88-04	025°	-45°	144.5	140.0	0.0	-
89-04X	025°	-45°	10.7	-	-	-
89-05	225°	-50°	18.9	-	-	-
89-06	225°	-70°	142.0	88.7	3.5	4.16
89-07	-	-90°	32.3	21.0	3.0	2.78
89-08	225°	-60°	32.3	29.0	7.5	3.24
89-09	135°	-53°	29.3	24.1	8.0	3.60
89-10	045°	-53°	30.5	21.0	3.0	3.44
89-11	045°	-80°	89.2	67.2	4.0	3.69
89-12	045°	-50°	44.5	41.0	4.0	2.66
89-13	045°	-70°	77.7	52.4	2.8	1.83
89-14	045°	-80°	146.0	140.5	2.0	1.42
89-15	045°	-60°	110.0	51.0	2.5	2.42
89-16	225°	-50°	127.7	122.8	6.0	1.94

FIGURE 9

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DRILL HOLE SUMMARY

NICK PROPERTY

FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

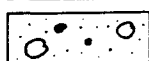
SCALE 1:20,000



LEGEND TO ACCOMPANY SECTIONS FIGURES 12-20

STRATIGRAPHY:

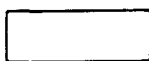
QUATERNARY:



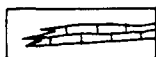
Glacial till, fluvial sediments and talus

MIDDLE DEVONIAN:

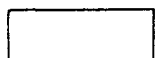
LOWER EARN GROUP (D1e)



Unnamed siliceous shales



Hanging wall limestone bed(s)



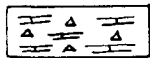
Phosphatic Chert Member - phosphate-rich chert, siliceous shale



Vaesite-bearing massive sulphide horizon



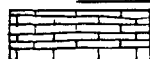
Limestone Ball Member - siliceous concretionary shale



Transition Member - calcareous and cherty shales

ORDOVICIAN-SILURIAN

ROAD RIVER GROUP (Osrr)

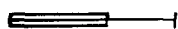


Calcareous, graptolitic shale

SYMBOLS:



Contact (defined, inferred, assumed)



Diamond drill hole with casing



Shear



Quartz-calcite breccia



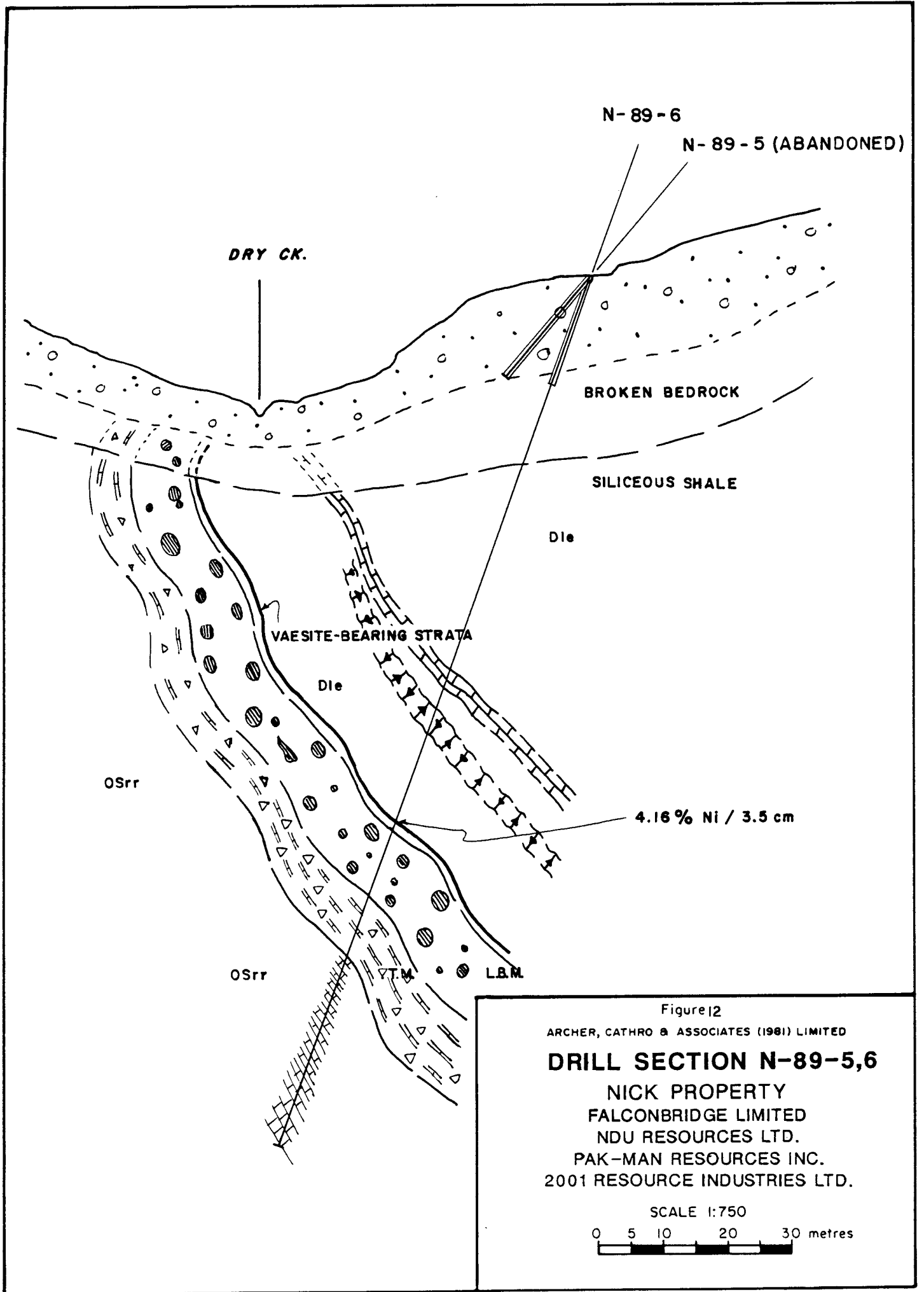
Calcareous lamellae

FIGURE 11

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

NICK PROPERTY
FALCONBRIDGE LIMITED
NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.
2001 RESOURCE INDUSTRIES LTD.



N-89-6
N-89-5 (ABANDONED)

DRY CK.

BROKEN BEDROCK

SILICEOUS SHALE

VAESITE-BEARING STRATA

4.16 % Ni / 3.5 cm

Figure 12
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION N-89-5,6
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.
 SCALE 1:750
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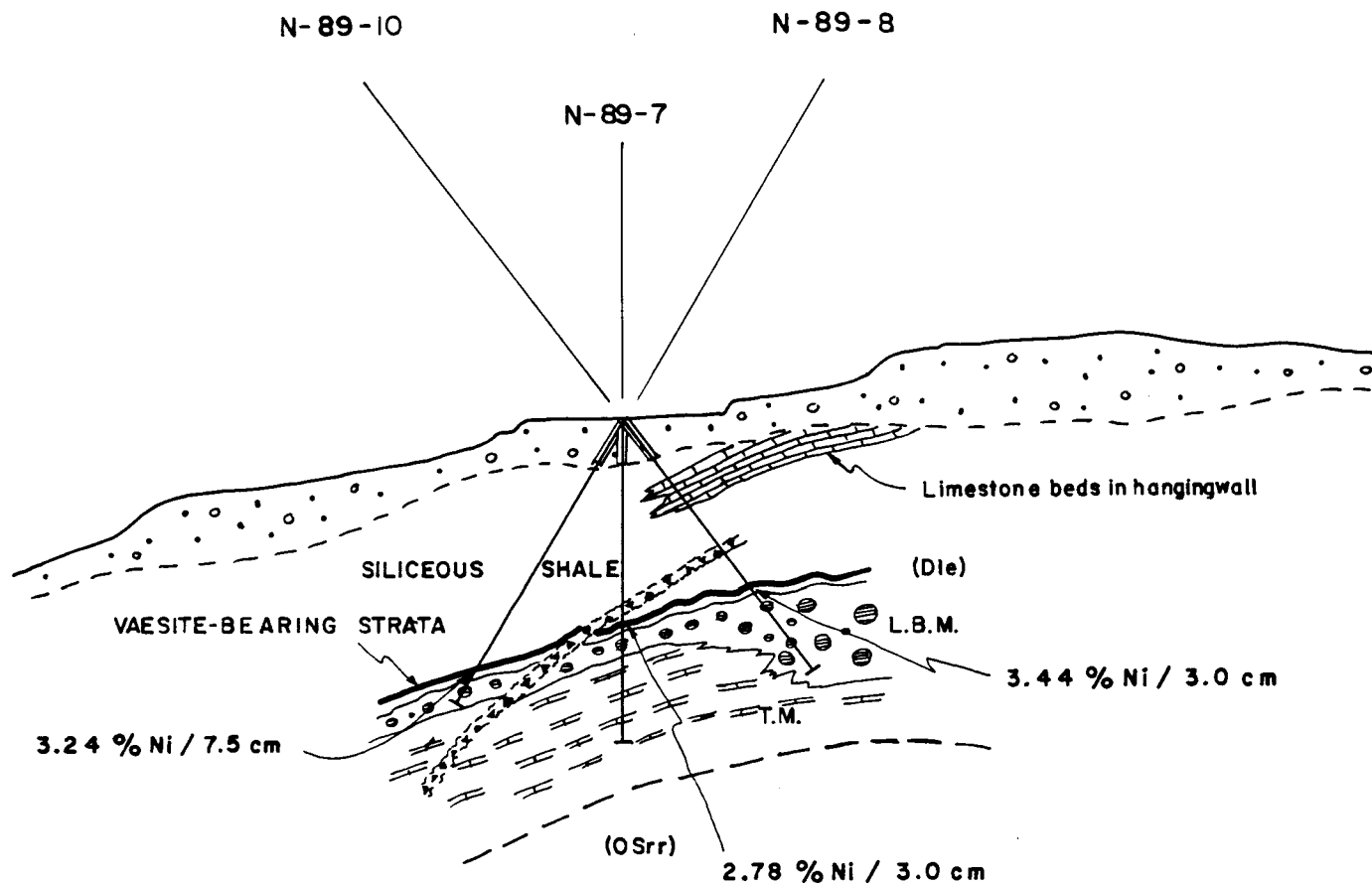


Figure 13

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DRILL SECTION N-89-7,8,10

NICK PROPERTY

FALCONBRIDGE LIMITED

NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.

2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750

0 5 10 20 30 metres



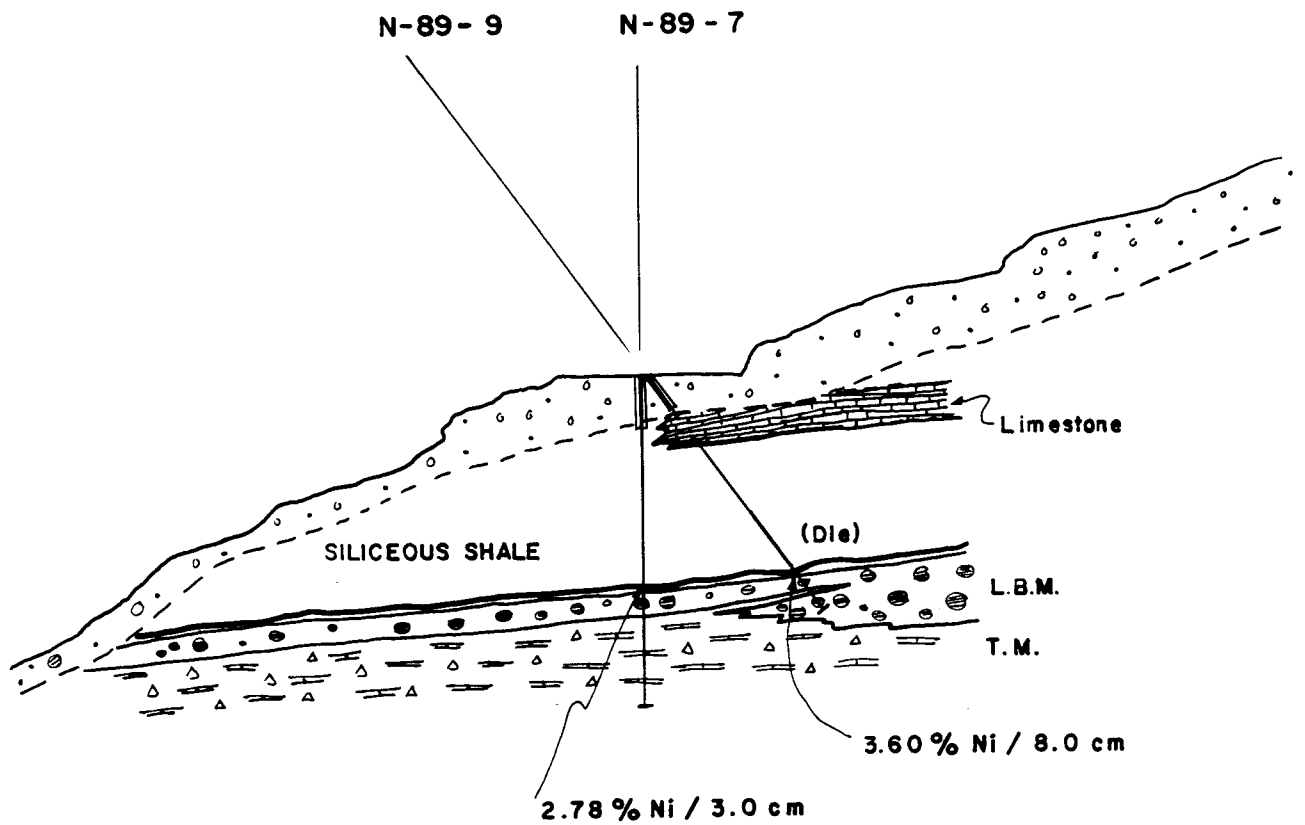


Figure 14

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DRILL SECTION N-89-7,9

NICK PROPERTY

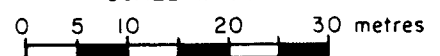
FALCONBRIDGE LIMITED

NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.

2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750



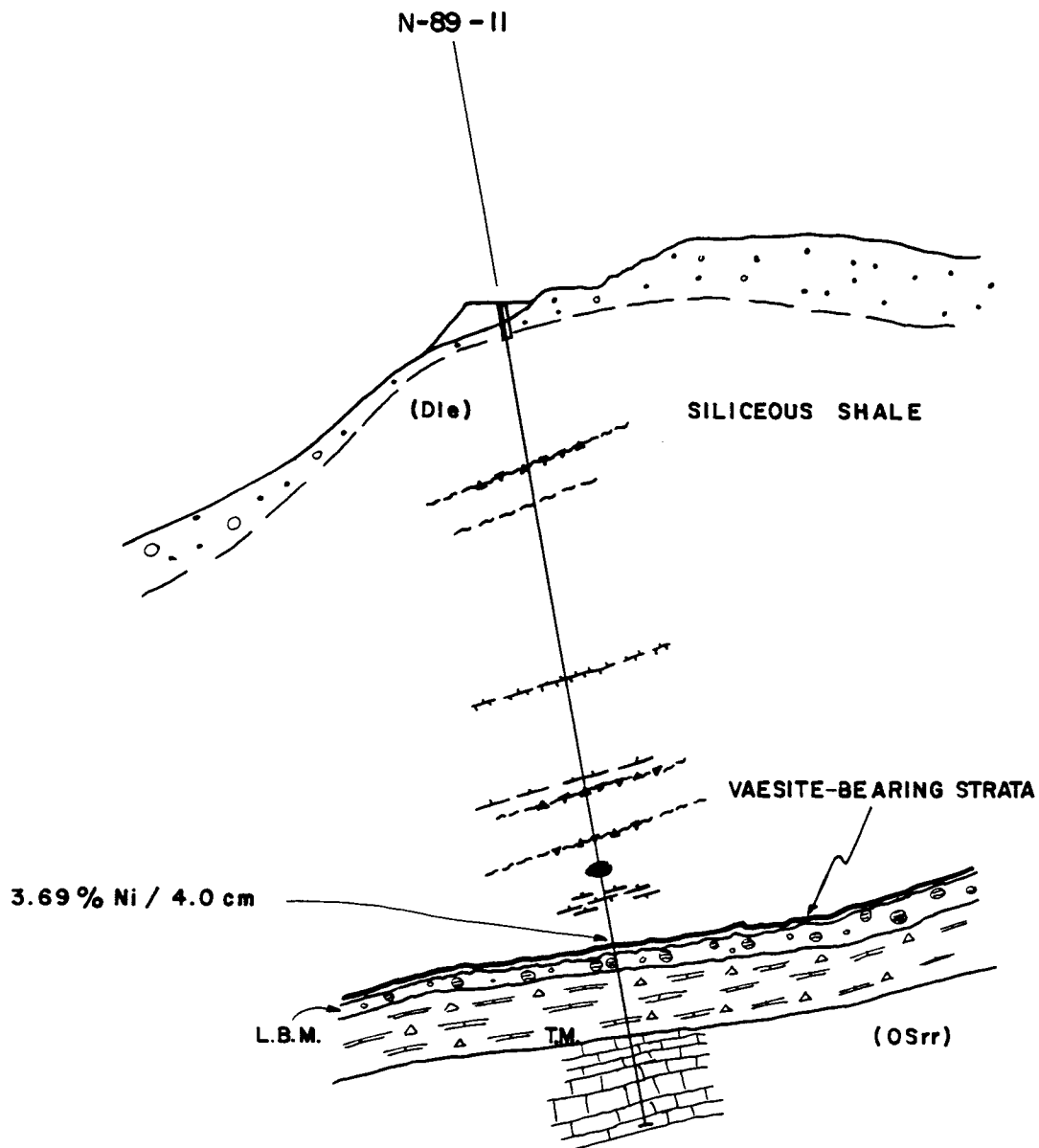


Figure 15
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION N-89-11
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750
 0 5 10 20 30 metres

