Wednesday 28th March 2012, London

Geotechnical Instrumentation and Monitoring

Innovative techniques - cost effective solutions - valuable results

Learn from leading case studies, in-depth technical presentations and insightful comments from:

> Mike Black, Geotechnical Manager, Crossrail
> Dan Kallehave, Industrial PhD Student
  DONG Energy
> David Patterson, Senior Geotechnical Advisor
  Highways Agency
> David Cook, Senior Project Manager
  Mott MacDonald
> Dr Byron Byrne, University Lecturer
  Oxford University
> Dr Clive Edmonds, Partner, Geotechnics/Geohazards, Peter Brett Associates
> Stephen West, Technical Director - Geotechnics
  Ramboll UK
> Rachel Monteith, Principal Geotechnical Engineer
  Sir Robert McAlpine
> Dr Nader Saffari, Principal Geotechnical Engineer and Professional Head, Earth Structures
  Transport for London

Capitalise on the opportunity to:

- Assess the raft of new technologies that can help you deliver a project safely and cost-effectively
- Mitigate geotechnical risk through cost-effective monitoring solutions
- Ensure you are using the most efficient instrumentation and monitoring system for your projects
- Understand the best way to manage and interpret data from monitoring systems

PLUS pre-conference workshop

The Latest Technical Advances and Best Practice Guidance
Tuesday 27th March 2012, London

Hear from leading experts in their field including:

- Iván Contreras
  Vice President Senior Geotechnical Engineer, Barr Engineering
- Kenichi Soga
  Professor of Civil Engineering
  Cambridge University
- John Dunning
  Geotechnical Instrumentation Consultant

Register your place now at:
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SAVE UP
TO £150
Register before
3rd February
Understand what needs to be specified, how to specify the right equipment and use instrumentation and monitoring to deliver projects safely, on-time and within budget

Whether you need to further your monitoring knowledge to meet the demands of a challenging project or you are using monitoring systems and unsure whether it is providing value and clear presentation and analysis of data, then this is the event for you.

This crucial industry conference and workshop will focus on new monitoring technologies and how best to deploy them, best practice guidance on monitoring underground construction and leading case studies using cutting-edge technology.

Top 6 reasons to attend:

1. Learn from innovative case study examples where different I&M methods are being used including Blackfriars, The Forth Replacement Crossing, Cutty Sark, London Array and Walney
2. Find out the best way to ensure monitoring data is being received, analysed and interpreted correctly to avoid project failures
3. Hear NEW best practice guidance from the BTS on monitoring underground construction
4. Gain valuable insight from Transport for London as a key client and Sir Robert McAlpine as a Main Contractor on their priorities when using I&M
5. Network with key clients and find out what strategies your peers are employing to stay competitive
6. Interactive sessions including a panel discussion and product showcase will allow you to debate upon and clarify any issues you may have and see the impact the latest technologies could have on your projects

A must-attend event for:
• Geotechnical Engineers • Geo-environmental Engineers • Structural Engineers • Contractors • Consultants • Clients • Project Managers • Academics • Instrumentation manufacturers and suppliers

GE conferences are the perfect place to share ideas and network with industry leaders, innovators and technical gurus. Our past delegates commented:
“Excellent Summary of the I&M industry”
Senior Engineer, Atkins
“It was very useful and informative”
Programme Engineer, Network Rail
“Very informative and excellent networking opportunity”
General Manager, Costain Geotechnical
“Interesting topic and inspiring lecture”
Engineer, Per Aarsleff

Sponsorship and Exhibition Opportunities
Make sure your company is at the forefront of change and innovation in this sector. For more information on tailored sponsorship and exhibition packages, please contact: Roland Maybank Tel: 020 7728 5851 Email: roland.maybank@emap.com

Pre-Conference Workshop

The Latest Technical Advances and Best Practice Guidance

09:45 Registration and refreshments
10:15 Opening remarks from the facilitator
10:30 Advancing the role of instrumentation and monitoring for construction projects through the CSIC (Cambridge Centre for Smart Infrastructure and Construction) projects
• Using new technologies in sensors and data management to enhance traditional I&M methods
  - computer vision, fibre optics, wireless sensor network, micro-electro-mechanical systems
  - Combining monitoring with innovative manufacturing processes to ensure more efficient and economic construction of new infrastructure and assessment and maintenance of existing infrastructure
• Sharing project examples
  Kenichi Soga, Professor of Civil Engineering, Cambridge University

11:00 Group discussion
11:10 Introducing the new BTS ‘Monitoring Underground Construction’
• A best practice guide
  - Explaining the reasons for the Guide
  - Introducing the Guide and sharing key details
  Member of the BTS Drafting Committee
11:20 Group discussion
11:30 Technology choices for deformation monitoring
• Review of TM30 dedicated Total Station for monitoring
• Utilisation of GNSS technology for monitoring applications
• Software platforms for integration of geodetic & geotechnical sensor data
  James Whitworth, Account Manager, Survey and Engineering
  Leica Geosystems
12:00 Group discussion
12:10 Effectively using remote methods for monitoring deformation
• Terrestrial interferometric synthetic aperture radar
• Satellite interferometric synthetic aperture radar
• Differential Global Positioning System
• Robotic Total Stations (Automatic Total Stations) & Reflectless
  Robotic Total Stations
• Terrestrial Laser Scanning
• Digital photogrammetry
• Digital Image Correlation
  Dr Paolo Mazzanti, CEO, NHAZCA
12:40 Group discussion
12:50 Lunch
Hands-on session – take this opportunity to experience some of the new equipment on offer and investigate instrumentation that you are thinking of using on your projects. Gain a better understanding of how things work.

