

DEPARTMENT OF MINES.

DM 1229/50.

SOUTH AUSTRALIA.

## WHITWARTA BROWN COAL INVESTIGATION.

Introduction.

On the basis of information obtained from a private bore sunk in section 27, Hundred of Stow, an investigation into the brown coal occurrence of this area was commenced in February, 1949. In the course of this investigation twenty two bores were sunk, the limits of the outcropping pre-Cambrian rocks were mapped and geophysical (gravity) surveys were carried out. A report on the project was furnished at this stage (E. Anderson, Mining Review 90 P 147) in which it is shown that the coal of possible economic interest is confined to a certain area adjacent to outcropping bedrock where four of the bores traversed coal averaging 22' in thickness at a depth of 120'. Because of urgent demands for the boring plant elsewhere the investigation was suspended until October 1950 when a new programme was initiated to test in greater detail the established deposit in the hope that the coal would shelve towards the bedrock.

General.

In the down faulted area of St. Vincents Gulf, fresh water coal bearing beds are known to occur extensively below the marine Tertiary. The general structure is that of a series of faulted blocks which are tilted up towards the north, the fresh water series becoming progressively shallower as the head of the Gulf is approached. In the Port Wakefield area, the Tertiary deposits are bounded to the east by the northerly continuation of the Mt. Lofty ranges, to the west by the pre Cambrian<sup>of</sup> the Hummocks and Barrunga Ranges, and to the north they have been traced to the vicinity of Koolunga and Broughton. The fresh water beds have been proved coal bearing and extensively tested at Inkerman and Clinton though the coal here lies at depths too great for opencast mining. Further to the north at Whitwarta, faulting and shelving have brought the coal to within 120' of the surface.

The Whitwarta coal deposit is 12 miles east-north-east of Port Wakefield in the Hundred of Stow, County Gawler. The fresh water bed has been

established by boring over an extensive area but coal of economic thickness and quality is more restricted. A general plan of the area and a discussion of the initial boring are to be found in the reference indicated above.

#### Supplementary Boring.

In addition to the 22 widely scattered bores of the original investigation, a further 8 have now been sunk in the coal bearing area. The location of the bores is shown on the accompanying plan and details of coal traversed in the tables. The boring has not achieved a complete delineation of the deposit but has established the fact that shallow coal cannot be expected in this vicinity. The deposit has been traced in a westerly direction where it thins out as it approaches outcropping bedrock, and a few bores have been placed to the east, proving that the bed continues in this direction at increasing depth.

#### Conclusion.

It is apparent that a considerable deposit of brown coal exists in this part of the Whitwarta area. The depth of overburden is such that opencast mining though possible is not immediately attractive, moreover the coal is rather inferior in quality (ash and sulphur content) to that known elsewhere in the State. With the limited information available from widely spaced bores it would not be advisable to make tonnage estimates but it seems probable that closer boring would prove an area of more than a square mile to be underlain by coal averaging 20' in thickness. This deposit constitutes a potential coal reserve which must await improvements in mining and utilisation technique.

*L.W. Parkin*

LWP:EAK  
13.3.51.

(L.W. Parkin)  
SENIOR GEOLOGIST.

WHITWARTA BROWN COAL DEPOSIT.

PROXIMATE ANALYSES OF COAL SAMPLES.

