



2012 COMMITTEE OFFICERS

- ◆ Chairman
Alan Bartlett
- ◆ Deputy Chairman
Mark Owttrim
- ◆ Secretary
Steve Cusack
- ◆ Deputy Secretary
Dave Gregson
- ◆ Treasurer
Brett Hollingum
- ◆ Deputy Treasurer
Vacant
- ◆ Non Executive Member
Ron Richards
Jon Nicholson
Danny Hallett
Paul Coker

For contact details please visit our website at www.agta.org.au

INSIDE THIS ISSUE:

<i>A Note from the Chairman</i>	1
<i>Editors Message</i>	2
<i>Members Profiles</i>	2
<i>Members Profiles</i>	3
<i>News From Abroad</i>	3
<i>Letter to the Editor</i>	4
<i>On a Lighter Note</i>	9

A note from the Chairman Alan Bartlett

I am proud and pleased to present this report as the Chairman of the executive committee of AGTA for 2012. The 2012 committee consists of some members who have continued in the same roles from 2011, some who have assumed new roles and two who have joined us for the first time. To members who have stood aside from their committee roles (Paul Coker – Chairman and Rex Fleiter – Treasurer) I would like to express my appreciation and respect for your contribution over the past several years. Paul has offered to continue in a non-executive role and Rex’s business partner has assumed Rex’s role as treasurer.

AGTA was incorporated in 1997 making this AGTA’s fifteenth year of operation. Undoubtedly its greatest achievement was delivering the second Australian Conference of Construction Materials Testing in October last year. The conference was universally acknowledged by all attendees as a huge success. Although the cost to delegates was modest this was not reflected in the quality of the overall conference experience. In addition, the Association’s bank balance was boosted by some \$15000. This was due in no small part to the generosity of our sponsors.

The committee recently held its first meeting for the year and agreed on a schedule that we hope will be of interest and value to our members. We expect to follow up on the Youth Forum that was a feature of the Conference and address the issues raised by our younger members. We will be contacting those who expressed an interest at the forum and invite others who might be interested in participating to contact us. Another issue we plan to address is to review the rules regarding Corporate Membership. The draft of a proposal was presented at the 2010 AGM but the meeting sent it back for further consideration. Because the committee was preoccupied with organising the conference last year no further consideration was given. Paul Coker has volunteered to review the Association’s constitution and other documents and report back on any changes that may be desirable or necessary.

I would like to wish all members a successful year and invite you to participate fully in the activities of AGTA.

Alan Bartlett

Editor Dave Gregson

The views expressed by contributors do not necessarily reflect AGTA policy

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Editor's Message Dave Gregson

As the newsletter editor for 2012, I would like to invite all AGTA members to contribute to the newsletter with industry based issues, columns and articles.

After witnessing a poorly attended AGM and hearing statements like "what do we get for our membership fees" I aim to produce 4 newsletters this year with the next ones following in May, August and November. Please forward any industry based columns, articles or issues to d_gregson@cqa.com.au by the month preceding the release month stated above.

It would be fantastic to have more input by AGTA members and encourage new members to do so.

Members Profiles

Dave Gregson commenced employment with CQA in 2002 with 15 years experience in the earthworks construction industry. With this experience behind



him, he soon progressed to Branch Manager of Kunda Park Laboratory and is responsible for co-ordinating both technical and field staff. Dave has a comprehensive knowledge of both Main Roads and

Australian Standard testing specifications. He has successfully completed many industrial and residential subdivisional developments and looks after a rapidly growing number of compliance testing projects. In addition to 10 years experience in soil testing, Dave has more recently expanded his knowledge to cover many aspects of Quarry Compliance Testing.

