

LEGEND

BUILDING	---
ROAD, HARD SURFACE	---
ROAD, LOOSE SURFACE	---
CART TRACK	---
TRAIL	---
RAILROAD BED	---
RIVER	---
STREAM, DEFINITE	---
STREAM, APPROXIMATE	---
LAKE	---
WATER LEVEL	---
SWAMP	---
BEAVER DAM	---
TREE LINE	---
CUT LINE	---
CONTOURS, INDEX	---
CONTOURS, INTERMEDIATE	---
CONTOURS, DEPRESSION	---
CONTOURS, APPROXIMATE	---
SPOT ELEVATION	---
FORM LINES	---
CUT/FILL	---
FIELD CONTROL POINT	---
COAL LICENCE	---

Notes

MAPPING PRODUCED FROM PHOTOGRAPHIC ENLARGEMENTS OF 1:10000 NEGATIVES.

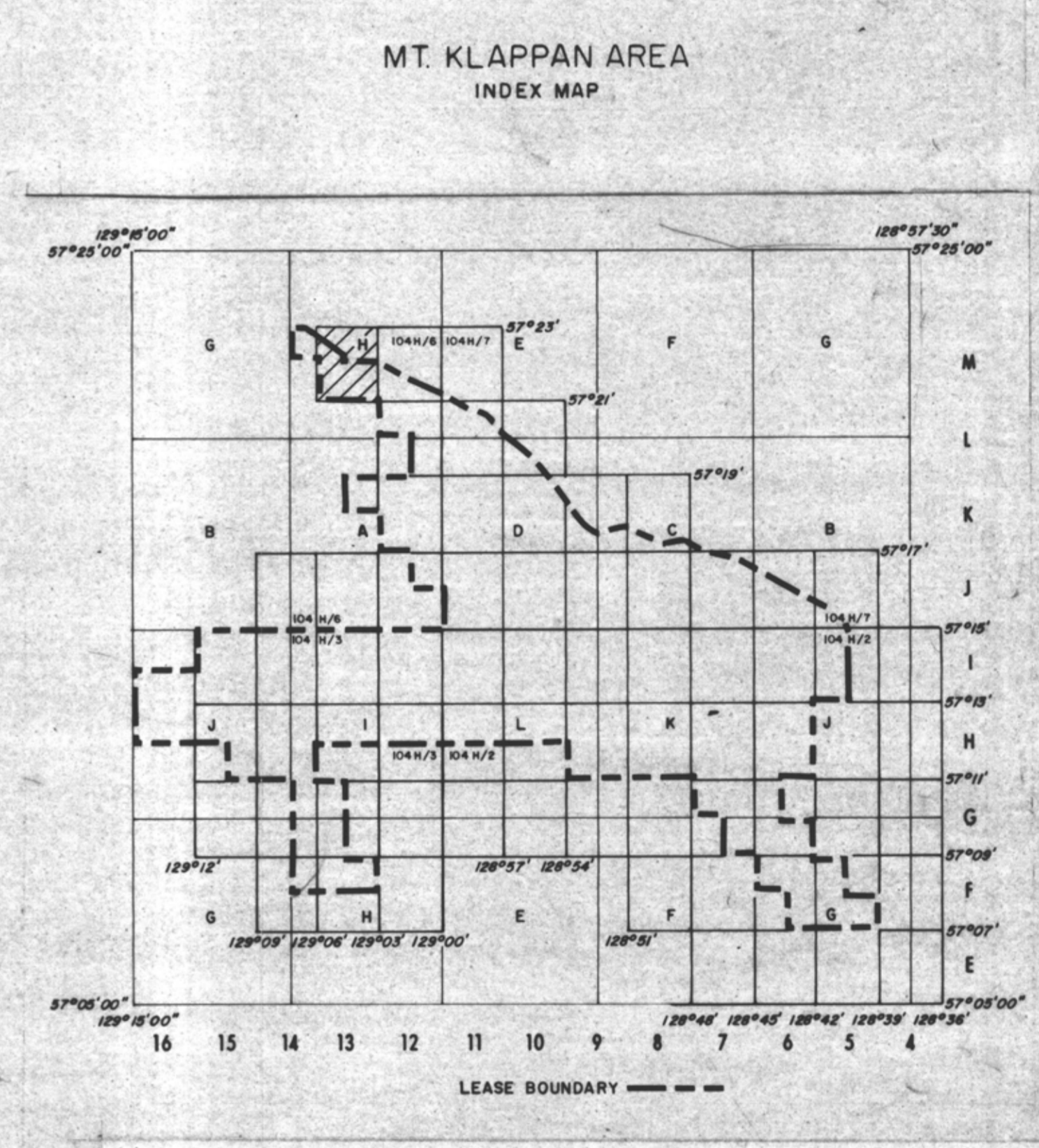
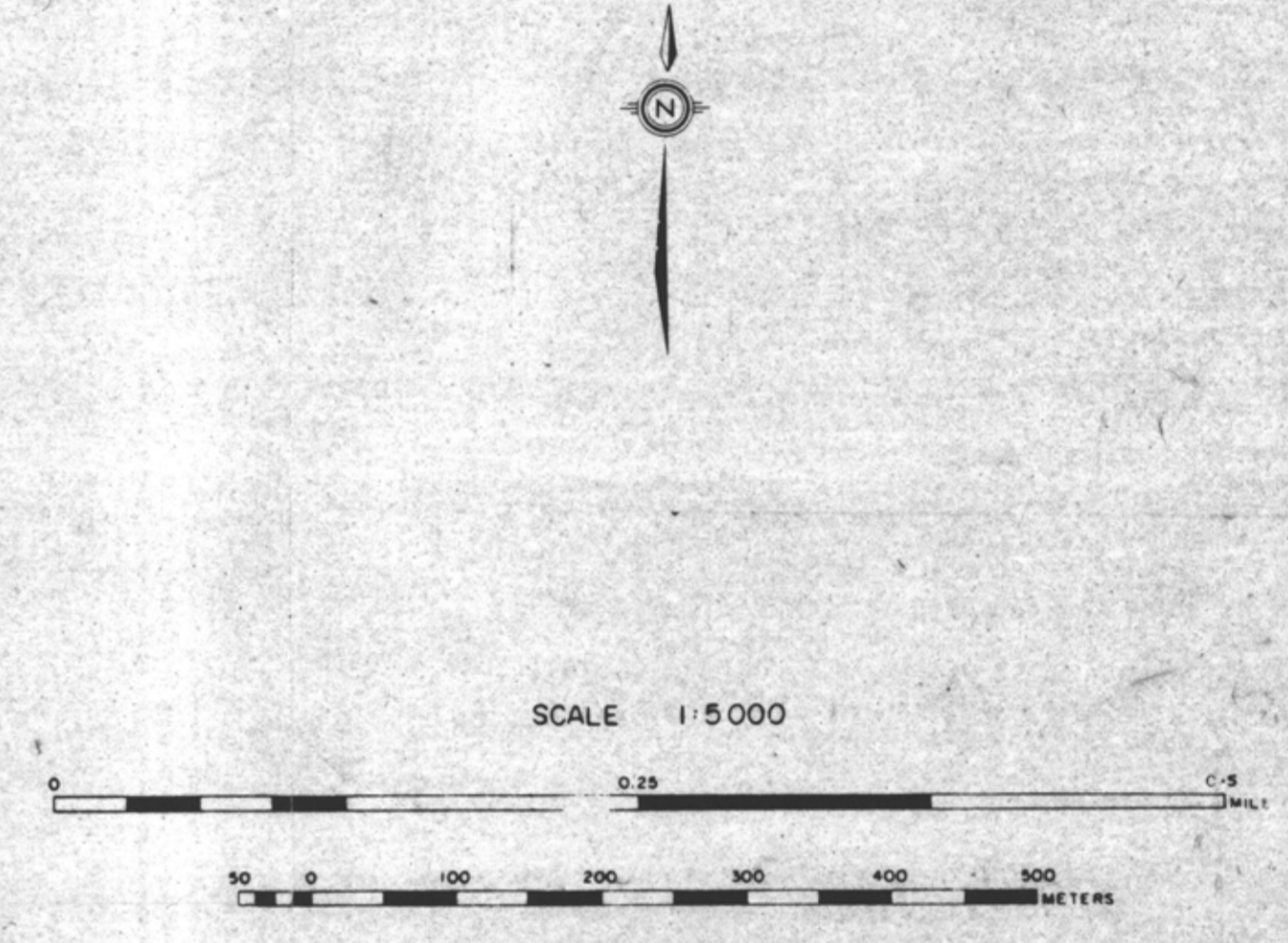
5M FORM LINE

ACCURACY OF 5M FORM LINES IS EQUAL TO THE ACCURACY OF THE 10M CONTOURS ± 5.0 METERS FOR GROUND NOT OCCUPIED BY TREES OR VEGETATION.

