over which is a layer of asphaltc ½ in. thick, this being put on in two coats of ½ in. each. Upon the asphaltc there is laid under the streets 1 ft. of road metallng. The clear height of the undersides of the girders above rail level is 13 ft. 6 in.

The counterforts of the side walls are 5 ft. 6 in. deep horizontally for their whole height, being built without batter; whilst their thickness is three bricks in front of, and two bricks behind, the arched panels, as shown in the sectional plan, Fig. 4. The panels are formed of three rings of brickwork, and are built with a batter, as shown in Fig. 2. The walls are founded on concrete carried 5 ft. below rail level, and the panels are also backed with concrete to the level of the backs of the counterforts, each bay being provided with a 4 in. pipe packed around with gravel for the purposes of drainage. An 18 in. barrel drain is also carried down the centre of the line at a variable distance below the rail level, and from Blackfriars Bridge to Gloucester-road the structure has, where clay was not met with in the foundations, been provided with a concrete invert 2 ft. 6 in. thick.

The manner in which the construction of the covered way was carried out was as follows: Two trenches were excavated at the proper distance apart to receive the side walls, and the space between them was, where necessary, lowered to make room for the girders covering. The sides of the trenches were, of course, supported by the usual struts and poling boards, and, as the construction of the side walls proceeded, these were removed and replaced by the concrete backing at the back of the walls and struts, extending from the inner sides of the walls to the central “core” between the two trenches. These last-mentioned struts were allowed to remain until the brickwork was thoroughly set; and when the covered way was completed, the central core was removed by excavation from the ends. By proceeding in this manner the only earth, &c., which had to be lifted was that taken out of the trenches for the side walls, and this was raised by the aid of steam cranes traversing on temporary rails laid by the side of the excavations. At the portion of the line which we are now describing, the excavations were made almost entirely through sand and gravel (the clay being, however, reached near the foundation level), and by carrying out the system of end excavation of the central core, the material was readily conveyed by trolleys, running on temporary rails, to points on the line where it was screened, and that portion not required for making mortar or concrete sold at a remunerative price. If, on the other hand, the excavation had been completed at once, and the part forming the core raised before the covered way was finished, great expense would have been incurred on account of there being but in few cases available storage room for the excavated material, and all that portion which could not be immediately disposed of would have had to be carted away.

Where the excavation had to be carried under the line of a street, a very simple way of constructing a temporary bridge was in most cases adopted, the bridge being formed for half the width of the road at one time, so as to interrupt the traffic as little as possible. Longitudinal trenches, about 2 ft. 6 in. deep, were first cut in the roadway, 4 ft. apart; these trenches being sufficiently long to receive timber balks which spanned the intended excavation. The surface of the ground between the trenches was then lowered, and cross planking placed upon the balks, and upon this planking was laid about 1 ft. of road metallng. After the whole of the temporary bridge was constructed in this manner, the ground was excavated beneath, and the construction of the works proceeded with as at other parts of the line. When gas or water pipes were met with, to be eventually supported by the roof of the covered way, they were sustained by slinging them from balks overhead, and also by struts extending to the ground below, these struts being replaced by longer ones as the excavation went on. Brick sewers which crossed the line of the railway were also supported in a similar manner until removed and replaced by iron structures. Near Parliament-square-gardens, the present Victoria-street sewer thus crosses the line of the works. In this case the sewer was diverted, and a length of the old brick sewer replaced by a new sewer carried along the southern side of the railway, at the back of the side wall, to the Low-level Sower at the Thames Embankment. Another similar sewer was formed along the northern side of the line for some distance, so as to intercept the sewers which extended from that side to the Victoria-street sewer; this new sewer eventually joined the existing Victoria-street sewer at the point where it leaves the northern side of the railway.

Near the end of Victoria-street, the centre line of the railway passes about 95 ft. from one of the corners of Westminster Abbey, and, for a length of 300 ft. near this point, a retaining wall of extra strength is built along the southern side of the line, which here runs nearly east and west. This wall, instead of being built in bays, is 5 ft. 6 in. thick throughout, and is backed with peat for a thickness of 7 ft., this thickness of peat being, however, reduced at the bottom, where the sewer already mentioned is situated, the sewer being formed for this length of 300 ft. of an iron pipe 4 ft. 6 in. in diameter. This system of peat backing was adopted at the recommendation of Mr. G. P. Bidder, acting as engineer to the Dean and Chapter of Westminster, in order to prevent any vibration being transmitted from the railway to the Abbey. We may mention here that it has been sometimes stated that the Abbey was