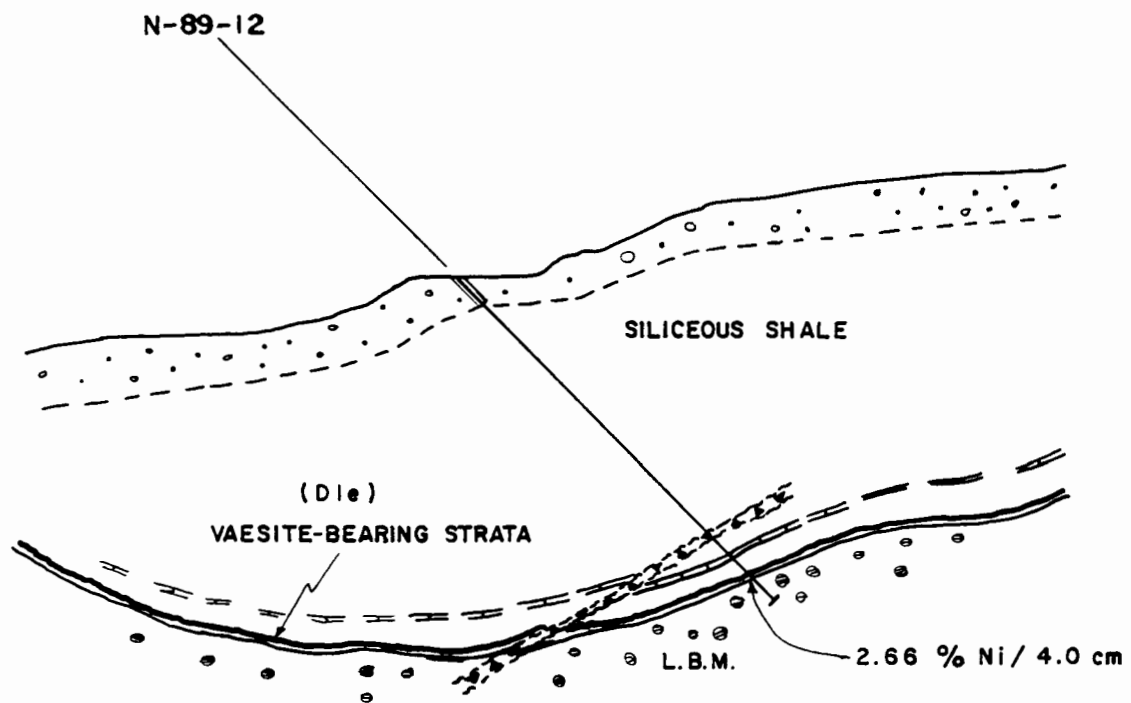


Figure 16
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION N-89-12
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750
 0 5 10 20 30 metres

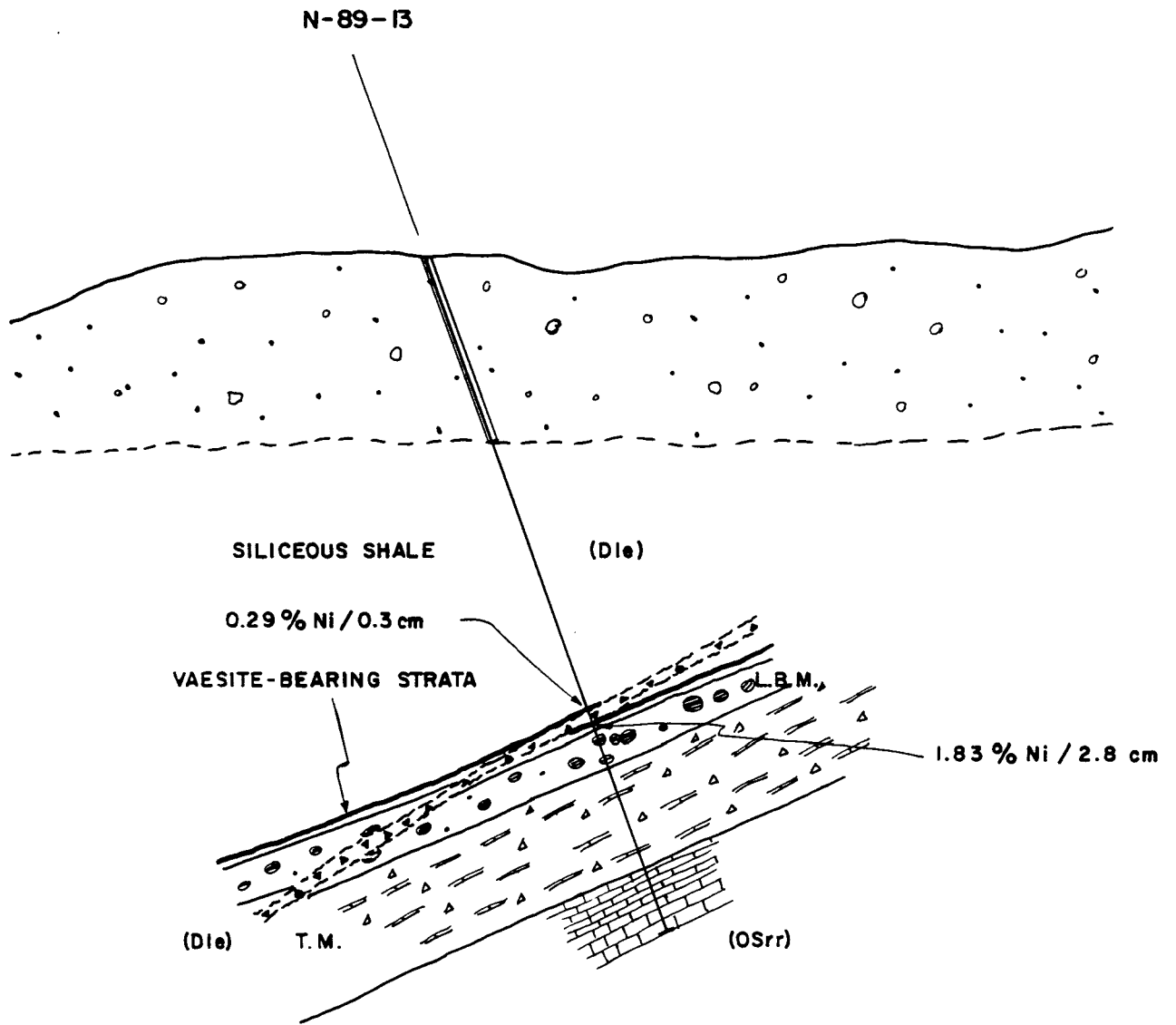


Figure 17
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION N-89-13
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750

0 5 10 20 30 metres

N-89-14

LIMESTONE UNIT.

SILICEOUS SHALE

QZ-CA BRECCIA

LIMESTONE BED.

SILTY-MUDSTONE.

VAESITE-BEARING STRATA

L. B. M.

(Die)

(Die)

1.42 % Ni / 2.0 cm

Figure 18

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DRILL SECTION N-89-14

NICK PROPERTY

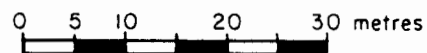
FALCONBRIDGE LIMITED

NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.

2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750



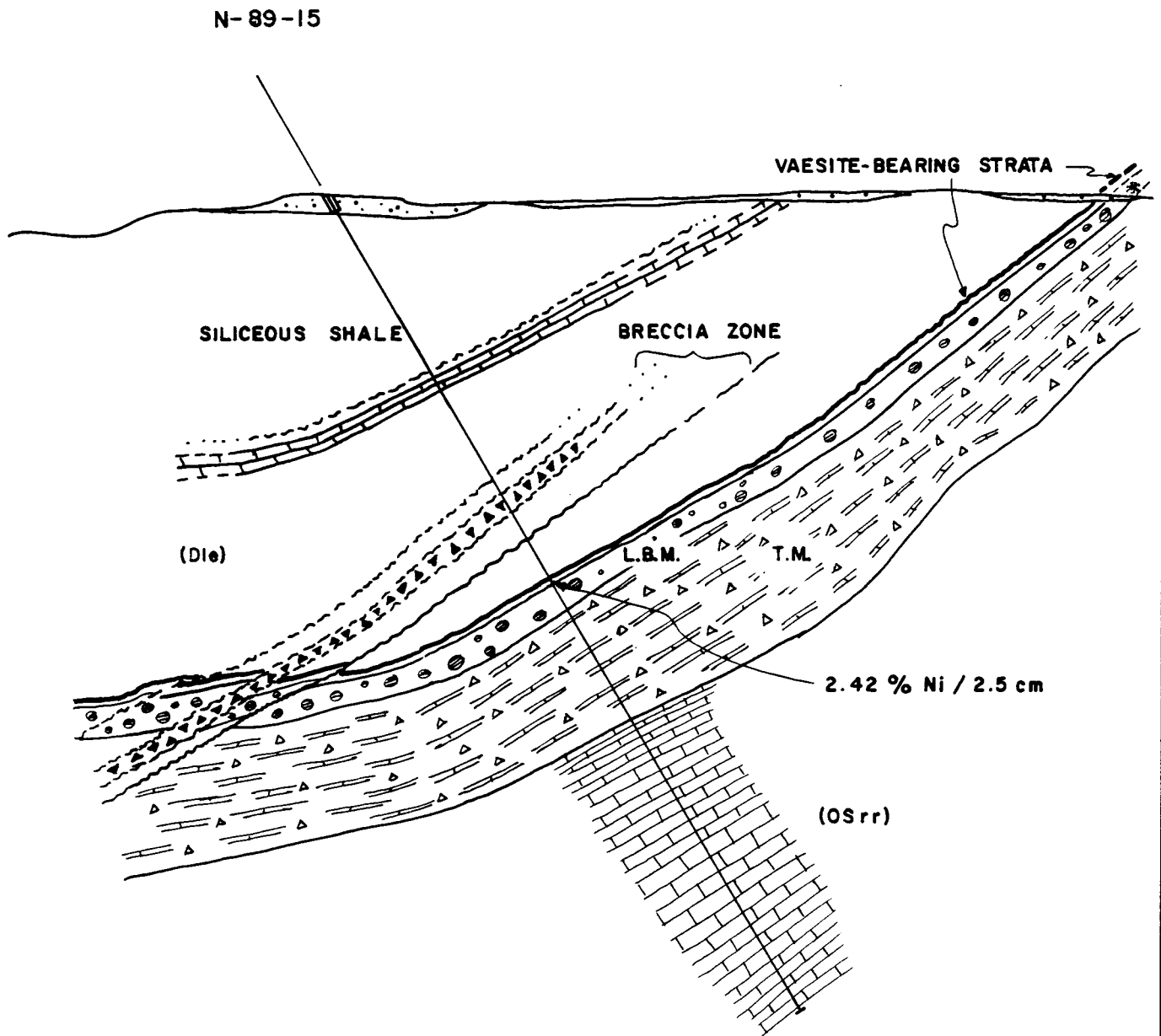


Figure 19

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DRILL SECTION N-89-15

NICK PROPERTY

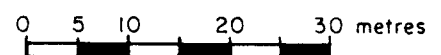
FALCONBRIDGE LIMITED

NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.

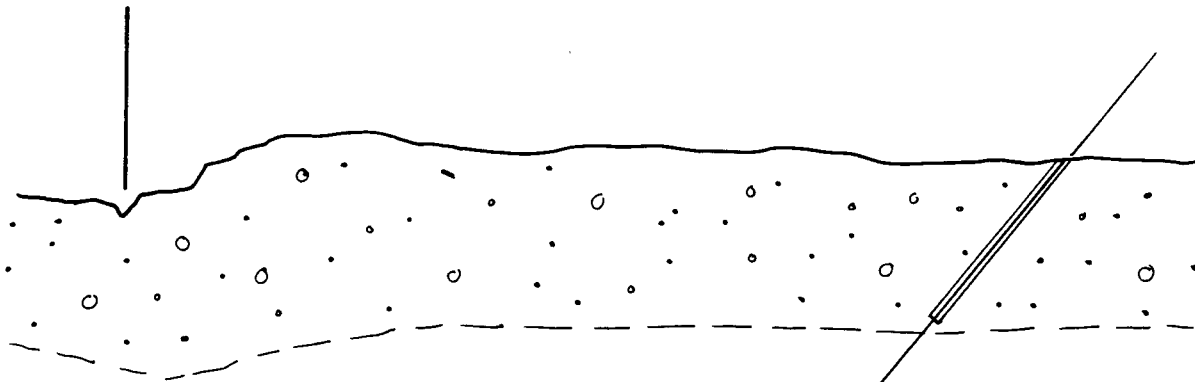
2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750



WHITE CK.

N-89-16

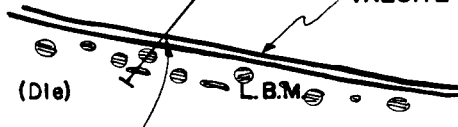


(D1e)

SILICEOUS SHALE

LIMESTONE UNIT

VAESITE-BEARING STRATA



(D1e)

L.B.M.

1.94 % Ni / 6.0 cm

Figure 20

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DRILL SECTION N-89-16

NICK PROPERTY

FALCONBRIDGE LIMITED

NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.

2001 RESOURCE INDUSTRIES LTD.

SCALE 1:750

0 5 10 20 30 metres

The suite of elements in the vaesite-bearing horizon is, with the exception of zinc and silver, unique to the Nick deposit with respect to other stratiform sedex base metal occurrences hosted by Earn Group shales in Yukon Territory and northern British Columbia. The dominant metals in the latter type of deposits are lead, zinc, barium and silver. These metals were probably carried as chloride ion complexes in relatively hot, moderately saline hydrothermal fluids expelled along active "growth" faults in fault-bounded basins. The stratigraphic setting and age of the Nick mineralization are very similar to the Pb-Zn-Ba-Ag deposits but the metals were probably carried as organic complexes in formational fluids. The anomalous metals in the vaesite-bearing horizon are organophile elements that are also commonly concentrated by organic matter in modern bog and marine environments.

Sulphur isotope values for the Pb-Zn-Ba-Ag variety of Upper Devonian sedex deposits are the same as those for the Nick wallrock pyrite samples. These are within the range of biogenically reduced Devonian seawater sulphate. The vaesite-bearing isotope values are anomalously heavy and possibly reflect derivation from hydrothermally reduced organic matter in the underlying Road River Group strata.

The exotic sulphur isotope values of the vaesite-bearing horizon and the abrupt cutoff of anomalous values at the base and top of the mineralization suggest relatively rapid deposition from a fluid that underwent very little mixing with overlying seawater. The lack of detrital material in what is essentially an entirely chemical sediment also indicates that deposition of sulphide and gangue minerals occurred fairly rapidly at the sediment-water interface. Rapid deposition of sulphide minerals with no seawater mixing implies that reduced sulphur was readily available and was probably carried in the mineralizing fluids with the metals.

The sheet-like nature of the vaesite horizon as observed in the Discovery Showing area and the apparent lack of metal zonation are the products of relatively cool or saline exhalative fluids. A present day analogy is the deposition of sulphide-bearing muds from Red Sea brines.

Using the Red Sea model, the most favourable setting for economic thicknesses of the vaesite-bearing horizon is an Atlantis II-type "Third-Order" seafloor depression where mineralizing fluids could have pooled, forming localized accumulations.

The 1991 program consisted of geological mapping, prospecting and hand trenching. The purpose of the program was to trace the mineralized horizon in the northern and western portions of the property. At locations where the Limestone Ball Member and Phosphatic Chert Member contact was sufficiently exposed, hand trenches were cut into weathered bedrock to expose the zone and identify any stratigraphic thickening associated with the mineralization (Figure 6). A total of thirty-one trenches were cut. The thickest massive sulphide horizon observed was 3 cm. All mineralization observed in 1991 trenches is highly oxidized and probably leached of most constituents and no fresh sulphide minerals were identified.

Due to the recessive nature of the mineralization, the massive sulphide horizon was difficult to recognize in most trenches. Composite rock chip samples were taken from the floors of all trenches with the average sample interval varying between 1 and 1.5 m. Thirty-two element analyses of the trench samples are given in Appendix III. Anomalous nickel values were returned from a number of the trench samples but, because of the large sample widths and the highly oxidized nature of the material, grade of fresh mineralization is difficult to estimate.

In addition to tracing the massive sulphide horizon, the 1991 exploration attempted to identify regional-scale variations in stratigraphic thicknesses of the enclosing Limestone Ball Member and Phosphatic Chert Member. This work confirmed that the horizon occurs at the base of the Phosphatic Chert Member within 20 to 120 cm of the upper contact of the Limestone Ball Member (Plate 10), similar to the Discovery Showing area. Because of poor exposure, coupled with frozen overburden, this program met with relatively limited success and no definitive correlations can yet be made between changes in the thickness of the Limestone Ball Member, the Phosphatic Chert Member and the massive sulphide horizon. Sections measured across the favourable stratigraphic horizon in 1991 are given on Figures 21, 22 and 23.

