

Awareness Sessions
New Queensland Harmonised Asphalt Specification
Training

Queensland Government
AAPA AUSTRALIAN ASPHALT PAVEMENT ASSOCIATION

Course Notes

ASA407A Administration of Asphalt Specifications

September 2014

CONTENTS

1. Introduction to asphalt
2. Pavement design consideration
3. Materials for asphalt
4. Selection of mix design parameters
5. Mix design submission
6. Production of asphalt
7. Placing of asphalt
8. In-situ characterization of asphalt
9. Non-conformance of asphalt
10. Annexures
regional materials | wearing course | intermediate | corrector | NMAS | MTV | performance testing | echelon paving | disposition of non-conformities

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Purpose

The purpose of this course is to educate Contract Administrators and surveillance officers in effective procurement of asphalt through the administration of Queensland's Department of Transport and Main Roads' PSS31 Heavy Duty Dense Graded Asphalt Specification, and PSTS31 Heavy Duty Dense Graded Asphalt Technical Specification. The majority of asphalt procurement is now achieved by means of quality assured contracts and this has meant a change in the role and responsibilities of suppliers and purchasers. It is important that asphalt contracts be administered throughout the State with consistent interpretation and this course seeks to give guidance on appropriate interpretation of some issues that are not covered in detail in the specifications.

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Asphalt purchase specifications

- Heavy Duty Dense Graded (DG)
 - PSTS31
 - PSTS31.1
 - PSS31
- Related Specifications
 - Cold Milling
 - Bitumen
 - Polymer Modified Binder
 - Aggregates for Asphalt
 - Reclaimed Asphalt Pavement Material

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Dense graded asphalt

The key to success is a continuous grading with relatively low voids (= dense particle packing)

- Advantages
 - Widely available
 - Structural contribution
 - High stress applications
 - Shape correction

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Asphalt Quality Plan (Clause 5.2)

- How work is to be performed to achieve specification and quality requirements

- Specific to the contract and contains detailed procedures
- Minimum requirements Table 5.2 and MRTS50
- Administrators should check the contractors Asphalt Quality Plan against specifications.

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PSTS108 Clause 7.1 Coarse aggregates

Coarse aggregates are materials having a nominal size greater than 5 mm and consisting of crushed rock gravel or metallurgical slag that is clean, dry, hard, tough, sound and free from dust, clay, dirt or other deleterious matter.

Coarse aggregates must not fracture under compaction equipment or deteriorate rapidly in stockpiles or at the quarry face.

Coarse aggregates must conform to the requirements of Table 7.1.

Interpretation

An indication of how to interpret 'clean, dry, hard, tough, sound and free from dust' is given in the following notes on particle size distribution. It is accepted that OHS limitations on dust control may impact to an extent that an aggregate may be rendered unsuitable for use in asphalt.

Measures of 'clay, dirt' are included in the clause dealing with filler.

'Other deleterious matter' is interpreted as any foreign matter that may interfere with adhesion of bitumen or the volumetrics of the asphalt.


'Dry' is interpreted as 'known moisture content' and consistent with dryer drum capability (asphalt plant manufacturer's provide charts of throughput versus moisture content and temperature).

In Table 7.1 of PSTS108, 'hard, tough and sound' are covered by strength and durability testing.

Traceability of Constituent Materials

- Traceability: ability to trace materials up or down the supply chain
- Lot size a function of:
 - Specification requirements
 - Suppliers quality plan
 - Production processes
 - Level of variability in raw materials
- Lot numbers
 - Unique identifier
 - Determined by contractor
 - Reference for testing and delivery documentation

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PSTS31 Clause 1.2 Performance requirements

The asphalt must not ravel, rut, shove, strip or bleed for the first 24 months after the Date of Practical Completion, and the surface of the asphalt must comply with the surface shape requirements specified in Table 9.5.2 for the first 12 months after the Date of Practical Completion.

Interpretation

'Ravel' is the loss of material by attrition from the surface of the pavement.

Limits on acceptability would be:


- continuing development of an unsafe condition because of loose material on the road or
- Development (or evidence of likely development) of ruts exceeding the limits defined in Clause 1.2.

'Rut' is defined by the limits specified in Clause 1.2 and refers to the limits in Table 9.5.2. It should be noted that while rutting can be caused by mix design and construction issues there are several factors outside of the contractors control that can also contribute. These include underlying pavement integrity, changes in traffic loading and inadequate pavement thickness. Such issues need to be investigated before applying this requirement

'Strip' is the separation of the binder film from the surface of the coarse and/or fine aggregate. Evidence is the presence of uncoated particles in an asphalt sample from the pavement (assuming adequate mixing of the product when it was manufactured). It is advisable that a sample of the nominated mix be held until the warranty period has expired.

'Bleed' is surface voids filled and excess free binder on the surface. The excess free binder may be sourced from the asphalt or the tack coat. Not to be confused with a flushed surface where surface voids may be nearly filled but some surface texture remains.

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Performance Requirements (Clause 1.2)




24 month warranty against

- Raveling
- Rutting? What level?
- Bleeding
- Shoving
- Stripping

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What was the pavement condition?



- Base condition
- Type and quality of repairs
- Extent of preparation works

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Recycled Asphalt Pavement Material (RAP)

Must comply with pre-requisite requirements


- Performance testing (Table 7.2.1.3B)
- Evidence of proven performance to progress from level I & IS

A history of 'proven performance' would typically involve demonstrating the following:

- Performance testing demonstrating that the resilient modulus, fatigue, deformation resistance and moisture sensitivity are not adversely affected by the inclusion of the proposed RAP content and
- Field investigation involving condition monitoring for the duration of the performance period and sampling and testing cores from the pavement at the end of the performance period.

The approval level applies to similar designs supplied from the same asphalt plant using the same binder grade.


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Visual Monitoring of RAP


Unprocessed material

- Free from construction debris
- Free from granular materials
- Free from Hazardous materials



Processed Material


- Homogenous
- Free from contamination
- Separation and identification of lots




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Training

- Based on RMS training material framework
- One day course & written assessment
- Course material being reviewed
- Planned courses in SEQ & NQ starting late Nov 2014
- Details will be provided on the web
AAPA (www.aapa.asn.au)
Strategic Alliance (www.aapaqtmr.org)

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Program for the day

Time	Presenter	Topic	Duration
10:00 → 10:30	Regional/District Director	REGISTRATION Welcome	1
	Peter Evans	Harmonisation	2
	AAPA GM / Mike Pickering	Advantages – why change?	3
	AAPA Ops / Mike Pickering	Warranty, Proposed Prequalification system, Mix design registration, TMR Role, Production based	4
	AAPA	Feedback on management issues	5
12:30 → 1:00	LUNCH		
	Jason Jones / AAPA Tech Committee	Introducing the new specification: • Roles and responsibilities (E&T, Regions and industry) (30 minutes) • Key changes (30 minutes)	6
	AAPA Ops / Mike Pickering	Implementation and demonstration projects	7
	Discussion & Feedback Panel	AAPA GM, AAPA Ops, AAPA Tech Peter Evans, Mike Pickering, Jason Jones	8
→ 3:00	Peter Evans	Close	9

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