BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

# HAT CREEK PROJECT
# GEOLOGICAL REPORT

## No. 1 DEPOSIT

## VOLUME II - APPENDIX I

MAY 1979

THERMAL DIVISION · MINING DEPARTMEI

# APPENDIX I
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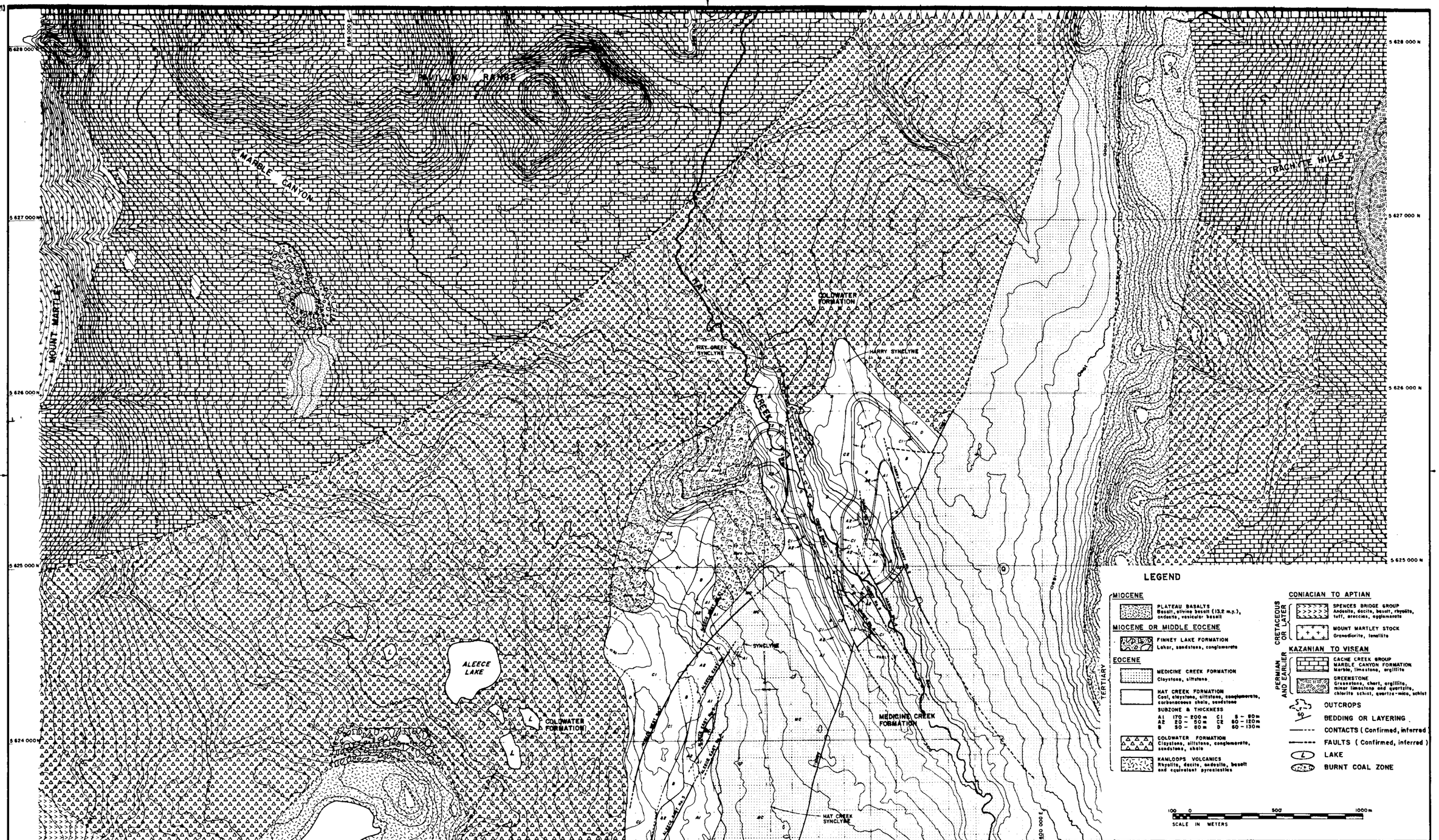



| | | | |
|---|---|---|---|
| DES | H. KIM | RECD | |
| DWN | ERW | APPD | |
| CHKD | | APPD | |
| INSP | | APPD | |
| SUBD | | DATE | JUN 1979 |

M78-2

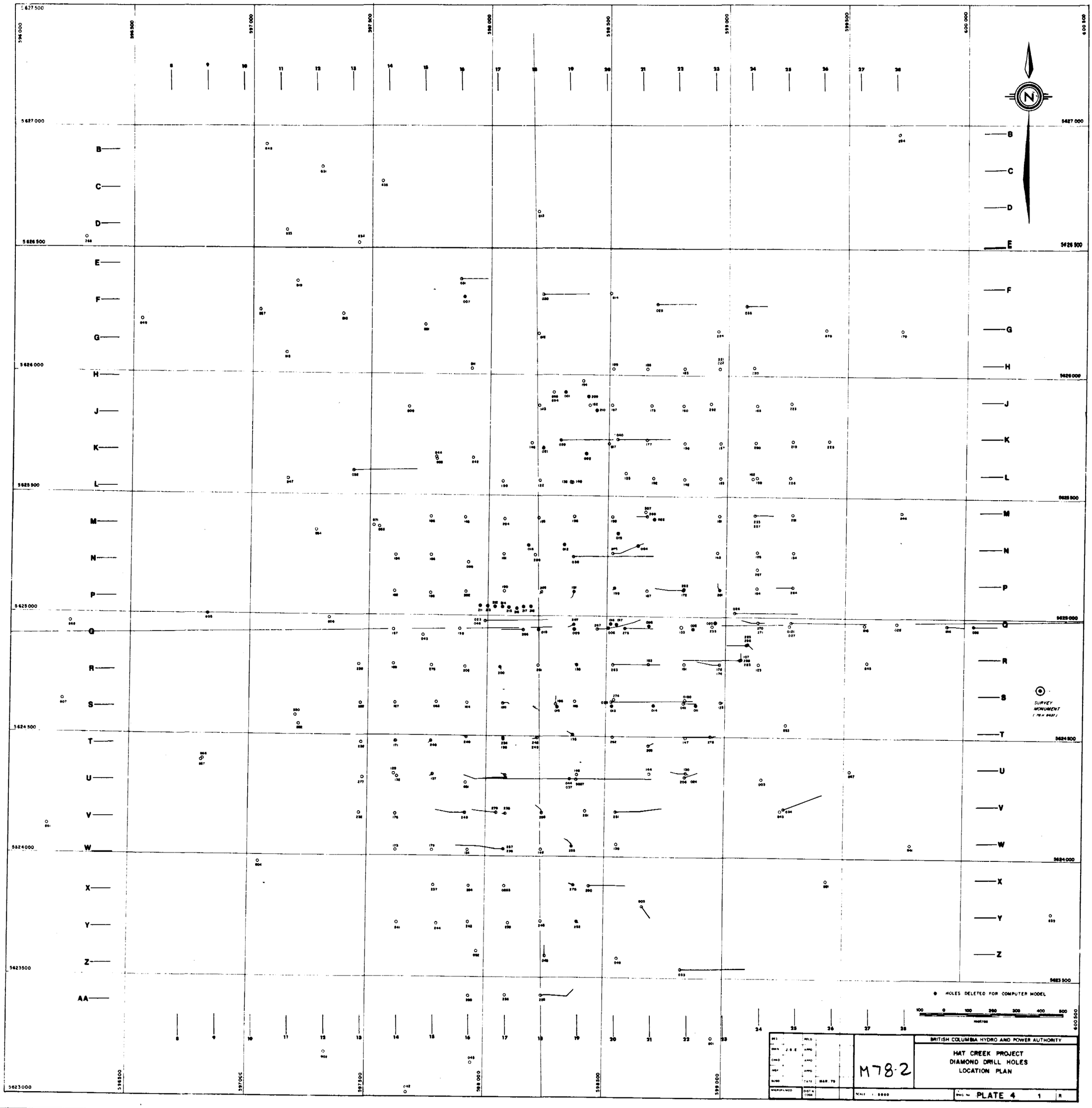
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

THERMAL DIVISION · MINING DEPARTMENT

HAT CREEK PROJECT

# REGIONAL BEDROCK GEOLOGY No. 1 DEPOSIT

| MICROFILMED | MINING DEPT. FILE No. | SCALE | DWG No | |
|---|---|---|---|---|
| | 200-D-2 | 1:10,000 | PLATE 3 | R |


596 000
596 500
597 000
597 500
598 000
598 500
599 000
599 500
600 000
600 500
5627 500
5627 000
5626 500
5626 000
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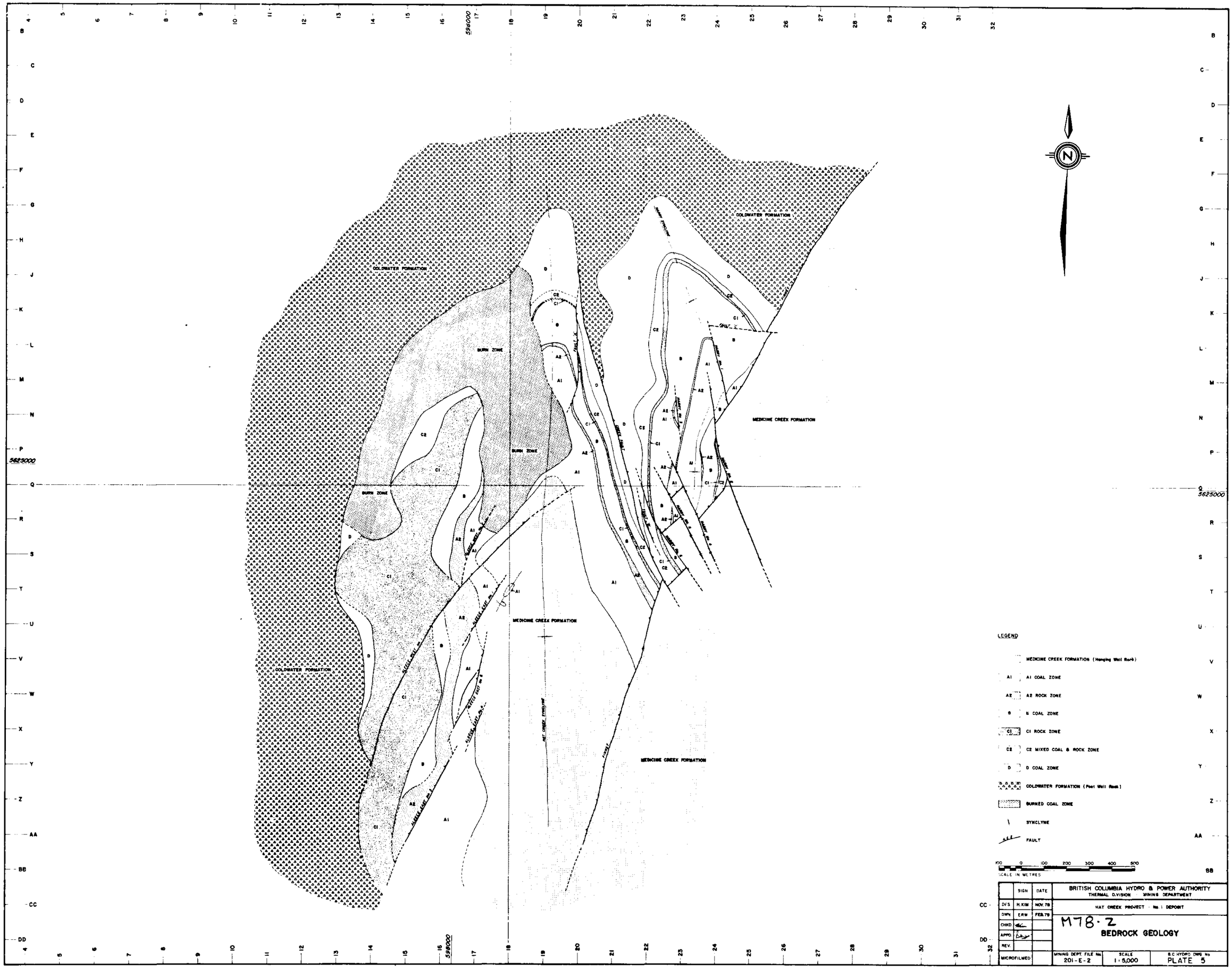
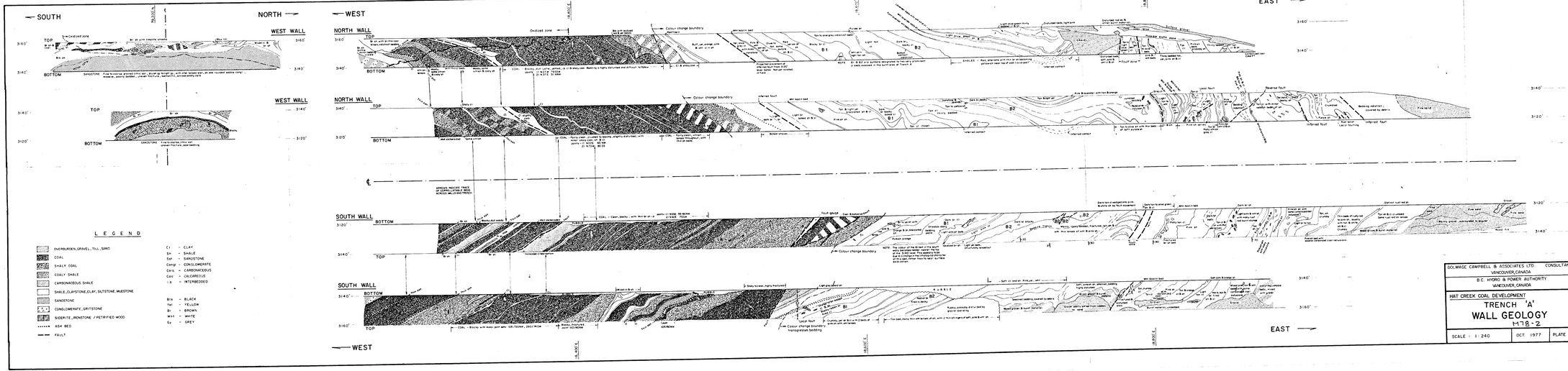
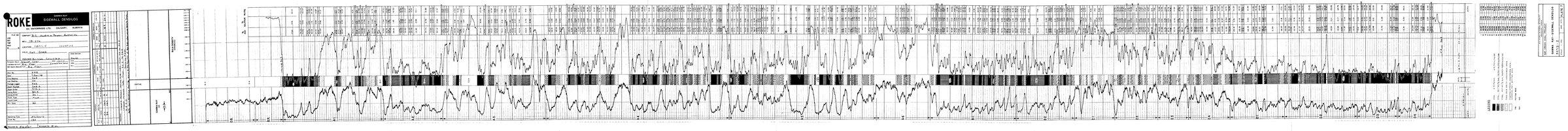
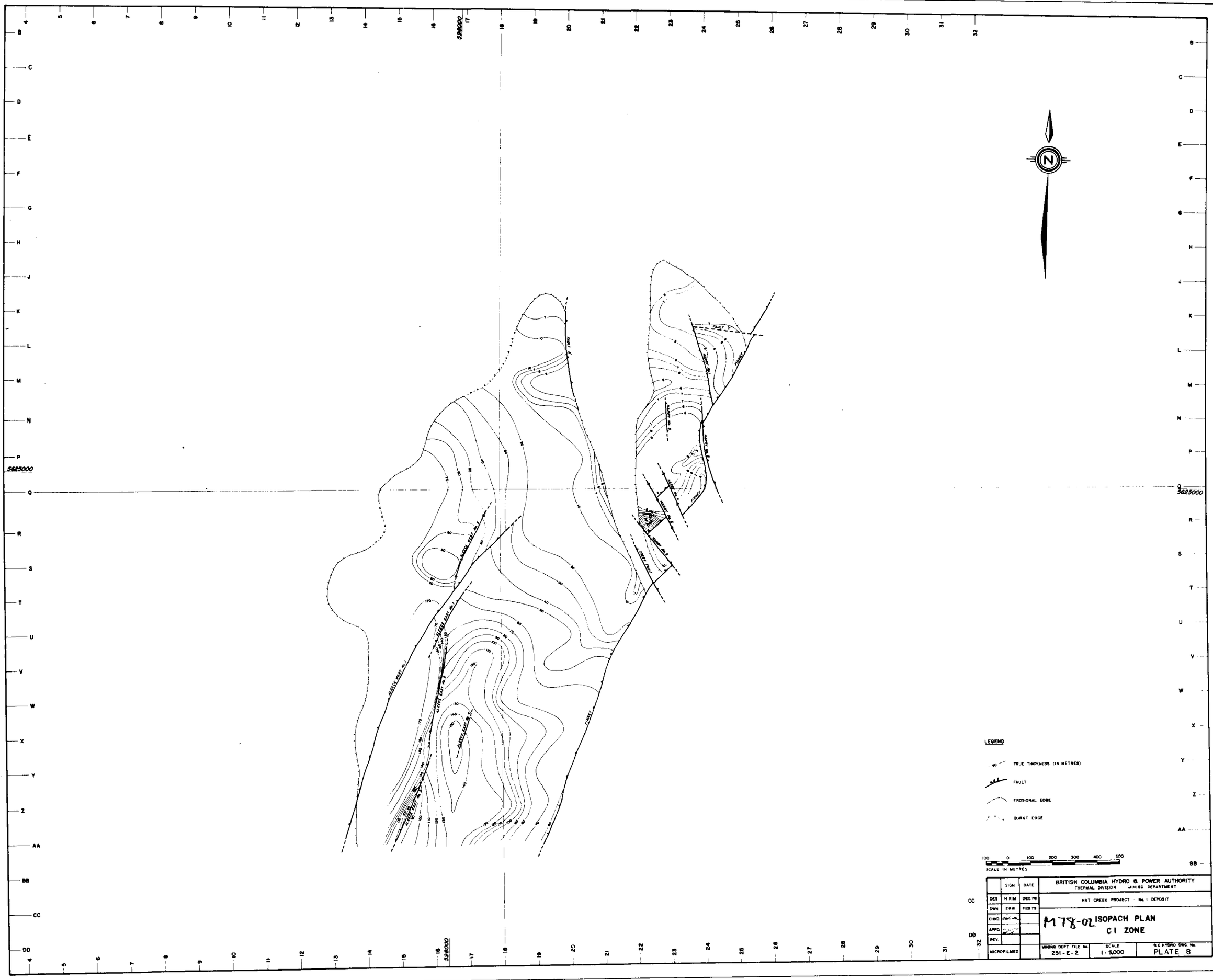
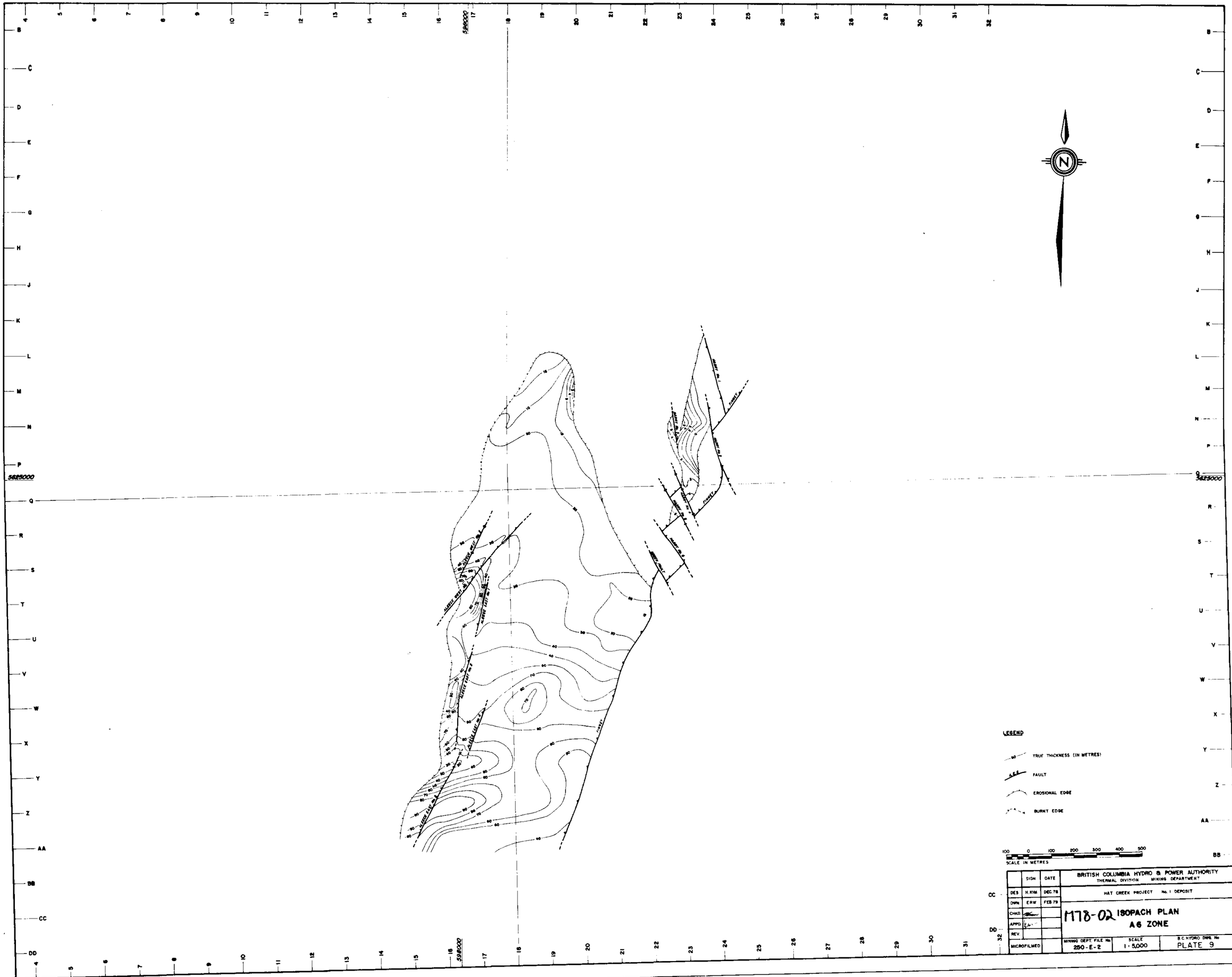
5625 000
5624 500
5624 000
5623 500
5623 000
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
S
T
U
V
W
X
Y
Z
AA
SURVEY MONUMENT
HOLES DELETED FOR COMPUTER MODEL
metres
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
HAT CREEK PROJECT
DIAMOND DRILL HOLES
LOCATION PLAN
M78-2
PLATE 4
1
R