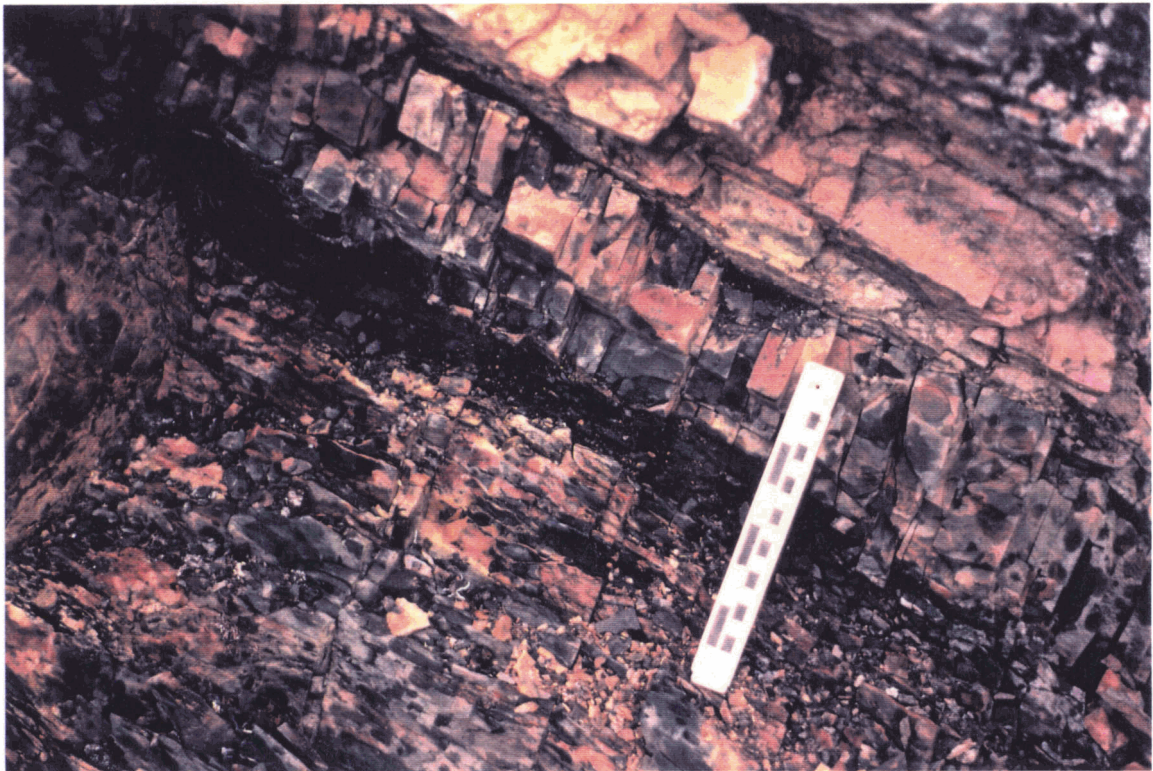


Plate 10: Narrow, oxidized vaesite horizon in Phosphatic Chert Member on north limb of main syncline.

Bitumen Veins

A number of float and outcrop occurrences of bitumen or pyrobitumen vein material occur at various locations on the Nick property (Figure 6). Most are located within Road River Group strata. The largest, called the Bitumen Showing on Olfert Creek, is a 3 m wide tabular body exposed in a canyon wall for a vertical extent of 9 m and a strike length of 21 m about 1 km downstream of the junction of Mawer and Olfert Creeks (Figure 24, Plate 11). The well defined fissure walls are slickensided indicating vertical movement followed by sub-horizontal strike-slip movement. The structure is composed of silicified and crackle-brecciated slabs of relatively intact wallrock surrounded by sheared and crushed bitumen. The bitumen has an extremely high reflectance indicating either a relatively high temperature of deposition or subsequent metamorphic upgrading of low temperature hydrocarbon. Since the host rocks are essentially unmetamorphosed, the most logical scenario is one of deposition from hydrothermal fluids similar to those responsible for the stratiform mineralization.

The bitumen has anomalous contents of nickel (up to 1045 ppm), vanadium (>1%), chromium (up to 623 ppm), phosphorous (up to 1220 ppm) and zinc (up to 1935 ppm). No associated sulphide minerals have been identified although hydrozincite occurs along the walls of the Olfert Showing.

Two additional bitumen veins were identified during the 1991 program (Figure 6). Both were sampled but neither carry significant values of the diagnostic metals.

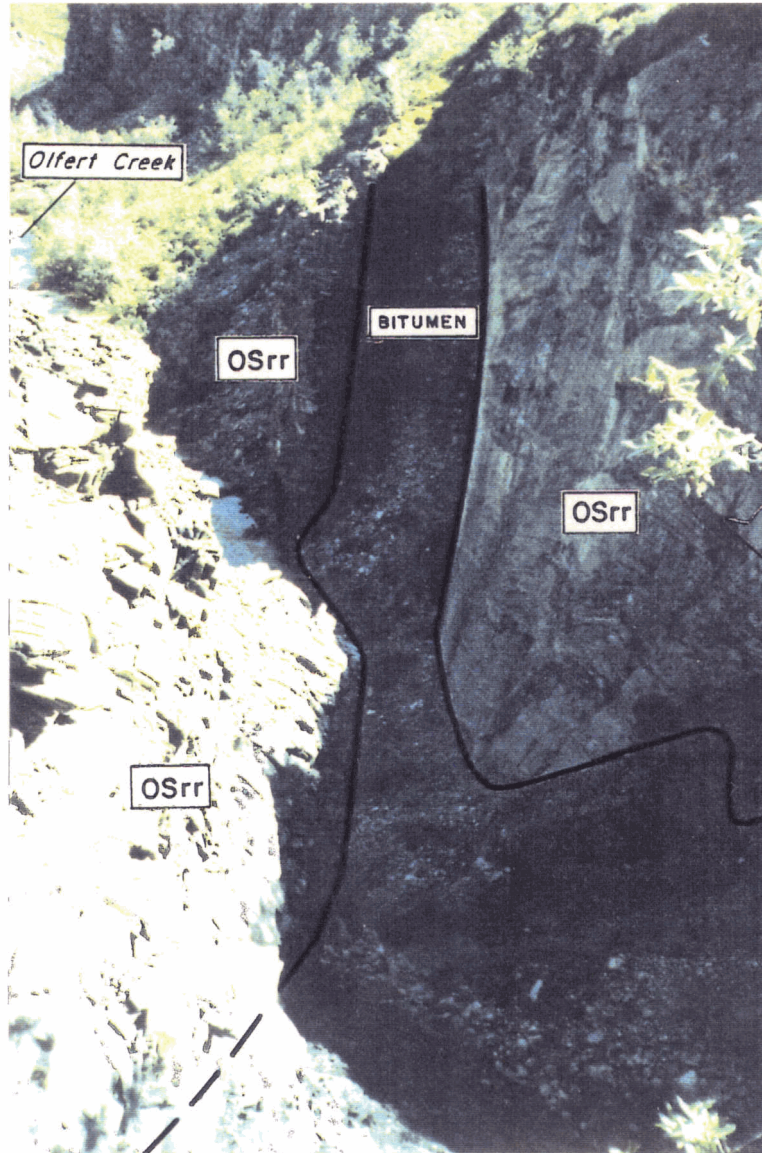


Plate 11: Bitumen Showing on Olfert Creek, 800 m downstream from the forks of Mawer and Olfert Creeks (looking southeast). Light grey weathering fetid calcareous shales and limestone (OSrr) occur on both sides of the fissure.

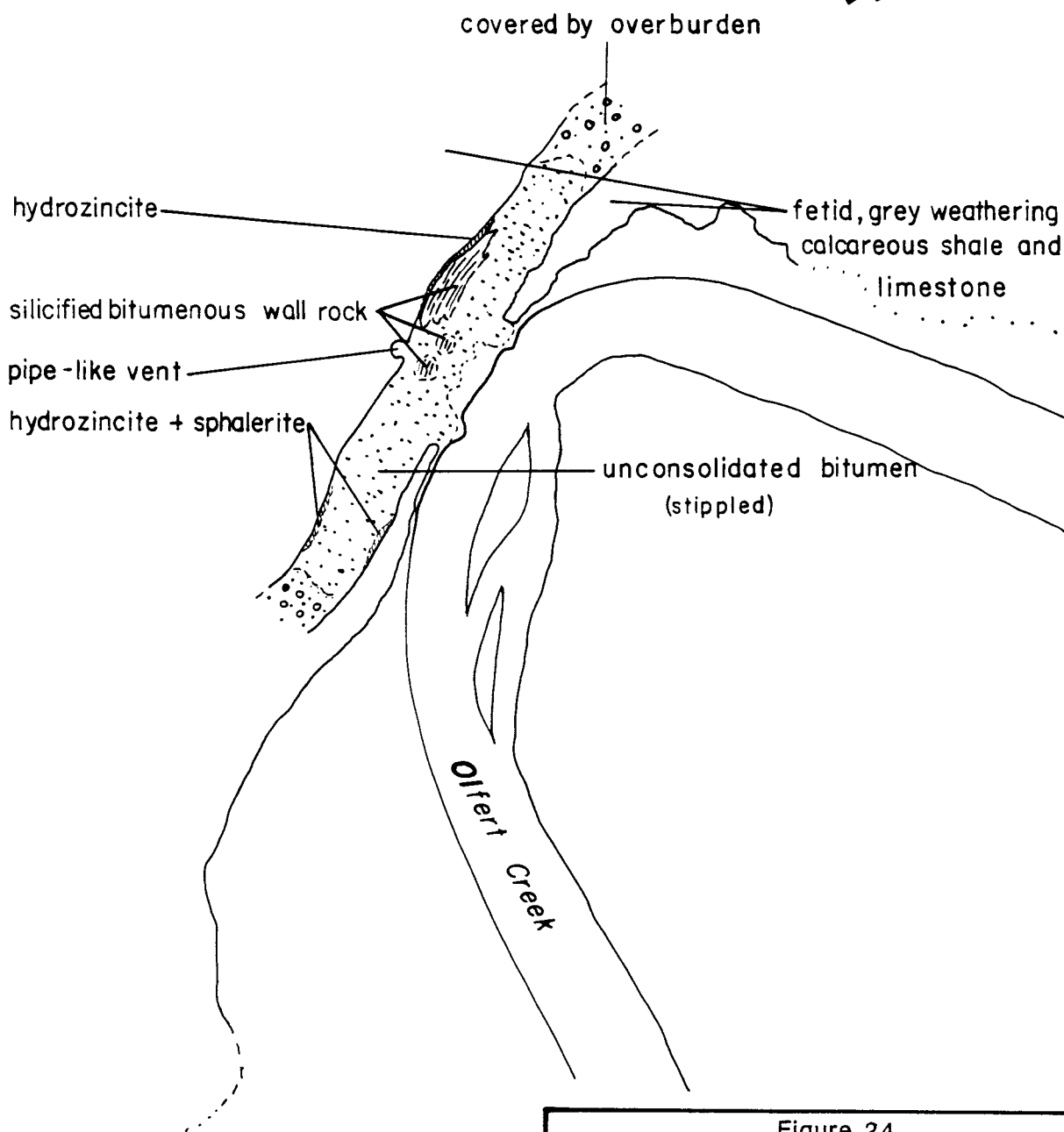


Figure 24

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

**BITUMEN SHOWING ON
OLFERT CREEK**

NICK PROPERTY

FALCONBRIDGE LIMITED
NDU RESOURCES LTD.

PAK-MAN RESOURCES INC.

2001 RESOURCE INDUSTRIES LTD.

SCALE - 1:250



GEOCHEMISTRY

Approximately 3100 rock, silt and soil samples have been collected in the Nick property area (Figure 25). The first samples were taken in 1977 as part of a regional-scale silt survey carried out by the GSC. Cominco Ltd. prospected and sampled the Nick property area in 1981 as part of a regional exploration program for lead-zinc-barium sedex deposits.

Detailed property-scale sampling was carried out by Archer, Cathro during the 1988, 1989 and 1991 exploration programs. Silt samples were collected from most drainages on the property and soil samples were collected on both detailed soil grids and topographic contour traverses (Figures 25 through 27). Rock samples were taken as drill core splits and from identified and possible vaesite showings exposed naturally and in hand trenches.

All samples from 1988, 1989 and 1991 were analyzed for 32 elements using the induced coupled plasma (ICP) method. These samples were all analyzed at Chemex Labs Ltd., North Vancouver. The GSC and Cominco samples were analyzed at their respective in-house laboratories.

Results of the geochemical surveys have established that nickel and zinc are the best geochemical indicators of the mineralization in the vaesite-bearing horizon. Regional and Discovery Showing area values for nickel and zinc are plotted on Figures 28 through 31.

Table 2 on the following page outlines background and anomalous nickel and zinc values in soil and silt samples on the Nick property.

TABLE 2
ANOMALOUS AND BACKGROUND LEVELS FOR NICKEL AND ZINC

<u>Element</u>	<u>Strongly Anomalous (ppm)</u>	<u>Moderately Anomalous (ppm)</u>	<u>Weakly Anomalous (ppm)</u>	<u>Background (ppm)</u>
Nickel				
Soil	>900	500 - 900	350 - 500	<350
Silt	>700	500 - 700	320 - 500	<320
Zinc				
Soil	>1000	400 - 1000	250 - 400	<250
Silt	>2500	1000 - 2500	500 - 1000	<500

DISCUSSION

The morphology and depositional setting of the Nick vaesite-bearing horizon is similar to well documented Paleozoic lead-zinc-silver sedex deposits. However, the chemistry and mineralogy on the Nick property is unique to North America.

Very little has been published on the occurrence of sedimentary nickel, however, Lower Cambrian organic-rich shales carrying widespread, thin, nickeliferous massive sulphide horizons have been mined at Songlin, China since 1985. The mineralization at Songlin occurs as 5 to 15 cm thick sulphide beds in a 2 m thick, black shale horizon. Ore grades average 2 to 4% Mo, up to 4% Ni, 2% Zn, 0.7 ppm Au, 50 ppm Ag, 300 ppb Pt and 30 ppb Ir.

Morphology, continuity, stratigraphic setting, trace metal and sulphur isotope signatures of the Nick vaesite-bearing horizon suggest derivation from Red Sea-type, low temperature, saline, organic-rich brines within a restricted, starved-basin environment.

Analyses of massive sulphide specimens from across the project area show that the horizon always carries exceptionally high metal values. The potential for economically exploitable mineralization is therefore linked to the thickness of the horizon.

The closest genetic analogies to the Nick mineralization are probably the Howards Pass deposits on the Yukon-Northwest Territories border. Approximately 500 million tonnes of mineralization grading 5.4% Zn and 2.1% Pb has been outlined by drilling. These three deposits occur within a 40 km long Silurian shale basin. The potentially economic thicknesses of stratiform sulphide mineralization are confined to "Third-Order Basins" or seafloor depressions.

The stratigraphic position of the Howards Pass sulphide mineralization is marked by a persistent, basin-wide, zinc-rich horizon overlain by phosphatic

chert. Similar to the Nick vaesite-bearing horizon, the zinc-rich interval occurs at the abrupt transition between calcareous and siliceous, pyritic shales. Vent areas have not yet been discovered for the Howards Pass deposits and no metal zoning is apparent within either the regional horizon or within the zinc-lead deposits. The mineralization is theorized to have formed from very dense, saline fluids that migrated along basin-margin faults and flowed downslope to pond in fault-bounded(?) seafloor depressions.

Vent areas for the Nick mineralizing fluids have not yet been located although some bitumen veins discovered in various areas around the property may be genetically related to the stratiform nickel mineralization. Both the vaesite-bearing horizons and some of the bitumen veins contain a distinctive suite of metals not seen elsewhere in the stratigraphy. The characteristics of the vaesite-bearing horizon suggest that thickest massive sulphide accumulations would be in Third-Order Basins similar to the Howards Pass deposits. Vent-proximal settings like the higher temperature Macmillan Pass lead-zinc-barium sedex deposits are unlikely.

Detailed studies of mature sedex camps around the world have established a relationship between seafloor massive sulphide generation and synsedimentary tectonism, usually growth faults associated with rifting. The Discovery Fault, located at the east end of the Nick property is probably a growth fault (Figure 7). Drill hole data suggests that hanging wall stratigraphy is thicker west of the fault than east of the fault. A ten-fold increase in thickness of the vaesite-bearing horizon follows this relationship, but the widest intersection of 10 cm grading 2.9% Ni in Hole N-88-01 is not thick enough to be economically mined. Density of outcrop and trench exposures in addition to diamond drill results are sufficient to establish that economic thicknesses of the vaesite-bearing horizon are not present in the immediate area of the Discovery Showing.

The Discovery Fault is a northerly-trending fault which parallels the Back Creek Fault, a basin-margin structure located about 2 km to the east. Both faults occupy major northerly-trending drainages normal to the geological structure of the area. A number of linears with the same general orientation cross the main and northern synclines in the central and western parts of the property. Anomalous nickel values were returned from samples taken from 1991 hand trenches in the vicinity of several of these linears. A correlation between the nickel values and the linears can only be inferred as outcrop exposure is poor in most cases.