13:45 Examining how effective fully-grouted piezometers are over bentonite pellets
• Highlighting the key benefits for using fully-grouted piezometers vs. bentonite pellets to measure pore water pressure in the soil
  - Installation procedure. Simpler and easier to install
  - More reliable. Data presented to support validity of method
  - Requirements of cement-bentonite grout mix
  - Saves field installation time. Project examples
  - Less costly
  - Using cement-bentonite grout mixture as the most reliable, versatile, easily mixed and readily pumpable grout for piezometer grouting seals
  Iván Contreras, Vice President Senior Geotechnical Engineer
  Barr Engineering
14:25 Group discussion
14:35 Technical presentation
15:15 Group discussion
15:25 Sharing on-line sources of information about instrumentation and monitoring
• Geotechnical Instrumentation News
• Manual of Geotechnical Engineering
• Instrument manufacturers’ websites
  John Dunnicliff, Geotechnical Instrumentation Consultant
15:40 Closing remarks from the facilitator and end of workshop

TO REGISTER: Tel: 0845 056 8069 Fax: 020 7728 5299
Opening remarks from the Chair
Jonathan Gammon, Head of Geotechnics and Tunnelling, High-Point Rendel

Client perspective – Assessing the value of monitoring to help deliver projects safely, on time and within budget
- Key objectives for using instrumentation and monitoring and sharing what we need from the monitoring industry
- Involving the monitoring contractor at the earliest possible stage
- Ensuring emphasis is on retrieval of data: Preparing the system for an influx of data
- Recognising the need to allocate sufficient funds for instrumentation and monitoring at the outset
Dr Nader Saffari, Principal Geotechnical Engineer and Professional Head Earth Structures, Transport for London

Key contractor perspective
- Using instrumentation and monitoring to:
  - Mitigate project risk and control works
  - Optimise construction methods/improve operational efficiency
  - Ensure safety
- Lessons learnt and examples from recent projects
Rachel Monteith, Principal Geotechnical Engineer
Sir Robert McAlpine

Who should be responsible for instrumentation and monitoring during construction?
- Should the people responsible for instrumentation and monitoring be under direct contract with the owner/client, or be sub-contractors to the main contractor?
- Which costs the owner/client less?
- Which best ensures that the main contractor is responsible for site safety?
- Which is more applicable to large multi-contract projects?
- Which is best suited to obtaining high-quality data?
- Which best allows the collection of adequate baseline data?
- What works and what doesn’t work: Sharing key examples to support both cases
Panelists include:
Mike Black, Geotechnical Manager, Crossrail
David Cook, Senior Project Manager, Mott MacDonald
John Dunnicliff, Geotechnical Instrumentation Consultant

Forth Replacement Crossing - Planning and monitoring the offshore foundations
- Exploring the link between design objectives, construction inspections and monitoring of foundation performance
- The use of construction trials to finalise construction plans
- An update on progress and what is to come over the next twelve months
Stephen West, Technical Director - Geotechs, Ramboll UK

An update on the Highways Agency Geotechnical Data Management System (HAGDMS)
- Overview on application in HA business areas and current performance
- Recording/storage/use of geotechnical instrumentation and monitoring data
- Application of the data to Asset Management: risk evaluation, life cycle models and investment decisions
David Patterson, Senior Geotechnical Advisor
Highways Agency

Blackfriars revisited: Evaluating results from the project
- Client perspective
- Project overview
- Providing feedback on how the instrumentation and monitoring performed
Roy Lindstead, Project Engineer - Blackfriars, Network Rail
Louis Collingwood, Ground Engineer, Jacobs

Assessing the role of instrumentation and monitoring for offshore wind turbine development
- The case for instrumentation and monitoring of offshore wind turbines
- Typical instrumentation and monitoring requirements
- Case Study: Application to the Walney and London Array wind farms
- Case Study: Interpretation of typical results
Dr Byron Byrne, University Lecturer, University of Oxford
Dan Kallehave, Industrial PhD Student, DONG Energy

Examining instrumentation used in structural and geotechnical engineering solutions for the Cutty Sark Conservation Project
- Utilising existing dry dock as a sustainable substructure solution for the Cutty Sark conservation project
- Particularly sensitive soil-structure interaction realised by numerical modelling simulation and real-time load/deflection monitoring within the support structures
- Reaching a solution using an integrated geotechnical and structural engineering approach validated by appropriate instrumentation
Angelo Fasano, Senior Engineer, Buro Happold
Alexander Nikolic, Associate Director, Buro Happold

Standards for instrumentation and monitoring
- Eurocode 7: Geotechnical Design
- Draft standards by a European task group
- Definitions and dogmatism
- Do we need standards?
- If yes, what should they cover?
John Dunnicliff, Geotechnical Instrumentation Consultant

Networking lunch and product showcase
Is your company leading this field? Are you providing expertise, new techniques, technologies and materials to key clients? Make an impact today by showcasing how your company can revolutionise a project.
For more details please contact Roland Maybank on 020 7728 5851 or roland.maybank@emap.com

Integrating Build Information Modelling (BIM) with instrumentation and monitoring
- BIM: the new ‘kid on the block’
- Benefits of integrating monitoring and BIM
- Challenges for integrating
- Current project nuggets
- A ‘crystal ball’ perspective of the future
Raul Fuentes, Lecturer, UCL

Using remote monitoring for ground instability and stabilisation in mining areas
- Emergency stabilisation and response monitoring following ground collapse
- Determining building evacuation needs
- Safer working for follow-on investigations
- Checking building response to stabilisation works
Dr Clive Edmonds, Partner Geotechnics/Geohazards
Peter Brett Associates

Email: constructconferences@emap.com
Pre-conference Workshop
The latest technical advances and best practice guidance
Tuesday 27th March 2012, London

VIP Code: E05
Conference code: G201

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