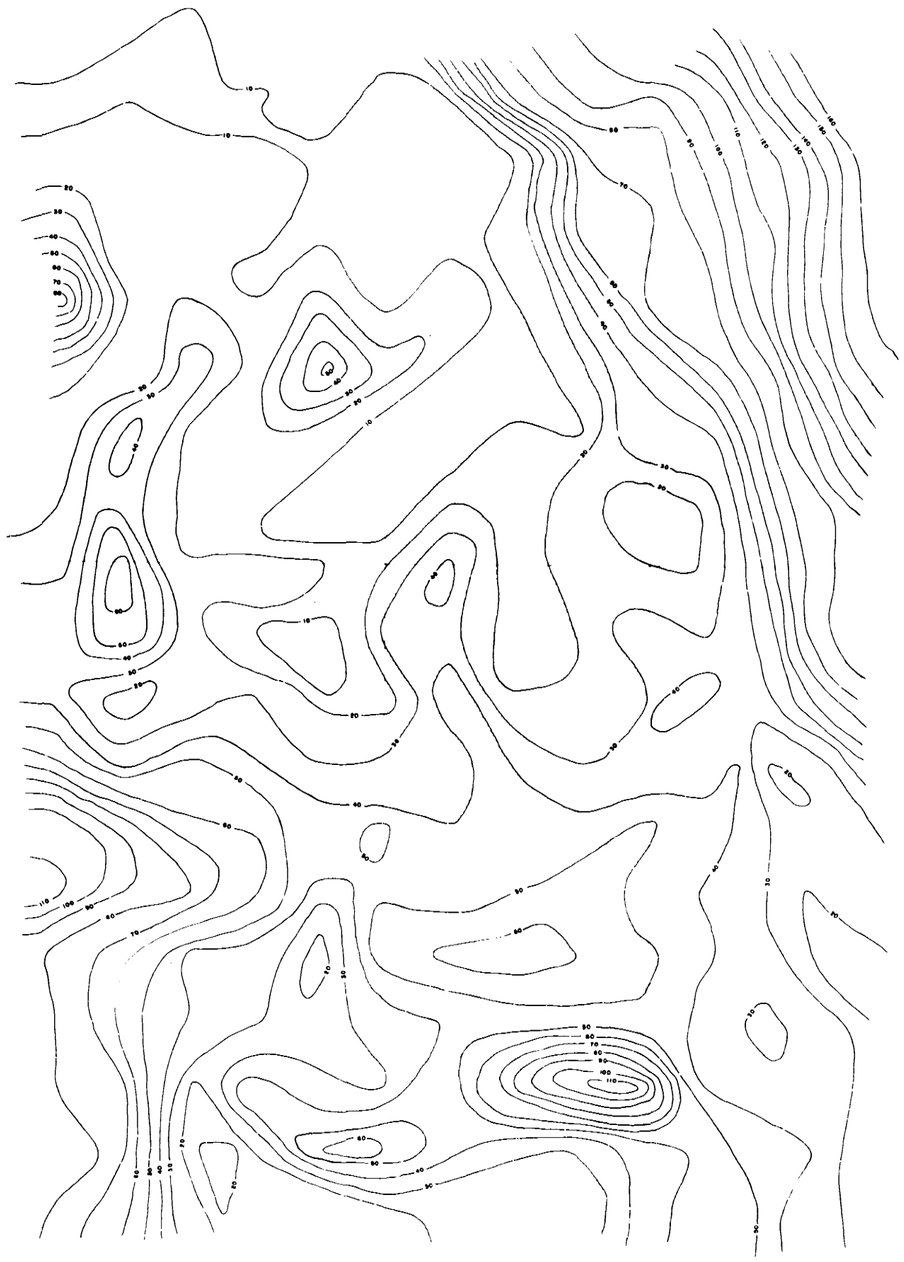

COLDWATER FORMATION
BURN ZONE
MEDICINE CREEK FORMATION
5625000
5990000
LEGEND
MEDICINE CREEK FORMATION (Hanging Wall Rock)
A1 A1 COAL ZONE
A2 A2 ROCK ZONE
B B COAL ZONE
C1 C1 ROCK ZONE
C2 C2 MIXED COAL & ROCK ZONE
D D COAL ZONE
COLDWATER FORMATION (Foot Wall Rock)
BURNED COAL ZONE
SYNCLYNE
FAULT
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION · MINING DEPARTMENT
HAT CREEK PROJECT · No. 1 DEPOSIT
M78-2
BEDROCK GEOLOGY
DFS H. KIM NOV. 78
DWN ERW FEB. 79
CHKD.
APPD.
REV.
MICROFILMED
MINING DEPT. FILE No. 201-E-2
SCALE 1:5,000
B.C. HYDRO DWG No. PLATE 5


SOUTH
NORTH
WEST
EAST
WEST WALL
NORTH WALL
SOUTH WALL
TOP
BOTTOM
3160'
3140'
3120'
Oxidized zone
Colour change boundary
Inferred fault
Reverse fault
Fault gouge
Fault zone
Inferred contact
Special fault
Colour change boundary transgresses bedding
Bedding reversed - covered by debris
Fine sand
Clay
Silt
Sand
Gravel
Cobbles
Boulders
Bedding
Bedding reversed
Fault
Joint
Shear
Vertical
Dip
Strike
Bedding plane
Joint
Fracture
Shear
Fault


ROKE
SIDEWALL DEVELOGI
ROKE DEVELOPMENT LTD. CALGARY, ALBERTA
LEGEND


598000
5625000
N
LEGEND
TRUE THICKNESS (IN METRES)
FAULT
EROSIONAL EDGE
BURNT EDGE
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT No. 1 DEPOSIT
M78-02 ISOPACH PLAN
C1 ZONE
SIGN
DATE
DES. H KIM DEC 78
DWN. ERW FEB 79
CHKD.
APPD.
REV.
MICROFILMED
MINING DEPT FILE No. 251-E-2
SCALE 1:5,000
B.C. HYDRO DWG. No. PLATE 8


5625000
598000
N
LEGEND
TRUE THICKNESS (IN METRES)
FAULT
EROSIONAL EDGE
BURNT EDGE
100 0 100 200 300 400 500
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT No. 1 DEPOSIT
M78-02 ISOPACH PLAN
A6 ZONE
SIGN DATE
DES H. KIM DEC 78
DWN ERW FEB 79
CHKD
APPD
REV
MICROFILMED
MINING DEPT. FILE No. 250-E-2
SCALE 1:5,000
B.C. HYDRO DWG. No PLATE 9

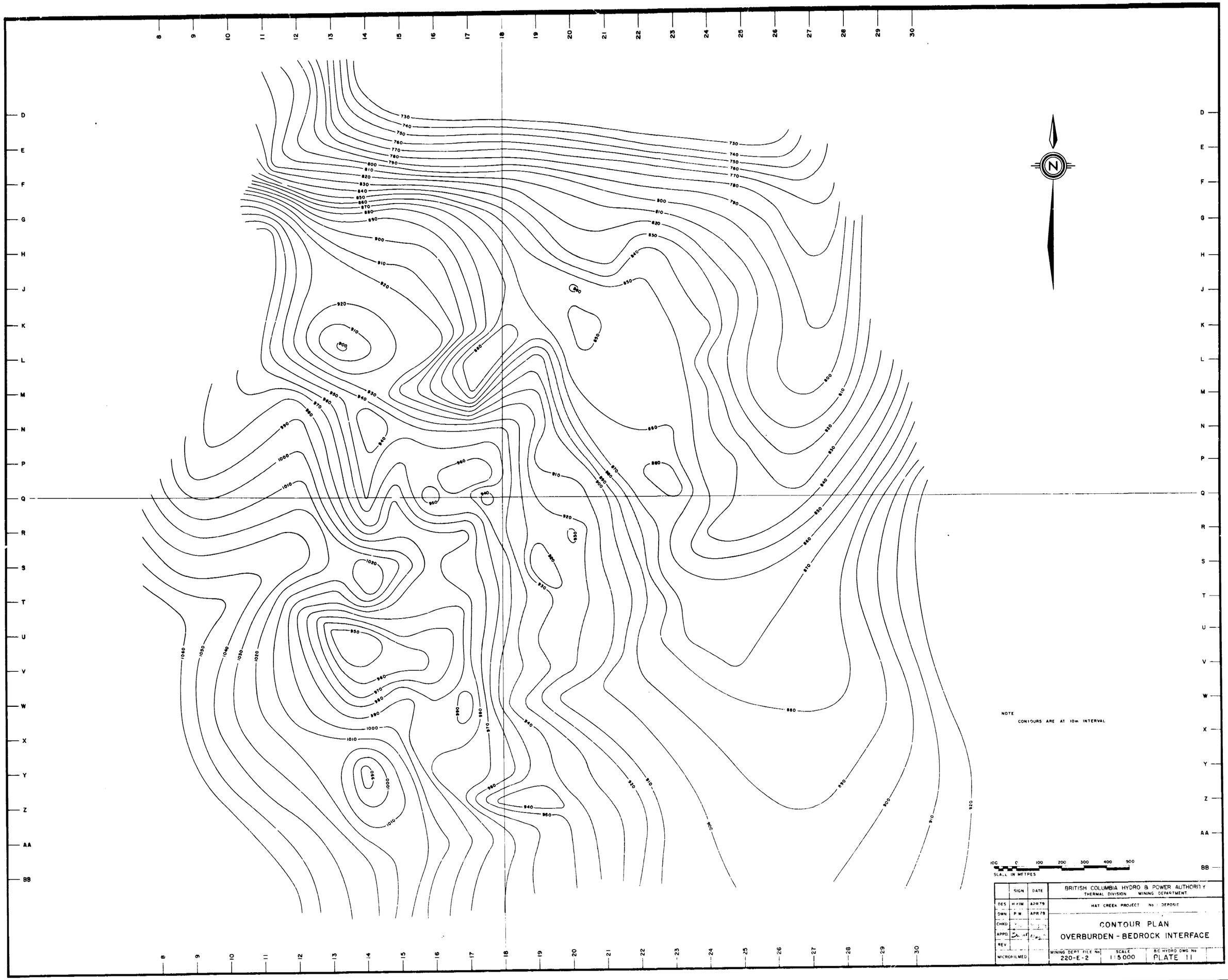


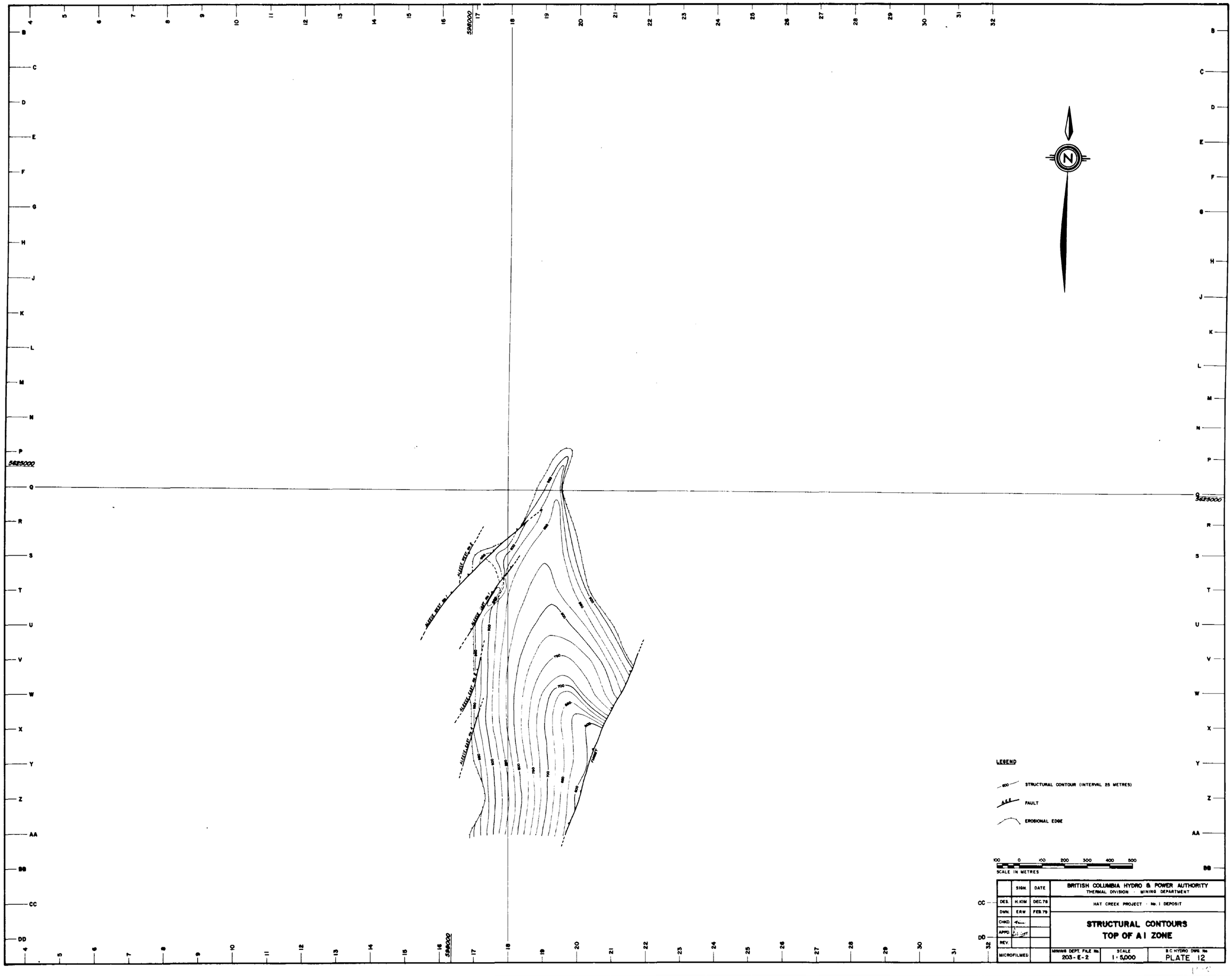
NOTE:

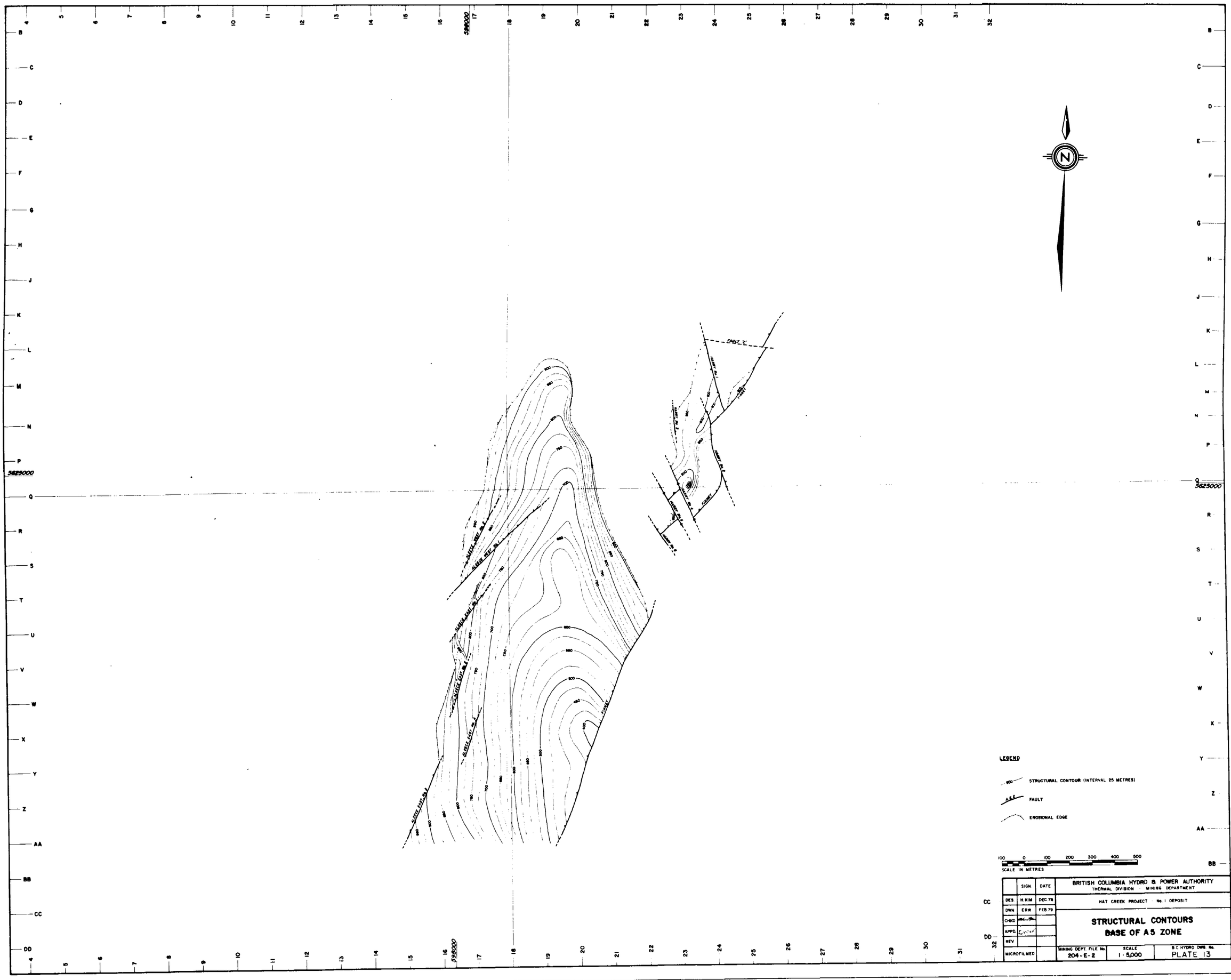
CONTOURS ARE AT 10m INTERVAL.

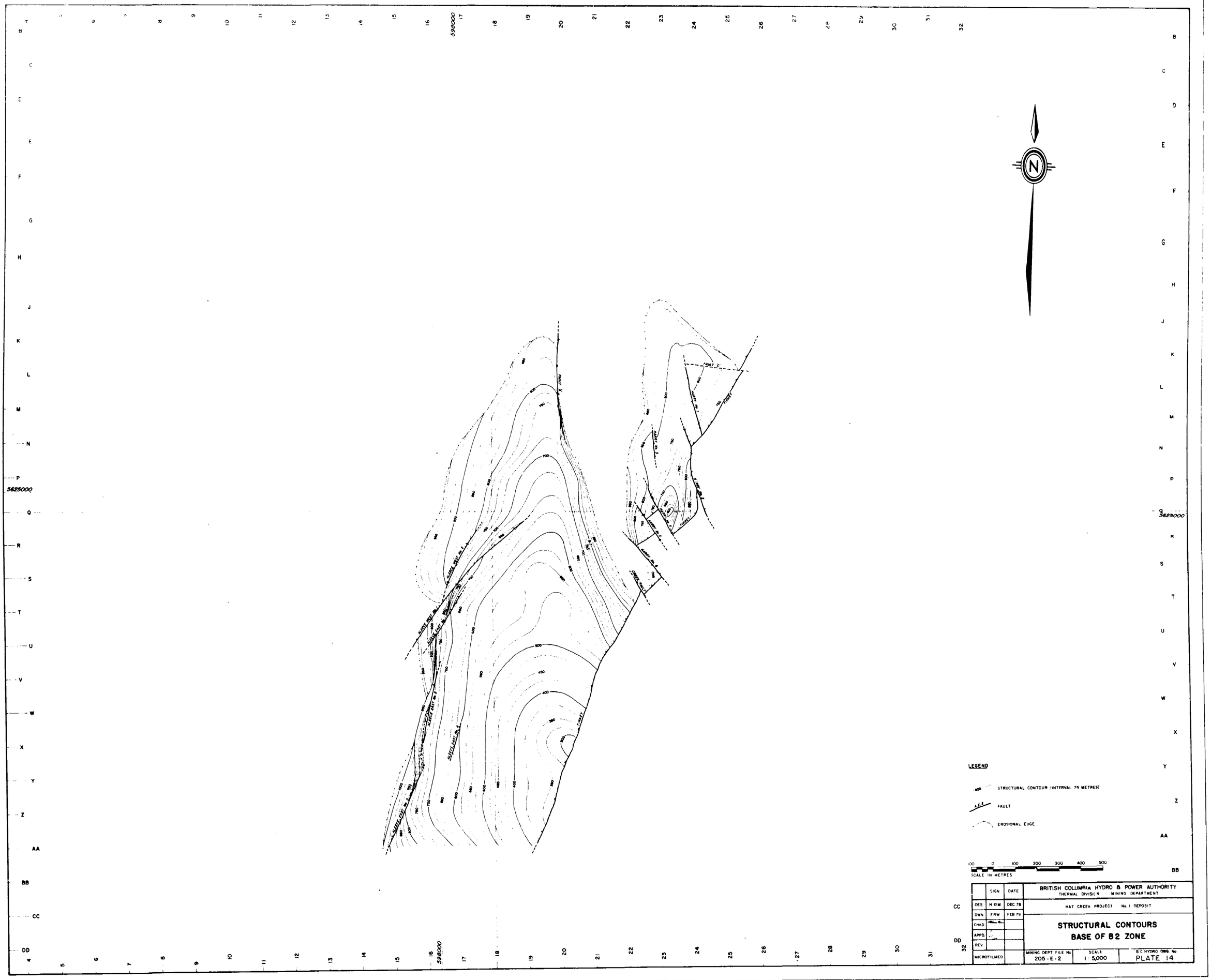
SCALE IN METRES

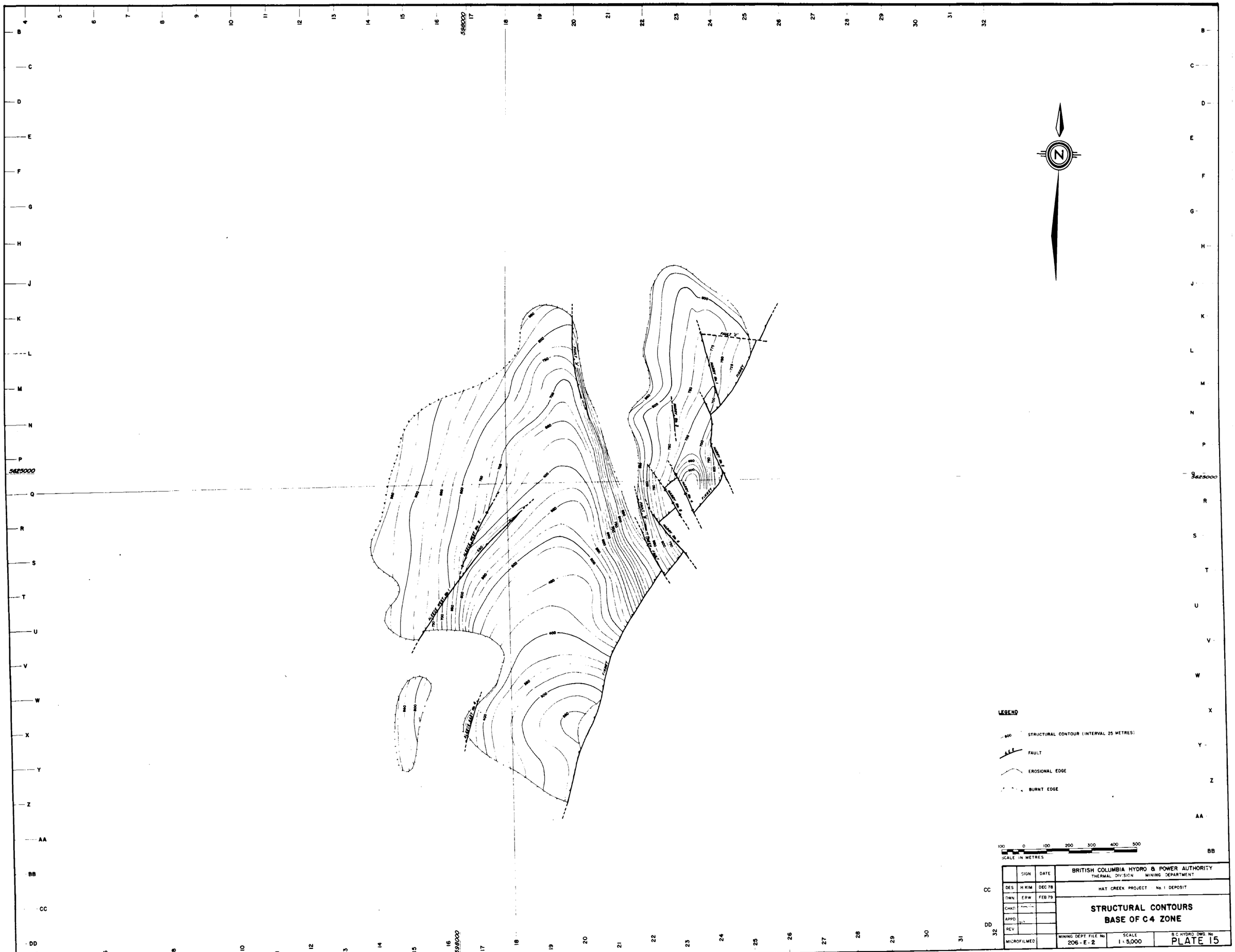
| | SIGN | DATE | BRITISH COLUMBIA HYDRO & POWER AUTHORITY<br>THERMAL DIVISION MINING DEPARTMENT |
|---|---|---|---|
| DES | H. KIM | MAR.79 | HAT CREEK PROJECT No 1 DEPOSIT |
| DWN | | | M78-02 ISOPACH PLAN OVERBURDEN |
| CHKD | | | |
| APPD | | | |
| REV | | | |
| MICROFILMED | | | MINING DEPT FILE No. 252-E-2 · SCALE 1:5000 · B.C. HYDRO DWG No. PLATE 10 |