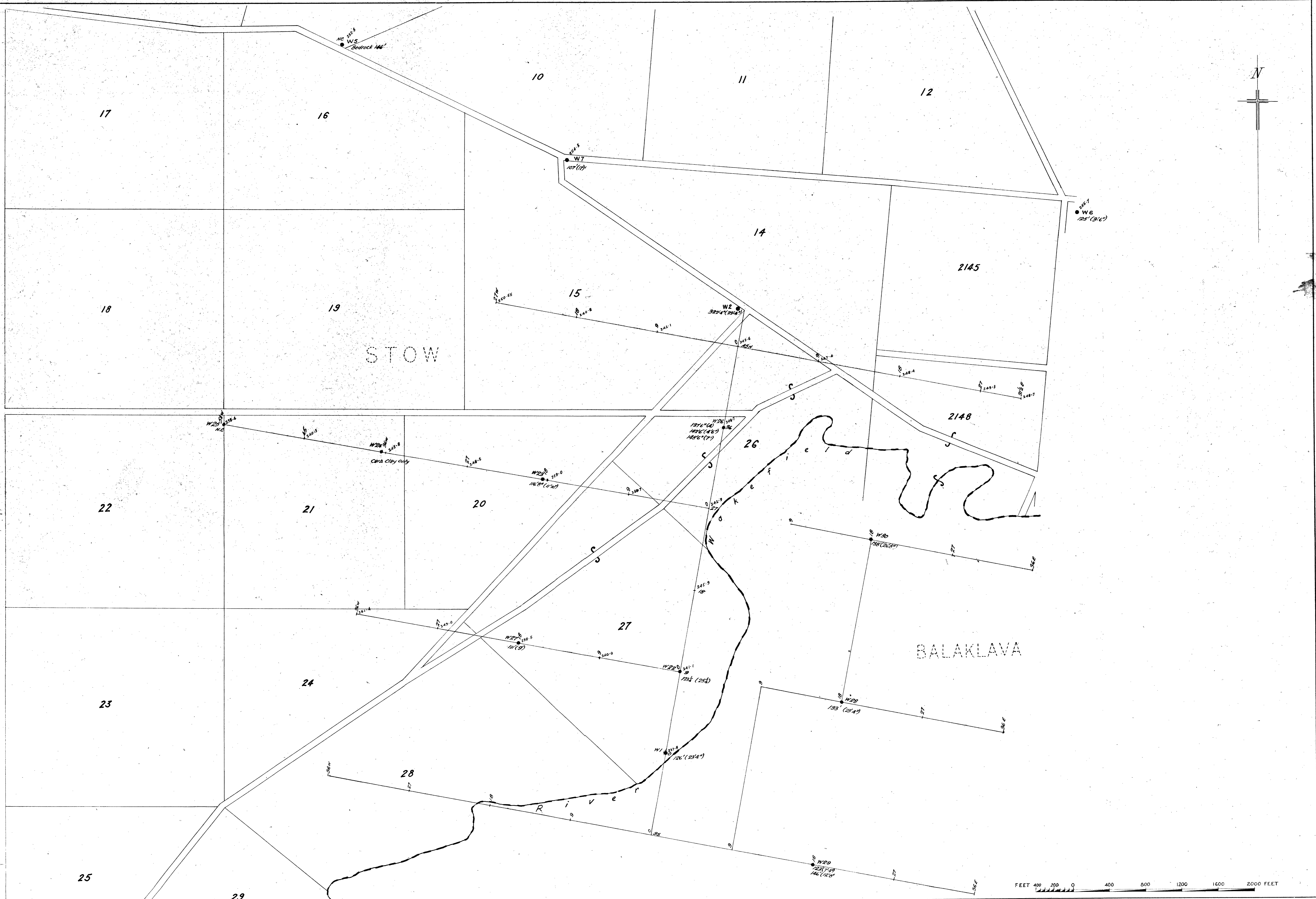
Bore No.	From Ft. Ins.		To Ft. Ins.		Thickness Ft. Ins.		Moisture (undried)	Standard moisture basis			
								Moisture (standard)	Volatile	Fixed Carbon.	Ash.
<sup>x</sup> W1	126	0	149	4	23	4	55.86	12.00	36.97	27.22	23.81
<sup>x</sup> W2	122	4	144	8	22	4	55.42	12.00	36.85	30.14	21.01
<sup>x</sup> W7	107	0	124	0	17	0	53.95	12.00	35.44	27.52	25.04
<sup>x</sup> W22	123	6	149	0	25	6	55.85	12.00	36.27	28.22	23.51
W23	116	8	128	6	11	10	55.23	12.00	32.79	24.81	30.40
W24			No clean		coal		throughout				
W25			No		coal		throughout				
W26	137	6	141	6	4	0	56.19	12.00	37.58	29.00	21.42
	142	6	147	0	4	6	55.31	12.00	40.45	28.34	19.21
	148	6	155	6	7	0	55.42	12.00	36.99	29.75	21.26
W27	111	0	113	6	2	6	29.62	12.00	34.28	26.42	27.30
	113	6	120	0	6	6	47.11	12.00	29.38	20.08	38.54
W28	133	0	156	4	23	4	58.42	12.00	38.90	29.27	19.83
W29	126	0	133	4	7	4	56.97	12.00	34.00	26.88	27.12
	146	4	158	4	12	0	56.29	12.00	34.93	26.96	26.11
W30	138	0	164	8	26	8		No	analysis		