QUALIFICATIONS

Advanced Diploma in Laboratory Operations

(Construction Materials Testing)

Certificate IV in Laboratory Techniques (Construction Materials Testing)

NATA Technical Assessor

MEMBERSHIPS / AFFILIATIONS

Member, Association of Geotechnical Testing Authorities (QLD) Inc (Deputy Secretary)

Alan Bartlett has been involved with the CMT industry since 1966. He worked in both the public and private sectors on major infrastructure projects in Queensland.



His CMT industry experience over 26 years included field and laboratory testing of soils, concrete and aggregates and site investigation. He specialised in field and laboratory instrumentation before becoming a trainer and assessor. He established a Registered Training Organisation in 1998 which currently services the CMT industry in most areas of Australia.

MEMBERSHIPS / AFFILIATIONS

From 2006 to 2010 he was Secretary of AGTA and Deputy Secretary in 2011. He was a member of the organising committee for CMTC11.



Danny Hallett was first introduced to the world of soil testing when he began his employment with CQA as a Senior Trainee back in 2004. He quickly completed his Cert III in Laboratory Skills which has now earned him the position of Project Manager/ Assistant Field Activities Manager, where he enjoys all aspects of managing Main Roads project as well as Residential and Commercial Subdivisions.



Members Profiles Cont....

Steve Cusack worked for McWilliam and Partners Consulting Engineers (from 1981



to 1986). Positions held include Laboratory Manager. From there he worked with Queensland Geotechnical services until 1996. He then started KASE Enterprises, which specialises in Training and Assessment in Construction Materials Testing. In 1997 KASE registered the first course specifically designed for Construction Material Testing (CMT001). Steve has had a long involvement with AGTA, he was the inaugural Deputy Chairman, (Paul Fraser was Chairman), and he was subsequently Chairman for a number of years. His interests and hobbies are Football, old motorcycles and old Holdens.

News From Abroad....



The 3rd biennial CETANZ Conference developed and hosted by Civil Engineering Testing Association New Zealand (CETANZ).

The conference will be held from 8-10 August 2012 in Auckland, New Zealand, attracting over 100 delegates from across New Zealand and Australia with technical, science and civil backgrounds.

This year's focus is on the commercial side of the testing industry, understanding the mechanics behind building a thriving and successful business and the increased awareness for technology. During these tough economic times it is important to keep labs operating as efficiently as possible, including the day-to-day operations.

To learn more about this event and to register for it please visit:

www.cetanzconference.org.nz

Brain Teaser Time....

- 1. You have 12 black socks and 12 white socks mixed up in a drawer. You're up very early and it's too dark to tell them apart. What's the smallest number of socks you need to take out (blindly) to be sure of having a matching pair?*
- 2. An Arab sheikh tells his two sons to race their camels to a distant city to see who will inherit his fortune. The one whose camel is slower will win. The brothers, after wandering aimlessly for days, ask a wise man for advice. After hearing the advice they jump on the camels and race as fast as they can to the city. What does the wise man say?*

Answers on page 9



Letter to the Editor.....

EARTHWORKS INSPECTION & TESTING **A 20 YEAR HISTORY: HOW DOES IT RATE**

Overview

In 1986, Standards Australia circulated a number of organizations seeking comment on the need for an Australian Code of Practice or Standard for earthworks. The deliberations that followed resulted in the publication of AS 3798 "Guidelines on earthworks for commercial and residential developments" in 1990. Prior to 1990, earthworks were often poorly specified and inadequately supervised and controlled, which often resulted in a high level of uncertainty in relation to the engineering properties of fill. As a consequence, poor serviceability of both the fill and the structures supported by the fill was commonplace and contractual disputes or litigation often occurred. Alternatively, structures were conservatively designed to accommodate the uncertainty, which resulted in unnecessary costs.

However, in my 20 years experience since its inception, I have continued to observe major shortfalls regarding the application of AS 3798 within the geotechnical and construction industries. I write this letter in the hope that a dissemination of my experience allows for renewed dialogue within the geotechnical community, and ultimately prompts a positive path forward for AS 3798 as a result.

