



香港岩土及岩土環境工程專業協會

ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS (HONG KONG)

AGS (HK) NEWSLETTER

Editorial

Here is the latest issue of the AGS (HK) Newsletter. The recent global financial tsunami has shrunk the construction market in Hong Kong. But the future is not gloomy because the ten major infrastructure and capital works projects will provide the geotechnical and geoenvironmental practitioners with many opportunities and challenges.

This year the AGS (HK) has held a number of well attended technical meetings and site visits since the Annual General Meeting, and has been in close contact with other geotechnical and geoenvironmental organisations. Further details can be found in this newsletter.

In April 2009, the Association has published and distributed to the geotechnical community the first tunnel construction guidelines on the selection of Tunnel Boring Machine (TBM). This document discusses the use of TBM tunnelling and the methodology for the selection of TBM in different ground conditions. The Working Group of Ground Investigation Guidelines (GIGs) is currently preparing three additional GIGs which will cover (i) Blasting, (ii) Ground Investigation for Natural Terrain and (iii) Horizontal Directional Coring. These new GIGs are set to be published in 2010.

The Association would like to thank Dr Angus Maxwell for his hard work as Chairman in 2009; and Iain McGlen of Lam Geotechnics, Mark Wallace of Ove Arup, Dr Jun Yang of the University of Hong Kong, and Dr Johnny Cheuk of AECOM Asia for their service to the Executive Committee. The Association also wanted to thank the members of last year's Executive Committee for their hard work.

The AGS (HK) is committed to promoting the interests of its member organisations. Please feel free to share with us how the Association can best serve the geotechnical and geoenvironmental profession. Volunteers who wish to be involved in the activities of the AGS (HK) are most welcome.

Suggestions

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Chairmans Report on the Year ending 2009

We come to an end of a very busy year for all members of the Civil Engineering and construction community in Hong Kong. Finally, after several years in the doldrums, a gust of new government investment has revitalized the industry. This is not without its own problems and companies have struggled to meet the demands of the increased work load whilst still working through jobs won at low margins during the lean years. Still, it is encouraging for all to see potentially buoyant conditions for a significant period ahead.

The outgoing AGS (HK) committee has striven valiantly to push through events and courses, field trips, guidelines and sponsorships. The number of events we have managed has fallen somewhat short of our normal output but 2010 promises to be a much better year with a large number of events already on the cards.

This year we managed three CPD seminars: A CPD course on "A Practical Guide to Natural Terrain Hazard Studies" was held early in the year and followed by a seminar - Geophysical Investigate Tools for Engineering & Geotechnical Applications in the Summer. Our October seminar on "Tunnelling – Selected Topics" sold out 300 seats with three weeks still to go.

The AGS (HK) have also co-organised or co-sponsored events with other Societies and Institutions. In particular the Chairman was co-opted onto the organising committee covering ground condition risk "The New Economic Reality: Implications for the Construction Industry in Hong Kong". The AGS were a supporting organisation to the IMMM (HK) November Tunnelling conference where over 500 delegates took part.

The AGS (HK) have published several guidelines during the year including a guideline on TBM Selection, a guideline on Natural Terrain Evaluation and Mitigation and a construction guideline on Blasting which is nearing completion. Those members who spend time logging core will be please to know that Chris Fletcher's popular book "Geology of Site Investigation Boreholes from Hong Kong" is to be reprinted in its second edition during the early part of the year and this will be funded purely by the AGS.

The AGS (HK) continue to provide useful feedback to the industry and to the education establishments on aspects of engineering education and training. We are continuing our support for the bachelor degree and masters students and commit some HK\$50,000 annually. Scholarships this year were awarded to the candidates from The University of Hong Kong, The Hong Kong University of Science and Technology and The Hong Kong Polytechnic University.

In the coming year we have committed to a grand schedule of seminars and ground forums. Our evening ground forum format involving three or four short contributions stimulates much discussion and is particularly well received by the members. We

will be pushing through a number of such events this year. Look out for the following:

1. Ground Forum / GIG on Instrumentation for Tunnelling
2. Ground Forum / GIG on Rock Mass Classification and Support Selection
3. Seminar on Challenges of Underground Construction in Reclaimed Land
4. Seminar on Tunnelling through Fault Zones

We remain committed to encouraging good practice and training young and developing engineers and engineering geologists in Hong Kong. All this would be impossible without a lot of energy and dedication so I would like to reserve a special thanks to all the executive committee members who put in so much of their valuable free time to the cause.

