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MERRITT 163

1/CXe.3

00163

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Appendix B -	B.C. Coal Licences Tenure Standing ? NOT IN REPORT		X
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Appendix D -	Application to Extend Term of Licences ? NOT IN REPORT		X
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1.0 SUMMARY

The Merritt coal prospect is located in the Merritt Coalfield in south-central British Columbia. Twenty-three coal licences, covering 2185 hectares, are held by Shell Canada Resources Limited and operated by Crows Nest Resources Limited. An additional 1128 ha. of coal land are optioned to Shell by Imperial Metals and Power Limited (506 ha) and Chutter Ranch Limited (622 ha).

The project area borders on Merritt townsite, which is 100 km south of Kamloops on Highway No. 5. Merritt is approximately 385 km by CPR line from the Vancouver area ports. This line traverses through the middle of the property. All areas on the coal licences are easily accessible by gravel road or on the sagebrush covered grazing lands.

The coal measures lie within the Coldwater Formation, Tertiary Age. They occupy a depression in Triassic volcanics and are in places overlain by younger valley basalts. These measures are predominantly non-marine conglomerates and sandstones which accumulated in a restricted inland lake environment. Coal generally grades to shale both horizontally and vertically rather than forming continuous seams.

Nearly 3 million tons of thermal coal was underground mined in the coalfield between 1906 and the late 1950's. Later exploration concentrated in the old mine workings area called Coal Gully Hill and

Coldwater Hill. Between 1960 and 1969, twenty exploration holes totalling 1415 metres were drilled there by Imperial Metals and Power Limited and Sumicol Consultants Limited.

In 1979 and 1980, Crows Nest Resources Limited drilled 21 rotary holes totalling 3877 metres. Detailed geological mapping and backhoe trenching was also done. This work was carried out in the Coal Gully Hill, Coldwater Hill and Diamond Vale areas.

In 1981, work was concentrated on the eastern limit of the Merritt coal basin or the Normandale Mine area. Three rotary holes were drilled totalling 663 metres. This work failed to delineate any coal seams of mining potential.

The property is regarded as a thermal project with High Volatile Bituminous "B" coal. Exploration has delineated an area just south of Merritt townsite as the only place with any near surface mineable seams. Here a 5.1 million tonne geological in place coal resource has been delineated at an overburden ratio of 8.2 bank cubic metres of rock per tonne of coal. It must be emphasized that mining and cleaning losses were not considered in computing this overburden ratio. Open pit mining of this small reserve is probably not feasible.

2.0 LOCATION

Enclosure No. 1 - Location Index Map

Appendix A - Coal Licence Map, Access Map

Merritt Coal Prospect is located in the Merritt Coalfield in south-central British Columbia, Township 91, Kamloops Division of Yale Land District, N.T.S. (92I/1 and 2). The licences are located at N. Lat. 50° 08', W. Long. 120° 49', surrounding Merritt townsite.

3.0 ACCESS

Appendix A - Coal Licence Map, Access Map

From the Trans Canada Highway Merritt is 65 km west of Spences Bridge on Highway No. 8 and 100 km south of Kamloops on Highway No. 5. Southward 90 km from Merritt, Highway No. 5 joins Highway No. 3 at Princeton.

Merritt is approximately 385 km by CPR line from the Vancouver area ports. This line traverses through the middle of the property.

The Merritt Prospect has moderate relief - less than 300 metres on the coal bearing land. The area is easily accessible by gravel road or on the sagebrush covered grazing lands. Two major drainages, the Nicola and Coldwater Rivers, flow through the area joining at Merritt townsite.

The prospect is subdivided into three areas. South of the Merritt townsite are Coal Gully Hill and Coldwater Hill. On the east boundary of Merritt townsite is a nearly flat area called Diamond Vale. Three miles east of Merritt townsite is Normandale.

4.0 TENURE

Appendix B - B.C. Coal Licences Tenure Standing

Appendix C - Coal Land Disposition Map

The B.C. coal licences granted on September 27, 1978, held by Shell Canada Resources Limited, operated by Crows Nest Resources Limited, cover a total of 2185 ha of Crown coal land. These 23 licences are in one licence area.

An additional 1128 ha of coal land are optioned to Shell by Imperial Metals and Power Limited (506 ha) and Chutter Ranch Limited (622 ha).

5.0 WORK DONE

5.1 Prior to 1979

The earliest reference to coal in the Merritt area is dated 1877-78. Regular underground production totalling 2.7 million tons occurred between 1906-1945, 80% from the Coal Gully Hill and Coldwater Hill area, Middlesboro Collieries the main producer. Diamond Vale Mine produced only a small tonnage. Limited production continued until late 1950's. Prior to and during regular production numerous prospect holes were drilled and adits dug throughout the coalfield. Mapping was scattered and incomplete.

Later exploration concentrated in the Coal Gully Hill and Coldwater Hill area, on lots optioned by Imperial Metals and Power Limited. In 1960 they drilled 16 rotary holes totalling 1157 meters. Two of these holes were later deepened by diamond drilling.

In 1968 Sumicol Consultants Company Limited cored 258 meters in one diamond hole between Coal Gully Hill and Coldwater Hill. In 1969 they completed 3 diamond holes coring 563 meters in the same area.

5.2 1979 Exploration Program

On Shell Canada Limited Coal Licences:

- detailed geological mapping at 1:5000 scale on sedimentary outcrop areas
- reconnaissance mapping throughout the coal basin
- 3 open holes drilled totalling 445 meters by Garity & Baker Drilling Limited
- drill holes geophysically logged by BPB Instruments Limited
- sampling of major drill hole coal intersections
- hand trenching through coal seams
- reclamation by hand seeding of drill sites, access trails, and hand trenches
- location survey of drill holes and mapping control points by Surveying Department, Shell Canada Resources Limited.

On Imperial Metals and Power Option (Lot 166):

- detailed geological mapping at 1:5000 scale
- drilling of ten rotary holes totalling 1857 meters by Garity and Baker Drilling Limited.
- drill holes geophysically logged by BPB Instruments Limited
- sampling of major drill hole coal intersections
- hand trenching through coal seams
- backhoe trenching (21) totalling 105 meters
- 10 old mine entries sealed as directed by the mines inspector
- location survey of drill holes and control points by Surveying Department, Shell Canada Resources Limited

- reclamation by hand seeding of drill sites, trenches and access trails.

On Chutter Ranch Option:

- detailed geological mapping at 1:5000 scale
- one open hole drilled totalling 243 meters.

5.3 1980 Exploration Program

On Shell Canada Limited Coal Licences:

- regional mapping to confirm the boundary of the coal basin
- 4 open holes drilled totalling 707 meters by Simpson Drilling Limited. (One drill hole was abandoned in overburden.)
- drill hole spot cores taken for bedding attitude checks
- 3 drill holes geophysically logged by BPB Instruments Limited
- location survey of drill holes and baseline by Sheltech Canada.

On Imperial Metals and Power Option:

- 3 open holes drilled totalling 625 metres by Simpson Drilling Limited
- drill hole spot cores taken for bedding attitude checks
- drill holes geophysically logged by BPB Instruments Limited

In addition to the regular exploration program, two coal research projects were tested within the drilling area. Merritt was chosen for these tests because of favorable terrain and ground conditions. Shell Seismic conducted a short reflection and refraction seismic program in the early spring. D.T. Fudge Consultants tested resistivity methods during mid-summer and late autumn. Results from the seismic project are still being evaluated. A report on the resistivity testing has been completed.

5.4 1981 Exploration Program

Appendix D - Application to Extend Term of Licences

Appendix E - 1981 Drill Hole Summaries (3)

Appendix F - Drill Hole Stratigraphic Sections (3)

Appendix G - Downhole Geophysical Log

Appendix H - Traverse Survey Map

The only work on the Merritt coal licences in 1981 was on the eastern limit of the coal basin or the Normandale Mine area. Three rotary holes were drilled to determine the extent of the coal seam outcropping near the old mine portal.

On Shell Canada Limited Coal Licences:

- two rotary holes by Can-West Drilling (TH-60 cyclone) totalling 511 metres on June 15-16 and August 8-11, 1981
- both drill holes intersected small coal seams. One rotary hole (RM 301) caved and no logs were run. Rotary hole RM 303 was geophysically logged by BPB Instruments
- location survey of drill holes by Sheltech Canada
- drill hole RM 303 cemented by Alta-West Pressure Cementing
- drill sites hand seeded with range mix

On Chutter Ranch Option:

- one rotary hole by Can-West Drilling (TH-60 cyclone), totalling 152 metres on June 16-17, 1981. The hole was abandoned in Quaternary clays; no bedrock reached
- location survey of drill hole by Sheltech Canada
- drill site hand seeded with range mix

6.0 GEOLOGY

6.1 Regional

Enclosure No. 2 - Table of Formations

Appendix I - Regional Geology Map

The Merritt Coalfield of south-central British Columbia is one of several remnant early Tertiary basins within the Cordilleran intermontane belt. The coal deposits in the Merritt, Tulameen, Princeton and Hat Creek basins may have been originally interconnected but are now isolated from each other.

Coal deposits of the Merritt Coalfield lie within the Coldwater Formation, Kamloops Group, Tertiary age. These measures are predominantly conglomerate and sandstone with shale and lensing coal seams.

Lying unconformably below the Coldwater beds are Triassic Nicola Group rocks. They consist principally of volcanics of diverse types, grouped under the general term of greenstone.

Two ages of volcanics unconformably overly the Coldwater beds in the Merritt Coalfield. Near the western edge, Early Miocene lavas overly with gentle dips. Eastward, nearly horizontal benches of

TABLE OF FORMATIONS
MERRITT COALFIELD

PERIOD	EPOCH	FORMATION	LITHOLOGY	
QUATERNARY	PLEISTOCENE & RECENT		STREAM ALLUVIUM GLACIAL DRIFT	
TERTIARY	MIOCENE OR LATER	VALLEY BASALT	MAINLY VESICULAR BASALT	
	MIOCENE OR EARLIER	KAMLOOPS GROUP	VOLCANIC	RHYOLITE, ANDESITE BASALT WITH ASSOCIATED TUFFS BRECCIAS, AND AGGLOMERATES
			TRANQUILLE FM	CONGLOMERATE SANDSTONE, SHALE AND TUFF, THIN COAL SEAMS
			COLDWATER FM*	CONGLOMERATE SANDSTONE, SHALE & COAL
		COPPER CREEK INTRUSIONS	GRANITE, GRANODIORITE GRANITE PORPHYRY	
TRIASSIC	UPPER TRIASSIC	NICOLA GROUP	GREENSTONE; ANDESITE, BASALT; AGGLOMERATE, BRECCIA, TUFF; MINOR ARGILLITE LIMESTONE, AND CONGLOMERATE	

Late Miocene vesicular basalt flows are the most recent consolidated rocks of the area.

The Merritt coal basin is roughly 19 km long, stretching north eastward, and from 1.5 to 5 km wide. It occupies a depression in Triassic greenstones and mapped boundaries are largely conjectural due to heavy glacial drift cover.

6.2 Stratigraphy

Unconformably overlying the Nicola Volcanics, the lower beds of the Coldwater Formation contain considerable detrital material and often resemble a breccia. Upwards through the coal measures, interstratified conglomeratic sandstones predominate. Rapid vertical and lateral variations in thickness and nature of individual beds suggest deposition in an unstable environment. Lack of uniformity and continuity in texture and rock type has greatly hindered correlations, even over short distances. Coal seam correlation has been further complicated by seam splitting and wedge-outs.

This non-marine sequence of coal-bearing sedimentary rocks probably accumulated in a restricted inland lake environment. A greater degree of sediment variation is reflected than that of a deltaic setting. Coal generally grades to shale both horizontally

and vertically rather than forming continuous seams. Fluctuating amounts of coarse clastic material prevail.

The best outcrop of the coal measures in the Merritt area occurs in Coal Gully. Here 4 seams are in 129 metres of section. For Coal Gully Hill, Middlesboro Collieries showed 7 seams in 235 meters but no recognizable agreement has been seen in recent drill holes.

Elsewhere in the basin several isolated outcrops of coal measures exist. These occurrences are predominantly sandstone sections barren of coal or with coal of no commercial interest. At Normandale, on the eastern margin of the coal basin, a 1.5 metre coal seam can be seen in outcrop.

6.3 Structure

Appendix J - Geology Compilation Map 1

Appendix K - Geology Map 1-B (Normandale)

Appendix L - Cross-Section A-A'

Extensive glacial drift cover, rapid textural changes of the clastics, and lenticular nature of the coal seams has rendered it difficult to work out the nature of folds and faults throughout the basin. Since drilling in the basin is mostly open-hole, few

subsurface attitudes are known beside those in worked out mine areas.

At Normandale, on the eastern end of the coal basin, a small coal seam striking north with near vertical dip can be seen in outcrop. A small tonnage was mined from this location in the early 1900's. Immediately east of this seam the Nicola Volcanics outcrop and to the west, drilling indicates a rapid thickening of glacial deposits. One drill hole south of this seam intersected several thin seams located beneath approximately 80 metres of Quaternary material. This area probably has a complicated structure similar to the western fringe of the basin at Coal Gully Hill.

6.4 Mineability

Coal seams in the Normandale area are thin (0.5 to 2.0 metres) and occur at considerable depth below surface. Therefore these seams have no surface mineable potential.

Exploration (1980 Report) has delineated an area just south of Merritt townsite as the only place with any near surface mineable seams. Here a 5.1 million tonne geological in place coal resource has been delineated at an overburden ratio of 8.2 bank cubic metres of rock per tonne of coal. It must be emphasized that



Crows Nest Resources Limited
EXPLORATION

MERRITT
SOUTH CENTRAL BRITISH COLUMBIA

LOCATION INDEX MAP

AUTHOR	SCALE 1 : 1 900 800	ENCLOSURE No 1
DATE 82-02-26	REVISED	DRAWING No
To: Accompany		

mining and cleaning losses were not considered in computing this overburden ratio. Open pit mining of this small reserve is probably not feasible.