SURVEY CONTROL TAKEN FROM EXISTING PHOTO IDENTIFIABLE GOVERNMENT SURVEY MONUMENTS AND A.T. MARKS. MAPPING IS BASED ON UNIVERSAL TRANSVERSE MERCATOR GRID AND GEODETIC DATUM.

RAILROAD BED LOCATION BASED ON SEPT. 82 AERIAL PHOTOGRAPHY.

COMPILED BY THE ORTHOSOP FROM FEDERAL GOVERNMENT AERIAL PHOTOGRAPHY FLOWN IN AUGUST 87 AT A SCALE OF 1:80000 (APPROXIMATE).



- RHONDDA SEQUENCE**
- Kr** Sequence of thick chert pebble conglomerates and minor gritty sandstones interbedded with an increasing number of siltstones and mudstones towards the basal contact. Large scale trough and tabular cross beds are common. Six species of plant fossils are found at the base of the sequence.
- MALLOCH SEQUENCE**
- Km** Thick interbeds of mudstones, argillaceous siltstones, fine grained sandstones and thin interbeds of orange weathering nodular siltstones. Many conglomerate beds display large scale cross bedding and tend to be laterally discontinuous. Thick clean sandstone beds and thin coal seams increase in abundance towards the basal gradational contact. Twenty-three species of plant fossils occur within the sequence.
- KLAPPAN SEQUENCE (main coal-bearing unit)**
- JKk** Fine to coarse grained sandstones interbedded with mudstones, siltstones, occasional thin bands of orange weathering calcareous siltstones, conglomerates and abundant coal seams. Conglomerate beds grade laterally into sandstone. Sandstones often display tabular or trough cross bedding. Rhythmites occur in the middle of the sequence. Twenty-three species of bivalves and up to twenty-five species of plants occur throughout. Petrified wood and rare coquina may be present towards the upper contact.
- SPATSIZI SEQUENCE**
- Js** Predominantly a marine sequence of interbedded mudstones, siltstones, sandstones and conglomerates. Carbonaceous mudstones, coarsening upward sequences and chert pebble conglomerates are more abundant in the upper part of the sequence. Nineteen species of bivalves are present. Belemnites are rare. Plant debris may occur near the upper gradational contact.

LEGEND

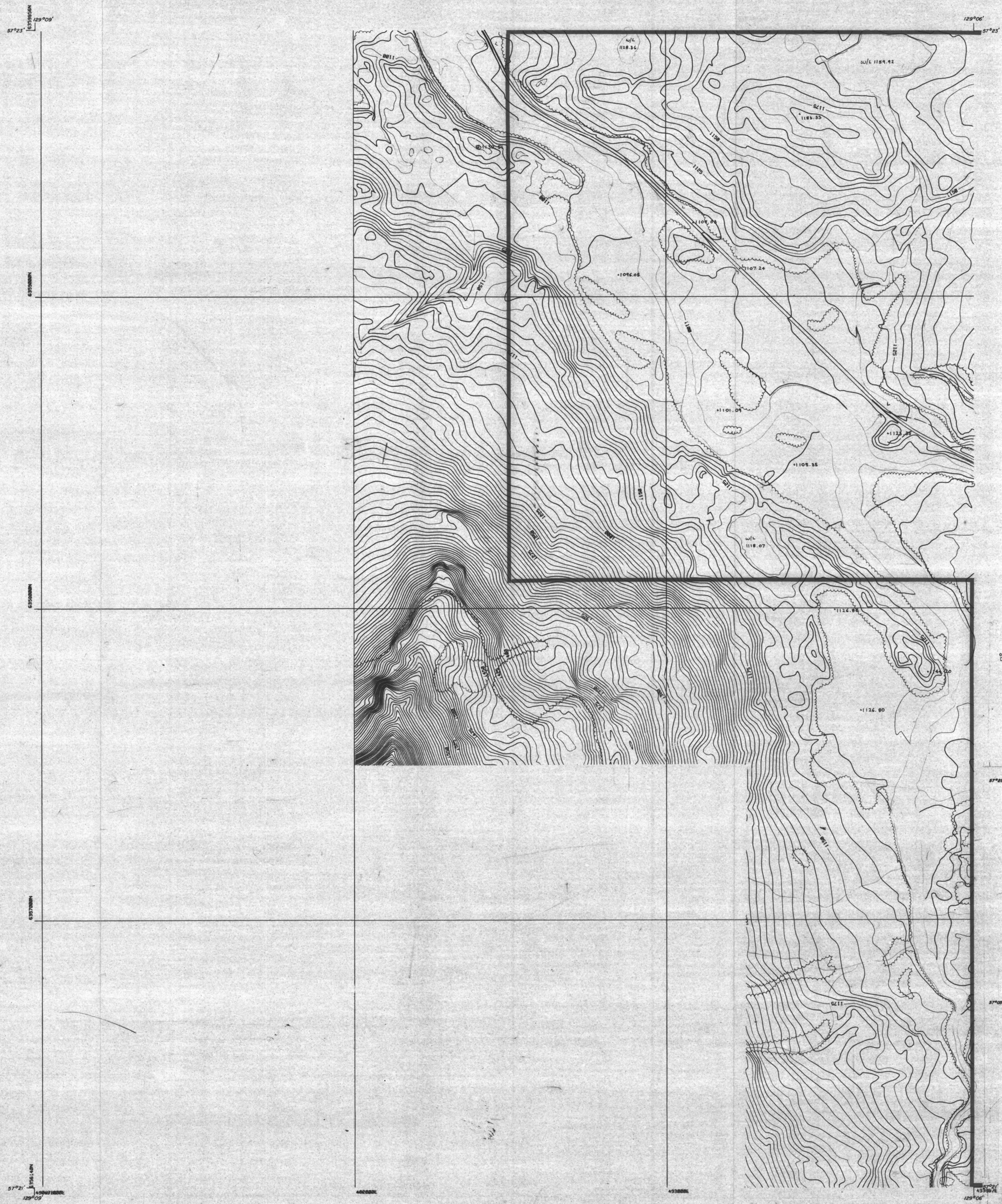
---	LICENCE BOUNDARY
---	GEOLOGICAL CONTACT (APPROXIMATE, INFERRED)
---	COAL SEAM (DEFINED, INFERRED)
---	ANTICLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
---	SYNCLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
---	OVERTURNED ANTICLINE (DEFINED, APPROXIMATE)
---	OVERTURNED SYNCLINE (DEFINED, APPROXIMATE)
---	MONOCLINE (DEFINED, APPROXIMATE)
---	BEDDING (HORIZONTAL, INCLINED, OVERTURNED, VERTICAL, UPRIGHT, ESTIMATED)
---	FOLIATIONS (INCLINED, VERTICAL, HORIZONTAL)
---	JOINTS (INCLINED, VERTICAL, HORIZONTAL)
---	THRUST FAULT (DEFINED, APPROXIMATE) TEETH INDICATE UP THRUST SIDE
---	FAULT (DEFINED, APPROXIMATE) UP THROWN, DOWN THROWN SIDE
---	FAULT (DEFINED, APPROXIMATE) SHOWING RELATIVE MOVEMENT
---	ADIT TRENCH COAL SPOIL
---	DIAMOND, ROTARY, WINKIE DRILL HOLE (VERTICAL, INCLINED WITH SURFACE PROJECTION)
---	MEASURED SECTION
---	SURVEY CAIRN
---	CROSS SECTION LINE

748

**GULF CANADA RESOURCES LTD.**  
Coal Division ALBERTA

**MT. KLAPPAN ANTHRACITE PROPERTY**  
1988  
**GEOLOGY MAP**  
**SUMMIT AREA**  
**MAP M-13**

PREPARED BY: G.P./L.S. SCALE 1:5000  
APPROVED BY: E.S. DATE: SEPT, 1988 DRAWING No. KPN5A-15



LEGEND

BUILDING	[Symbol]
ROAD, HARD SURFACE	[Symbol]
ROAD, LOOSE SURFACE	[Symbol]
CART TRACK	[Symbol]
TRAIL	[Symbol]
RAILROAD BED	[Symbol]
RIVER	[Symbol]
STREAM, DEFINITE	[Symbol]
STREAM, APPROXIMATE	[Symbol]
SPLIT	[Symbol]
LAKE	[Symbol]
WATER LEVEL	[Symbol]
SWAMP	[Symbol]
BEAVER DAM	[Symbol]
TREE LINE	[Symbol]
CUT LINE	[Symbol]
CONTOURS, INDEX	[Symbol]
CONTOURS, INTERMEDIATE	[Symbol]
CONTOURS, APPROXIMATE	[Symbol]
SPOT ELEVATION	[Symbol]
FORM LINES	[Symbol]
CUT/FILL	[Symbol]
FIELD CONTROL POINT	[Symbol]
COAL LICENCE	[Symbol]

Notes

MAPPING PRODUCED FROM PHOTOGRAPHIC ENLARGEMENTS OF 1:10000 NEGATIVES.