New Faces

The Association warmly welcomes the following new faces to the Executive Committee:

Mr Eddie Chan (Ove Arup & Partners)

Eddie is an Associate of Ove Arup & Partners Hong Kong Limited. He has over 20 years experience in the slope works projects and government Landslip Preventive Measures projects. Currently, he has been involved in various natural terrain study and mitigation projects in Hong Kong. His slope engineering experience includes design, control, and management and construction supervision. His experience also includes foundation designs in marble areas, ELS and site formation projects.



Mr Florent Desaintpaul

Florent has 13 years experience, mostly in the tunnelling and geotechnical field, including 10 years in Hong Kong. He graduated in Civil & Mining Engineering at the Alès School of Mines (France) and obtained a Masters Degree in Mining Engineering at the Camborne School of Mines (UK) in 1994. His key experience includes geotechnical design and engineering geology assessments for rock or soft ground tunnels, rock caverns, shafts and deep excavations, slope studies, site formation, and foundations.



Mr Jianbing Wang (Jacobs China)

Jianbing Wang is a technical director of Jacobs China Limited. He is a Chartered Engineer with 27 years experience of design, management and supervision in geotechnical and civil engineering projects. He graduated in civil engineering at the Chongqing University of Architecture and Engineering, PRC, in 1982 and obtained a PhD in geotechnical engineering at the University of Wolverhampton, UK, in 1996. He has gained extensive experience in tunnels, pipe jacking, deep excavation, shallow and deep foundations, earth retaining structures and marine works. He was the geotechnical design leader and site



supervisor of many deep excavations, tunnelling and foundation works projects in Hong Kong, including KSL Contract KDB 400 railway tunnel project and HKHA Redevelopment of Lower Ngau Tau Kok Estate Phase 1. He is currently leading a Hong Kong based team on geotechnical modelling of complex underground projects at Heathrow Airport Grade Separated Road Project and Blackfriars Station Redevelopment in London.

Dr Ryan W M Yan (HKU)

Ryan received his degrees (BEng, MPhil and PhD) in Civil Engineering from The Hong Kong University of Science and Technology. He has been a Postdoctoral Fellow at HKUST and a Visiting Scholar at the Technical University of Hamburg-Harburg, Germany under various funding schemes. Prior to joining The University of Hong Kong in 2009, he worked as an Assistant Professor at the University of Macau for four years. His current research interests include constitutive and numerical modelling of geomaterials, stress path testing, advanced non-destructive soil characterization and geotechnical process monitoring, soil-structure interaction as well as field monitoring. He serves as a committee member in a number of engineering societies in Hong Kong and Macau, including the American Society of Civil Engineers (HK Section), Macau Association for Geotechnical Engineering and The Hong Kong Society of Theoretical and Applied Mechanics. His Master Thesis titled "Three-dimensional Modelling of Diaphragm Wall Installation" was awarded the Best Master Thesis presented by the ASCE (HK Section) in 2000.



Mr Tim Kilmister (ALS Laboratory Group)

Tim Kilmister has been working for the ALS Laboratory Group for the past 15 years and is currently the Asian Operations Manager. Most of his past experience has been based in Australia, having worked as a Laboratory Manager in both Brisbane and Melbourne. Tim moved to Hong Kong in January 2010 and within his current role has responsibilities for ALS laboratories in Hong Kong, China, Taiwan, Singapore and Thailand. ALS's Hong Kong laboratory has a wide range of analytical offerings to service the industry, providing Soil, Water, Sediment, Ecotoxicology, Microbiological, Air Monitoring and Food services.



Mr Warren Dou (Aurecon)

After graduation in 1983 with a Bachelor's Degree in civil engineering, Warren Dou started research and practice in the geotechnical engineering field. Later on, he obtained a Master's Degree in Geotechnical Engineering at the University of British Columbia, Canada in 1991. He has practiced in China, Canada, and most recently in Hong Kong since 1998, in the fields of geotechnical and civil engineering, foundations, and seismic & earthquake engineering. He has been involved in almost all aspects of geotechnical engineering across different regions and through various projects. This includes geotechnical investigation, analysis, design, construction supervision and project management, in areas of deep excavation & support system, earthworks, retaining structures & slopes, site formation works, foundations, ground improvement, and reclamation



works for projects ranging from railways, highways, bridges, tunnels, marine structures to building developments in Hong Kong, Macau, China, Asia, Middle East, Australia and North America. He is experienced in advanced numerical modelling for geotechnical problems, foundations, basement excavation, tunnels, and static & seismic soil-structure interactions. Warren Dou is currently the Tunnelling and Ground Engineering Group Leader of Aurecon Hong Kong.

