

LEGEND

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

NOTES

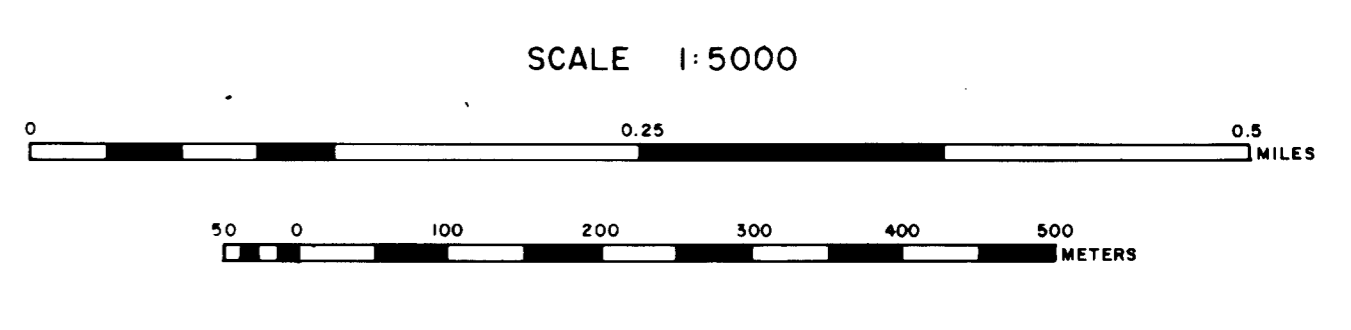
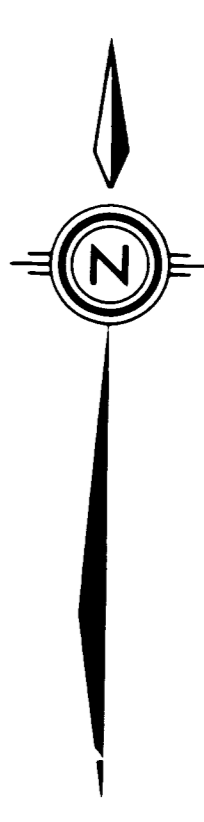
MAPPING: PRODUCED FROM PHOTOGRAPHIC ENLARGEMENTS OF 1:10,000 NEGATIVES

CONTOUR INTERVAL: 10 M, WITH FORM LINES INTERVAL 5 M

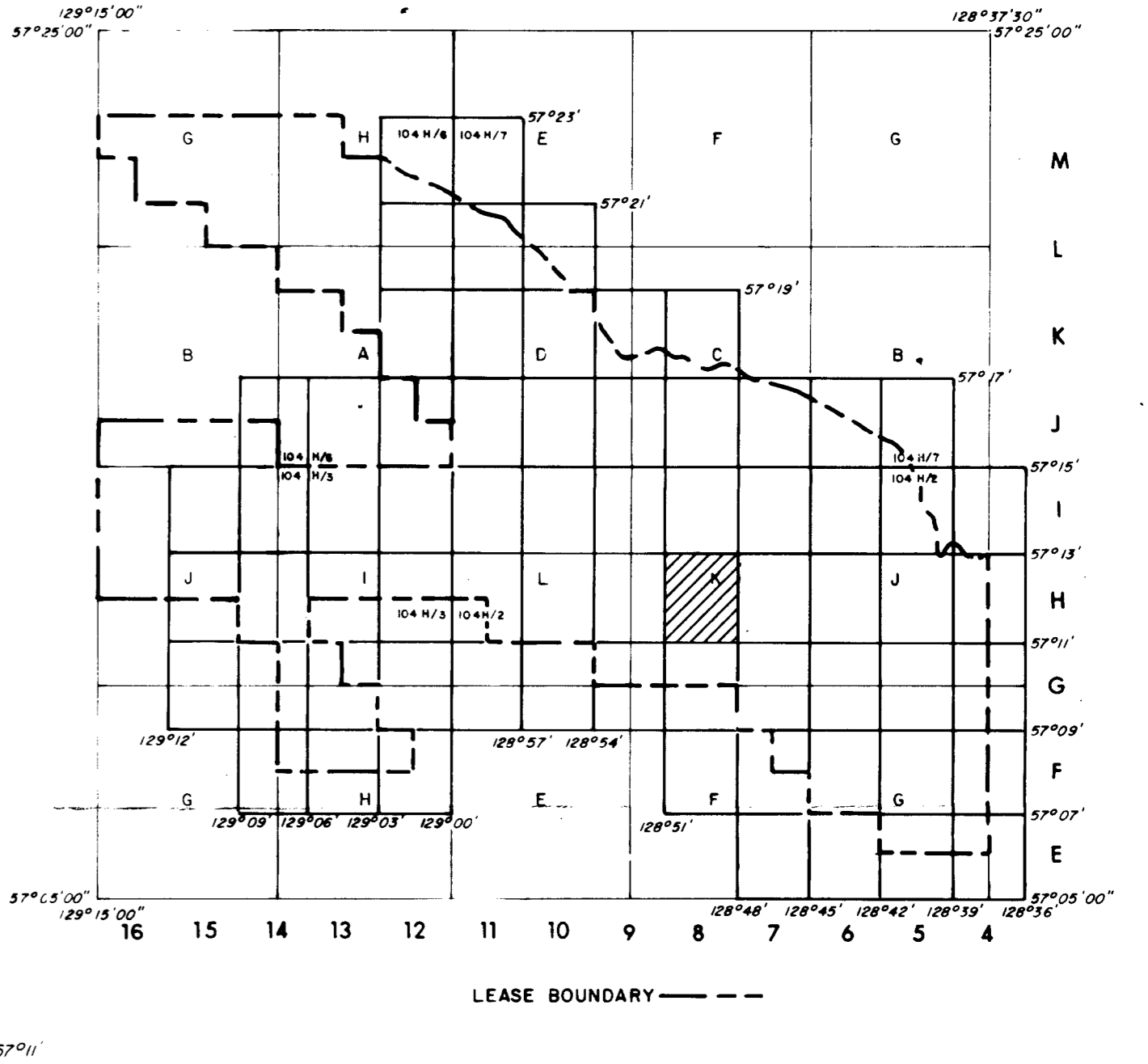
ACCURACY OF 5M FORM LINES IS EQUAL TO THE ACCURACY OF THE 10M CONTOURS +10 METERS FOR GROUND NOT OBSERVED BY TREES OR VEGETATION