x Bores sunk during original investigation.

CALORIFIC VALUE AND SULPHUR DETERMINATION.

(12% moisture basis)

Bore No.	Depth From Ft. Ins.		Depth To Ft. Ins.		Thickness Ft. Ins.		Calorific Value B.t.u per lb.	Sulphur %
W1	126	0	149	4	23	4	7870	5.05
W23	116	8	128	6	11	10	-	4.33



S.A.G. DEPT. OF MINES					30-29	
WHITWARTA COAL OCCURRENCE					Scale 400 ft. to 1 in.	
H <sup>25</sup> STOW & BALAKLAVA					Drn. <i>VBL</i>	
GRIDDED AREA & BORES					Ckd. <i>VBL</i>	
Approved <i>[Signature]</i>					Passed <i>[Signature]</i>	
Director of Mines					Date 5-10-50	
Exd. <i>G d+j</i>					50-405	

Req. No.	D.M.	Compiled from	Associated Drawing	No.	No.	Amendment	Exd.	Date
		Lands Dept. diagrams & road plans						

30-29 152/60

# Australian Mineral Development Laboratories

Telephone: 79 1662

Telegrams: "AMDEL," Adelaide.

Address all communications  
to the Director.

CONYNGHAM STREET,

PARKSIDE,

SOUTH AUSTRALIA.

Our Reference AR858/60.

July 14h, 1960.

1/2/0.

Director of Mines,  
Rundle Street,  
ADELAIDE.

Sample marked as under, yielded on analysis:-

<u>Mark</u>	<u>Analysis as received.</u>			
	<u>Moisture</u>	<u>Volatile</u> <u>Matter</u>	<u>Fixed</u> <u>Carbon</u>	<u>Ash</u>
W.J.40				
AL381/60	6.58 %	20.90 %	10.72 %	61.80 %

Locality:- Hd. Stow. Section 192. Bore-hole depth  
145-149'.

W. Johnson. Dept. of Mines.

*Whitewater Coal Field.*

Thomas R. Frost.

CHIEF ANALYST.

FILE

XWHITWARTIA C. F.

C.F. VEITCH

BALAKLAVA

STOW

192

MacDONALD

MAY 1960

14	-	30ft	Light brown calcareous silty sandy clay
30	-	41	Light reddish brown calcareous clayey silty sand
41	-	56	Light creamy brown clayey very fine sand
56	-	124	Pale brownish grey very fine sand
124	-	130	" " " " fine to medium grained sand
130	-	-	No sample
140	-	145	Light grey fine to coarse grained sand
145	-	149	Brownish black lignitic material
149	-	185	Dark grey-brown silt in part carbonaceous as above
185 ft	-		
185	-	237	Pale grey clay

lique sent  
for prox analysis  
12. 7. 60 - WJ

237'

41 -

?

Drilled by <sup>pvt.</sup> contractor MacDonald. Samples retained for palaeontological examination. Water saline

R. CHUGG

7.1.60

APPLICATION FOR EXAMINATION OF SPECIMENS OR SAMPLES

50blks100—4.60 7645

Applicant's Mark	Dept. Sample No.	LOCATION			Information Required
		Hundred	Sects.	* Other Locality Information	
WJ 40	A/381/60	Stow	192		Proximate analysis as submitted

\* Locality information includes distance, direction and name of nearest town or well known point; claim or lease number (if any); pastoral lease (if out of hundreds)—photo and run number or military sheet reference.

