

PT PROTOCOL FOR ASPHALT MIXES & PENETRATION GRADE BITUMEN

*21st RPF MEETING
Villa Via Hotel, Gordon's Bay, Western Cape
10 MAY 2011*





Overview

- ▶ Background
- ▶ Broad overview
- ▶ Bitumen PT scheme
- ▶ Asphalt PT scheme
- ▶ Soils & Gravels PT scheme
- ▶ A final word



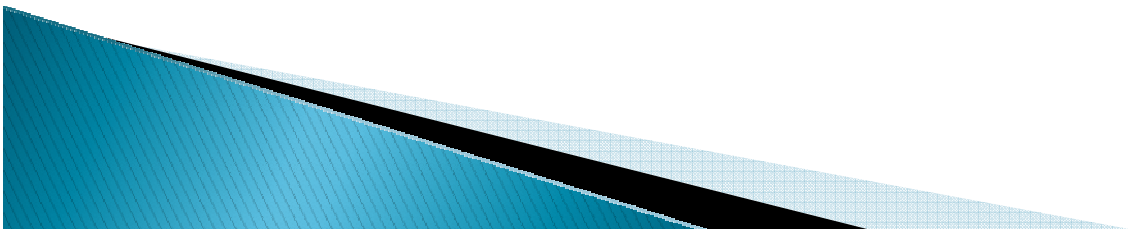
Background

- ▶ Such a process has been on the cards for many years
 - Now finally looks to be taking off.
- ▶ Similar projects will need to be undertaken for all road building materials
 - Soils & Gravels
 - Aggregates
 - Pen Grade, Cut-back & Bitumen Emulsion products
 - Asphalt
 - Concrete
- ▶ SABITA funding initiative to have bituminous protocols developed.



Background

- ▶ **SABITA funding development of Pen Grade & Asphalt PT scheme protocol**
 - Basic asphalt test methods
 - Penetration Grade Bitumen test methods
- ▶ **Reasons for the project**
 - Look at ways to identify where variations in test results originate from
 - Look towards minimising these differences between laboratories test results.
- ▶ **The ultimate goal**
 - Improve quality of testing results obtained from laboratories when testing Asphalt mixes & Penetration Grade Bitumen
 - Improving laboratories image as a professional service





Background

- ▶ **Task group**
 - H Marais (Much) Chair
 - J Venter (SRT / Soilco)
 - S Strydom (Sanral)
 - B Verhaege (CSIR)
 - W Nortje (National Asphalt)
 - K Louw (Colas)
 - J van Heerden (Sastech)
- ▶ **Additional review committee members:**
 - M Cilliers (MTTC);
 - C de Bruin (MatroLab);
 - U Campher (RoadLab);
 - O Ueckermann (Gautrans);
 - P Fourie (soilLab);
 - T Meyers (CiviLab)
 - R de Jongh (Geostrada).



Broad approach

The 5 Protocol documents

- ▶ **Invitation letter & application form to partake**
 - Separate form for each material type
- ▶ **A form to quote on preparation of samples for distribution**
 - This will not be applicable in the 1st round testing
- ▶ **A form detailing method of how samples to be made up**
 - Vital to ensure each PT scheme run is done in same manner / method
 - Variability between runs can be determined from these



Broad approach

Protocol documents

- ▶ **Protocol on testing itself**
 - Outlines tests to be undertaken
 - Details of sample re-heating, heating periods & date testing to be undertaken
 - Done to assist in reducing variables that can be controlled.
- ▶ **Questionnaire to determine information on what occurred during actual testing in each laboratory**
 - Assist in identifying potential differences in test results
 - Isolate problem areas



Questionnaire details

- ▶ Will require some detailed attention
- ▶ Not applicable to all test methods
- ▶ Questions include (e.g.)
 - Labs ambient temperatures
 - Conditioning periods
 - Actual sample temp @ specific points during test
 - Apparatus used to measure temperature
 - Individual briquette heights
 - Automatic or manual apparatus
 - Last external calibration date of apparatus



Pen Grade Bitumen PT scheme

- ▶ **Basic SANS 307 spec excluding spot test**
 - Pen test
 - Ring & Ball softening point
 - BV Viscosity
 - RTFOT



Asphalt PT scheme

- ▶ **SANS 3001 revised test methods**
 - Marshall briquettes
 - AS1;
 - Marshall stability, flow & quotient
 - AS2;
 - Bulk density & void content
 - AS10 – previously BRD,
 - Maximum voidless density & binder absorbed
 - AS11 – previously Rice density
 - Soluble binder content & grading analysis
 - AS20 – binder extraction.
 - ITS requested to be included but currently not in SANS 3001 format.



Soils & Gravels PT scheme



- ▶ **Pilot scheme to test**
 - Indicators
 - Wet grading
 - Atterberg limits
- ▶ **Mod & CBR**
 - to follow once scheme has been piloted
- ▶ **May be the easiest & quickest to get going.**



A final word ...

- ▶ It is envisaged that this project will assist in ensuring that laboratories, Engineers & Contractors get a better understanding of potential factors influencing variability in their results
- ▶ Highlight effects / causes of inter-laboratory testing variables.
- ▶ This will assist in leading to a better quality of testing & a more professional laboratory testing process within South African laboratories