ROD HALL
CARMACKS 1976
FIELD NOTES

WATERPROOF

NO. 30

R.D. PENHALL LTD.

MAG DECL. 33°

(1)

(1) OPEN PIT

N side of Tantalus Butte

STN A

Thinly bedded light to medium grey sandstones & dark grey shales
Immediately south of Fault. HW?
Bedding 57/207

STN B

Thinly bedded ochre-weathering fine-grained sandstone cont. carbonaceous plant remains. FW?
Bedding 38/185

STN C

Section in new cut
Footwall sandstone o/lain by coal.
Bedding 57/187

STN D

Footwall silt exposed beneath coal
Bedding 61/190

STN E FW sst.
Bedding 50/185

STN F FW sst with dk grey shale beds
Bedding 50/165

Tight folding here

STN G Coal - new top of seam (New cut)
Dip 57/345
Obtain by HW siltstones & mudstones
Dip 42/320

STN H FW sandstone - grey fg with plant fragments
Dip 67/345

STN J Base of coal seam just above FW.

Dip 64/338

30
11
30
300
330

STN K FW sandstone Dip 50/348

37/342

AIRTRAC LOGS

Hole 1	0-10	Dirty coal
	10-28	coal
	28-35	rock
Hole 2	0-1	rock
	1-7	dirty coal
	7-8	rock
	8-10	dirty coal
	10-21	Coal
	21-25	rock
	25-40	coal
Hole 2 again	0-3	rock
	3-6	coal
	6-8	rock
	8-10	coal
	10-12	very dirty coal
	12-25	coal
	25-26	rock
	26-42	Coal
	42-48	rock.

Hole 3 0-4 coal
4-5 shale & coal
5-15 clean coal
15-20 dirty coal
20-25 coal
25-26 shale
26 light grey sst & buff sst

Hole 3 again
0-18 coal
18-25 dark brown shale & dirty coal interbanded
25-26 dark brown mudstone
26-31 brownish grey sst
31-34 grey sst
34-35 light brown sst

Hole 4

0–6	coal
6–8	mudstone
8–18	coal (dirty)
18–20	light buff sst.
	light grey sst.

Hole 5

0–20	coal
20–21	mudstone
21–28	coal
28–29	mudstone
29–33	dark brown, buff grey sandstone

Hole 6

0–14	coal
14–18	brown mudstone
18–20	buff sandstone

HOLE THE SEVENTH

0 – 16 Coal
16 – 17 brown mudstone
17 – 17½ buff sandstone

EIGHTH

THE NINETH HOLE IN THE GROUND

0 – 7 Brown Mudstone
7 – 25 coal
25 – 26 Brown mudstone &
grey sandstone

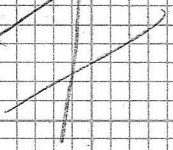
The one after the ~~ninth~~ eighth

0 – 20 Brown mudstone
& siltstone
20 – 27 grey ? sandstone

27 – 36 coal
36 – 38 Brown mudst & sst.

No 10

0 – 34	clean coal
34 – 35	rusty shale
35 – 36	buff sandstone



ELE

0 – 11	brown mudstone & siltstone
11 – 32	coal
32 – 33	brown mudstone & buff sst.

(12)

0 – 2	brown mudst & silt
2 – 6	grey Sandstone & siltstone
6 – 11	brown mudst & silts ochre mudst bands thin dirty coal bands
11 – 21	grey sandstone & silt
21 – 26	brown mudst & silt
26 – 31	grey brown & silt & sand
31 – 35	coal
35 – 37	brown mudst
37 – 60	Coal bottom in sst

(13)

	0 – 4	OB
	4 – 8	coal
	8 – 20	grey sst & slt
	20 – 21	brown mudst & slt sst
sst	21 – 22	grey sand & silt
sst	22 – 25	buff sst & silt
sst	25 – 30	grey sst & white sst
sst	30 – 33	buff sst & grey sst
	33 – 34	V. hard rock – ? lava
	34 – 35	brown mudst
	35 – 38	grey sst
	38 – 39	bn. mudst & slts
	39 – 60	buff sst, gy sst & silt

10
20
30
40
50
60

5
30

10

⑭	0 – 35	coal
	35 - 36	dirty coal
	36 – 37	light brown ss
⑮	0 – 3	coal
	3 – 12	dirty coal
	12 –	brn ~~mudstone~~ ss

CARNACKS NORTH

✓ ① Small quarry W side T.B.
Massive chert-pebble conglom
Beds up to 6 feet thick
Pebbles mainly of white vein quartz and grey & black chert up to 3" diam, also some of ? kaolinised granite. Local thin interbeds of pebbly ✓ coarse grained sandstone. Cong also contains a few large intraclasts of dark grey mudstone & siltstone and fairly abund. carbonised plant fragments.
Bedding Approx 36/331 in sst bed.

✓ ② Ditto Dip 41/324
Grades downwards (to E) into ✓ coarse grained pebbly sandstone, about 20 ft thick, then back into cong

✓ ③ Massive Conglomerate - contains lenses of coarse grained pebbly sandstone ten or so feet thick and tens of feet long.
Bedding 42/332

✓ ④ Ditto 37/342

✓ ⑤ Thin seam of dirty coal - coupled feet thick probably, but not well exposed. Underlain by dark brown mudstones containing abundant plant remains
Again by next cong

FIELD NOTES 8vo

✓(6) 57/348 Corg.
A few feet up - subsidence pit.
Can see dirty coal seam overlain by interbedded conglom and pebbly coarse-grained sandstone, dipping approx 50° W
(Check position - bearing on explosive shack 305°

✓(7) Beneath coal - coarse grained pebbly sandstone with thin corg bands - bedding curved, evidently lenticular band. Bedding approx 65/333

✓
(8) Interbanded corg and coarse grained pebbly sandstone.
Dip on one of sst beds 12/315 - evidently lenticular

✓(9) Thick bedded corg.
12/307 Avge pebble size r. 0·3"
range up to 1" Mode ¼"
ie not as coarse as excp. (7)

(10) 54/337 Conglom - pebbles up to 1"

(11) 50/322 Cong.

(12) 44/275 - Cong. strike reading looks pretty good - dipping south!! unless boulders fallen down slope, but looks in place
50ft SE - 34/331 m pebbly coarse grained sandstone.

(13) 60/349 Cong with interbeds of pebbly coarse grained sst.

(14) Volcanic rock - medium brownish grey with small weathered phenocrysts.
Bedding 65/019 sample 76-1
Rather fractured

(15) Volcanic - light grey fine-grained matrix; Full of spherical or ellipsoidal vesicles & ? zeolites up to 3" diam - most about 1/4" diam Sample 76-203
Also seems to contain some ellipsoidal chert &/or vein quartz pebbles. (AGATE)
Several fracture surfaces - cannot really see bedding
Some is just straight fine-grained volcanic

× (16) Some rock types (volc)
Most prominent surface dips 86/314

× (17) Volcanic - fine grained with small rusty phenos or vesicles - as at (14)

× (18) Volcanic - vesicular stuff - smaller vesicles than before, also some very fine grained dark grey stuff - ? basalt
76-04
Bedding probably 12/346

1 (19) Volcanic Bedding 54/215 I think
Brownish grey fine-grained rock
(? Andesite) 76-05

✓ (20) Volcanic - rather altered but probably same as (14).

✓ (21) Volcanic
Bedding 58/005 or 77/247 probably the latter
light grey, coarse grd looks like
Q+f+bi + ?hbd ? dacite?
H76-06

✗ (22) Volcanic 41/035 - good foliation
same as 21 but altered

✗ (23) Fine grained volcanic 476-07

✓ (24) Old Trench
Weathered brownish medium grd amygdaloidal (?) andesite. - C.V.
Amygdales ~ 1mm

✓ (25) Rusty weathering grey medium grained porphyritic amygdaloidal ?andesite - C.V.
Amygdales ~1mm phenos ~ 2mm X 0.5mm.

✓ (26) Very weathered amygdaloidal volcanic rock - amygs of agate up to ½" x 1"
Dip of flow surface 41/032 ???

✓ (27) Same rock as (25)

(28) South area AP# A 21685-35
Conglomerate - chert + quartz pebble (4pts P).
Dip 43/324
Bearing on garbage dump (point A)
295°

(29) Cong coat thin lens of pebbly coarse-grained sandstone. Dip 37/334

(30) Chert + quartz pebble conglom. (Pebbles up to 3" diam) Dip 74/337

(31) Same 77/330

(32) Ditto 61/348

(33) Likewise 53/331
(pebble up to 6" of chert)

(34) Similar stuff. Dip 60/331

(35) Same GD Conglom:
Here pebbles up to ~ 2" - a few 6"
Also thin pebbly sandstone bands.
Dip 78/324

cont. Cont. carb. plant remains.
Looks like same stuff as in small quarry

(36) Outcrop of a band of pebbly coarse + grained sandstone – about 10 feet wide, forming small ridge along valley floor. ~~Cannot measure bedding – but appears to the ridge strike NW-SE~~
63/30 W

(37) Conglom. Cobbles of acid igneous rocks up to 15" diam (fifteen inches) contained in fine sandy matrix
Is this the LABERGE?
Impossible to measure dip – cannot see it.

(38) Ditto Bedding ?? 72/139 (dips E)

(39) North area

(?) Position uncertain

Fine grained greenish grey basalt.

Dip not seen carmacks Volc

(40) Next hilltop to S - position uncertain

(?) Laberge conglom - cobbles of acid igneous rock up to 15" diam. Dip not seen

(41) Pos uncertain - fine grained porphyritic

(?) andesite or something

Carmacks lavas

✓

(42) Position certain

Volcanic at top of hill - just below is pebble conglom (?T) - volcanic tops hill

Bedding in conglom 60/335

✓

(43) Laberge conglom. Dip 77/148

Laberge looks like a fossil hill to me

Just up slope - Laberge clasts by amygdaloidal porphyritic andesite or something - probably tuffaceous pebbly sandstone

(44) 53/317 Reddish brown arkosic conglom grd to sandstone, locally with pebbles up to 2" diam. Dip (?) Labrecque?