Mr Wilson W Fok (Stanger Asia)

Wilson is a Chartered Civil Engineer who is currently employed by Stanger Asia Limited as a Technical Manager (Geotechnical). He was educated in USA and graduated with a Bachelor degree in Civil Engineering at San Jose State University in 1994 and subsequently acquired a Master of Business Administration (MBA) at Golden Gate University in 1995. He has 14 years



of professional experience in construction industry and has been working in a wide variety of building, civil engineering, and ground investigation projects in Hong Kong and Macau for both public and private sectors. He also has extensive experience in geotechnical instrumentation, foundation testing, environmental monitoring, construction materials testing and laboratory management. Further to his engineering background, Wilson has a vast interest in other professional areas as he earned a Bachelor degree (Honours) in Quantity Surveying at University of Reading, UK in 2005 and a Master degree in Finance at City University of Hong Kong in 2006.

AGS (HK) Golfers Tackle Kau Sai Chau East Course

A band of plucky geotechnical golfers descended on the new Kau Sai Chau East Course in June 2008 to sample what had previously been described as a “challenging” course by Asian golfing aficionados. Over a hundred shots later and some 15 balls lighter I for one was feeling a little shell shocked. The course has been carved out of the hillier part of the island and the difference between a birdie putt and golfing doom can be measured in inches. Twice I lost a ball when it rolled off the edge of the green after a chip! Many holes have blind shots and the 2nd and eighteenth holes are the equivalent of golfing russian roulette. I felt the need to talk a provisional on almost half the shots I hit.



The AGS (HK) Golf Day

I am sure most come away feeling they would play it better the second time. Still these are just golfing sour grapes. The course itself, if a little crazy, is staggeringly beautiful with many holes following the coast requiring shots over ravines and valleys. Not surprisingly the amount of surveying required meant that we took a little longer than normal to go round so we had to forego the prize giving. Only one person had a good round (we took his word for it) and Francis Kung was declared the winner. We'll send a few commemorative balls to all the AGS (HK) attendees.

Article by Dr Angus Maxwell (Maxwell Geosystems)

Forum on “Groundwater Prediction and Control in Underground Excavations”

On 10 July 2008, the AGS (HK) held a forum on “Groundwater Prediction and Control in Underground Excavations” at the City University of Hong Kong in Kowloon Tong. The event was attended by more than 300 members.

The forum seeks to explore how to control groundwater inflow, an important issue in underground excavation. The consequences of uncontrolled groundwater inflow can be severe as it can badly affect the progress of tunnelling works and the surrounding environment. Excellent presentations were given by Mr John Black, an international authority on hydrogeology, Mr Chen Wing-hon, the Assistant Project Manager of Gammon Construction Limited, and Dr Johnny Cheuk, an Assistant Professor at the University of Hong Kong. The speakers reviewed the basics of groundwater hydrology from an engineering perspective and discussed the effective ways to detect the presence of water prior to and during the tunnelling works. They also addressed the risk of water inflow and the possible solutions in Hong Kong.

After the presentations, a lively discussion between the speakers and audience which was chaired by Joseph Lo, Executive Director of AECOM Asia.



From left: Mr Joseph Lo, Mr John Black, Mr Chen Wing-hon and Dr Johnny Cheuk at the Forum on ‘Groundwater Prediction and Control in Underground Excavations’

Site Visit to CLP Castle Peak Cable Tunnel

The AGS (HK) organised a technical visit to CLP Castle Peak Cable Tunnel in the 27 September 2008. The project has mainly comprised the Architectural, Civil and Electrical & Mechanical works for the Design and Construction of the cable tunnel. The 4.5 km long cable tunnel has connected the Castle Peak Portal and the Tuen Mun Shaft, and eight number of cable circuits have been installed in the tunnel with 4.5 m internal diameter. The associated works other than the tunnel construction included the constructions of tunnel portal located at CLP Castle Peak Power Station, Tuen Mun Shaft, ventilation building and structures, plant rooms, cable troughs and recreation playground. The project was commenced in the end of year 2005 and completed in the end of year 2009.

