

Case Study for SureBrick Installation A3 Bypass Slip Road Guildford Surrey

Customers:

Volker Laser Ltd
Kier Group Plc
Highways England

Structural Engineer

Rhodes & Partners Ltd, Stockport

Installed by

Redland Cladding Installation Ltd, Stockport

The Project

A new slip road exit was built on the A3 Bypass at the Guildford University exit. As the land was adjacent to The Holiday Inn Hotel it was deemed necessary to enhance the piled walling scheme installed to support the roadway with a brick finish.

The Forterra SureBrick cladding system was chosen for the project. In order to satisfy Highways England stringent requirements a complete stainless steel backing matrix was specified to mount the SureBrick system to. This included Stainless steel horizontal rails, top hats, SureBrick backing rails and all fixings.

The following pictures show how the complex wall was built onto the piling rails.

Piling Rails were installed on 1400mm centres along the slip road length which was approximately 112 metres long. The piling rail installation tolerance to each other is +/- 75mm. In the worst case the piles were up to 142mm different. A site survey taken on the piles showed a huge variation between piles which meant that the backing matrix first had to be levelled and give a horizontal and plumbed vertical matrix to fix the SureBrick rails to.

On completion of the horizontal rail fixing we then added vertical top hats to which the SureBrick rails were then mounted onto. This then allowed the brick tiles to be mechanically fixed to the rail.

The whole area was then finish pointed and finished at the top of the wall with an alloy flashing and a gravel drain at the foot of the wall.

The install time from start to finish was 7 weeks and completed using 3 men for the install including pointing and flashing.



These pictures show the bare piled sheeting installed in position. The piles are 13metres depth with approx. 2 metres protruding above ground level.

Next the stainless steel horizontal rails were fixed to the piled sheets on minimum 500mm centres. The rails were fixed across 4 piles using Hilti stainless steel fixings. Each fixing was predrilled with a pilot hole before the fixing was added. 84 Rails @ 4.2 metres length were fixed to the wall using 504 fixings. The rails are 50x25x2mm stainless steel box section.



The horizontal rails used stainless steel brackets on most of the piles. This fixing method designed by Rhodes and Partners required 6 brackets per length. Each bracket had 2 Hilti screws per bracket each one was piloted into the pile.



Brackets were fixed to most piles and varied in size to span from 20mm to 120mm the smaller ones were to span up to 75mm. The larger spans from 75mm to 120mm were increased to 300mm in length as per the Structural Engineers instructions. A total of 1008 pilot holes were drilled and Stainless steel Hilti Fixings were used to secure the brackets to the piles.

Once the Horizontal rails were installed and levelled the stainless steel top hats were added. These are 50x25x50x25x50 x 2mm stainless steel. They were fixed on 500mm centres using stainless steel Hilti fixings



The top hats were vertically plumbed using purpose made stainless steel shims. They were then ready to add the SureBrick rails.



The rails are fixed with a stainless steel Hilti screw every 500mm so a total of 4480 screws secure the SureBrick rails to the Top Hats. All the SureBrick rails are manufactured from stainless steel.

After the rails come the brick tiles. Each individual tile is profiled to enable the tile to mechanically fix into the rail. They are clicked into place using a rubber mallet. It also shows below how a DPC was installed into the wall as the rails were installed using the SureBrick DPC top rail detail.



Inspection hatches were required at three points along the wall they were constructed as below. First an opening was cut into the wall. Then a stainless steel frame is inserted into the gap. The frame houses a hinged door which is then fitted with rails so that the tiles can be inserted to make the hatch as hidden as possible



The system is finish pointed using Parex Historic Mortar then a powder coated aluminium capping is added to the top of the wall and a French type gravel drain at the bottom. Movement joints are finished using Arbosil mastic sealant.





The start, the middle and the end of the wall 112 metres, 1.6 metre high 150 Square metres