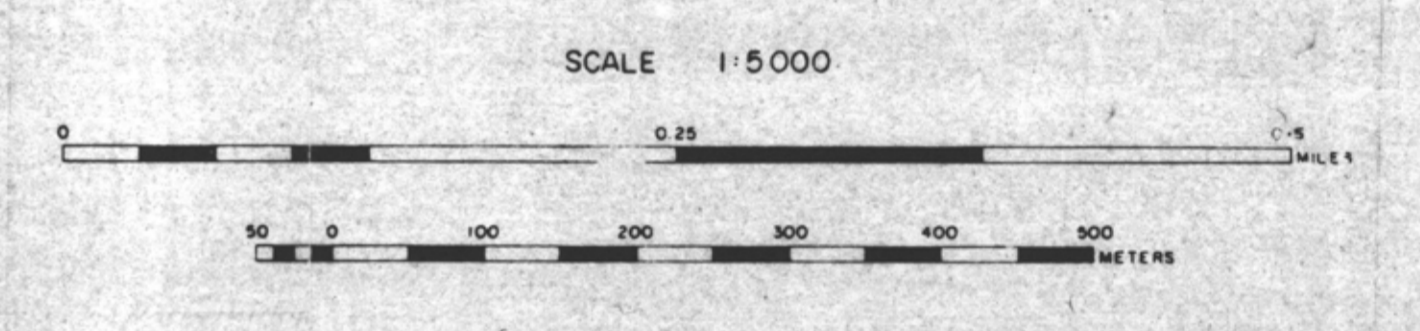
5M FORM LINE

ACCURACY OF 5M FORM LINES IS EQUAL TO THE ACCURACY OF THE 10M CONTOURS ± 5.0 METERS FOR GROUND NOT OCCUPIED BY TREES OR VEGETATION.

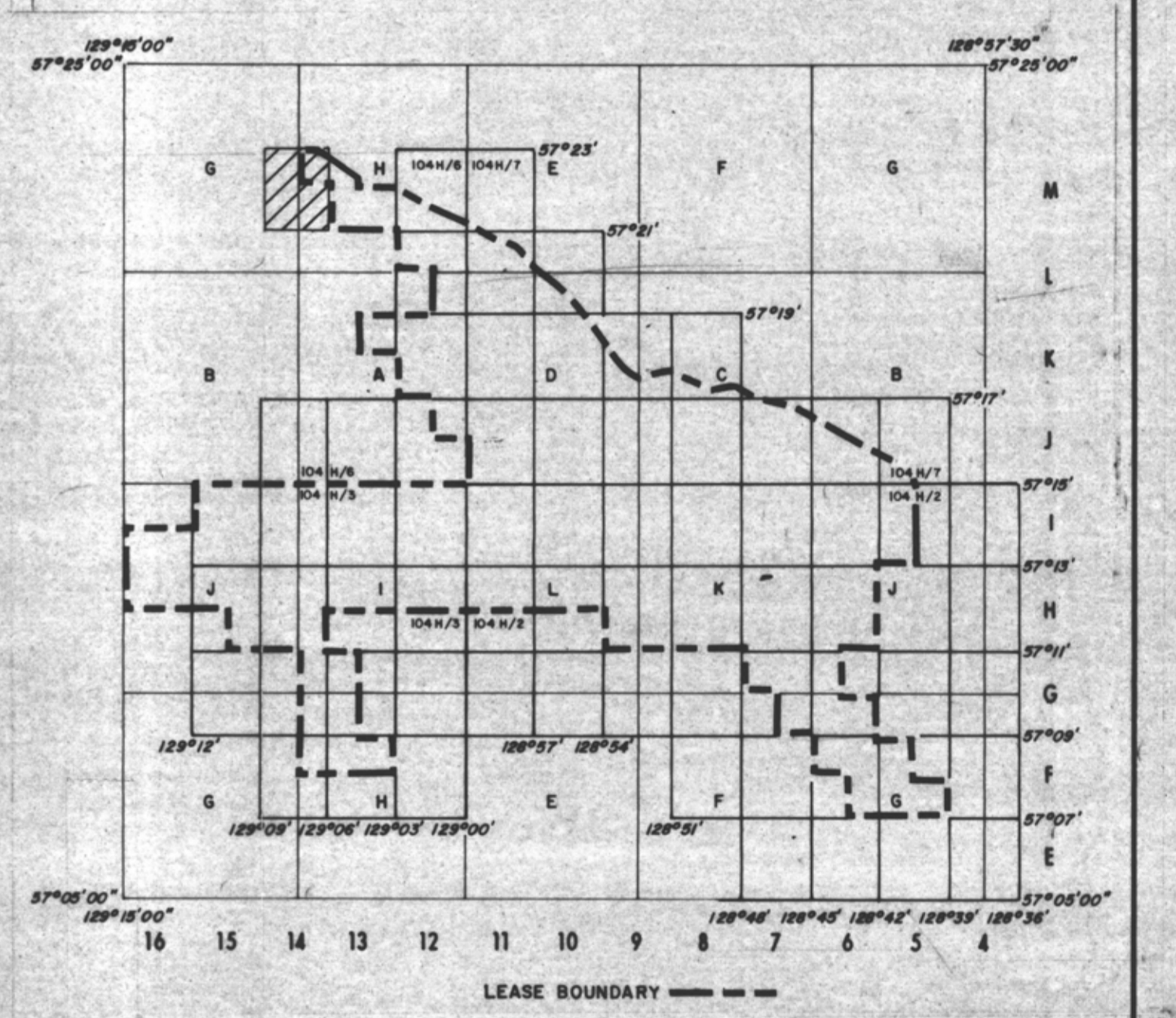
SURVEY CONTROL TAKEN FROM EXISTING PHOTO IDENTIFIABLE GOVERNMENT SURVEY MONUMENTS AND N.T.S. MAPS. MAPPING IS BASED ON UNIVERSAL TRANSVERSE MERCATOR GRID AND GEODETIC DATUM.

RAILROAD BED LOCATION BASED ON SEPT. 82 AERIAL PHOTOGRAPHY.

COMPILED BY THE ORTHO-COP FROM FEDERAL GOVERNMENT AERIAL PHOTOGRAPHY FLOWN IN AUGUST 67 AT A SCALE OF 1:50000 (APPROXIMATE).



MT. KLAPPAN AREA INDEX MAP



- RHONDDA SEQUENCE**
- Kr** Sequence of thick chert pebble conglomerates and minor gritty sandstones interbedded with an increasing number of siltstones and mudstones towards the basal contact. Large scale trough and tabular cross beds are common. Six species of plant fossils are found at the base of the sequence.
- MALLOCH SEQUENCE**
- Km** Thick interbeds of mudstones, argillaceous siltstones, fine grained sandstones and thin interbeds of orange weathering nodular siltstones. Many conglomerate beds display large scale cross bedding and tend to be laterally discontinuous. Thick clean sandstone beds and thin coal seams increase in abundance towards the basal gradational contact. Twenty-three species of plant fossils occur within the sequence.
- KLAPPAN SEQUENCE (main coal-bearing unit)**
- JKk** Fine to coarse grained sandstones interbedded with mudstones, siltstones, occasional thin bands of orange weathering calcareous siltstones, conglomerates and abundant coal seams. Conglomerate beds grade laterally into sandstone. Sandstones often display tabular or trough cross bedding. Rhythmites occur in the middle of the sequence. Twenty-three species of bivalves and up to twenty-five species of plants occur throughout. Petrified wood and rare coquina may be present towards the upper contact.
- SPATSZI SEQUENCE**
- Js** Predominantly a marine sequence of interbedded mudstones, siltstones, sandstones and conglomerates. Carbonaceous mudstones, coarsening upward sequences and chert pebble conglomerates are more abundant in the upper part of the sequence. Nineteen species of bivalves are present. Belemnites are rare. Plant debris may occur near the upper gradational contact.