A delegation of 15 people met in the Castle Peak site office around 9:30 am on the 27 September. An introductory presentation on the project background, design works and construction details was given by Mr Andy Raine and Mr Kelvin Choi from Dragages Hong Kong. Andy has particularly discussed the type of TBM used in this project, the equipment and guide holes for probe drilling, grouting machine, the mixer for grout material and the general site setup such as recycled water tanks and spoils conveyer system.

In summary, the tunnel was bored using the hard rock double shield gripper TBM with precast segment erector. The TBM is 205 m long and approximately 450 tonnes in weight, and it can construct the tunnel with an diameter of 5.25 m. The dominant rock type encountered for most of the tunnel was granite, and part of the tunnel section at the Tuen Mun Shaft was constructed in volcanic rock. A major fault zone has intersected the tunnel at the lithological boundary between granite and volcanic rocks. The power pack for probe drilling included the twin 55 KW hydraulic pumps for power supply of the drifters and two independent 20 bar water booster pumps. The key components of grouting equipment included semi colloidal grout mixer, agitator and high pressure injection pump.

During the site visit, the delegation particularly visited the Joint Bay Section of the tunnel. A brief explanation was given on the enlargement works for this section. Selected parts of the precast segmental lining were removed and concrete segments of cast insitu lining were then installed to form the enlarged tunnel section.



The AGS (HK) site visit to CLP Castle Peak Cable Tunnel

We express our gratitude to Andy and Kelvin for showing us the site and making the visit very interesting and informative.

Article by Barry Sum (AECOM Asia)

Site Visit to Hong Kong West Drainage Tunnel

A visit by AGS (HK) members to the site of the DSD Hong Kong West Drainage Tunnel was held on Saturday 25 April 2009. This is a DSD Contract that involves building of a drainage tunnel in the western part of Hong Kong Island to intercept stormwater from the upper catchment at the Mid-Levels and discharge it to the sea directly, thus reducing rainwater flowing to the low-lying areas downstream. With the tunnel commissioning, the overall flooding problem on Northern Hong Kong Island will be alleviated.

The project is to construct a drainage tunnel of about 11 km ranging from 6.25m to 7.25m in diameter from Tai Hang to Cyberport, with 34 intakes and about 8km associated connection adits at a project cost of approximately HK\$3,044M. The construction works commenced in late November 2007 and are due for completion in March 2012. The main tunnel will be bored by two double shield Tunnel Boring Machines (TBMs) while adits will mainly be excavated by drill and blast method. Most of the rock excavation at intake drop shafts will be carried out by Raise Boring Machine (RBM) to minimise nuisance at ground level due to spoil disposal.

A delegation of 30 people gathered at the project western portal site office at Cyberport in the morning. The site visit began with a presentation by the resident engineer Mr Felix POON Hiu-tung from Ove Arup & Partners Hong Kong Limited, who detailed the works progress, tunnel methodology, design considerations and site constraints. Following the presentation, the delegation visited the site at the Western Portal where the final stage of TBM assembly was completed.



The Tunnel Boring Machine (TBM) was being assembled on site

Article by Warren Dou (Benaim China)

Seminar on “Geophysical Investigate Tools for Engineering & Geotechnical Applications”

An evening seminar on “Geophysical Investigative Tools for Engineering & Geotechnical Applications” was held at the Mariners Club on Friday 22 May 2009.

Advances in near surface geophysical technologies now provide the engineer or geologist with a wide range of geophysical tools that may be applied to the engineering and geotechnical environment. The use of geophysics as an investigative tool is not new, however, through previous misuse, over selling or misunderstanding of the fundamentals the technique has left some engineers understandably sceptical.

The seminar provided a general overview of well established geophysical theory for a variety of methods and techniques but focussed on practical implementation.

The seminar was presented by Mr David Kilcoyne, a senior geophysicist in the Ground Geophysics division of Fugro Aperio based in the UK. Fugro-Aperio is a specialist engineering geophysics company based in Oxford and Cambridge but operating worldwide through local Fugro bases. Mr Kilcoyne had just completed a project for the MTR at Mai Po Marshes and kind agreed to make the presentation prior to returning to the UK.

The content was focussed on the use of geophysical methods in ground investigations and covered areas such as environmental assessment, derivation of engineering properties, cavity and fault detection, stratigraphic mapping and detection and investigation of existing foundations. Particular emphasis was given to selection of the ‘right tool for the right job’.