6.5

Coal Quality

Merritt coal is ranked as High Volatile Bituminous "B". The property is regarded to be a thermal prospect but at least one of the seams has fairly good coking properties.

The processed quality for the Merritt coal is summarized as follows:

Moisture	2.7%
Ash	9.5%
Volatile Matter	37.4%
Fixed Carbon	50.4%
Sulphur	0.7%
Calorific Value	7200 KCAL/KG
F.S.I.	0-5 I
Rank	hvbB ASTM

7.0 BIBLIOGRAPHY

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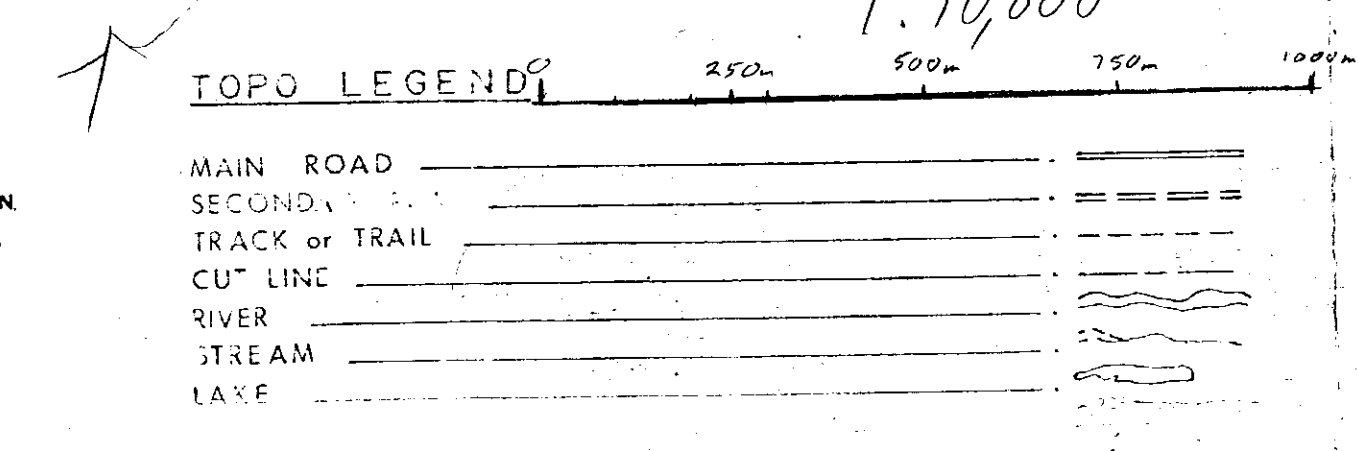
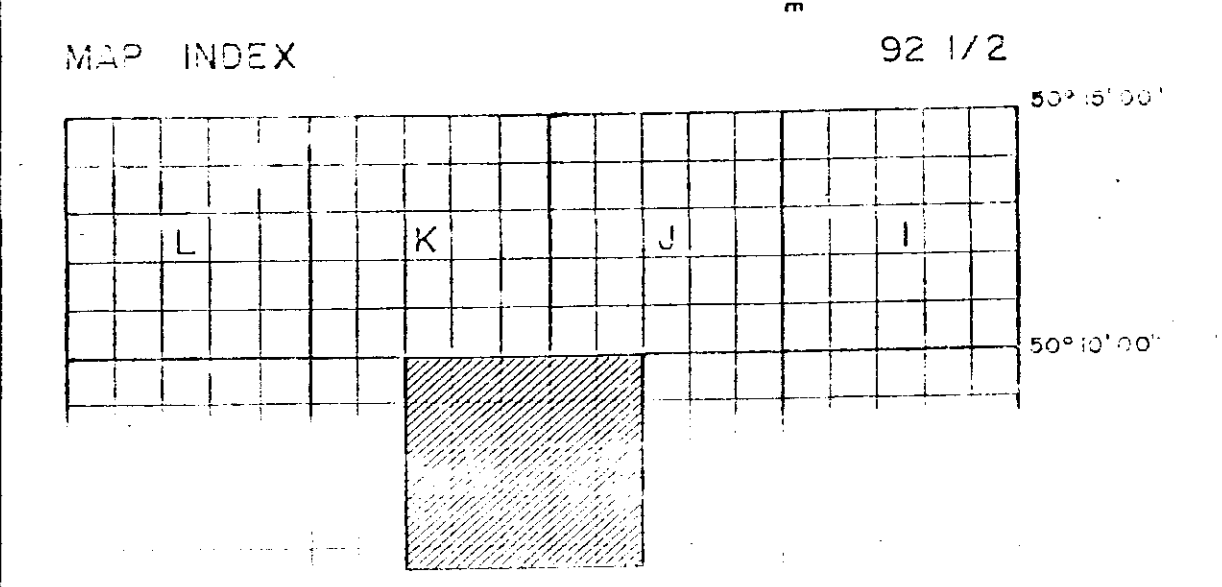
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GEOLOGICAL LEGEND

QUATERNARY	Q	Pleistocene - Stream alluvium, glacial drift
	Tvb	Valley Basalt - Mainly vesicular basalt
TERTIARY		KAMLOOPS GROUP
	Tkv	Kamloops Volcanics - Rhyolite, andesite, basalt
	Tc	Cold water Formation - Conglomerate, sandstone, shale and COAL
TRIASSIC	Tn	Nicola Group - Greenstone, andesite, basalt
		Geological contact - defined, approx., inferred
		Normal fault - approx. inferred

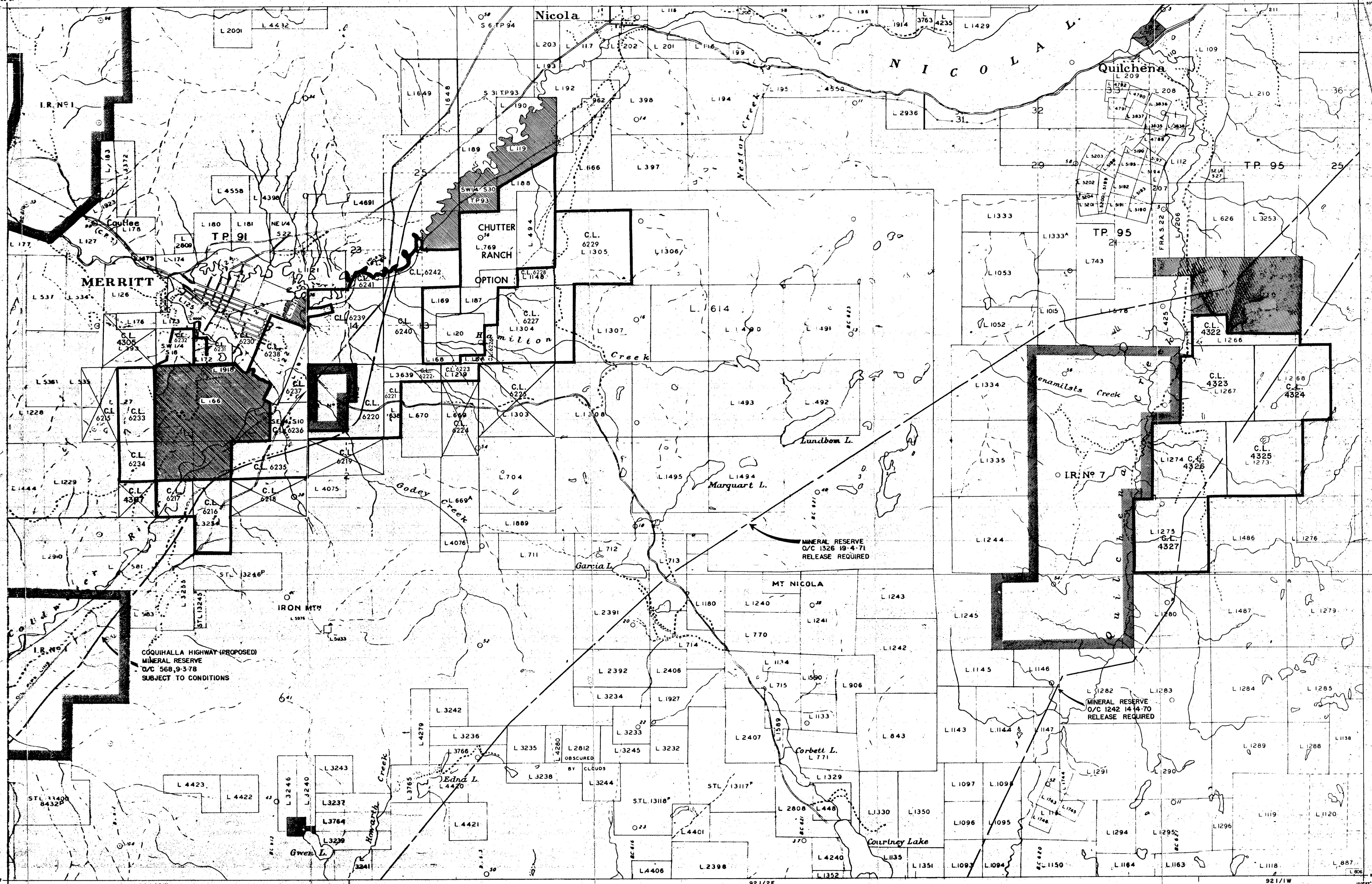
○	Diamond drill hole
○	Rotary drill hole
○	Drill hole, position approx.
○	Survey point
○	Mine entry
○	Sink hole
○	Boundary of licence Block (Approximate)
---	Lot Line
---	Coal licence No.
---	Lot No.
---	Outcrop

19 14 10 (5)
 35 17 01 (6)
 45 1 11 (14)

163 M. Merritt 81(a) (U)

Crows Nest Resources Limited
 EXPLORATION
 MERRITT PROJECT
 BRITISH COLUMBIA

GEOLOGY MAP 1

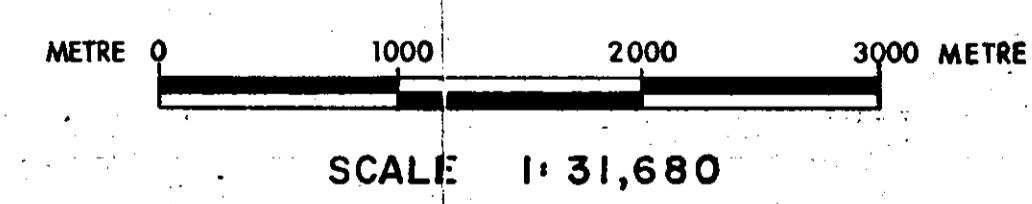


LEGEND

Drill hole
 Proposed drill hole
 Shaft
 Adit
 Trench or open pit

Open pit or elevated area
 Seam tracing
 Access road
 Exploration road
 Proposed exploration road

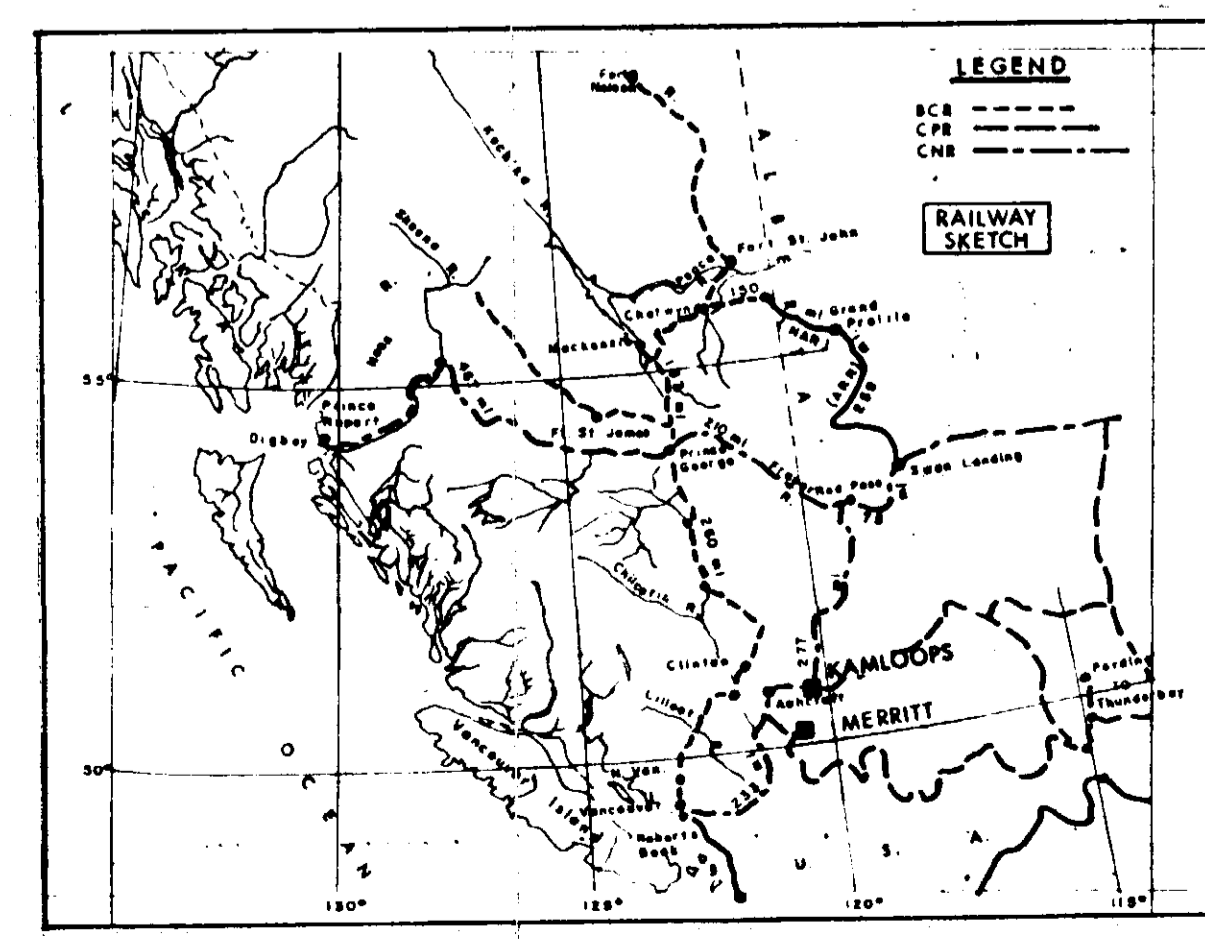
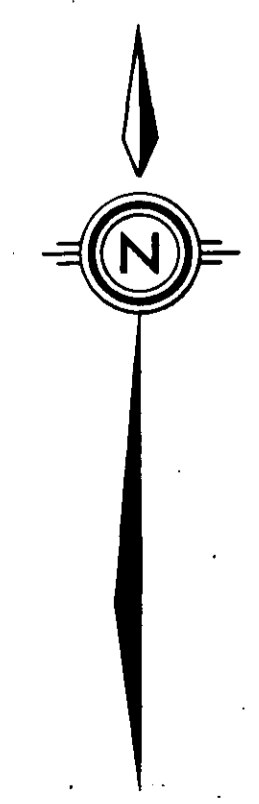
Alienated Coal Rights
 Coal Licences
 Forfeited Coal Licences



COAL TITLES REFERENCE MAP MERRITT COMPOSITE
 DEPARTMENT OF MINES AND PETROLEUM RESOURCES, VICTORIA, B.C.
 FOR INFORMATION AND MAP COPIES APPLY TO THE OFFICE OF THE CHIEF GOLD COMMISSIONER, VICTORIA, B.C.