LEGEND

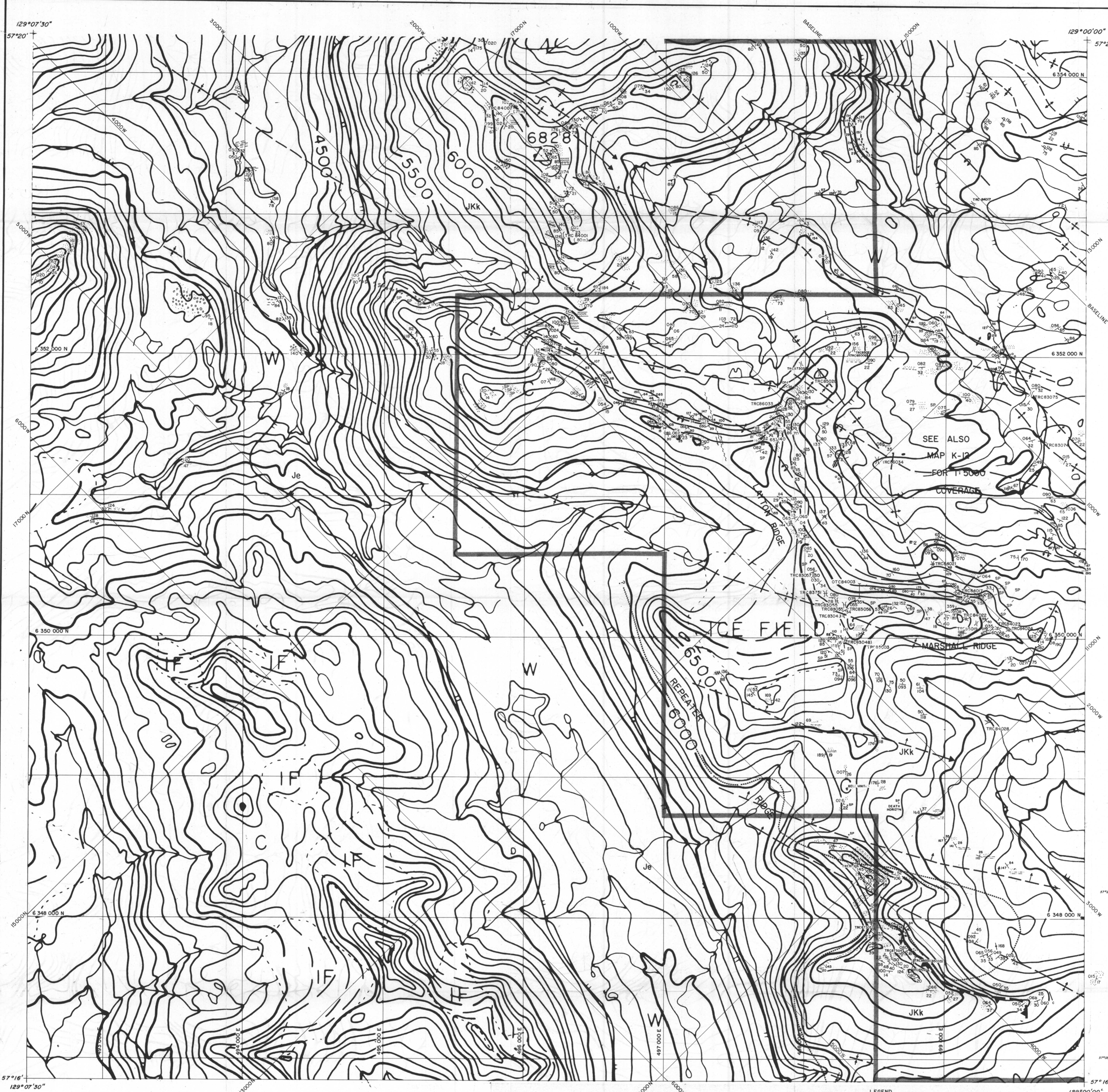
[Symbol]	LICENCE BOUNDARY
[Symbol]	GEOLOGICAL CONTACT (APPROXIMATE, INFERRED)
[Symbol]	COAL SEAM (DEFINED, INFERRED)
[Symbol]	ANTICLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
[Symbol]	SYNCLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
[Symbol]	OVERTURNED ANTICLINE (DEFINED, APPROXIMATE)
[Symbol]	OVERTURNED SYNCLINE (DEFINED, APPROXIMATE)
[Symbol]	MONOCLINE (DEFINED, APPROXIMATE)
[Symbol]	BEDDING (HORIZONTAL, INCLINED, OVERTURNED, VERTICAL, UPRIGHT, ESTIMATED)
[Symbol]	FOLIATIONS (INCLINED, VERTICAL, HORIZONTAL)
[Symbol]	JOINTS (INCLINED, VERTICAL, HORIZONTAL)
[Symbol]	THRUST FAULT (DEFINED, APPROXIMATE) TEETH INDICATE UPTHROW SIDE
[Symbol]	FAULT (DEFINED, APPROXIMATE) UPTHROWN, DOWNTROWN SIDE
[Symbol]	FAULT (DEFINED, APPROXIMATE) SHOWING RELATIVE MOVEMENT
[Symbol]	ADIT TRENCH COAL SPOIL
[Symbol]	DIAMOND, ROTARY, WINKIE DRILL HOLE (VERTICAL, INCLINED WITH SURFACE PROJECTION)
[Symbol]	MEASURED SECTION
[Symbol]	SURVEY CAIRN
[Symbol]	CROSS SECTION LINE

748

**GULF CANADA RESOURCES LTD.**  
Calgary Coal Division ALBERTA

**MT. KLAPPAN ANTHRACITE PROPERTY**  
1988  
**GEOLOGY MAP**  
**SUMMIT AREA**  
**MAP M-14**

PREPARED BY: G.P./L.S. SCALE 1:5000  
APPROVED BY: E.S. DATE: SEPT, 1988 DRAWING No. KPN SA-16



N

LEGEND

**ROADS AND RELATED FEATURES**

- HARD SURFACE ALL WEATHER
- LOOSE SURFACE
- CART TRACK WINTER ROAD UNDER CONSTRUCTION
- TRAIL CUTLINE PORTAGE
- BUILT UP AREA
- RAILWAY SIDING STATION STOP
- BRIDGE
- SEARLINE BASE ANCHORAGE

**LANDMARK FEATURES**

- HOUSE BARN
- CHURCH SCHOOL
- POST OFFICE
- HISTORICAL SITE
- TOWERS FIRE RADIO
- WELL OIL GAS
- TANK OIL GASOLINE WATER
- TELEPHONE LINE
- POWER TRANSMISSION LINE
- MINE
- CUTTING EMBANKMENT
- GRAVEL PIT

**BOUNDARIES AND CONTROL**

- INTERNATIONAL PROVINCIAL BOUNDARY MONUMENT
- COUNTY DISTRICT
- TOWNSHIP PARISH - SURVEYED
- TOWNSHIP DLS - UNSURVEYED
- MUNICIPALITY
- INDIAN RESERVE PARK ETC
- HORIZONTAL CONTROL POINT
- BENCH MARK
- SPOT ELEVATION APPROXIMATE