Mr Kilcoyne demonstrated the use and suitability of various geophysical methods through a series of case studies and examples taken from investigations carried out in Hong Kong, Europe, Africa and the Middle East. For each case, consideration was given to what property was being measured, how it was being measured and how the measurements might be applied in a practical sense.

The seminar emphasised that geophysical methods should not be seen as a fix all solution rather that through careful planning and selection of appropriate methods they can enhance and improve traditional approaches to ground investigation.

Article by Simon Pyle (Fugro)

Seminar on “Tunnelling - Selected Topics”

On Saturday 13th June 2009, the AGS (HK) held a seminar on tunnelling in conjunction with the Working Group on Cavern and Tunnel Engineering of the Hong Kong Institution of Engineers, and the Hong Kong Tunnelling Society.

This subject is of particular interest to Hong Kong engineers and geologists since several major tunnel projects are currently being planned, designed or constructed. The objective of the seminar

was to introduce younger professionals to selected topics of tunnel engineering. This also provided a valuable opportunity for more experienced practitioners to refresh on the subject. Over 300 people attended the seminar that was divided into ten sessions. The first session of the seminar was presented by Mr David Sein on the topic “Instrumentation for tunnelling”. David is an Engineering Manager of Lambeth Associates Limited (Gammon Construction Limited). David introduced practical aspects of tunnelling instrumentation design and installation in urban sites. He described key aspects of the management, interpretation and reporting of instrumentation and monitoring data. David shared examples of instrumentation on a recent TBM tunnelling project, and presented the pros and cons of two common instrumentation procurement strategies.

The next topic “Geotechnical Review of TBM Tunnelling in Urban Areas”, was presented by Mr Ralph Tam, Principal Engineer with Mott MacDonald. Ralph described the geotechnical review system used for the construction of the Kowloon Southern Link Contract KDB200. He presented the fundamental design assumptions to be verified and outlined simple, quick yet effective design verification methods. The key parameters for the slurry TBM were summarised on a progress chart together with critical geotechnical information.

Ms Janice Tam of AECOM Asia gave a presentation on “Ground Investigation for Tunnel Projects – Horizontal Directional Coring”. Janice shared her experience as an engineering geologist on the planning of ground investigation for tunnel projects. She also described the principles of horizontal directional coring and recent applications for the HATS 2A, Po Shan Road Tunnel and Route 8 Eagle’s Nest Tunnel projects. Janice concluded on the potential risk reduction offered by a well planned GI programme. Speakers from Ove Arup & Partners Hong Kong Limited presented two sessions on rock blasting. First, Mr Tim Magub covered aspects of “Tunnel Blast Design”. Tim outlined the key tunnel blast design parameters and illustrated typical blast design patterns and face initiation sequences. Tim highlighted key aspects for successful blasting, and described the geological effects on tunnel blast design, and the parameters of some common explosives. Afterwards, Mr Mark Wallace, a Director of Arup, presented the topic of “Blasting Assessments”. Mark introduced the references and regulations affecting blasting in Hong Kong. He presented the requirements for preparation of blast assessment, and covered other blast related issues such as air overpressure, blasting control and protection measures, explosives storage and delivery, and monitoring. Mark concluded on the challenges of blasting in urban areas, but pointed out that major tunnelling infrastructure projects still need to consider blasting as an economical method of rock excavation.

In the afternoon, Mr Eric Chui, Associate Director of Atkins China Limited, discussed the topic of “Assessing and Controlling Ground Movement due to Tunnelling”. Eric described the major causes of ground movement associated with various tunnelling methods (cut and cover, drill & blast, hard rock TBM and soft ground TBM tunnelling). Assessment methods were also outlined and illustrated with the case of the Dubai Metro project (earth pressure balance TBM tunnelling). Eric finally outlined the major hazards and mitigation measures for soft ground TBM tunnels. Mr Paul Jenkins of Mott MacDonald talked about “TBM Selection

and Specification". His presentation provided the audience with a summary of the challenges of TBM Selection. Paul presented aspects of TBM technology and recent developments, such as post reaming. Paul also described the TBM selection process, and shared views on TBM procurement and specification. Mr Alan Morris, Construction Manager of MTRCL, presented views on "Planning a Tunnel and its Excavation Method". This was illustrated using the Express Rail Link (XRL) project as an example. Alan discussed the following topics: tunnel route selection, geology, liaison / approvals involving Government departments and other stakeholders, tunnelling methods (e.g. TBM versus drill and blast) and contract strategy / programme.

