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Topic: Developing a proprietary product under a quasi-performance based specification

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Background

- In 2009, NSW RTA implemented Specification RPB125 Thin Highly Textured Asphalt Surfacing
  - Ability to purchase proprietary products under a performance based criteria
  - To be used in conjunction with an effective Contractor accreditation scheme
  - More effective use of maintenance budget (deformation resistance, good durability, etc)

Specification RPB125

- Design, supply, placement and performance warranty of a stone mastic asphalt-like product of nominal aggregate size 7mm or 10mm.

RPB125 Appendix 1

Property	Test Method	Limits
Air voids in laboratory compacted samples (% voids in total volume of mix) #	AS 2891.5 (refer Clause 4.3.1), AS 2891.7.3, AS 2891.8, AS 2891.9.2	≥ 3.0 and ≤ 5.0
Marshall Stability (kN)	AS 2891.5 (refer Clause 4.3.1)	≥ 8
Marshall Flow (mm)	AS 2891.5 (refer Clause 4.3.1)	≥ 2 and ≤ 4
Rut resistance by wheel tracking test (mm rut depth)	AG:PT/T231	≤ 2
Cracking resistance by beam fatigue test (cycles to failure condition at standard reference test conditions)	AG:PT/T233	≥ 8,000,000
Permeability of laboratory compacted plant sample (µm/s)	RTA T655	≤ 10
Note #: Specimens prepared for determination of air voids in laboratory compacted samples must be prepared in accordance with AS 2891.5 with 75 blows of Marshall compaction.		

RPB125 Requirements

- Minimum 5 year life cycle
- Compacted layer thickness 2.5 – 4 times the nominal product size
- After 24 months has not bled, cracked, delaminated or ravelled
- After 12 months surface texture depth has not diminished by more than 10% from the test results obtained immediately after installation

RPB125 Requirements cont'd

- Sideways Force Coefficient must not be less than 65 and aggregate PAFV ≥ 52

- Is specifying inputs (voids, PAFV, Marshall properties, etc) as well as desired outcomes appropriate under a performance based specification?

GripPhalt - Development

- Downer Australia's proprietary thin surfacing that will meet the performance intent of RPB125
- Loosely based on SMA concept
- Initially work on a 10mm mix and later a 7mm
- Optimised performance properties (grading and binder)

GripPhalt – Development con't

- Initial plant trials (Mogo July 2009 and Rosehill September 2009)

Production and Placement Trial

Downer

Downer

Downer

Downer

Final Product

Downer


15
WISEMANS FERRY RD
Cattai 11
Windsor 25
Richmond 32

Downer

Downer

Downer

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Downer

Do we always get it right?

Downer

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Downer

Learnings

- Tailor the design to suit local materials – one grading doesn't fit all!
- Use appropriate materials (aggregates and binders).
- Understand the limitations of the mix.
- Make sure the underlying pavement is sound.
- Cutting chases.
- Pay attention to the basics.

Thank you.