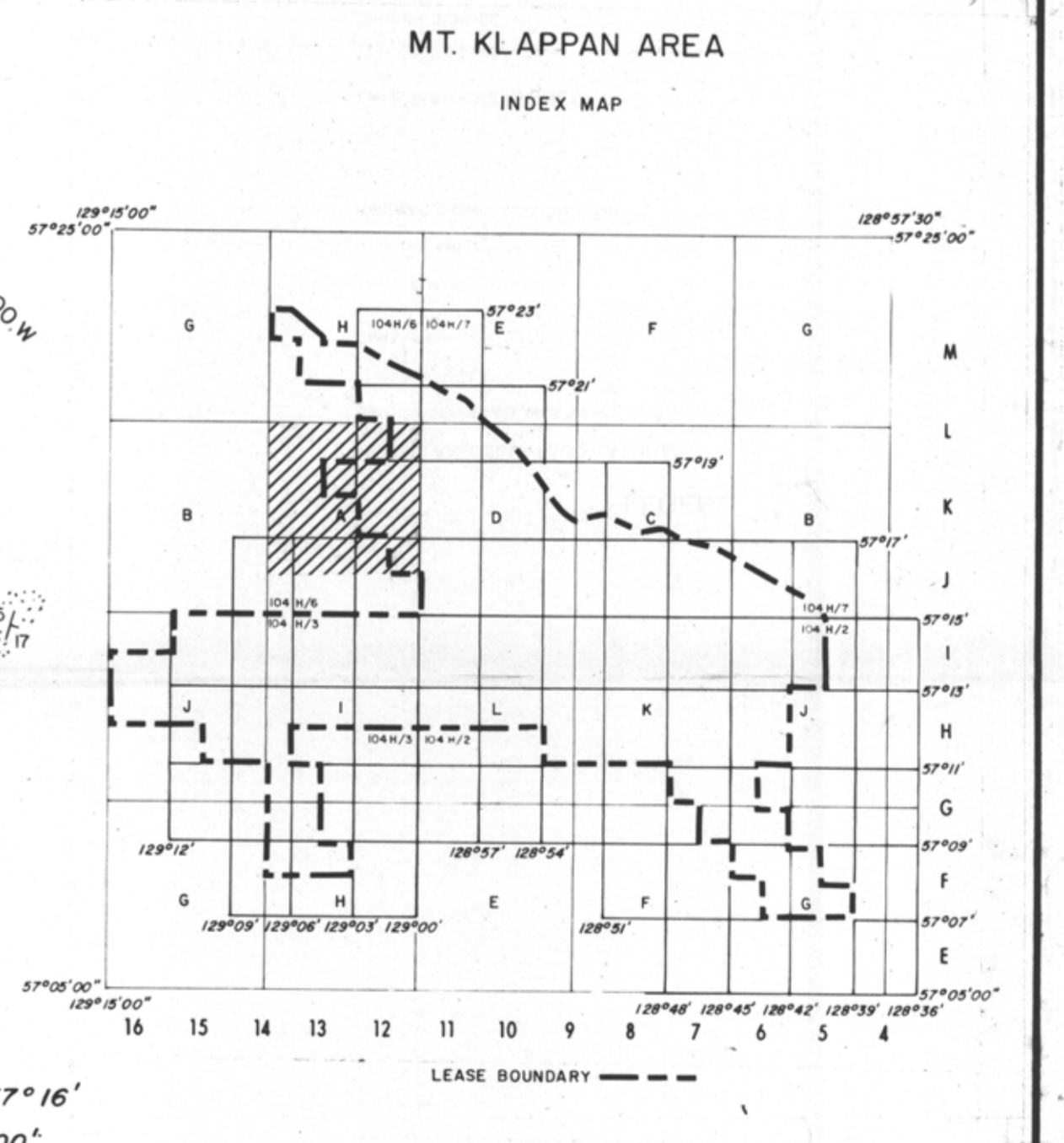
**DRAINAGE AND RELATED FEATURES**

- STREAM SHORELINE INDEFINITE
- DIRECTION OF FLOW
- LAKE INTERMITTENT
- WINDATED FLOODED LAND
- MARSH OR SWAMP (WOODED)
- DRY RIVER BED WITH CHANNELS
- SAND ABOVE IN WATER
- STRONG BOG
- TUCKERWOODS POLYDONS
- RAPIDS
- FORESHORE FLATS
- ROCK
- DAM
- WHARF
- DITCH

**RELIEF FEATURES**

- CONTOURS
- APPROXIMATE CONTOUR
- DEPRESSION
- ESKER
- PINGO
- SAND SAND DUNES
- PALSA BOG
- WOODED AREA

0 1/8 1/4 1/2 3/4 MILE  
0 100 200 400 600 800 1000 METERS  
SCALE: 1:110,000



**RHONDA SEQUENCE**

**Kr** Sequence of thick chert pebble conglomerates and minor gritty sandstones interbedded with an increasing number of siltstones and mudstones towards the basal contact. Large scale trough and tubular cross beds are common. Six species of plant fossils are found at the base of the sequence.

**MALLOCH SEQUENCE**

**Km** Thick interbeds of mudstones, argillaceous siltstones, fine grained sandstones and thin interbeds of orange weathering nodular siltstones. Many conglomerate beds display large scale cross bedding and tend to be laterally discontinuous. Thick clean sandstone beds and thin coal seams increase in abundance towards the basal gradational contact. Twenty-three species of plant fossils occur within the sequence.

**KLAPPAN SEQUENCE (main coal-bearing unit)**

**Jkk** Fine to coarse grained sandstones interbedded with mudstones, siltstones, occasional thin bands of orange weathering siliceous siltstones, conglomerates and occasional coal seams. Conglomerate beds grade laterally into sandstones. Sandstones often display tabular or trough cross bedding. Rhythmites occur in the middle of the sequence. Twenty-three species of bivalves and up to twenty-five species of plants occur throughout. Petrified wood and rare corals may be present towards the upper contact.

**SPATSIZI SEQUENCE**

**Jb** Predominantly a marine sequence of interbedded mudstones, siltstones, sandstones and conglomerates. Carbonaceous mudstones, coarsening upward sequences and chert pebble conglomerates are more abundant in the upper part of the sequence. Nineteen species of bivalves are present. Stenometaria are rare. Plant debris may occur near the upper gradational contact.

**LEGEND**

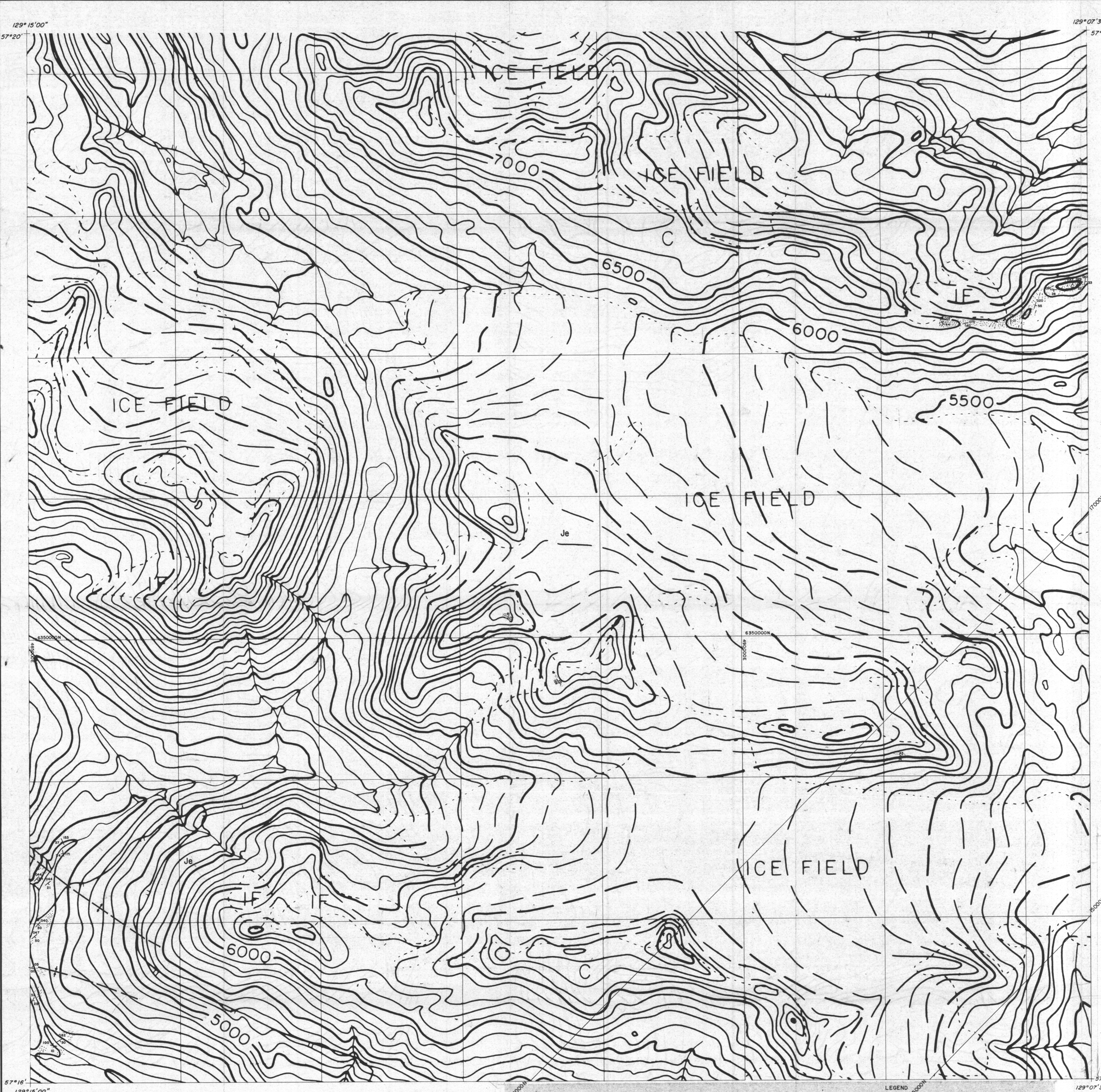
- LEASING BOUNDARY
- GEOLOGICAL CONTACT (APPROXIMATE, INFERRED)
- COAL SEAM (DEFINED, INFERRED)
- ANTICLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
- SYNCLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
- OVERTURNED ANTICLINE (DEFINED, APPROXIMATE)
- OVERTURNED SYNCLINE (DEFINED, APPROXIMATE)
- MONOCLINE (DEFINED, APPROXIMATE)
- BEDDING (HORIZONTAL, INCLINED, OVERTURNED, VERTICAL, UPRIGHT, ESTIMATED)
- FOLIATIONS (INCLINED, VERTICAL, HORIZONTAL)
- THRUST FAULT (DEFINED, APPROXIMATE) TEETH INDICATE UP THRUST SIDE
- OVERTURNED FAULT (DEFINED, APPROXIMATE) UPRIGHT/DOWN THROWN SIDE
- FAULT (DEFINED, APPROXIMATE) SHOWING RELATIVE MOVEMENT
- ADIT TRENCH COAL SPOIL
- DIAMOND, ROTARY, WINKIE DRILL HOLE (VERTICAL, INCLINED WITH SURFACE PROJECTION)
- MEASURED SECTION
- SURVEY CAIRN
- CROSS SECTION LINE