SURVEY CONTROL TAKEN FROM EXISTING PHOTO IDENTIFIABLE POINTS FROM SURVEY MONUMENTS AND N.T.S. MAPS. MAPPING IS BASED ON INDIVIDUAL TRANSVERSE MERIDIAN LINES AND IS NOT TO BE USED FOR RAILROAD BED LOCATION BASED ON SEPT/82 AERIAL PHOTOGRAPHY

COMPILED BY WESTERN PHOTOGRAMMETRY, A DIVISION OF UNDERWOOD MCELLEAN LTD., FROM FEDERAL GOVERNMENT AERIAL PHOTOGRAPHY TAKEN IN AUGUST/67 AT A SCALE OF 1:60,000 (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 increase in abundance towards 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 species of plant fossils exist within the sequence. Bivalves are rare.
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- 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 pelecypods and twenty-two 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, thin coal seams and chert pebbles 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) UPTHROWN, DOWNTHROWN 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

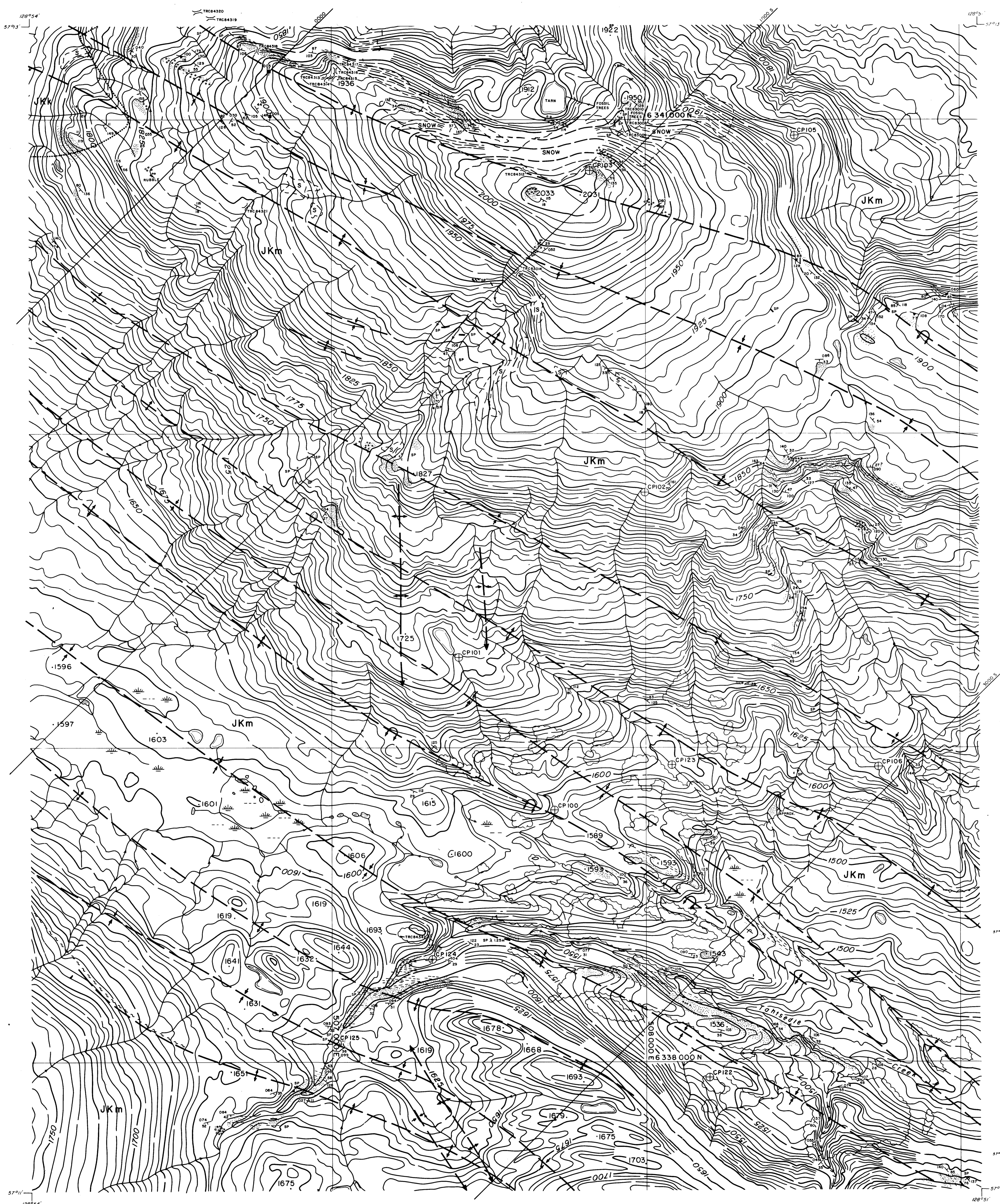
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GULF CANADA RESOURCES INC.
Coal Division