Map prepared from Air Interim 92 I/1 & 2 (Parts)
 Aerial photographs dated 1946, 1949
 Completed 16/11/78, by D.H.

163



M-MERRITT 81*(2A)*U

Crows Nest Resources Limited
 EXPLORATION

MERRITT AREA
 B.C.

LAND MAP ✓

SHELL - CNRL LICENCES - MERRITT
 QUILCHENA (GROUP 234) 92 I/1 & 2

AUTHOR: COAL	SCALE: 1:31,680	APPENDIX C
DATE: FEB. 1979	REVISED: JULY, 1981	DRAWING No: HH-18
To Accompany		

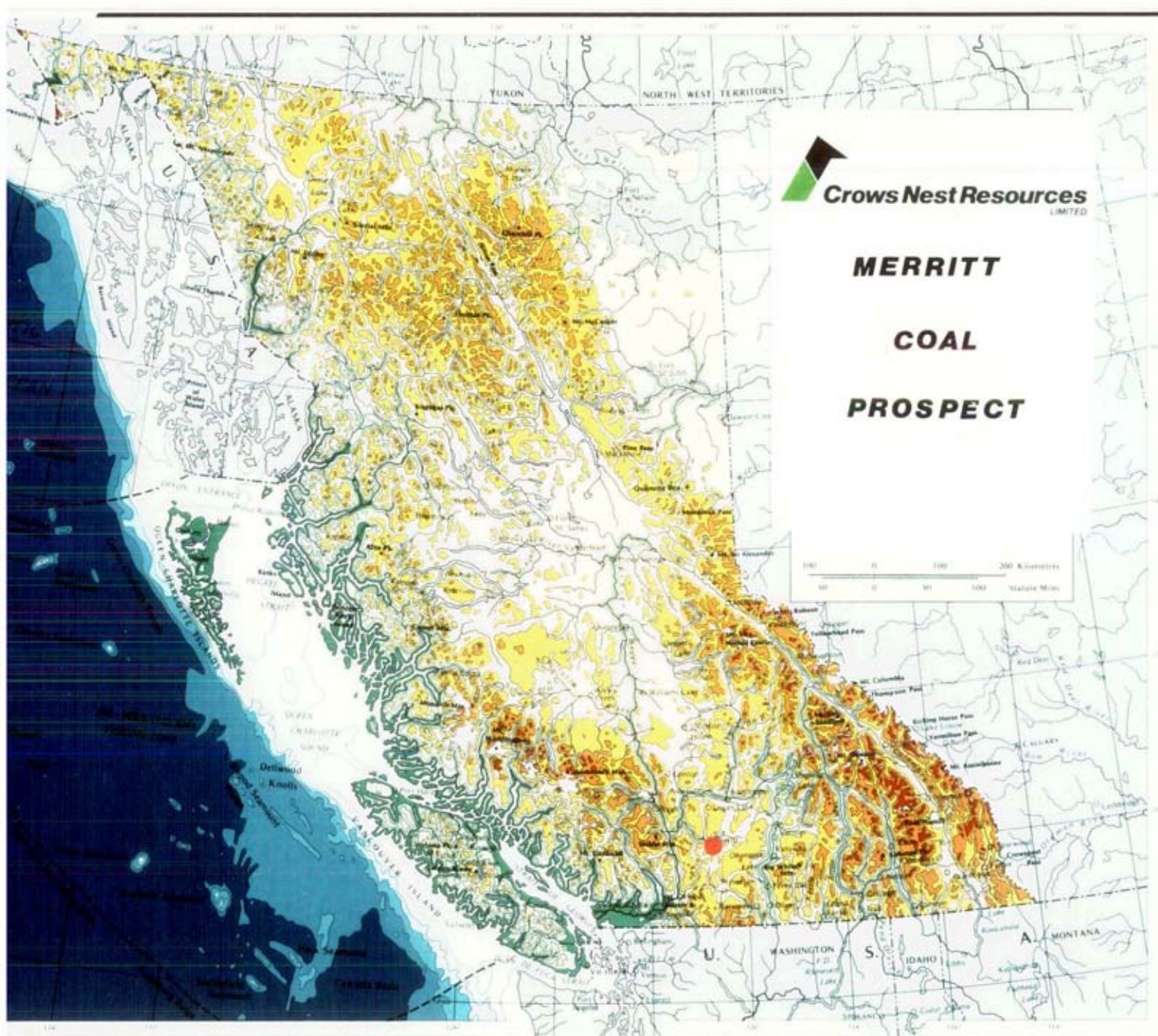


Crows Nest Resources
LIMITED

MERRITT

COAL

PROSPECT



M-MERRITT 81(3)A *LD
163 (LOI)

DRILL HOLE STRATIGRAPHIC SECTION

Drawing Number: HB-98 APPENDIX B

PROJECT: MERRITT, B.C. (1981)	DESIGNATION: RM - 301-S1	PART: 1	OF: 1
AREA: NORMANDALE	AUTHOR: SHASTA ABBOTT	DATE: 1981 11-16	
LOCATION: C.L. 6229	SOURCE OF DATA: CAN-WEST DRILLING INC. - DRILLER'S LOG		

DEPTH (m)	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION		SAMPLE	
					MAIN	AMPLIFIED		
0		0.0						
10								
20								
30							Quaternary - glacial moraine	
40								
50								
60		62.2					Sandstone - grey, medium to coarse grained	
70								
80								
90		91.4				1.6	COAL	
93.0							Sandstone, grey, medium to coarse grained	
96.0							Sandstone, brown, medium to coarse grained	
97.2								
100							Sandstone, grey, medium to coarse grained	
104.2						1.0	COAL	
105.2								
110							Sandstone, grey, medium to coarse grained	
117.0						1.5	Coal	
118.5							Sandstone, grey, medium to coarse grained	
119.0						1.0	Coal	
119.5								
120							Sandstone, grey, medium to coarse grained	
130								
131.0						.2	Coal	
131.2							Shale, black	
133.0							Sandstone, grey, medium to coarse grained	
138.0							Shale, black	
139.0							Sandstone, grey, medium to coarse grained	
140								
142.0						Sandstone, dark grey, medium to coarse grained		
144.0								
150								
160								
170						Sandstone, grey, medium to coarse grained		
180								
190								
200		201.0				Sandstone, grey with coal stringers		
202.0								
210						Sandstone, grey, medium to coarse grained		
213.0						T.D.		
220								

NORTHING: 5554397.81
 EASTING: 665230.82
 SCALE: 100:1

m-MERRITT 81*(3A)+(1)

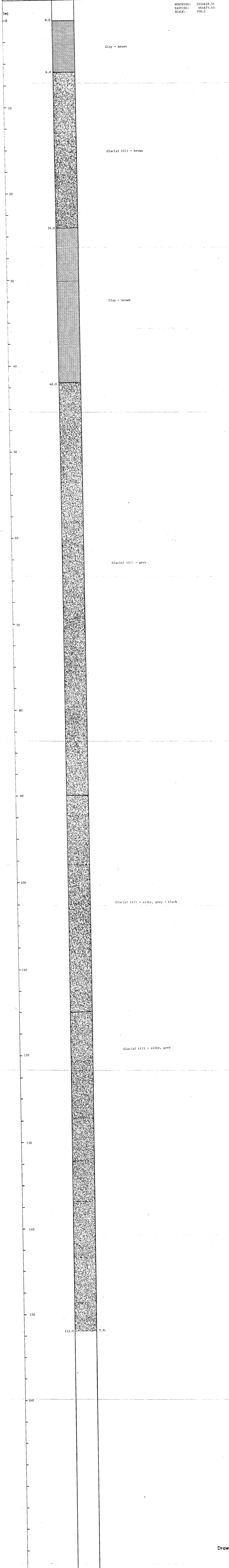
163 L02

DRILL HOLE STRATIGRAPHIC SECTION

Drawing Number: HB-98A APPENDIX E

DESIGNATION: RN-302-81	PART 1 OF 1
AUTHOR: SHASTA ABBOTT	DATE: 1981 11-16
SOURCE OF DATA: CAN-WEST DRILLING INC. - DRILLER'S LOG	

PROJECT: MERRITT, B.C. (1981)
AREA: NORMANDALE
LOCATION: CHUTTER RANCH OPTION - LOT 494



Drawing

m-merritt 81*(3)A*(1)

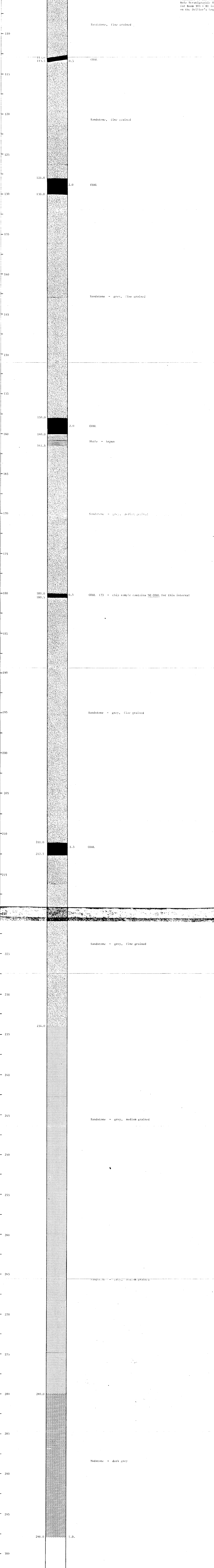
163 (LO3)

DRILL HOLE STRATIGRAPHIC SECTION

APPENDIX E Drawing Number: HB-98C

PROJECT: MERRITT, B.C. (1981)	DESIGNATION: 81 - 303 - 81	PART: 2	OF: 2
AREA: NORMANDALE	AUTHOR: SHAWA ABBOTT	DATE: 1982 - 02 - 10	
LOCATION: C.L. 6227	SOURCE OF DATA: CAN-WEST DRILLING INC. - DRILLER'S LOG		

DEPTH [m]	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION		SAMPLE
					MAIN	AMPLIFIED	





m-m-mer-111 81 (3)A * (1)

GAMMA RAY LOG

APPENDIX G

BOREHOLE BM-303

CLIENT CROWS NEST RESOURCES LTD.