Additional exploration should consist of detailed structural and stratigraphic mapping to document thickness changes within the Lower Earn Group on a regional scale across the property to evaluate whether Third-Order Basins are present. Results of this type of survey in other sedex camps have been successful in providing a framework for additional diamond drilling directed toward exploring for potentially economic zones of massive sulphide mineralization that are either overburden covered or blind to surface. Existing maps and survey control on the Nick property are inadequate for the purposes of detailed structural and stratigraphic mapping and preparation of a detailed orthophoto from existing government aerial photography is recommended.

APPENDIX I
AUTHORS' STATEMENTS OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Robert C. Carne, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Burnaby, British Columbia, hereby certify that:

1. I graduated from the University of British Columbia in 1974 with a B.Sc. and in 1979 with an M.Sc. majoring in Geological Sciences.
2. I am a member of the Geological Association of Canada.
3. From 1974 to present, I have been actively engaged as a geologist in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981 became a partner of Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.




Robert C. Carne, B.Sc., M.Sc.

STATEMENT OF QUALIFICATIONS

I, Ian J. Talbot, geologist, with a business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Vancouver, British Columbia, do hereby certify that:

1. I graduated from the Brandon University in 1984 with a Bachelor's degree in geology.
2. I graduated from the University of British Columbia in 1989 with a Bachelor of Law degree.
3. From 1984 to 1988 and from May of 1991 to the present, I have been actively engaged in mineral exploration in Canada and am presently employed with Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in and supervised the field work in 1988 and 1991.



I.J. Talbot, B.Sc., L.L.B.

APPENDIX II
LIST OF PERSONNEL

APPENDIX II

LIST OF PERSONNEL

<u>NAME</u>	<u>POSITION</u>	<u>PERIOD</u>
<u>Archer, Cathro</u>		
Robert Carne	Senior Geologist	July 28-31, August 18
Ian Talbot	Geologist	July 27-August 18
Michael Phillips	Geologist	July 29-August 18
Clark Damer	Field Assistant	July 30-August 3, August 8-9
Gordon MacIntosh	Field Assistant	August 1-3, August 8-18
May Sze	Field Assistant	August 9-18
Alice Wychopen	Cook	July 29-August 15
Brigitte Greve	Cook	August 15-18
<u>Trans North</u>		
David Reid	Pilot	July 29-August 4
David Holden	Pilot	August 4-18

APPENDIX III
ANALYTICAL CERTIFICATES



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Project : NICK
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T16804	201	298	< 0.2	8.20	< 5	320	< 0.5	< 2	0.77	7.0	24	53	172	12.50	20	< 1	0.07	10	0.30	280	42
T16805	203	205	< 0.2	0.69	25	2240	< 0.5	< 2	11.25	14.0	6	63	66	1.14	30	3	0.15	30	0.70	250	49
T16806	203	205	0.4	0.80	15	1880	< 0.5	2	14.20	11.0	4	46	54	1.23	40	< 1	0.20	30	2.75	185	39

CERTIFICATION:

B. C. G. J.



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CERTIFICATE OF ANALYSIS

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T16804	201 298	< 0.01	216	850	6	5	5	91	0.01	< 10	40	323	30	716
T16805	203 205	0.01	348	830	< 2	5	3	604	0.01	< 10	< 10	671	10	1280
T16806	203 205	0.01	137	1460	8	5	3	507	< 0.01	< 10	< 10	345	20	712

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T17156	208 272	0.01	< 0.2	< 0.01	< 5	150	< 0.5	< 2	0.04	0.5	< 1	39	33	0.26	< 10	10	0.05	< 10	0.02	10
T17157	208 272	0.01	< 0.2	0.29	15	3990	< 0.5	< 2	0.02	< 0.5	< 1	102	5	1.37	< 10	10	0.20	< 10	0.04	< 5
T17158	208 272	0.01	0.8	0.08	15	4460	< 0.5	< 2	0.04	< 0.5	< 1	33	8	2.46	10	5	0.20	10	0.03	10
T17159	208 272	0.01	1.4	0.15	25	6390	< 0.5	< 2	0.01	< 0.5	< 1	38	10	3.07	10	4	0.21	10	0.03	< 5
T17160	208 272	0.01	< 0.2	0.25	10	6510	< 0.5	< 2	0.01	< 0.5	3	39	8	2.51	10	3	0.30	10	0.04	< 5
T17161	208 272	< 0.01	1.2	0.17	< 5	5770	< 0.5	< 2	0.01	< 0.5	< 1	38	6	1.83	10	< 1	0.20	10	0.03	< 5
T17162	208 272	0.05	< 0.2	0.17	55	510	< 0.5	< 2	4.07	1.0	9	72	158	1.30	30	9	0.01	20	0.27	450
T17163	208 272	0.02	0.4	0.54	< 5	1920	< 0.5	< 2	0.97	0.5	6	123	21	1.42	10	3	0.20	30	0.12	170
T17164	208 272	0.02	0.4	1.29	60	630	< 0.5	< 2	4.19	1.0	3	52	50	2.47	40	< 1	0.01	20	3.08	275
T17165	208 272	0.01	1.0	1.47	35	3540	< 0.5	< 2	0.17	< 0.5	2	91	21	2.18	10	6	0.60	30	0.30	30

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T17162	208	272	43	0.01	458	590	2	20	1	232	< 0.01	< 10	20	962	< 10	460
T17163	208	272	65	0.01	184	310	20	< 5	2	95	< 0.01	20	< 10	265	< 10	250
T17164	208	272	81	0.02	100	780	2	20	4	271	< 0.01	10	< 10	440	< 10	202
T17165	208	272	105	0.03	44	750	52	25	4	95	0.02	< 10	< 10	663	< 10	82

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17153	208	294	0.02	0.2	1.36	50	500	< 0.5	< 2	4.63	0.5	6	58	97	3.85	20	< 1	0.11	20	0.22	50
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17191	208	294	0.07	1.0	1.59	690	1280	< 0.5	6	1.26	0.5	5	93	181	7.12	10	4	0.26	40	0.12	40
17192	208	294	0.09	< 0.2	3.64	2940	1570	< 0.5	12	0.21	< 0.5	10	274	322	>15.00	30	8	0.32	20	0.14	15
17193	208	294	0.01	0.6	0.50	95	1190	< 0.5	< 2	0.14	< 0.5	< 1	76	28	1.63	< 10	< 1	0.11	20	0.06	15
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17195	208	294	0.04	0.6	0.82	115	2220	< 0.5	< 2	1.03	1.0	8	61	66	2.45	10	< 1	0.38	60	0.08	35
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17198	208	294	0.01	0.8	0.82	165	340	< 0.5	< 2	0.12	0.5	9	99	141	4.29	< 10	< 1	0.08	10	0.05	65
17199	208	294	0.01	0.4	0.53	60	560	< 0.5	4	0.08	1.5	9	45	56	2.05	< 10	< 1	0.20	20	0.05	70
17200	208	294	0.02	0.6	0.43	35	1220	< 0.5	20	1.31	2.5	7	69	53	1.79	10	< 1	0.16	10	0.12	90

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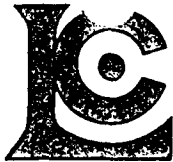
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17153	208	294	95	0.01	164	680	34	25	3	169	< 0.01	< 10	10	210	< 10	214
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17155	208	294	222	0.01	15	560	50	30	1	180	< 0.01	< 10	< 10	133	< 10	62
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17191	208	294	252	0.03	649	2940	80	40	8	156	0.01	20	40	871	< 10	538
17192	208	294	689	0.05	862	8940	74	90	14	235	0.02	10	120	2550	< 10	470
17193	208	294	144	< 0.01	84	1090	40	15	2	59	< 0.01	< 10	< 10	236	< 10	168
17194	208	294	42	0.01	152	210	38	20	1	125	< 0.01	10	< 10	233	< 10	366
17195	208	294	188	0.02	375	1170	50	30	6	203	0.02	10	< 10	724	< 10	202
17196	208	294	206	< 0.01	21	240	52	25	2	49	< 0.01	10	< 10	276	< 10	46
17197	208	294	91	0.01	71	320	42	10	1	46	< 0.01	< 10	< 10	172	< 10	120
17198	208	294	252	< 0.01	100	1330	18	40	2	25	< 0.01	< 10	< 10	284	< 10	244
17199	208	294	68	0.01	160	460	48	20	2	41	< 0.01	< 10	10	156	< 10	358
17200	208	294	63	0.01	261	380	30	15	2	90	< 0.01	20	< 10	202	< 10	452

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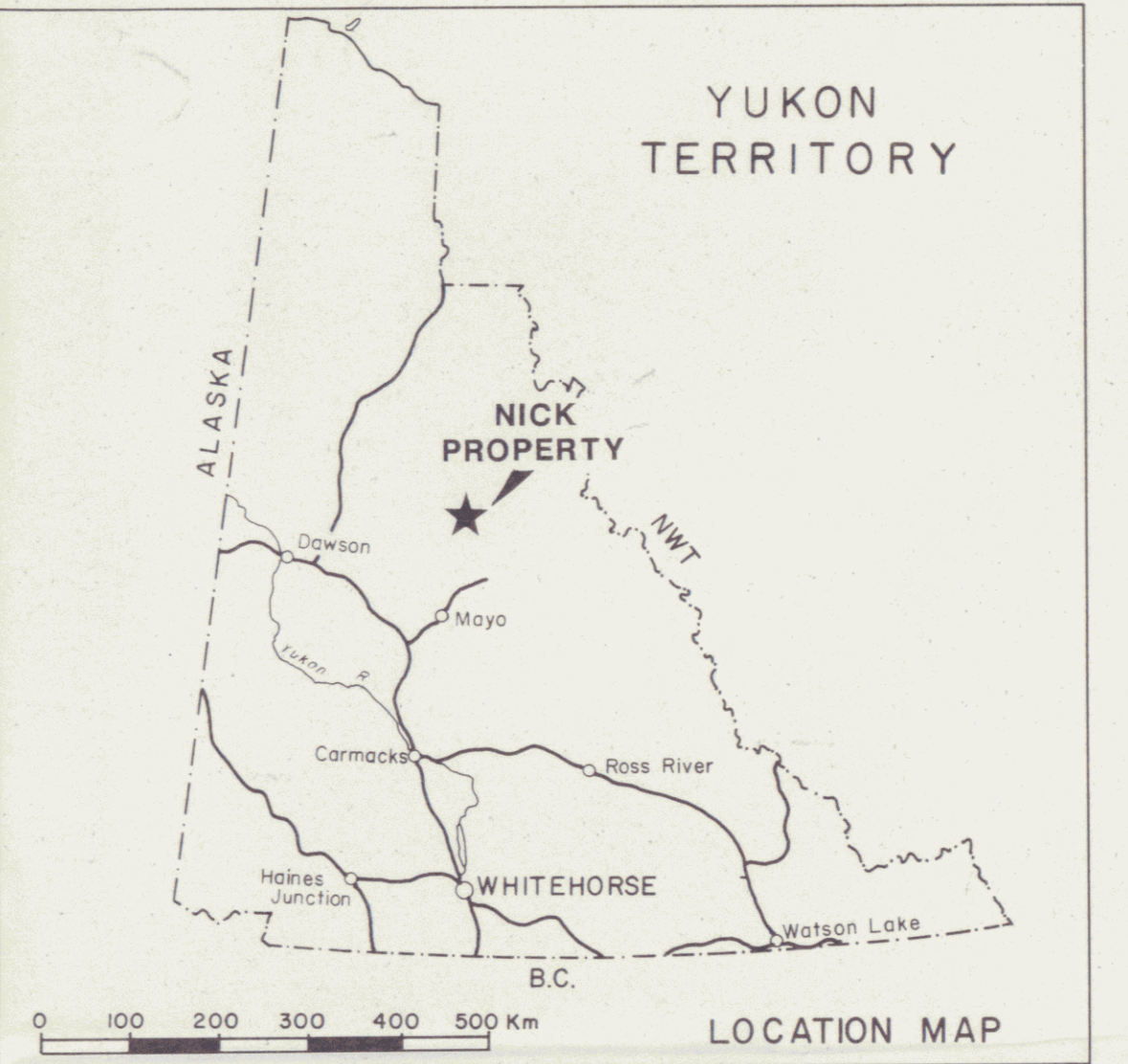
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T17177	208	294	1.0	0.82	60	3820	1.0	8	5.34	3.0	3	34	47	1.96	10	< 1	0.34	20	0.43	65	110
T17178	208	294	< 0.2	0.63	55	1170	0.5	< 2	1.85	0.5	1	46	13	1.16	< 10	< 1	0.22	20	0.11	30	79
T17179	208	294	1.0	1.33	605	910	4.0	12	5.81	11.0	20	77	195	6.97	< 10	1	0.18	30	0.39	165	240
T17180	208	294	2.8	1.03	390	1090	2.0	6	2.29	7.0	12	108	149	7.07	< 10	< 1	0.24	40	0.27	100	283
T17181	208	294	3.0	0.86	65	1900	0.5	10	0.16	2.0	< 1	80	38	2.07	10	< 1	0.28	30	0.12	10	141
T17182	208	294	3.0	0.76	60	1560	1.5	2	0.41	1.0	1	73	30	2.17	10	1	0.28	30	0.15	25	120
T17183	208	294	13.2	0.75	345	5530	1.5	8	0.18	1.5	2	94	91	3.41	10	5	0.32	40	0.13	30	665
T17184	208	294	< 0.2	5.52	65	1920	2.5	30	>15.00	55.0	47	32	2800	2.23	< 10	< 1	0.14	< 10	0.18	410	67
T17185	208	294	4.6	1.11	270	1780	2.0	12	1.49	15.5	28	62	148	4.34	10	3	0.31	60	0.10	370	225
T17186	208	294	7.4	0.85	425	2360	< 0.5	8	1.93	21.0	7	70	109	5.04	30	1	0.29	80	0.09	155	226
T17187	208	294	4.4	0.71	60	1620	< 0.5	8	0.22	< 0.5	3	75	57	1.49	30	< 1	0.20	40	0.06	20	110
T17188	208	294	5.6	1.01	415	1680	< 0.5	8	0.03	0.5	2	87	70	3.88	20	1	0.47	30	0.08	10	537
T17189	208	294	3.0	0.64	95	1330	< 0.5	6	1.30	1.5	7	57	71	2.42	20	< 1	0.24	30	0.12	35	160

CERTIFICATION:

B. Coughlin



STRATIGRAPHY:

DEVONIAN-MISSISSIPPIAN UPPER EARN GROUP

DMue
Light brown to buff weathering fissile siliceous shale (very limited extent in the central portion of the southern synclinorium) overlying a medium brown to dark brown weathering silty mudstone, siltstone, sandstone and chert pebble conglomerate coarsening upward clastic sequence of turbidites.

Dle
LOWER EARN GROUP
Dark rusty silver-blue weathering, black pyritiferous argillite, coarsens upward to blue grey weathering dark to medium grey thickly laminated silty mudstone turbidites underlain by carbonaceous phosphatic chert. The base of the Phosphatic Chert Member is characterized by a vaseite-bearing massive sulphide horizon 2 to 10 cm thick. The concretionary siliceous shale marker horizon called the Limestone Ball Member lies directly below the Phosphatic Chert Member and directly above a black and dark grey weathering interbedded cherty limestone called the Transition Member.

*NB. For purposes of regional-scale geology, the vaseite-bearing horizon is not differentiated from the base of the Lower Earn Group.

ORDOVICIAN-SILURIAN ROAD RIVER GROUP

OSrr
Fetid black carbonaceous and calcareous shales.

CAMBRIAN-ORDOVICIAN UNWASSED LIMESTONE AND DOLOMITE

COIs
White to light grey reefal limestone and dolomite.

