

Geotechnical Courses

Soil Description Work-shop

13th June 2017

26th July 2017

Rock Description Work-shop

27th July 2017

28th September 2017



Health & Safety Courses

IOSH Safe Supervision (3 Day)

31 May - 2 June 2017

IOSH Avoiding Danger (1 Day)

5th May 2017



IOSH Working Safely (1 Day)

4th May 2017

Geotechnical Courses

Geo Foundation Design

15th June 2017

Geotech' Lab Testing Awareness

8th June 2017



In Situ Testing

25th May 2017

Other Events

Geotechnica 2017

12th & 13th July 2017

@ Warwickshire Exhibition

Centre, nr. Leamington Spa



theGeotechnica

April 2017 | Issue 57

Who, What, When and Where?

The Geotechnica 2017 Team update us with the latest confirmed Sponsors and Exhibitors for this year's event.



Maximising Value of Geo-Data Archive

Keynetix provide details of how to make the most of your collected data

Need for speedy lab delivery

Terra Tek discuss the need for timely delivery of samples from site

Martello introduce new addition to fleet

Martello reveal details of their latest addition to their piling fleet - the MP 6000

GEOTECHNICAL COURSES

SOIL DESCRIPTION WORKSHOP - £275 + VAT

@Equipe Offices, Banbury

13th June 2017

26th July 2017

24th August 2017

ROCK DESCRIPTION WORKSHOP - £275 + VAT

@Equipe Offices, Banbury

27th July 2017

28th September 2017

7th December 2017

GEOTECHNICAL FOUNDATION DESIGN - £225 + VAT

@Equipe Offices, Banbury

15th June 2017

10th August 2017

GEOTECHNICAL LABORATORY
TESTING AWARENESS - £225 + VAT

@Brunel University, London

8th June 2017

3rd August 2017

IN SITU TESTING - £225 + VAT

@Brunel University, London

25th May 2017

2nd August 2017

FIELD INSTRUMENTATION &
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our website for more details.

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Writing for the Geotechnica this month are geotechnical data management specialists, Keynetix. This month Keynetix provide advice on how to get the most out of your geotechnical data archive.

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The third article for this month's issue of the Geotechnica comes from David Bowen, Laboratory Manager at Terra Tek. Here, David asks: Why is it important to get your sample to the chemistry lab for testing as soon as possible, and what can the lab do to help?

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[Martello Expands Fleet with Purpose Built Rig](#)

Providing the final entry into this month's issue of the Geotechnica are Martello Piling. In the following piece, Martello reveal details of their latest addition to their piling fleet - the MP 6000 which has been designed and built in-house in order to meet the increasing demands of the ever-expanding industry.

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EQUIPE TRAINING

Health and Safety Courses

DELIVERED IN PARTNERSHIP WITH: **RPA SAFETY SERVICES LTD**

IOSH Safe Supervision of Geotechnical Sites

This three day geotechnically focussed health and safety course has been developed by industry specialists and is a unique course for managers and supervisors involved in projects in the drilling and geotechnical industry. The course is certified by IOSH and has been approved by The Environment Agency, Thames Water, AGS and BDA and also meets all of the requirements of the UKCG (formerly the Main Contractor's Group).

NEXT COURSE DATES: ~~26 - 28 April 2017~~ **SOLD OUT**
31 May - 2 June 2017

IOSH Avoiding Danger from Underground Services

This one day geotechnically focussed health and safety course follows the requirements and guidance set out within HSG47 and includes the four chapters; identifying and managing the dangers; planning the work; detecting, identifying and marking and safe excavation. Important aspects include the use of real examples from the geotechnical industry and delivery by chartered advisors who are from within the industry.

NEXT COURSE DATES: 5th May 2017
9th June 2017

IOSH Working Safely (on Geotechnical Sites)

This one day geotechnically focussed health and safety course has been developed by industry specialists as a foundation to site safety for all personnel involved in projects in the drilling and geotechnical industry. Its aim is to impart the core safety skills required of those working on geotechnical sites by building on their existing specialist technical skills and making it relevant to their place of work.

NEXT COURSE DATES: 4th May 2017
17th August 2017



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Welcome

Welcome to the 57th Edition of **theGeotechnica** - the UK's fastest growing online geotechnically focussed e-magazine.

Just 3 months remain until Geotechnica 2017, and this month's first entry into **theGeotechnica** sees the team behind the UK's Largest Geotechnical Conference and Exhibition update us with the current list of Sponsors and Exhibitors for this year's event.

The second entry into this month's magazine comes from geotechnical data management specialists, Keynetix. This month Keynetix provide advice on how to get the most out of your geotechnical data archive using 5 easy steps.