(45) Brown weathering, red to coarse grd sandstone, locally tuffaceous, locally cont pebbles. 57/175

(46) Position approximate
Tantalus Conglom. Dip not seen

[SAMPLE 76-08 - coarse grained rock from Fes Ex. North side - seems to be coarse quartz grains in soft clay(?) matrix]

(47) Same rock as (45) Dip 56/173

(48) Massive Labrecque Conglom - cobbles up to 15" diam in a coarse sandy matrix
Bedding not seen

(49) Coarse grd massive sandstone, locally with pebbles & a few large cobbles.
Massive & well-jointed - cannot see bedding

(50) Contact between rusty weathering grey med grained salt & pepper sandstone (below) & chert-pebble conglom (above). Pebbles up to 2 inch diam - also contains plant remains Dip 58/013 (good)

(51) Coarse grd tuffaceous sst with a few pebbles & cobbles - brownish grey
Bedding 64/350 (dips W)

(52) Labrecque conglom & tuffaceous sst
Bedding 47/155 (dips E)

(53) Pebbly sandstone Dip 53/186

(52) Ditto Dip 84/173 (?)

(55) Position uncertain.
Coarse-grd grey & red mottled arkosic sandstone cont a few large cobbles (6")
Laberge Dip not seen

(54) Laberge Conglomerate - cobbles up to 9" seen
Bedding 61/355 approx.

(57) Check position - second, lower ridge.
Chert-pebble conglom
Bedding 67/355

South side again Photo #21685 – 96

(58) Highly weathered coarse-grained arkose
Bedding not seen (? Laberge)

(59) Position approx.
Coarse grid arkose with a few large pebbles in (2") (? Laberge ?)

(60) Large boulder probably close to in situ
Very course grained arkosic GRIT
(Laberge) bedding not determ

NORTH SIDE

(61) Beneath coal – brown & grey
mudstones with plant fragments.
Dip 60/338 (Trench ‡)

(62) 55/340 Conform in subsidence hole

(63) 39/341 Tentaculites Conf.

South side

(64) Massive Tantalus Conq

Seems to line up quite well with west side of Butte

Dips 27/003 47/007 - dips W

(lenticular beds)

(65) Coal seam - dips east 29/133

Interbunded coal, dirty coal & mudstone

(66) East of subsidence area - a few feet of conq, overlain by grey thin bedded fine grained sandstone. 40/360

(67) Tantalus conq. Dip not meas

100

June 8, 1976.

Area N of Access road and S of Road in Dawson Highway

100 - Trench ~~off~~ beside highway
Filled In - no outcrop
But - angular rocks of basalt - float in trench
Probably in the near vicinity of basalt outcrop.

Also - 2 smaller trenches east of above trench
Also few basalt floats in them. Both filled in - no outcrop

101 - Outcrop(s) of vesicular andesite - greyish brn - some vesicles filled with zeolites - hd
bedding [?] - 295 / 18°S

102 - More o/c of vesicular andesite - ditto bedding

103 - Trench S of highway
- few conglomerate float in trench

104 - O/c of Carmacks Volcanics
- brn + gy / also dk brn
- extremely weathered
- vesicular with vesicles filled in
- vesicular andesite
- bedding not seen

105 - o/c - fig brn-gy volcanic rock - hd
no phenocrysts
- andesite (?)
- massive - no bedding seen

FIELD NOTES P.H.

June 9, 1976

Photo # A 21685 - 54

106 - O/c of brn-gy to lt gy fine grained volcanic rock

Massive

- small inclusions of rust-red mineral (?)

C1

- see sample - PH-106-76

107 - O/c of conglomerate

- chert pebbles in a gray-brown sandy + silty matrix - pebbles about 1/4" to 1/2" in dia.

Bedding - 140/35° W

108 - O/c of conglomerate?

- black to gray chert pebbles - 1/8 to 1/4"

109 - O/c of reddish brown to dk gy

- massive - fg
- volcanic
- fractures common as joints
- difficult to differentiate beds + joints

110 - O/C of conglomerate
- same as above
- bedding 144°/50°W

111 - conglomerate as above

112 - conglomerate - as above
- bedding - 325°/32°W

113 - conglomerate - as above

114 - conglomerate
- gy to brn gy
- chert pebbles 1/4 - 1/2"
- bedding not seen

115 - conglomerate
- brn to weathered red
- chert pebbles
- no bedding seen

116 - conglomerate
- med gy to brn gy to red
- pebbles are chert pebbles - 1/4" to 1" in diameter
- bedding 120° / 24° E

June 11, 1976

Photos A 21685-79 + A 10989-70

117 - Trench at end of road
No o/c present

118 - Claim Posts
Post #2 C.M.L
R Irving on behalf of Teslin Explns Ltd
Nov. 30, 73

Post #1 C.M.L.
" Dec 1, 73

119 - small o/c (?) of conglomerate
- pebbles small - ¼" - ½" - chert + quartzite
- Tantalus
- no bedding present

In this area (119) - lot of conglomerate float along open slopes but no o/c

120 - o/c of conglomerate
Bedding 290° / 40°SW [40SW - 340°?
- brn gy with white + black pebbles
- range in size = 1/8" - 1/2" - some larger
- pebbles subangular to rounded
- very weathered
- see sample PH - 120 - 7b

121 - o/c along road cut
- conglomerate
- no bedding seen
- extremely weathered
- chert pebble - 1/8" - 1/2" in d.a. - black
- rest of rock is gray to white to brn - weathered appearance
- angular to subrounded pebbles.

June 12, 1976

Photo No. A 10989 : 48

122 - large boulders of Tantalus conglomerate in stream bed but no O/C along steep banks.

123 - O/C of cg sandstone
- gy to brn angular to subangular qtz grains
- see PH - 123 - 76
- Bedding - 310°/50° NE or 270°/40°S

124 - O/C of cg sandstone
- brn with white quartzite crystals about 1/16" in dia.
- grains subrounded to angular
- bedding (?) 320°/35° SW

125 - O/C of cg sandstone along Fore Road
- brn with white quartzite crystals
- grains subrounded to angular
- bedding - 20°/60° W

Also present are med gy shales
weathered brn to rust
- fissile
- interbedded in ss

126 - o/c of conglomerate

- gy to white
- pebbles - ≃ 1/8" in dia
- quartzite pebbles pred with minor chert
- subrounded

- bedding - 310°/50°W

June 13, 1976

127 - o/c of volcanic rock
- ~~gy~~ greenish-gray fine-grained rocks weathered gy to brn
- hd
- small white crystals of granite
- PH-127-76
- also larger white feldspar xtals - angular
- no bedding seen

128 - o/c of volcanic rock
- gy - black and white phenocrysts in a grainy matrix - feldspar xtals pred.
- bedding - 260° - 40° N

129 - o/c of conglomerate
- chert + quartzite pebbles in a shaly matrix
- brn - black chert pebbles + gray quartzite pebbles
- bedding 275°/40°S

130 - o/c of conglomerate
- as above

B1 – conglomeraat – a/la
– bedding – 310°/60°S

June 14, 1976

Photo No. A10389-42

133 - brn-cg ss
- cg of feldspar - white
- massive - no bedding seen
- PH-132-76
- conglomerates to be present with large pebbles
- possible bedding (?) 300°/50° N
- large pebbles are volcanic - dark color

133 - weathered ss
- same as above

134 - dark fg volcanic rock
- aphanitic
- weathered to a rust color
- PH-134-76

135 - volcanic rock a/a
- 325/35° NE (?)

136 - volcanic rock
- weathered brn-gy with large black

tourmaline (?) crystals

~~- no bedding seen~~

- possible bedding or jointing - 135°/80°NE

137 - volcanic rock
- weathered grey to brn
- massive
- black w. white specks, prob. feldspar
- in some cases - feldspar removed by ~~weathering~~ weathering leaving vesicles

138 - volcanic rock
- weathered brn
- massive
- black aphanitic - basalt

139 - volcanic rock
- reddish-grey aphanitic
- massive
- PH-139-76

140 - volcanic rock
- crumbly + weathered
- black + aphanitic
- massive

141 - float - no o/c
- conglomerate - Tantalus

142 - volcanic o/c
- ~~red~~ aphanitic - reddish brn
- massive
- PH-142-76

143 - o/c of cg ss
- brn
- massive
- grains subangular
- grains about 1/8" across also present in the sandy matrix

144 - o/c of volcanics
- dark - fg, aphanitic
- massive

145 - o/c of Lakeverge conglomerate
- volcanic looking with large pebbles of volcanic materials
- dipping vertically

146 - o/c of tuffaceous ss
- massive
- no bedding seen

147 - o/c of cg ss
- massive

June 15 2006 Photo # N2019-122

148 - brown fg sst (plant fragments) overlain by a thin 6" coal seam overlain by conglomerate - subsidence from mine

bedding - 150°/60° W(?)

149 - - brn to brn gy conglomerate
- subsidence hole
- bedding 145°/65° W
- chert pebbles and quartzite nobbles present
- fg conglomerate

150 - conglomerate a/a
- no bedding apparent

151 - conglomerate underlain by coal and fg brn ss
- along road cut at end of road
- bedding 340°/60° W

June 25, 1975

Photo No. A 21018 - 122

152 - Tantalus Conglomerate

Bedding 345°/47°W

153 - T. Congl.

Bedding 350°/46°W

154 - Trench

- T. Congl - underlain by coal E of congl.

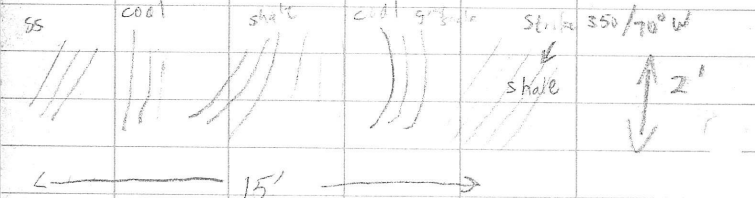
- no attitude of bedding seen

155 - Trench

Ss - coal interbeds - shale also present

Bedding -

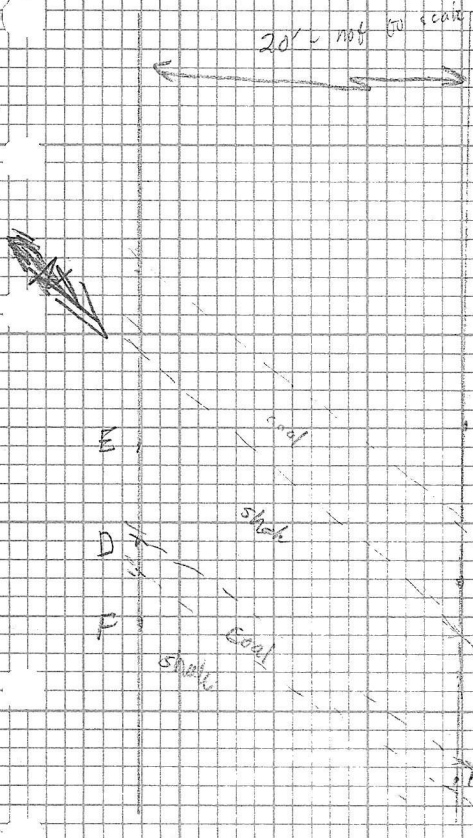
Side of Trench Facing North



June 25, 1976

Commodore N. Mayo Sheet

156 - Trench - reclaimed in 1976



Sta A - born to black coal - small seam

- laminae of coal interbedded in dk born shale

- plant fragments quite noticeable on bedding planes - shale carbonaceous

- bedding - 200°/47° E

- 5 ft outside of any trench face

Sta B - coal - dirty - shale within it
~ 30' of coal along trench wall
- bedding 200°/47° E