AREA MERRITT-NORMANDEAL

COUNTRY CANADA

DATE LOGGED 11/26/81

LOG I-1068

BOREHOLE DATA REFER TO LITHOLOGY LOG

OPERATION DATA REFER TO LOG

EQUIPMENT AND RECORDING DATA

LOG TAPING LOGS RECORDING SPEED T.C. NORM

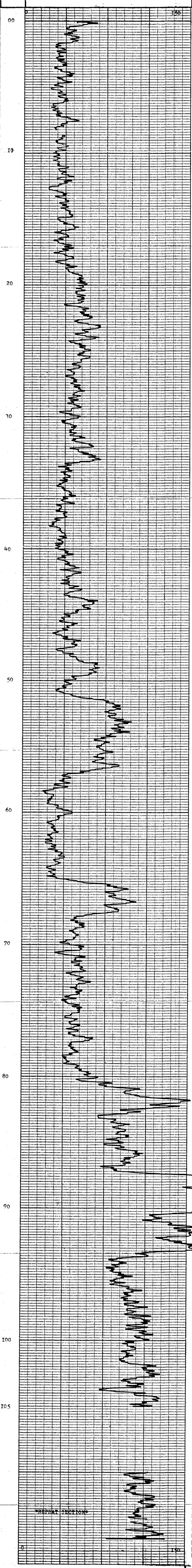
LOG TAPING LOGS RECORDING SPEED T.C. NORM

REMARKS Note drilled to 200m hole

REMARKS Note drilled to 200m hole

104

163



DEPTH A-I GAMMA RAY LOG



BOREHOLE BM-303 AREA MERRITT-NORMANDEAL
 CLIENT CROWS NEST RESOURCES LTD. COUNTRY CANADA

(L05)



Crows Nest Resources Limited EXPLORATION

MERRITT
SOUTH CENTRAL BRITISH COLUMBIA

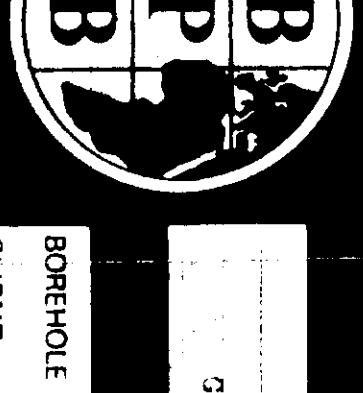
DRILL HOLE STRATIGRAPHIC SECTION

RM-303-81

PART 1 of 2

AUTHOR: S. ABBOTT	SCALE: 100:1	APPENDIX E
DATE: 82-02-19	REVISED:	DRAWING No: HB-98B

To Accompany



GAMMA RAY LOG

BOREHOLE RM-303

CLIENT CROWS NEST RESOURCES LTD

AREA MERRITT-NORWANNA

COUNTRY CANADA

DATE LOGGED 11/2/81

LOG L05

BOREHOLE DATA REFER TO LITHOLOGY LOG

OPERATION DATA REFER TO LOG

EQUIPMENT AND RECORDING DATA

LOG TAPING PAINT LOG OFF

LOG SPEED LOG SPEED LOG NORM

LOG SPEED LOG SPEED LOG NORM

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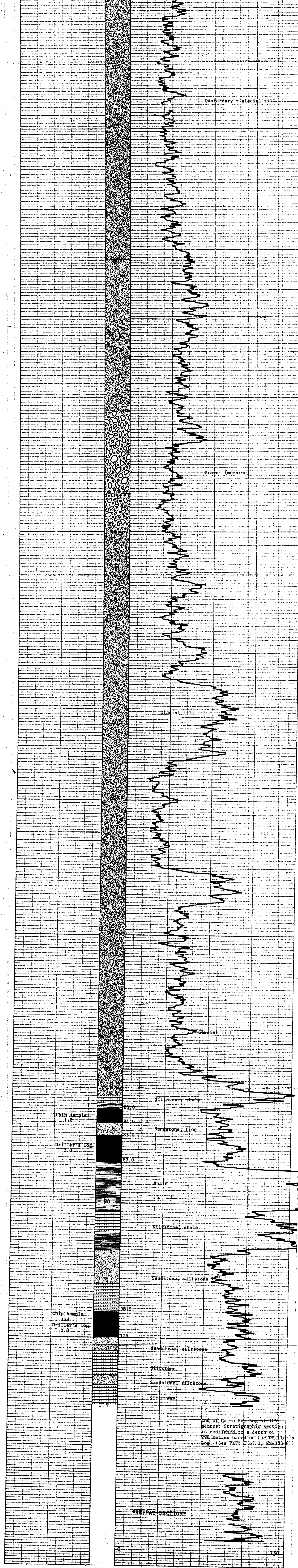
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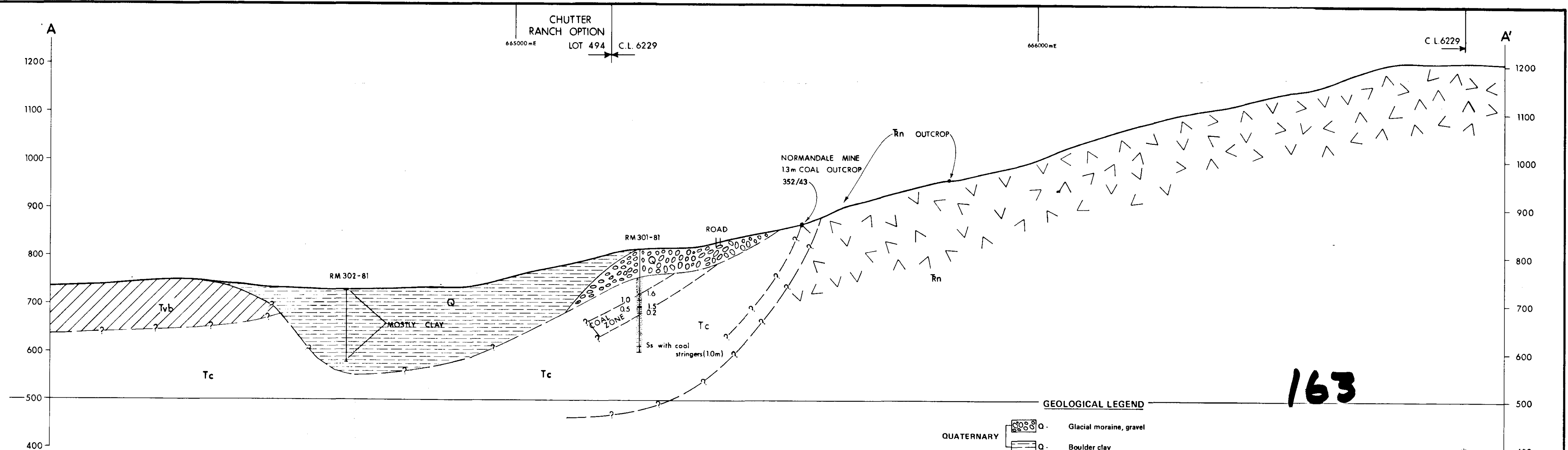
DEPTH	DATA	AS
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DEPTH	DATA	AS
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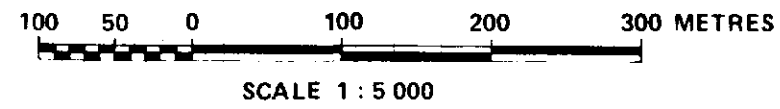
BOREHOLE	AREA
CLIENT CROWS NEST RESOURCES LTD	COUNTRY CANADA



163

GEOLOGICAL LEGEND

- QUATERNARY
 - Q - Glacial moraine, gravel
 - Q - Boulder clay
- KAMLOOPS GROUP
 - Tvb - Valley Basalt - mainly vesicular basalt
- TERTIARY
 - TKv - Kamloops Volcanics - Rhyolite, andesite, basalt
 - Tc - Coldwater formation - Conglomerate, sandstone, Shale and COAL
- TRIASSIC
 - Rn - Nicola Group - Greenstone; andesite, basalt
- Geological contact - defined; approx.; inferred
- 1.0 Net coal (meters)
- Sandstone & Conglomerate



Merritt 81*(2) A * (18)

Crows Nest Resources Limited
EXPLORATION

MERRITT
S.C. BRITISH COLUMBIA

M3

NORMANDEALE
X-SECTION A-A'

Azimuth 105.5°

AUTHOR: S. ABBOTT	SCALE: 1:5 000	APPENDIX I
DATE: 81-11-17	REVISED:	
To Accompany		DRAWING No: HF-97B



Crows Nest Resources

Eau Claire Place, 525 - 3rd Avenue S.W., Calgary, Alberta (403) 232-4355
P.O. Box 2699, Station M, Calgary, Alberta T2P 2M7 Telex 03-822505

LIMITED

163
OPEN FILE

March 8, 1982

Ministry of Energy, Mines
and Petroleum Resources
Victoria, British Columbia

Dear Sirs:

Enclosed please find our report on the Merritt Coal Prospect

Mr. Patrick C. Gilmar planned and carried out the 1980-1981 geological field program on Merritt, B.C. Coal Licences held by Shell Canada Resources Limited and operated by Crows Nest Resources Limited. He and Shasta Abbott prepared this report.

Pat Gilmar, B.Sc., graduated in Geology from the University of Calgary in 1978. Prior to his graduation Mr. Gilmar worked as a field assistant for a number of major mining companies in British Columbia and Alberta. Pat Gilmar has been employed with the company as a geologist since 1978.

Shasta Abbott, B.Sc., graduated in Geology from the University of New Brunswick in 1979.

Their work was carried out under the supervision of our District Manager, British Columbia, Mr. Frank Martonhegyi.

In my opinion, all of these personnel are fully qualified, by training and experience to prepare this report and this account of work done under their direct supervision.

Yours very truly,

H.G. Rushton, P. Geologist
Vice-President-Exploration

MERRITT COAL PROSPECT

1/CXe.1

MERRITT
COAL PROSPECT

Report on Coal Licences 6216,6217,6220 to 6223 incl.
and 6226 to 6242 incl.

Kamloops Division of Yale Land District, British Columbia

Held by: SHELL CANADA RESOURCES LIMITED

Operated by: CROWS NEST RESOURCES LIMITED

on work done in period June 1981 to August 1981

N. Lat. 50°08', W. Long. 120°40' to 120°49', NTS 92I/1 and 2

Authors:

Patrick C. Gilmar
Shasta A. Abbott

Geologists
Crows Nest Resources Limited
March 8, 1982

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1.0 SUMMARY

The Merritt coal prospect is located in the Merritt Coalfield in south-central British Columbia. Twenty-three coal licences, covering 2185 hectares, are held by Shell Canada Resources Limited and operated by Crows Nest Resources Limited. An additional 1128 ha. of coal land are optioned to Shell by Imperial Metals and Power Limited (506 ha) and Chutter Ranch Limited (622 ha).

The project area borders on Merritt townsite, which is 100 km south of Kamloops on Highway No. 5. Merritt is approximately 385 km by CPR line from the Vancouver area ports. This line traverses through the middle of the property. All areas on the coal licences are easily accessible by gravel road or on the sagebrush covered grazing lands.

The coal measures lie within the Coldwater Formation, Tertiary Age. They occupy a depression in Triassic volcanics and are in places overlain by younger valley basalts. These measures are predominantly non-marine conglomerates and sandstones which accumulated in a restricted inland lake environment. Coal generally grades to shale both horizontally and vertically rather than forming continuous seams.

Nearly 3 million tons of thermal coal was underground mined in the coalfield between 1906 and the late 1950's. Later exploration concentrated in the old mine workings area called Coal Gully Hill and

Coldwater Hill. Between 1960 and 1969, twenty exploration holes totalling 1415 metres were drilled there by Imperial Metals and Power Limited and Sumicol Consultants Limited.

In 1979 and 1980, Crows Nest Resources Limited drilled 21 rotary holes totalling 3877 metres. Detailed geological mapping and backhoe trenching was also done. This work was carried out in the Coal Gully Hill, Coldwater Hill and Diamond Vale areas.

In 1981, work was concentrated on the eastern limit of the Merritt coal basin or the Normandale Mine area. Three rotary holes were drilled totalling 663 metres. This work failed to delineate any coal seams of mining potential.

The property is regarded as a thermal project with High Volatile Bituminous "B" coal. Exploration has delineated an area just south of Merritt townsite as the only place with any near surface mineable seams. Here a 5.1 million tonne geological in place coal resource has been delineated at an overburden ratio of 8.2 bank cubic metres of rock per tonne of coal. It must be emphasized that mining and cleaning losses were not considered in computing this overburden ratio. Open pit mining of this small reserve is probably not feasible.

2.0 LOCATION

Enclosure No. 1 - Location Index Map

Appendix A - Coal Licence Map, Access Map

Merritt Coal Prospect is located in the Merritt Coalfield in south-central British Columbia, Township 91, Kamloops Division of Yale Land District, N.T.S. (921/1 and 2). The licences are located at N. Lat. 50° 08', W. Long. 120° 49', surrounding Merritt townsite.



Crows Nest Resources Limited
EXPLORATION

MERRITT
SOUTH CENTRAL BRITISH COLUMBIA

LOCATION INDEX MAP

AUTHOR:	SCALE: 1 : 1 900 800	ENCLOSURE No: 1
DATE: 82-02-26	REVISED:	DRAWING No:
To Accompany		

3.0 ACCESS

Appendix A - Coal Licence Map, Access Map

From the Trans Canada Highway Merritt is 65 km west of Spences Bridge on Highway No. 8 and 100 km south of Kamloops on Highway No. 5. Southward 90 km from Merritt, Highway No. 5 joins Highway No. 3 at Princeton.

Merritt is approximately 385 km by CPR line from the Vancouver area ports. This line traverses through the middle of the property.

The Merritt Prospect has moderate relief - less than 300 metres on the coal bearing land. The area is easily accessible by gravel road or on the sagebrush covered grazing lands. Two major drainages, the Nicola and Coldwater Rivers, flow through the area joining at Merritt townsite.

The prospect is subdivided into three areas. South of the Merritt townsite are Coal Gully Hill and Coldwater Hill. On the east boundary of Merritt townsite is a nearly flat area called Diamond Vale. Three miles east of Merritt townsite is Normandale.

4.0 TENURE

Appendix B - B.C. Coal Licences Tenure Standing

Appendix C - Coal Land Disposition Map

The B.C. coal licences granted on September 27, 1978, held by Shell Canada Resources Limited, operated by Crows Nest Resources Limited, cover a total of 2185 ha of Crown coal land. These 23 licences are in one licence area.

An additional 1128 ha of coal land are optioned to Shell by Imperial Metals and Power Limited (506 ha) and Chutter Ranch Limited (622 ha).

5.0 WORK DONE5.1 Prior to 1979

The earliest reference to coal in the Merritt area is dated 1877-78. Regular underground production totalling 2.7 million tons occurred between 1906-1945, 80% from the Coal Gully Hill and Coldwater Hill area, Middlesboro Collieries the main producer. Diamond Vale Mine produced only a small tonnage. Limited production continued until late 1950's. Prior to and during regular production numerous prospect holes were drilled and adits dug throughout the coalfield. Mapping was scattered and incomplete.

Later exploration concentrated in the Coal Gully Hill and Coldwater Hill area, on lots optioned by Imperial Metals and Power Limited. In 1960 they drilled 16 rotary holes totalling 1157 meters. Two of these holes were later deepened by diamond drilling.

In 1968 Sunicol Consultants Company Limited cored 258 meters in one diamond hole between Coal Gully Hill and Coldwater Hill. In 1969 they completed 3 diamond holes coring 563 meters in the same area.

