

CEO'S REPORT

BY GREG WHITE

It is a good time to review the expertise of our road building industry as there are many major projects both in the private and public domain being designed and constructed.

AustStab is concerned with the standard of road construction in Australia today. As has been highlighted by politicians recently, there is a great need for a major improvement in our ageing infrastructure. It should be emphasised that the maintenance of our existing roads is probably more important than new construction, as the existing network is now in a poor state of repair and is many times larger than proposed new roads.

It has been highlighted by most road agencies that the skill base of the industry is deteriorating. This is caused by a number of factors:

- Retirement of experienced road builders;
- Drastic reduction in road agency cadetships in the late 20th century;
- Reduced road agency pavement work forces;
- Less emphasis on pavement subjects at our universities and TAFE's; and
- Greatly increased road construction in recent years.

The Centre for Pavement Engineering Education (CPEE) was set up by the main road agencies and AAPA to fill the void in pavement education. It is encouraging to see young engineers taking up specialist study in pavement and asset engineering.

AustStab and CPEE have, over the last three years, run two-day courses in Stabilisation and it is gratifying to have had over 700 people attend. The course is designed to cover all aspects of stabilisation and it has been very well received by road agencies, councils, consultants and contractors. The attendees range from principal engineers to plant operators.

Road agencies have shown great interest in improving the competency of site staff. AustStab is working with a number of agencies to develop skill sets for all staff involved with the Stabilisation industry. AustStab has registered with Skills DMC for Stabilisation Skill Sets using existing competencies. Skills DMC have a huge task checking and approving these skill sets with so many infrastructure industries participating.

AustStab is working with our members to develop training needs which can be implemented by each contractor in-house by their experienced operators, supervisors and engineers. Training cannot be done solely in a classroom, but requires hours of on-the-job instruction and hands on experience.



CEO Greg White

AustStab is keen to implement this strategy of improving skills of the crews and ensuring staff are competent to perform their tasks. AustStab is working with our members to develop training needs which can be implemented by each contractor in-house by their experienced operators, supervisors and engineers. Training cannot be done solely in a classroom, but requires hours of on-the-job instruction and hands on experience.

Stabilisation is a highly specialist process, it is so often overlooked that the stabilisation contractor is not only laying and compacting a pavement, but manufacturing

a product to a mix design. It is just as important that the contractor has the equipment and expertise to ensure that the stabilised material they are manufacturing complies to the specification. Just as in a normal asphalt or concrete plant, it is imperative that the binders are accurately metered into the mix and adequately mixed.

I recommend that road agencies, major contractors and local government organisations check the competency of stabilisation contractors. AustStab/ARRB accreditation is a great way of checking the ability of a contractor. A list of accredited contractors is on our website.

PRESIDENT'S MESSAGE

PREPARED BY DAVID BERG, VICE PRESIDENT ON BEHALF HEATH CURNOW

Further acceptance for rehabilitating road pavements by utilising stabilisation by state and local government authorities has promoted the use of this sound engineering practice over conventional practices for road construction.

The ability to rehabilitate the road network asset with this process provides benefits such as:

- Recycling existing pavements to give sound engineering properties utilising various additives for specific pavement gravels;
- Ability to stabilise a clay sub-grade to increase CBR value and decrease the pavement thickness needed above the sub-grade;
- Utilise waste products;
- Decrease construction traffic;
- Speed of process;
- Minimal disruption to local traffic and ratepayers;
- Cost effective solution (savings from 1/3 to 1/2 of new construction); and
- Environmentally sustainable approach.

The industry growth was a creditable topic at the recent AustStab AGM held on the Gold Coast in August. With membership numbers growing each year throughout Australia the conference was a huge success with increased attendance from contractors, suppliers and equipment manufacturers. Congratulations to Caterpillar and Wirtgen for their valued support sponsoring the conference.

The AustStab awards sponsored by Caterpillar were presented by AJ Lee. The quality of the submissions for the awards is a credit to the industry that has ventured a long way in the 18 years of the AustStab's existence.