SYMBOLS:

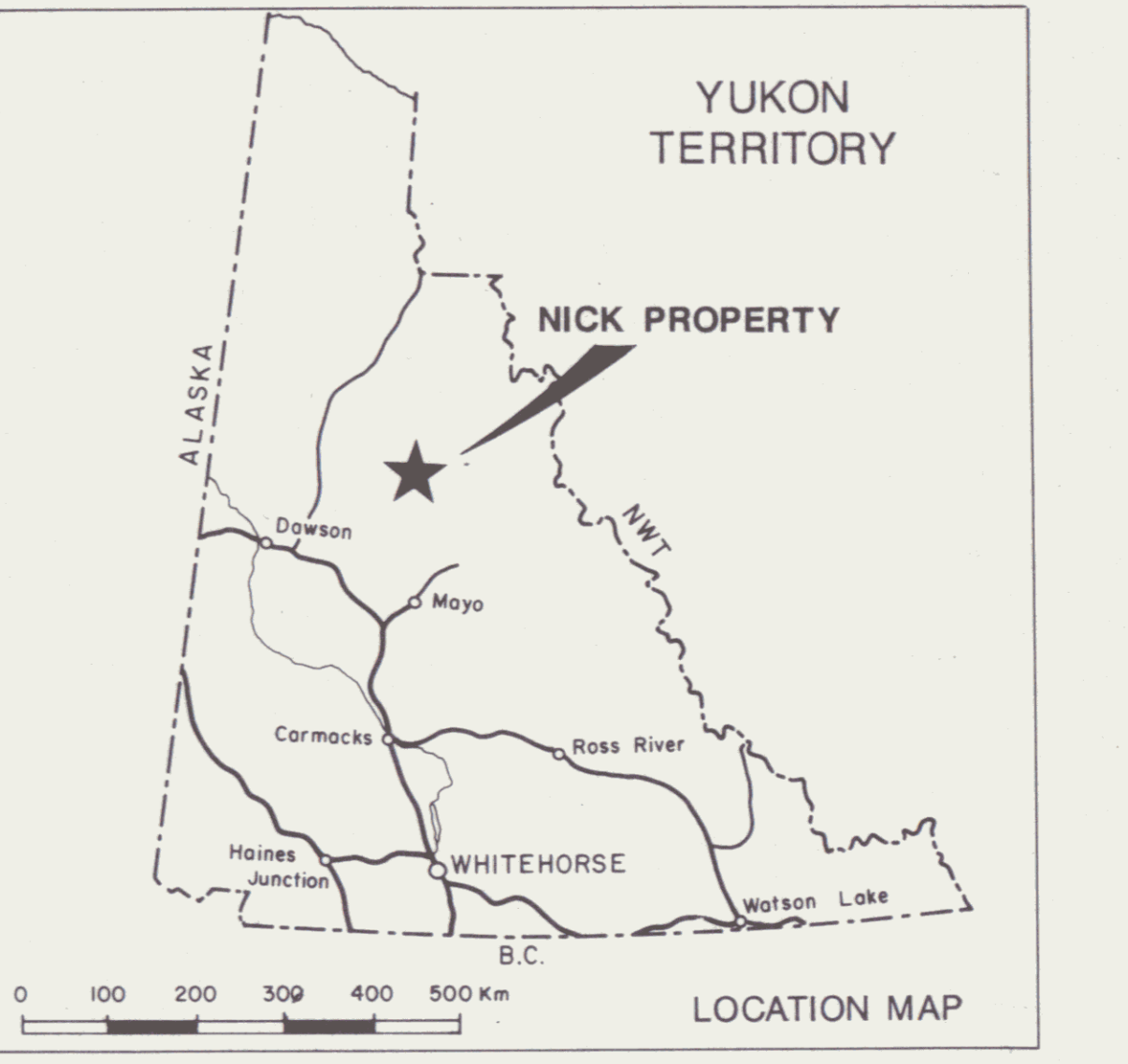
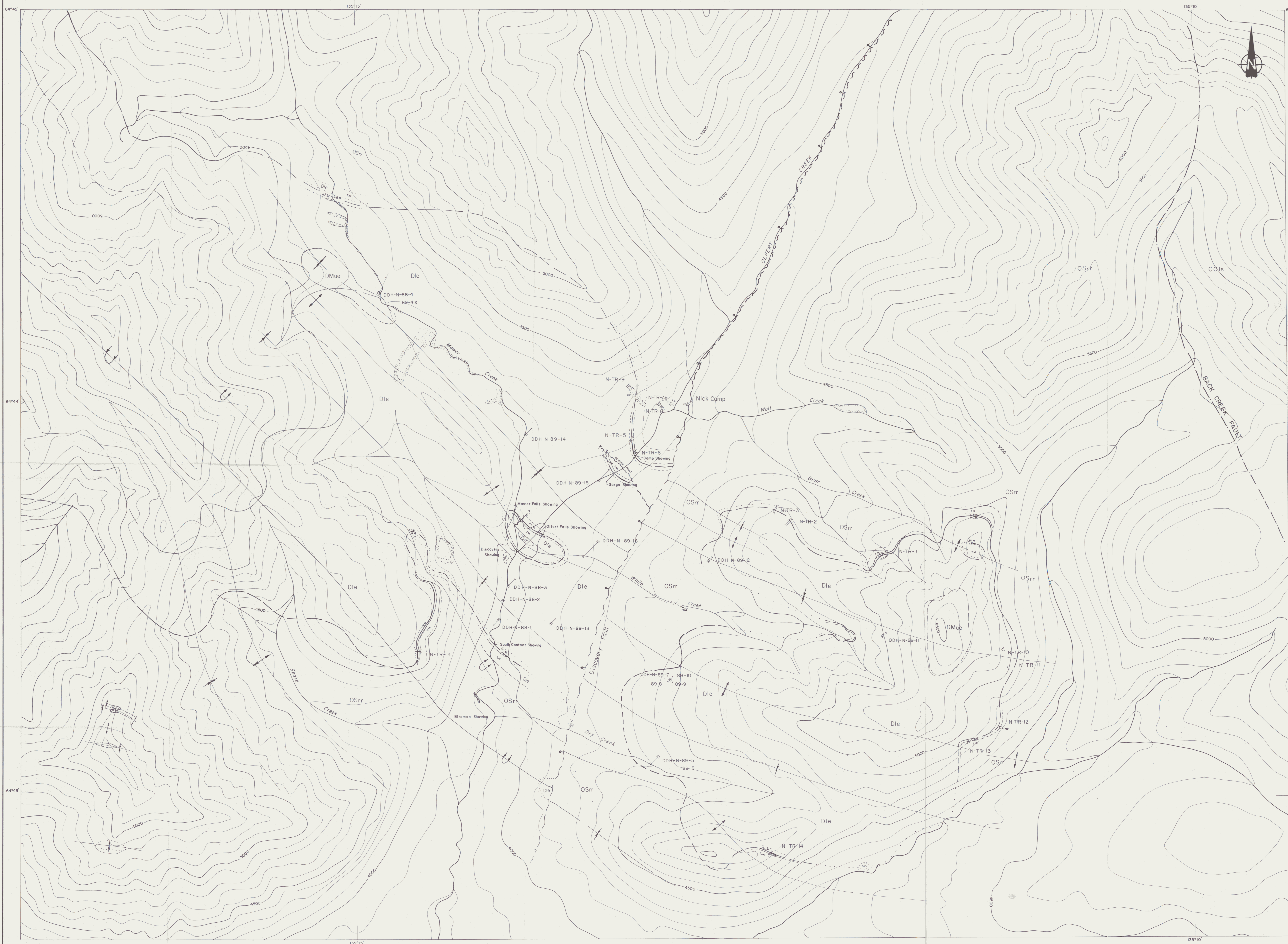
- Vaseite-bearing horizon
- ★ Vaseite showing
- ★ Bitumen showing
- Contact (defined, approximate, assumed)
- Regional-scale fault
- ~ Small-scale fault
- + Anticline: upright, overturned
- + Syncline: upright, overturned
- Plunge of fold axis
- Hand trench

Figure 6
 ARCHER, CATRO & ASSOCIATES (1981) LIMITED
PROPERTY GEOLOGY
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 NIJU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

SCALE 1:20,000
 0 500 1000 1500 Metres

DWG #1
 093002

To accompany report dated December, 1991
 NA# 10671/10674 (357)



STRATIGRAPHY:

DMue	UPPER DEVONIAN-MISSISSIPPIAN UPPER FAIR GROUP Shale, siltstone, conglomerate
Die	MIDDLE DEVONIAN LOWER FAIR GROUP <ul style="list-style-type: none"> Unnamed siliceous shales P.C.M. Phosphatic Chert Member - phosphate-rich chert, siliceous shale L.B.M. Limestone Ball Member - siliceous concretionary shale T.M. Transition Member - calcareous and cherty shales
OSrr	ORDOVICIAN-SILURIAN ROAD RIVER GROUP Calcareous, graptolitic shale
EOIs	CAMBRIAN-ORDOVICIAN Unnamed limestone and dolomite

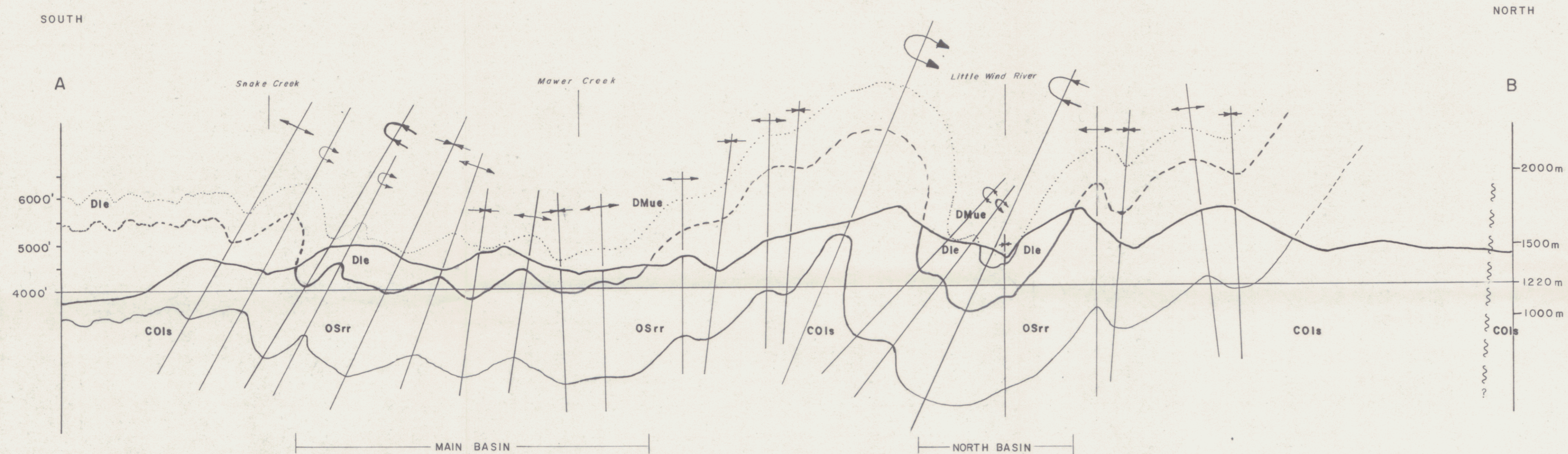
SYMBOLS:

	Bitumen vein
	Gossan
	Kill Zone
	Geological contact (defined, approximate, assumed)
	Vaesite-bearing horizon (base of P.C.M.)
	Anticline (upright, overturned)
	Syncline (upright, overturned)
	Small-scale fault
	Normal fault (o — downdropped side)
	Regional-scale fault
	Hand trench
	Diamond drill hole

Figure 7
 ARCHER, CATRO & ASSOCIATES (1981) LIMITED
**DISCOVERY SHOWING
 GEOLOGY**
 NICK PROPERTY (SOUTH)
 INCO LIMITED
 NDU RESOURCES LTD.
 PAK-MAH RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

1065/11
 SCALE 1:5000
 0 50 100 200 300 400 500 Metres
 0 50 100 200 300 400 500 Feet

DWG #3
 093002



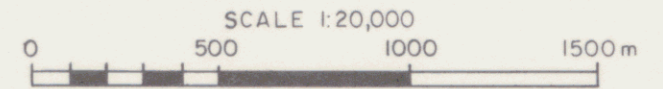
For legend see Figure 5

Figure 8
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

CROSS SECTION
135° 15' WEST
 NICK PROPERTY

FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

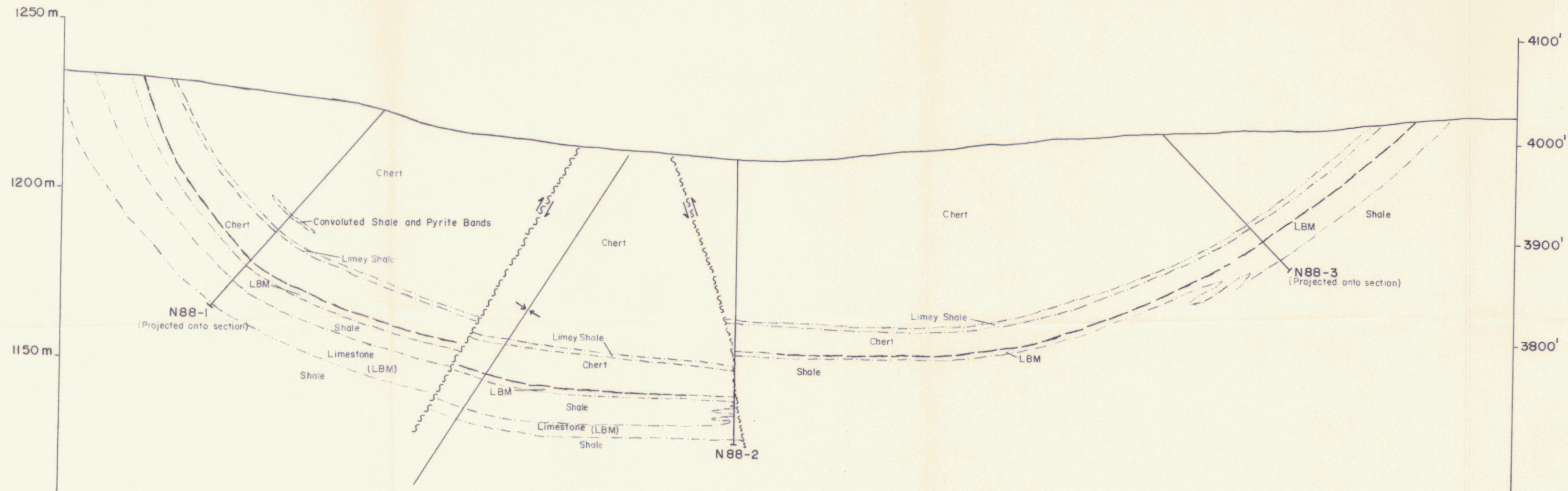
DWG #3



093002

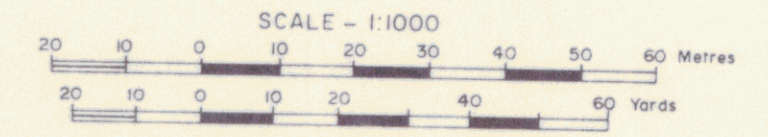
To accompany report dated December,

MAP# 106 D/11; 106 D/14 (359)



- LEGEND**
- Nickel - PGE mineralization
 - Contact
 - ~> Fault - direction of movement
 - ↑↓ Syncline
 - ⊥ Drill Hole

Figure 10
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
**Cross Section Through
 N-88-1,2 & 3**
 NICK PROPERTY, YUKON
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.



093002

To accompany report dated December, 1991

NW

SE

31

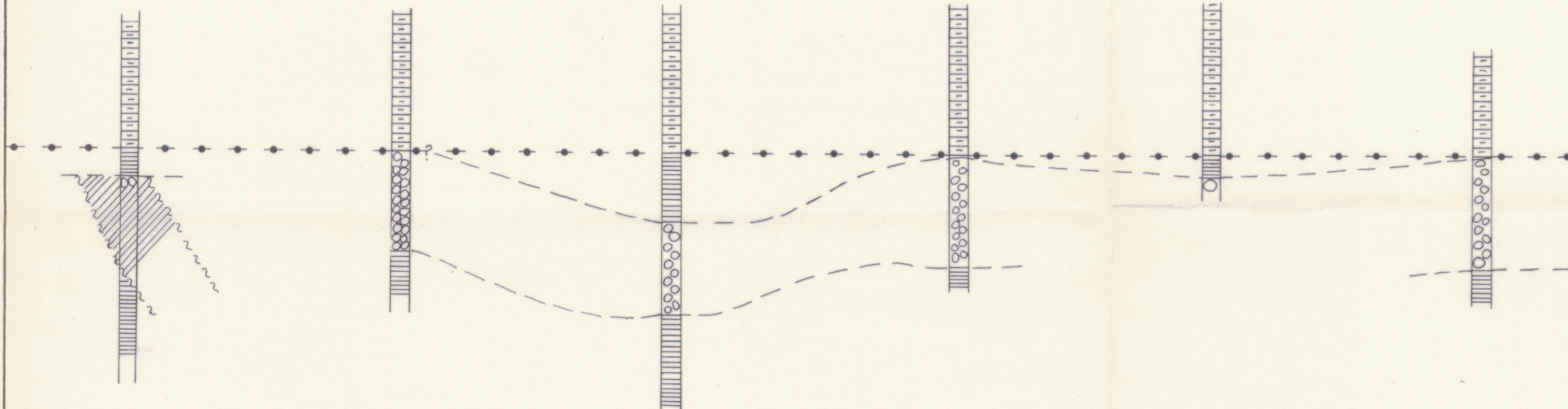
05

04

01

02

03










-  PYRITIFEROUS ARGILLITE
-  SILTY MUDSTONE
-  VAESITE-BEARING HORIZON
-  PHOSPHATIC CHERT MEMBER
-  LIMESTONE BALL MEMBER (ISOLATED)
-  LIMESTONE BALL MEMBER (TIGHTLY PACKED)
-  TRANSITION MEMBER
- 06** 1991 HAND TRENCH



Figure 21
 ARCHER CATHRO & ASSOCIATES (1981) LIMITED
**LONGITUDINAL SECTION SHOWING
 TRENCHES ON SOUTH LIMB
 OF NORTH SYNCLINE**
 (LOOKING NORTHEAST)

NICK PROPERTY, YUKON
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

HORIZONTAL SCALE - NONE
 VERTICAL SCALE 1:50

093002

NW

SE

09

08

07

10

11

12

13

14

15

16

17

18

No Trench
(outcrop well
in footwall
vaesite horizon)









-  PYRITIFEROUS ARGILLITE
-  SILTY MUDSTONE
-  VAESITE-BEARING HORIZON
-  PHOSPHATIC CHERT MEMBER
-  LIMESTONE BALL MEMBER (ISOLATED)
-  LIMESTONE BALL MEMBER (TIGHTLY PACKED)
-  TRANSITION MEMBER
-  06 1991 HAND TRENCH

Figure 22

ARCHER CATHRO & ASSOCIATES (1981) LIMITED

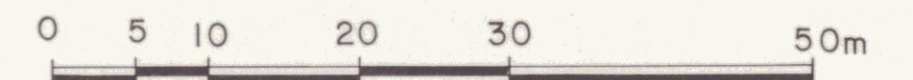
**LONGITUDINAL SECTION SHOWING
TRENCHES ON NORTH LIMB OF
SOUTH SYNCLINE**

(LOOKING NORTHEAST)

NICK PROPERTY, YUKON

FALCONBRIDGE LIMITED
NDU RESOURCES LTD.
PAK-MAN RESOURCES INC.
2001 RESOURCE INDUSTRIES LTD.

