

Guidance Note on the Use of Paving Fabrics and Grids as Asphalt Reinforcement

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- Who is John McRobert?
- Why this Guidance Paper?
- The Paper itself

Who is this John McRobert, and what is he doing here?

- 8 years designing all sorts of bridges
- Went to Magherafelt section
- 600 miles of evolved roads in a rural area
- Farm land, or bog –
 - not good for road foundation
- Narrow, elevated, cracked and splitting,
many utility reinstatements,

So I had lots of:

- Premature failure;
- Constant drain on resources;
- Very limited budget leading to a generally deteriorating situation.
- Nothing very new or different there; but
- We were going downhill;
- I needed a better way forward;
- I needed longer life to next intervention

- One of the answers which came up involved
- **PAVING FABRICS**
- I liked the idea, and gave it a try, initially on a widening scheme, over poor ground, with minimal overlay – an ideal situation for reflective cracking

- We worked with our contractors;
- Guidance from the late John Curtis;
- Developed knowledge on what to use where;
- What worked;
- What could be problematic

After 21 years in Magherafelt

- I got moved to Western Division
- 9,000 km of roads
- My team was responsible for all contract resurfacing and improvements
- Similar conditions
- Same problems over premature failure
- Learnt a bit more about what worked and what gave problems

Why this Guidance Note?

- Topic of concern at ADEPT SMDS for some time;
- I continued to be concerned at evidence of poor practice;
- The wrong system for the situation, or
- More often, simply poorly laid
- Blame the system.

Guidance to cover:

- Different types of systems;
- Potential benefits;
- What to use where;
- Overlay thickness;
- Preparation and laying;
- Information prior to laying;
- Testing

Not covered:

Reference to specific brand names,
manufacturers, or suppliers

First problem:

The name

- Grids, fabrics, combinations, sprayed membrane;
- Steel, polypropylene, glass fibre, other;
- Woven fabric, non-woven fabric;
- SAMI/asphalt reinforcement

Potential benefits:

- Primarily in maintenance operations:
- Reduction in cracking and propagation of reflective cracking;
- Sealing, preventing ingress of water and air;
- Provision of tensile strength;
- Ensuring sound uniform bond;
- Reduced upward migration of excess bitumen.

Where?

- When overlaying cracked or heavily reinstated surfaces;
- Over poor or uneven ground;
- When widening a carriageway;
- Over joints and cracks in concrete carriageway;
- Steep gradients or tight radii.

Will I use a SAMI/asphalt reinforcement?

Three questions

- How much would it cost?
- What thickness of asphalt can I get for that price?
- Which will give the longer life?
 - the greater long term benefit.

Benefits of SAMI/asphalt reinforcement systems

System	Reduced reflective cracking	Enhanced bond between layers ¹	Sealing	Tensile strength ³
Steel grids	Yes	No	No	Yes
Synthetic grids including glass fibre	Yes	No	No	Yes
Woven fabrics	Yes	No	No	Yes
Non-woven fabrics	Yes	Yes ²	Yes ²	Little
Grid + non-woven fabric/reinforced fabric	Yes	Yes ²	Yes ²	Yes
Sprayed membrane	Yes	Yes	Yes	No

Overlay thickness

- The thicker the overlay, the longer the life
- But cost/benefit

Minimum:

- 40mm over fabric or spray system;
- 50mm over a reinforced fabric;
- 60mm over a synthetic grid
- 70mm in 2 layers over steel grid

But – manufacturers instructions

Overlay material

- Flexibility of foundation;
- Too stiff an overlay may itself crack;
- Too soft will rut;
- May indicate the use of SMA/TSCA with PMB

Guidance on preparation and laying

- Proper planning and preparation,
- and suitable weather.
- Not end-of-financial-year-rush-job in winter

- Choice of system
- Traffic management
- Preparation – patching, regulating, etc.
- Binder, type and rate of spread
- Method of laying and fixing system to achieve close and permanent contact
- Laps and joints
- Aftercare and overlaying

Appendix

- Information to be supplied prior to installation;
- Testing during laying
- Testing after laying
- Why bother?
- Because if you don't follow these points, you greatly reduce the chances of success.

A final thought

- Get it right first time, because,
- once it is covered over it may look OK, but
- If it is not right,
- Somebody will pay,
- Sometime,
- Possibly years down the line.
- And our profession (*rightly*) gets the blame





















Thank you

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