CALGARY ALBERTA

MT. KLAPPAN COAL PROPERTY
1985
GEOLOGY MAP
LOST-FOX AREA
MAP H-8

PREPARED BY: J.T. SCALE 1:5000
APPROVED BY: E.S. DATE: JAN. 1985 DWG. NO. KPN85LF-61



LEGEND

BUILDING	[Symbol]
ROAD, HARD SURFACE	[Symbol]
LOOSE SURFACE	[Symbol]
CART TRACK	[Symbol]
TRAIL	[Symbol]
RAILROAD BED	[Symbol]
RIVER	[Symbol]
STREAM, DEFINITE	[Symbol]
APPROXIMATE	[Symbol]
SPLIT	[Symbol]
LAKE	[Symbol]
WATER LEVEL	[Symbol]
SWAMP	[Symbol]
BEAVER DAM	[Symbol]
TREE LINE	[Symbol]
CUT LINE	[Symbol]
CONTOURS, INDEX	[Symbol]
INTERMEDIATE	[Symbol]
DEPRESSION	[Symbol]
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 1:10,000 NEGATIVES

CONTOUR INTERVAL 10 M, WITH FORM LINES INTERVAL 1.5 M

ACCURACY OF 5M FORM LINES IS EQUAL TO THE ACCURACY OF THE 10M CONTOURS +15.0 METERS FOR GROUND NOT OBSERVED BY TREES OR VEGETATION.

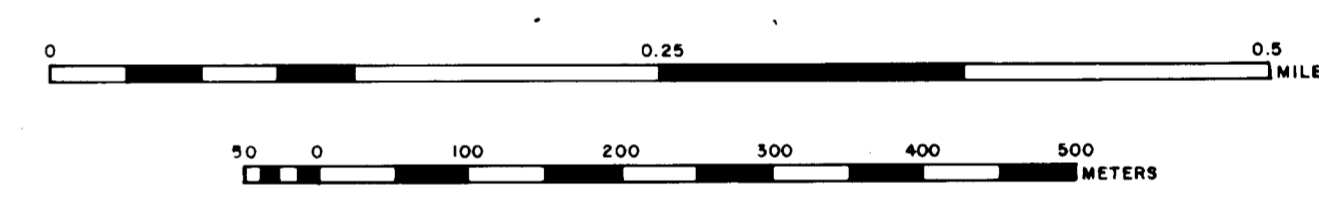
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RAILROAD BED LOCATION BASED ON SEPT./82 AERIAL PHOTOGRAPHY

COMPILED BY WESTERN PHOTOGRAMMETRY, A DIVISION OF UNDERWOOD MCELLENN LTD., FROM FEDERAL GOVERNMENT AERIAL PHOTOGRAPHY FLOWN IN AUGUST/67 AT A SCALE OF 1:60,000 (APPROXIMATE).