HORIZONTAL SCALE - NONE
VERTICAL SCALE 1:50



DWG 004

093002

MAP# 106/11, 106/14
To accompany report dated December, 1991

NW

SE

27

28

26

23

24









25

22

21

20

19

-  PYRITIFEROUS ARGILLITE
-  SILTY MUDSTONE
-  VAESITE-BEARING HORIZON
-  PHOSPHATIC CHERT MEMBER
-  LIMESTONE BALL MEMBER (ISOLATED)
-  LIMESTONE BALL MEMBER (TIGHTLY PACKED)
-  TRANSITION MEMBER
-  1991 HAND TRENCH

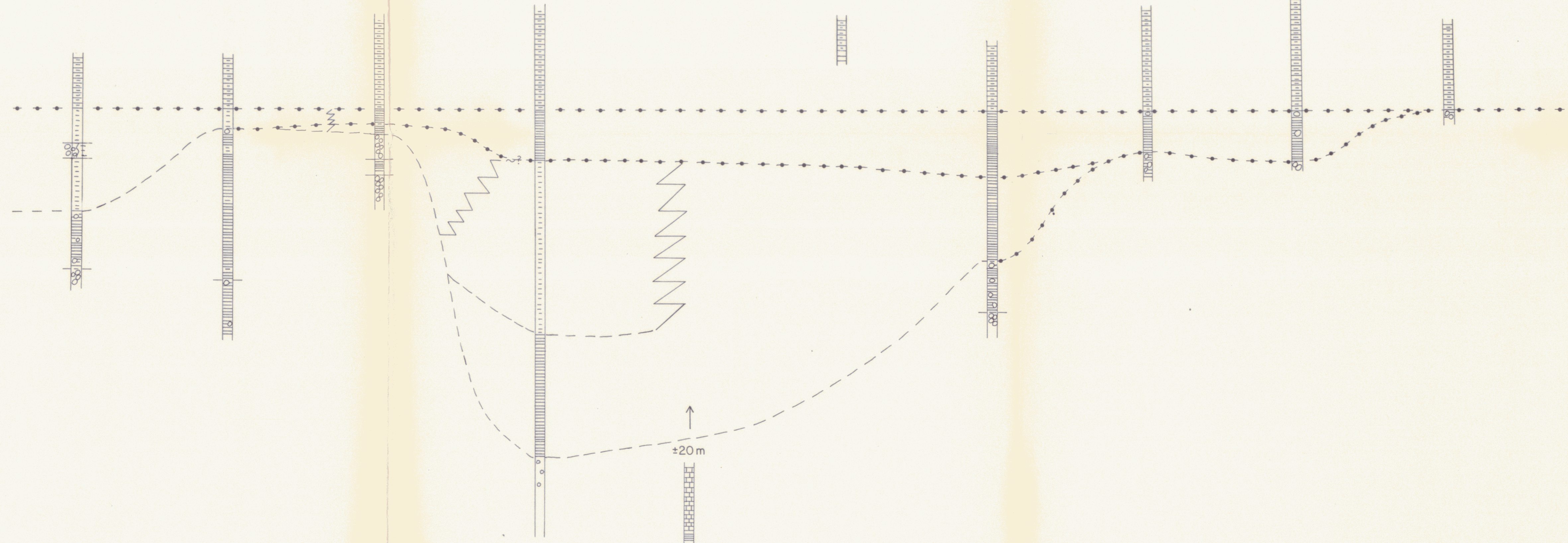


Figure 23

ARCHER CATHRO & ASSOCIATES (1981) LIMITED

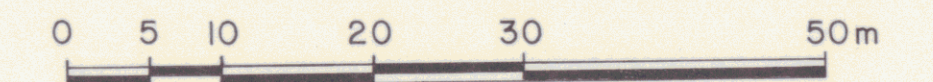
LONGITUDINAL SECTION SHOWING TRENCHES ON SOUTH LIMB OF SOUTH SYNCLINE

(LOOKING NORTHEAST)

NICK PROPERTY, YUKON

FALCONBRIDGE LIMITED
NDU RESOURCES LTD.
PAK-MAN RESOURCES INC.
2001 RESOURCE INDUSTRIES LTD.

HORIZONTAL SCALE - NONE
VERTICAL SCALE 1:50

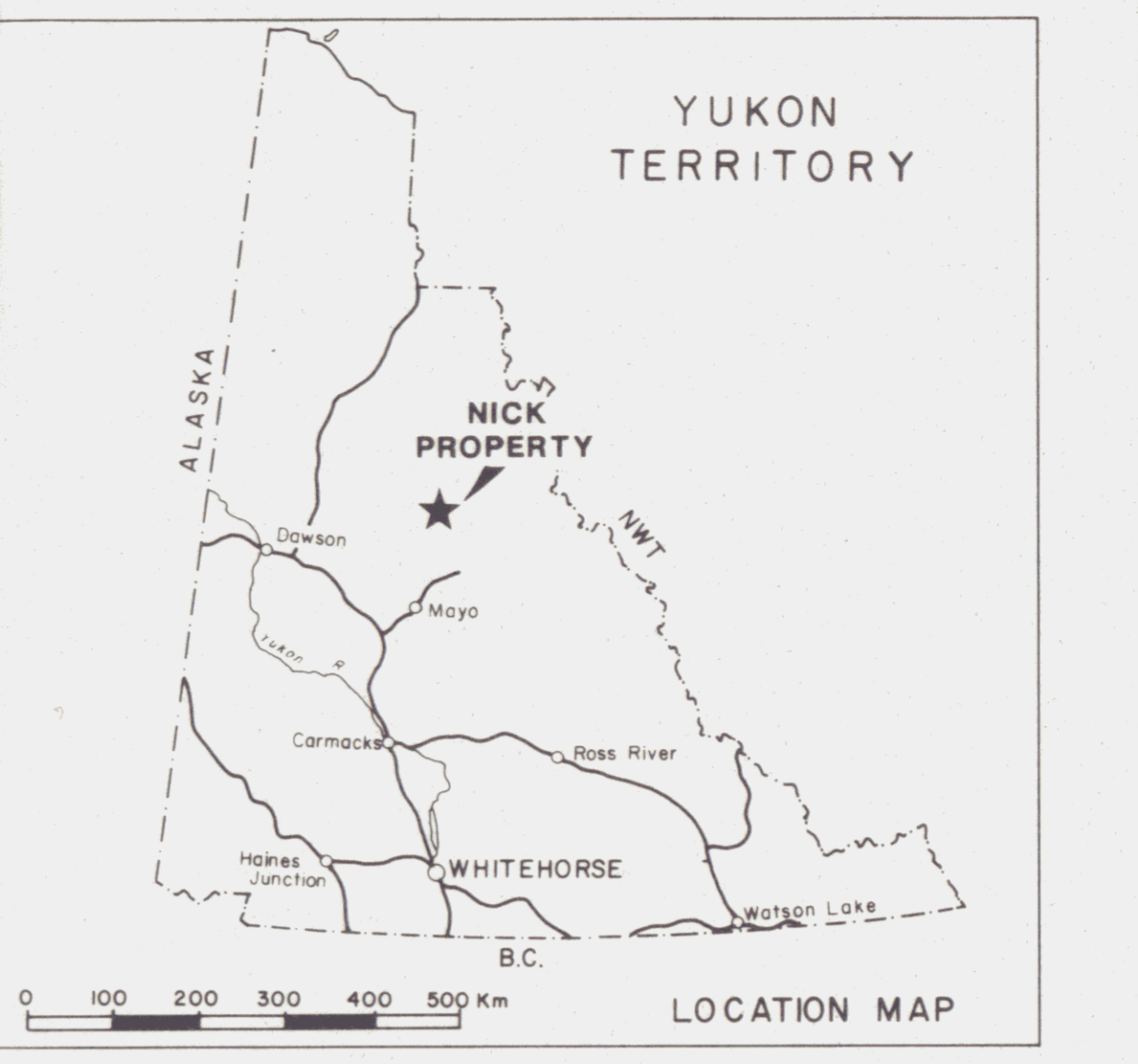
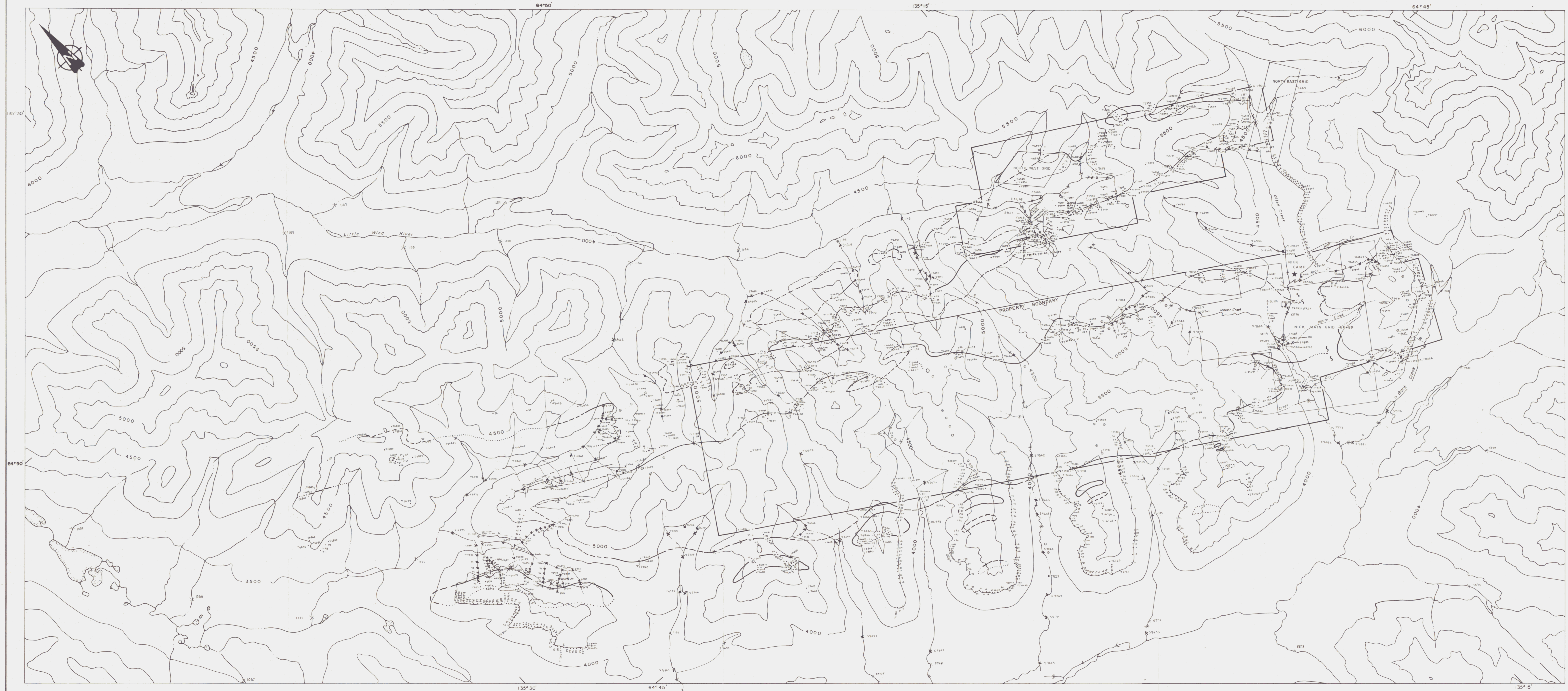


DW4015

093002

MAP# 106 P/11; 106 P/14
To accompany report dated December, 1991

361



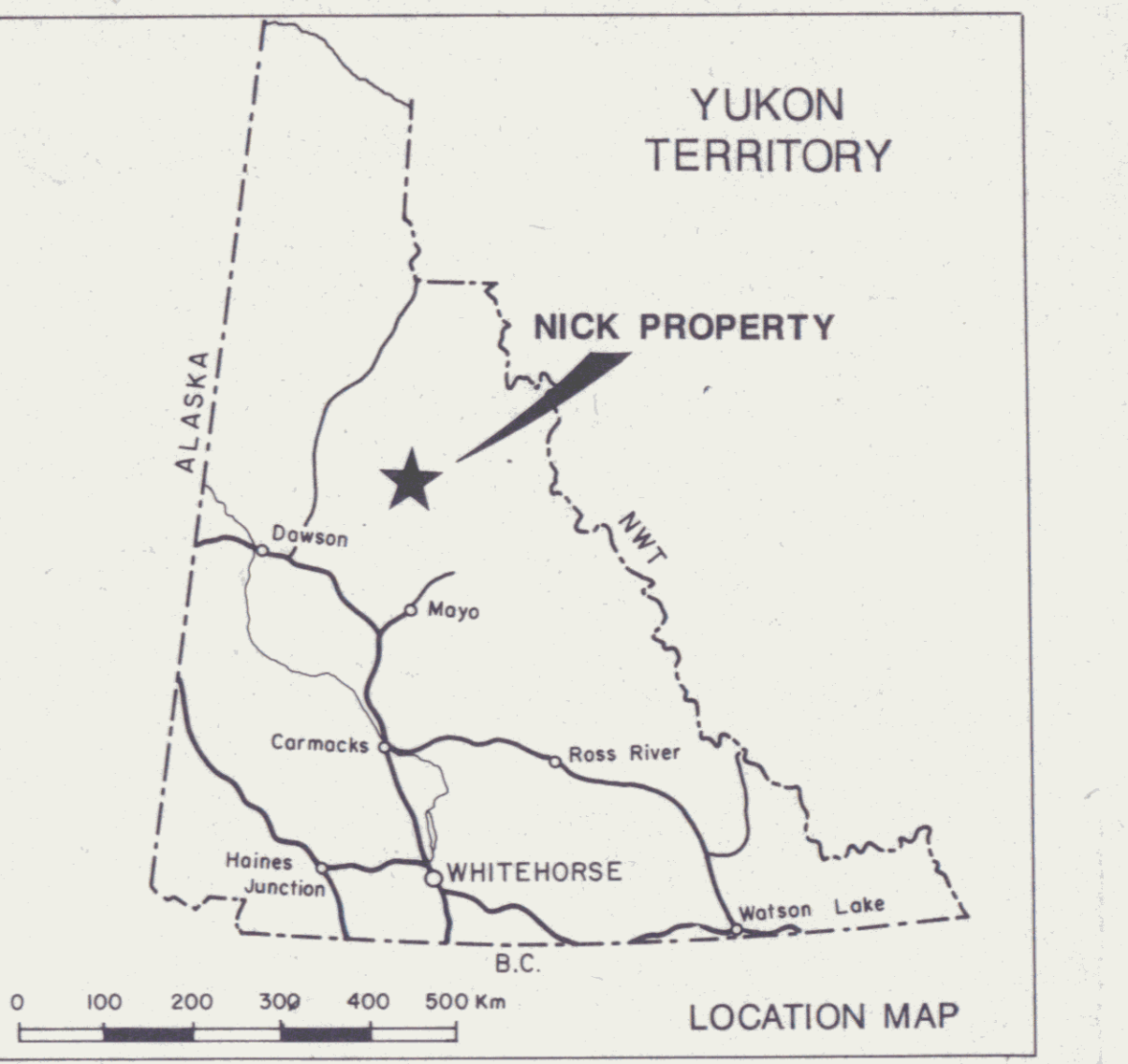
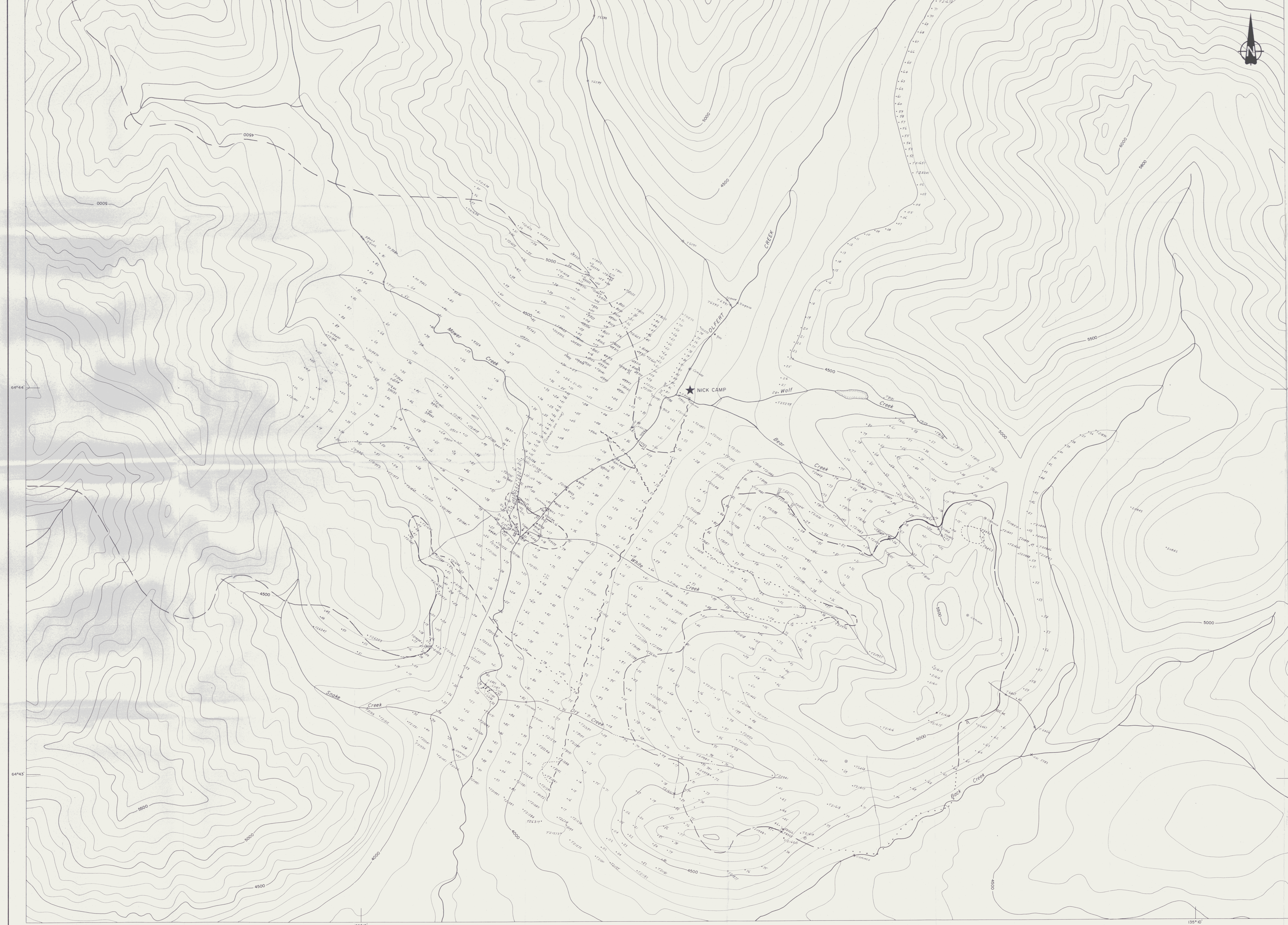
- LEGEND**
- Rock sample — Archer, Cathro
 - x— Silt sample — Archer, Cathro
 - o— Silt sample — Cominco
 - x— G.S.C.
 - Soil sample — Archer, Cathro
 - o Soil sample — Cominco
 - Veesite — bearing horizon
 - Hand trench
 - Test pit

