

Method statement for labour based construction of:

Crack sealing – paving fabric

Definition

This method entails the covering of surface cracks with a paving fabric membrane saturated in a bituminous binder. The repair will seal off the crack against the ingress of water and serve as a means of tying the surfacing together and prevent any further loss of fines through the cracks as a result of the action of traffic.

Application

Road pavement distress in the form of cracking is largely due to traffic loading, age of a specific layer, weather conditions and material types used in road layers. If left unattended, especially through the wet season, cracks will accelerate the deterioration of the road condition, often leading to potholing and complete failure. Consequently the repair of cracks in the road surface needs to be attended to as a matter of urgency.

This method for covering active cracks on a road surface is effective if the cracks are closely spaced and localised. The paving fabric also assists in diffusing or absorbing the energy generated by the traffic action.

This application can be done as a preventative maintenance measure before a suitable wearing course is applied.

Material requirements

Modified emulsion: A suitably modified bitumen emulsion obtained from a reputable supplier.

Crayons: - for the marking out of the cracks to be treated.

Paint: - for the marking out of larger areas. Spray cans can also be used.

Paving fabric -: a non-woven geotextile fabric of suitable thickness and strength as required by the client or his agent for the specific application, sourced through a reputable supplier.

Coarse sand, - 4.75 mm dust or 6,7 mm stone chippings - : used to cover the patch and to tie it in with the existing surfacing.

Plant and equipment requirements

Item	Number of items
Pedestrian static roller	1
Wheel barrows	2
Wire brushes	2
Soft bristle brushes	2
Block brushes	2
Knife or scissors	1
Bass brooms	2
Squeegees	2
Spades	4
Cans or applicators	2

Labour requirements

Below is the typical composition of a paving fabric team necessary to cover 700m² of fabric seal per day.

Activity	Number of workers
Supervisor	1
General assistants	8

Traffic control personnel will need to be added to these numbers for a complete team complement. The number of flagmen, stop/go boards and cones or delineators will be determined by the extent of the area to be repaired.

Construction

Site Preparation

The area to be repaired should be inspected together with the client or his agent and all the cracks that require sealing should be marked using the paint and the soft bristle brush, canyons or spray cans of paint.

Cracks wider than 7 mm will need to be pre-treated with a crack sealer. (See applicable LIC crack sealing method statement). If pumping of water is evident at the cracks it may be necessary to install some subsurface drainage. This will need to be done on the advice and prescriptions of the client or his agent.

Sealing off cracks with paving fabric

The paving fabric should be cut to the required size to enable it to extend at least 100 mm beyond the crack, in terms of both width and length. The precise area to be covered by the fabric should be painted with the modified bitumen emulsion at a rate of 1 l/m² of patch using either the block brush or squeegee. For weathered surfaces the application rate should be increased by 0.1 – 0.3 l/m². For open textured surfaces the application should be increased by 0.3 – 0.5 l/m². The exact additional application rates should be ascertained from the client or his agent.

The cut paving fabric patch is then placed onto the painted emulsion and smoothed down with the squeegee while pressing the paving fabric into the emulsion. The edges of the paving fabric should be properly stuck to the emulsion.

The fabric is then rolled with a loaded wheelbarrow. The ballast could be either 2 bags of cement or a labourer.

The surface of the patch can be saturated with emulsion if so required by the client or his agent. The application rate will depend on the surface finish specified - either sand, -4.75 mm dust, or 6.7 mm stone chippings applied at a rate will depend on the aggregate size and shape. This spread rate will be specified by the client or his agent. The excess material that does not adhere to the emulsion must be swept off the repaired area and removed from the road surface. The surfacing aggregates should be rolled with a static roller to ensure they are properly embedded and correctly orientated.

Traffic control

Traffic should be diverted around the area that is being repaired using the correct signage. The area being repaired may be opened to traffic, with a speed restriction, as soon as the emulsion has broken and the rolling of the aggregates is complete.

Packing up and cleaning of equipment

The signage can be moved to the next repair area once the emulsion has set and the process is repeated.

The tools can be cleaned with water if the emulsion has not yet broken and turned black. If the emulsion has broken the equipment will need to be cleaned with mineral turpentine or paraffin.

Quality control

There should be no deleterious material e.g. oil and other contaminants near the cracks that will adversely affect the performance of the sealant.

The emulsion should not be allowed to drip onto the road surface between cracks being sealed thereby contaminating the road surface.

The application rate of the emulsion should be such as to ensure sufficient impregnation of the paving fabric and proper bonding of the fabric to the existing road surface.

The cracks being covered should be inspected for the presence of excessive moisture as such moisture can adversely affect the adhesion of the paving fabric to the surfacing.

The modified bitumen emulsion should not be cut back as the volatiles may get trapped in the paving fabric during hot weather making the binder softer than required which can lead to premature distress of the repaired area.