Disposal of Specimens

Discard

**Method of Collection**—Selected Specimens or Representative Sample—taken from surface, open working, prospecting shaft, underground working, bore hole, etc.

Borehole Depth 145-149

**Estimated Size of Deposit****Name of Applicant****Address**W. Johnson  
Rundle St. Office

Please forward to—  
The Director,  
Department of Mines,  
Box 38, Rundle Street P.O.,  
Adelaide.

Signed

W. Johnson

Date

12 July 1960

## OFFICE USE ONLY

Submitted to the Australian Mineral Development Laboratories for—

Analysis,  
Petrological Laboratory Examination, as above.  
Other

Charge against Mines Department Account No.

1/2/60

Approved for submission to A.M.D.L.

Director of Mines

Copy 1—A.M.D.L. Copy (via head office).

Copy 2—Mines Department, Rundle Street (T.I. Section).

Copy 3—Originator (Mines Department only).

Copy 4—Thebarton (only when samples submitted through Core Room).

**APPLICATION FOR EXAMINATION OF SPECIMENS OR SAMPLES**

50blks100—4.60 7645

Applicant's Mark	Dept. Sample No.	LOCATION			Information Required
		Hundred	Sects.	* Other Locality Information	
WJ 40	A/381/60	Stow	192		Proximate analysis as submitted

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Disposal of Specimens

*Discard*

**Method of Collection**—Selected Specimens or Representative Sample—taken from surface, open working, prospecting shaft, underground working, bore hole, etc.

*Borehole Depth 145-149'***Estimated Size of Deposit****Name of Applicant****Address***W. Johnson  
Rundle St. Office*

Please forward to—  
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Signed

Date

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## DEPARTMENT OF MINES, ADELAIDE.

Balaklava, January 29th, 1949.

The Director

Department of Mines,  
Adelaide.

Dear Sir,

I send you our weekly report, date 24.1/ 29.1.1949,  
from the district Balaklava.

We have taken the levels and also reduced from;

- 1.) Railway Station Bowmans in direction Balaklava along the road til the Sta. AE8. Distance: 2 miles
- 2.) Railway Station Balaklava in direction to the Railway Station Bowmans along the road til the Sta. AE8. Distance:  $7\frac{1}{2}$  miles.
- 3.) Railway Station Bowman in direction to Port Wakefield along the road til the Sta. Railway Station Port Wakefield. Distance:  $6\frac{3}{4}$  miles.
- 4.) Bridge (near Railway Station Balaklava) in direction to Whitwarta along the road til the centre of Whitwarta til the Sta. Py. Distance  $6\frac{1}{2}$  miles.
- 5.) Py (the centre of Whitwarta) in direction Kadina along the road til the Sta. S 21. Distance: 3.87 miles.
- 6.) Py (Road Whitwarta to Kadina, first road to the left) in direction Railway Station Saints til the Bore. Distance 0.6 miles.
- 7.) Platform (Sea Level Port at Wakefield) along the road til the Railway Station Port Wakefield. Distance:  $1\frac{1}{2}$  miles.

Balaklava, January 29th, 1949.

The Director,  
Department of Mines.

Weekly report from the district Balaklava continued:

All levels (Reduced Levels) are based on the B.M. 31 -- 193.59 ft.  
at Bowmans Station.

To have a control about our field work I made the level-traverse  
from Port-platform Wakefield to the Railway Station Port Wake-  
field and found at Railway Station Port Wakefield:

Reduced Level from Port Adelaide ..... 100 + 18.11

Reduced Level from Port-platform Port Wakefield      0 + 18.54  
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Difference:                      0.43 ft.

Connected you will find the Reduced Levels desired from the  
Geologist.

Yours faithfully,

F.R. Hellriegel.

Levels taken, January 27th 1949.

Bridge (near Railway Station Balaklava) in direction to Whitwarta along the road til the centre of Whitwarta that Sta. Py.