Sta C - congl - T entakes
- o/c along N face of trench
from coal seam to end
about 100 feet away
- bedding - the same
- small lenses of coal within congl
about 20 feet away from contact of
coal seam

Sta. D - small coal seam
- bedding - 20°/60° E

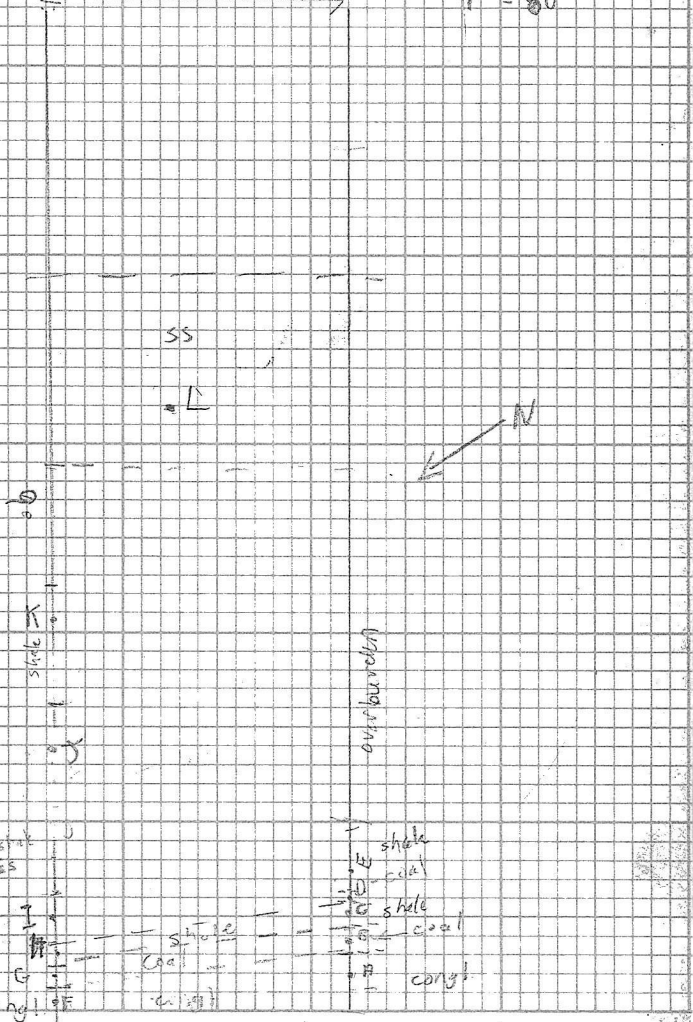
Sta E - brn to gy shale - plant frag
bedding 20°/60° E

Sta F - same type of shale as Sta E
- bedding - similar

157 – [redacted] coal – very s.v.by + shaly
- very fissile
- bedding 550/85° W
- ola about 2' w) slc.

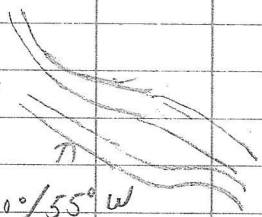
158 – Trench – rebrenched 1976
20' – not to scale

1" = 80'



Sta A. - Tant. Conyl. - no bedding seen

Sta. B - Coal - clean
- 10' wide along trench face
Folding present



170°/55° W

Sta. C - brn shale
- blocky
- 10' wide
- Bedding - 140°/82° NE

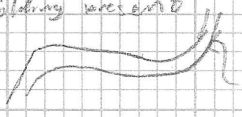
Sta. D - coal - dirty - fissile
160°/65° SW

E - ~~fg ss~~ ~~shale~~ - light brn to gy
165°/60° SW
- coal interbeds - couple inches thick

F - Tant. Conyl - 330°/55° SW

G - coal - clean - 10'
Dip steepens as you go east
10°/70° SW

H - shale brn - blky
- 40' wide
- folding present



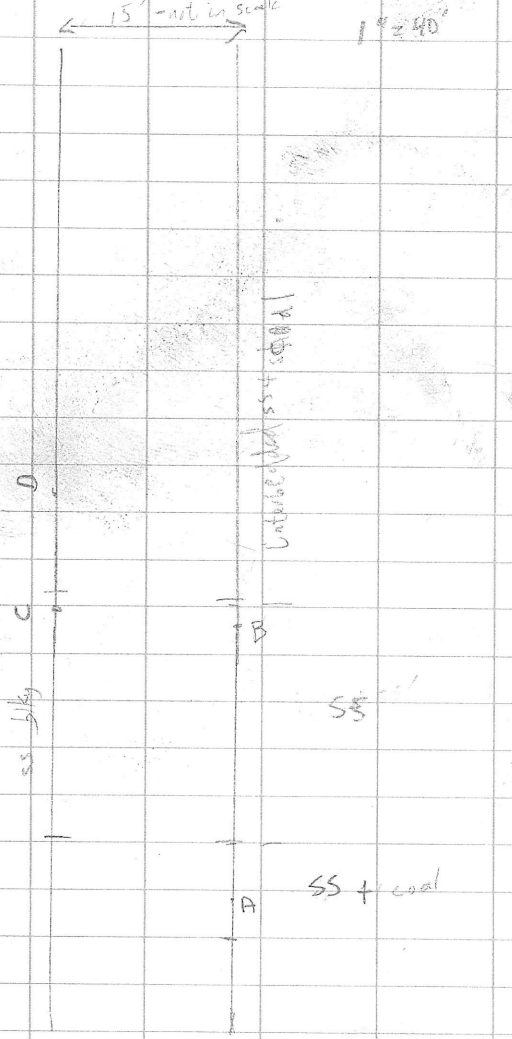
I - interbeds of shale + coal + ss
- folds present

J - same lithology as I
- coal beds - thin - 5 or 6"
335°/75° SW

K - ss - brn to gy - blky - attitude the same - fg

L - ss - brn to white
- salt + pepper texture
- hard
- cg - subrounded grains
- no bedding seen

159 - Trench re-trenched 1976



STN A - interbedded SS + coal - coal thin

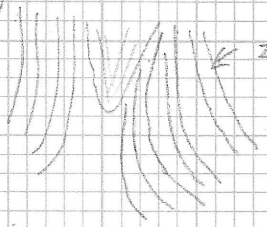
- SS gy to brn + blky fg

- no bedding seen

B - SS - fg - brn to gy blky

-

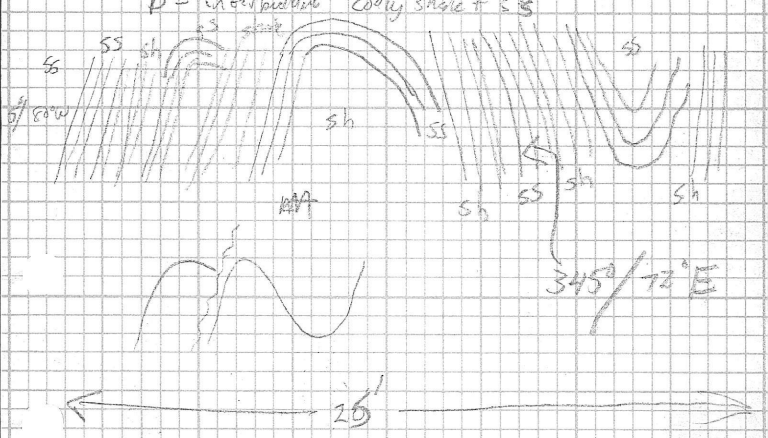
folding



C - SS - blk - white to brn - dipping steeply

5°/80° W

D - interbedded coaly shale + SS

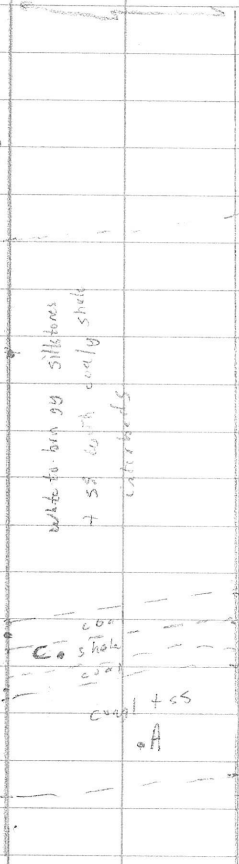


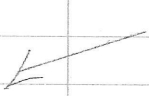
June 27, 1926

Carmacks N. Map Sheet

160 - Trench Scale: 1" = 80'

15-20' - not to scale





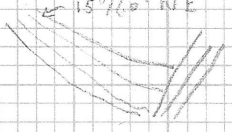
STA A - Tentaculites zone / cmd ss
- 310°/55° SW

B - coal
- 330°/72° SW
- dusty coal - shale lenses in it

C - grey to brn gy shale - no bedding seen
- blocky

D - coal
- clean
- 330°/63° NE
small tight fold present

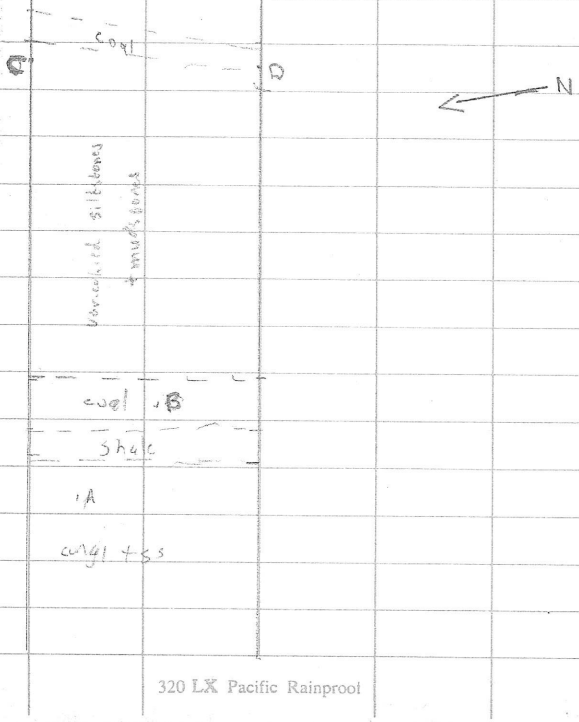
E - lt gy (almost white) + brn gy siltstones + sandstones along with interbeds of cmdy shale
- folding