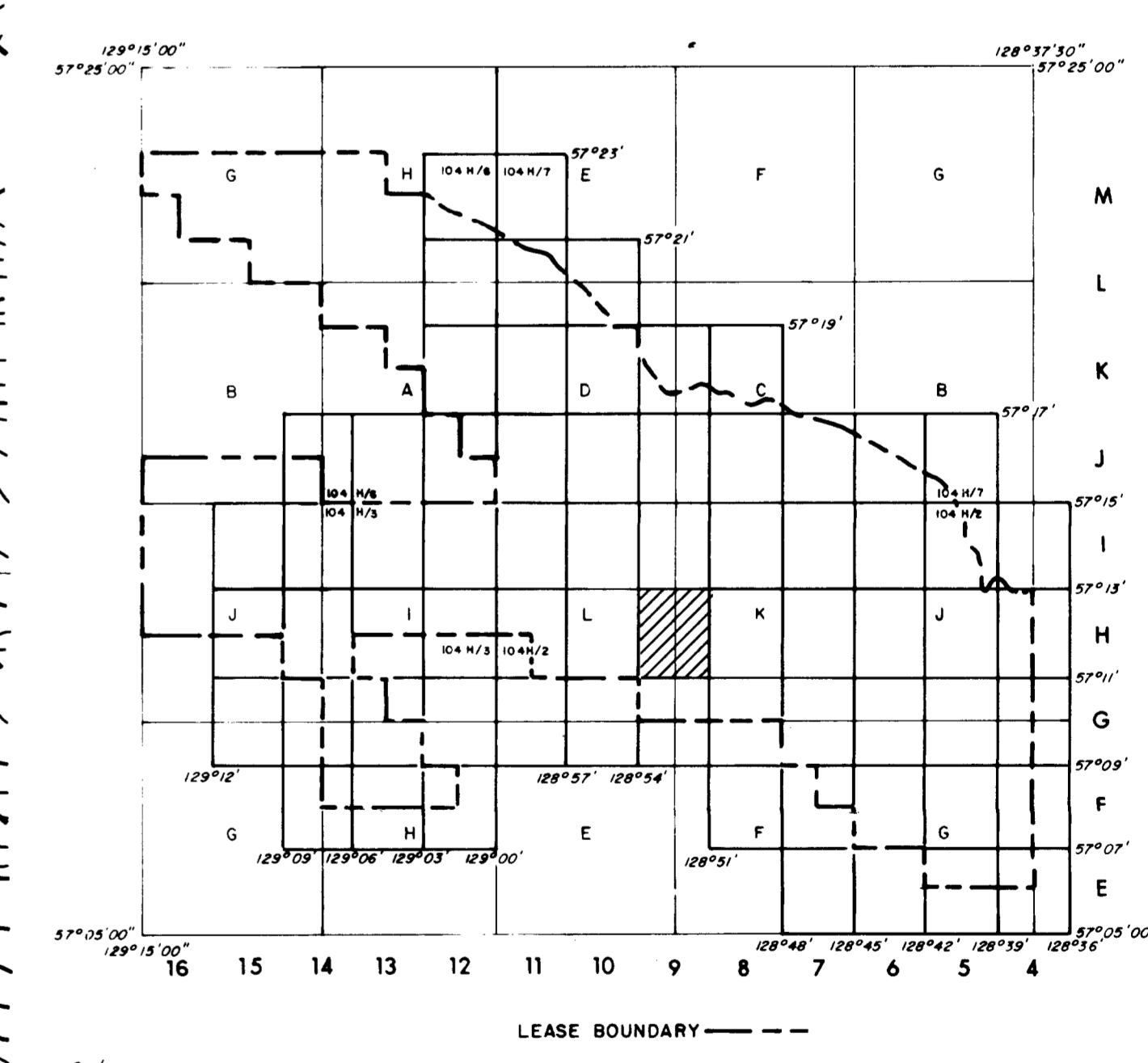


SCALE 1:5000



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 increase in abundance towards the base of the sequence.

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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 pelecypods and twenty-two species of plants occur throughout. Petrified wood and rare coquina may be present towards the upper contact.