While there is no doubt that AS 3798 has provided a framework for better earthworks outcomes and has resulted in the improved quality of earthworks, twenty years on there remains a considerable amount of **confusion, ignorance** and **deceitful practice**, often resulting in similar consequences to those prior to 1990.

So what is going wrong?

Confusion

As defined within the title, AS 3798 is a Guideline and not a Standard and therefore is intended as an informative document only. Some GTA's and GITA's (referred to hereon as GTA) seem to interpret this as a guideline for **them** to make decisions on issues like fill foundation treatment, testing frequency, acceptance criteria, presence on site and so forth. The true intention of AS 3798 is for specification writers - usually the consulting Civil, Structural or Geotechnical Engineer - to select the relevant elements to include in the specification.

Depending on variables including existing site ground conditions, budget constraints, the knowledge and experience of the specification writer, the advice given to the specification writer and the desired engineering outcomes, earthworks specifications can take any form including a partial or complete departure from AS 3798 guidelines. Therefore, earthworks specifications often do not strictly accord with the guidelines provided in AS 3798, yet are valid specifications nevertheless. However, what is often not understood is that when the specification forms part of a contract, it is binding to all parties, including the GTA. As such, departure from the specification without the approval of the Superintendent could constitute Breach of Contract, or Fraud in the case of a statement of compliance with the specification.

In recent years within my locations of experience, AS 3798 has become increasingly important for Site Classifications undertaken in accordance with AS 2870 "Residential slabs and footings". Clause 2.5.3 of AS 2870 states:

"For the purpose of this Standard, fill that is in accordance with the technical and control requirements specified in AS 3798 for structural fill for residential applications is controlled fill. Other fill is uncontrolled fill for the purpose of this standard."



In my experience, when fill has been “certified” as controlled fill (usually under a Level 1 specification), it is standard practice for Site Classifiers and Footing Engineers to re-classify a site from Class P (problem site), to an alternative Class (A, S, M, H or E) and design a standard “deemed to comply” footing system (except for E). Given that AS 3798 is a guideline only, what does “technical and control requirements” actually imply? For example, Section 2 (l) of AS 3798 states:

“Soft or compressible soils do not form a good foundation on which to place and compact fills, and may need to be excavated. Alternatively, fill (which is readily compactable) may be placed in the lower levels of earthworks immediately above such soils. Geosynthetics or some other ground improvement techniques may also be considered. To minimize displacement of such soils during construction, the earthworks should be programmed to avoid unnecessary loading of the foundation, e.g. appropriate routing of fill haulage equipment or stage construction. The calculation of quantities needs to take into account the effect of compression of the foundation soils.”.

Does this mean that filling carried out over soft compressible ground in accordance with the “technical and control requirements” as detailed in Section 2 (l) can be certified as controlled fill and therefore suitable for standard shallow footing systems? This is clearly not the intention, however, I am aware of many recent cases of houses in the Gold Coast area that have been constructed on so called “controlled fill” that have undergone significant settlement and structural distress because the fill was placed over a compressible foundation without any additional engineering consideration.

Whilst there is no direct connection between Level 1 and controlled fill, the implied connection seems to be that under Level 1 a statement of compliance with the specification can be provided by the GTA, whilst under Level 2 no such statement can be provided. Without a statement of compliance with the specification, there is no confirmation that the filling is in accordance with the technical and control requirements specified in AS 3798. This is a reasonable approach in my opinion.

However, Level 1 is only a statement of compliance with the specification and the specification can take any form; including filling over soft compressible foundation soils, filling over existing uncontrolled fill, density requirements less than those provided in the guideline, poor quality fill and so forth. Therefore, in my opinion, Site Classifiers and Footing Engineers beware: Level 1 does not equal Controlled Fill!