161 - Trench

Scale 1" = 100'

25' not to scale



Stn A - coal + ss - no bedding seen

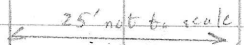
B - coal - clean - no bedding seen

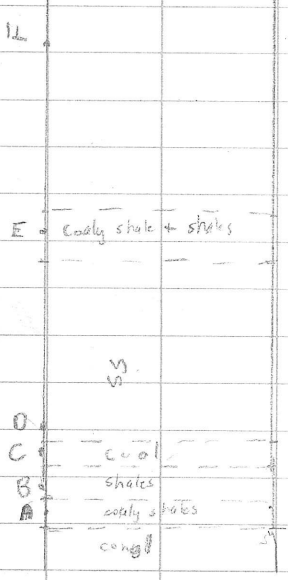
C - 18 gy mudstone + silt stone
- hilly
- 62°/62° SE

D - coal - dirty - shale lenses within
215°/20° NE

162 - Trench

1" = 80'





A - coaly shales 0°/47°W

B - brown to gray shales with coaly shale bands
0°/70°W

folds present

0-70°

C) - coal - very clean 355°/57°W

faulting

355°/57°W

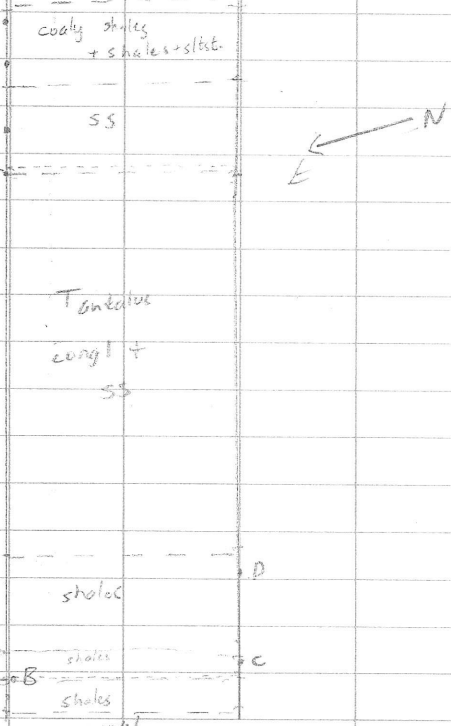
D) - gy to brn fg ss 355°/70°W

E) - gray coaly shales and white to brn shales + ss 5°/57°W

F) white ss + brn shales interbedded

163 - Trench - redone 1976

1" = 100'



A. - gray to brn gy shales - well bedded 350°/80°W

B - coal - bands of shale within 2' seam 345°/65°W

C) - brn gy to brn shales - blky 195°/80°W

D) - brn shale - blky - well bedded 185°/75°W

E) - coal - clean - 2' wide 345°/60°W

F) - varicolored ss 350°/65°W

~~top~~ ~~bed~~ ~~dip shallows to the east~~

G) (bett) interbedded coaly shales + brn to gy shales TS(bb).

dip shallows to the east

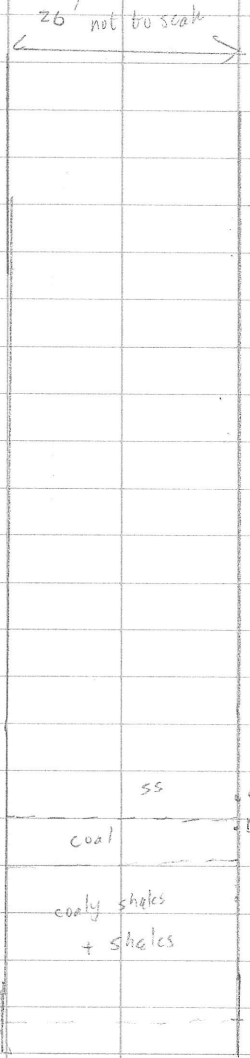
G) 0/70°W

H) 350/20°W

slight folding present

164 - Trench

1" = 50'



A – coaly shales + gy + brn gy shales + siltstones.
well-bedded 185°/60°W

B – coal seam – 10' thick
– 160°/70°W

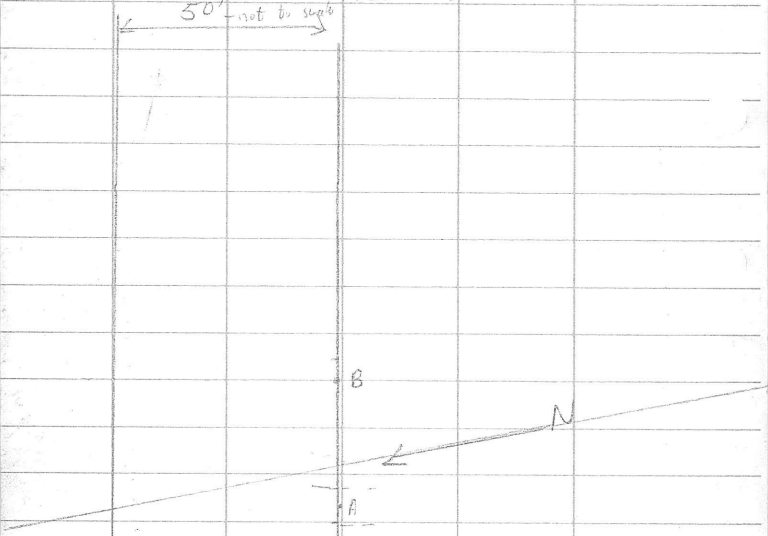
C – white to brn (rock) ss 165°/70°W

June 28, 1976

Carmacks N Map Sheet

165 - Trench - dug in 1976

Scale 1" = 120'

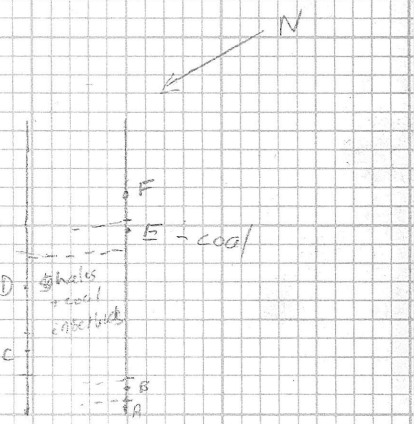


320 LX Pacific Rainproof

STN. A – Tent camp – no bedding seen

B – gray to brown siltstone + SS
– well-bedded – no coal present
180°/72°W

N66 – small stream along road
30' long; 10' wide



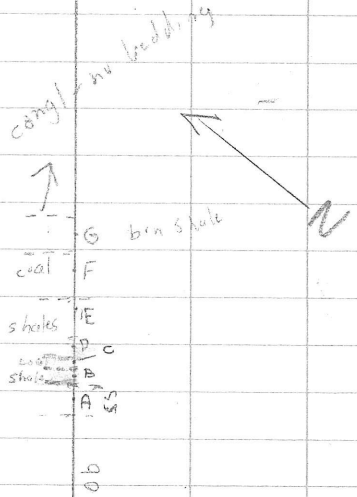
A – gray to brn SS – no bedding seen
B coaly shale – no attitude measurable
C brown to gray shales 10°/85°W
D) 355°/70° E
E) coal seam (2' thick) – relatively clean
195°/80°E
F) – brown shales 180°/65°E

June 29, 1876

Carmacks S. Map Sheet

167 - Trench - #976 (new) 1" = 80'

15' - not to scale



STN A – 15 ft of massive med grained SS
– brown to brownish gray
– no bedding seen

B – 5 ft of black to dk gy to dk brn shale – plant fossils present
– 150°/60° NE

C) – 6 ft of dirty coal – attitude the same

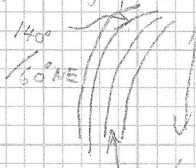
D) – brown to black shales

130°/70° NE

D + E brown to black shales interbedded with dirty coal layers about 2 ft thick

E) brown massive shale

folding present



145°/ vertical

F) coal – about 20'
– 160°/75° W

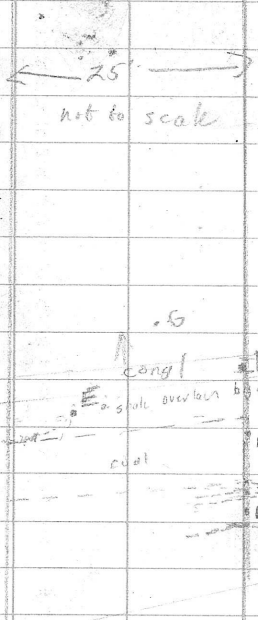
G) Brn shales – well bedded interbedded with thin layers of coal – 5' or so

140°/75° SW

June 30, 1976

Carnacks S Map Sheet

168 Trench Scale: 1" = 80'



SINA - 12+15 ft of massive med. grained brown grey ss 135°/50° NE

B - 3 ft of black & brn shale, blocky plant fragments present 125°/45° NE

C) - 3 ft of black coaly shale - fissile 130°/58° NE

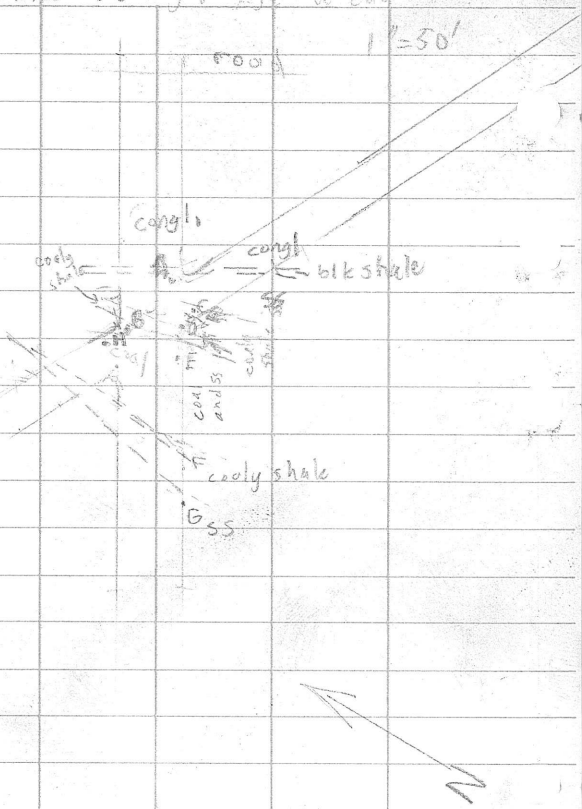
D) 25 ft of coal 150°/50° NE

E) brn shale - well bedded 115°/45° NE overlain by congl

F) conglomerate with sandstone layers bedding (?) 100°/25° N

G) conglomerate with sandstone layers. bedding - 120°/31° NE

169 - 2 trenches at right angles to each other



A) coal underlain 2 ft of black to brn shale underlain by 4 ft of vcg sandstone (massive)
120°/40° NE