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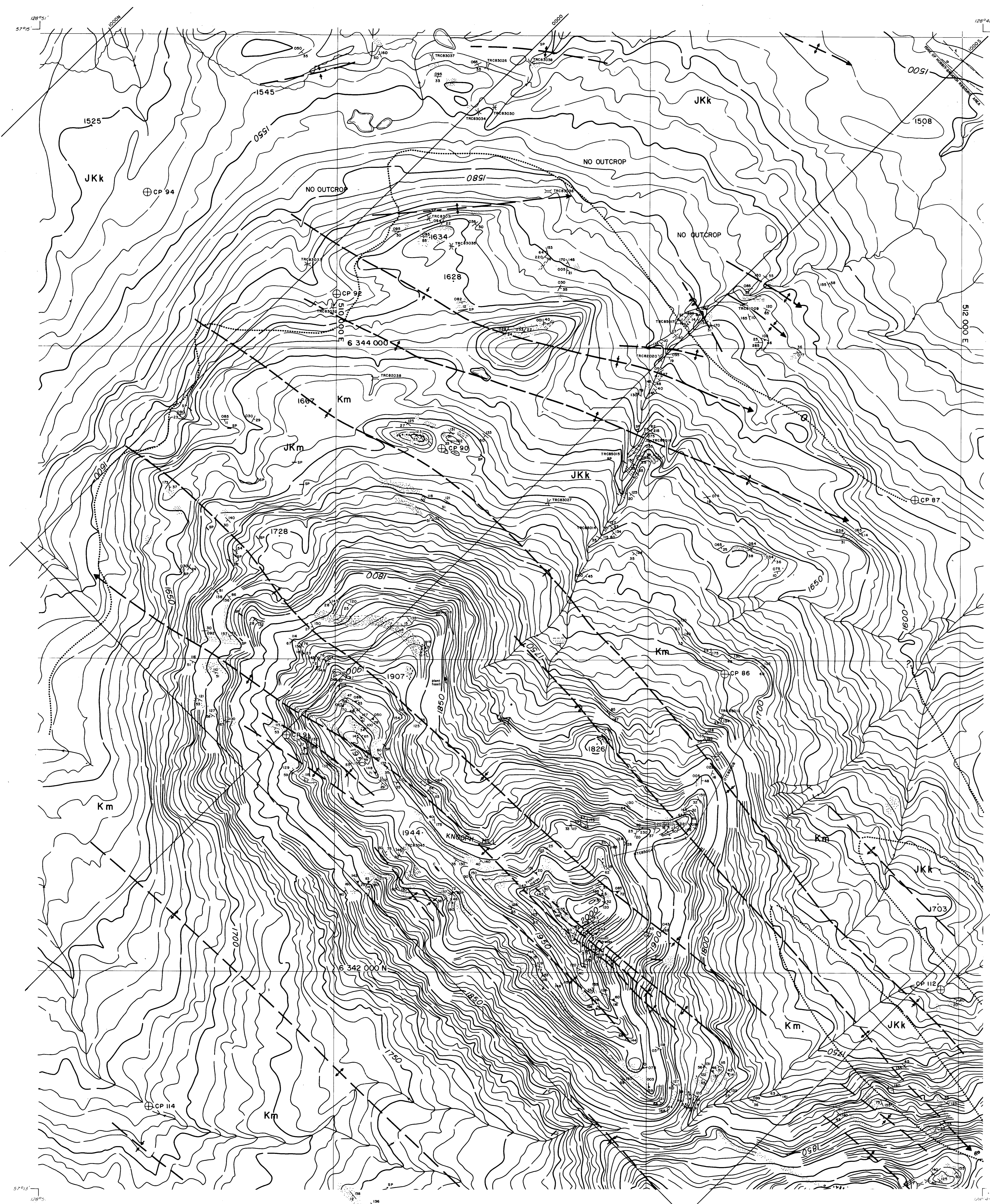
[Symbol]	LICENCE BOUNDARY
[Symbol]	GEOLOGICAL CONTACT (APPROXIMATE, INFERRED)
[Symbol]	COAL SEAM (DEFINED, INFERRED)
[Symbol]	ANTICLINE (DEFINED, APPROXIMATE) ARROW INDICATES PLUNGE DIRECTION
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[Symbol]	SURVEY CAIRN
[Symbol]	CROSS SECTION LINE

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GULF CANADA RESOURCES INC.
 Calgary Coal Division Alberta