Clause 2.5.3 of AS 2870 states:

“The classification of sites containing fill shall be in accordance with the following:

(a) Controlled fill:

(1) Shallow Fill. *The classification of a site with controlled fill not more than 0.8m deep for sand and 0.4m deep for material other than sand shall be the same as the natural site, prior to filling.*

(2) Deep fill. *The classification of a site with controlled sand fill deeper than 0.8m shall be the same as the natural site prior to filling. However, the presence of the sand may be used to justify by engineering principles a less severe reactive site classification. The effect of the fill on the settlement of the underlying soil shall be taken into account. The classification of a site with controlled fill of material other than sand and deeper than 0.4m shall be Class P.*

(b) Uncontrolled fill:

(1) Shallow fill. *The classification of a site with uncontrolled fill not more than 0.8m deep for sand and not more than 0.4m deep for material other than sand shall be Class P, unless all footings (edge beams, internal beams and load support thickenings) are founded on natural soil through the filling.*

(2) Deep fill. *The classification of a site with uncontrolled fill deeper than 0.8m for sand and 0.4m for material other than sand shall be Class P”.*



Confusion appears to be rampant in relation to this clause, probably not without just cause. This often seems to be interpreted by some Contractors, GTA's and Engineers that uncontrolled fill can be placed up to 400mm deep without resulting in a "P" site classification. This is not correct unless footings are taken through to fill. As structural details are almost never known at the earthworks development stage and often not known when the site classification is carried out, a "P" classification should apply if there is any fill present; with the option to re-classify to an alternative classification if the fill is certified as controlled. If the fill is controlled and less than 400mm deep (non sand fill), then the site can then be assessed as a natural site. In a practical sense, most footings engineers and builders will allow for the site to be stripped which will accommodate for topsoil and/or shallow uncontrolled fill to be removed to a reasonable depth, which is usually no more than about 100mm.

Ignorance

Although I am not one to believe in or dictate that only Engineers should be responsible for Level 1 inspection, testing and certification, I do believe that there are sometimes geotechnical constraints that do require experienced geotechnical engineering involvement. These constraints include fill quality, sub surface ground conditions, geomorphologic conditions and desired engineering outcomes. If the parties involved (e.g. Superintendant, Contractor and GTA) do not have the necessary experience or ability to recognize a potential geotechnical problem or to consider the potential consequences, then the problem may often not be appropriately addressed. Some GTA's simply do not have the engineering experience or engineering support that would give them sufficient ability to firstly recognize a potential problem, and secondly, to give the appropriate advice. There are a number of cases that I am aware of where a Geotechnical Engineer should have been consulted but was not; most likely due to a poor understanding of the potential engineering consequences by the parties involved. Some of these have been catastrophic, particularly for the home owners who must be wondering what sort of system could allow this to occur.

Specifications that reference AS 3798 seem to appear for all types of civil projects including sporting fields, pavements, dams, deep fills and landfills. Clause 1.1 of AS 3798 states:

"The standard is not intended to be used for pavements, major roadworks, or water-retaining structures. Such works require special consideration. Residential developments in the context of this Standard are intended to include single lot development up to broad acre subdivisional development for detached or semi-detached housing. The Standard is not intended to be sufficient for medium or high density residential development without due consideration by a suitably qualified professional.

Historically, previous editions of this Standard have been used to assist in the specification and execution of earthworks beyond the intended scope of the document. Whilst with due consideration some aspects of this Standard may be applicable to such works, designers and specification writers should be aware the guidance given herein may not be applicable. In such circumstances, appropriate advice should be sought from a suitably qualified professional before adopting this Standard.

Where the depth of fill required for works to which this Standard would otherwise be applicable exceeds 5m, advice from a geotechnical professional should be sought."

In my experience, it is fair to say that this is largely ignored by designers, specification writers, and the GTA's providing advice and applying their services.