5.2 1979 Exploration Program

On Shell Canada Limited Coal Licences:

- detailed geological mapping at 1:5000 scale on sedimentary outcrop areas
- reconnaissance mapping throughout the coal basin
- 3 open holes drilled totalling 445 meters by Garity & Baker Drilling Limited
- drill holes geophysically logged by BPB Instruments Limited
- sampling of major drill hole coal intersections
- hand trenching through coal seams
- reclamation by hand seeding of drill sites, access trails, and hand trenches
- location survey of drill holes and mapping control points by Surveying Department, Shell Canada Resources Limited.

On Imperial Metals and Power Option (Lot 166):

- detailed geological mapping at 1:5000 scale
- drilling of ten rotary holes totalling 1857 meters by Garity and Baker Drilling Limited.
- drill holes geophysically logged by BPB Instruments Limited
- sampling of major drill hole coal intersections
- hand trenching through coal seams
- backhoe trenching (21) totalling 105 meters
- 10 old mine entries sealed as directed by the mines inspector
- location survey of drill holes and control points by Surveying Department, Shell Canada Resources Limited

- reclamation by hand seeding of drill sites, trenches and access trails.

On Chutter Ranch Option:

- detailed geological mapping at 1:5000 scale
- one open hole drilled totalling 243 meters.

5.3 1980 Exploration Program

On Shell Canada Limited Coal Licences:

- regional mapping to confirm the boundary of the coal basin
- 4 open holes drilled totalling 707 meters by Simpson Drilling Limited. (One drill hole was abandoned in overburden.)
- drill hole spot cores taken for bedding attitude checks
- 3 drill holes geophysically logged by BPB Instruments Limited
- location survey of drill holes and baseline by Sheltech Canada.

On Imperial Metals and Power Option:

- 3 open holes drilled totalling 625 metres by Simpson Drilling Limited
- drill hole spot cores taken for bedding attitude checks
- drill holes geophysically logged by BPB Instruments Limited

In addition to the regular exploration program, two coal research projects were tested within the drilling area. Merritt was chosen for these tests because of favorable terrain and ground conditions. Shell Seismic conducted a short reflection and refraction seismic program in the early spring. D.T. Fudge Consultants tested resistivity methods during mid-summer and late autumn. Results from the seismic project are still being evaluated. A report on the resistivity testing has been completed.

5.4 1981 Exploration Program

Appendix D - Application to Extend Term of Licences

Appendix E - 1981 Drill Hole Summaries (3)

Appendix F - Drill Hole Stratigraphic Sections (3)

Appendix G - Downhole Geophysical Log

Appendix H - Traverse Survey Map

The only work on the Merritt coal licences in 1981 was on the eastern limit of the coal basin or the Normandale Mine area. Three rotary holes were drilled to determine the extent of the coal seam outcropping near the old mine portal.

On Shell Canada Limited Coal Licences:

- two rotary holes by Can-West Drilling (TH-60 cyclone) totalling 511 metres on June 15-16 and August 8-11, 1981
- both drill holes intersected small coal seams. One rotary hole (RM 301) caved and no logs were run. Rotary hole RM 303 was geophysically logged by BPB Instruments
- location survey of drill holes by Sheltech Canada
- drill hole RM 303 cemented by Alta-West Pressure Cementing
- drill sites hand seeded with range mix

On Chutter Ranch Option:

- one rotary hole by Can-West Drilling (TH-60 cyclone), totalling 152 metres on June 16-17, 1981. The hole was abandoned in Quaternary clays; no bedrock reached
- location survey of drill hole by Sheltech Canada
- drill site hand seeded with range mix

6.0 GEOLOGY

6.1 Regional

Enclosure No. 2 - Table of Formations

Appendix I - Regional Geology Map

The Merritt Coalfield of south-central British Columbia is one of several remnant early Tertiary basins within the Cordilleran intermontane belt. The coal deposits in the Merritt, Tulameen, Princeton and Hat Creek basins may have been originally interconnected but are now isolated from each other.

Coal deposits of the Merritt Coalfield lie within the Coldwater Formation, Kamloops Group, Tertiary age. These measures are predominantly conglomerate and sandstone with shale and lensing coal seams.

Lying unconformably below the Coldwater beds are Triassic Nicola Group rocks. They consist principally of volcanics of diverse types, grouped under the general term of greenstone.

Two ages of volcanics unconformably overly the Coldwater beds in the Merritt Coalfield. Near the western edge, Early Miocene lavas overly with gentle dips. Eastward, nearly horizontal benches of

TABLE OF FORMATIONS
MERRITT COALFIELD

PERIOD	EPOCH	FORMATION	LITHOLOGY	
QUATERNARY	PLEISTOCENE & RECENT		STREAM ALLUVIUM GLACIAL DRIFT	
TERTIARY	MIOCENE OR LATER	VALLEY BASALT	MAINLY VESICULAR BASALT	
	MIOCENE OR EARLIER	KAMLOOPS GROUP	VOLCANIC	RHYOLITE, ANDESITE BASALT WITH ASSOCIATED TUFFS BRECCIAS, AND AGGLOMERATES
			TRANQUILLE FM	CONGLOMERATE SANDSTONE, SHALE AND TUFF, THIN COAL SEAMS
			COLDWATER FM*	CONGLOMERATE SANDSTONE, SHALE & COAL
			COPPER CREEK INTRUSIONS	GRANITE, GRANODIORITE GRANITE PORPHYRY
TRIASSIC	UPPER TRIASSIC	NICOLA GROUP	GREENSTONE; ANDESITE, BASALT; AGGLOMERATE, BRECCIA, TUFF; MINOR ARGILLITE LIMESTONE, AND CONGLOMERATE	

Late Miocene vesicular basalt flows are the most recent consolidated rocks of the area.

The Merritt coal basin is roughly 19 km long, stretching north eastward, and from 1.5 to 5 km wide. It occupies a depression in Triassic greenstones and mapped boundaries are largely conjectural due to heavy glacial drift cover.

6.2 Stratigraphy

Unconformably overlying the Nicola Volcanics, the lower beds of the Coldwater Formation contain considerable detrital material and often resemble a breccia. Upwards through the coal measures, interstratified conglomeratic sandstones predominate. Rapid vertical and lateral variations in thickness and nature of individual beds suggest deposition in an unstable environment. Lack of uniformity and continuity in texture and rock type has greatly hindered correlations, even over short distances. Coal seam correlation has been further complicated by seam splitting and wedge-outs.

This non-marine sequence of coal-bearing sedimentary rocks probably accumulated in a restricted inland lake environment. A greater degree of sediment variation is reflected than that of a deltaic setting. Coal generally grades to shale both horizontally

and vertically rather than forming continuous seams. Fluctuating amounts of coarse clastic material prevail.

The best outcrop of the coal measures in the Merritt area occurs in Coal Gully. Here 4 seams are in 129 metres of section. For Coal Gully Hill, Middlesboro Collieries showed 7 seams in 235 meters but no recognizable agreement has been seen in recent drill holes.

Elsewhere in the basin several isolated outcrops of coal measures exist. These occurrences are predominantly sandstone sections barren of coal or with coal of no commercial interest. At Normandale, on the eastern margin of the coal basin, a 1.5 metre coal seam can be seen in outcrop.

6.3 Structure

Appendix J - Geology Compilation Map 1

Appendix K - Geology Map 1-B (Normandale)

Appendix L - Cross-Section A-A'

Extensive glacial drift cover, rapid textural changes of the clastics, and lenticular nature of the coal seams has rendered it difficult to work out the nature of folds and faults throughout the basin. Since drilling in the basin is mostly open-hole, few

subsurface attitudes are known beside those in worked out mine areas.

At Normandale, on the eastern end of the coal basin, a small coal seam striking north with near vertical dip can be seen in outcrop. A small tonnage was mined from this location in the early 1900's. Immediately east of this seam the Nicola Volcanics outcrop and to the west, drilling indicates a rapid thickening of glacial deposits. One drill hole south of this seam intersected several thin seams located beneath approximately 80 metres of Quaternary material. This area probably has a complicated structure similar to the western fringe of the basin at Coal Gully Hill.

6.4 Mineability

Coal seams in the Normandale area are thin (0.5 to 2.0 metres) and occur at considerable depth below surface. Therefore these seams have no surface mineable potential.

Exploration (1980 Report) has delineated an area just south of Merritt townsite as the only place with any near surface mineable seams. Here a 5.1 million tonne geological in place coal resource has been delineated at an overburden ratio of 8.2 bank cubic metres of rock per tonne of coal. It must be emphasized that

mining and cleaning losses were not considered in computing this overburden ratio. Open pit mining of this small reserve is probably not feasible.

6.5 Coal Quality

Merritt coal is ranked as High Volatile Bituminous "B". The property is regarded to be a thermal prospect but at least one of the seams has fairly good coking properties.

The processed quality for the Merritt coal is summarized as follows:

Moisture	2.7%
Ash	9.5%
Volatile Matter	37.4%
Fixed Carbon	50.4%
Sulphur	0.7%
Calorific Value	7200 KCAL/KG
F.S.I.	0-5 I
Rank	hvbB ASTM

7.0 BIBLIOGRAPHY

Crows Nest Resources Limited, 1980, Merritt Geological Report.

Cockfield, W.E., (1948) Geology and Mineral Deposits of Nicola Map-area, British Columbia, G.S.C. Memoir #249.

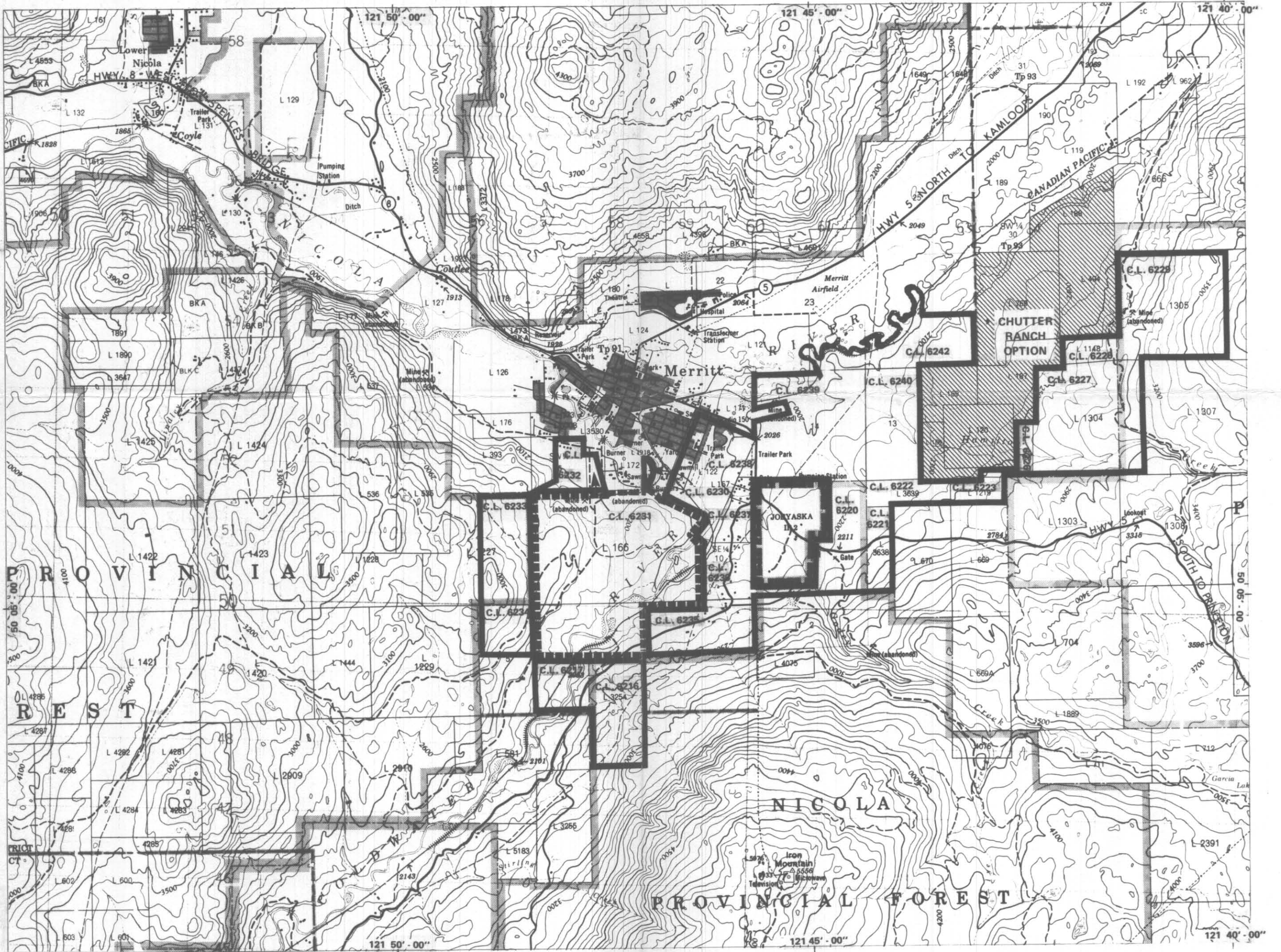
Dawson, G.M., (1879) Preliminary Report on the Physical and Geological Features of the Southern Portion of the Interior of British Columbia, Geological Survey of Canada, Report of Progress 1877-8.

Lorimer, M.K., (1962) Engineering Report on the Merritt Coalfield for Imperial Metals and Power Ltd.

Sumicol Consultants Limited, (1969) Merritt Coal Sumicol Report for Imperial Metals and Power Ltd.

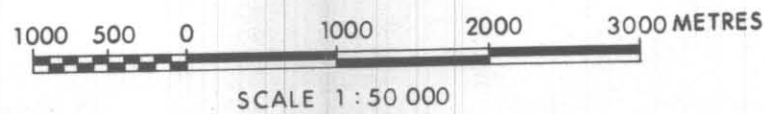
White, W.H. (19~~64~~⁴⁶) Report on the Merritt Coalfield, Report of the Minister of Mines.