MT. KLAPPAN COAL PROPERTY
 1985
GEOLOGY MAP
 LOST-FOX AREA
 MAP H-9

PREPARED BY: J.T. SCALE 1:5000
 APPROVED BY: E.S. DATE: JAN. 1985 DWG. No. KPN85LF-62



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NOTES

MAPPING PRODUCED FROM PHOTOGRAPHIC ENLARGEMENTS OF 1:40,000 NEGATIVES

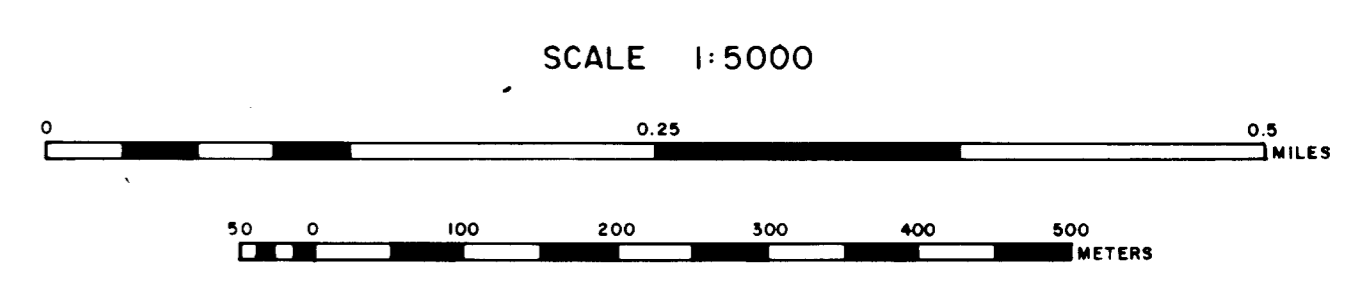
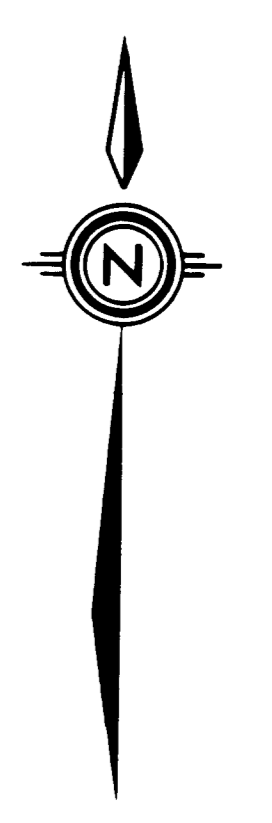
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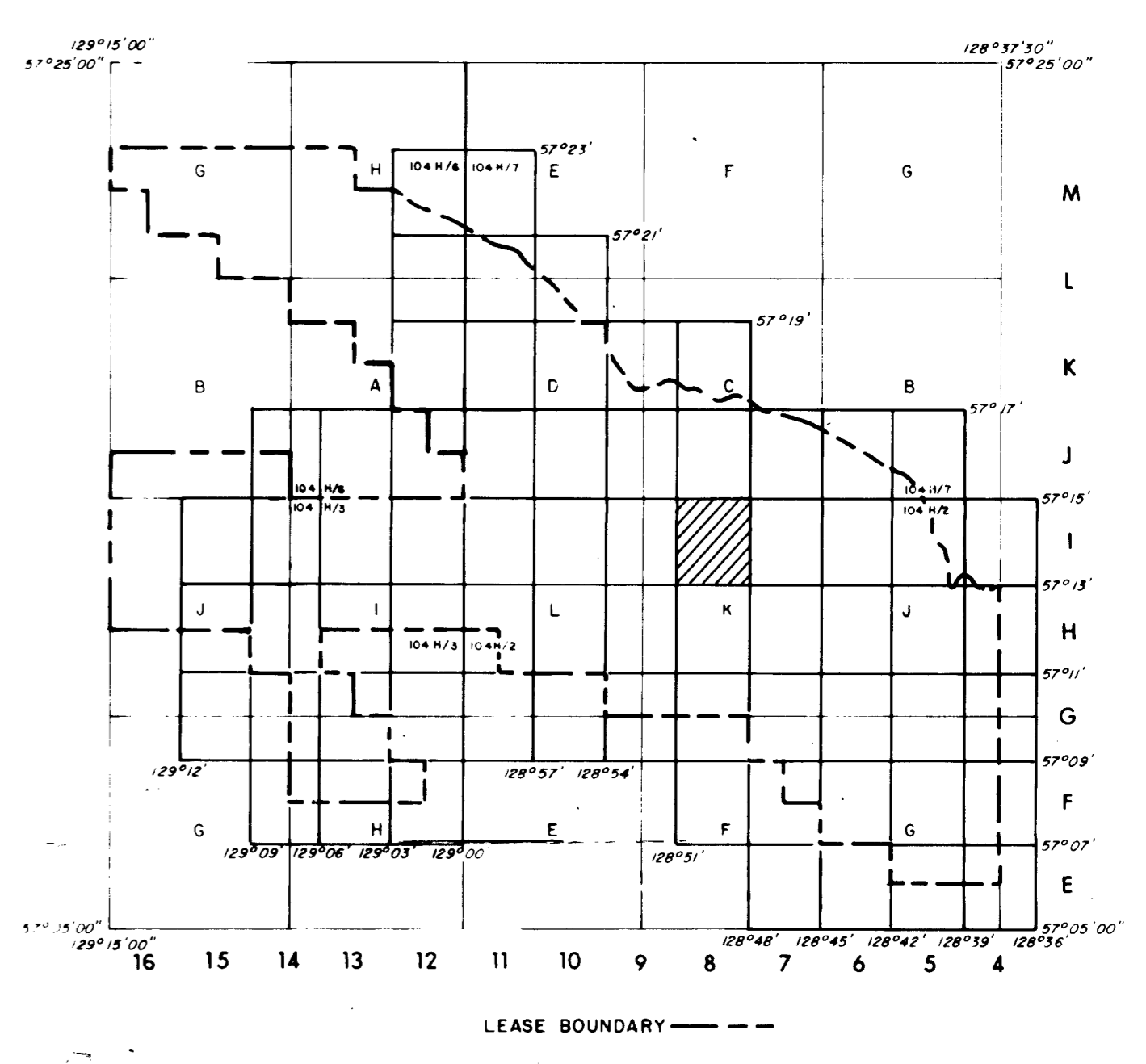
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MT. KLAPPAN AREA
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GULF CANADA RESOURCES INC.