This month, Leah Fisher – Executive Officer – provides the details of the winning nominations for Excellence in Work Health and Safety, Downer Infrastructure, and the winner of the Excellence in Research and Education, CPEE in *Roads and Civil Works* magazine.

The AustStab Council was also elected with Heath Curnow (Stabil-Lime Group) and David Berg (Stabilised Pavements) taking their second term in office as President and Vice President respectively. New additions to the council are Pat Cappan



President
Heath Curnow

.....
“With membership numbers growing each year throughout Australia the conference was a huge success with increased attendance from contractors, suppliers and equipment manufacturers.”

and Brett Fulloon (Downer), Warwick Dingle (Wagners) and Brad Brown (Sibelco). A special thanks to the two departing councillors, James Howard (Independent Cement & Lime) and Nigel Preston (Shell), for their extraordinary contributions to AustStab. Although having a rest from council duties, James and Nigel will be keen participants within the industry body, with James accepting the key role of Chairman of the Sustainability Working Group.

Tech note updates released in October by AustStab are *Stabilising Techniques on Dams*, *First Coat Spray on a Stabilised Base Course* and *Structural Design of Granular Pavements incorporating Stabilised Natural Subgrades & Formations*. As an association, we will seek ways to ensure that these technical notes are

recognised and adopted by consultants and SRA over the coming months.

In relation to the spray seal tech note, it had become a concern that the first coat over a stabilised pavement had often led to flushing or lack of penetration.

The flushing generally caused by the pavement being too damp, failure to remove the excess fines from the surface or allowing insufficient time for the pavement to cure resulting in embedment of the sealing aggregate in the base course surface.

It is recommended that a reduction of residual binder application rate of five to 15%; the amount dependant on the type of stabilisation. Please read more on this and other tech notes on the AustStab website.

AUSTSTAB RECOGNISES DOWNER FOR SETTING BENCHMARK IN 'NEAR MISS' REPORTING

This year's AustStab Awards of Excellence Winner in Work Health and Safety was Downer Infrastructure's NSW Road Construction business. The safety generational investment in people was a best solution to an identified workplace health and safety issue, that recordable injuries and lost time injuries could be reduced.

It was an outstanding example of a strategy that can be used to successfully create an independent relationship between safety and culture within the stabilisation industry.

The human resource (HR) investment focused on the element of near miss reporting. Within the Downer strategy this is a fundamental building block and critical success factor in keeping the employees and contractors safe, and reducing reportable, medical treatment and lost time injuries.

Near miss reporting is designed to prevent incidents by encouraging the reporting of hazards before an incident occurs. 'Mate... that was bloody close!' is the colloquial language adopted by the business with the workforce to describe a near miss. *A near miss incident is where no personal injury was sustained and no property was damaged by where, given a slight shift in time or position, damage and/or injury easily could have occurred.*



Figure 1: 'Report that near miss' poster

Downer attributes the introduction of near miss reporting as a significant factor in reducing the total recordable injury frequency rate (TRIFR). Downer used information gathered from the near miss reporting to enable controls to be implemented which it believes reduced incidents.

Near miss reporting was seen as a key component in enabling behavioural change to reduce the TRIFR. The change was from a compliance culture to an engaged proactive culture. This change enabled Downer to have an interdependent relationship between safety and culture.

The strategy of the near miss reporting also included an education element for staff to demonstrate the causal link between the reporting, action and resultant statistical reporting rates. This demonstration was

reported in monthly team meetings as well as on variable message signs. For example, at the works depots to communicate how many near misses were being reported and how many had been actioned.



Figure 2: VMS - Making reporting statistics accessible for the workforce

Ownership was given to the workforce to assist in the design, development and delivery of activities related to the safety message. This maintained momentum and ensured the message was effective.

The HR investment is attributed to providing the following benefits:

- A safer working environment;
- Greater awareness of hazards;
- Greater awareness of potential hazards;
- A trending change from being able to see what other people are doing unsafely to what we as individuals are doing unsafely;
- Greater engagement of employees – not just with respect to safety;
- Development of an open culture.

The engagement of the workforce has provided additional benefits to the stabilising business anecdotally resulting in increased productivity, a greater sense of ownership and improved morale.