Williams, V.E., and Ross, C.A., (1979) Depositional Setting and Coal Petrology of Tulameen Coalfield, South-Central British Columbia, AAPG Bull. V. 63, No. 11, P. 2058-2069.



Legend

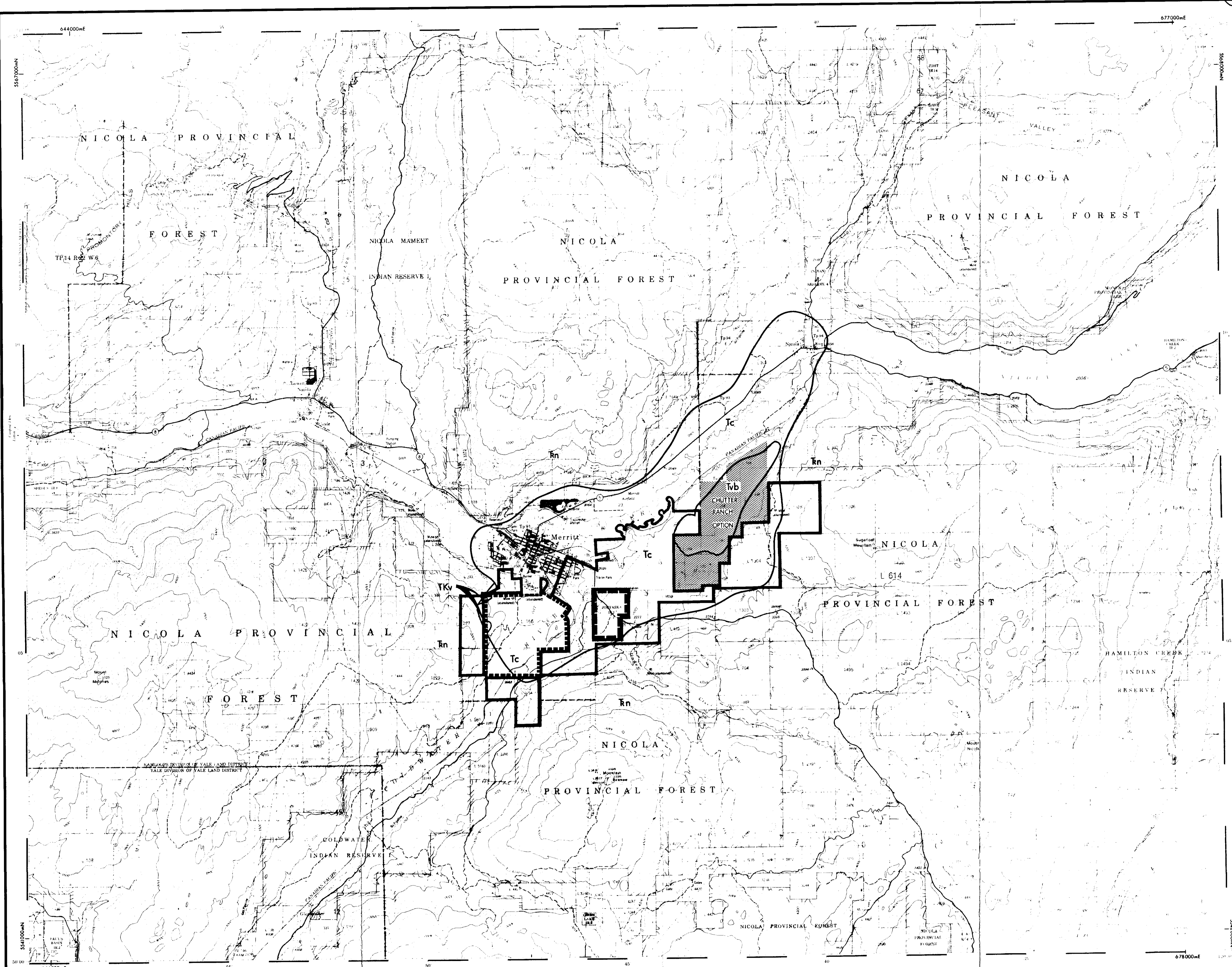
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- Road; Loose surface, Dry weather
- Track or trail
- Railway
- River
- Stream
- Contours
- Licence boundary
- Imperial Metals and Power Option
- Indian Reserve No. 2



M-MERRITT 81*(2)A *(1)

 Crows Nest Resources Limited EXPLORATION	
MERRITT S.C. BRITISH COLUMBIA	
COAL LICENCE MAP ACCESS MAP	
AUTHOR: S. ABBOTT DATE: 82 02 22 To Accompany	SCALE: 1:50 000 REVISED:
APPENDIX A DRAWING NO: HF-97C	

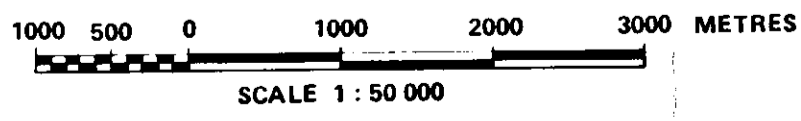
163 (M04)



MAP INDEX AND AERIAL PHOTO INDEX

92-1/2		
92-1/6	92-1/7	92-1/8
92-1/3	92-1/2	92-1/1
92-H/14	92-H/15	92-H/16

- Legend**
- Road, Highway, Main road
 - Road, Loose surface, Dry weather
 - Track or trail
 - Railway
 - River
 - Stream
 - Contours
 - Licence Boundary
 - Imperial Metals and Power Option
 - Indian Reserve No. 2



- LEGEND**
- Tvb - Valley Basalt
 - TKv - Kamloops Volcanics
 - Tc - Coldwater Beds
 - Rn - Nicola Volcanics

m-merritt 81(2A) *6)*

Crows Nest Resources Limited
EXPLORATION

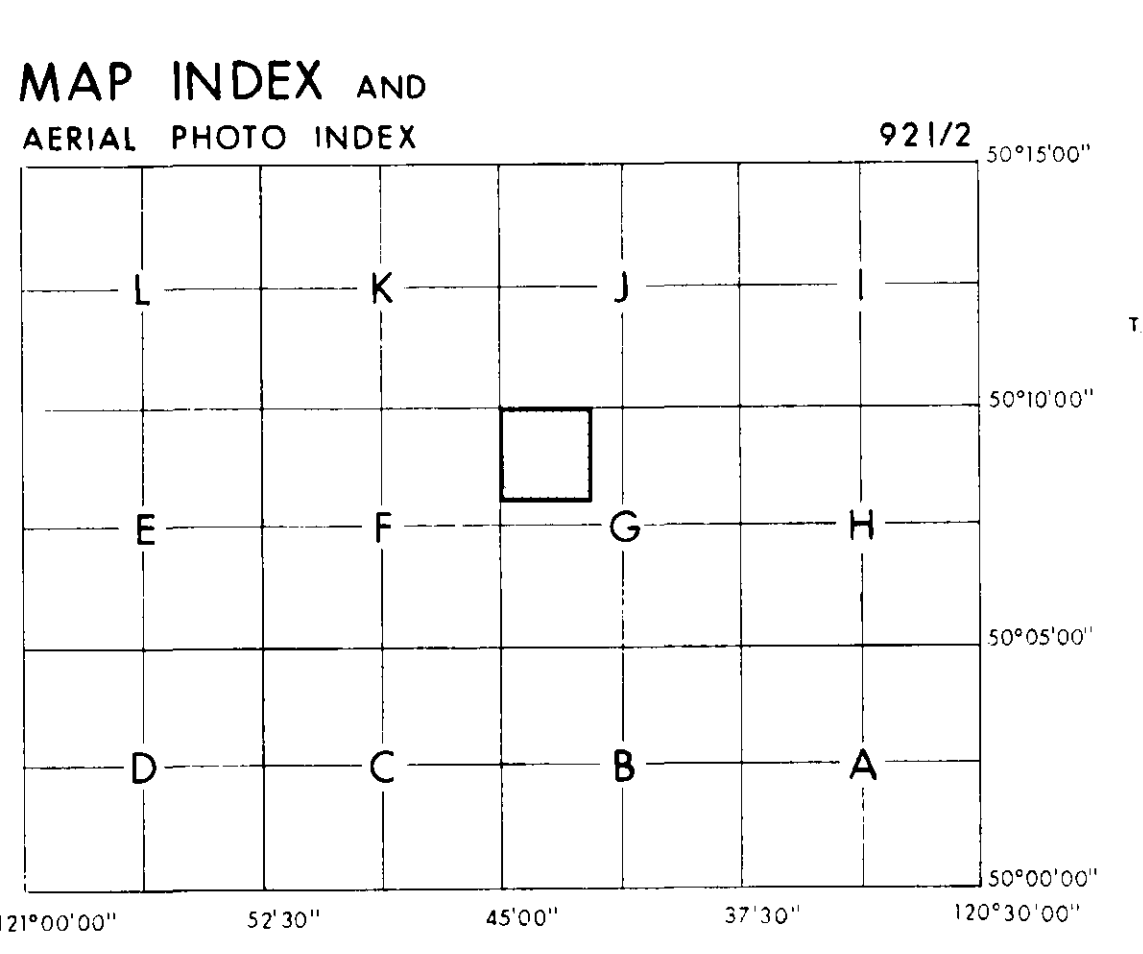
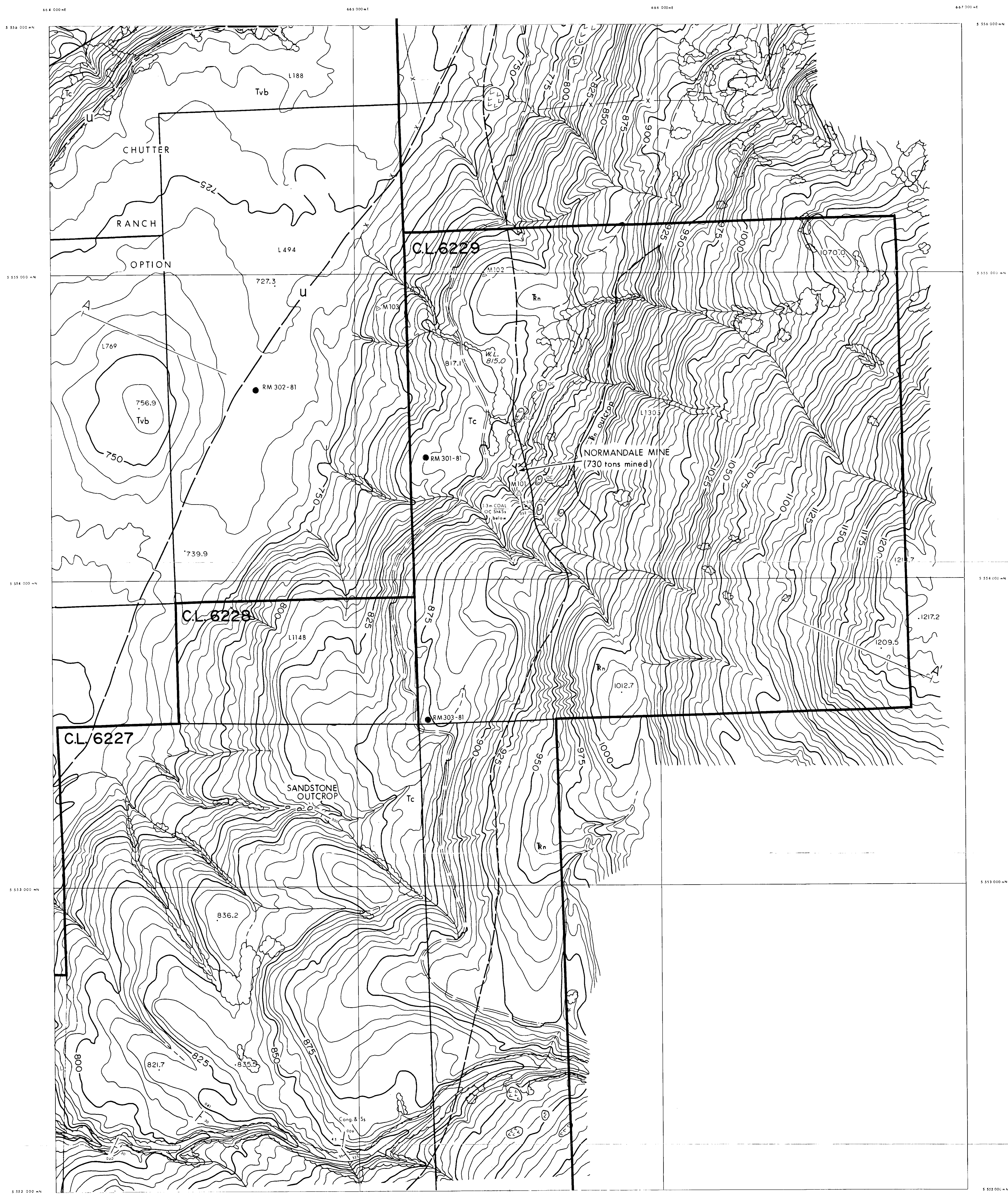
MERRITT
S.C. BRITISH COLUMBIA

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PLC

REGIONAL GEOLOGY MAP

NTS 92-1/2		UTM ZONE 10	
AUTHOR: P. GILMAR	SCALE: 1:50 000	APPENDIX I	
DATE: 82 02 22	REVISED:	DRAWING No: HF-97A	
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REFERENCE

MAIN ROAD	RIVER, LAKE
SECONDARY ROAD	INTERMITTENT RIVER
TRACK OR TRAIL	TREED AREA
RAILWAY	LINE OF TREES
HEDGE FENCE	INDIVIDUAL TREES
BRIDGE CULVERT	CONTOUR INTERVAL
CUT FILL	DEPRESSION
SWAMP	SPOT HEIGHT
DRILL HOLE	CONTROL POINT

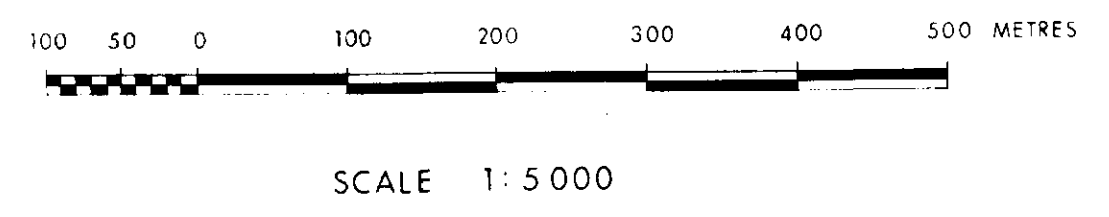
QUATERNARY

TERTIARY

TRIASSIC

GEOLOGICAL LEGEND

Q	boulder clay	U	Unconformity
Q	glacial moraine, gravel	U	Geological Contact - defined, approximate
Tvb	Valley Basalt - Mainly Vesicular basalt	U	Bedding, Inclined
TKv	KAMLOOPS GROUP	U	Rotary drill hole, 1981
TKv	Kamloops Volcanics - Rhyolite, andesite, basalt	U	Tn Outcrop
Tc	Coldwater Formation - Conglomerate, sandstone, shale and COAL.	U	Mine Entry
Tn	Nicola Group - Greenstone, andesite, basalt	U	Survey Point (Merritt)



MAP PROJECTION: UNIVERSAL TRANSVERSE MERCATOR
CENTRAL MERIDIAN REFERENCE 117 W.