Calgary Coal Division Alberta

MT. KLAPPAN COAL PROPERTY

1985

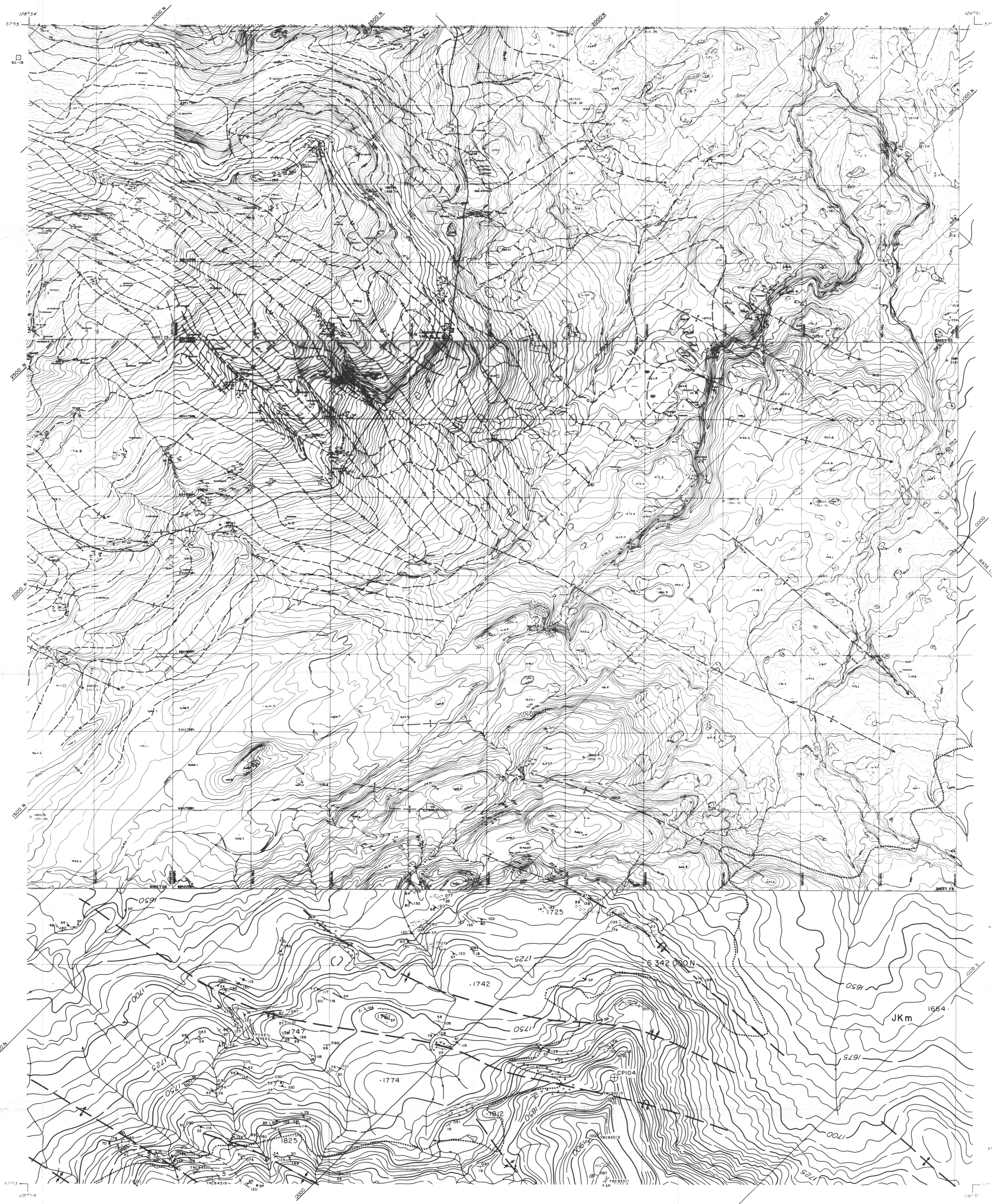
GEOLOGY MAP

LOST-FOX AREA

MAP I-8

PREPARED BY: J.T. SCALE 1:5000

APPROVED BY: E.S. DATE: JAN, 1986 DWG. NO. KPN85LF-63



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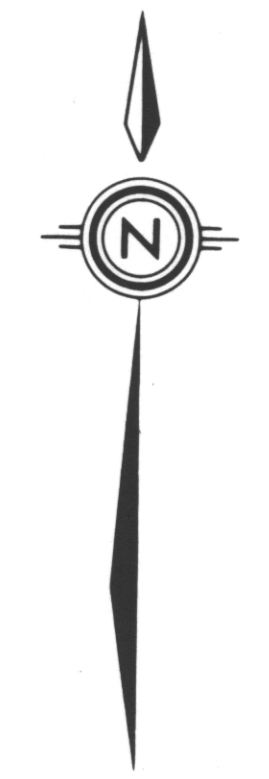