B) Thin bed 5" of black to brn shale underlain by 4 ft of vcg sandstone (massive) underlain by 3 ft of brn to black (mostly) shale (well bedded) underlain by coal.
160°/40° NE

C) vcg ss (massive) - no bedding seen

D) shaly shale - black to brown - fissile 4 feet of it
155°/40° NE

E) underneath SEAM (C) (shaly shale) we have 5 ft of coal, then 2 ft of brown to gray fg ss, 3 ft of coal, 2 ft of brown ss, 10' of coal 140°/44° NE

F) 12 ft of coaly shale 140°/40° NE

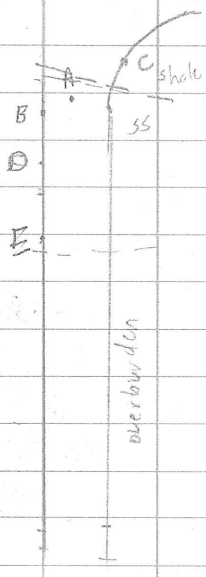
G) mg ss - brn to gy 130°/75° NE

H) coal overlain by black to brn shale
330°/45° NE

170' — a/c of ss overlain by coal seam (N/A in thickness (?)) ss
along a/c face ss pinches out toward the south

171 - Trench

1"=50'



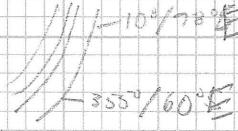
N

STN A - ss - med grained, brown

B - ss a/a 320°/55° NE

C - black shale - brn weathered color
125°/68° NE

D - ochre-colored ss
folding present



E - ss a/a 300°/70° N

July 6, 1976

172 - Trench -

no o/c present in this trench

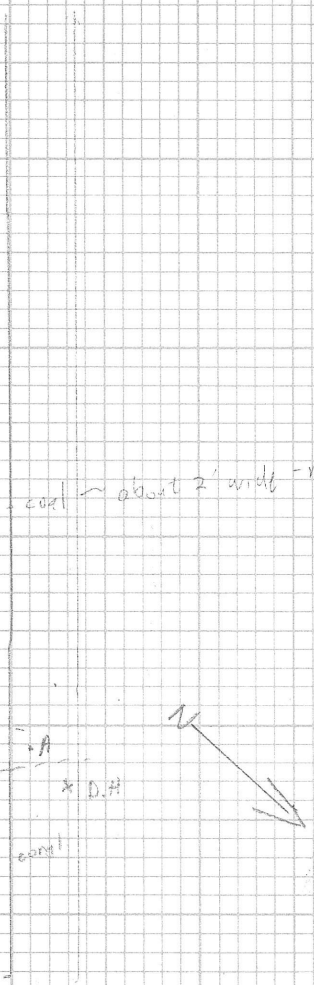
- however coal is present in bottom of trench ½ way down the hill in the trench

173 - Trench

- conglomerate o/c present in bottom of trench - no bedding seen

LTH - Trench

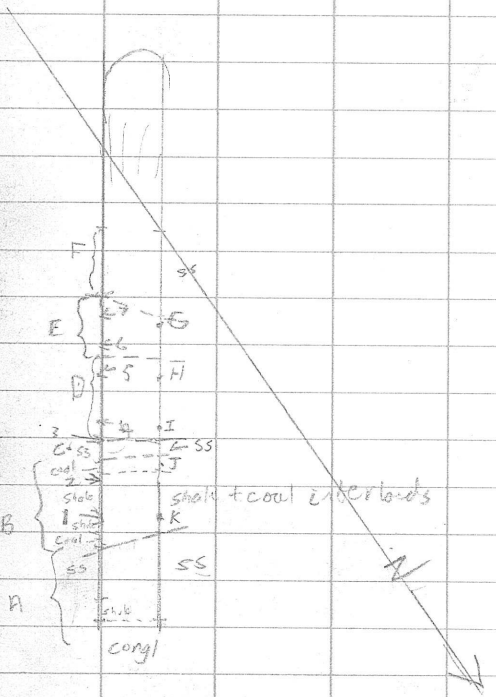
Scale 1" = 5'



STN 8 - brown to black (dk gy) shale - well bedded
285°/45° N

175 - Trench - ~~root~~ cleared 1976

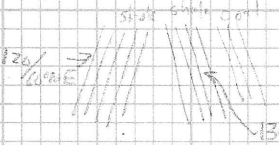
Scale 1" = 50'



A – coal at end of trench
– shale – black to brown
– fs – cg – coal stringers in parts
– no attitude of bedding found

B – from North end –
1 foot of coal and coaly shale underlain by 2 feet of hard brn shale underlain by 6" of coal underlain by 10 ft of brown to gray shale underlain by 1 foot of coal
B 1 120°/50° NE

B 2 folding



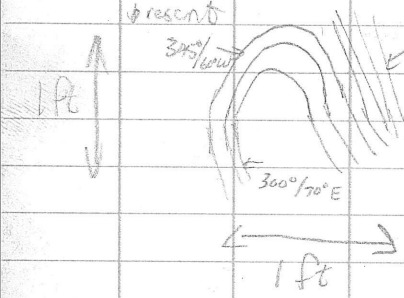
C – weathered SS – no bedding seen – almost white in color

D – rust brown shales interbedded with thin coal seams and gray to black shales
attitudes – D 3 125°/70° NE
D 4 145°/70° NE
D 5 120°/65° NE

E – about 15' of coal and coaly shale
E 6 – 100°/70° N
E 7 – 110°/70° N

F) – 17' of rust brown SS – massive
– on top about 2' of black shale
120°/75° NE

SSW G - coal and shale interbedded - tight folding



H - black & brn shale - well bedded
310°/60°NE

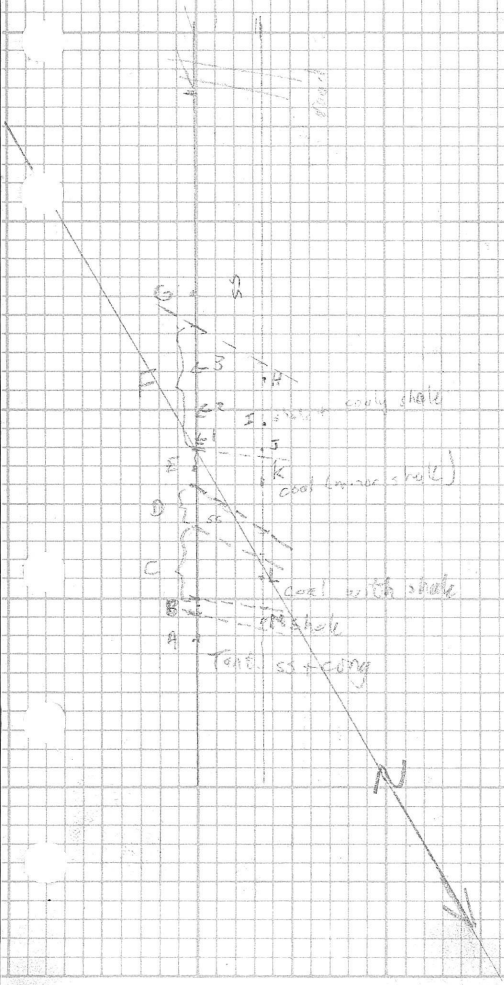
I - shale overlain by 1 ft of coal overlain by
1 ft of shale 295°/75°NE

J - 2 ft of coal

K - dk shale - 300°/70°NE

178 - Trench - cleaned 1976

Scale: 1" = 5'

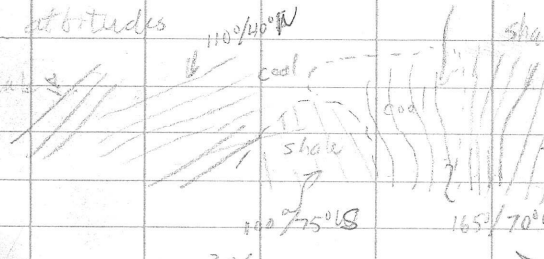


A - Tantalus congl + ss - coal stringers interbedded - thin - ¼" - 1"
100°/70° N

B - brown to black (dk gy) shale - well bedded but blocky 105°/55° N

C - coal with lenses of shale in it underlain by 3 Ft of shale to ss contacts
170°/80° W

orientations

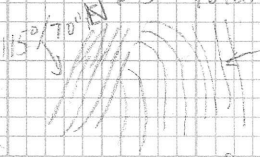


D - ss - fg ↓, massive - some coal in it
120°/75° NE

E) coal with shale interbeds 125°/60° NE

F) rust brown + gray shales with the coaly shale interbeds

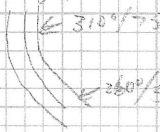
attitudes: F1 ~ 105°/70° N
F2 ~ 110°/65° N



G - ss - massive - fg - brn - weathered surface
- black to dk purple unweathered surface

H) - brown + black coaly shale 325°/40° NE

I)