Our third entry of Issue 57 comes from David Bowen, Laboratory Manager at Terra Tek. Here, David asks: Why is it important to get your sample to the chemistry lab for testing as soon as possible, and what can the lab do to help?

Providing the final entry into this month's issue of **theGeotechnica** are Martello Piling. In the following piece, Martello reveal details of their latest addition to their piling fleet - the MP 6000 which has been designed and built in-house in order to meet the increasing demands of the ever-expanding industry.

As with every new edition of the magazine, the Editorial Team here at **theGeotechnica** will be on the lookout for even more new, original and interesting content from all corners of the sector, and would actively encourage all readers to come forward with any appropriate and relevant content - whether it be a small news item or a detailed case study of works recently



completed or being undertaken. If this content is media rich and interactive, then all the better. We are looking to increase the already large readership of the magazine through better social media integration and promotion, as well as improving content month on month.

Finally, for any content that is submitted we will ensure that an advertising space, proportionate to the quality of content provided, is reserved should you wish to place an advert in that single edition of the magazine. We hope you enjoy this month's edition of the magazine and are inspired to contribute your own content for the coming editions of **theGeotechnica**.

Editorial Team, theGeotechnica

CONE PENETRATION TESTING IN GEOTECHNICAL PRACTICE

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Course Location



Speakers



Dr John Powell,
Technical Director,
GEOLABS Ltd



Tom Lunne,
Expert Advisor,
NGI



Peter Allan
Independent
CPT Specialist



Darren Ward
Managing Director,
In Situ SI Ltd

Seminar Date: 12th & 13th June 2017

An essential comprehensive training course and refresher for geotechnical & geo-environmental practitioners involved in Cone Penetration Testing for Onshore and Offshore Geotechnics. The course is devoted to raising awareness of current test procedures, advances, data derived from the tests and the importance of quality control.

What delegates will learn

- Have an understanding of the importance of using CPT specialists
- Advantages and limitations of CPT tools and techniques
- An understanding of how CPT data can be used for soil interpretation
- An understanding of how CPT data can be used for design
- An appreciation of recognising suspect/erroneous data

Who should attend?

Onshore and offshore specifiers, procurers and users of Cone Penetration Testing. Geotechnical Engineers, Engineering Geologists, Consulting Engineers, Civil Engineers, Designers, Developers and Clients involved in onshore and offshore ground investigations.

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Seminar Programme

Day 1

08:45 – 09:00 Registration – Tea/Coffee
 09:00 – 09:15 Introduction
 09:15 – 10:00 Historic overview, equipment and procedures, data acquisition
 10:00 – 10:45 Standards and guidelines. Data processing and corrections
 10:45 – 11:10 Quality control – with examples offshore and onshore
 11:10 – 11:30 Morning Break
 11:30 – 12:15 Soil profiling and soil identification
 12:15 – 13:00 Interpretation in terms of soil parameters in sand
 13:00 – 14:00 Lunch
 14:00 – 15:00 Demonstrations
 15:00 – 15:15 Afternoon Break
 15:15 – 16:00 Interpretation in terms of soil parameters in clay
 16:00 – 16:30 Question and answer session
 16:30 – 16:45 Summary and Close

Day 2

08:45 – 09:00 Tea/Coffee
 09:00 – 09:30 Interpretation in other soil types (silt, chalk, peat --)
 09:30 – 09:50 Full flow penetrometers in very soft clays
 09:50 – 10:45 Advantages of other sensors (cone pressuremeter, seismic cone, electrical resistivity, nuclear density etc)
 10:45 – 11:00 Morning Break
 11:00 – 11:35 Direct application of CPT data (pile design, compaction control, correlation to SPT)
 11:35 – 12:00 Sampling with CPT equipment
 12:00 – 12:40 Case histories onshore and offshore
 12:40 – 13:00 Question and answer session
 13:00 – 14:00 Lunch
 13:30 – 14:30 Demonstrations
 14:30 – 15:30 Workshop on CPT interpretation
 15:30 – 16:00 Summary and Close



In collaboration with



Location:



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AGS Association of Geotechnical & Geoenvironmental Specialists