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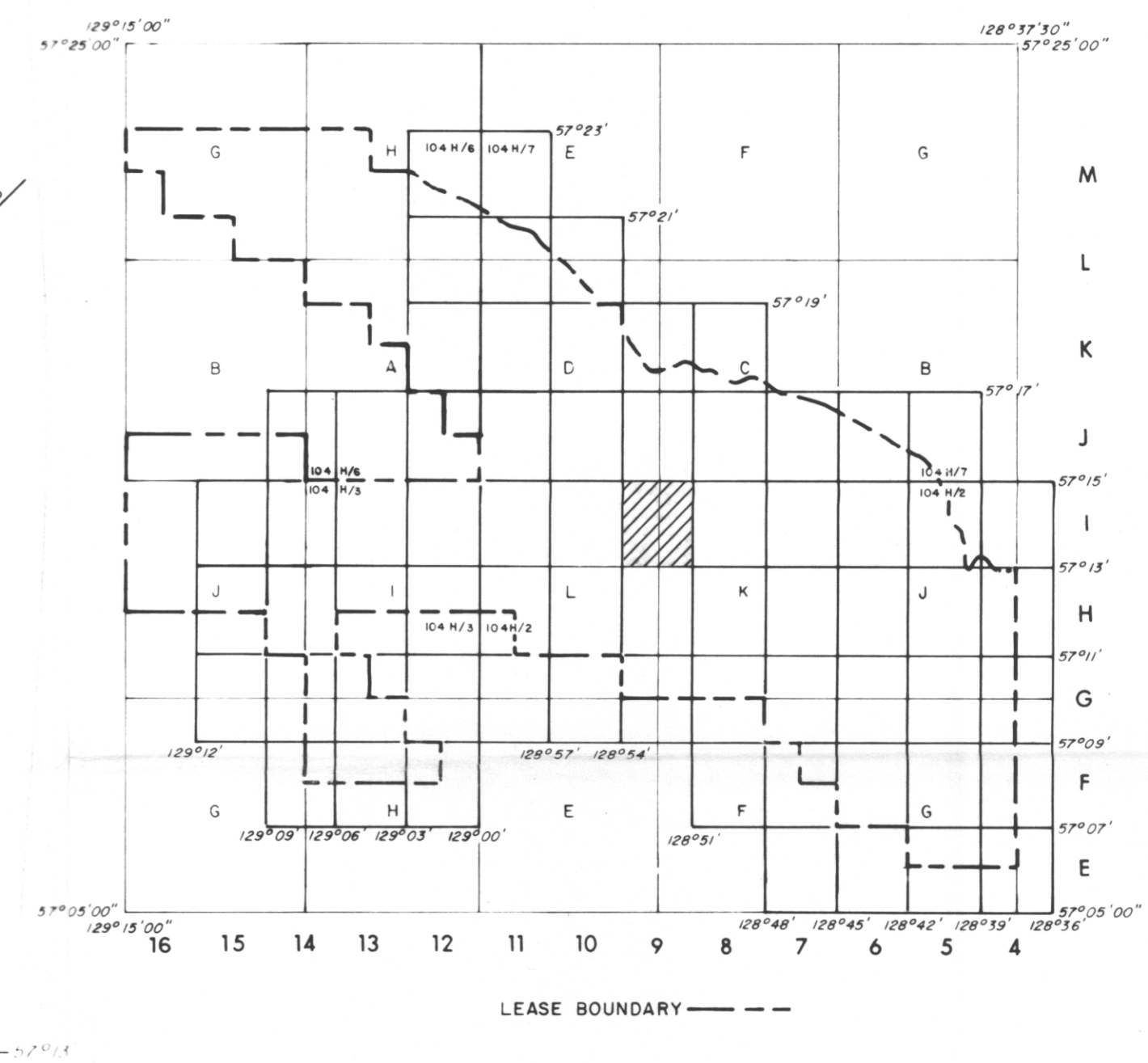
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SCALE 1:5000



MT. KLAPPAN AREA
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LOST-FOX AREA

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PREPARED BY: E.S. SCALE 1:5000

APPROVED BY: E.S. DATE: JAN, 1986 DWG. No. KFN 85LF-64