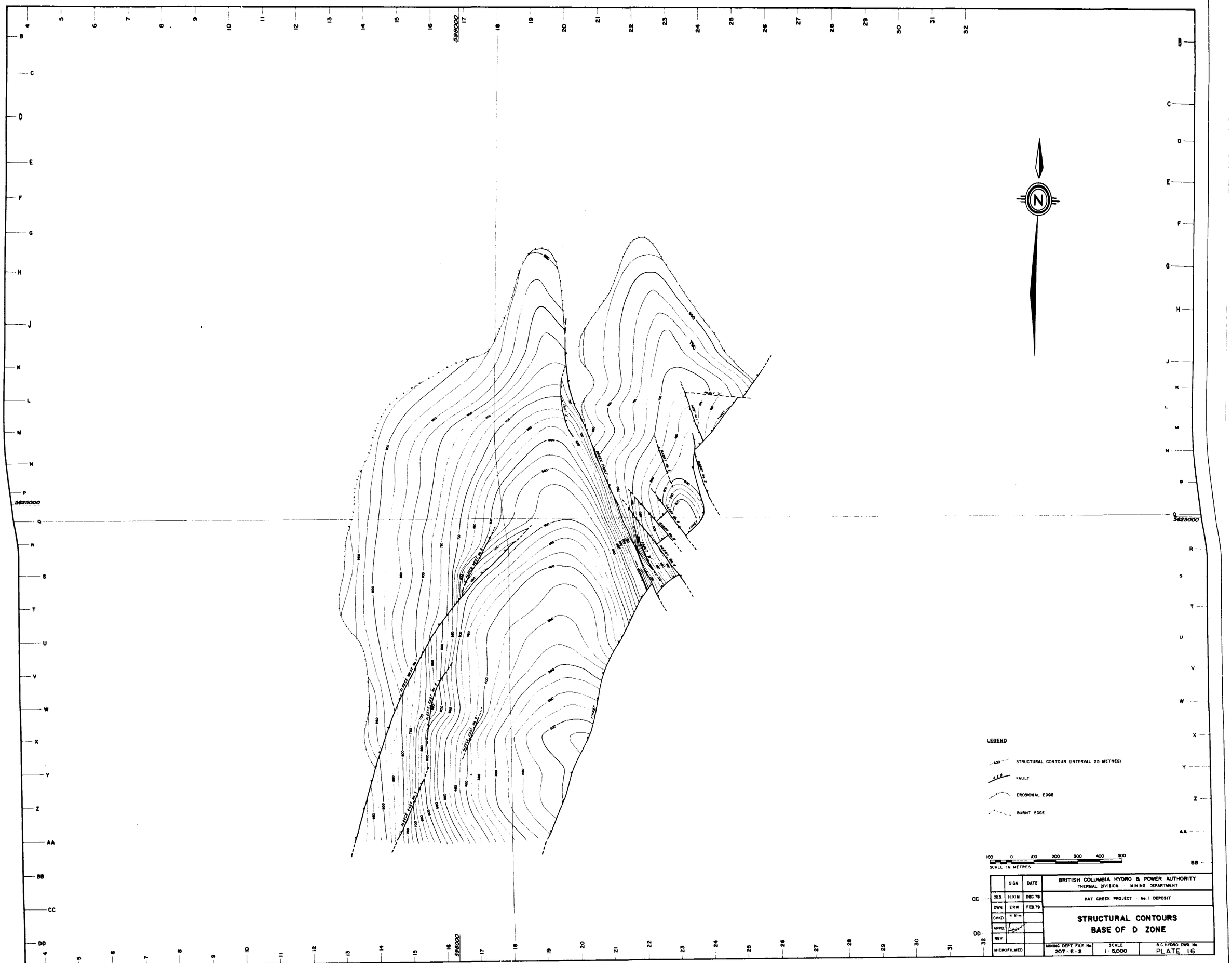

NOTE
CONTOURS ARE AT 10m INTERVAL
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT No 1 DEPOSIT
CONTOUR PLAN
OVERBURDEN - BEDROCK INTERFACE
DES H KIM APR 79
DWN P W APR 79
CHKD
APPD
REV
MICROFILMED
MINING DEPT FILE No 220-E-2
SCALE 1:5000
BC HYDRO DWG No PLATE 11

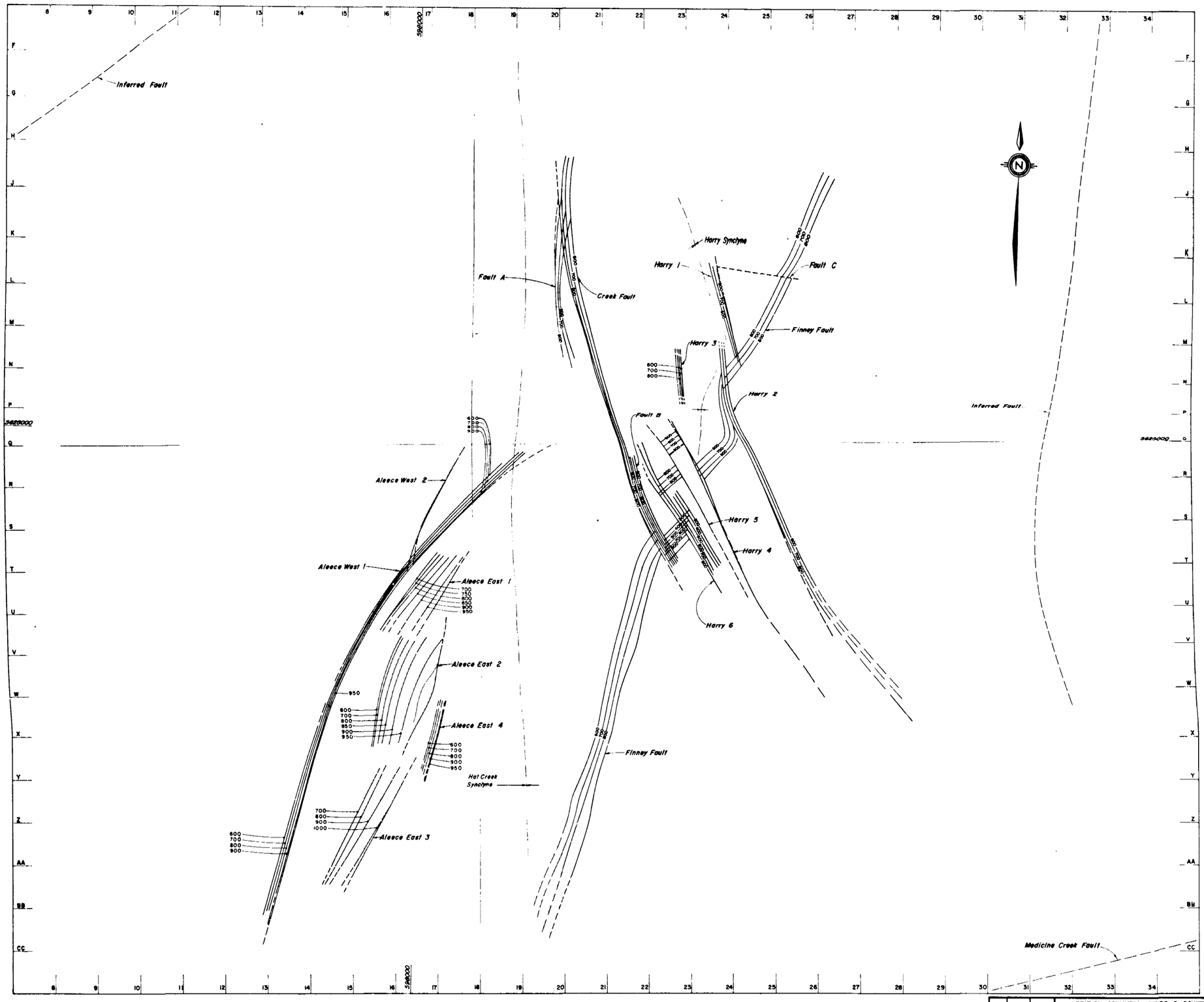

5625000
5620000
598000
N
LEGEND
STRUCTURAL CONTOUR (INTERVAL 25 METRES)
FAULT
EROSIONAL EDGE
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION · MINING DEPARTMENT
HAT CREEK PROJECT · No. 1 DEPOSIT
STRUCTURAL CONTOURS
TOP OF A1 ZONE
SIGN. DATE
DES. H.KIM DEC.78
DWN. ERW FEB.79
CHKD.
APPD.
REV.
MICROFILMED
MINING DEPT. FILE No. 203-E-2
SCALE 1:5,000
B.C. HYDRO DWG. No. PLATE 12


598000
5625000
LEGEND
STRUCTURAL CONTOUR (INTERVAL 25 METRES)
FAULT
EROSIONAL EDGE
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION - MINING DEPARTMENT
HAT CREEK PROJECT - No. 1 DEPOSIT
STRUCTURAL CONTOURS
BASE OF A5 ZONE
DES H. KIM DEC. 78
DWN ERW FEB. 79
CHKD
APPD
REV
MICROFILMED
MINING DEPT. FILE No. 204-E-2
SCALE 1:5,000
B.C. HYDRO DWG. No. PLATE 13


598000
5625000
N
LEGEND
STRUCTURAL CONTOUR (INTERVAL 25 METRES)
FAULT
EROSIONAL EDGE
100 0 100 200 300 400 500
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT No. 1 DEPOSIT
STRUCTURAL CONTOURS
BASE OF B2 ZONE
SIGN
DATE
DES. H KIM DEC 78
DWN. F.R.W. FEB 79
CHKD.
APPD.
REV.
MICROFILMED
MINING DEPT FILE No. 205-E-2
SCALE 1:5,000
B.C. HYDRO DWG. No. PLATE 14

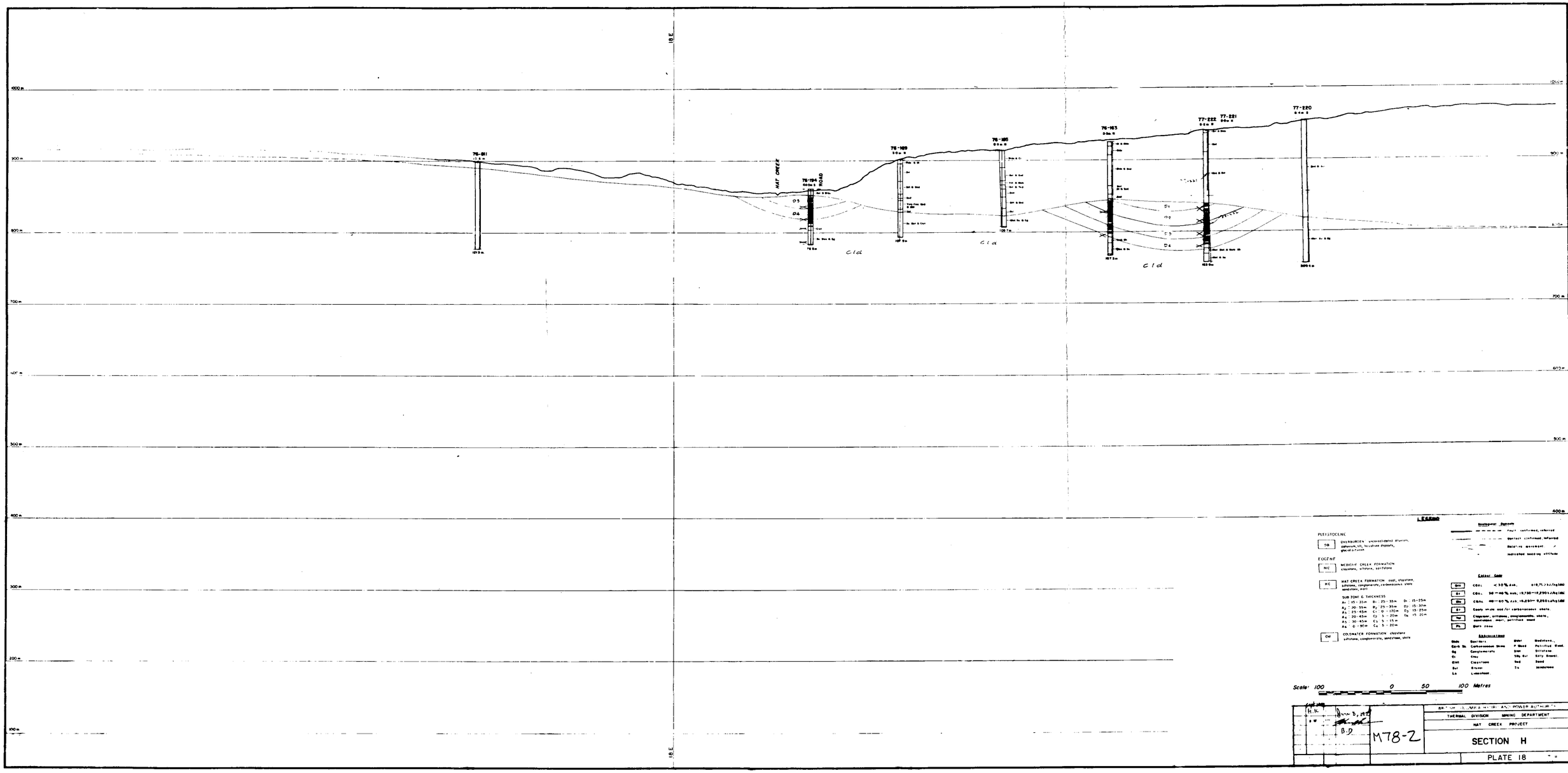

598000
5625000
N
LEGEND
STRUCTURAL CONTOUR (INTERVAL 25 METRES)
FAULT
EROSIONAL EDGE
BURNT EDGE
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT No. 1 DEPOSIT
STRUCTURAL CONTOURS
BASE OF C4 ZONE
DES H KIM DEC 78
DWN ERW FEB 79
CHKD
APPD
REV
MICROFILMED
MINING DEPT. FILE No. 206-E-2
SCALE 1:5,000
B.C. HYDRO DWG. No. PLATE 15

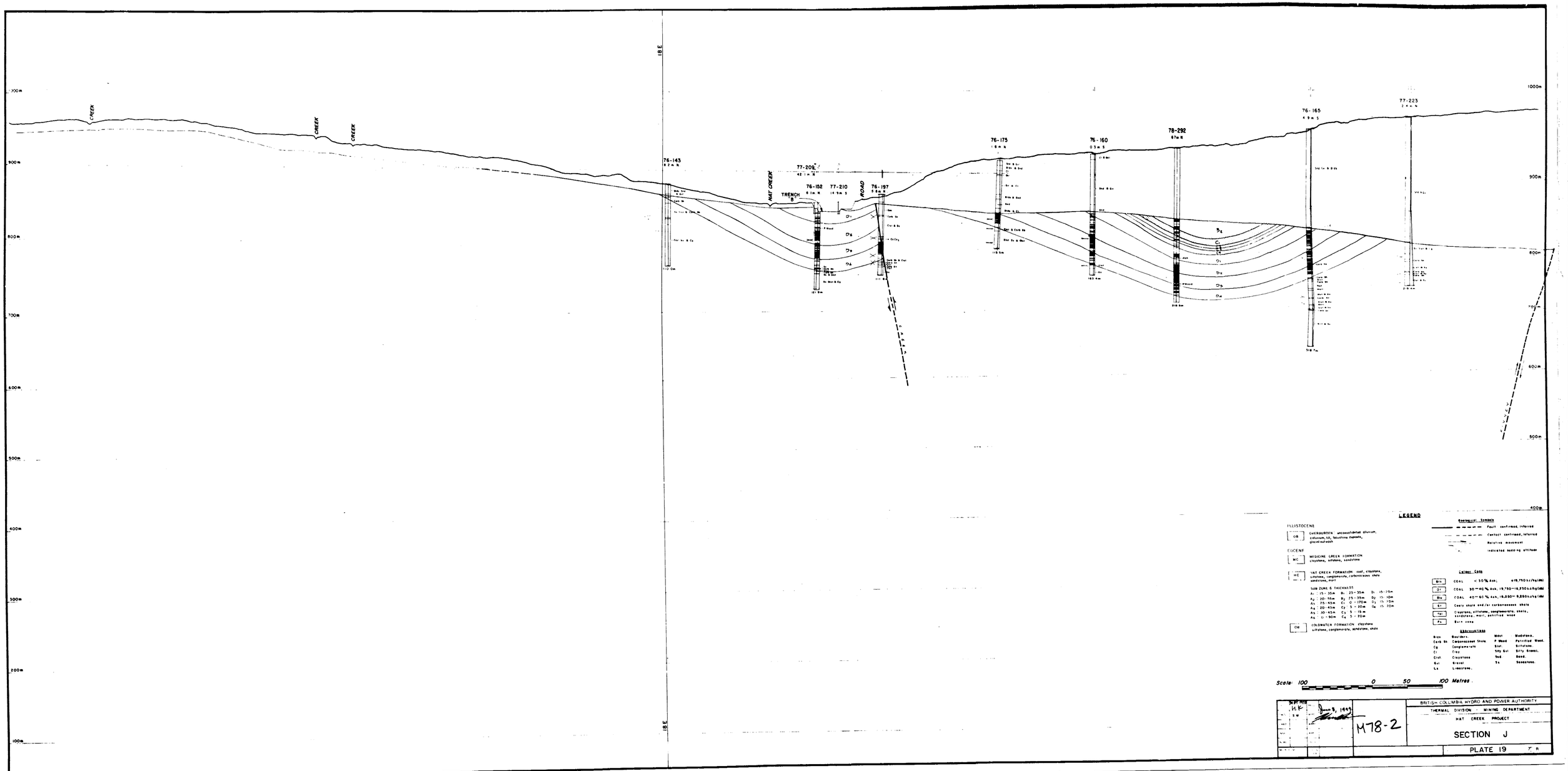

598000
5625000
N
LEGEND
STRUCTURAL CONTOUR (INTERVAL 25 METRES)
FAULT
EROSIONAL EDGE
BURNT EDGE
100 0 100 200 300 400 500
SCALE IN METRES
BRITISH COLUMBIA HYDRO & POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT No. 1 DEPOSIT
STRUCTURAL CONTOURS
BASE OF D ZONE
SIGN. DATE
DES H. KIM DEC. 78
DWN. E.R.W. FEB. 79
CHKD.
APPD.
REV.
MICROFILMED
MINING DEPT. FILE No. 207-E-2
SCALE 1:5,000
B.C. HYDRO DWG. No. PLATE 16

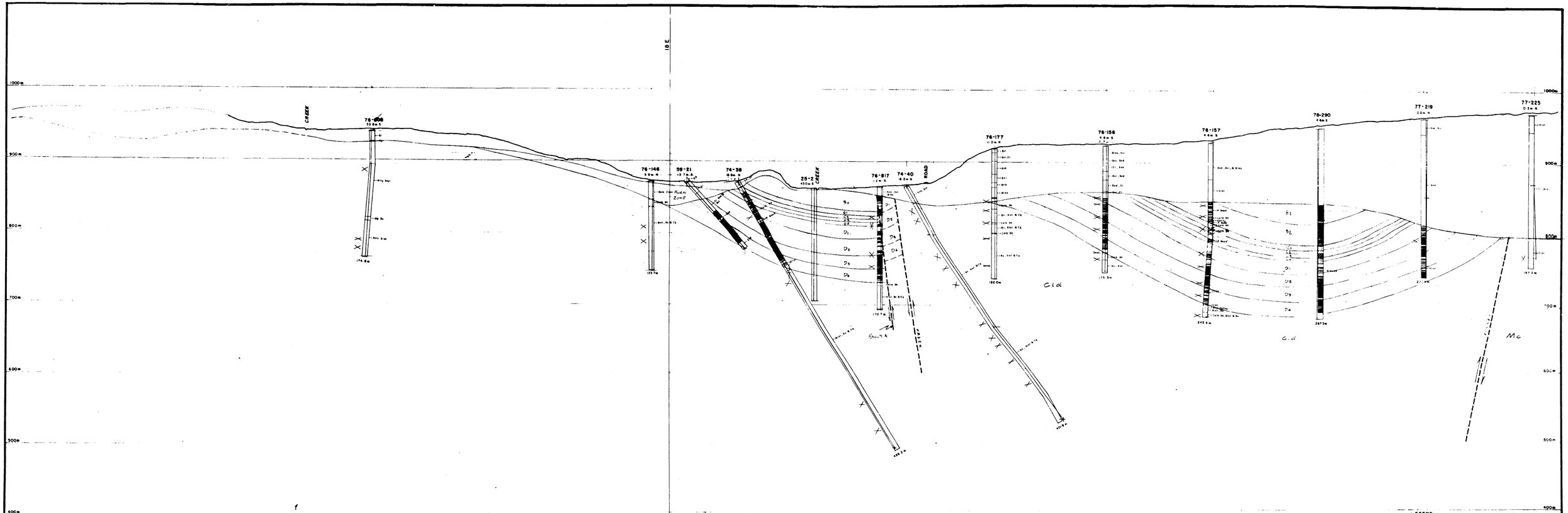



SCALE IN METRES

| | SIGN. | DATE | BRITISH COLUMBIA HYDRO & POWER AUTHORITY<br>THERMAL DIVISION MINING DEPARTMENT |
|---|---|---|---|
| DES. | H. KIM | NOV. 78 | HAT CREEK PROJECT · No. 1 DEPOSIT |
| DWN. | D.C.S. | DEC. 78 | |
| CHKD. | | | STRUCTURAL CONTOURS - FAULTS |
| APPD. | | | |
| REV. | | | |
| MICROFILMED | | | MINING DEPT. FILE No. 202-E-2 · SCALE 1:5,000 · B.C. HYDRO DWG. No. PLATE 17 |