Booking Form

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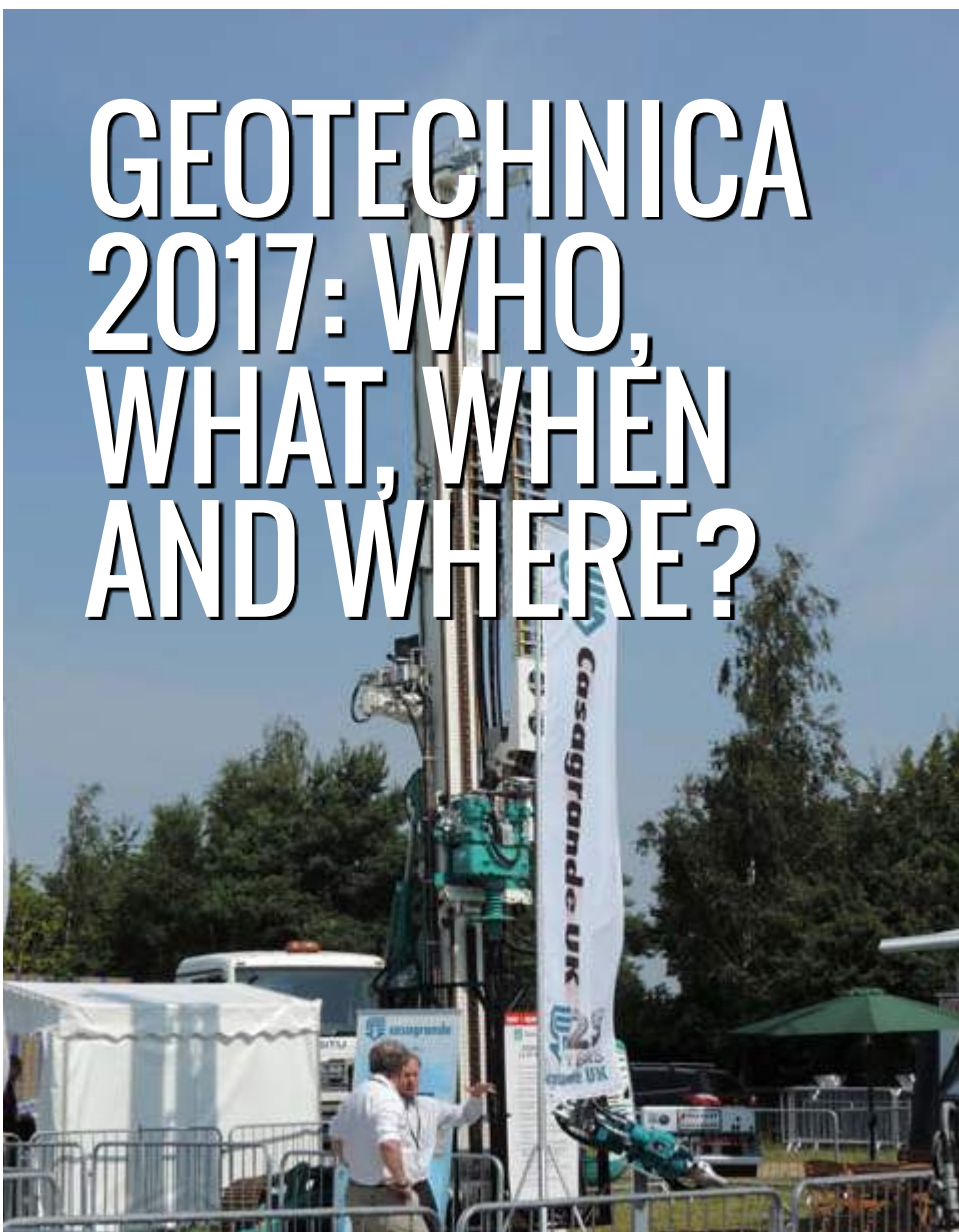
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GEOTECHNICA 2017: WHO, WHAT, WHEN AND WHERE?



Just 3 months remain until [Geotechnica 2017](#), and this month in the *Geotechnica* the team behind the UK's Largest Geotechnical Conference and Exhibition update us with the current list of Sponsors and Exhibitors for this year's event.

As July 12th and 13th draws ever closer, registrations to visit Geotechnica 2017 are increasing every day. But what exactly are people registering to see at this year's event?

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Casagrande UK is the sole UK and Ireland distributor for Casagrande Spa of Italy, a company with over 40 years experience in designing and

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Ibbotson Drilling Services Ltd. Specialises in the manufacture and distribution of quality drilling consumables, whilst providing back up and support to ensure your drilling projects run smoothly. Their head office is currently in United Kingdom, with international support facilities located in Kenya, UAE, India and USA. This network allows them to be able to offer a great level of service and support to all of their customers around the world.

[RS Hydro](#)

RS Hydro is a multi-disciplined instrumentation company, founded in 1997, providing specialist expertise to tackle technological issues facing clients over a large range of work in the water, environmental and industrial

sectors. They are a total solutions provider for the water & wastewater, environmental, food & beverage, mining & aggregates, petrochemical, power generation and research industries for the UK and worldwide.