AustStab recognised that this safety investment was a best solution to an identified workplace health and safety issue and provided a benchmark opportunity in work health and safety.

CPEE RECOGNISED FOR DELIVERING EXCELLENCE IN EDUCATION

This year's AustStab Awards of Excellence Winner in Education or Research was The Centre for Pavement Engineering Education (CPEE) for the delivery of insitu stabilisation and pavement recycling since 1999. AustStab recognised the winner was outstanding in providing pavement stabilisation education throughout Australia.

The CPEE effort is fully supported by Austroads and the individual state road authorities, as well as a number of industry associations. CPEE has formal links with the University of Tasmania. CPEE distance learning programs provide specific post-graduate outcomes of a Graduate Certificate and a Master of Technology in "Pavement Technology", and with the University of Tasmania, a Graduate Certificate and a Graduate Diploma in "Infrastructure Asset Management" and also in "Road Engineering and Construction."

Introduction into the CPEE Distance Learning Program of the specialist unit of study titled "Insitu Stabilisation", in 1999, was a major step forward in recognition of insitu stabilisation as a quality engineering process. In providing the detailed learning, based on the Austroads Guides, CPEE has significantly contributed to the quality and acceptance of insitu stabilisation among engineers Australia wide.

Since the commencement of the distance learning program, there have been over 100 students/engineers undertake the "Insitu Stabilisation" Unit as part of their post graduate studies.

In addition, as a result of the growing interest and use of insitu stabilisation, and in support of the Distance Learning Programs, CPEE developed and introduced a two-day short course in 2010 titled "Insitu Stabilisation" (re-titled in 2013 to "Pavement Recycling and Insitu Stabilisation").

Each year since, the course has been successfully staged throughout Australia featuring industry experts from both the private sector and from respective state road authorities, as presenters. In 2011, the existing AustStab one-day workshop was combined with the CPEE two-day Short Course, to provide a joint training effort, with the merging of the two independent offerings.

The outcome has been a powerful and practical two-day short course program that has been fully embraced by the industry and state road authorities. It has resulted in even more short courses being staged, in both capital cities and regional centres in all states and territories of Australia, reaching personnel from leading hands, foremen/supervisors to graduate and experienced engineers.

The two-day short course is a combination of formal training enhanced with practical tutorials with key presenter, Bob Andrews (Principal Infratechno Consultants), supported by Daniel Orriss (General Manager Stabilisation SPA), Heath Curnow (CEO Stabil-lime/ President AustStab) and Greg White (Executive Director AustStab). In addition, the course draws on local SRA experts providing a regional view of stabilisation.

The primary benefits of the CPEE formal educational offerings, and its training efforts, are significantly enhanced knowledge and skills, for those seeking a working understanding of stabilisation, especially engineers and engineering technologists, project managers and senior supervisors and operations personnel working for federal, state, or local authorities, consultants and contractors.

AustStab was pleased to recognise the significant education contribution provided by CPEE to the Australian market in the Awards of Excellence in 2013.



Image: Bob Andrews, on behalf of CPEE, receives award from Heath Curnow (Stabil-Lime) - AustStab president 2013

ARE YOU TIRED OF FATIGUE?

When we travel around Australia's roads there are many examples of pavement failures which come in many forms. Typical failures are rutting, cracking and potholing: the question is, why do these happen.



It is generally agreed that a pavement has tensile strength.

This is a result of the addition of a binder usually bitumen or a cementitious product. It will eventually fail by cracking. This due to repeated traffic loading that deflects the pavement as the wheel passé, but then the pavement recovers.

This repeated bending causes the pavement to eventually crack most often at the bottom of the bound layer; these cracks will propagate to the surface eventually. A similar process occurs if you repeatedly bend a piece of wire backwards and forwards – it breaks. Both these examples are referred to as fatigue failure.

However, if the pavement material is not bound it will deform in the wheel path over time forming a rut. The time it takes to rut is dependent on the characteristics of the material, its plasticity, grading and particle strength.