Figure 25
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
SAMPLE LOCATIONS
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

SCALE 1:20,000
 0 500 1000 1500 Metres

DW6 006
 093002

MAP#106/11; 106/14
 To accompany report dated December, 1991

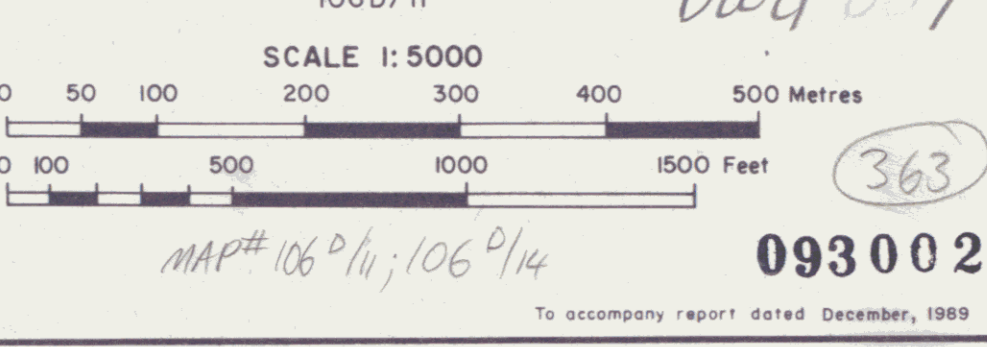


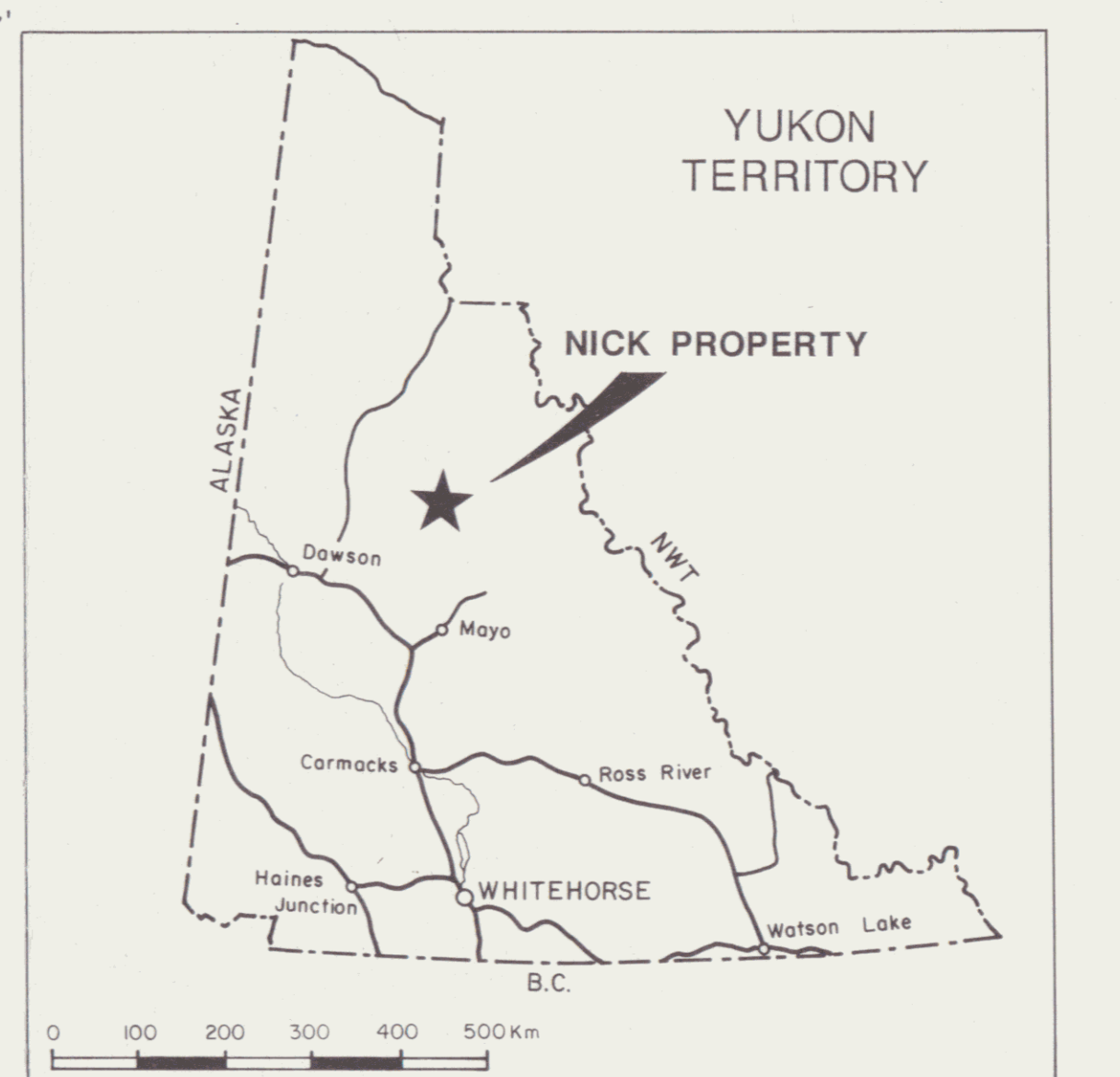
- LEGEND**
- Rock sample — Archer, Cathro
 - Silt sample — Archer, Cathro
 - Cominco
 - G.S.C.
 - Soil sample — Archer, Cathro
 - Cominco
 - Viesite-bearing horizon
 - Hand trench
 - ⊥ Test pit

Sample numbers for rock sample locations A and B
 ⊙ T21018 to T21022
 ⊙ T21023 to T21025

Figure 28
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
SAMPLE LOCATIONS
MAIN GRID
 NICK PROPERTY (SOUTH)

INCO LIMITED
 INDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

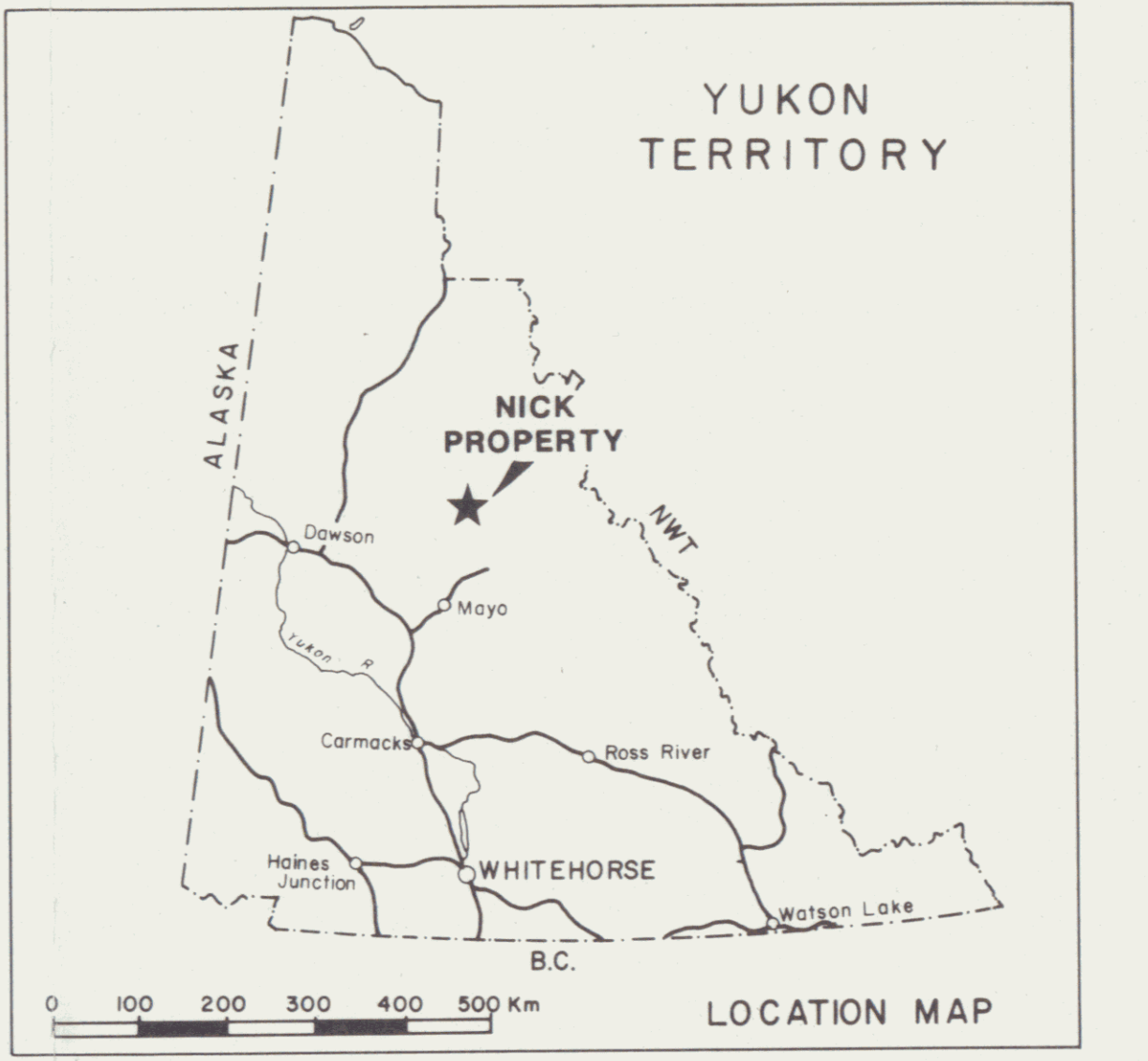
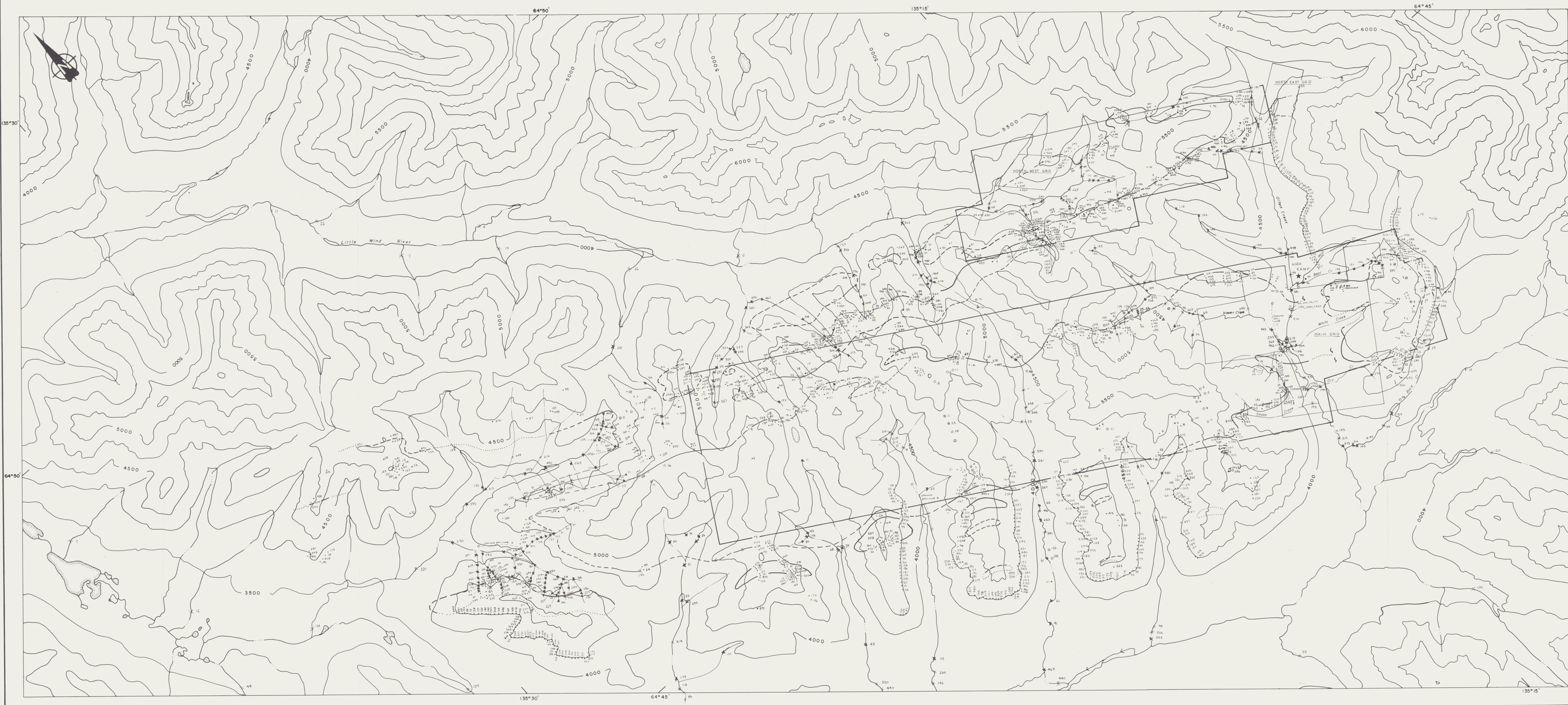




LEGEND
 • Sample Number, Nickel, Zinc.
 Nickel and Zinc values measured in P.P.M.