1000 m
900 m
800 m
700 m
600 m
500 m
400 m
300 m
200 m
100 m
18 E
76-161
HAT CREEK ROAD
76-194
76-169
76-165
76-163
77-222
77-221
77-220
D5
D4
D1
D2
D3
Cld
LEGEND
PLEISTOCENE
DB DYNAMIC DEPOSITS unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash
EOCENE
NC MCDONALD CREEK FORMATION claystone, siltstone, sandstone
HC HAT CREEK FORMATION coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl
SUB ZONE & THICKNESS
A1 : 15 - 35m B1 : 25 - 55m D1 : 15 - 25m
A2 : 20 - 55m B2 : 25 - 35m D2 : 15 - 30m
A3 : 25 - 45m C1 : 0 - 170m D3 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m D4 : 15 - 20m
A5 : 30 - 45m C3 : 5 - 15m
A6 : 0 - 90m C4 : 5 - 20m
Cld COLDWATER FORMATION claystone siltstone, conglomerate, sandstone, shale
Structural Symbols
Fault: confirmed, inferred
Contact: confirmed, inferred
Relative movement
Indicated bedding attitude
Coal Seam
Qbr COAL: < 30% ash, 6-10,7-3 kJ/kg (MM)
Qt COAL: 30 - 40% ash; 19,750 - 19,250 kJ/kg (MM)
Qbs COAL: 40 - 60% ash; 19,250 - 9,250 kJ/kg (MM)
Qsh Coaly shale and/or carbonaceous shale
Qtuf Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
Qfs Burn zone
ABBREVIATIONS
Mdst Mudstone
Carb Sh Carbonaceous Shale
Cg Conglomerate
Cl Clay
Slst Claystone
Brn Brown
Ls Limestone
Sltst Siltstone
P Wood Petrified Wood
Sltstone
Silty Brown
Sd Sand
Ss Sandstone
Scale: 100 0 50 100 Metres
H.K.
Nov 5, 197
B.D.
M78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT
SECTION H
PLATE 18


1000m
900m
800m
700m
600m
500m
400m
300m
200m
100m
CREEK
CREEK
CREEK
76-143
8.2m N
HAT CREEK
TRENCH 8
77-209
42.1m N
76-152
6.1m N
77-210
14.5m S
ROAD
76-197
2.8m N
76-175
1.8m N
76-160
0.3m S
78-292
67m N
76-165
4.9m S
77-223
2.4m N
18E
LEGEND
PLEISTOCENE
OB
OVERBURDEN: unconsolidated alluvium, colluvium, till, travertine deposits, glacial outwash
EOCENE
MC
MEDICINE CREEK FORMATION
claystone, siltstone, sandstone
HC
HAT CREEK FORMATION coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl
SUB ZONE & THICKNESS
A1 : 15 - 35m B1 : 25 - 35m D1 : 15 - 25m
A2 : 20 - 55m B2 : 25 - 35m D2 : 15 - 10m
A3 : 25 - 45m C1 : 0 - 170m D3 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m D4 : 15 - 20m
A5 : 30 - 45m C3 : 5 - 15m
A6 : 0 - 90m C4 : 5 - 20m
CH
COLDWATER FORMATION claystone siltstone, conglomerate, sandstone, shale
Geological Symbols
Fault confirmed, inferred
Contact confirmed, inferred
Relative movement
Indicated bedding attitude
Calmer Code
B1x COAL < 10% Ash; 419,750 kJ/kg (dm)
D1 COAL 30 – 40 % Ash; 19,750 – 16,250 kJ/kg (dm)
B4x COAL 40 – 60 % Ash; 16,250 – 9,250 kJ/kg (dm)
S1 Coaly shale and/or carbonaceous shale
Fs1 Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
Fx Barn zone
Abbreviations
Bldr Boulders
Carb Sh Carbonaceous Shale
Cg Conglomerate
Cl Clay
Clst Claystone
Gvl Gravel
Ls Limestone
Marl Marl
P Wood Petrified Wood
Slst Siltstone
Slty Snd Silty Sand
Snd Sand
Ss Sandstone
Scale: 100 0 50 100 Metres.
Sept 1978
Dec 8, 1978
M78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION - MINING DEPARTMENT
HAT CREEK PROJECT
SECTION J
PLATE 19




## LEGEND

PLEISTOCENE

OB — OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash

EOCENE

MC — MEDICINE CREEK FORMATION: claystone, siltstone, sandstone

HC — HAT CREEK FORMATION: coal, claystone siltstone, conglomerate, carbonaceous shale sandstone, marl

SUB ZONE & THICKNESS

| | | | | | |
|---|---|---|---|---|---|
| $A_1$ | 15 - 35m | $B_1$ | 25 - 35m | $D_1$ | 15 - 25m |
| $A_2$ | 20 - 35m | $B_2$ | 25 - 35m | $D_2$ | 15 - 30m |
| $A_3$ | 25 - 45m | $C_1$ | 0 - 170m | $D_3$ | 15 - 25m |
| $A_4$ | 20 - 45m | $C_2$ | 5 - 20m | $D_4$ | 15 - 20m |
| $A_5$ | 30 - 45m | $C_3$ | 5 - 15m | | |
| $A_6$ | 0 - 90m | $C_4$ | 5 - 20m | | |

CW — COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale

**Contacts: Symbols**

- Fault: confirmed, inferred
- Contact: confirmed, inferred
- Relative movement
- Inferred bedding attitude

**Colour Code**

| | | |
|---|---|---|
| Blk | COAL | < 30% Ash; +19,750 kJ/kg (Mm) |
| G | COAL | 30 – 40 % Ash; 19,750 – 16,250 kJ/kg (Mm) |
| Bw | COAL | 40 – 60 % Ash; 16,250 – 9,250 kJ/kg (Mm) |
| Br | Coaly shale and/or carbonaceous shale |
| Tan | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood |
| Ps | Bark zone |

**Abbreviations**

| | | | |
|---|---|---|---|
| Blks | Boulders. | Mst | Mudstone. |
| Carb. Sh. | Carbonaceous Shale. | P. Wood | Petrified Wood |
| Cg | Conglomerate | Slst | Siltstone |
| Cl | Clay. | Vfy Gvl | Dirty Gravel. |
| Clst | Claystone | Sd | Sand |
| Gvl | Gravel | Ss | Sandstone |
| Ls | Limestone. | | |

Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| DR. | R. L. | | |
| CHK'D | P. K. | | |
| APP'D | | | |
| NOTES | | | |
| SUBM'D | | | |
| CONT. | | | |

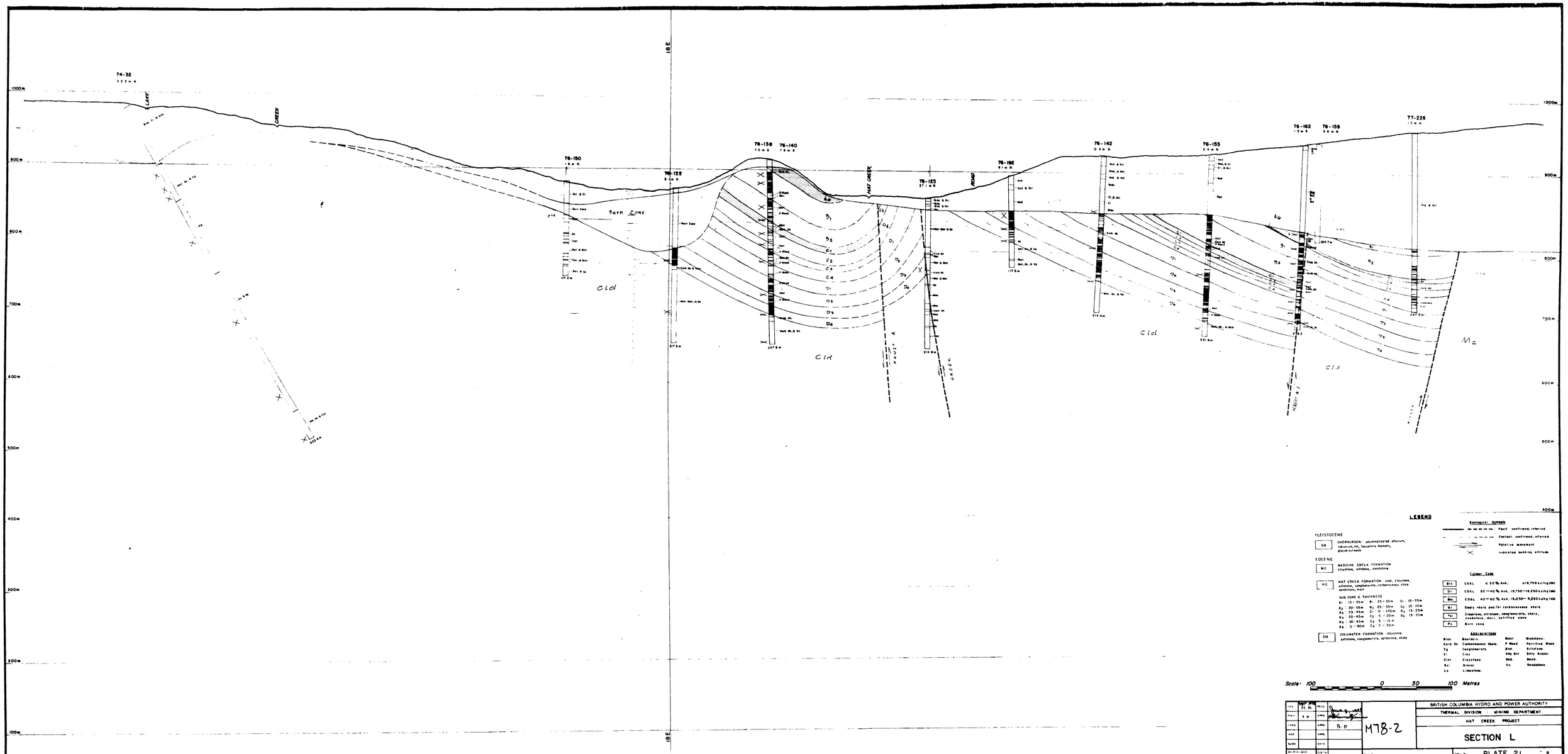
Nov 8 1978
B. D.

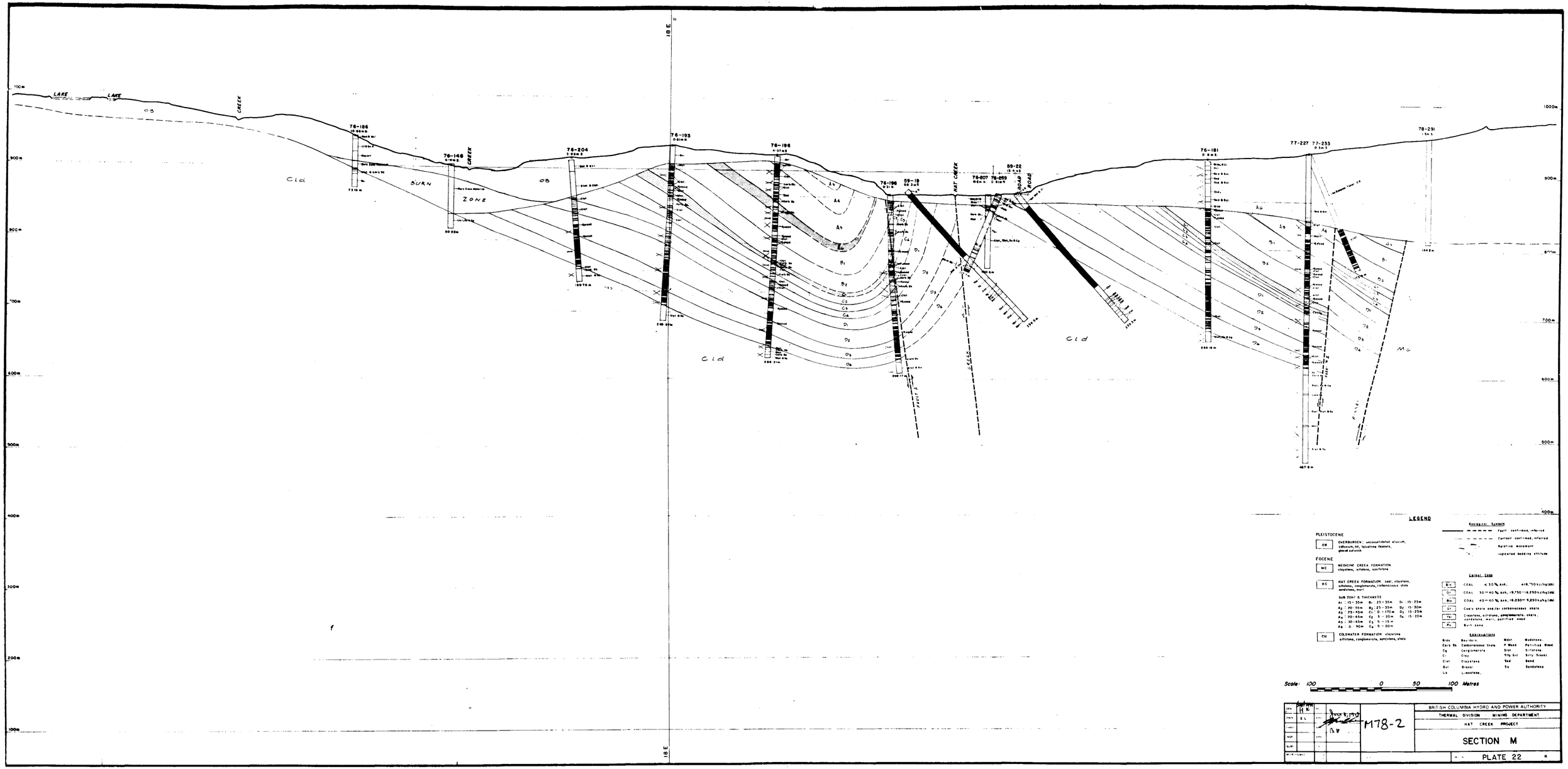
MT8-2

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION - MINING DEPARTMENT
HAT CREEK PROJECT

# SECTION K

DWG. No. PLATE 20 R


74-32
LAKE
CREEK
76-150
76-122
76-138
76-140
HAT CREEK
76-125
ROAD
76-192
76-142
76-153
76-162
76-159
77-226
SKUK ZONE
Cld
FAULT A
FAULT B
1000m
900m
800m
700m
600m
500m
400m
300m
200m
100m
18E
LEGEND
Geological Symbols
Fault confirmed, inferred
Contact confirmed, inferred
Relative movement
Inferred bedding attitude
PLEISTOCENE
OB OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash
EOCENE
MC MEDICINE CREEK FORMATION claystone, siltstone, sandstone
HC HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl
SUB ZONE C THICKNESS
A1 : 15 - 35m B1 : 25 - 35m D1 : 15 - 25m
A2 : 20 - 55m B2 : 25 - 35m D2 : 15 - 30m
A3 : 25 - 45m C1 : 0 - 170m D3 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m D4 : 15 - 20m
A5 : 30 - 45m C3 : 5 - 15m
A6 : 0 - 90m C4 : 5 - 20m
CH COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale
Coding Code
B1s COAL <30% Ash; +19,750 kJ/kg (MM)
D1 COAL 30-40% Ash, 19,750-18,250 kJ/kg (MM)
Bm COAL 40-80% Ash, 18,250-9,250 kJ/kg (MM)
S1 Coaly shale and/or carbonaceous shale
Tu1 Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
Fs Burn zone
Abbreviations
Bldg Boulders.
Carb Sh Carbonaceous Shale.
Cg Conglomerate
Cl Clay
Clst Claystone.
Sil Silt
Ls Limestone.
Wood Wood.
P Wood Petrified Wood.
Slst Siltstone
Silty Snd Silty Sand.
Snd Sand.
Sh Sandstone.
Scale: 100 0 50 100 Metres
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION - MINING DEPARTMENT
HAT CREEK PROJECT
SECTION L
M78-2
PLATE 21




## LEGEND

**PLEISTOCENE**

OB — OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash

**EOCENE**

MC — MEDICINE CREEK FORMATION: claystone, siltstone, sandstone

HC — HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl

SUB ZONE & THICKNESS

| | | |
|---|---|---|
| A1 : 15 - 35m | B1 : 25 - 35m | D1 : 15 - 25m |
| A2 : 20 - 55m | B2 : 25 - 35m | D2 : 15 - 30m |
| A3 : 25 - 45m | C1 : 0 - 170m | D3 : 15 - 25m |
| A4 : 20 - 45m | C2 : 5 - 20m | D4 : 15 - 20m |
| A5 : 30 - 45m | C3 : 5 - 15m | |
| A6 : 0 - 90m | C4 : 5 - 20m | |

CH — COLDWATER FORMATION: claystone, siltstone, conglomerate, sandstone, shale

**Geological Symbols**

Fault: confirmed, inferred

Contact: confirmed, inferred

Relative movement

Inferred bedding attitude

**Colour Code**

| | | |
|---|---|---|
| B1s | COAL | < 30 % ash; +19,750 kJ/kg (8500) |
| D1 | COAL | 30 – 40 % ash, 19,750 – 16,250 kJ/kg (8500) |
| B1w | COAL | 40 – 60 % ash, 16,250 – 9,250 kJ/kg (4000) |
| D1 | Coal: shale and/or carbonaceous shale | |
| Y1s | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood | |
| P1s | Bark zone | |

**ABBREVIATIONS**

| | | | |
|---|---|---|---|
| Blds | Boulders. | Mdst | Mudstone. |
| Carb Sh | Carbonaceous Shale | P Wood | Petrified Wood |
| Cg | Conglomerate | Slst | Siltstone |
| Cl | Clay | Sdy Gvl | Sandy Gravel. |
| Clst | Claystone | Sd | Sand |
| Sil | Silt. | Ss | Sandstone |
| Ls | Limestone. | | |

Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| DRN. | H.E. | | |
| CHK'D | E.L. | | |
| APPD | | | |
| SUPT | | | |
| SUBT | | | |
| MGR. MINING | | | |

M78-2

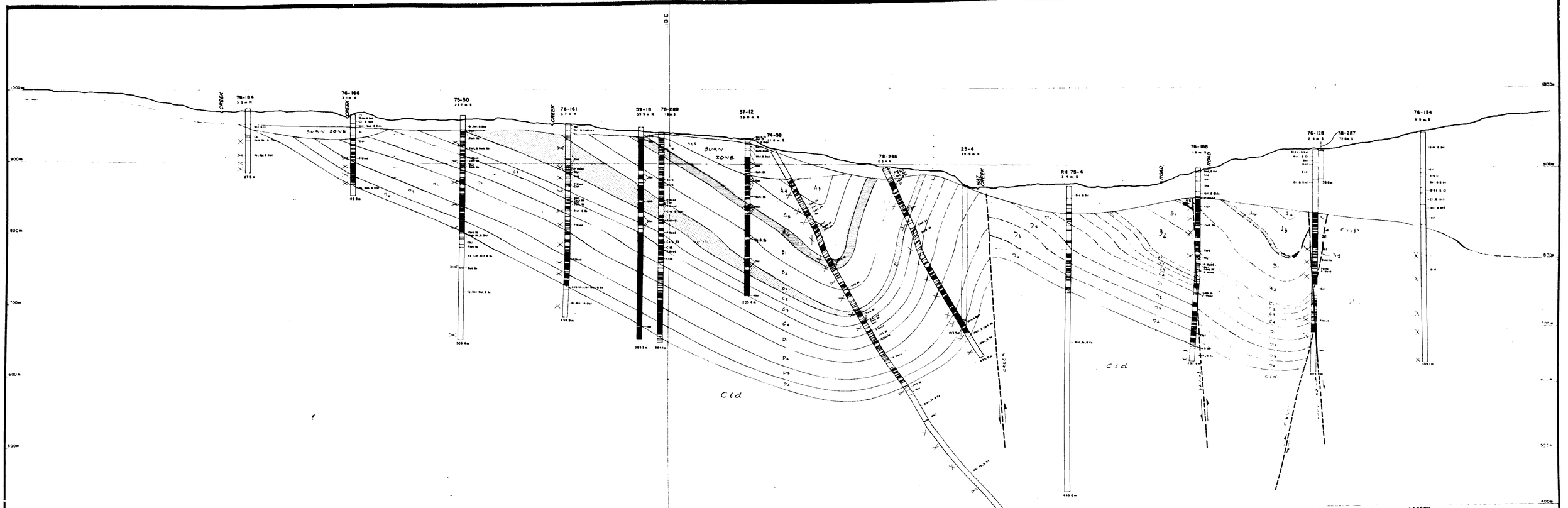
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

THERMAL DIVISION MINING DEPARTMENT

HAT CREEK PROJECT

# SECTION M

PLATE 22 R




## LEGEND

PLEISTOCENE

| | |
|---|---|
| OB | OVERBURDEN: unconsolidated alluvium, colluvium, till, talus, stone deposits, glacial outwash |

EOCENE

| | |
|---|---|
| MC | MILLICINE CREEK FORMATION claystone, siltstone, sandstone |
| HC | HAT CREEK FORMATION coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl<br>SUB ZONE & THICKNESS<br>A1 : 15 - 35m B1 : 25 - 35m D1 : 15 - 75m<br>A2 : 20 - 55m B2 : 25 - 35m D2 : 15 - 30m<br>A3 : 25 - 45m C1 : 6 - 170m D3 : 15 - 25m<br>A4 : 20 - 45m C2 : 5 - 20m D4 : 15 - 20m<br>A5 : 30 - 45m C3 : 5 - 15m<br>A6 : 0 - 90m C4 : 5 - 20m |
| CM | COLDWATER FORMATION claystone siltstone, conglomerate, sandstone, shale |

