BITUMEN SPRAY SEALING

PROBLEMS AND PRACTICAL SOLUTIONS
Today’s Discussion

• What Wambo has done in the past and
  look at what went wrong
• Case studies of two Construction Jobs
• Products used and how did they go
• Learnings and suggestions for the
  future
Past History

- Three Coat Seal – 19mm, 14mm, 10mm
- Binder used
- Choices - Asphalt versus Spray Seal
- A Volatile debate
- Delayed secondary treatment
- Moisture ingress
Warrego Highway

- Yaralla Deviation
- $10 million project
- 20km re-alignment of the National Highway
- AADT = 2000
- Constructed by Stockport NQ
Warrrego Highway

- Construction method – 1 x 20km section
- Drought conditions
- AMC4 10mm(P) left for 12 months
- Rainfall finally but too late for some
- PMB 14mm(P) Secondary Treatment
E: ROADWAY EXCAVATION AND EMBANKMENT

11250 - 14610, 15940 - 20710, 22020 - 22800
Bunya Highway

- $2.4 million project
- 6km widening and reconstruction
- AADT = 2448
- Constructed by Wambo Shire Council
Bunya Highway

• Construction method – 3 x 2km sections
• Rain during construction varied
• Surface finish
• AMC4 7mm(P) Primary Treatment
• All sections had rainfall between first and second treatment
• Multigrade Secondary Treatment
Comment

• Warrego Highway failure in my opinion due to the failure of the Primary Treatment
• In excess of $1.25 million damage
• Bunya Highway Definitely due to the failure of the Primary Treatment
• $150,000 damage within 2 years of final seal and has been ongoing repairs
Products used by Wambo Shire

• Class 170
• Multigrade C600/170
• PMB
• PMB Emulsion
Class 170

- Was the preferred binder choice
- Is it as good as it was, Spider Webs say ‘no’
- Viscosity variations
- Need to consider other products such as Class 320 and Multigrade in Cutbacks
- Still a place for this product
Multigrade C600/170

• Engineered single component binder
• Displays characteristics of Class 600 and Class 170 binders
• Performs better at extreme temperatures
• Better adhesion and waterproofing
• 10 – 15% more expensive than Class 170
Polymer Modified Bitumen

- Proprietary binders tailored to meet the clients needs
- Improved performance in extreme temperatures
- Resists flushing and bleeding under increased traffic loads
- Have not sprayed PMB in colder conditions
- 15 – 20% more expensive than Class 170
PMB Emulsion

- High solids rapid setting emulsion
- Similar characteristics to that of PMB
- Trial of SAMIflex E30 against CI 170 on a low risk road
- Was sprayed between 11 – 31 degrees
- Outperforming the Class 170
- 20 – 25% more expensive than Class 170
Learnings

• Don’t undervalue the Primary treatment when considering the use of a Sprayed Seal
• Letting the volatiles out may let the water in
• The cheapest option may not always work out the cheapest in the long run
• There is a place for all the products used depending on each sites needs
Where to from here

• Consider PMB Emulsions Primer Seals and Seals in winter
• Investigate the use of Multigrade and Class 320 in Cutback Primer Seals
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