The last two sessions related to face interventions for TBM tunnelling. Mr Guy Bridges, an Associate of AECOM Asia presented key aspects of "Planning interventions" for TBM tunnelling. Guy described the cutterhead design of various types of machines and summarised the parameters influencing cutter wear. Guy discussed the salient aspects of compressed air working, and outlined the various types of cutterhead interventions. Dr Ronson Li then addressed the issue of "What Safety Options are available for Compressed Air Tunnelling in Modern TBM at Working Pressure higher than 3.45 Bar?". A common limit of compressed air working in Hong Kong is 3.45 Bar. Dr Li presented the hazards posed by compressed air interventions at such pressures. He described the available options for TBM such as mixed gases technique (Trimix) and saturation diving. Such interventions require special TBM design, specially-trained operatives and medical support staff, and comprehensive risk management procedures.

The event was very successful with an obvious interest in the topic expressed by the audience. The seminar presentation files can be downloaded from <http://www.ags-hk.org>.



Over 250 people attended the seminar, 'Tunnelling – Selected Topic' in June 2009

Conference on "The New Economic Reality: Implications for the Construction Industry in Hong Kong"

The AGS were co-sponsors of the Conference on the New Economic Reality: Implications for the Construction Industry in Hong Kong on 28 & 29 October 2009. The objective of the conference was to bring senior procurement professionals, contractors, consultants and legal teams together to discuss the various pressures of project delivery within the new work financial order. The sessions were split up into The New Economic Reality, Ground Conditions and Utilities, Alternative Contract Procurement Approaches and Security of Payment. The Association's Chairman, Dr Angus Maxwell presided over the session on Ground Conditions and Utilities. The session kicked off with John Elsdon who talked about the difficulties facing contractors dealing with the risk of poorly located or unknown utilities, the risk of which was placed on the Contractor's shoulders. Mr Elsdon reviewed the many papers and words that had been written on the subject of these risks (Tang Report, Jesse Report) and remarked that whilst all reports recognised the need for the risks to be handled by those best able to identify and mitigate the risk (i.e. the Owner - the responsibility was still placed on the Contractor), the need for a simple and precise description of expected utilities was required and it was recommended that this be bound into the Contracts.

John was followed by the Permanent Secretary for Development C K Mak. Mr Mak was originally down to speak on alternative procurement strategies but changed his talk to a discussion of tunnels. He described his experiences as a young Engineer on the Beacon Hill tunnel duplication and explained how differing ground conditions were dealt with. Mr Mak described several examples of tunnels constructed in Hong Kong where difficulties had been experienced including the Tseung Kwan O tunnel as part of HATS Phase 1.

Roger Olds, the CEO of Coffey International compared the various benefits of the forms of contract currently in use in Australia when dealing with ground condition issues. Mr Olds focused on the many successes that had been achieved using two forms of alliance; the competitive alliance and the true alliance target cost contract. Roger raised eyebrows in the audience when he described how alliances in Australia commonly include "No Sue" clauses amongst the alliance members. Roger described several examples of how alliances had dealt with difficult conditions and unexpected outcomes proactively safeguarding the project target cost and programme.

Russell Black of MTRC described recent experience of the use of target cost contracts on technically challenging projects such as the East Tsim Sha Tsui Extension. The need for a constant interface with the public meant that the MTRC had to be an integral part of the construction team. Similar forms of contract are to be used on the West Island Extension. MTRC adopt the competitive alliance approach with target costs and choose the Contractor using detailed and elaborate methods reflecting all elements of the constructions process. Russell went on to describe the use of GBR reports on MTRC projects. All current projects will have a GBR prepared and each report is reviewed by MTRC to adopt a consistent approach and high standard.

Article by Florent Desaintpaul

The Q&A session on ground conditions was split into two sessions due to the Permanent Secretary C K Mak's need to leave for the airport.

After Mr John's talk on utilities and Mr Mak's talk in which he reflected on his experience as a junior engineer on the construction of the Beacon Hill tunnel, the moderator Dr Angus Maxwell asked Mr Mak what he would do differently if he had the opportunity to design and tender the job again. Mr Mak stated that it was accepted that the southern portal ground conditions were not foreseeable at the time of tender but that the arguments ensued from the suitability of Contractor's methods employed to deal with it. Mr Mak's suggestion was that the unforeseen conditions had become a problem because the Contractor's method of tunnelling did not follow best practice. On the other hand the problems at the northern portal could and should have been foreseen. Mr Mak was not convinced that different contractual provisions would have benefited the contract. Damean Creally asked Mr Mak who would be the focus for the Government's proposed policy of moving services to combined ducts. Mr Mak replied that this was up to the individual Departments but lead initially by Highways.