Geological Symbols

- Fault: confirmed, inferred
- Contact: confirmed, inferred
- Relative movement
- Indicated bedding attitude

Colour Code

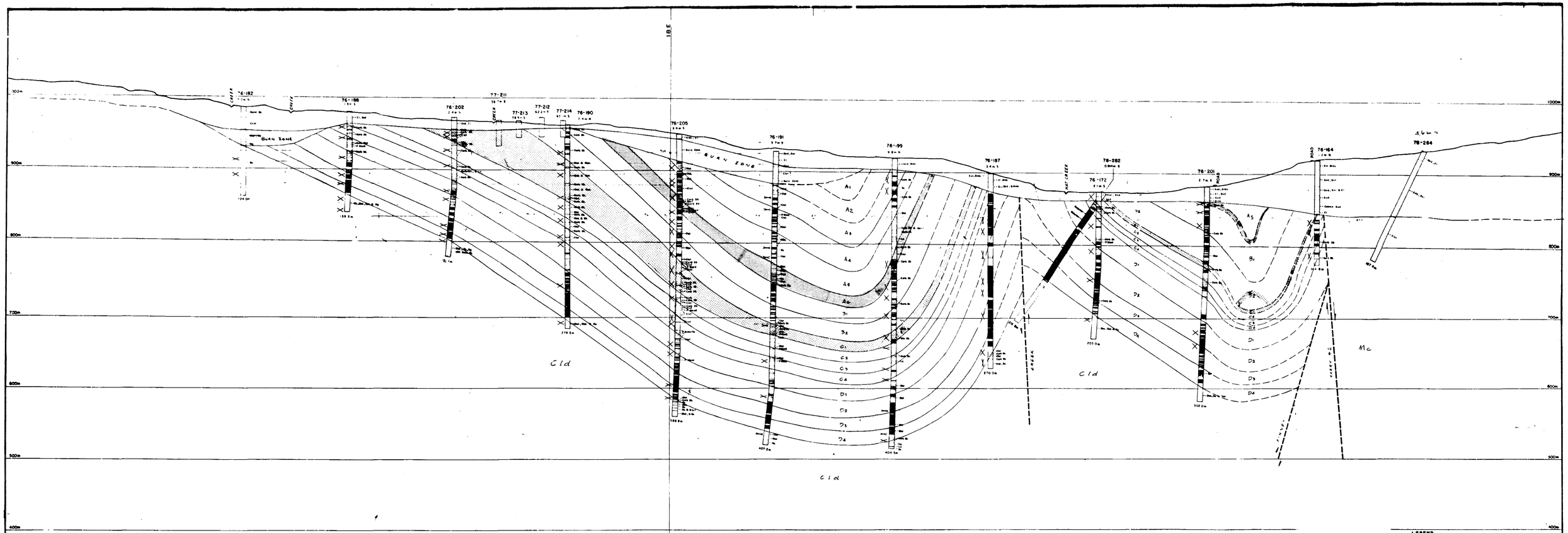
| | | |
|---|---|---|
| Wh | COAL | < 30 % Ash; >19,750 J/g (46) |
| Or | COAL | 30 – 40 % Ash; 19,750 – 18,750 J/g (46) |
| Bla | COAL | 40 – 60 % ash; 18,250 – 9,250 J/g (46) |
| Gr | Coaly shale and/or carbonaceous shale |
| Yel | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood |
| Pk | Burn zone |

ABBREVIATIONS

| | | | |
|---|---|---|---|
| Bldr. | Boulders; | Mst | Mudstone; |
| Carb. Sh. | Carbonaceous Shale; | P. Wood | Petrified Wood; |
| Cg | Conglomerate | Slst | Siltstone |
| Cl | Clay; | Sdy. Gvl | Sdy. Gravel; |
| Clst | Claystone; | Sed | Sand; |
| Gvl | Gravel; | Ss | Sandstone; |
| Ls | Limestone; | | |

Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| Apr 1979 | | | BRITISH COLUMBIA HYDRO AND POWER AUTHORITY |
| | 21 N | | THERMAL DIVISION MINING DEPARTMENT |
| | 5 W | June 3, 1975 | HAT CREEK PROJECT |
| | | 5.10 | M78-2 |
| | | | SECTION N |
| | | | PLATE 23 |




## LEGEND

PLEISTOCENE

| | |
|---|---|
| OB | OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash |

EOCENE

| | |
|---|---|
| MC | MEDICINE CREEK FORMATION: claystone, siltstone, sandstone |
| HC | HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl |

SUB ZONE & THICKNESS:

| | | | |
|---|---|---|---|
| $A_1$ : 15 - 35m | $B_1$ : 25 - 35m | $D_1$ : 15 - 25m | |
| $A_2$ : 20 - 50m | $B_2$ : 25 - 35m | $D_2$ : 15 - 50m | |
| $A_3$ : 25 - 45m | $C_1$ : 0 - 170m | $D_3$ : 15 - 25m | |
| $A_4$ : 20 - 45m | $C_2$ : 5 - 20m | $D_4$ : 15 - 20m | |
| $A_5$ : 30 - 45m | $C_3$ : 5 - 15m | | |
| $A_6$ : 0 - 90m | $C_4$ : 5 - 20m | | |

| | |
|---|---|
| CM | COLDWATER FORMATION: claystone, siltstone, conglomerate, andesitic shale |

**Geologic Symbols**

| | |
|---|---|
| | Fault: confirmed, inferred |
| | Contact: confirmed, inferred |
| | Relative movement |
| | Indicated bedding attitude |

**Coal Code**

| | |
|---|---|
| B15 | COAL: < 30% Ash; 15,750 kJ/kg(M) |
| C7 | COAL: 30 — 40% Ash; 13,750 — 15,250 kJ/kg(M) |
| B14 | COAL: 40 — 60% Ash; 15,250 — 9,250 kJ/kg(M) |
| R7 | Coaly shale and/or carbonaceous shale |
| T40 | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood |
| P3 | Burn zone |

**Abbreviations**

| | | | |
|---|---|---|---|
| Bldr. | Boulders. | Mdst | Mudstone. |
| Carb. Sh. | Carbonaceous Shale. | P. Wood | Petrified Wood. |
| Cg. | Conglomerate | Slst. | Siltstone |
| Cl. | Clay | Sdy. Gvl. | Sdy. Gravel |
| Clst | Claystone. | Sed | Sand. |
| Gvl. | Gravel. | Ss. | Sandstone. |
| Ls. | Limestone. | | |

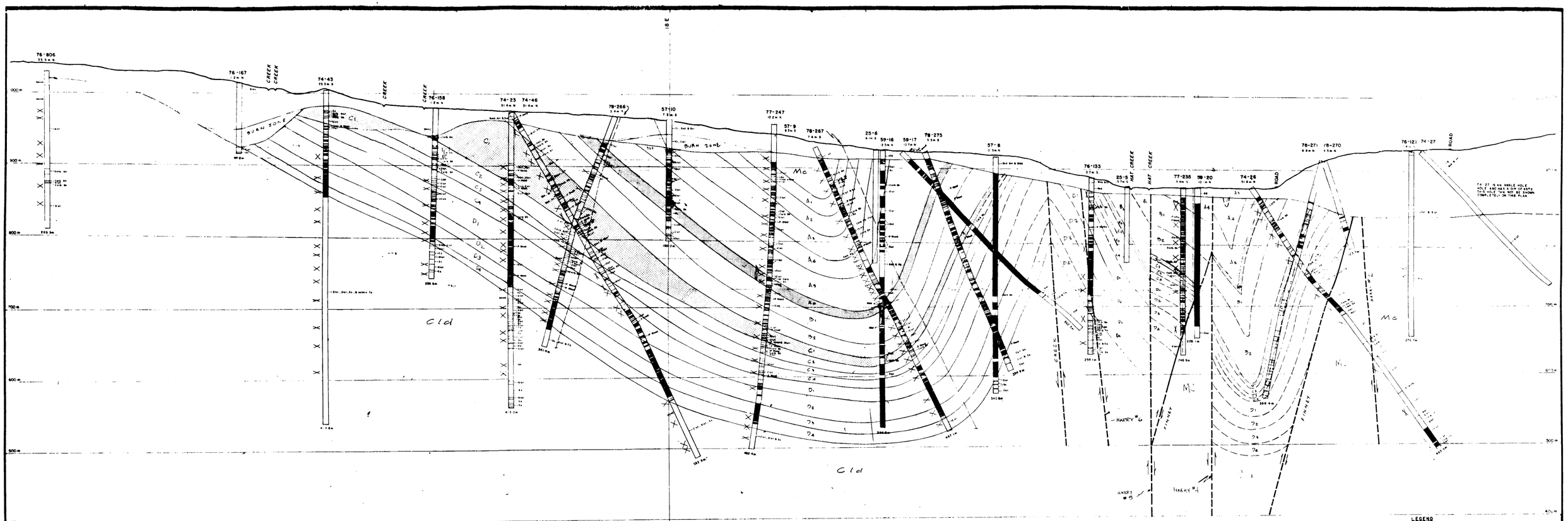
Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| DR. H.K. | MECH. | B.P. | M78-2 |
| CHKD. P.K. | ELEC. | | |
| APPD. H.K. | CIVIL | | |
| DATE JUNE 1979 | | SCALE | |

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT

# SECTION P

PLATE 24




## LEGEND

PLEISTOCENE

OB — OVERBURDEN: unconsolidated alluvium, colluvium, till, fluvioglacial deposits, glacial outwash

EOCENE

MC — MEDICINE CREEK FORMATION: claystone, siltstone, sandstone

HC — HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl

SUB ZONE G THICKNESS

| | | | |
|---|---|---|---|
| A1 : 15 - 35m | B1 : 25 - 35m | D1 : 15 - 25m | |
| A2 : 20 - 55m | B2 : 25 - 35m | D2 : 1 - 10m | |
| A3 : 25 - 45m | C1 : 0 - 170m | D3 : 1 - 25m | |
| A4 : 20 - 45m | C2 : 5 - 20m | D4 : 1 - 20m | |
| A5 : 30 - 45m | C3 : 5 - 15 m | | |
| A6 : 0 - 90m | C4 : 5 - 20m | | |

CH — COLDWATER FORMATION: claystone, siltstone, conglomerate, sandstone, shale

Boundaries: Symbols

Fault: confirmed, inferred

Contact: confirmed, inferred

Relative movement

Indicates bedding attitude

Coal Seams

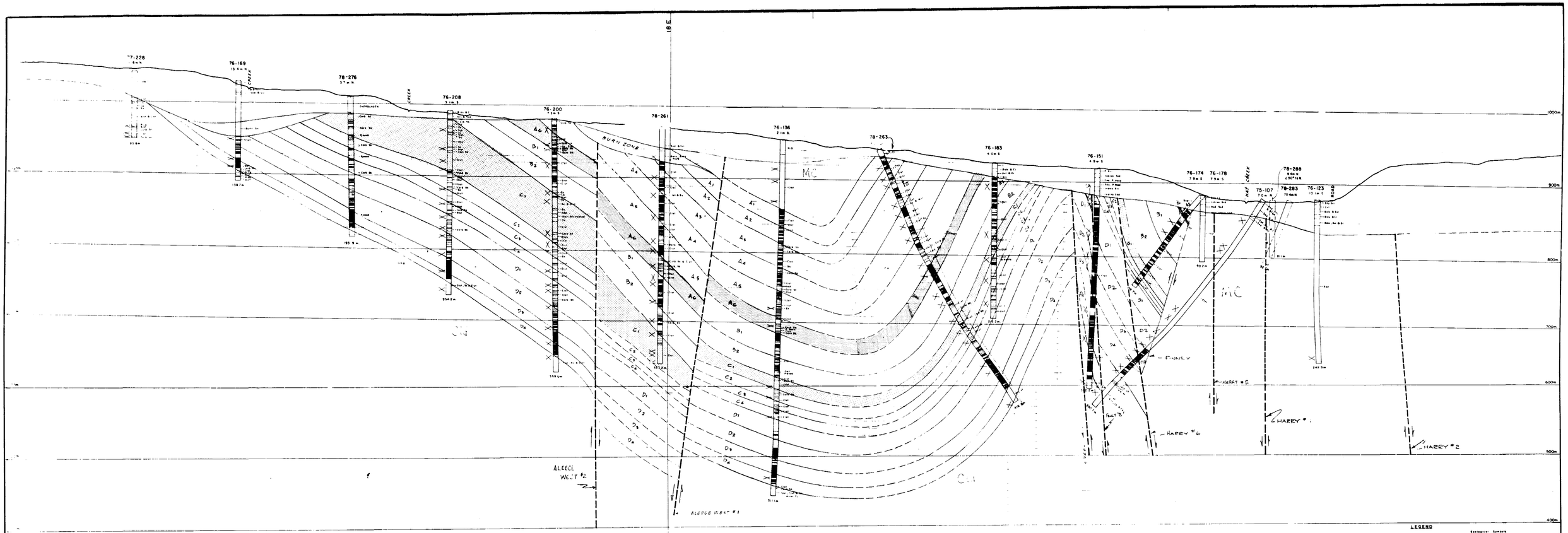
| | | |
|---|---|---|
| Blk | COAL: < 9.0% ash; | >19,750 kJ/kg (8500 |
| Gr | COAL: 9.0 - 14.5% ash; | 19,750 - 16,250 kJ/kg (8500 |
| Bw | COAL: 14.5 - 19.5% ash; | 16,250 - 9,250 kJ/kg (7000 |
| Sh | Carbonaceous shale | |
| Ts | Claystone, siltstone, conglomerate, shale, limestone, marl; petrified wood | |
| Pz | Barren zone | |

Abbreviations

| | | | |
|---|---|---|---|
| Blds | Boulders | Mst | Mudstone |
| Carb Sh | Carbonaceous Shale | P. Wood | Petrified Wood |
| Cg | Conglomerate | Slst | Siltstone |
| Cl | Clay | Sity Gvl | Silty Gravel |
| Cst | Claystone | Sd | Sand |
| Gvl | Gravel | Ss | Sandstone |
| | Limestone | | |

Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| H. Ku. | | | THERMAL DIVISION MINING DEPARTMENT |
| P. | B. D | M78-2 | HAT CREEK PROJECT |
| H. K. | | | SECTION Q |
| | June 1979 | | PLATE 25 |




## LEGEND

**PLEISTOCENE**

| | |
|---|---|
| OB | OVERBURDEN: unconsolidated alluvium, colluvium, till, hoodoos debris, glacial outwash |

**EOCENE**

| | |
|---|---|
| MC | MEDICINE CREEK FORMATION: claystone, siltstone, sandstone |
| HC | HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl |
| CH | COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale |

SUB ZONE & THICKNESS

| | | | |
|---|---|---|---|
| $A_1$ : 15 – 35m | $B_1$ : 25 – 35m | $D_1$ : 15 – 25m | |
| $A_2$ : 20 – 35m | $B_2$ : 25 – 35m | $D_2$ : 15 – 30m | |
| $A_3$ : 25 – 45m | $C_1$ : 0 – 170m | $D_3$ : 15 – 25m | |
| $A_4$ : 30 – 45m | $C_2$ : 5 – 20m | $D_4$ : 15 – 20m | |
| $A_5$ : 30 – 45m | $C_3$ : 5 – 15m | | |
| $A_6$ : 0 – 90m | $C_4$ : 5 – 20m | | |

**Geological Symbols**

- Fault: confirmed, inferred
- Contact: confirmed, inferred
- Reactive movement
- Indicated bedding attitude

**Contact Code**

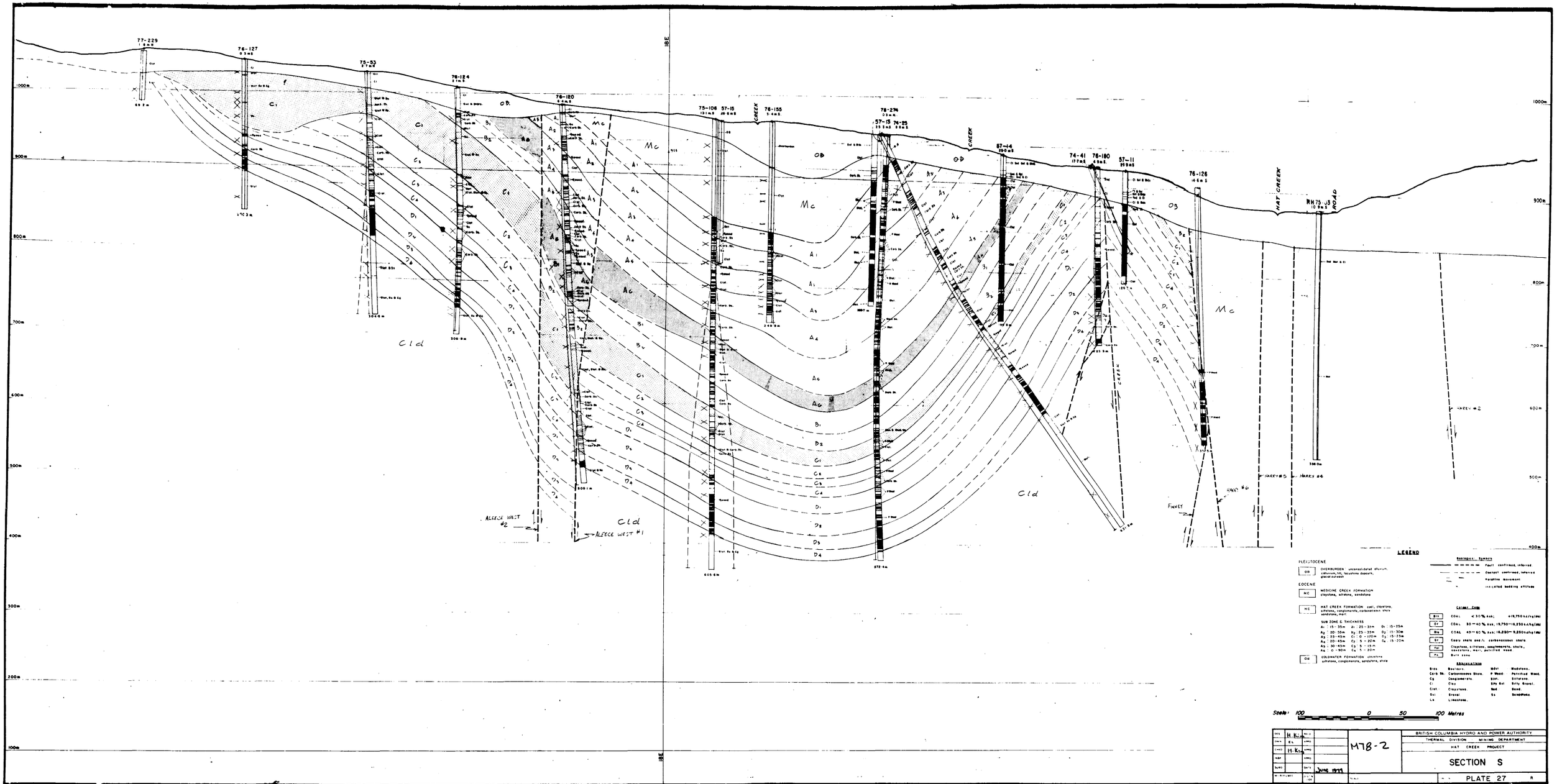
| | | |
|---|---|---|
| B1c | COAL | 4-10% Ash, 19,750 kJ/kg (dry) |
| C1 | COAL | 30-40% Ash, 19,750-16,250 kJ/kg (dry) |
| B4c | COAL | 40-60% Ash, 16,250-9,250 kJ/kg (dry) |
| S1 | Coaly shale and carbonaceous shale | |
| T4c | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood | |
| P4 | Burn zone | |

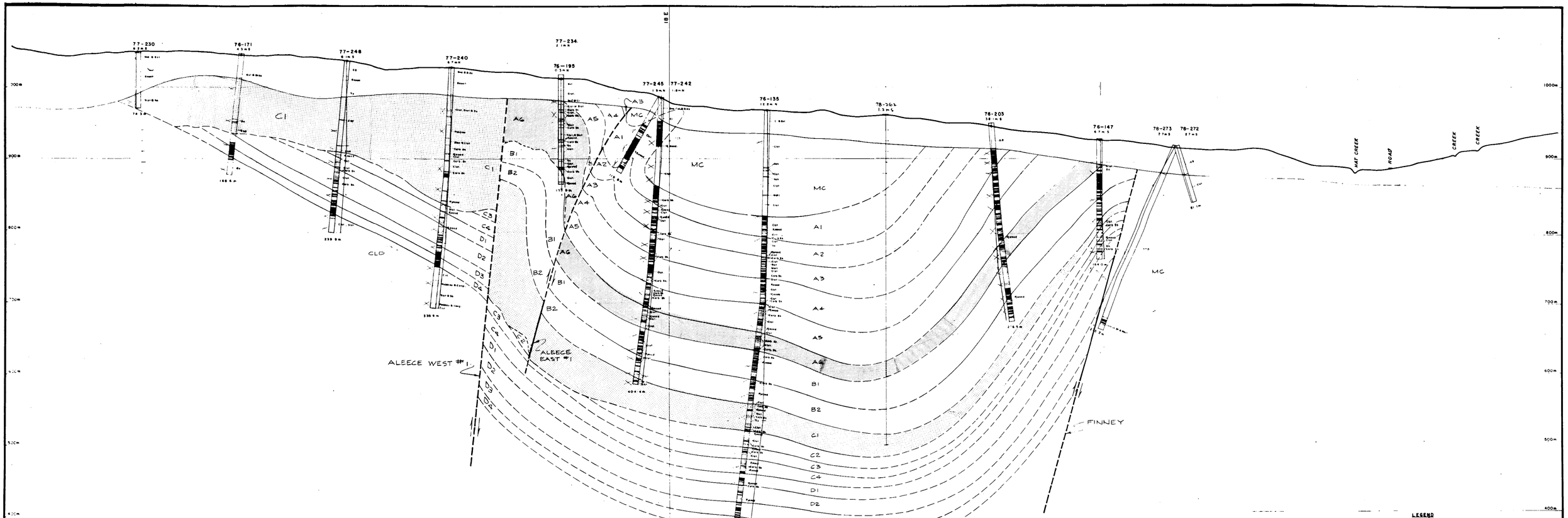
**Abbreviations**

| | | | |
|---|---|---|---|
| B1c | Bituminous | Mst | Mudstone |
| Carb Sh | Carbonaceous Shale | P Wood | Petrified Wood |
| Cg | Conglomerate | Slst | Siltstone |
| Cl | Clay | Sity Gvl | Silty Gravel |
| Cst | Claystone | Sd | Sand |
| Gvl | Gravel | Ss | Sandstone |
| Ls | Limestone | | |