Figure 27
 ARCHER, CATIRO & ASSOCIATES (1983) LIMITED
SAMPLE LOCATIONS, NICKEL AND ZINC VALUES
 NORTHEAST AND NORTHWEST GRIDS
 NICK PROPERTY (NORTH)
 INCO LIMITED
 NIU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

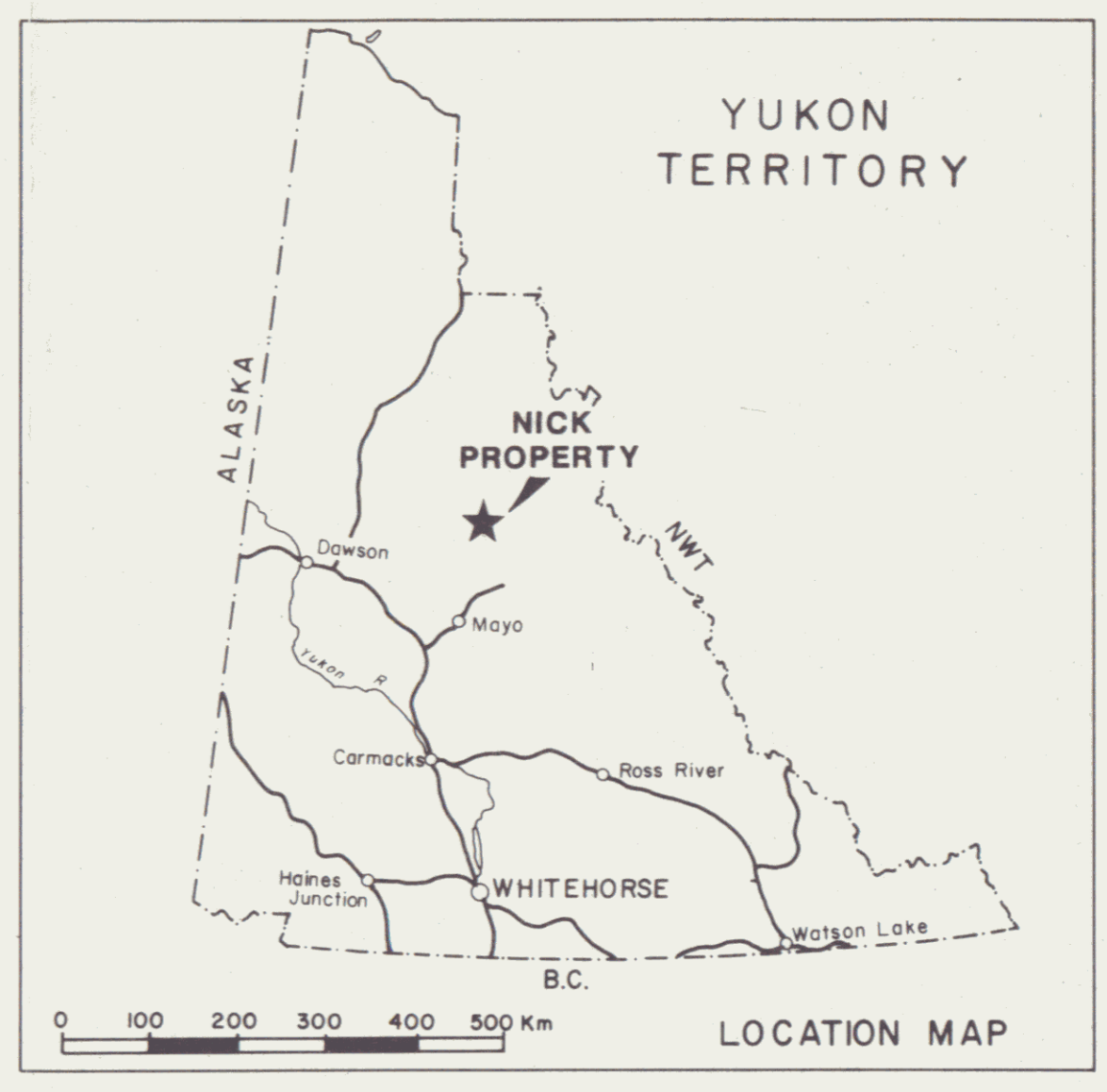
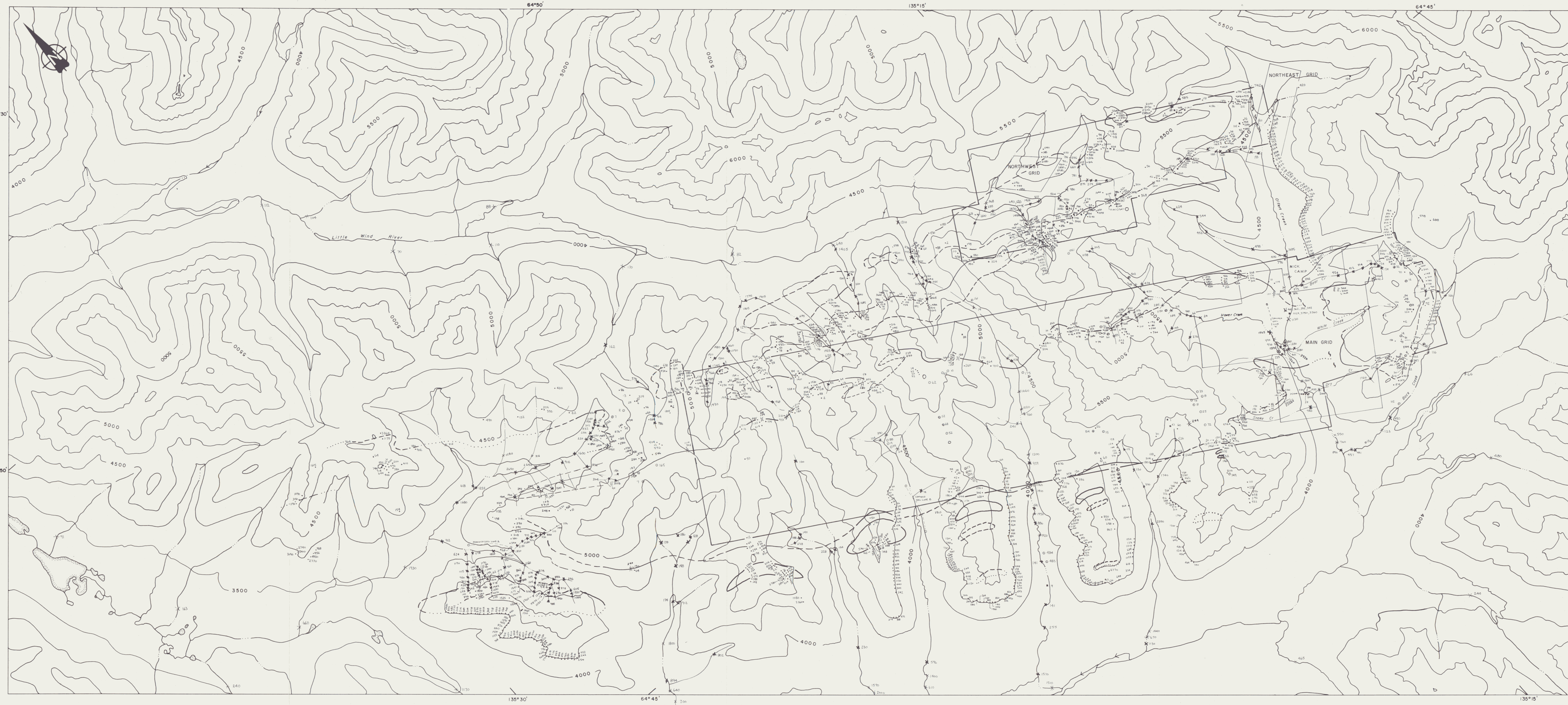
1060/11
 SCALE 1:5000
 0 50 100 200 300 400 500 metres
 0 100 200 300 400 500 feet
 DWG 8
 093002
 MAPS 106/11, 106/14
 093002
 To accompany report dated December, 1983



- LEGEND**
- Rock sample — Archer, Cathro
 - ✱ Silt sample — Archer, Cathro
 - Cominco
 - G.S.C.
 - Soil sample — Archer, Cathro
 - ⊙ Cominco
 - 1/2 Nickel results in ppm
 - Vaaite-bearing horizon
 - Hand trench
 - ⊂ Test pit

Figure 28
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
NICKEL GEOCHEMISTRY
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 NDJ RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.
 SCALE 1:20,000
 0 500 1000 1500 Metres
 MAP# 10691; 106914 **093002**
 To accompany report dated December, 1991

DWG 019



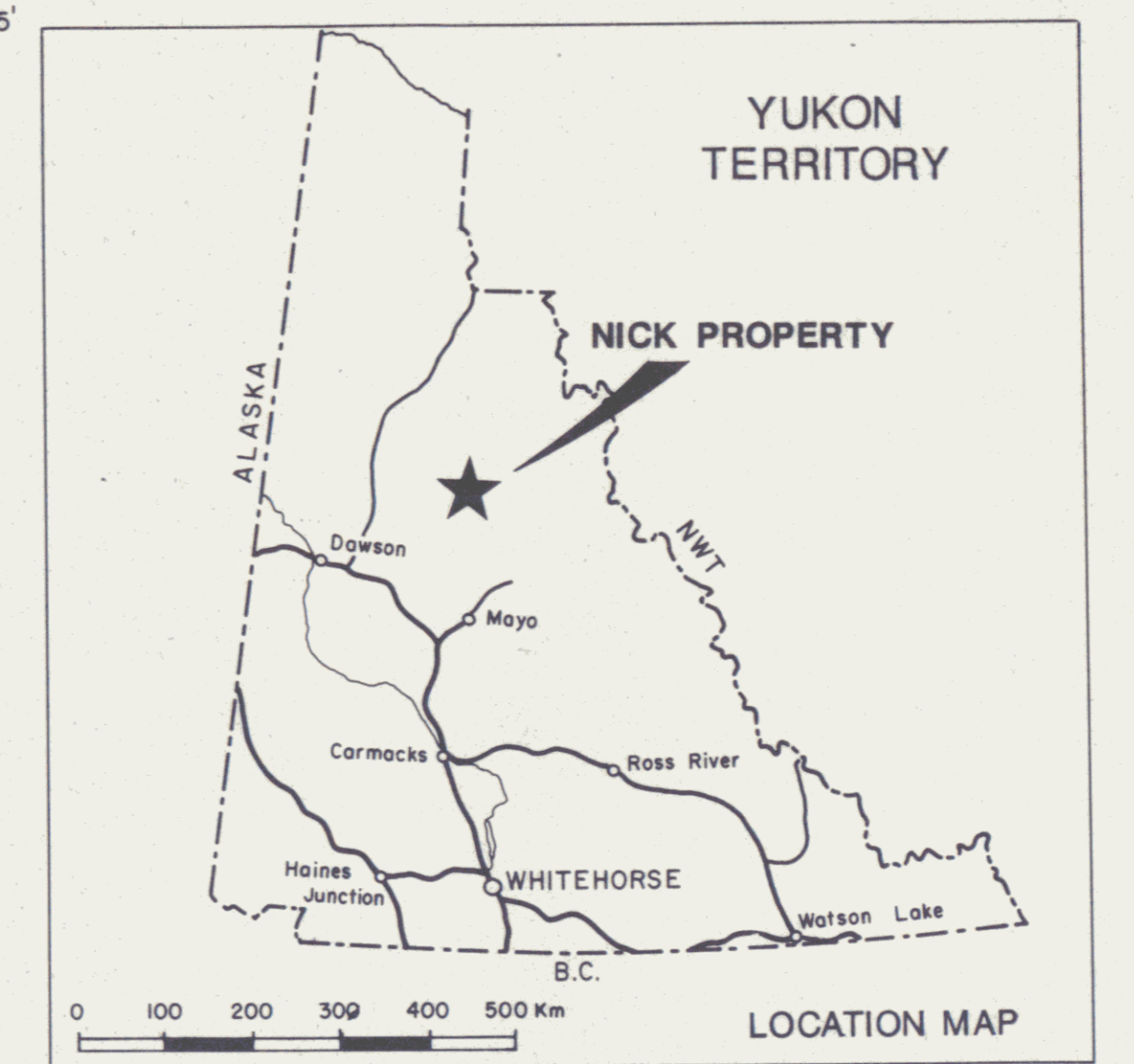
- LEGEND**
- Rock sample — Archer, Cathro
 - ✕ Silt sample — Archer, Cathro
 - Cominco
 - G.S.C.
 - Soil sample — Archer, Cathro
 - Cominco
 - Zinc results in ppm
 - Vossite-bearing horizon
 - Hand trench
 - Test pit

Figure 29
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
ZINC GEOCHEMISTRY
 NICK PROPERTY
 FALCONBRIDGE LIMITED
 INDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.
 SCALE 1:20,000
 500 1000 1500 Metres
 MAP# 106/11, 106/14

DWG 10

093002

093002



- LEGEND**
- Rock sample — Archer, Cathro
 - Silt sample — Archer, Cathro
 - Cominco
 - G.S.C.
 - Silt sample — Archer, Cathro
 - Cominco
 - Nickel results in ppm
 - Volsite-bearing horizon
 - Hand trench
 - Test pit

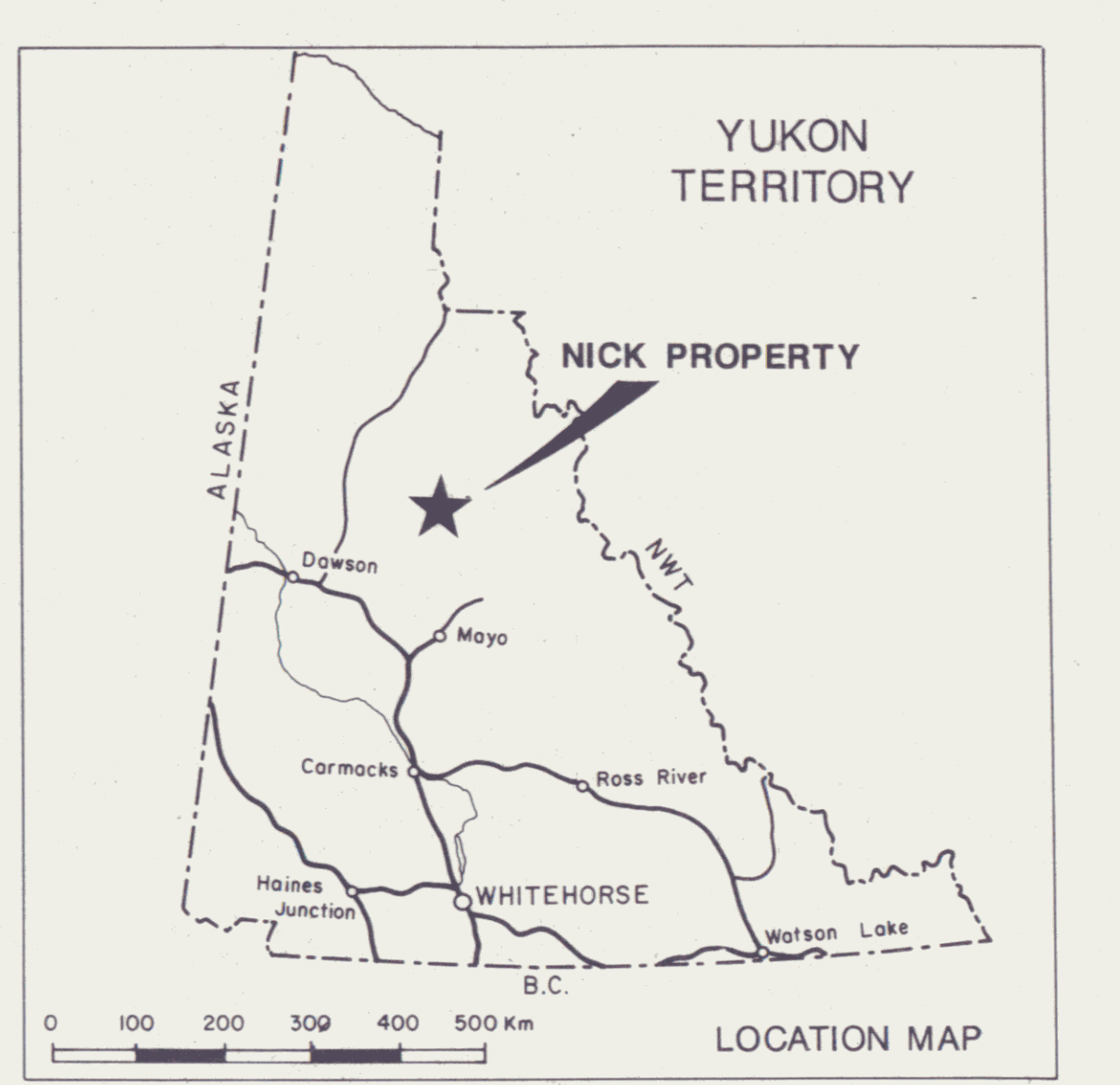
Nickel values in ppm for rock sample locations A and B

⊙ 1500, 2000, 1200, 1800, 1000, 2100, 800, 2300

⊙ 9200, 8200, 1800, 1800, 1000, 1600, 24000, 21000, 18300, 25000, 15000

Figure 30
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
NICKEL GEOCHEMISTRY
MAIN GRID
 NICK PROPERTY (SOUTH)
 INCO LIMITED
 NDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.

1060/11
 SCALE 1:5000
 0 50 100 200 300 400 500 METRES
 0 100 200 300 400 500 FEET
 DWG 11
 MAP 106 7/1, 106 7/4
 093002
 To accompany report dated December, 1989



- LEGEND**
- Rock sample — Archer, Cathro
 - Silt sample — Archer, Cathro
 - Cominco
 - O.S.C.
 - Soil sample — Archer, Cathro
 - Cominco
 - Zinc results in ppm
 - Vesicle-bearing horizon
 - Hand trench
 - ∩ Test pit
- Zinc values in ppm for rock sample locations A and B
- 200, 200, 100, 100, 100, 100, 100, 100
 - 300, 100, 300, 200, 300, 100, 100, 200, 100, 200, 200

Figure 91
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
ZINC GEOCHEMISTRY
MAIN GRID
 NICK PROPERTY (SOUTH)
 INCO LIMITED
 INDU RESOURCES LTD.
 PAK-MAN RESOURCES INC.
 2001 RESOURCE INDUSTRIES LTD.
 106D/11
 SCALE 1:5000
 0 50 100 200 300 400 500 Metres
 0 100 200 300 400 500 Feet
 DWG 12
 MAP# 106/11, 106/14
 093002