

AustStab News

Industry View

There have been positive signs of greater recognition by government of the need to fix our aging road network. The Federal Government released the AusLink White Paper in June and State Governments have increased road spending.

The increased use of chemical binders in Australia has resulted in AustStab establishing a chemical binders working group. A key objective of the group is to develop sound technical guidelines for the appropriate use of chemical binders for road stabilisation.

It is also imperative for road authorities to adhere to stabilisation specifications to maximise the performance of the process. The Association is also keen to support road authorities with their specifications when they become out-dated.

The AGM is scheduled for Tuesday 19 October in Brisbane and all members are welcome to attend. For more details refer to www.auststab.com.au/2004AGM/

Thomas Curnow
President

Student Awards

The AustStab Student Award closes this year but there is still time for projects carried out by either under-graduate or post-graduate students to be submitted for evaluation. There is no application fee and \$1,500 is awarded for first prize.

For more information about how to apply, visit our web site at www.auststab.com.au/students/

<http://www.auststab.com.au>

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2nd Stabilisation Symposium

Notice has been given for the call for papers for the 2nd International Symposium on Treatment and Recycling of Materials for Transport Infrastructure (TREM TI) to be held in Paris, France in October 2005. Engineers wishing to submit a synopsis should do so by the 15 October 2004.

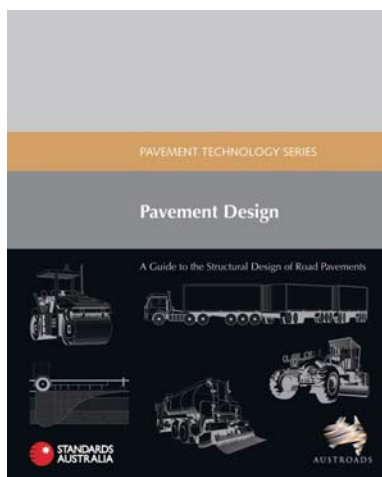
The symposium is just over 12 months away and is regarded as a major international conference on road stabilisation. Australian engineers wishing to send a synopsis for the Symposium should contact George Vorobieff at AustStab or visit the conference web site at www.tremti.org/english/index_en.html

2004 Austroads pavement design guide – Out now!

The long awaited Austroads Pavement Design Guide has been published. This document replaces the 1992 edition and represents a major shift in some areas of design.

Engineers from various road authorities and industry representatives, including George Vorobieff from AustStab, carried out the production of the revised guide.

For granular stabilisation and modified pavements, the granular design chart (Figure 8.4) or CIRCLY may be used to determine layer thickness. Figure 8.4 in the new guide will result in thicker granular layers than the chart in the 1992 edition as the chart was adjusted for higher tyre pressures and the full axle load configuration.



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For bound stabilised layers using cementitious binders, Chapter 6 has been updated. The new guide provides for:

- A simpler approach to the relationship between UCS and design modulus
- The fatigue equation for cemented materials
- Introduction of a reliability factor for new pavements.

The relationship offered in the new guide for the design modulus from UCS testing is based on cement stabilisation not taking into consideration the development of strength and stiffness offered by slow-setting binders. Using a coefficient of 1,000 may result in an over application of binder leading to a greater potential for shrinkage cracking. Taking a conservative approach on strength may not result in a favourable pavement configuration.

The Austroads guide also recognises the use of stabilisation and notes that it can be used to:

- increase the strength and improve the uniformity of subgrades and pavement materials;
- provide resistance to the effects of water ingress;
- provide a working platform for subsequent construction;
- optimise the use of available pavement materials; and
- reduce layer thicknesses compared to unbound materials.

The new design guide does not cover:

- Techniques to increase the subgrade strength from lime stabilisation
- Design of modified pavement materials
- Design of foamed bitumen stabilised layers
- Failure of granular materials from rutting and strength loss

A series of one-day seminars will be held soon to allow pavement designers a better understanding of the new guide. For more information refer to www.arrb.com.au

Works Infrastructure acquires Pavement Technology Ltd

Works Infrastructure (a Downer EDI Group company) recently acquired Pavement Technology Ltd, a division of Adelaide Brighton Ltd. Pavement Technology Ltd (PTL) was founded in 1981 and operates in Victoria, South Australia, Western Australia and the Northern Territory.