748

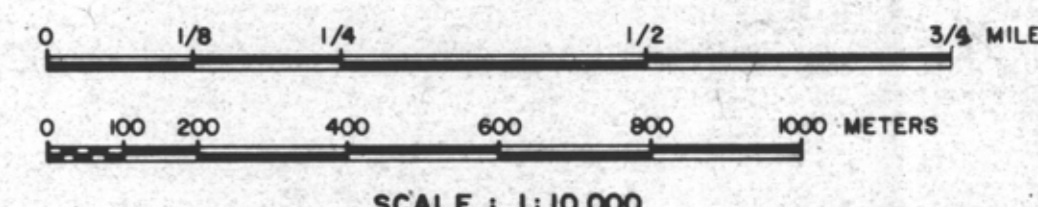
**GULF CANADA RESOURCES LTD.**  
Cal Division

**MT. KLAPPAN COAL PROPERTY**  
1988  
GEOLOGY MAP  
SUMMIT AREA  
MAP 104 H/6 A 104 H/7 D

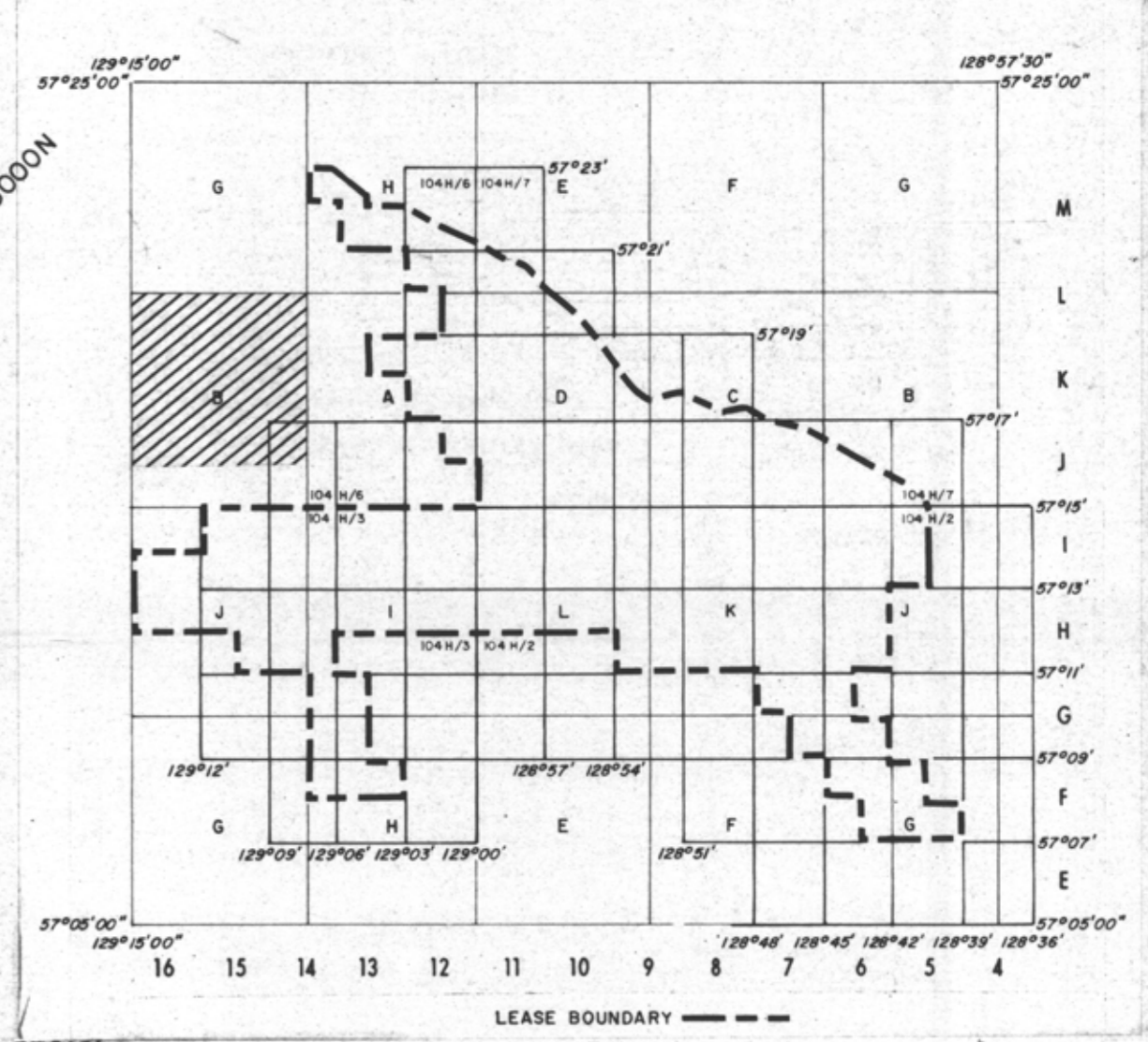
PREPARED BY: S.M./L.S./G.P. SCALE: 1:110,000  
APPROVED BY: J.J. DATE: NOV. 1988 DWG. NO. KPN88SA-17



- LEGEND**
- ROADS AND RELATED FEATURES**
- HARD SURFACE ALL WEATHER
  - LOOSE SURFACE
  - CART TRACK WINTER ROAD UNDER CONSTRUCTION
  - TRAIL CUTLINE PORTAGE
  - BUILT UP AREA
  - RAILWAY STATION STOP
  - BRIDGE
  - SEAPLANE BASE ANCHORAGE
  - LANDMARK FEATURES
  - HOUSE BARN
  - CHURCH SCHOOL
  - POST OFFICE
  - HISTORICAL SITE
  - TOWERS FIRE RADIO
  - WELL OIL GAS
  - TANK OIL GASOLINE WATER
  - TELEPHONE LINE
  - POWER TRANSMISSION LINE
  - RAILROAD
  - CUTTING EMBANKMENT
  - GRAVEL PIT
- BOUNDARIES AND CONTROL**
- INTERNATIONAL PROVINCIAL BOUNDARY MONUMENT
  - COUNTY DISTRICT
  - TOWNSHIP PARISH - SURVEILED UNSURVEILED
  - TOWNSHIP DLS - SURVEILED - UNSURVEILED - SECTION CORNERS
  - MUNICIPALITY
  - INDIAN RESERVE PARK ETC
  - HORIZONTAL CONTROL POINT
  - BENCH MARK BM 955
  - SPOT ELEVATION ELEVATION APPROXIMATE
- DRAINAGE AND RELATED FEATURES**
- STREAM SHORLINE INDEFINITE
  - DIRECTION OF FLOW
  - LAKE INTERMITTENT
  - INUNDATED FLOODED LAND
  - MARSH OR SWAMP (WOODED)
  - DRY RIVER BED WITH CHANNELS
  - SAND ABOVE IN WATER
  - STRAND SOIL
  - TUNDRA PONDS POLYGENOUS
  - HARDS
  - FORESHORE FLATS
  - ROCK
  - DAM
  - WINDMILL
  - WELL
- RELIEF FEATURES**
- CONTOURS
  - APPROXIMATE CONTOUR
  - DEPRESSION
  - ESKER
  - PINGO
  - SAND SAND DUNES
  - PALEA SOG
  - WOODED AREA