Furthermore, some Earthworks Contractors can at times be very persuasive, particularly if cost savings are a potential outcome. Some Contractors are also unaware (commonly because of prior inappropriate geotechnical advice) of potential adverse engineering outcomes associated with what they are proposing. If the GTA is easily persuaded and/or just as unaware as the Contractor, then the Contractor will often have little difficulty convincing the Superintendent or Principal to agree with the proposal. Quite often, purely by luck, the potential consequences of poor geotechnical related decisions are not mobilized (at least not in the short term), while in other cases that I am aware of, the consequences have caused considerable grief.

When the Contractor has a 'lucky run', or is not aware of past undesirable consequences, it can become a precedent that leads to comments such as "this is what we always do and it has never been a problem before - you are just being difficult and too conservative." Unfortunately contractors are often not exposed to the long term consequences of adverse engineering outcomes and are not accountable for poor engineering decisions.

Deceitful Practice

Deceitful or deceptive behavior associated with AS 3798, particularly in relation to Level 1 responsibilities, has been around since 1990 and continues apparently unabated. It may be expected that what could be called unethical, dishonest or fraudulent behavior is restricted to the 'small backyard operators', but in my experience this is sadly not the case. I frequently witness Level 1 earthworks projects being 'supervised' by GTA's, from small to large organizations, with no GTA presence on site for days on end. Comments like the following are also very common.

"Our usual Level 1 GTA is really good; he never bothers us and he just drops in every few days for his tests."

"Our usual Level 1 GTA is great; he has a calibration for his nuclear meter and can give final earthworks density results on site."

"Our usual Level 1 GTA is a really good operator; he never needs to take moisture content samples for earthworks nuclear meter density tests."

"Our usual Level 1 GTA is really efficient, he only charges us 2 hours for each day that we place fill."

"We will call you when we are ready for a test; that is how we work with our usual Level 1 GTA."

"You don't need to be on site; we will send you a photo and can dig a pit for a test. That is how we work with our usual Level 1 GTA."

"What do you mean a test has failed, we have not had a failed test in over 10 years with our usual GTA."

"It doesn't matter that the compactor is out of commission, with our usual GTA we always get good test results by rolling with the Bobcat or water truck."

"I know that our Level 1 GTA should be here full time, but that's his problem, he's the one signing off on the fill."

What do you mean we should stop the scrapers because the compactor and water truck are out of action? I will be informing the Superintendent that you are affecting our productivity."

Unfortunately this is not an exaggeration. They are all comments that I have heard, some frequently. Following are some common comments provided by Contractors and/or GTA's, and my recommended responses for Site Classifiers and Footing Engineers.



COMMENTS FROM CONTRACTORS/GTA	RECOMMENDED RESPONSE
There is only less than 400mm of fill.	Sorry, it's a P site.
There was only 200mm of fill required so we placed 200mm of topsoil over the existing topsoil.	Sorry, it's a P site.
The GTA said it was OK to place controlled fill over the existing uncontrolled fill.	Sorry, it's a P site.
The GTA said it was OK to bridge over the soft fill foundation with controlled fill.	Sorry, it's a P site.
Yes, it is Level 1, the GTA came out every 2 nd day to do his testing and has provided certification.	Sorry, it's a P site.
We had a lot of topsoil so we spread it out in a 300mm layer.	Sorry, it's a P site.
We had to fill on the weekend and the GTA was not available.	Sorry, it's a P site.
The GTA was too busy to get here so we took photo's and he tested it later.	Sorry, it's a P site.
The GTA has provided a statement of compliance with the Specification which is based on Tables 5.1 and 8.1, and Clause 8.2 of AS 3798.	It's a P site, but depending on our site investigation results we may be able to re-classify the site in accordance with engineering principles.

I am sometimes asked about how to recognize who the unprofessional GTA's are. The answer is simple; they are the preferred GTA's of the unprofessional Contractors.

Where To From Here?