Current services provided by PTL include;

- Rehabilitation of existing pavements using stabilisation processes,
- Treatment of subgrade or sub-base materials to improve performance,
- Profiling of asphalt surfaces to allow overlays,
- Excavation of pavement for box out and replace operations,
- Texturing and edge planning of asphalt surfaces, and
- Profiling of concrete surfaces

The acquisition of PTL further consolidates Works Infrastructure's position in the road maintenance industry sector and also provides client organisations with a greater range of services. The PTL business will be incorporated into the current state based operations of Works Infrastructure and clients will be able to access the same personnel and equipment as previously.

Works Infrastructure sees the role of AustStab in promoting and developing all aspect of stabilisation as most important and intends to maintain the active role that PTL has carried out since AustStab's inception.

Stabilisation seminar in NZ - A great success!

A road stabilisation seminar with over 150 participants was held in Auckland, NZ in June, and was considered a great success by NZHIT. The two-day seminar covered themes such as:

- Pavement Design
- Binders
- Construction
- Performance Studies

Australian engineers wrote several papers for the seminar and these are now available on the AustStab web site. For more information about the papers refer to www.auststab.com.au/aust8.htm

Design of foamed bitumen materials

For some years, members of the Association have been monitoring various foamed bitumen pavements to understand the performance of the material in base layers with thin wearing surfaces. The monitoring has also included coring the pavement material after some years in service and comparing the results with design values taken from laboratory mix design results.

The monitoring of foamed bitumen pavement materials also provided more data on where the edge of the design envelope could be considered for designers.

The interim design model includes the use of the asphalt fatigue equation in Chapter 6 of the 2004 Austroads pavement design guide with an appropriate percentage by volume, of bitumen and modulus from laboratory testing. The proposed interim design model is limited to the following uses:

- Class 170 bitumen with foaming characteristics as described in this paper
- The particle size distribution limits shown in AustStab Technical Note No.2
- Laboratory sample preparation and curing as described in the paper
- Normal road traffic loading conditions
- Foamed bitumen material constructed to AustStab model specifications



Typical local road in Sydney with foamed bitumen stabilised base.

There is insufficient data at this stage to apply this design approach for heavy wheel loads likely at container hardstands and major airports taking commercial jet aircraft.

It is also important to ensure that the construction temperature limits specified in the AustStab model specifications are met. For instance, experience has shown that the foaming mechanism diminishes when the pavement material temperature is below 10°C. In addition, poor construction equipment will also lead to inefficient bitumen foaming resulting in less than desirable bitumen distribution.

A copy of a paper summarising the design approach can be downloaded at www.auststab.com.au/tp33.pdf

AustStab will be running a series of design workshops in the next 6 months, and preliminary details can be sought by contacting AustStab.

AustStab specifications and commentary can be downloaded for free at www.auststab.com.au/specifications/

Austroads test methods update

The Austroads Council recently decided to give greater emphasis to Austroads test methods. This will also result in the planned series of Australian Standards for testing stabilised materials to become Austroads test methods.

The following draft test methods are now being prepared:

- Preparation of stabilised specimens with cementitious binders
- Preparation of stabilised pavement materials with lime
- Preparation of stabilised subgrade with lime
- Preparation of stabilised specimens with foamed bituminous binders
- Preparation of stabilised specimens with bitumen emulsion binders
- Preparation of stabilised specimens with chemical binders
- Unconfined compressive strength of compacted materials
- Absorption, swell and capillary rise of compacted materials
- Determination of working time for slow setting cementitious binders
- Lime demand test

It was also decided to have the draft test methods reviewed by practitioners before release on the Austroads web site. If you are interested in reviewing these documents, please contact Auststab.