Following the talks given by Roger Olds of Coffey International and the talk given by Russell Black all the speakers were invited to join a panel for Q&A. Dr Maxwell opened the discussion by reviewing what had been attempted by HK Government in the last 10 years to address ground condition issues. These had focused on the collection of more ground investigation data and the release of interpretive reports undertaken by the designer to augment the factual data. The government has embraced the use of the geotechnical baseline report in many projects and, in line with items for ground support, has recognised the need to remeasure many geotechnically related items such as drilling and grouting. The government has also introduced partnering on many contracts. Dr Maxwell gave some industry feedback on these developments from project directors active over the last few years. The increased information was welcomed but it was generally felt that there was not sufficient time allocated to tenders to do it justice. Partnering was generally felt to be aimed at fostering goodwill only. The GBR was generally welcomed and many felt that the quality of the information was good. Nevertheless many felt that the GBR was used quite defensively. There was still some uncertainty as to how they would be applied.

Russell Black was asked what was the dividing line between the use of conventional contracts and target cost contracts in the MTRC. Mr Black responded that this was normally one of complexity - urban lines such as TST extension and WIL required a large amount of interfacing with the public which the MTRC are best able to do and a combined team makes more sense. For tunnels in less congested areas normally conventional contracts are considered.

Roger Olds also echoed the sentiments that Alliances had been put forward initially on only the most technically demanding of projects but the success had been so great that they have become the norm in parts of Australia rather than the exception.

John Elsdon was asked whether a utility GBR or "UBR" might be the next step for utilities. He replied that this would indeed be a

step forward. Whether a full report was required was not known but certainly the approach of binding in the reference conditions into the contract was a good one.

With time drawing in and the hotel staff making preparations for a wedding banquet - Derek Smyth asked the question that should really have been addressed to Mr Mak; Given the huge volume of MTRC works already programmed what was the risk that resources would not be available to complete the work, particularly as detailed government works programme was not known. Mr Black responded that they had been drawing in as many tunnel and railways professional as they could but that it was at the labour supply end that the problem would be most acute. He indicated that the uncertainty about the government works programme was a concern and they were liaising with Government at the highest level to clarify this as soon as possible.



Dr Angus Maxwell presenting a gift to Mr Russell Black following his presentation at the Hong Kong Construction Association CEC Conference on 'The New Economic Reality: Implications for the Construction Industry in Hong Kong'

Article by Dr Angus Maxwell (Maxwell Geosystems)

Recipients of the AGS (HK) Scholarship

The AGS (HK) offers merit-based scholarships to the outstanding students who pursue postgraduate studies in the geotechnical and geoenvironmental fields at the universities in Hong Kong. A \$10,000 scholarship for 2008-2009 was awarded to **Mr Perry Wong** of the University of Hong Kong and a further \$10,000 scholarship was shared between **Mr Chang Dongsheng** and **Mr Leung Kwan**, Anthony of the Hong Kong University of Science and Technology. What follows are the remarks given by the awardees.

Mr Perry Wong

It is my honour to be awarded the AGS (HK) Geotechnical Award (2008-2009). I would like to express my deep appreciation to the AGS (HK), which confirms my effort in academic sphere and gives me a great encouragement.

Studying in the programme of Master of Science in Geotechnical Engineering was my most solid and colourful period. I have explored various topics including advance engineering theories, practical engineering aspects, management and administrative process, as well as legal issues. The knowledge has strengthened my ability to deal with my daily design works and site supervision duties.