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Crows Nest Resources Limited
EXPLORATION

MERRITT
SOUTH CENTRAL BRITISH COLUMBIA

GEOLOGY MAP I-B
(NORMANDALE)

N.T.S. 921-2 UT M. ZONE 10

AUTHOR: P. GILMAR	SCALE: 1:5,000	APPENDIX 8
DATE: 12.02.14	REVISED:	
To: Accompany		DRAWING NO: HF-97

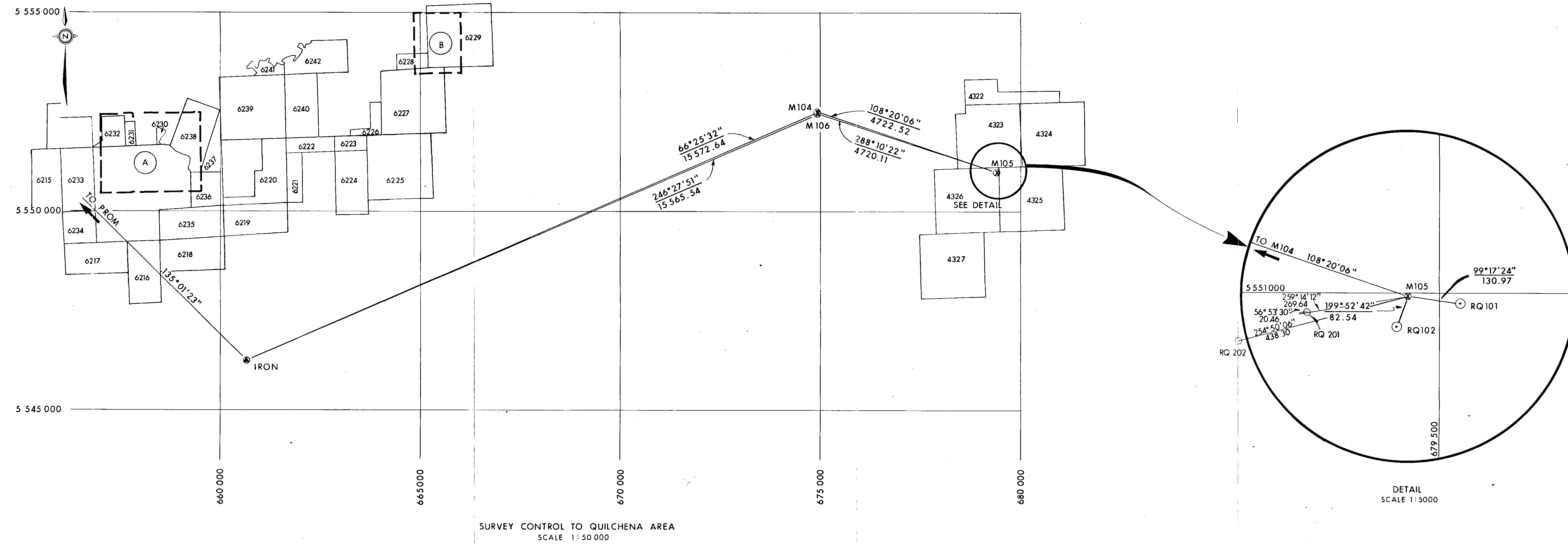


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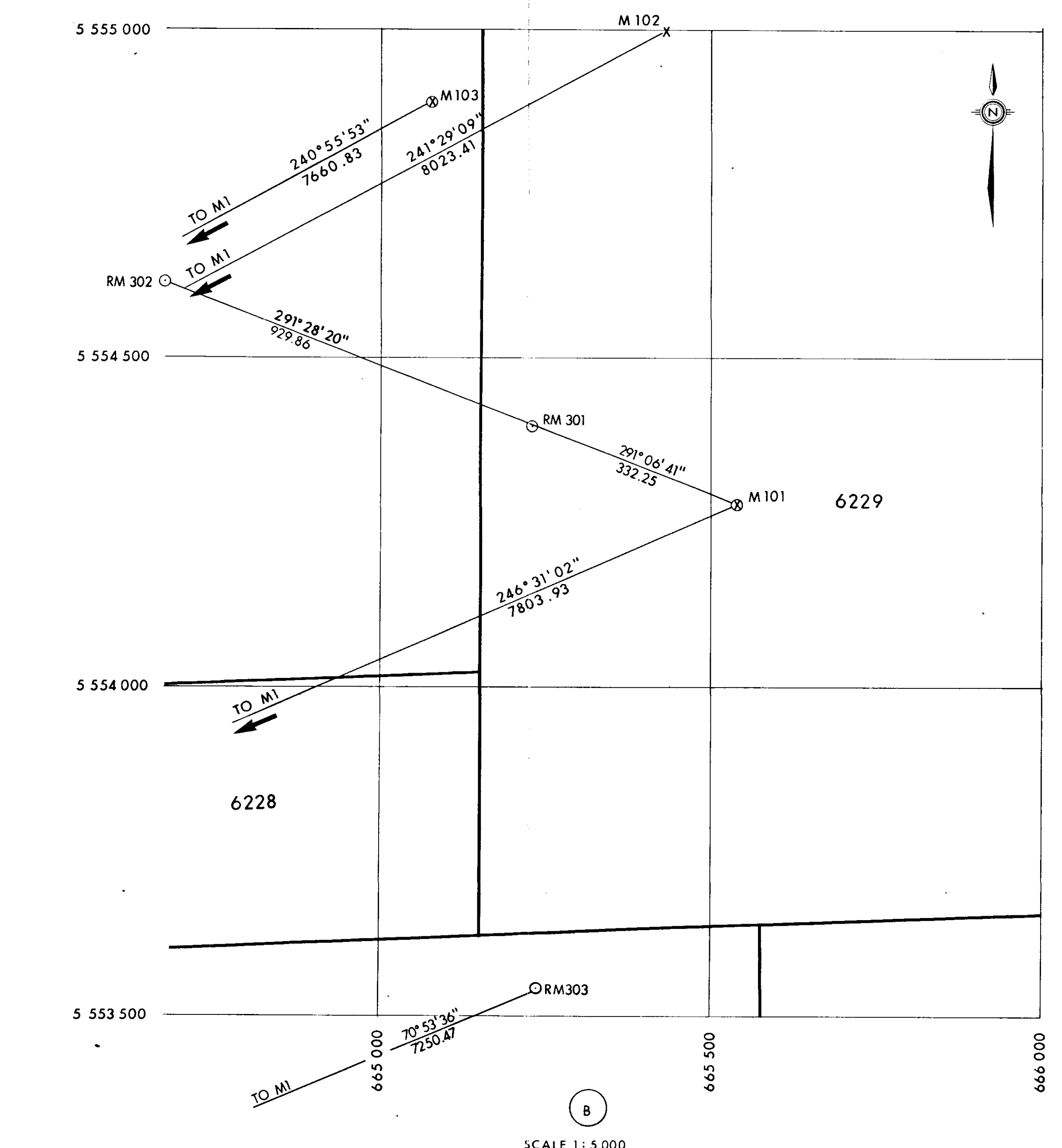
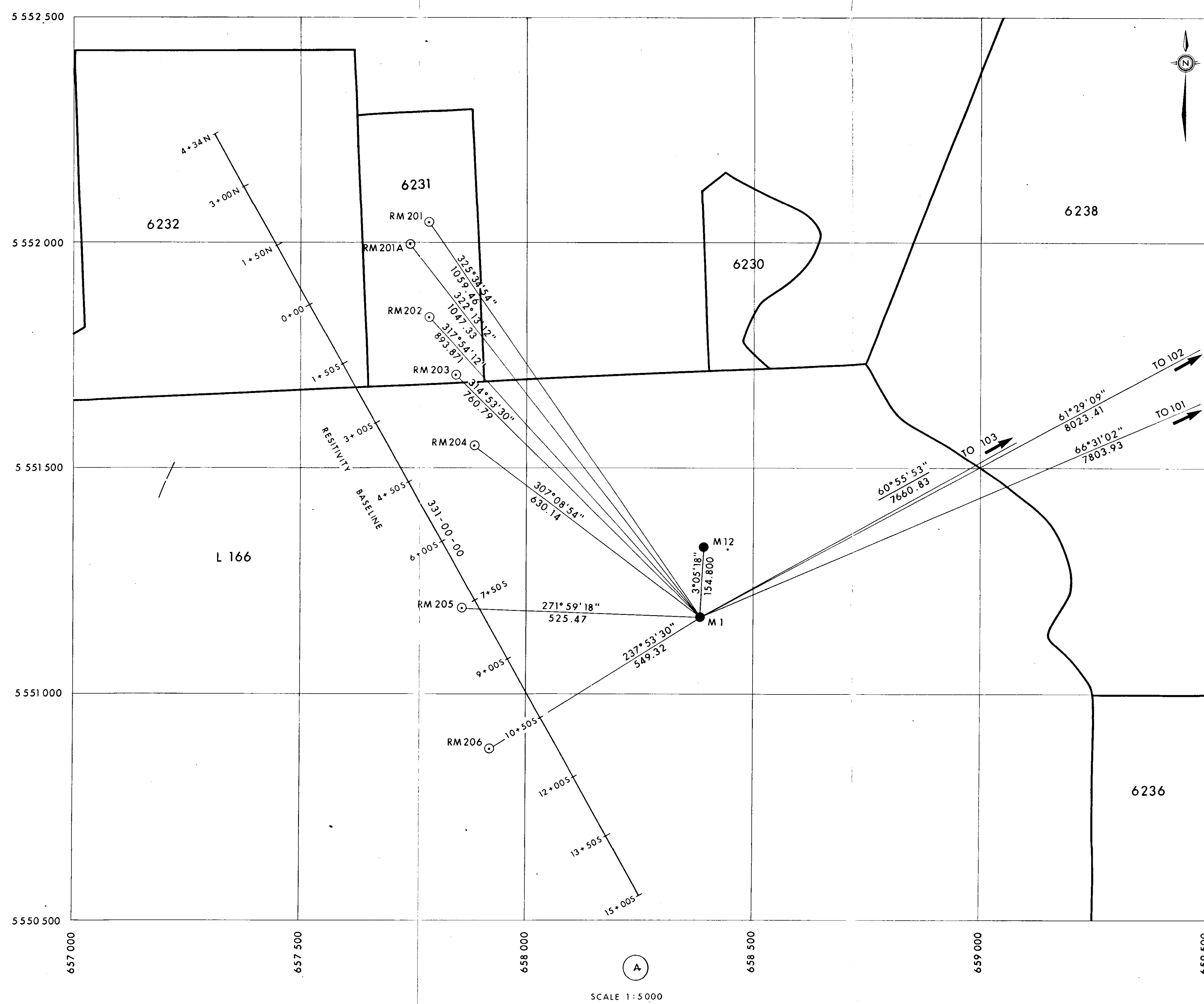
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PROM	5 562 093.82	644 836.04	1722.08
M 1	5 551 168.48	658 383.16	700.72
M 12	5 551 323.06	668 391.51	695.20
M 101	5 554 278.14	666 540.77	869.25
M 102	5 554 988.67	665 433.33	925.01
M 103	5 554 890.55	665 079.03	763.15
M 104	5 552 478.98	674 939.35	1210.40
M 105	5 550 993.28	678 422.12	969.98
M 106	5 552 466.41	674 937.45	1207.12

RESISTIVITY BASELINE

0+00	5 551 862	657 522
1+50 N	5 551 994	657 450
3+00 N	5 552 125	657 377
4+34N	5 552 242	657 312
1+50 S	5 551 732	657 596
3+00 S	5 551 600	657 668
4+50 S	5 551 469	657 740
6+00 S	5 551 338	657 813
7+50 S	5 551 207	657 886
9+00 S	5 551 076	657 959
10+50 S	5 550 944	658 031
12+00 S	5 550 813	658 104
13+50 S	5 550 682	658 177
15+00 S	5 550 551	658 250
16+50 S	5 550 420	658 322