Scale 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| DES. H. Kim | RECD | M78-2 | BRITISH COLUMBIA HYDRO AND POWER AUTHORITY |
| DWN. P.R. | APRD | | THERMAL DIVISION MINING DEPARTMENT |
| CHKD. H. Kim | APRD | | HAT CREEK PROJECT |
| REF. | APRD | | SECTION R |
| SUBD | DATE | June 1979 | |
| MICROFILMED | DATA CONV. | SCALE | DWG. No. PLATE 26 R |


77-229
76-127
75-53
76-124
76-120
75-106
57-15
76-155
78-274
57-14
74-41
76-180
57-11
76-126
RH.75-03
HAT CREEK
ROAD
CREEK
HAT CREEK
HARVEY #2
HARVEY #5
HARVEY #4
HARVEY #6
FINNEY
ALECE WEST #2
ALECE WEST #1
Mc
Cld
OB
1000m
900m
800m
700m
600m
500m
400m
300m
200m
100m
LEGEND
PLEISTOCENE
OB
OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash
EOCENE
MC
MEDICINE CREEK FORMATION
Claystones, siltstone, sandstone
HC
HAT CREEK FORMATION coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl
SUB ZONE C THICKNESS
A1 : 15 - 35m
A2 : 20 - 55m
A3 : 25 - 45m
A4 : 20 - 45m
A5 : 30 - 45m
A6 : 0 - 90m
B1 : 25 - 35m
B2 : 25 - 35m
C1 : 0 - 170m
C2 : 5 - 20m
C3 : 5 - 15m
C4 : 5 - 20m
D1 : 15 - 25m
D2 : 15 - 30m
D3 : 15 - 25m
D4 : 15 - 20m
Cld
COLDWATER FORMATION siltstone, siltstone, conglomerate, sandstone, shale
Geologic Symbols
Fault confirmed, inferred
Contact confirmed, inferred
Fugitive movement
Indicated bedding attitude
Colour Code
Blk COAL: < 30% ash; >19,750 kJ/kg(mo)
Gy COAL: 30-40% ash; 19,750-16,250 kJ/kg(mo)
Bn COAL: 40-60% ash; 16,250-9,250 kJ/kg(mo)
Br Carb shale and/or carbonaceous shale
Tan Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
Pk Burn zone
Abbreviations
Bldr. Boulders.
Carb Sh. Carbonaceous Shale.
Cg. Conglomerate.
Cl. Clay.
Clst. Claystone.
Gvl. Gravel.
Ls. Limestone.
Mdst. Mudstone.
P Wood. Petrified Wood.
Sst. Siltstone.
Sdy Gvl. Silty Gravel.
Sd. Sand.
Ss. Sandstone.
Scale: 100 0 50 100 Metres
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT
SECTION S
M78-2
PLATE 27
H. Ku
E.L.
H. Ku
June 1979




## LEGEND

PLEISTOCENE

| | |
|---|---|
| OB | OVERBURDEN: unconsolidated alluvium, colluvium, till, fluvatine deposits, glacial outwash |

EOCENE

| | |
|---|---|
| MC | MEDICINE CREEK FORMATION claystones, siltstones, sandstones |
| HC | HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl |
| CM | COLDWATER FORMATION claystone siltstone, conglomerate, sandstone, shale |

SUB ZONE & THICKNESS

| | | | |
|---|---|---|---|
| A1 : 15 - 35m | B1 : 25 - 35m | D1 : 15 - 25m | |
| A2 : 20 - 50m | B2 : 25 - 35m | D2 : 15 - 30m | |
| A3 : 25 - 45m | C1 : 0 - 170m | D3 : 15 - 25m | |
| A4 : 20 - 45m | C2 : 5 - 20m | D4 : 10 - 20m | |
| A5 : 30 - 45m | C3 : 5 - 15m | | |
| A6 : 0 - 90m | C4 : 5 - 20m | | |

Geologic Symbols

- Fault confirmed, inferred
- Contact confirmed, inferred
- Relative movement
- Indicated bedding attitude

Colour Code

| | | |
|---|---|---|
| B1+ | COAL | <30% ash, >19,750 J/g(8400) |
| D1 | COAL | 30-40% ash, 19,750-16,250 J/g(8400) |
| B1- | COAL | 40-60% ash, 16,250-9,250 J/g(8400) |
| C1 | Coaly shale and/or carbonaceous shale | |
| Y1 | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood | |
| R1 | Burnt zone | |

Abbreviations

| | | | |
|---|---|---|---|
| Blds | Boulders. | Mrl | Mudstone. |
| Carb Sh | Carbonaceous Shale | P Wood | Petrified Wood. |
| Cg | Conglomerate | Slt | Siltstone |
| Cl | Clay | Sty Gvl | Silty Gravel. |
| Cst | Claystone | Sd | Sand |
| Gvl | Gravel | Ss | Sandstone |
| Ls | Limestone. | | |

Scale: 100 0 50 100 Metres

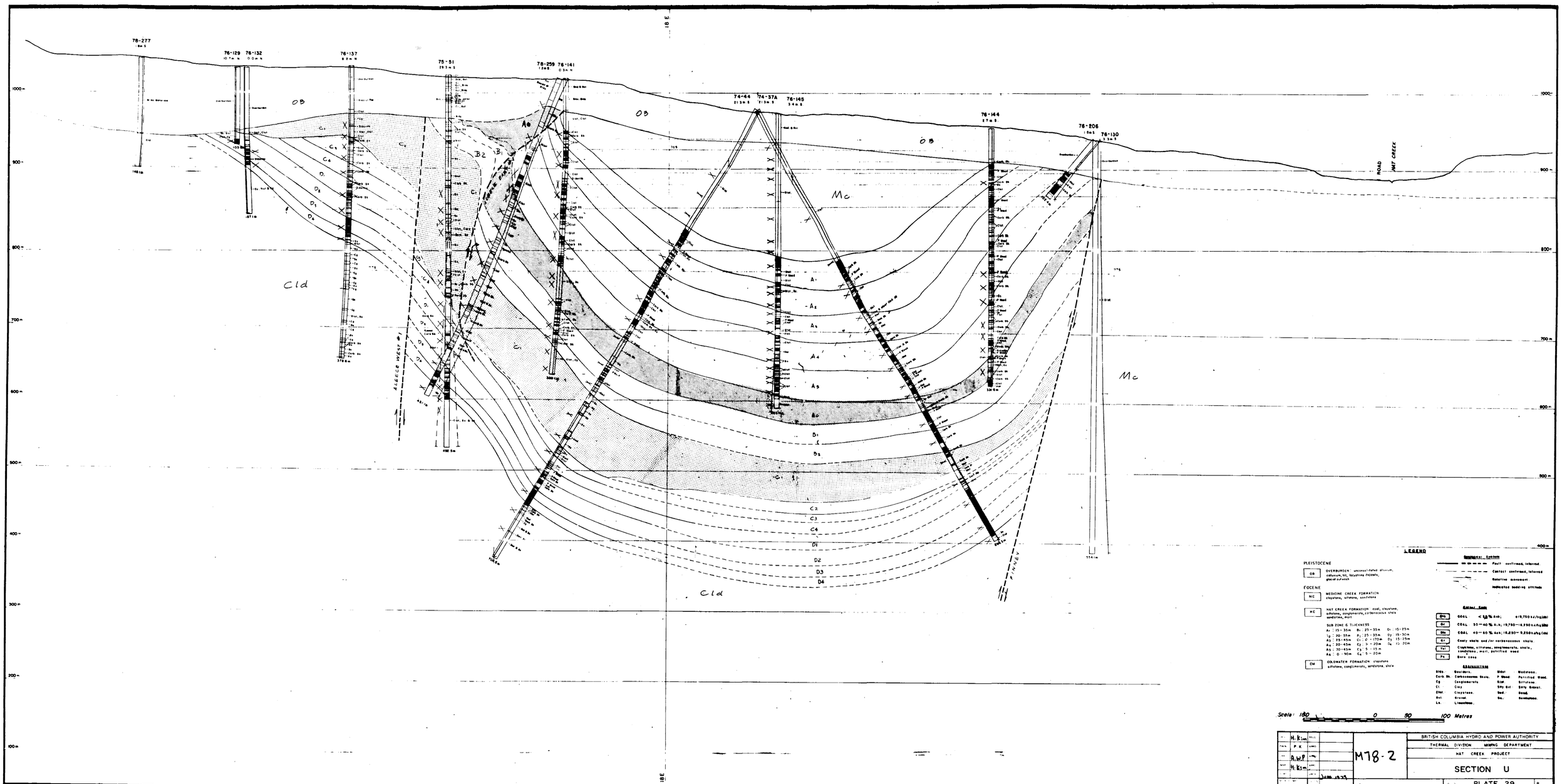
| | | | |
|---|---|---|---|
| DR'N | H. K. | REC'D | |
| CHK'D | E.L.L. | APP'D | B.D. |
| CHK'D | | APP'D | |
| SUPT | | APP'D | |
| SUPT | | DATE | June 8, 1979 |
| REVISIONS | | | |

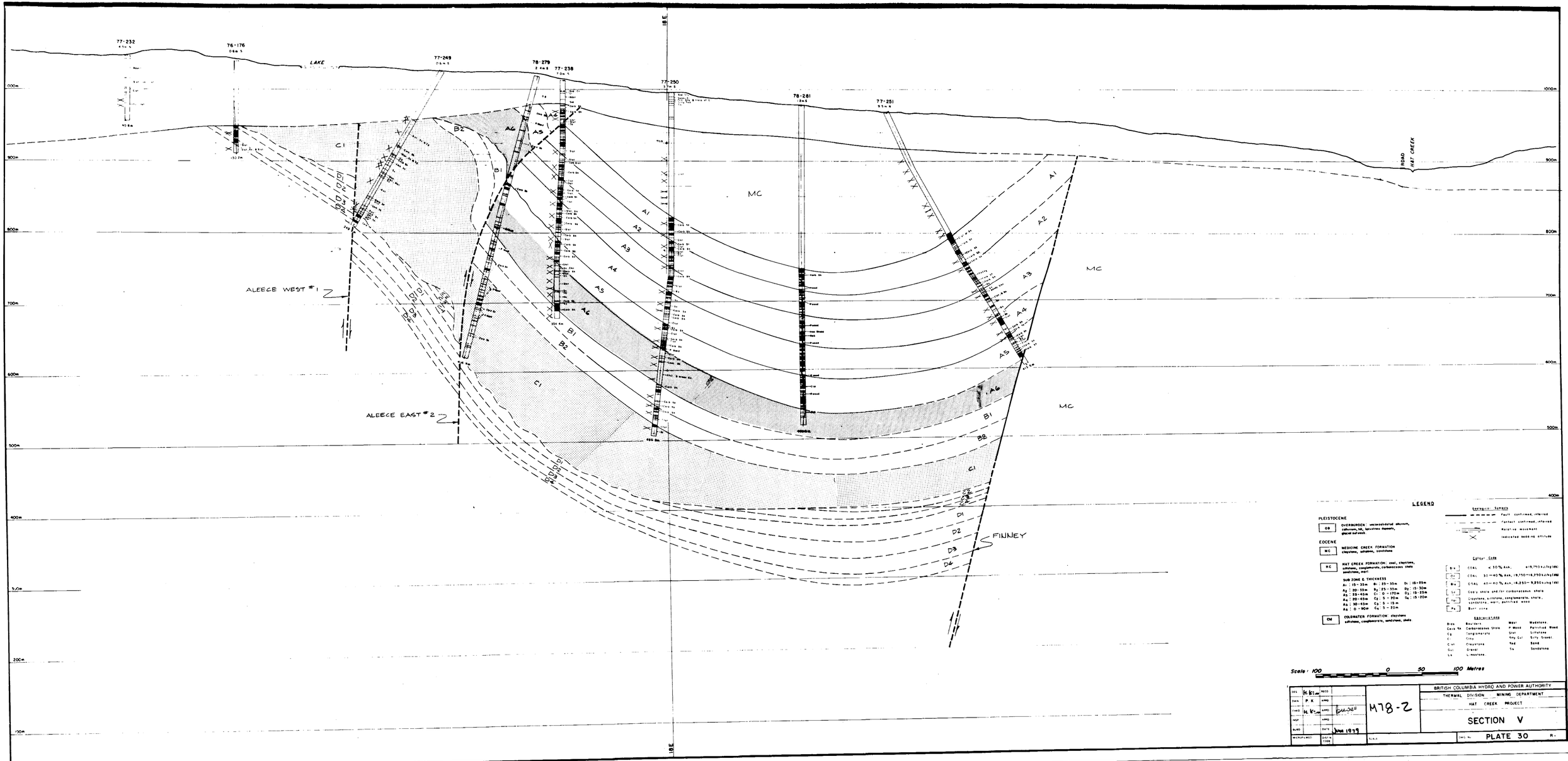
M78-2

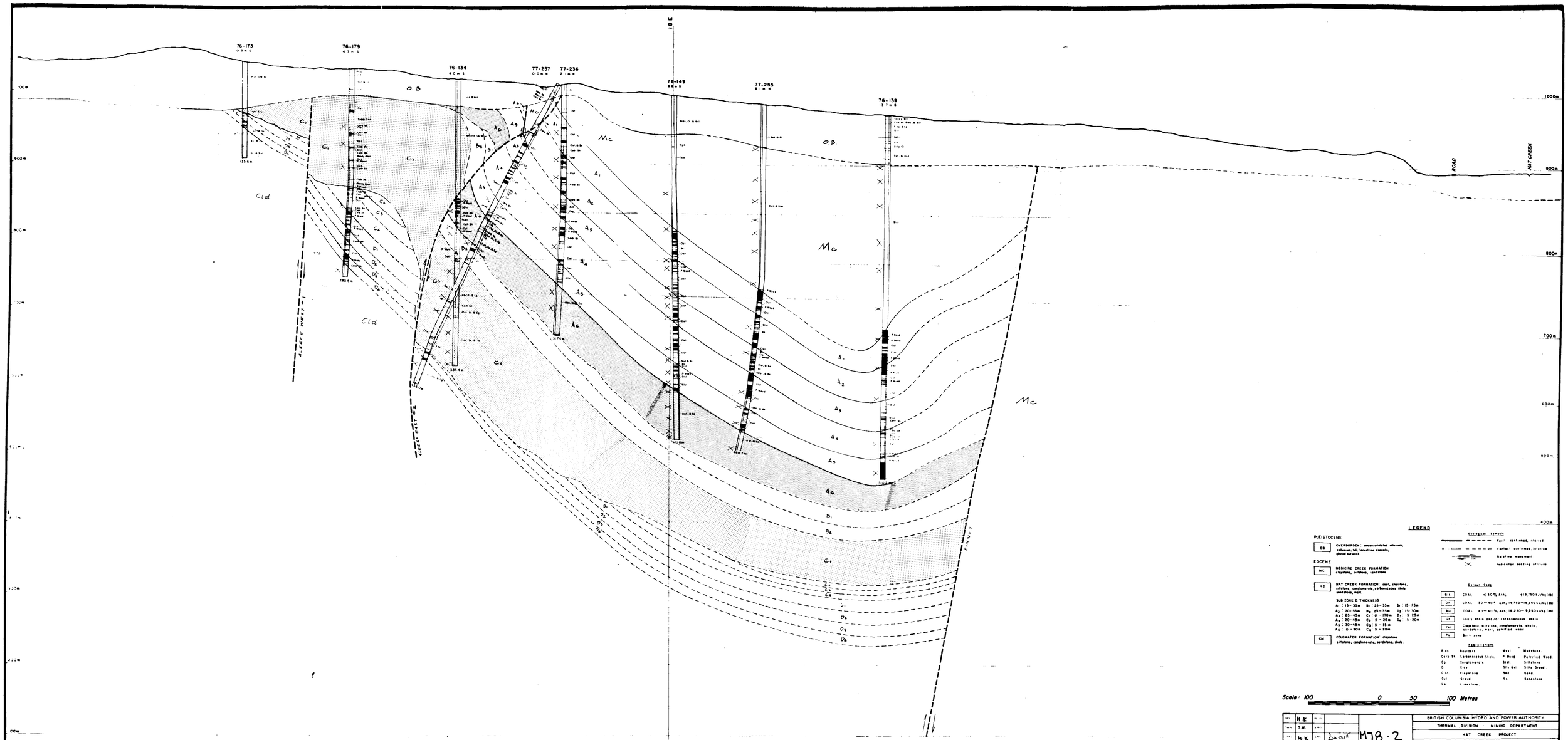
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION - MINING DEPARTMENT
HAT CREEK PROJECT

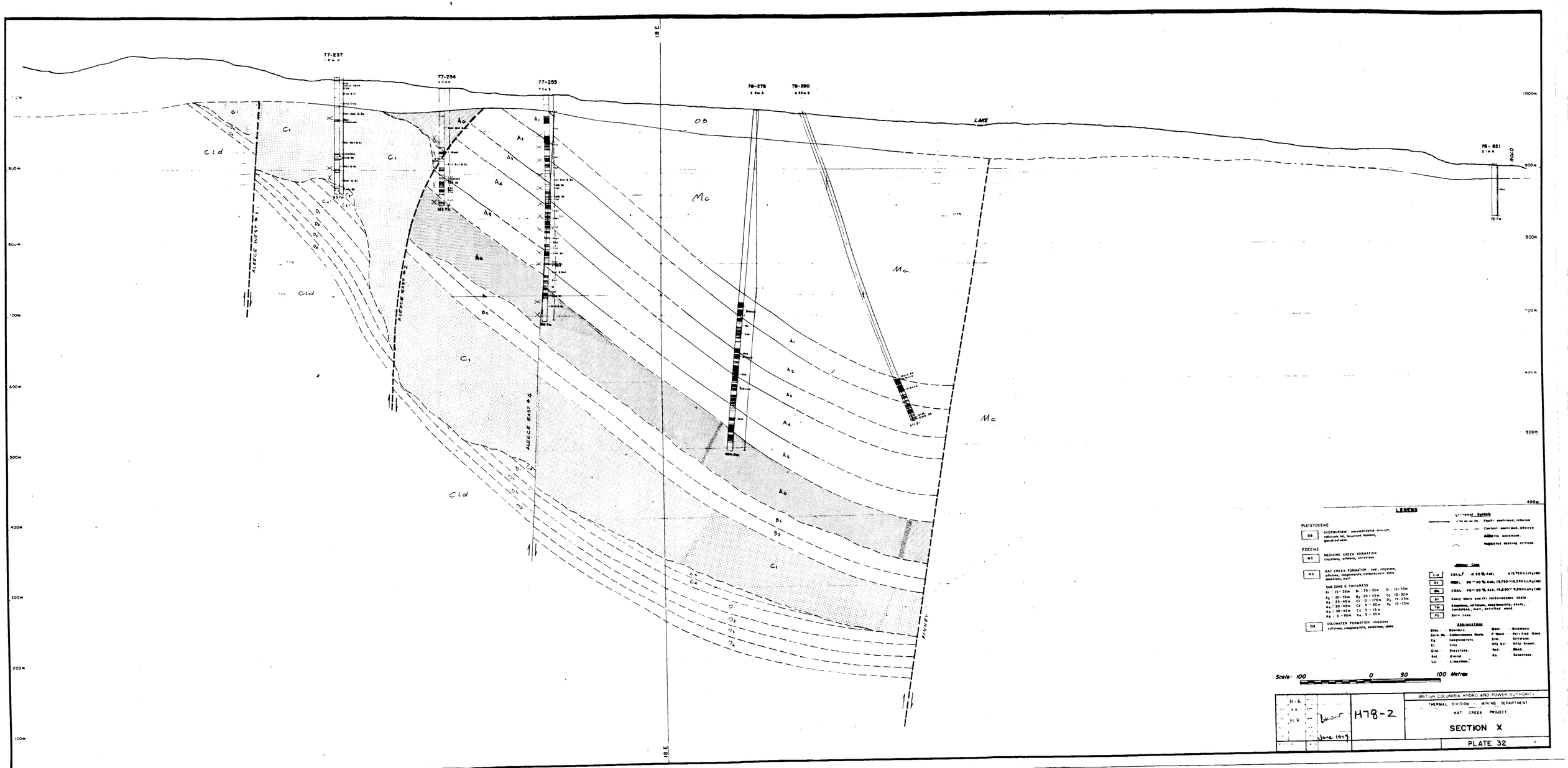
# SECTION T

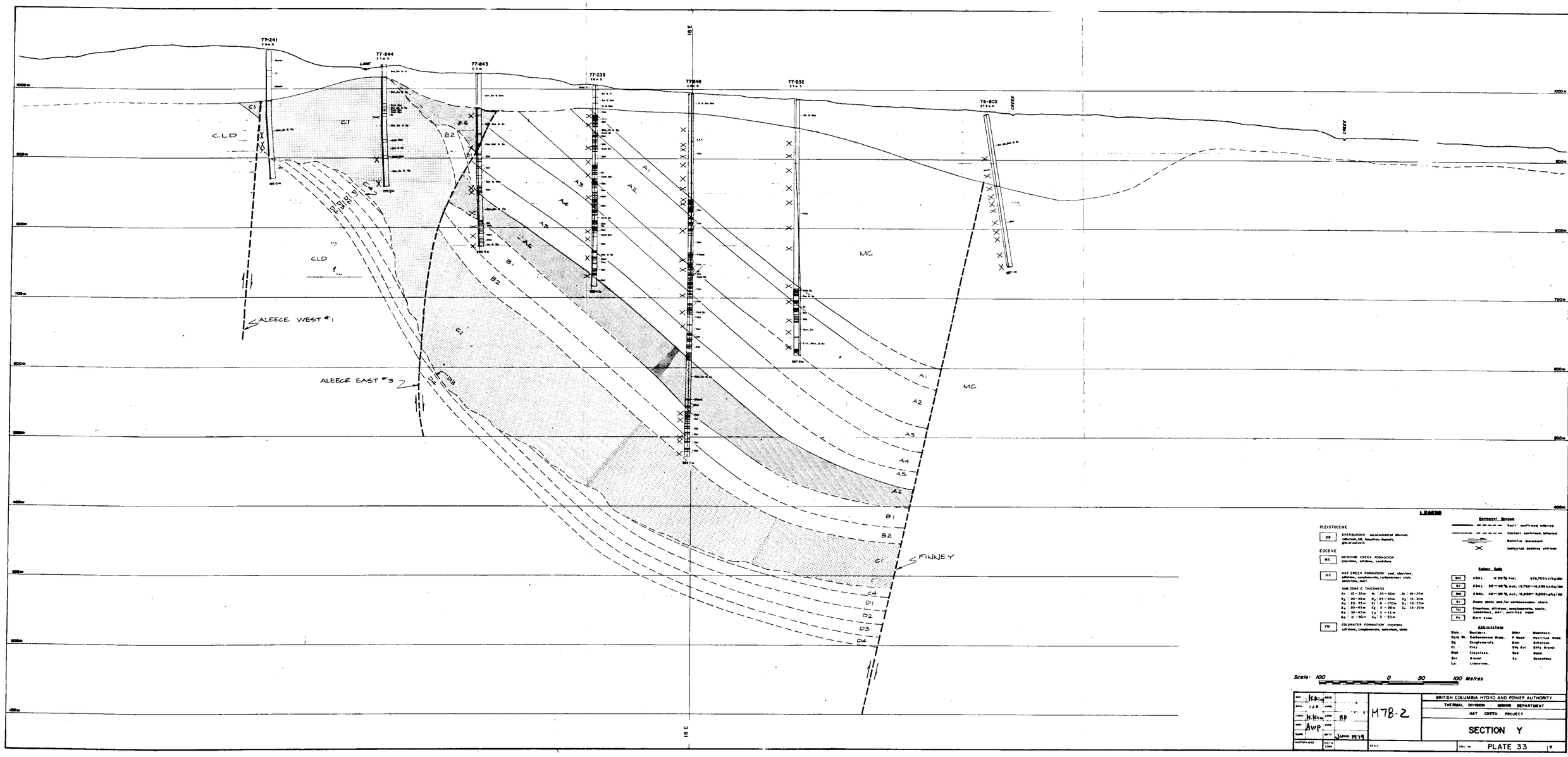
DWG. No. PLATE 28 R/


76-277
76-129
76-132
76-137
75-51
78-259
76-141
74-44
74-37A
76-145
76-144
76-206
76-130
OB
Cld
Mc
ALECES WEST
FINNEY
ROAD
HAT CREEK
LEGEND
PLEISTOCENE
OB OVERBURDEN: unconsolidated alluvium, colluvium, till, locustrine deposits, glacial outwash
EOCENE
MC MEDICINE CREEK FORMATION claystone, siltstone, sandstone
HC HAT CREEK FORMATION coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl
SUB ZONE & THICKNESS
A1 : 15 - 35m B1 : 25 - 35m D1 : 15 - 25m
A2 : 20 - 55m B2 : 25 - 35m D2 : 15 - 30m
A3 : 25 - 45m C1 : 0 - 170m D3 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m D4 : 10 - 20m
A5 : 30 - 45m C3 : 5 - 15m
A6 : 0 - 90m C4 : 5 - 20m
CM COLDWATER FORMATION claystone, siltstone, conglomerate, sandstone, shale
Geological Symbols
Fault confirmed, inferred.
Contact confirmed, inferred
Relative movement
Indicated bedding attitude
Borehole Code
Bhs COAL < 1.0% Ash; 19,750 J/kg(dm)
Br COAL 30-40% Ash; 19,750-18,250 J/kg(dm)
Bhs COAL 40-60% Ash; 18,250-9,250 J/kg(dm)
Bt Coaly shale and/or carbonaceous shale.
Pst Claystone, siltstone, conglomerate, shale, sandstone; marl; petrified wood
Pk Bore hole
Abbreviations
Blds. Boulders.
Carb. Sh. Carbonaceous Shale.
Cg Conglomerate.
Cl Clay
Clst Claystone.
Gvl Gravel
Ls Limestone.
Mdst Mudstone.
P. Wood Petrified Wood.
Slst Siltstone.
Sdy Gvl Sandy Gravel.
Sd. Sand.
Sn. Sandstone.
Scale: 1:80
0 50 100 Metres
M78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT
SECTION U
PLATE 29
JUNE 1979