The Building Services Authority recently amended its subsidence policy to state that unless the Footing Engineer carried out their own testing to confirm adequate compaction of fill and takes responsibility for the fill compaction, then all houses on fill must be constructed independent of the fill (i.e. on piles through to natural ground). This was in response to continuing problems associated with fill, most of which is certified as controlled fill. In other words, we have returned to pre 1990 logic and the reputable developers, engineers, contractors and GTA's have all been the losers.

In my opinion, this represents a massive failing of the integrity and credibility of our industry. AS 3798 presented a magnificent opportunity for the geotechnical industry to establish a framework for best practice, only for it to be damaged by confusing elements within and pertaining to the application of the Guideline and the ignorant, unethical or deceitful actions of a minority. It should be noted that Contractors and GTA's are not solely responsible, as on occasions I have seen the project Superintendent or Consulting Engineer approve undesirable short cuts or turn a blind eye to unethical behaviour in the interest of perceived cost savings for their client. If the current trend is to be improved, it will require a unified message from AGTA, AGTA members and Footings Engineers. The message needs to address that if earthworks (including the fill foundation) do not meet a minimum standard in accordance with Tables 5.1 and 8.1, and Clause 8.2 of AS 3798, then it will be deemed uncontrolled fill. The message, including the consequences of non-compliance, needs to reach specification writers, Superintendants, Local Authorities, Footings Engineers, Contractors and Builders. A great way to initiate this process would be for AGTA to affiliate with the Queensland Footings and Foundation Society in order to produce a "Controlled Fill Minimum Requirements Guideline". This could then be distributed to the various stakeholder groups.

Yours sincerely
Paul Fraser



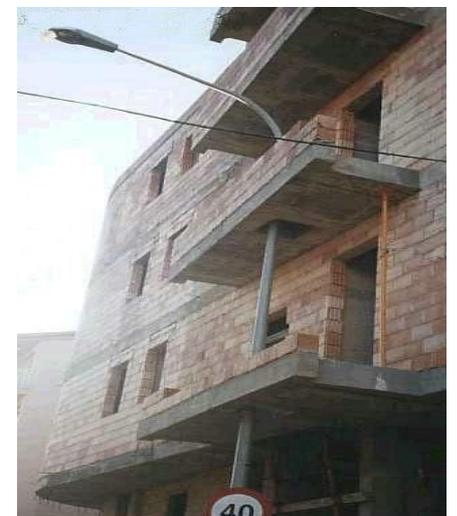
On A Lighter Note....



A Yankees fan was enjoying himself at the game in a packed Yankee Stadium, until he noticed an empty seat down in front. He went down and asked the guy next to it if he knew whose seat it was. The guy said, "Yes, that's my wife's seat. We have never missed a game since Joe DiMaggio played, but now my wife is dead." The fan offered his sympathy and said it was really too bad that he couldn't find some relative to enjoy the game with. "Oh no. I can." the guy replied. "It's just that they're all at the funeral."

When Construction goes wrong...

An American firm drilling for oil in Northern Australia had its own men as technicians, but employed a few Aussies as labourers. One of the Australians inadvertently dropped a heavy hammer down the shaft. Further drilling was impossible until it had been removed, and much time, trouble and money were spent in extracting it. Following this incident the manager assembled all the men around the shaft and called the Aussie forward. He then presented him with the offending hammer and delivered a most sarcastic speech. "I want you to accept this hammer as a memento," he told the Australian. "and I hope it will always remind you of the trouble and expense you have cause the company through your careless actions" He handed over the hammer. "Now," he concluded, "TAKE IT AND GO." "Does that mean I'm sacked?" asked the Aussie. "It sure does!" came the emphatic reply. "Well, this thing's no bloody use to me then is it?" responded the worker - and dropped it neatly down the shaft again!



Answers to Brain Teasers

1. 3 socks. If the first sock is black, the second one could be black, in which case you have a matching pair. If the second sock is white, the third sock will be either black and match the first sock, or white and match the second sock
2. The wiseman tells them to switch camels.