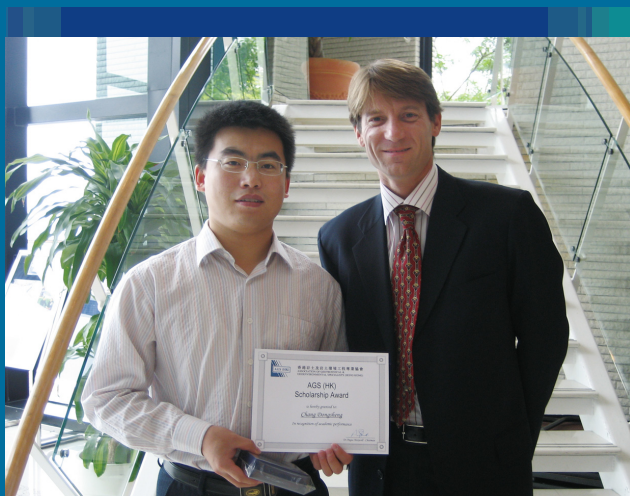
Being a part time student, it was hard to get a balance among studying, working and playing. Luckily, under the inspiring teaching provided by nice instructors and the flexible working schedule offered by my supportive senior colleague, I could overcome most of the difficulties. So, I would like to take this opportunity to share my honor with my instructors, colleague and friends who always support me. Most importantly, thanks AGS (HK) again for the encouragement for my academic study.



Dr Angus Maxwell (right) presented a HK\$10,000 AGS (HK) scholarship to Mr Perry Wong towards his part-time Master of Science at the University of Hong Kong

Mr Chang Dongsheng

It is my honour to be awarded the 2008 AGS (HK) Geotechnical Award. I would like to express my deepest appreciation to the AGS (HK) which provides encouragement towards my future studies.



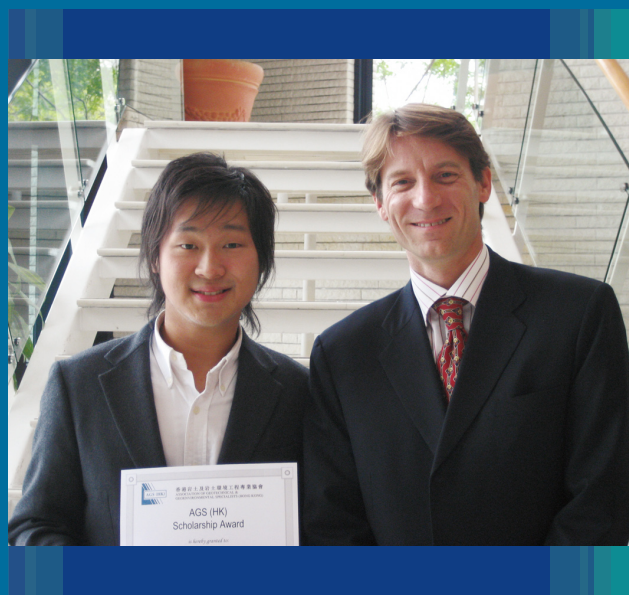
Dr Angus Maxwell (right) presented a HK\$5,000 AGS (HK) scholarship to Mr Chang Dongsheng for his research at the Hong Kong University of Science and Technology

I am currently studying a Ph.D. degree in the Department of Civil and Environmental Engineering at the Hong Kong University of Science and Technology. My current research focuses on quantitative analysis of soil erodibility for man-made dams and landslide dams, involving analysis of dam failures caused by overtopping and internal erosion. This study is important for understanding the failure mechanism of man-made dams and landslide dams from the geotechnical point of view. In the last one and a half years, many efforts have been made under the supervision of Prof Limin Zhang, including the in-situ tests in Wenchuan earthquake zone and laboratory tests in HKUST. Herein I would like to express my most heartily thanks to Professor Zhang for his patient supervision, valuable suggestion, and friendly encouragement throughout my research work. Finally, I would like to say thanks again to the AGS (HK) for the support.

Mr Leung Kwan, Anthony

It is my honour to be awarded the 2008 AGS (HK) Geotechnical Award, confirming my efforts in academic study and research. I would like to take this precious opportunity to express my deep gratitude to the AGS (HK) which provides encouragement towards my further research and career.

Having joined the programme of Master in Philosophy in Civil Engineering in the Hong Kong University of Science and Technology since 2007, I have been devoting to study and research under the supports and supervision of Prof Charles Ng. Focusing on the investigation of the infiltration characteristics of saprolitic soil slope, extensive studies including both field and laboratory testing are being carried out. Hopefully, the results could provide a detailed and new insight to improve the understanding of the complex soil-water interaction, particular in the vadose zone, in the near future. Thanks the AGS (HK) again for the supports as well as encouragement to further develop my research.



Dr Angus Maxwell (right) presented a HK\$5,000 AGS (HK) scholarship to Mr Leung Kwan, Anthony towards his Master of Philosophy at the Hong Kong University of Science and Technology