77-232
76-176
LAKE
77-249
78-279
77-238
77-250
78-261
77-251
ROAD
HAT CREEK
1000m
900m
800m
700m
600m
500m
400m
300m
200m
100m
ALEECE WEST #1
ALEECE EAST #2
FINNEY
MC
A1
A2
A3
A4
A5
A6
B1
B2
C1
D1
D2
D3
D4
LEGEND
PLEISTOCENE
OB
OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash.
EOCENE
MC
MEDICINE CREEK FORMATION
claystone, siltstone, sandstone
HC
HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl
SUB ZONE & THICKNESS
A1 : 15 - 35m B1 : 25 - 35m D1 : 15 - 25m
A2 : 20 - 55m B2 : 25 - 35m D2 : 15 - 30m
A3 : 25 - 45m C1 : 0 - 170m D3 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m D4 : 15 - 20m
A5 : 30 - 45m C3 : 5 - 15m
A6 : 0 - 90m C4 : 5 - 20m
CM
COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale
Geologic Symbols
Fault confirmed, inferred
Contact confirmed, inferred
Relative movement
Indicated bedding attitude
Coloring Code
B1a COAL < 30% Ash: 6,750 kJ/kg (16)
B2 COAL 30 - 40% Ash: 19,750 - 16,250 kJ/kg (46)
B3a COAL 40 - 60% Ash: 16,250 - 9,250 kJ/kg (60)
Cs Coaly shale and/or carbonaceous shale
Ss Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
Pa Buff zone
Abbreviations
Bldg Boulders
Cals Sh Carbonaceous Shale
Cg Conglomerate
C Clay
Cst Claystone
Gvl Gravel
Ls Limestone
Marl Mudstone
P Wood Petrified Wood
Slst Siltstone
Silty Gvl Silty Gravel
Sand Sand
Ss Sandstone
Scale: 100 0 50 100 Metres
DES H.K.
DWN P.K.
CHKD H.K.
APPD
DATE June 1979
MICROFILMED
DATE CODE
M78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT
SECTION V
DWG No. PLATE 30 R-


76-173
76-179
76-134
77-257
77-236
76-149
77-255
76-139
OB
Mc
Cld
ROAD
HAT CREEK
1000m
900m
800m
700m
600m
500m
400m
LEGEND
PLEISTOCENE
OB OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash.
EOCENE
MC MEDICINE CREEK FORMATION claystone, siltstone, sandstone
HC HAT CREEK FORMATION coal; claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl.
SUB ZONE & THICKNESS
A1 : 15 - 35m B1 : 25 - 35m B2 : 15 - 15m
A2 : 20 - 55m B3 : 25 - 35m B3 : 15 - 50m
A3 : 25 - 45m C1 : 0 - 170m B4 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m B5 : 15 - 20m
A5 : 30 - 45m C3 : 5 - 15m
A6 : 0 - 80m C4 : 5 - 30m
CH COLDWATER FORMATION claystone siltstone, conglomerate, sandstone, shale
Geological Symbols
Fault confirmed, inferred
Contact confirmed, inferred
Relative movement
Indicated bedding attitude
Coal: Code
B1s COAL <30% ash; >19,750kJ/kg(ab)
G1 COAL 30-40% ash; 19,750-16,250kJ/kg(ab)
B2s COAL 40-60% ash; 16,250-9,250kJ/kg(ab)
G1 Coals shale and/or carbonaceous shale
Tet Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
Pz Burn zone
Abbreviations
Bldr Boulders. Mst Mudstone.
Carb Sh Carbonaceous Shale. P Wood Petrified Wood.
Cg Conglomerate Slst Siltstone
Cl Clay Sity Gvl Silty Gravel.
Cst Claystone Sd Sand.
Gvl Gravel Ss Sandstone
Ls Limestone.
Scale: 100 0 50 100 Metres
H.K.
S.W.
H.K.
June 1979
M78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION - MINING DEPARTMENT
HAT CREEK PROJECT
SECTION W
PLATE 31


77-237
77-254
77-253
78-279
78-290
78-821
LAKE
OB
Mc
Cld
C1
A1
A2
A3
A4
A5
A6
B1
B2
D2
D3
D4
D5
ALECE WEST #1
ALECE EAST #2
ALECE EAST #4
RIVER
1000m
900m
800m
700m
600m
500m
400m
300m
200m
100m
LEGEND
PLEISTOCENE
OB OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrium deposits, glacial outwash
EOCENE
MC MEDICINE CREEK FORMATION: claystone, siltstone, sandstone
HC HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl
SUB ZONE & THICKNESS
A1 : 15 - 35m B1 : 25 - 35m D1 : 15 - 25m
A2 : 20 - 35m B2 : 25 - 35m D2 : 15 - 30m
A3 : 25 - 45m C1 : 0 - 170m D3 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m D4 : 15 - 20m
A5 : 30 - 45m C3 : 5 - 15m
A6 : 0 - 90m C4 : 5 - 20m
CM COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale.
Structural Symbols
Fault: confirmed, inferred.
Contact: confirmed, inferred.
Relative movement.
Inferred bedding attitude
Borehole Code
1-9 COAL/ <50% Ash; 19,750 J/g (Mj)
D2 COAL: 50-60% Ash; 19,750-14,250 J/g (Mj)
Dbu COAL: 60-80% Ash; 14,250-9,250 J/g (Mj)
S1 Carry shale and/or carbonaceous shale
Tuf Tuffaceous, siltstone, conglomerate, shale, sandstone, marl, petrified wood
P1 Bore zone
Abbreviations
Blds. Boulders.
Carb. Sh. Carbonaceous Shale.
Cg Conglomerate
Cl. Clay.
Clst. Claystone.
Gvl. Gravel.
Ls. Limestone.
Mdst. Mudstone.
P Wood Petrified Wood.
Slst. Siltstone.
Sty Gvl. Silty Gravel.
Sd. Sand.
Ss Sandstone.
Scale: 100 0 50 100 Metres
H-K
H-K
June 1979
H78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION — MINING DEPARTMENT
HAT CREEK PROJECT
SECTION X
PLATE 32




## LEGEND

PLEISTOCENE

| | |
|---|---|
| OB | OVERBURDEN : unconsolidated alluvium, colluvium, lahar, lacustrine deposits, glacial outwash |

EOCENE

| | |
|---|---|
| MC | MEDICINE CREEK FORMATION claystone, siltstone, sandstone |
| HC | HAT CREEK FORMATION : coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl. |
| CN | COLDWATER FORMATION claystone siltstone, conglomerate, sandstone, shale |

SUB ZONE C THICKNESS

| | | | |
|---|---|---|---|
| A1 : 15 - 35m | B1 : 25 - 35m | D1 : 15 - 25m | |
| A2 : 20 - 35m | B2 : 25 - 35m | D2 : 15 - 30m | |
| A3 : 25 - 45m | C1 : 0 - 170m | D3 : 15 - 25m | |
| A4 : 20 - 45m | C2 : 5 - 20m | D4 : 15 - 20m | |
| A5 : 30 - 45m | C3 : 5 - 15m | | |
| A6 : 0 - 90m | C4 : 5 - 20m | | |

**Contact Symbols**

Fault confirmed, inferred

Contact confirmed, inferred

Relative movement

Indicated bedding attitude

**Colour Code**

| | |
|---|---|
| Brn | COAL : <30% Ash; 9,750 b.t./kg (8) |
| Gr | COAL : 30 - 40 % Ash; 19,750 - 19,250 b.t./kg (8) |
| Blu | COAL : 40 - 50 % Ash; 19,250 - 9,250 b.t./kg (8) |
| Gr | Coaly shale and/or carbonaceous shale |
| Yel | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood |
| Pk | Burn zone |

**Abbreviations**

| | | | |
|---|---|---|---|
| Stns. | Boulders. | Sltst | Siltstone. |
| Carb Sh. | Carbonaceous Shale. | P Wood | Petrified Wood. |
| Cg | Conglomerate | Slst | Siltstone |
| Cl. | Clay. | Sdy Gvl | Sdy Gravel. |
| Stst. | Claystone. | Sd | Sand. |
| Gvl | Gravel | Ss | Sandstone. |
| Ls | Limestone. | | |

Scale: 100 0 50 100 Metres

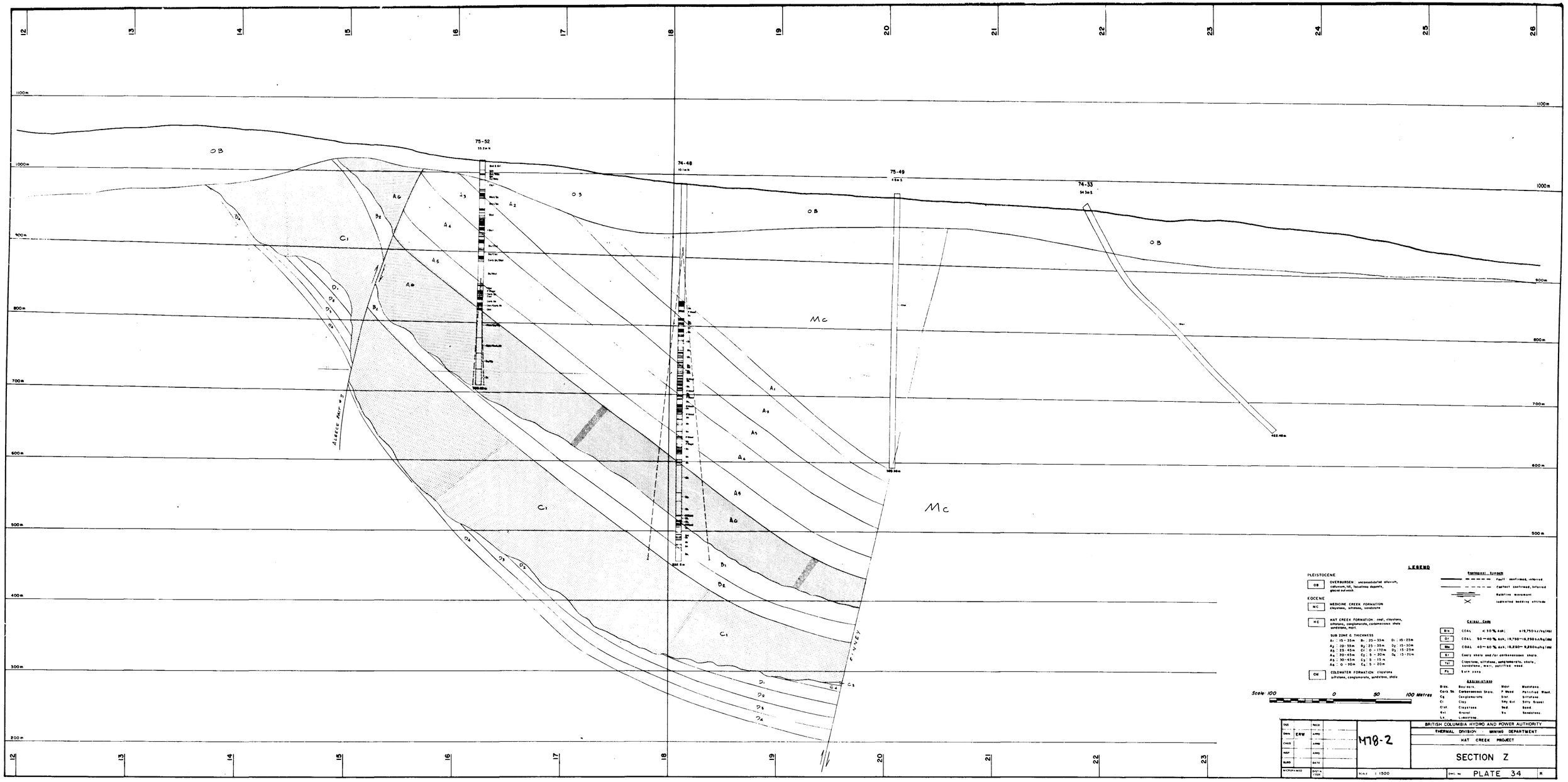
| | | | |
|---|---|---|---|
| DR'N | H.K.Kim | CHK'D | |
| DR'N | I.J.R. | APP'D | |
| CHK'D | H.K.Kim | DATE | 8D |
| APP'D | AWP | APP'D | |
| SUBM | | DATE | June 1979 |
| ENGINEERING | | DATE CONC | |

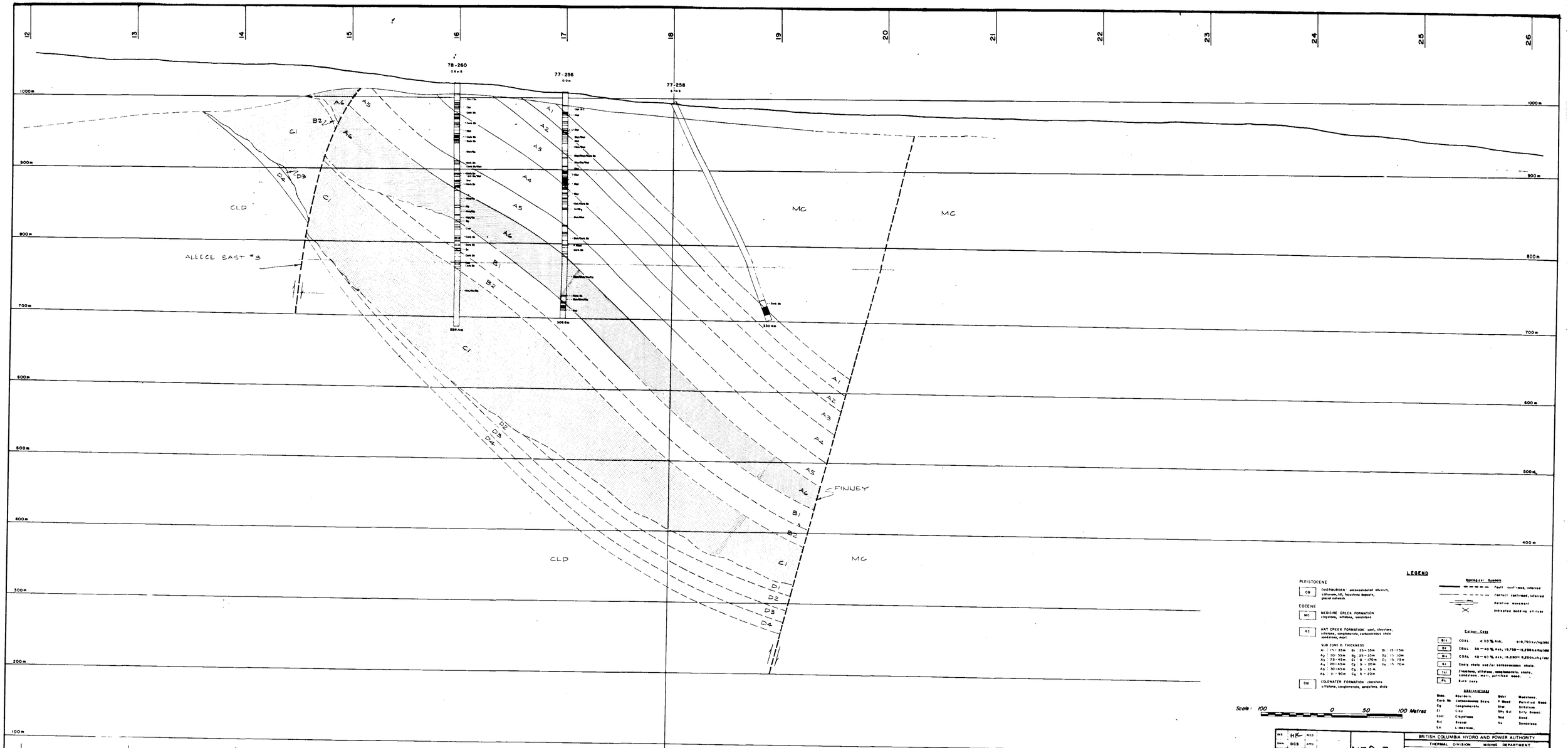
M78-2

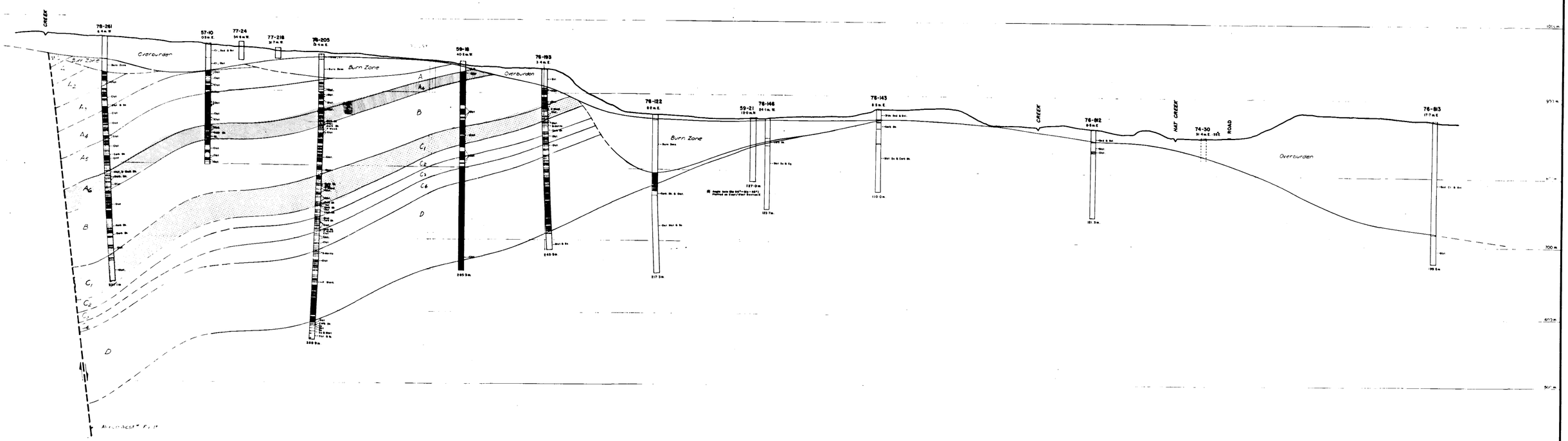
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION - ENGING DEPARTMENT
HAT CREEK PROJECT

# SECTION Y

DWG. No. PLATE 33 R


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
1100m
1000m
900m
800m
700m
600m
500m
400m
300m
200m
OB
75-52
74-48
75-49
74-33
Mc
C1
A1
A2
A3
A4
A5
A6
B1
B2
D1
D2
D3
D4
ALBERCE FAULT
FAULT
LEGEND
PLEISTOCENE
OB
OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash
EOCENE
MC
MEDICINE CREEK FORMATION
claystone, siltstone, sandstone
HC
HAT CREEK FORMATION coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl.
SUB ZONE & THICKNESS
A1 : 15 - 33m B1 : 25 - 33m D1 : 15 - 25m
A2 : 10 - 35m B2 : 23 - 33m D2 : 15 - 30m
A3 : 25 - 45m C1 : 0 - 170m D3 : 15 - 25m
A4 : 20 - 45m C2 : 5 - 20m D4 : 15 - 20m
A5 : 30 - 45m C3 : 5 - 15 m
A6 : 0 - 90m C4 : 5 - 20m
CH
COLDWATER FORMATION claystone siltstone, conglomerate, sandstone, shale
Fault confirmed, inferred
Contact confirmed, inferred
Relative movement
Indicated bedding attitude
Coal Code
B1s
COAL <10% Ash; >19,750 kJ/kg (HB)
O1
COAL 30-40% Ash; 19,750-16,250 kJ/kg (HB)
B2s
COAL 40-60% Ash; 16,250-9,250 kJ/kg (HB)
S1
Coaly shale and/or carbonaceous shale.
Ts1
Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
P1s
Soft zone
ABBREVIATIONS
Bldr. Boulders.
Carb. Sh. Carbonaceous Shale.
Cg Conglomerate
Cl Clay
Cst Claystone
Gvl Gravel
Ls Limestone
Mst Mudstone.
P. Wood Petrified Wood.
Slt Siltstone
Sdy Gvl Sdy Gravel
Sd Sand
Ss Sandstone
Scale: 100 0 50 100 Metres
DRN ERW
CHKD
APPD
MAP
BURD
DATE
MICROFILMED
DATE / CODE
478-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT
SECTION Z
SCALE 1:1500
DWG. No PLATE 34
R


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
1000 m
900 m
800 m
700 m
600 m
500 m
400 m
300 m
200 m
100 m
78-260
77-256
77-258
CLD
MC
ALLECE EAST #3
FINJUEY
A1
A2
A3
A4
A5
A6
B1
B2
C1
D1
D2
D3
D4
LEGEND
PLEISTOCENE
OB
OVERBURDEN : unconsolidated alluvium, colluvium, till, lacustrine deposit, glacial outwash
EOCENE
MC
MEDICINE CREEK FORMATION
claystone, siltstone, sandstone
HC
HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl.
SUB ZONE & THICKNESS
A1 : 15 - 35 m B1 : 25 - 35 m D1 : 15 - 25 m
A2 : 20 - 50 m B2 : 25 - 35 m D2 : 15 - 30 m
A3 : 25 - 45 m C1 : 0 - 170 m D3 : 15 - 25 m
A4 : 20 - 45 m C2 : 5 - 20 m D4 : 15 - 70 m
A5 : 30 - 45 m C3 : 5 - 15 m
A6 : 0 - 90 m C4 : 5 - 20 m
CM
COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale
Geologic Symbols
Fault confirmed, inferred
Contact confirmed, inferred
Relative movement
Indicated bedding attitude
Coal Zones
B1a COAL < 30 % Ash; 6 18,750 kJ/kg (dm)
B2 COAL 30 - 40 % Ash, 19,750 - 16,290 kJ/kg (dm)
B2a COAL 40 - 60 % Ash, 16,290 - 9,250 kJ/kg (dm)
B3 Carb shale and/or carbonaceous shale
T2 Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood.
P1 Burn zone
Abbreviations
Bldr. Boulders.
Carb Sh Carbonaceous Shale.
Cg Conglomerate.
Cl Clay
Cst Claystone
Gvl Gravel
Ls Limestone.
Mdst Mudstone.
P. Wood Petrified Wood.
Slst Siltstone.
Sity Gvl Silty Gravel
Sd Sand.
Ss Sandstone.
Scale: 100 0 50 100 Metres
DR. HK
DATE
CHKD. DCB
DATE
APPD. HK
DATE
M78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT
SECTION AA
PLATE 25




## LEGEND

**Geological Symbols**

Fault - confirmed, inferred.