Current Austroads test methods can be downloaded at www.austroads.com.au/pavement/testmethods.html

Chemical binders

Auststab has progressed on the establishment of a working group consisting of binder suppliers and road engineers to examine the design, testing, specification and construction of roads, using chemical binders. While the purist may consider that lime and cement is a chemical binder, chemical binders have been classified as organic, salts, polymers and ionic materials in many Austroads guides for over 20 years.

Some organic binders produced today are blended with lime, fly ash or GB cement to enhance their effectiveness with granular materials, and to allow early trafficking of the compacted pavement base layer.

Initial tasks of this working group will include:

- Development of Austroads test methods to evaluate specific properties
- Model specifications for local and main roads
- Improving trial design and evaluation

The working group is limited to AustStab members and meetings will be held in Sydney, Adelaide and Melbourne three times a year. Members wishing to participate in the working group should contact George Vorobieff by email.

Oral History - a great story!

In following issues of *AustStab News*, extracts from the recent RTA oral history on pavement recycling and stabilisation will be provided to highlight some valuable lessons learnt by engineers in the early years of road stabilisation.

Paul Ritchie, a retired local government engineer, noted the following message for recycling and the environment:

'Resources are a very important thing. We shouldn't just be wasting the quarry products when there are now excellent products already in our roads - why not use those products by adding other qualities to them, so not only are we getting a cheaper product and saving the community money and giving them a good quality road, we are doing the right thing environmentally by recycling the material instead of digging more holes in the ground. You're saving pollution in terms that when you construct a road normally, you've got a fleet of trucks carting material away. That is all not only adding to the pollution by those trucks running, but you're also saving other roads, because those trucks have got to run over other roads, so you're also saving that as well. You're also saving tip

space, because in days gone by, you'd excavate the road - that would go to a tip, you'd fill up your tip. Tips are in short supply - they now cost you a fortune to tip at - even your own tip. So again, it is saving tip space and that's an environmental benefit as well, so there's a whole lot of benefits all the way down the line by using this process.

To get a copy of the CD, contact the RTA library at www.rta.nsw.gov.au/environment/heritage/rtaoralhistoryprogram/. Highly recommended listening on your next long road trip!

Engineering Salinity Solutions

The 1st National Salinity Engineering Conference is scheduled for 9-12th November 2004 at Burswood International Resort, Perth. For more information see: www.congresswest.com.au/salinity2004

RIISC starts FLM units

RIISC is the Resources & Infrastructure Industry Skills Council and one of ten new Councils set up by ANTA to replace the industry training boards (also known as ITABs). One of the key projects for RIISC will be to develop a strategy and methodology for the Development of the Civil Construction Training Package – AQF 4, 5 & 6. These AQF levels represent front-line managers (FLM) and in road construction projects, these managers are supervisors and superintendents. For more information about RIISC, visit their web site at www.riisc.com.au

AustStab Member Details

The following companies are contracting or binder and equipment supplier members of AustStab. Contact details for these organisations by region, can be obtained by contacting AustStab or visiting their website.

Contractors

Highway Stabilisers

Tel 03 9775 2202
Fax 03 9775 2656

Pavement Salvage

Tel 02 9672 7199
Fax 02 9672 7211

Works Infrastructure

Tel 08 9475 6041
Fax 08 9479 5788

Stabil-Lime Distributors

Tel 03 9737 0777
Fax 03 9737 0333

Stabilised Pavements of Australia

Tel 02 4340 0111
Fax 02 4340 1299

Binder Suppliers

Adelaide Brighton Cement
Blue Circle Southern Cement
Huntsman Chemicals
Hyrock
Independent Cement & Lime
Pacific Lime
Polymix Industries
Shell Bitumen
Sunstate Cement
Unimin Australia

Equipment Supplier

Wirtgen Australia

State Road Authority members

Department of Infrastructure,
Energy and Resources (TAS)
Department of Infrastructure
Planning and Environment (NT)
Department of Main Roads (QLD)
Roads & Traffic Authority (NSW)
Transport SA
VicRoads



Those wishing to obtain further information about membership to AustStab, should contact:
George Vorobieff,
PO Box 797 Artarmon, NSW 1570
Phone (02) 9411 8857
Fax (02) 9411 8897
Email: inquiry@auststab.com.au