J) brn shale - well bedded 320°/75° NE

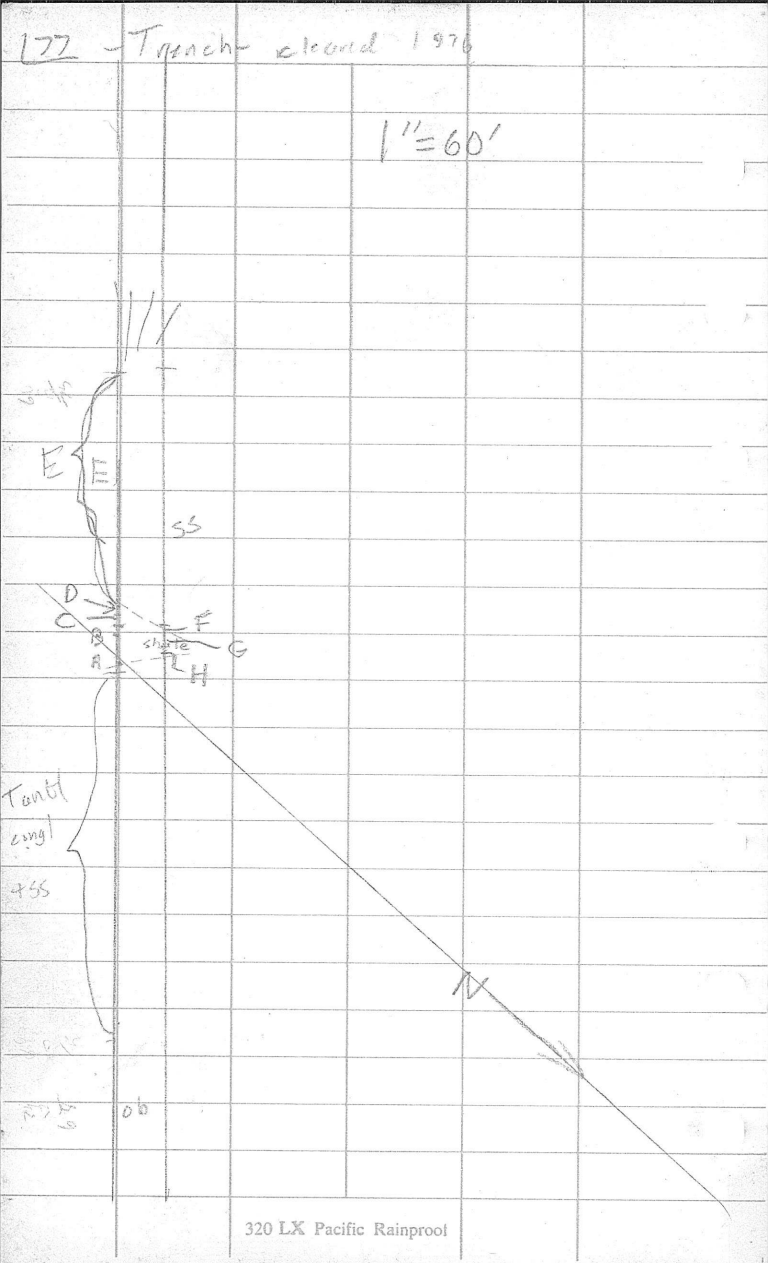
K) coal - shale bands - 2' thick
coal - ~10-15' thick. N 305°/70° NE

L) coal 320°/75° SW

M) shale 305°/50° NE

177 - Trench cleared 1976

1" = 60'

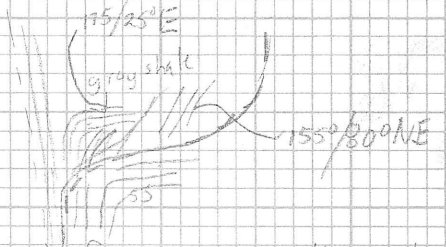


A) shale - gray to brn - blk 125°/55°SW

B) shale

C) coal - about 3' thick - 100°/45°S

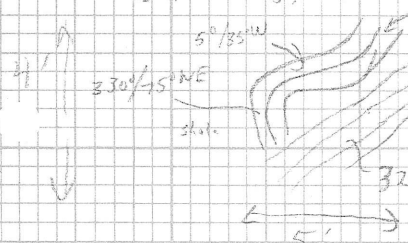
D)



E - massive fg-mg ss - ~~gray~~ lt gray clay

F coal seam - about 1' thick - extremely complicated structure - difficult to determine
340°/85° W

G) brn to gy shale - well developed



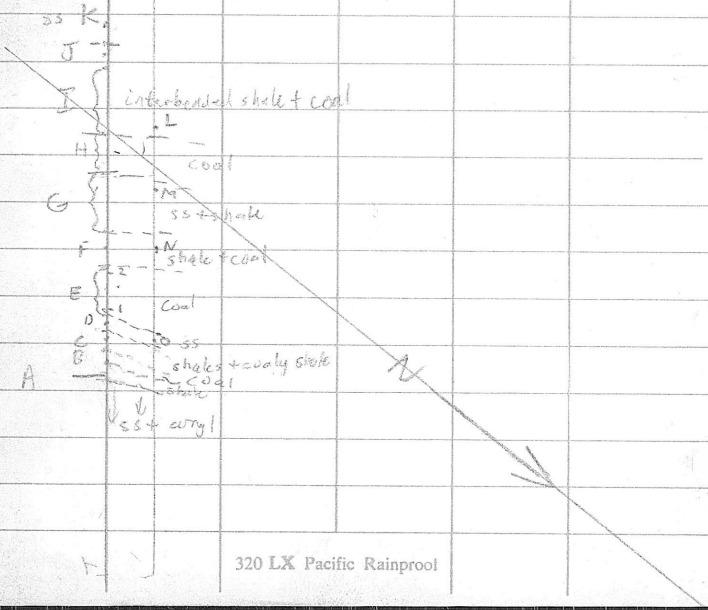
H) Shale ala 335°/50° SW

AMP July 7, 1976

Carmacks 5 Map Sheet

178 Trench - redug 1976

Scale 1"=60'



A) 2 ft of light grey to brn shale 115°/80° N

B) 7 ft of coal - rich bluchy clean

folding

70'

C) brn sticks + black coaly shales

D) brn ss + coal stringers

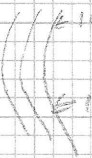
folding + attitude the same as above

E) coal - shale within it - dirty coal

attitudes E 1 - 130°/85° SW

E 2 - 165°/55° W

F) interbedded shale + coal



G) fg brn ss within shale layers interbedded

H) - 12 ft of coal - shale interbands 130°/85° SW

I) interbedded shale + coal + coaly shale

J) 6 ft of brn to gy blocky shale

K) fg ss

L) grey to brn shale 330°/75° NE

M) gray shale 350°/75° Brown W

N) brown shale 330°/70° SW

O) ss

179 o/c of conglomerate - Tantalus
125°/90° (vertical)

July 17, 1976
Pictures of trench walls
Roll # 1

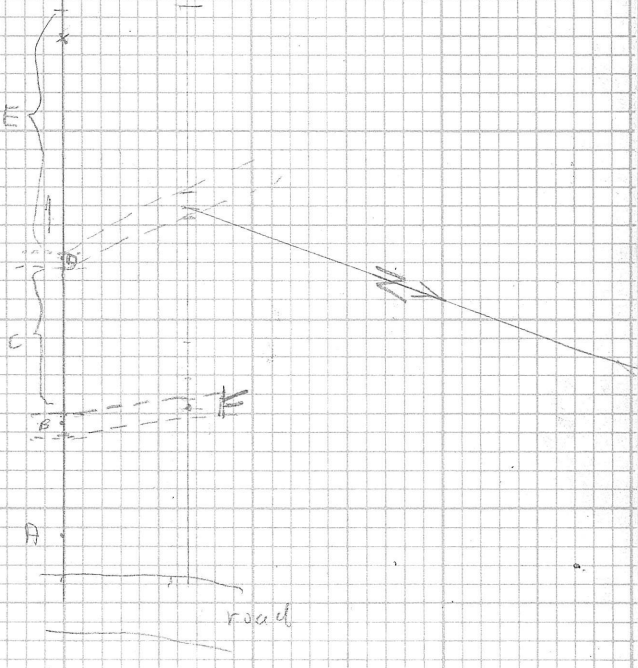
Trench	Picture No.
156	1 + 2
159	3, 4, 5
158	6, 7
161	8
162	9, 10, 11
163	12, 13, 14, 15
164	16
165	17
166	18
178	19, 20

Roll # 2

Trench	
177	1, 2, 3
176	4, 5, 6
175	7, 8, 9
180	10, 11
167	12, 13
168	14, 15, 16, 17

July RB 1976

168 Trench & redrug 1976 Scale: 1"=40'



Stn A – conglomerate with ss layers

bedding ⊥ 100°/25° N

B – 4 ft of brn blky, shale or mudstone

- minor dark gray shale

- bedding 115°/45° NE

C – 30 ft of coal

- bedding - very irregular

D – 2 ft of black coaly shale

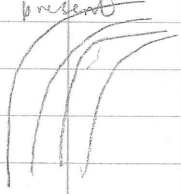
125°/78° NE

E – blk to brn to gray mid grained ss

- massive

140°/48° NE

Folding present

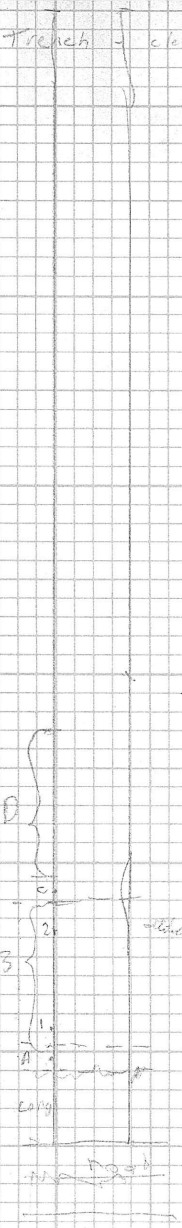


F – brn blky shale

260°/40° N

180 Trench - cleared 1976

Scale: 1" = 40'



Stn #1 - 5 ft of gray to brn gy mudstone
- blky
- 100°/75°N

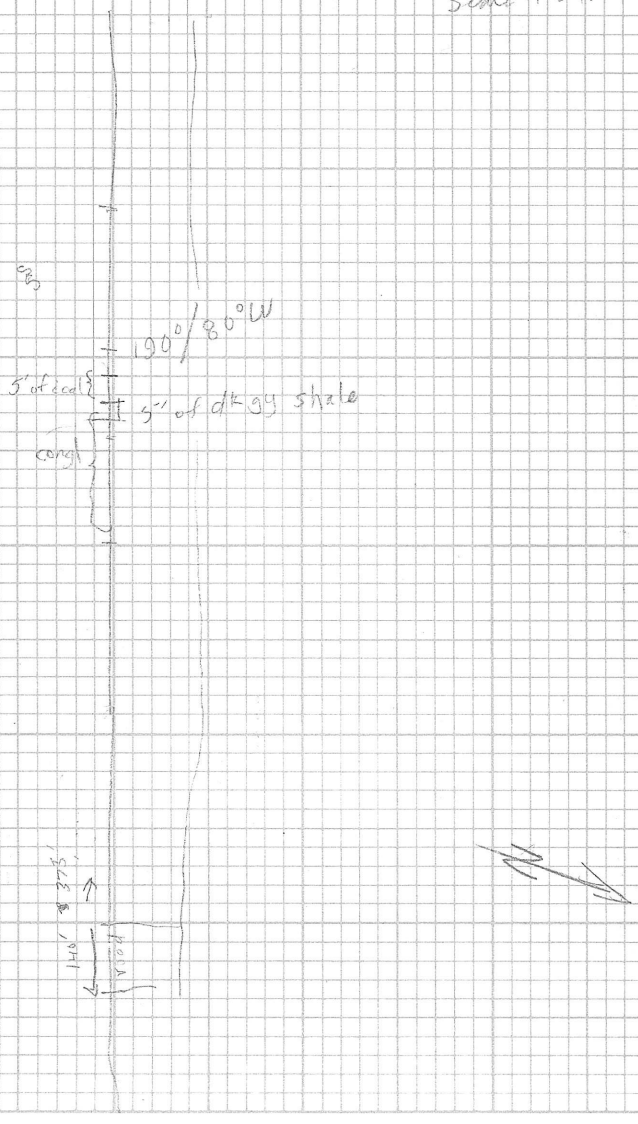
B - 30 ft of coal - shale interbeds
Attitudes B-1 320°/85°SW
B-2 130°/74°NE

