

TREATMENT OF FLUSHED SURFACES USING HIGH PRESSURE WATER

1. INTRODUCTION

A sprayed seal surfacing may bleed or flush if too much bitumen or cutter is used during spraying or if a poorly patched area or uneven surface texture reflects through the sprayed seal. Generally this occurs in hot weather and it produces areas which have limited or no texture.

Bleeding or flushing can produce areas :

- which have poor skid resistance,
- where the bitumen (and aggregate) is picked up by vehicle tyres thus reducing the waterproofing capacity of the sprayed seal,
- where bitumen is tracked onto surfaces past the area that has bled or flushed thus creating unsightly surfaces.

Similarly, asphalt surfaced pavements sometimes develop a film of road grime due to oil and spillages or a mixture of bitumen and fines possibly resulting from the choice of asphalt mix design or over compaction of the asphalt.

2. USE OF HIGH PRESSURE WATER

High pressure water equipment has been used to:

- restore surface texture by removing slick, flushed areas, petrol, oil, grease and other grime from asphalt and sprayed seal surfaces,
- remove painted lines from asphalt and sprayed seal surfaces.

The equipment currently available consists of a “hydro mower type” apparatus which is manually moved over the area to be treated. Approximately one metre width is treated by a single pass of the apparatus. The high pressure water is discharged through two or more jets located on a rotating disc beneath the “hydro mower type” apparatus. The applied water pressure can be adjusted to control the amount of material removed from the surface of the pavement.



“Hydromower” - Hammelmann. Aquablast Type FR 1000

The process leaves a “slimy” like residue (a mixture of the bitumen, oil, grease and other grime) which needs to be swept/washed off the surface and disposed of responsibly.

High pressure water treatments are particularly suited for:

- treatment of asphalt surfaces although, with care, sprayed seal surfaces are successfully treated,
- treatment of sprayed seals with older or harder binders,
- treatment of sprayed seals in cold weather where the reactions of solvent treatments is very slow,
- removal of paint spillages.

3. EXAMPLES OF TREATMENTS

(a) Friendship Square, Cheltenham North

This asphalt area was treated by hydro jetting in 1991 to remove the surface mastic of bitumen and fine material to

improve the skid resistance. The treatment of corners resulted in improved texture and a substantial improvement in skid resistance.

In 1997 there remains evidence of the improved surface texture resulting from the original treatment.



Photograph showing the change in texture caused by the hydro jetting treatment - Friendship Square, Cheltenham North.

(b) Williamstown Road, Port Melbourne

At this site the sprayed seal had flushed very badly. To prevent “pick up” of the aggregate and to improve the skid resistance, the surface was treated by hydro jetting in 1991. The treatment improved the surface texture and skid resistance. In 1997, the sprayed seal is still performing satisfactorily although evidence of flushing is returning.

(c) Princes Highway East, Traralgon.

A hydro jetting treatment was recently undertaken on a sprayed seal section of the Princes Highway East at the intersection of Liddiard Road in Traralgon.

The existing surfacing had flushed up over the previous 2 years. The hydro jetting operation removed the excess bitumen and grit with negligible damage to the 14 mm seal and created sufficient surface texture to improve the skid resistance of the site.

(d) Removing painted lines

The high pressure water process has been used to remove painted line marking. The process does not remove all of the ingrained paint from the asphalt surface and can leave a visible shadow around the old line(s).

4. BENEFITS OF TREATMENT

The major benefit of hydro jetting is that it removes flushed or ‘fatty’ areas, hence the texture and the skid resistance of the surface is improved.

At the trial sites in Williamstown Road, Port Melbourne and Friendship Square, Cheltenham, the skid resistance improved from an SFC (Sideway Force Co-efficient) of about 0.25 to greater than 0.70 immediately following the treatment.

The treatment can also be used to remove road grime, hence improving the appearance of the pavement.

5. OTHER FACTORS

Other factors to be considered when using high pressure water equipment are:

- the high pressure water equipment needs to be used with care as applying the water at excessively high pressure or for too long at the same location can damage the surface by removing too much bitumen and cause ravelling or stripping.
- The hardness of the bitumen in the seal or asphalt surfacing will affect the water pressure required and time to complete a treatment.
- A source of clean water from a hydrant, water cart or similar equipment is required.
- There is a need to dispose of the removed bitumen mastic and road grime that is produced as part of the treatment and prevent it entering the stormwater drainage system.

6. ALTERNATIVE TREATMENTS

Alternative methods for treating flushed seals such as the use of preheated aggregates from an asphalt plant and the use of chemical solvents to treat excess binder will be described in other Technical Notes.

7. REFERENCES

Photo of “hydromower” courtesy of Pics -Axlo (Vic).

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