Contact - confirmed, inferred.

Relative movement.

Indicated bedding attitude

PLEISTOCENE

OB — OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposit, glacial outwash.

EOCENE

MC — MEDICINE CREEK FORMATION: claystone, siltstone, sandstone

HC — HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl.

SUB ZONE & THICKNESS

| | | | |
|---|---|---|---|
| A: | 15 - 35m | B: | 25 - 35m |
| $A_2$ | 20 - 35m | $B_2$ | 25 - 35m |
| $A_3$ | 25 - 45m | $C_1$ | 0 - 170m |
| $A_4$ | 30 - 45m | $C_2$ | 5 - 20m |
| $A_5$ | 30 - 45m | $C_3$ | 5 - 15 m |
| $A_6$ | 0 - 90m | $C_4$ | 5 - 20m |
| | | D: | 15 - 25m |
| | | $D_2$ | 15 - 30m |
| | | $D_3$ | 15 - 25m |
| | | $D_4$ | 15 - 20m |

CH — COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale

**Coal Code**

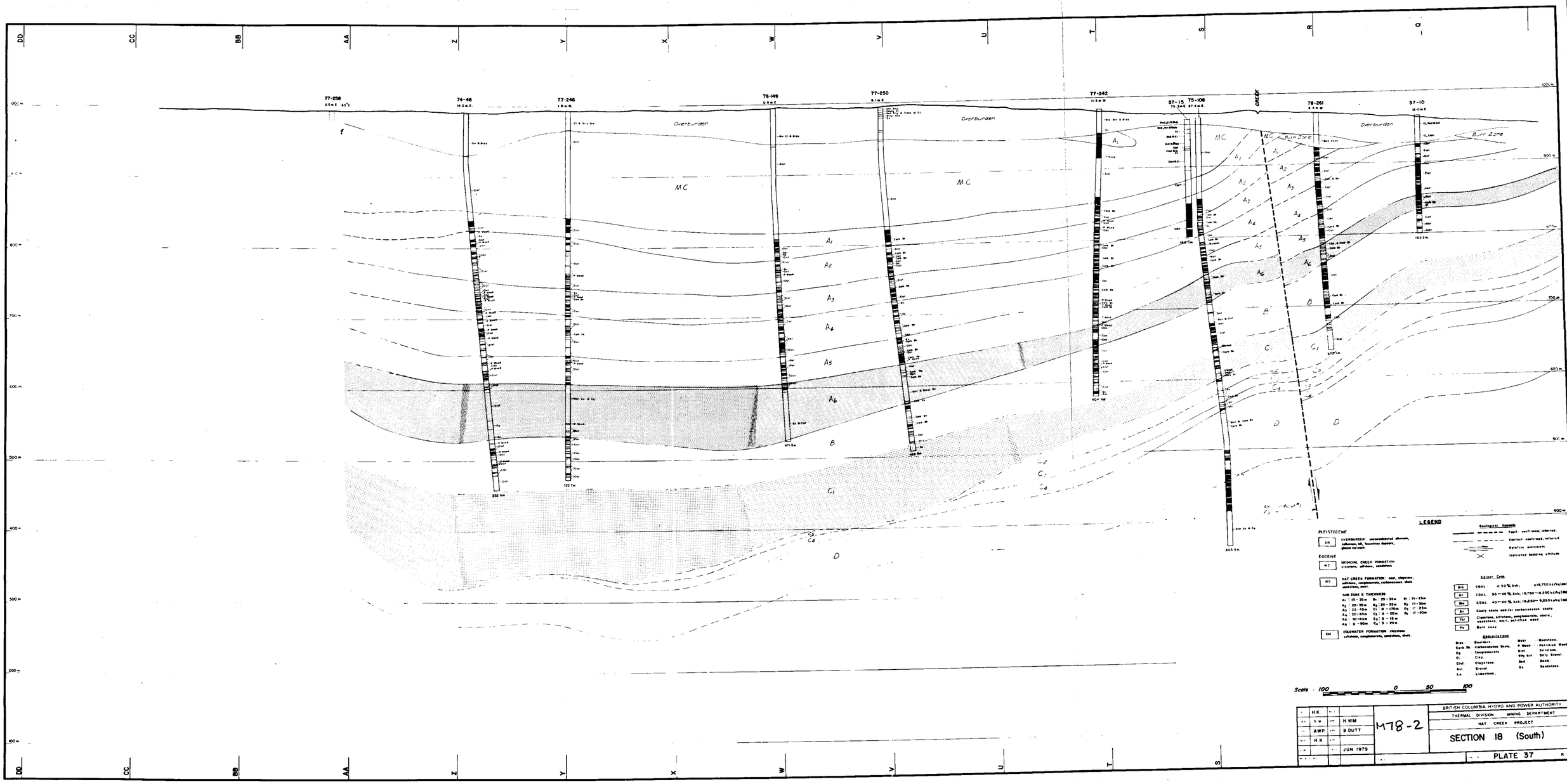
| | | |
|---|---|---|
| B1S | COAL: < 30% Ash; | 6 19,750 kJ/kg (Mb) |
| O1 | COAL: 30 — 40% Ash; | 19,750 — 18,250 kJ/kg (Mb) |
| Bm | COAL: 40 — 60% Ash; | 18,250 — 9,250 kJ/kg (Mb) |
| S1 | Coaly shale and/or carbonaceous shale. | |
| Tol | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood | |
| Pb | Burn zone. | |

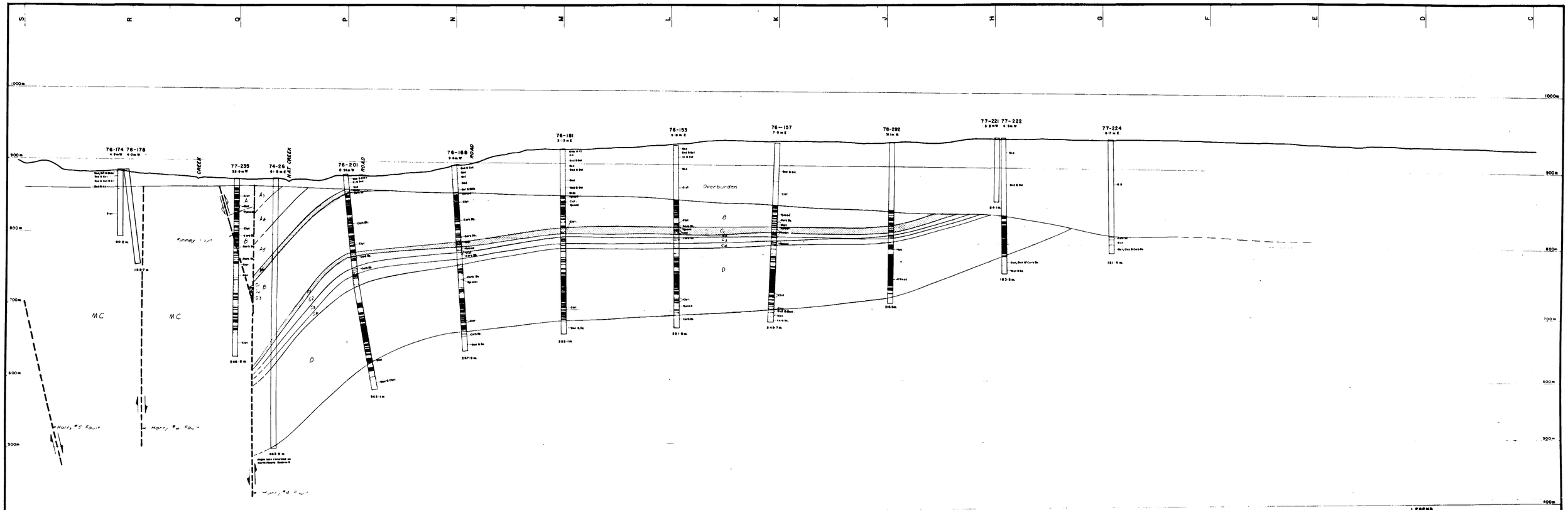
**Abbreviations**

| | | | |
|---|---|---|---|
| Bldr. | Boulders. | Mdst. | Mudstone. |
| Carb. Sh. | Carbonaceous Shale. | P. Wood | Petrified Wood. |
| Cg. | Conglomerate. | Slt. | Siltstone. |
| Cl. | Clay. | Sly Sil. | Silty Sandst. |
| Cst. | Claystone. | Sd. | Sand. |
| Gvl. | Gravel. | Ss. | Sandstone. |
| Ls. | Limestone. | | |

Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| H.K. | | M78-2 | BRITISH COLUMBIA HYDRO AND POWER AUTHORITY |
| S.W. | | | THERMAL DIVISION MINING DEPARTMENT |
| | | | HAT CREEK PROJECT |
| | June 79 | | SECTION 18 (North) |
| | | | PLATE 36 |


DD
CC
BB
AA
Z
Y
X
W
V
U
T
S
R
Q
1000 m
900 m
800 m
700 m
600 m
500 m
400 m
300 m
200 m
100 m
77-258
74-48
77-246
76-149
77-250
77-242
57-15 75-106
78-261
57-10
Overburden
Burr Zone
MC
A1
A2
A3
A4
A5
A6
B
C1
C2
C3
C4
D
LEGEND
PLEISTOCENE
OB
OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash
EOCENE
MC
MEDICINE CREEK FORMATION
claystone, siltstone, sandstone
HC
HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl.
SUB ZONE & THICKNESS
A1 : 15 - 30 m
A2 : 20 - 30 m
A3 : 25 - 45 m
A4 : 20 - 45 m
A5 : 30 - 45 m
A6 : 0 - 90 m
B1 : 20 - 30 m
B2 : 20 - 30 m
B3 : 20 - 30 m
C1 : 5 - 170 m
C2 : 5 - 20 m
C3 : 5 - 15 m
C4 : 5 - 20 m
D1 : 15 - 25 m
D2 : 15 - 30 m
D3 : 17 - 23 m
D4 : 17 - 25 m
CM
COLDWATER FORMATION: claystone, siltstone, conglomerate, sandstone, shale.
Geologic Symbols
Fault: confirmed, inferred.
Contact: confirmed, inferred.
Relative movement.
Indicated bedding attitude
Colour Code
B10
COAL: < 30 % Ash; > 19,750 kJ/kg (dm)
G1
COAL: 30 – 40 % Ash; 19,750 – 18,250 kJ/kg (dm)
B6
COAL: 40 – 60 % Ash; 18,250 – 9,250 kJ/kg (dm)
S1
Coaly shale and/or carbonaceous shale.
Y61
Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood
P4
Burr zone
Abbreviations
Blds. Boulders.
Carb Sh Carbonaceous Shale.
Cg Conglomerate.
Cl. Clay.
Clst. Claystone.
Gvl. Gravel.
Ls. Limestone.
Mdst Mudstone.
P Wood Petrified Wood.
Slst Siltstone.
Sdy Gvl Sandy Gravel.
Sed. Sand.
Ss Sandstone.
Scale 100 0 50 100
H.K.
S.W.
A.W.P.
H.K.
H.KIM
B.DUTT
JUN 1979
M78-2
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
THERMAL DIVISION MINING DEPARTMENT
HAT CREEK PROJECT
SECTION 18 (South)
PLATE 37




## LEGEND

**PLEISTOCENE**

OB — OVERBURDEN: unconsolidated silt, sand, silt, lacustrine deposits, glacial outwash.

**EOCENE**

MC — MEDICINE CREEK FORMATION: claystone, siltstone, sandstone

HC — HAT CREEK FORMATION: marl, claystone, siltstone, conglomerate, carbonaceous shale, sandstone, marl.

SUB ZONE & THICKNESS

| | | |
|---|---|---|
| A1 : 15 - 35m | B1 : 25 - 35m | D1 : 15 - 25m |
| A2 : 10 - 50m | B2 : 25 - 35m | D2 : 15 - 30m |
| A3 : 20 - 40m | C1 : 5 - 170m | D3 : 15 - 25m |
| A4 : 20 - 45m | C2 : 5 - 30m | D4 : 15 - 30m |
| A5 : 30 - 45m | C3 : 5 - 15m | |
| A6 : 0 - 90m | C4 : 5 - 20m | |

CM — COLDWATER FORMATION: claystone, siltstone, conglomerate, sandstone, shale.

**Geological Symbols**

Fault: confirmed, inferred.

Contact: confirmed, inferred

Relative movement.

Indicated dipping attitude

**Seam Code**

| | | |
|---|---|---|
| B1S | COAL | < 30 % Ash; 6,750 Btu/lb(16) |
| D1 | COAL | 30 — 40 % Ash; 10,750 — 12,250 Btu/lb(16) |
| D1a | COAL | 40 — 50 % Ash; 10,250 — 9,250 Btu/lb(16) |
| S1 | Coaly shale and/or carbonaceous shale. | |
| Tal | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood | |
| Fs | Bark zone. | |

**Abbreviations**

| | | | |
|---|---|---|---|
| Bldr. | Boulders. | Mdst | Mudstone. |
| Carb. Sh. | Carbonaceous Shale. | P. Wood | Petrified Wood. |
| Cg. | Conglomerate. | Slst | Siltstone. |
| Cl. | Clay. | Sdy Gvl | Sdy Gravel. |
| Clst. | Claystone. | Sd. | Sand. |
| Gvl | Gravel. | Ss. | Sandstone. |
| Ls. | Limestone. | | |

Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| DRN. | J.L.M. | REV. | |
| CHK. | E.L. | APPD. | |
| DR. | | APPD. | |
| SUP. | | APPD. | |
| SUB. | | DATE | June 1979 |
| MINE ENG. | | DATE | |

M78-2

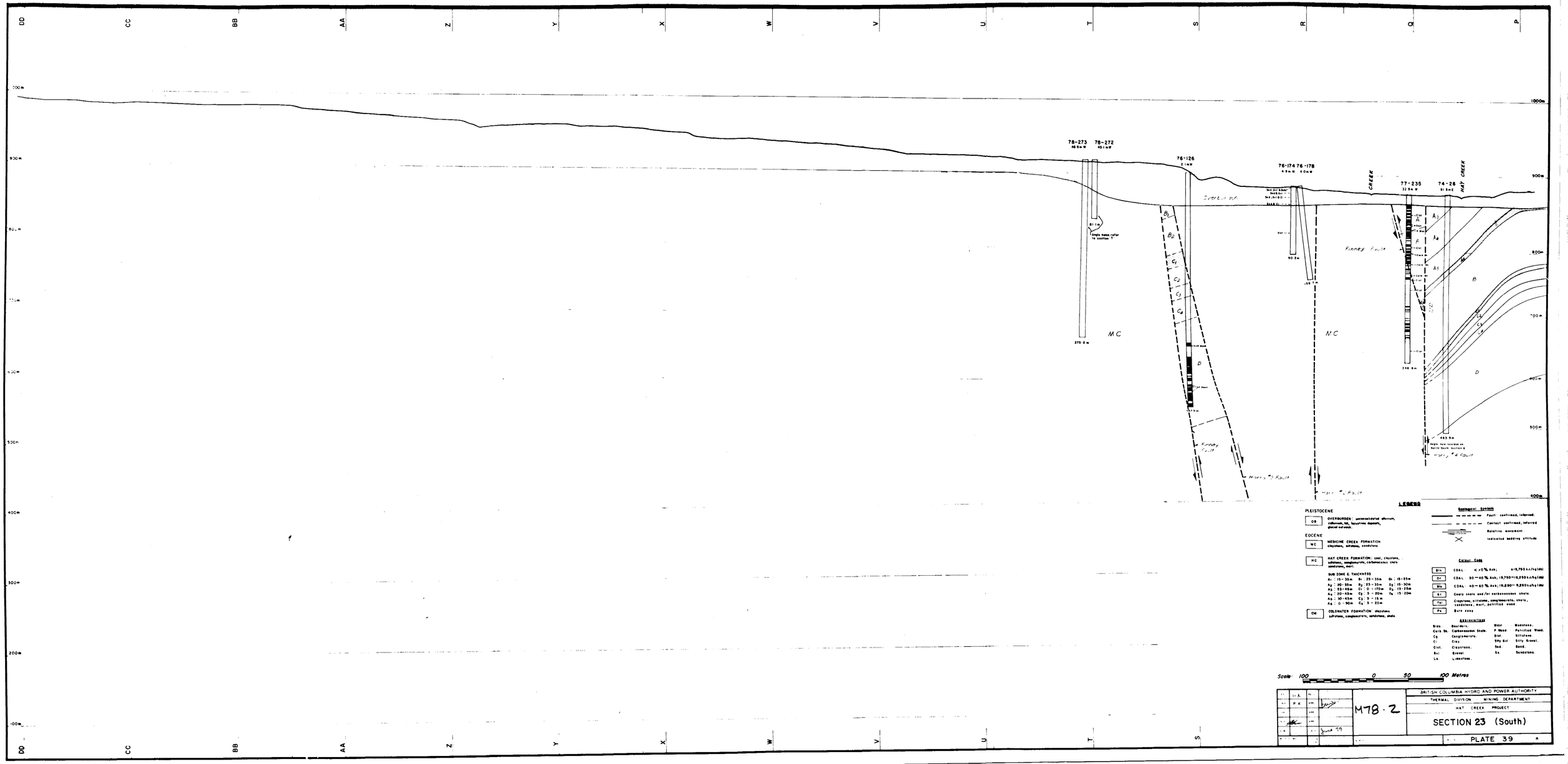
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

THERMAL DIVISION - MINING DEPARTMENT

HAT CREEK PROJECT

# SECTION 23 (North)

PLATE 38 R




## LEGEND

**PLEISTOCENE**

OB — OVERBURDEN: unconsolidated alluvium, colluvium, till, lacustrine deposits, glacial outwash.

**EOCENE**

MC — MEDICINE CREEK FORMATION
Claystone, siltstone, sandstone

HC — HAT CREEK FORMATION: coal, claystone, siltstone, conglomerate, carbonaceous shale sandstone, marl.

SUB ZONE & THICKNESS

| | | |
|---|---|---|
| A1 : 15 - 35m | B1 : 25 - 35m | D1 : 15 - 25m |
| A2 : 20 - 30m | B2 : 25 - 30m | D2 : 15 - 30m |
| A3 : 25 - 45m | C1 : 0 - 170m | D3 : 15 - 25m |
| A4 : 20 - 45m | C2 : 5 - 20m | D4 : 15 - 20m |
| A5 : 30 - 65m | C3 : 5 - 15m | |
| A6 : 0 - 90m | C4 : 5 - 20m | |

CM — COLDWATER FORMATION: claystone siltstone, conglomerate, sandstone, shale.

**Geological Symbols**

Fault: confirmed, inferred.

Contact: confirmed, inferred

Relative movement.

Indicated bedding attitude

**Colour Code**

| | | |
|---|---|---|
| Blk | COAL : < 20% Ash; | ≥19,750 kJ/kg(Ib) |
| Dy | COAL : 30 — 40 % Ash; | 18,750—16,250 kJ/kg(Ib) |
| Bhy | COAL : 40 — 60 % Ash; | 16,250— 9,250 kJ/kg(Ib) |
| Gy | Coaly shale and/or carbonaceous shale | |
| Yel | Claystone, siltstone, conglomerate, shale, sandstone, marl, petrified wood. | |
| Pk | Bole zone. | |

**Abbreviations**

| | | | |
|---|---|---|---|
| Bldr. | Boulders. | Mdst | Mudstone. |
| Carb. Sh. | Carbonaceous Shale. | P. Wood | Petrified Wood. |
| Cg | Conglomerate. | Slst. | Siltstone. |
| Cl | Clay | Sity Gvl | Silty Gravel. |
| Clst. | Claystone. | Sd. | Sand. |
| Gvl | Gravel. | Ss | Sandstone. |
| Ls. | Limestone. | | |

Scale: 100 0 50 100 Metres

| | | | |
|---|---|---|---|
| | | M78-2 | BRITISH COLUMBIA HYDRO AND POWER AUTHORITY |
| | | | THERMAL DIVISION MINING DEPARTMENT |
| | | | HAT CREEK PROJECT |
| | | | SECTION 23 (South) |
| | | | PLATE 39 |