MT. KLAPPAN AREA  
INDEX MAP



- RHONDDA SEQUENCE**
- Kr** Sequence of thick chert pebble conglomerates and minor gritty sandstones interbedded with an increasing number of siltstones and mudstones towards the base contact. Large scale trough and tabular cross beds are common. Six species of plant fossils are found at the base of the sequence.
- MALLOCH SEQUENCE**
- Km** Thick interbeds of mudstones, argillaceous siltstones, fine grained sandstones and thin interbeds of orange weathering nodular siltstones. Many conglomerate beds display large scale cross bedding and tend to be laterally discontinuous. Thick clean sandstone beds and thin coal seams increase in abundance towards the basal graded sand contact. Twenty-three species of plant fossils occur within the sequence.
- KLAPPAN SEQUENCE (main coal-bearing unit)**
- Kk** Fine to coarse grained sandstones interbedded with mudstones, siltstones, occasional thin beds of orange weathering calcareous siltstones, conglomerates and abundant coal seams. Conglomerates bear coarse lenticular silt sandstone sandstones of fine shaly, tabular or trough cross bedding. Rhythmic silt in the middle of the sequence. Twenty-three species of siltstones and up to twenty-five species of plants occur throughout. Petrified wood and rare coquina may be present towards the upper contact.
- SPATSZI SEQUENCE**
- Js** Predominantly a marine sequence of interbedded mudstones, siltstones, sandstones and conglomerates. Carbonaceous mudstones, color-bearing siltstones and chert pebble conglomerates are more abundant in the upper part of the sequence. Rare species of siltstones are present. Bivalves are rare. Plant debris may occur near the upper graded sand contact.

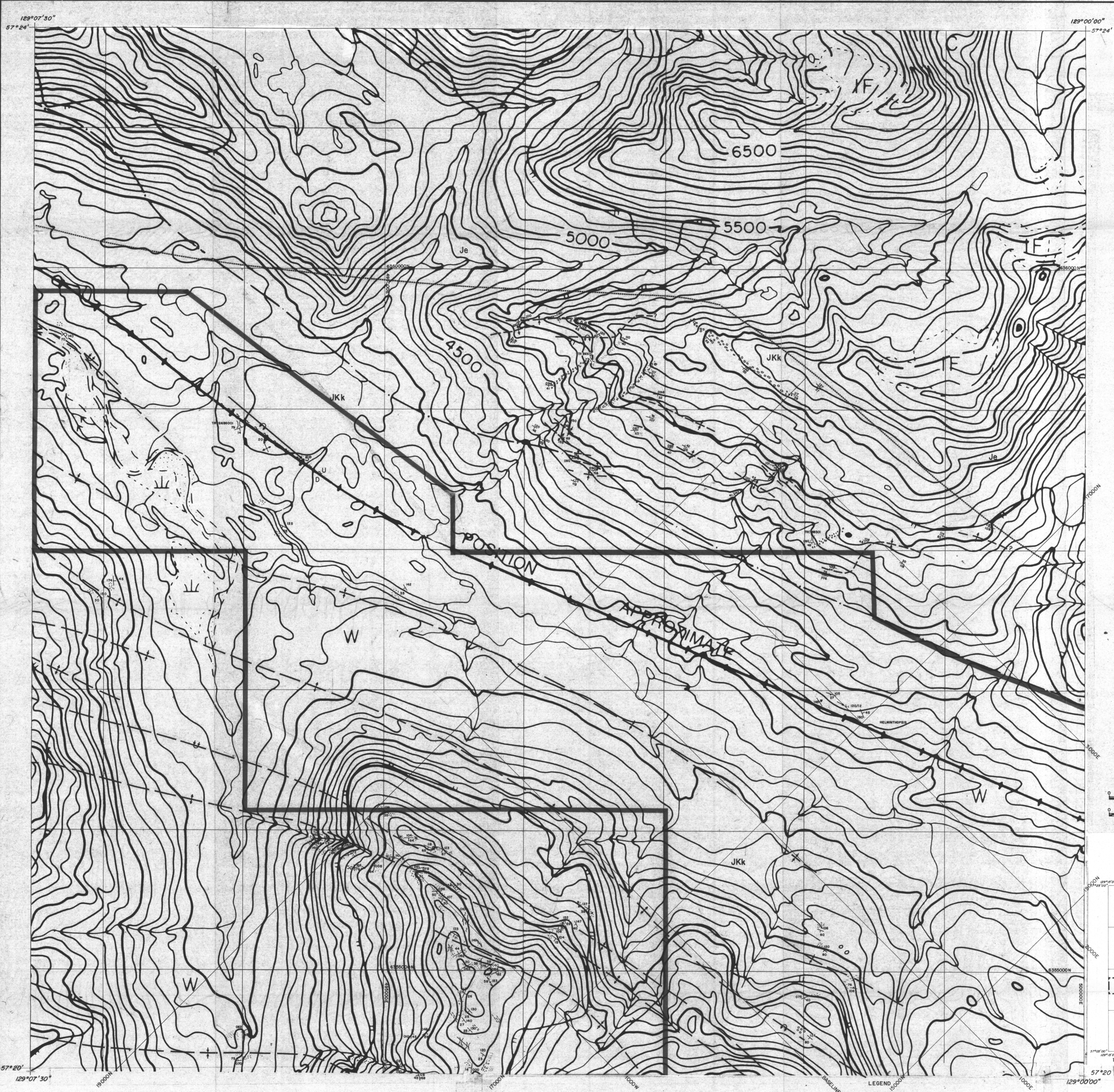
- LEGEND**
- LICENCE BOUNDARY
  - GEOLOGICAL CONTACT (APPROXIMATE, INFERRED)
  - COAL SEAM (DEFINED, INFERRED)
  - ANTICLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
  - SYNCLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
  - OVERTURNED ANTICLINE (DEFINED, APPROXIMATE)
  - OVERTURNED SYNCLINE (DEFINED, APPROXIMATE)
  - MONOCLINE (DEFINED, APPROXIMATE)
  - BEDDING (HORIZONTAL, INCLINED, OVERTURNED, VERTICAL, UPRIGHT, ESTIMATED)
  - FOLIATIONS (INCLINED, VERTICAL, HORIZONTAL)
  - JOINTS (INCLINED, VERTICAL, HORIZONTAL)
  - THRUST FAULT (DEFINED, APPROXIMATE) TEETH INDICATE UPRIGHT SIDE
  - FAULT (DEFINED, APPROXIMATE) UPRIGHT, DOWNTURNED SIDE
  - ADIT TRENCH COAL SHOULDER
  - DIAMOND ROTARY WINKIE DRILL HOLE (VERTICAL, INCLINED WITH SURFACE PROJECTION)
  - MEASURED SECTION
  - SURVEY CAIRN
  - CROSS SECTION LINE

748

**GULF CANADA RESOURCES LTD.**  
Coal Division

**MT. KLAPPAN COAL PROPERTY**  
1988  
**GEOLOGY MAP**  
SUMMIT NORTH  
SHEET 104H/6B

PREPARED BY: S.M./L.S./G.P. SCALE 1:10,000  
APPROVED BY: J.I. DATE: NOV 1988 DWG. No. KPNBSSA-18



N

LEGEND

**ROADS AND RELATED FEATURES**

- HARD SURFACE, ALL WEATHER
- LOOSE SURFACE
- CART TRACK, WINTER ROAD
- TRAIL, CUTLINE, PORTAGE
- BUILT UP AREA
- RAILWAY SONG, STATION STOP
- BRIDGE
- SEAPLANE BASE ANCHORAGE

**LANDMARK FEATURES**

- HOUSE BARN
- CHURCH SCHOOL
- POST OFFICE
- HISTORICAL SITE
- TOWERS FIRE RANG
- WELL OIL GAS
- TANK OIL GASOLINE WATER
- TELEPHONE LINE
- POWER TRANSMISSION LINE
- MINE
- CUTTING EMBANKMENT
- GRAVEL PIT