C - 5 ft of ochre to gray tan shale
- massive to fissile
- 100/75°NE

D - 30 ft of gry med grained ss
- massive - no bedding seen

181' Trench
July 24 1976
181' Trench — cleaned 1976

Scale 1" = 40'



July 26, 1976

Ross River Coal

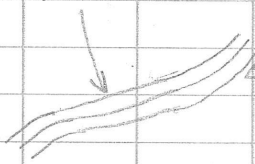
1" = 50,000'

Stn 1: Road Cut

W Side

A) Shale - brn to blk - fissile - unweathered surface - blk

320°/38° SW



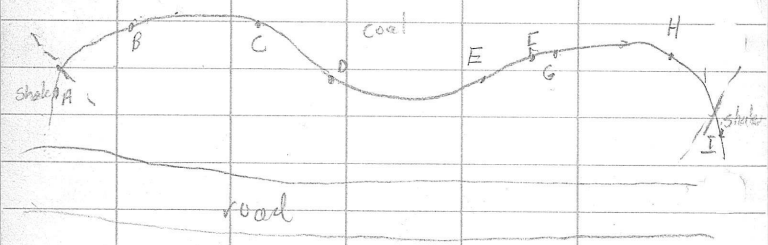
B) Coal - rather dirty with shaly interbeds

Bedding 325°/29°SW

C) 0°/26°S

Scale 1"=40'

Plan View



D) 350°/20°S

E) 0°/34°S

F) 315°/44°SW

G) 305/60 325/20 NE

H) 140°/25°NE

1 - shale - brn to lt gy
- dk brn unweathered surface
- fissile
- 110°/72°N

2 - dk gy to white 1st - no bedding seen
- massive

3 - brn to dk gy to brn 1st - bedding (?)
140°/90°

4) 1st a/a - no bedding seen
- white ytz vein in this location

5) blk to brn shale - fissile
- o/c about 20 ft long along road
50°/25° NW

6) Trench - shale present
- black to lt gy in color
- blackish on fresh surface
- both fissile and blocky
- 275°/53° S

7) Trench - coal is present
- somewhat dirty
- 95°/87°S
- 23°/75° S

8) Trench - shale along S side
- coal found at bottom of trench
- shale - brn to grayish color
- dk gy on fresh surface
- fissile
- bedding (?) 155°/55° SW

9) O/c along road of med gray massive sandstone - med grained, subangular grains
fresh surface - brn and white grains.
bedding - 290°/50° S
as you head east along road - ss changes to gy shale - massive - some cliff made

9 (cont.) - further east - massive shale or mudstone
- rust gray to brn
- 275°/65° S

10 - gopher hole - coal removed from it
lt gray to ochre - ~~fg ss~~ shale underlain directly by coal
- black bands present ↑ massive and blky
280°/28° S

11 - lt gray shale - some black layers
- massive and blocky
- 95°/340 N
- massive shale underlain by dk gy crumbly shale - present on bottom of pit beside road

12 - on bush road
- small o/c of dk gy conglomerates
- no bedding seen

13) - many o/c of black shale - weathered gray
- 50°/270 SE
- also some o/c of fg brn ss

14 Trench
- black shale on bottom of trench
- very fissile
- bedding (?) 245°/3° SE

15) conglomeritic o/c - no bedding seen
- grays to white - black and white pebbles

16) o/c along road of brown to dk gy massive shale - bedding ~~30~~ 350°/20° SE

17) large pit - 100' x 100'
- interbeds of fg ss + black shale
  - ochre to dk gy in color
- 145°/28° SE

18) abundant o/c of conglomerate + along road and up the hill
- cobble beds (typical) - 65°/230 SE

19) more conglomerate o/cs
335°/35° SE

20) Conglomerate o/c(s)
235°/30° SE

21) Contact between black shale + conglomerate
60°/33° SE

22) Conglomerate + ss layers alternate along road at Sta 22 - rather thick layers

23) o/c of limy phyllite - lt gy in color to lt brn + bedding - 110°/70° S

24) o/c of crystalline lst, brn in color on weathered surface; gray to white on fresh surface
- bedding - 315°/70° SW

25) gray lst, massive
bedding - 300°/50° SW

26) lst - a/a - no bedding seen

27) lst a/a

28) lst - well bedded - white calcite bands present
lst - brn to lt gray.
- bedding 295°/63° S

29) lst - gray to brn - massive
- bedding 125°/65° SE

30) lst a/a

31) "

32) phyllite - gray to brn - no bedding detected

33) brn phyllite - somewhat massive
- bedding 340°/30° E

34) a/a - foliation - fissile
- 320°/67° NE
- 10 ft down the road 330°/40° SW

35) a/a 110°/87° N

36 Trench - brn to blk phyllite present in bottom of trench - no attitude

37 c/c of green to gray phyllite
- bedding 45°/340°SE

Aug. 14, 1976

Carmacks South

Location of Coal Mine Leases and Lots

From Trench 168 - 100 ft up the road to the south - blazed location line from C.M.L. - E-W line - going west - down hill - 450 paces = ~ 1200 ft across other cut road about 200 ft in from cat road - 4' - 2 posts - C.M.L. - E. Kiffak Post #4 '65

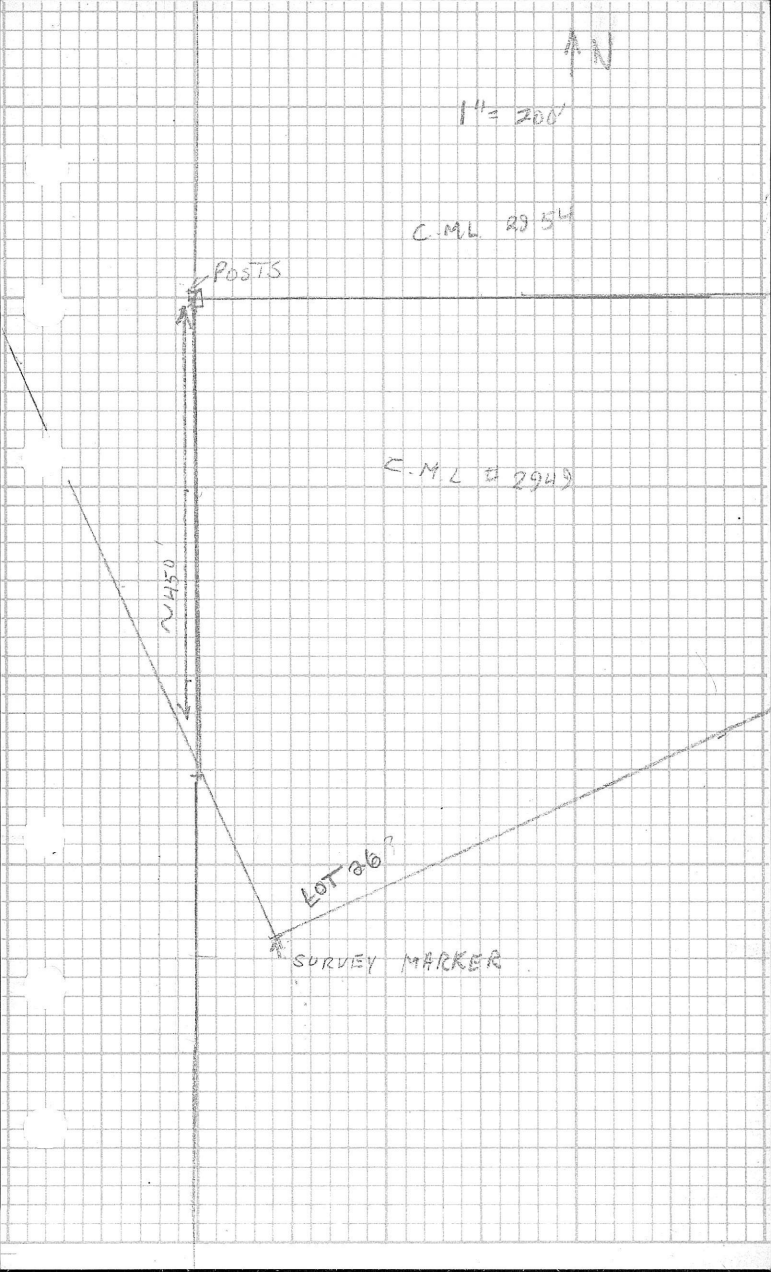
- cannot read other post

Freshly cut line - 20 ft N of these posts bearing - 68°

- Following C.M.L. line southward - come to lot line bearing 335° - follow cut line on bearing of 155° for 190 ft, come to survey marker at SW corner of lot 26. Also cut line at this point bearing of 245°

Survey marker reads - ⊕ 10 Canada Lands Surveys 4 L 26

1963


N
1" = 200'
C.M.L. 2954
POSTS
C.M.L # 2949
N 45° W
LOT 36
SURVEY MARKER

Aug 15, 1976

CML Posts - Post #1 P White

Nov 27, 1965 9 A.M

C.M.L

and Post #2 J.S. Br___

Nov. 25, 1965

10 A.M C.M.L.

Probably for C.M.L 2951 + 2953

Posts - Post #2 P. White

11:00 Nov 27 1965

C.M.L. 2953

Cannot read other post

Post - Post #2 E. K[illegible] A[illegible]

Nov 28 1965

10 AM CML 2949

Aug 16, 1976

Posts - Post #1(?) E. K[illegible]

Nov 28 1965

9 AM

CML

NE corner of 2949

POST #2 W. Carson

Nov 26 1965 10 AM

C M L

SE corner of 2954

Distance between two lines along road ~1050'

Posts - Post #3 C.M.L.

NW —

— 30 SW corner of 2968

Cannot read other post

POST - POST #3 C.M.L.