Bridge..... 314.27'      Dist.  $6\frac{1}{2}$  miles to Py..... 246.89'

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Levels taken, January 27th 1949.

Py (the centre of Whitwarta) in direction Kadina along the road til Sta. S 21.

Py.....	246.89'		S12.....	300.67'	Dist.	673'
S1.....	248.30'	Dist. 1540'	S13.....	321.82'	"	606'
S2.....	246.80'	" 928'	S14.....	332.41'	"	609'
Py1.....	244.45'		S15.....	346.01'	"	604'
S3.....	244.10'	" 935'	S16.....	366.55'	"	1207'
S4.....	243.44'	" 1325'	S17.....	359.16'	"	1265'
S5.....	251.15'	" 1175'	S18.....	347.88'	"	1335'
S6.....	248.38'	" 1228'	S19.....	359.59'	"	1203'
S7.....	231.99'	" 1004'	S20.....	370.46'	"	1218'
S8.....	231.25'	" 500'	S21.....	371.50'	"	1137'
S9.....	242.78'	" 684'				
S10.....	263.26'	" 675'				
S11.....	279.98'	" 578'				

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Levels taken, January 28th 1949.

Py1 (Road Whitwarta to Kadina, first road to the left) in direction Railway Station Saints til the Bore.

Py1..... 244.45'  
Py2..... 243.19'  
Peg..... 240.51'  
Bore..... 237.76'      Dist. 3200' (approx.)

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Levels taken, January 28th 1949.

Platform (Sea Level port at Wakefield) along the road til the Railway Station Port Wakefield.

Over Sea Level..... 15.70'  
Railw.Sta.P.Wakefield. 18.54'      Dist.  $1\frac{1}{2}$  miles (approx.)

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The difference in the Levels:      0.43 ft.

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Levels taken; January 25th 1949

Railway Station Bowman in direction Balaklava along the road til the Sta. AE8.

A (opposite Railway Sta. Bowman) ..... 191.61'

AE1..... 196.50'	Dist. 1320'	AE5..... 205.60'	Dist. 1320'
AE2..... 197.30'	" 1320'	AE6..... 208.10'	" 1320'
AE3..... 200.37'	" 1320'	AE7..... 211.76'	" 1320'
AE4..... 201.68'	" 1320'	AE8..... 212.37'	" 1320'

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Levels taken, January 26th 1949

Railway Station Balaklava in direction to the Railway Station Bowman along the road til the Sta. AE8.

St. (Centre of the Railway Station Balaklava) ..... 320.41'

Bridge.... 314.27'	Dist. 1800'	P9..... 245.44'	Dist. $\frac{1}{2}$ mile.
P1..... 310.98'	" 600'	P10..... 240.88'	" "
P2..... 300.10'	" $\frac{1}{2}$ mil.	P11..... 236.87'	" "
P3..... 294.68'	" "	P12..... 230.05'	" "
P4..... 289.39'	" "	P13..... 223.03'	" "
P5..... 278.88'	" "	P14..... 219.24'	" "
P6..... 268.69'	" "	AE8..... 212.27'	" "
P7..... 267.16'	" "		
P8..... 252.73'	" "		

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Levels taken, January 26th 1949

Railway Station Bowman in direction to Port Wakefield along the road til the Sta. Railway Station Port Wakefield.

A (opposite Railway Station Bowman) ..... 191.61'

AW1..... 187.45'	Dist. 2500'	AW9..... 147.98'	Dist. 2500'
AW2..... 186.37'	" 2500'	AW10..... 139.76'	" 2500'
AW3..... 181.31'	" "	Px2..... 142.31'	" "
AW4..... 178.41'	" "	AW11..... 134.60'	" "
AW5..... 168.96'	" "	AW12..... 127.69'	" "
AW6..... 163.66'	" "	Px3..... 128.71'	" "
Px1..... 165.90'	" "	AW13..... 123.07'	" "
AW7..... 156.45'	" "	AW14..... 119.35'	" "
AW8..... 152.13'	" "	Px4..... 117.59'	" 900'
		R. St. Port. W.	
		118.11'	" 1000'

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