**BOUNDARIES AND CONTROL**

- INTERNATIONAL PROVINCIAL BOUNDARY MONUMENT
- COUNTY DISTRICT
- TOWNSHIP PARISH - SURVEYED
- TOWNSHIP DLS - SURVEYED
- MUNICIPALITY
- INDIAN RESERVE PARK ETC
- HORIZONTAL CONTROL POINT
- BENCH MARK
- SPOT ELEVATION ELEVATION APPROXIMATE

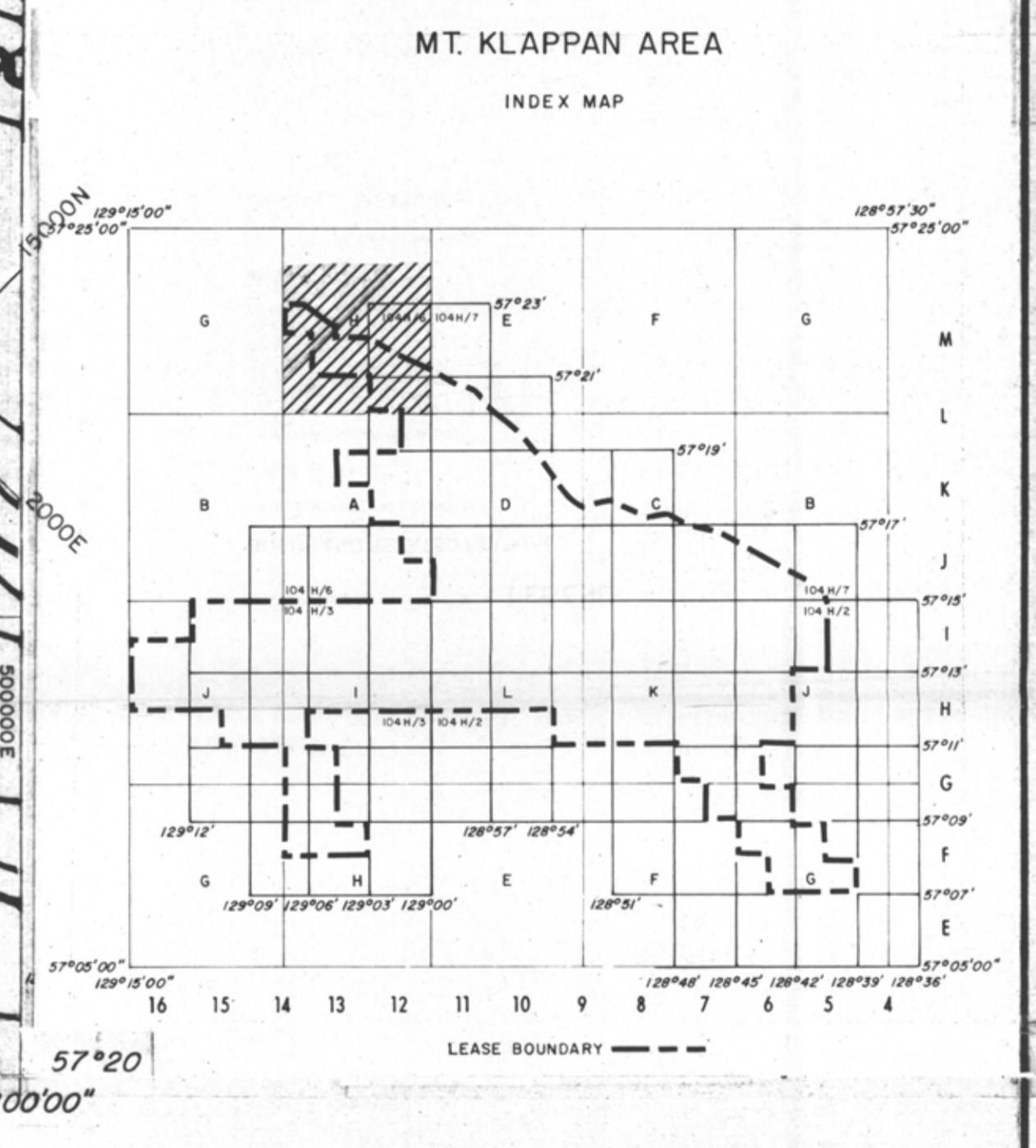
**DRAINAGE AND RELATED FEATURES**

- STREAM SHOULDER INDEFINITE
- DIRECTION OF FLOW
- LAKE INTERMITTENT
- INDICATED FLOODED LAND
- MARSH OR SWAMP (WOODED)
- DRY RIVER BED WITH CHANNELS
- SAND ABOVE IN WATER
- STRAND BOG
- TUNDRA PONDS POLYGENIC
- RAPIDS
- FORESHORE FLATS
- ROCK
- DAM
- WHARF
- DITCH

**RELIEF FEATURES**

- CONTOURS
- APPROXIMATE CONTOUR
- DEPRESSION
- ESKER
- PIGEON
- SAND SAND DUNES
- PALSA RIG
- WOODED AREA

0 1/8 1/4 1/2 3/4 MILE  
0 100 200 400 600 800 1000 METERS  
SCALE: 1:10,000



**RHONDA SEQUENCE**

**Kr** Sequence of thick chert pebble conglomerates and minor gritty sandstones interbedded with an increasing number of siltstones and mudstones towards the basal contact. Large scale trough and tabular cross beds are common. Six species of plant fossils are found at the base of the sequence.

**MALLOCH SEQUENCE**

**Km** Thick interbeds of mudstones, argillaceous siltstones, fine grained sandstones and thin interbeds of orange weathering nodular siltstones. Many conglomerate beds display large scale cross bedding and tend to be laterally discontinuous. Thick clean sandstone beds and thin coal seams increase in abundance towards the basal stratigraphic contact. Twenty-three species of plant fossils occur within the sequence.

**KLAPPAN SEQUENCE (main coal-bearing unit)**

**JKk** Fine to coarse grained sandstones interbedded with mudstones, siltstones, occasional thin beds of orange weathering calcareous siltstones, conglomerates and abundant coal seams. Conglomerate beds grade laterally into sandstones. Sandstones often display tabular or trough cross bedding. Rhythmites occur in the middle of the sequence. Twenty-three species of bioherms and up to twenty-five species of plants occur throughout. Petrified wood and rare coquina may be present towards the upper contact.

**SPATSIZI SEQUENCE**

**Jk** Predominantly a narrow sequence of interbedded mudstones, siltstones, sandstones and conglomerates. Carbonaceous mudstones, coarsening upward sequences and chert pebble conglomerates are more abundant in the upper part of the sequence. Fifteen species of bioherms are present. Detritus are rare. Plant debris may occur near the upper stratigraphic contact.

LEGEND

- LICENCE BOUNDARY
- GEOLOGICAL CONTACT (APPROXIMATE, INFERRED)
- COAL SEAM (DEFINED, INFERRED)
- ANTICLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
- SYNCLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
- OVERTURNED ANTICLINE (DEFINED, APPROXIMATE)
- OVERTURNED SYNCLINE (DEFINED, APPROXIMATE)
- MONOCLINE (DEFINED, APPROXIMATE)
- BEDDING (HORIZONTAL, INCLINED, OVERTURNED, VERTICAL, UPRIGHT, ESTIMATED)
- FOLIATIONS (INCLINED, VERTICAL, HORIZONTAL)
- JOINTS (INCLINED, VERTICAL, HORIZONTAL)
- THRUST FAULT (DEFINED, APPROXIMATE) TEETH INDICATE UP THRUST SIDE
- FAULT (DEFINED, APPROXIMATE) UPRIGHT, DOWN THROWN SIDE
- FAULT (DEFINED, APPROXIMATE) SHOWING RELATIVE MOVEMENT
- ADIT TRENCH COAL SPOIL
- DIAMOND, ROTARY, WINKIE DRILL HOLE (VERTICAL, INCLINED WITH SURFACE PROJECTION)
- MEASURED SECTION
- SURVEY CAIRN
- CROSS SECTION LINE

748

**GULF CANADA RESOURCES LTD.**  
Coal Division

CALGARY ALBERTA

**MT. KLAPPAN COAL PROPERTY**  
1988  
**GEOLOGY MAP**  
**SUMMIT AREA**  
**MAP 104 H/6 H**

PREPARED BY: S.M./L.S./G.P. SCALE: 1:10,000  
APPROVED BY: J.T. DATE: NOV 1988 DWG. NO. KPN88SA-19