B IRVING ON BEHALF OF TESLIN EXPL

NOV 30 '65 2:01 PM

SW POST OF 2965

POST - POST #4

NW POST OF 2967

THIS LINE ON N BOUNDARY OF CML 2967 is 6001' S of S Boundary of C.M.L 2940

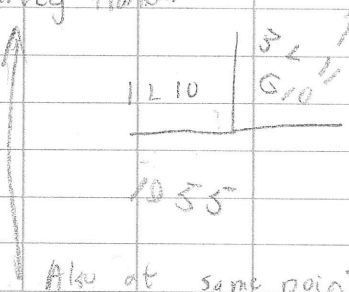
Aug. 17, 1976

Post - Post #3 C.M.L.

July 30/76

J F WELTER

About 500 ft SW of posts on NW corner of C.M.L. 2949



Also at same point - post

Post 4 C.M.L.

July 30, 1976

J. F. Welter

Post - cannot read it

probably NE post of CML 2951

Lease line crossed NW trending line of lot 25

but did not cross NE trending line of lot 26

Located within the road above the conglomerate of 35.

Peter Hongju

100 350

400 800

Ke
Altar II
Dow

Aug 15, 1976

Underground in coal mine

X cut from hanging wall seam to main seam

Detailed Stratigraphic Section

Starting at hanging wall seam

Footage	Description
0	Hanging wall seam
0-13 (12)	Conglomerate - chert, shale and quartz pebbles & pebbles - poor subrounded, poorly sorted; pebbles up to ½" in dia
13 (1)	1 foot of fg gy ss with coal stringers
14-17 (3)	Conglomerate as above
17-34 (16)	Fine grained conglomerate with veg ss - same comp as above,
34-43 (9)	Conglomerate - coarser grained up to ¼" in dia; otherwise as above
43-48 (5)	Fine grained conglomeritic md gy ss

118-116 Conglomerate as above
Thin coal layers and one sandy layer
detected

116-124 Conglomeritic ss - soft clumps as
clay + mica, % pebbles - 30%
small pebbles

124-126 Congl - as above

126-129 Ss - f-mg, little or no pebbles
- good bedding

129-134 Congl - as above

134-168 - Dk grey mudstone - blocky, soft
fg pebbly ss layers present - increasing away
from the hanging wall eastward the main
seam
at 136 - ss lenses
coal layers present to 141

168-174 interbedded mudstone and fg sandstone
layers

174-184 fg ss, increasing grain size
towards main seam

184-186 Congl as above

186-195 Mudstone - grey, dark bedding
plant fossil marks

195 - main coal seam

16	16	169
32	32	164
40	40	173
45	45	175
108	108	183
116	116	
118	118	
121	121	
131	131	

① BL 2+50 E Dip 76/000 ~~Westward~~ EW

From 2+25 to 3+00
Sequence of Medium brown mudstones containing a few thin coal beds (up to 6" thick) Abund plant remains

BL 3+00 EW
② Above sequence faulted against light grey med and sst with abund carb plant remains. Lft of fault gauge

Dip of fault plane 61/177

Dip in mudst 70/352
Dip in sst 58/353

sst quite massive — fractured but soft and crumbly (? weathering — I don't think so)

③ BL 3+50 EW
Contact here of coal over sandstone.
Dip in sandstone 57/000
Trend of contact roughly 165°

④ 15ft west — Fault offsets FW sandstone westwards to the South.

Dip of fault plane approx 73/212
Slickensides indicate horizontal movement — dextral

⑤ 4+00 10ft W EW 56/343
Footwall — black carb mudstone with coal by grey sst

58

70

FINAL PIT GEOLOGY

⑥ L 4+50 10 W East wall

Light grey fg ss+ with plant fragments

Dip 61/344

⑦ L 5+00 10 W East wall

Light grey fg ss+ with abund plant frags

Dip rather variable because of pronounced

x/bedding. Average approx 52/348

⑧ L 5+00 30 W

E Contact between coal & rock less -

Fin grained light grey ss+ with plant

frags - looks just like FW ss+

⑨ L 4+50 35 W

Rib of light grey, fine grained ss+

within coal - 1 to 3 feet wide. Looks

like FW ss+ Could be crest of anticline.

Somewhat sheared - bedding vertical.

Just to N cut off by fault trending

approx 210

(10) L 2+60 West wall

Contact between Coal & FW - black carbonaceous silty mudstone Dip 56/334. Mines up with contact on east wall. Grey sandstone in floor below.

(11) L 2+80 West wall

60/338 Coal c/band by thin bedded medium grey muddy siltstones, Med. grey. Siltstone lens ~1ft thick near top of coal.

Coal & siltstones interfinger on small scale

can trace approx boundary across floor of pit to (12), where it doubles back and forms a large interdigitation to (13). Mines syncline/anticline pair?

(14) L 3+50 west wall

Hanging wall sequence consists principally of medium grey, brown weathering, silty mudstones and muddy siltstones in lenses. Lenses partially interdigitate, and generally thicken northwards, eg. a 1ft carbonaceous mudstone band is 10 feet above coal at L3+00, approx 25

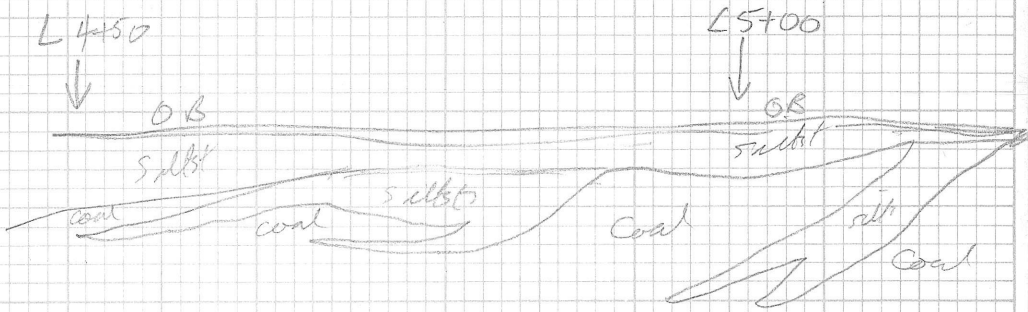
feet above it at L 4+50
Bedding at (12) 56/326

(15) L 4+00 west wall foot
Lens of V.c.g. sandstone comes in, thickens N - X bd, & cuts partings.
Bedding in sandstone near top of lens 46/320 X bd - right way up (+ grading)
L 4+ 10 (approx) pick up contact with underlying coal, which means something odd happens between (13) & (15)

(16) L 4+50. West wall foot
Siltstone bands interdig. with coal at top of seam

- See diag →

Bedding in coal approx 56/340
Coal itself appears X-bd



Due to relatively small-scale folding on axes plunging approx 10° to south, running obliquely into the wall – Axial plane dip ~45° to SE
Folding only seems to affect coal and bottom few feet of siltstone – Hw beds 5ft above pass straight along

South from (13) – near vertical fault separates FW sandstone on E, beneath coal, from coal on W. Trend of fault ≈ 325° Fault dips ≈ 70°E at 12, but 2 feet S dips W ≈ 60° Fault must run up axis of anticline

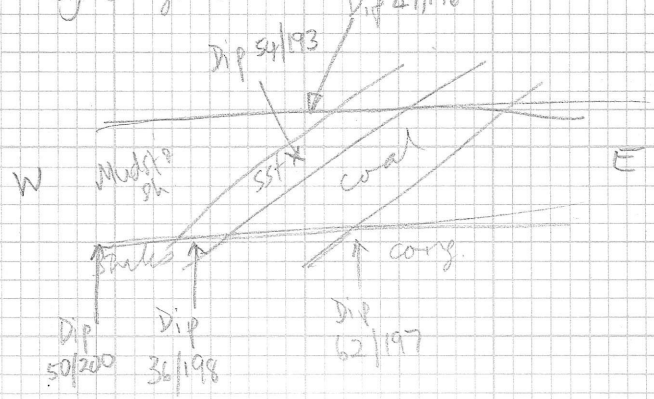
At (13) These structures cut off by fault running across pit. Dip ≈ 70/230 – but syncline/anticline pass through because FW ss appear in floor. Slicks on fault appear to plunge ≈ 45° to E

(17) Nose of anticline in light grey red and sandstone cont. abund plant remains – resembles FW sst. Can trace w contact along to (18)

At (18) Dip of contact roughly vertical with much shearing & brecciation of sst. Contact could be a F

In south trench -

coal underlain to NW by grey sst, then shales and coals (shaly), overlain to SE by conglom.



(19) Bedding in coal 64/347 OT
Between (18) & (20) a rock lens within coal — could be sedimentary lens or core of fold: Top & bottom surfaces roughly // ∴ think it's a lens
Contact with sst at top of small cliff

(20) Bedding in coal 65/328 OT Approx

(21) Central anticline in FW appears to terminate here — faulting & shearing // AP, probably rather than N plunge

(22) Eastwall BL 7450 10 E
Dip 55/343 grey FW sst

(23) Eastwall BL 7400 10 E
Dip 65/341 grey FW sst c/lain by about 1 ft of black carb shales.

(24) BL 6450 Minor fault dipping gently S displaces FW to E on N side — probably only a foot or so of displ.
Bedding approx 67/339

(25) Dip 60/346 BL 6+00 E wall. Black carb shale above grey Fwsst

(26) WW 8+00 71/175

(27) EW 8+00 57/350

(28) WW - Beneath coal. Med grey mg sandstone (Fw) w/ abund plant frags Dip 61/333 Becomes more siltstone downwards

(29) Below Fw sst - med to dk grey mudstones & silty sandstone with bands upto a foot thick of black carb shale. Dip 57/335

(30) EW Fw sst dip 52/332

(31) 7+50 WW Fw sst dip 51/178

(32) 7+00 WW Fwst dip 70/171

(33) 7+00 W side of rake Fw sst dip 23/155

(34) 6+50 WW Fw sst dip 50/174

(35) 6+00 WW Fw black carb mudst between coal & sst Dip 79/176

(36) Below Fw - passes down into cg to vcg, locally pebbly, sst Dip 75/334 Abund carb frags (large)

N.B. 36 is just opposite U&M survey post #289, exactly in line with trench

(37) 9+00 W of top FW/coal interface dip 82/194

(38) 8+00 FW sst W of pit dip 73/184, bnt x-bd

(39) 7+50 FW sst W of pit dip 51/169

(40) 7+00 Top of WW FW sst dip 50/172

Dist of Hole C-76-9 to top of pit approx 50 ft. on line 5+00

D.D.H C-76-8
134 feet from U&M 286
Bearing 287°