It is assumed all pavements will fail by either of these two mechanisms, rutting or fatigue cracking. The current three controversial aspects of Australian pavement design revolve around these two failure mechanisms

The Australian Asphalt Pavement Association, (AAPA) is researching the idea of a perpetual pavement; say one that will last over 50 years. The concept being that the deeplift asphalt pavement is built using rut-resisting asphalt on the top layers and fatigue-resisting asphalt on the lower layer. The result theoretically should be a very long-lasting pavement as the strain on the bottom of the asphalt is so low as not to cause cracking.

There appears to be a misconception that maintains foamed bitumen stabilisation has the bitumen only modifying the pavement material and the pavement performs as a granular material; therefore it will fail in rutting.

However, Australia using much of Queensland's experience and endorsed by Austroads, maintains that foamed bitumen stabilisation pavements perform in a similar fashion to asphalt – a bound material, therefore it will fail in fatigue. Austroads is carrying out research to further improve the design techniques for this very versatile pavement.

There is often a misconception that 175mm of cover is required over a stabilised layer. This is only required for a heavily bound layer usually with an unconfined compressive strength (UCS) of above 2MPa.

This cover is required to prevent the propagation of shrinkage or fatigue cracks through to the surface. However, if the target UCS is 1.5 MPA and, with the use of slow-setting binders and polymer modified spray seals, there is minimal chance of the pavement showing any signs of fatigue cracking.

Further research is ongoing to obtain a greater life from all the pavement options available.

18TH AUSTSTAB AGM – HOSTED ON THE GOLD COAST

The 18th annual general meeting for AustStab was hosted at QT Hotel on the Gold Coast in August 2013.

The unseasonal Gold Coast August heat greeted the AustStab golf contingent competing for the Golf Cup at the Surfers Paradise Golf Course as the first event for the 2013 AustStab Conference - Stabilising the Future.

Over twenty entrants participated in the event with Warren Smith (SPA), Chris Smith (Robinson Civil), Warwick Dingle (Wagner) and Michael McLean (Wirtgen) taking home the coveted cup.



Image: AustStab Golf Cup - Brad Brown (Sibelco)

The three-day event was attended by over 65 delegates from 25 organisations representing all states and territories, except the ACT.

Featured workshop sessions for the group included a review of the strategic positioning of the association, and a review of the objectives, mission and vision for the association.

All delegates were involved in discussions on topics such as the strategy on education, future research, future promotion strategies as well as discussing the standards relating to stabilisation throughout Australia. The TMR/ARRB National Asset Centre of Excellence was discussed and proposals for inclusion in the 2013-2014 research projects were reviewed.

A new council was elected with Warwick Dingle (Wagner) and Brad Brown (Sibelco) being nominated by the group for the roles of the Councillors for the Construction Material Members, replacing long-standing councillors Nigel Preston (Shell) and James Howard (Independent Cement and Lime).



Image: AustStab Council 2013 - 2014 - Heath Curnow (Stabil-Lime), David Berg (SPA), Brad Brown (Sibelco), Warren Smith (SPA), Mark Wasley (RoadTek), Stewart Geeves (Andrew Walter Constructions), Brett Fulloon (Downer), John Boocock (Hiways Stabilisers), Pat Capaan (Downer) and Tom Curnow (Stabilco)

Some of the key initiatives that the members are targeting for 2013-2014, as a result of the discussions at the conference were:

- The importance of national recognition by state road agencies for the AustStab ARRB Accredited Contractors scheme;
- A consistent branding and recognition of AustStab as the peak industry body and centre of stabilisation expertise in Australia;
- Engagement of consultants and major contractors on the benefits of stabilisation;
- The methodology relating to foamed bitumen design within Australia continuing to be relevant to local conditions; and
- Future research opportunities that may be available as a result of the Australian Universities Guest Lecture Program.

A highlight of the conference was the gala dinner, where AustStab celebrated 18 years as an active not-for-profit third sector industry association with a birthday cake and the second annual Awards of Excellence.



Image: Heath Curnow (Stabil-Lime) - President of AustStab cutting the 18th Birthday Cake at QT Hotel on the Gold Coast with delegates from the 18th AustStab Stabilising the Future Conference.