

Line B 2.

This is common to line A 1 from Otira Station to Hot Spring Point, where it crosses the Otira with a high bridge, and turning to the left goes through the dividing spur and joins line B 3 about three miles and three-quarters from Otira Station, and forms a loop. This line is about half a mile shorter than line B 3.

Characteristics of line B 2:—

Length of west approach	...	...	...	...	7 m. 63·5 ch.
Length of east approach	...	...	...	...	2 m. 2·5 ch.
Total length of line	...	...	...	...	9 m. 66 ch.
Maximum grade, west approach	...	...	...	...	1 in 30.
Maximum grade, east approach	...	...	...	...	1 in 40.
Grade in summit tunnel	...	...	...	...	1 in 33.
Minimum radius of curve	...	...	...	...	7½ ch.
Total degrees of curvature	...	...	...	...	1,407 degrees.
Percentage of line curved	...	...	...	...	34.
Length of summit tunnel	...	...	...	...	5,990 yards.
Total length of tunnels outside summit	...	...	...	...	1,296 yards.
Total length of bridging	...	...	...	...	2,376 ft.
Grade-level at summit	...	...	...	...	2,535.
Estimated cost of construction	...	...	...	...	£539,000.

Line B 1.

This line is common to line B 3 for about 60 ch. from Otira Station, and thence turns to the right and goes along the right bank of the Rolleston with a grade of 1 in 30 up to Holt's Creek, and, crossing this, rejoins B 3, making a saving in distance of about 15 ch. This line runs for about 60 ch. along the slope of the loose shingle mountain-side opposite Dyer's, but can be located so as to be almost entirely in embankment, to avoid cutting into the loose shingle slides.

Characteristics of line B 1:—

Length of west approach	...	...	...	...	8 m. 6·5 ch.
Length of east approach	...	...	...	...	2 m. 2·5 ch.
Total length of line	...	...	...	...	10 m. 9 ch.
Maximum grade, west approach	...	...	...	...	1 in 30.
Maximum grade, east approach	...	...	...	...	1 in 40.
Grade in summit tunnel	...	...	...	...	1 in 33.
Minimum radius of curve	...	...	...	...	7½ ch.
Total degrees of curvature	...	...	...	...	1,160 degrees.
Percentage of line curved	...	...	...	...	26½.
Length of summit tunnel	...	...	...	...	5,990 yards.
Total length of tunnels outside summit	...	...	...	...	638 yards.
Total length of bridging	...	...	...	...	2,240 ft.
Grade-level at summit	...	...	...	...	2,535.
Estimated cost of construction	...	...	...	...	£512,000.

Line A 2.

This line is common to B 3 for about one mile from Otira Station, and then turns to the left and crosses the Otira River near the present footbridge, and continues across Dyer's Flat to the hillside, and follows the right bank of the Otira River up to a point between Westley's Creek and the lower road-bridge, where summit tunnel begins. This line is on about the road-level for a mile, and as there is but little room for both road and railway, it might be found advisable to take the road on the opposite bank and remove the bridge down to a point a quarter of a mile above the mouth of the gorge. The end of the summit tunnel on the Bealey side is about the same place as the end of the tunnel on line A 1, and the two lines are practically common on the Bealey side of the range.

Characteristics of line A 2:—

Length of west approach	...	...	...	...	7 m. 55·5 ch.
Length of east approach	...	...	...	...	1 m. 4 ch.
Total length of line	...	...	...	...	8 m. 59·5 ch.
Maximum grade, west approach	...	...	...	...	1 in 30.
Maximum grade, east approach	...	...	...	...	1 in 40.
Grade in summit tunnel	...	...	...	...	1 in 33.
Minimum radius of curve	...	...	...	...	7½ ch.
Total degrees of curvature	...	...	...	...	593 degrees.
Percentage of line curved	...	...	...	...	16½.
Length of summit tunnel	...	...	...	...	8,780 yards.
Total length of tunnels outside summit	...	...	...	...	200 yards.
Total length of bridging	...	...	...	...	990 ft.
Grade-level at summit	...	...	...	...	2,440.
Estimated cost of construction	...	...	...	...	£525,000.