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BY

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LATE PRINCIPAL ENGINEER AND SURVEYOR TO THE NEW ZEALAND COMPANY,
FROM THE YEAR 1842 TO 1845.

Third Edition.

WITH ADDITIONAL EXAMPLES.

LONDON:
JOHN WILLIAMS AND CO.
LIBRARY OF ARTS, 193, STRAND.
1847.

BRIDGE AT THE CROSSING OF THE ROAD FROM BERKHAMPSTEAD TO BERKHAMPSTEAD PLACE.

Vide Plate 40.

This road passes the Railway at an angle of 45 degrees, and at a point where the depth of the embankment is 13 feet 6 inches, or where the surface of the rails is 13 feet 10 inches above the surface of the present road. The Bridge consists of six cast iron Girders, or Ribs, resting on a course of stone built into the abutment walls; those on the outside, and supporting the parapet walls, are 2 feet 6 inches deep; and those inside, carrying the Railway, are 2 feet 3 inches in depth, with top and bottom Tables, the former 10 inches, and the latter 1 foot 6 inches broad; the thickness of the iron throughout is 2 inches. Three pairs of wrought iron Ties, $1\frac{1}{4}$ inch in diameter, must pass through each of the outside ribs, and attach it firmly to the adjoining inside rib, in the manner shown on the drawing. The holes in the face must be countersunk, and bosses must be cast on the inside, so as not to decrease the material at those particular points. A 2-inch plank of Oak extends along the top of the four inside ribs, and on this rest the railway Chairs, which must be bolted through the wood to the table of the Rib. Brick Arches, 9 inches thick, are to be turned between the ribs, in the manner shown on the drawing, and the Spandrel Walls must be built across the Bridge at right angles with the face, and carried up to a height level with the top of the ribs. A stone string-course, dressed into a torus moulding, runs along the bridge as far as the outside of the pilasters, in the front of the abutments: it must be attached to the ribs by iron plugs, leaded into the stone, and keyed under the table of the rib. The width on the square, between the Abutments, is 15 feet, and the clear headway under the ribs must be 15 feet also; but in order to obtain this height, the road must be lowered to the extent of 1 foot 9 inches under the bridge, and it must rise at the gradual inclination of 1 in 20 to the present surface on each side. The Ribs must be of No. 1 iron, and the wrought iron bolts &c. must be of the best scrap iron.

The Contractor must be at the expense of subjecting the whole of the iron work to any test which the Engineer may think proper to apply, in order to ascertain its strength and soundness; and if any defect shall appear, the Contractor shall replace the defective casting, or iron work, for others free from such objection. For particulars of Workmanship, and material, diverting, lowering, and metalling the road, see approaches to bridges and General stipulations.

RETAINING WALL AT BERKHAMPSTEAD CASTLE.

This Wall is for the purpose of retaining the Railway Embankments along the part of the road from Berkhampstead to Berkhampstead place, immediately in front of the Castle. Pilasters are to break forward half a brick from the face of the wall, at a distance of 20 feet, as near as may be, centre to centre, and they are to run flush into the plinth at the bottom, which must project half a brick. The top course of the Plinth must consist entirely of headers, neatly bevelled off, and laid in cement. A piece of stone, of the dimensions and form shown, is to stand out as a string-course from the pilasters, and in the manner shown in the drawings, and along the wall, at the same level, a half brick projection of equal depth is to be continued, the bricks of which must be rubbed on the outer surface. Where the road passes under the Railway, this arrangement is altered, as will be seen from the drawings. A torous moulding extending as far as the outside of the pilasters in front of the abutments. Immediately behind the pilaster, the wall must be broken by counterforts, of the form and dimensions shown in the drawings, and they must be well bonded into its substance. The footings are to be carried down 1 foot 6 inches below the present surface, and whatever is the section of the ground, they must in no part be formed at a less depth. The wall is finished at each end by a curved return, and along the top of the whole extends a stone Coping, 6 inches in depth. No Stone must be less than 3 feet in length, and each stone must be secured to the adjoining one with a wrought iron cramp, 8 inches long, turned down at the ends 2 inches, and run with lead. The length of the walls, between the commencement of the return walls at each end, is 555 feet 6 inches, and the length of the return walls is 42 feet 6 inches, making the total length of the wall 640 feet 6 inches. In bringing up the Embankment, the earth must be well rammed in layers of not more than 1 foot thick, for a distance of at least 6 feet from the back of the wall. The whole of this wall must be neatly finished, and the joints drawn, and if they are acted upon by the frost before the mortar has become hard, they must be repointed in the ensuing Spring. Care must be also taken to give the wall a proper and even curvature, so that it shall be in every part parallel with the centre line of the Railway.

DIVERSION OF ROAD INTO BOURNE END ROAD.

This Road is to be diverted between the letters A and B, a distance of about 19½ chains. The diversion must follow the direction of the railway embankment