DRILL HOLES

RM 201	5 552 042.46	657 784.33	608.24
RM 201 A	5 551 996.26	657 741.54	607.11
RM 202	5 551 931.75	657 783.83	605.73
RM 203	5 551 705.42	657 844.19	612.67
RM 204	5 551 649.01	657 880.90	617.87
RM 205	5 551 186.71	657 858.02	649.76
RM 206	5 550 876.50	657 917.87	665.01
RO 101	5 550 972.14	679 551.37	965.30
RO 102	5 550 915.66	679 394.05	945.95
RQ 201	5 550 954.10	679 174.36	915.70 grd
RO 202	5 550 878.62	678 999.08	896.41
RM 301		665 230.82	812.98 grd
RM 302	5 554 618.51	664 675.45	813.22 casing
RM 303	5 553 541.82	665 234.40	728.15 casing
			868.65 grd
			868.15 casing



LEGEND

- ⊙ — 2nd ORDER CONTROL STATION
- — FOUND 12" SPIKE
- × — PLANT 12" SPIKE
- ⊙ — DRILL HOLE
- ⊗ — 3/4" REBAR

SURVEY DONE BY Sheltech Canada, 1980.
 ALL DISTANCES ARE IN METRES AND HAVE BEEN REDUCED TO THE U.T.M. PLANE.
 ALL BEARINGS ARE REFERRED TO 123°W

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M. MERRITT S1(2)A *U

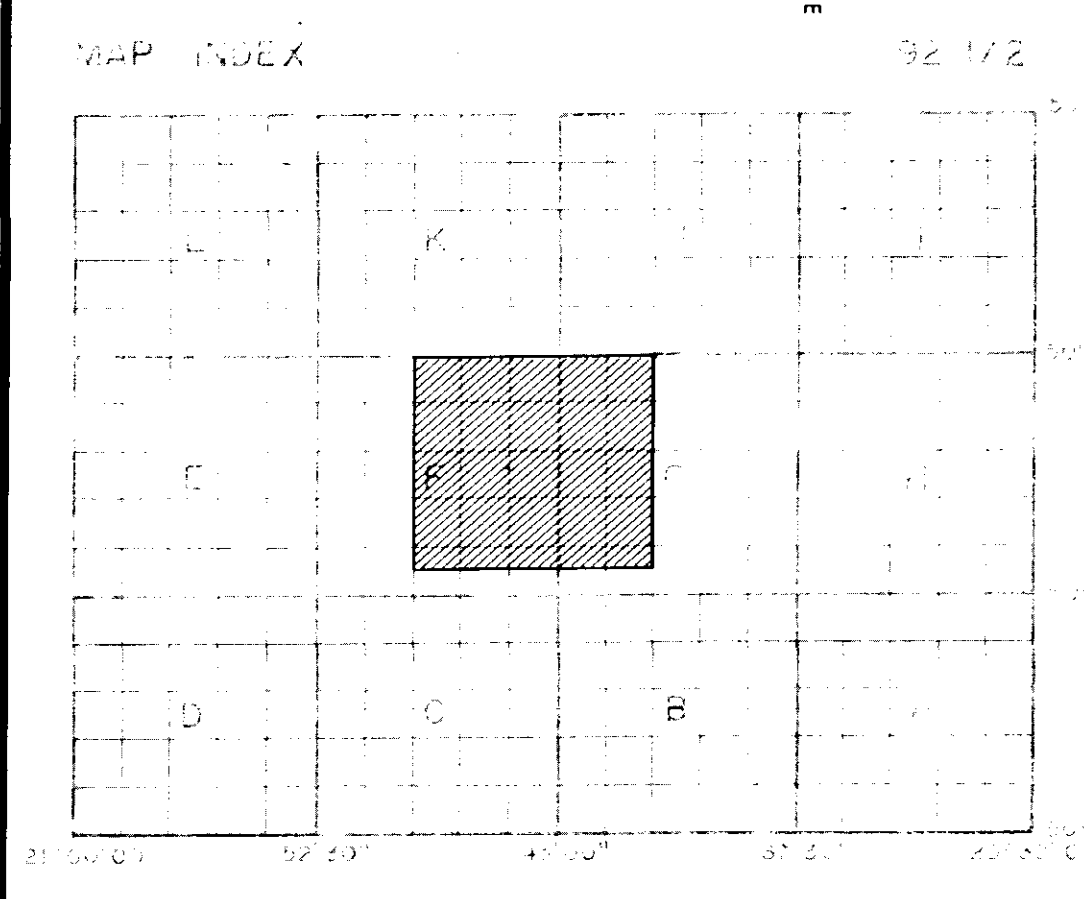
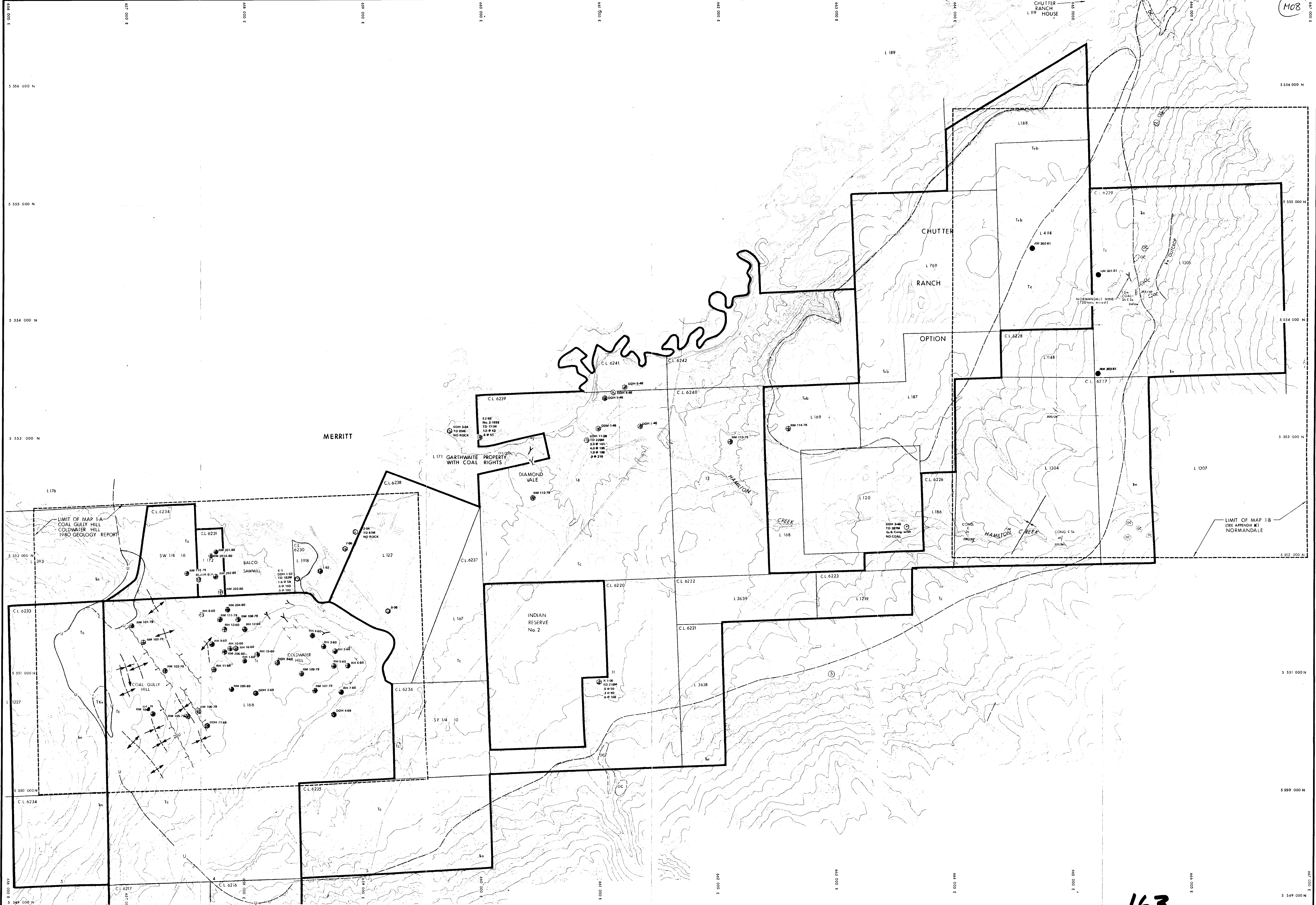
Sheltech Canada

Crows Nest Resources Limited
ENGINEERING

MERRITT - QUILCHENA
S.E. BC.

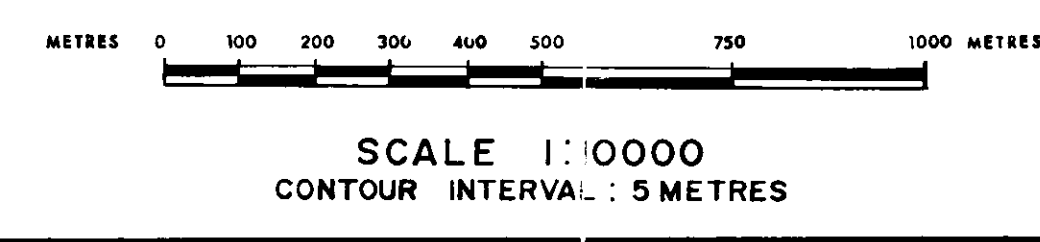
TRAVERSE SURVEY MAP

AUTHOR: SHELTECH SCALE: AS SHOWN APPENDIX II
 DATE: 02/74 REVISED: 01/04/15
 To: Accompany



TOPOGRAPHY

100	Contour interval
1000	Contour interval
5000	Contour interval
10000	Contour interval
20000	Contour interval
30000	Contour interval
40000	Contour interval
50000	Contour interval
60000	Contour interval
70000	Contour interval
80000	Contour interval
90000	Contour interval
100000	Contour interval



GEOLOGICAL LEGEND

- | | | |
|------------|-----|---|
| QUATERNARY | Q | Pleistocene - Stream alluvium, glacial drift |
| | Tvb | Valley Basalt - Mainly vesicular basalt |
| TERTIARY | TKv | KAMLOOPS GROUP |
| | Tc | Kamloops Volcanics - Rhyolite, andesite, basalt |
| | Tc | Cold water Formation - Conglomerate, sandstone, shale and COAL |
| TRIASSIC | In | Nicola Group - Greenstone, andesite, basalt |
| | | Geological contact - defined, approx., inferred |
| | | Normal fault - approx. inferred |
| | | Bedding, inclined, vertical |
| | | Anticline - defined, approx. inferred, arrow indicates plunging direction |
| | | Syncline - defined, approx. inferred, arrow indicates plunging direction |
-
- | | |
|---|---|
| ○ | Diamond drill hole |
| ○ | Rotary drill hole |
| ○ | Drill hole, position approx. |
| ○ | Survey point |
| ○ | Mine entry |
| ○ | Sink hole |
| ○ | Boundary of Licence Block (Approximate) |
| ○ | Lot Line |
| ○ | Coal Licence No. |
| ○ | Lot No. |
| ○ | Outcrop |

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Crows Nest Resources Limited
EXPLORATION

MERRITT PROJECT
BRITISH COLUMBIA

GEOLOGY MAP 1

NTS-92 I/2		UTM-ZONE 10	
AUTHOR: P. GILMAR	SCALE: 1:10000	APPENDIX J	
DATE: 01.11.90	REVISED:	DRAWING No HJ-91	
To accompany			

APPENDIX F
1981 DRILL HOLE SUMMARIES
 ROTARY HOLE RM-301

DATE: June 15 - June 16, 1981
 LOCATION: Merritt - Normandale, C.L. 6229
 RIG TYPE: Can-West Drilling, TH-60 cyclone, single wall rotary with casing hammer
 ELEVATION(m) 812.98
 NORTHING: 5554397.81
 EASTING: 665230.82
 TOTAL DEPTH (m): 213
 ANGLE: Vertical
 COMMENTS: Quaternary to 62.2 m, hole caved, no logs run, hole not cemented.

Coal licence: 6229

Coal Intersections (driller's log)

<u>Thickness Meters</u>	<u>Depth Meters</u>
1.6	91.4 - 93.0
1.0	104.2 - 105.2
1.5	117 - 118.5
0.5	119 - 119.5
0.2	131 - 131.2
1.0(?)	201 - 202(?)

APPENDIX F

1981 DRILL HOLE SUMMARIES

ROTARY HOLE RM-302

DATE: June 16 - June 17, 1981
LOCATION: Merritt - Normandale, on Chutter Ranch Option, Lot No. 494
RIG TYPE: Can-West Drilling, TH-60 cyclone, single wall rotary with casing hammer
ELEVATION(m) 727.55
NORTHING: 5554618.51
EASTING: 664675.45
TOTAL DEPTH (m): 152
ANGLE: Vertical
COMMENTS: Still in Quaternary at T.D., no logs run, hole not cemented

Coal licence: 00φL

No Coal Intersections

APPENDIX F1981 DRILL HOLE SUMMARIES

ROTARY HOLE RM-303

DATE: August 8 - August 11/81
 LOCATION: Merritt - Normandale, C.L. 6227
 RIG TYPE: Can-West Drilling, TH-60 cyclone, single wall rotary with casing hammer
 ELEVATION(m) 868.65
 NORTHING: 5553541.82
 EASTING: 665234.40
 TOTAL DEPTH (m): 298
 ANGLE: Vertical
 COMMENTS: Quaternary to 82.0 m; hole was cemented full length

Coal liscence: 6229

<u>LOGS RUN:</u>	<u>(BPB Instruments)</u>	<u>SCALE:</u>	<u>DEPTH:</u>
	Gamma Ray	100:1	105 m

Coal IntersectionsThickness MetersDepth Meters

1.0	83.0 - 84.0 (chip sample)
2.0	85.0 - 87.0 (driller's log)
2.0	98.0 - 100.0
0.5	113.0 - 113.5 (driller's log)
2.0	128.0 - 130.0 (driller's log)
2.0	158.0 - 160.0 (driller's log)
0.5	180.0 - 180.5 (driller's log)
1.5	211.0 - 212.5 (driller's log)