Exhibitors Include:

Aquaread, Archway Engineering, ARCO S.r.l, AGS, Boode UK, British Drilling Association, Bulroc UK, Casagrande UK, Chemtest, CompAir, Concept Life Sciences, Controls Testing Equipment, Dando Drilling International, Derwentside Environmental Testing Services, Drill Service S.r.l, EB Safety Solutions, European Geophysical Services, The Geotechnical Academy, Geoterra, Ibbotson Drilling Services, Incofil Tech S.r.l, In Situ Site Investigation, Jet Materials, JKS Boyles, Keynetix, Leca UK, Mincon, MGS, Rockbit UK, RPA Safety Services, RS Hydro, Skelair, S M Associates, Solmek, Stuart Well Services, Technidrill, Teredo S.r.l, TerraDat, TPA Portable Roadways and Van Walt.

Geotechnica 2017 takes place on the 12th & 13th July at the Warwickshire Exhibition Centre, located on the B4455 just outside of Royal Leamington Spa.

If you are interested in visiting, exhibiting or sponsoring this year's event, then get in touch with the Geotechnica 2017 management team on info@geotechnica.co.uk or visit www.geotechnica.co.uk. ■

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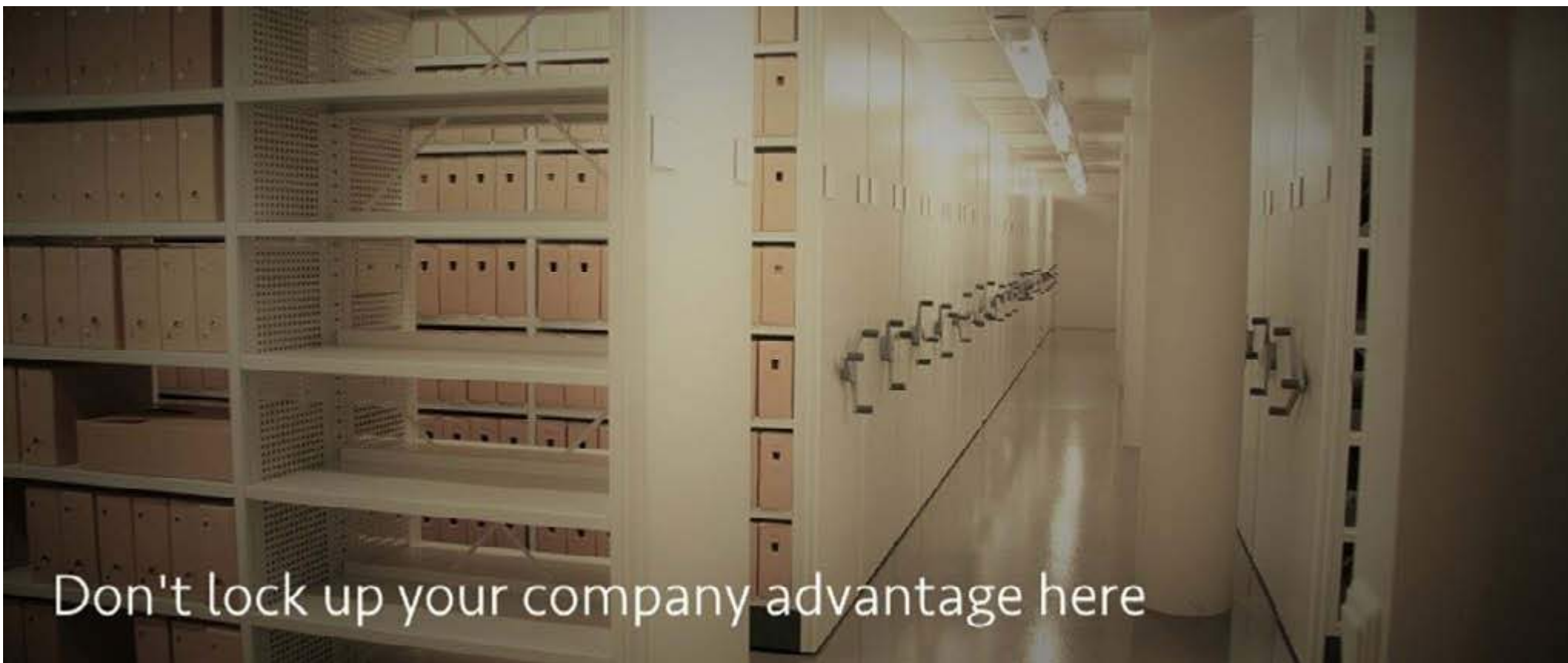
12-13 JULY 2017

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5 STEPS TO MAXIMIZE THE VALUE OF YOUR GINT AND HOLEBASE SI ARCHIVE

Writing for *theGeotechnica* this month are geotechnical data management specialists, [Keynetix](#). This month Keynetix provide advice on how to get the most out of your geotechnical data archive.

Companies often believe their historic project knowledge gives them competitive advantage but, at the same time, it makes it difficult for staff to access and use that information. Fortunately, there are five simple steps that can be taken to ensure the maximum benefit is gained from this valuable resource.

Step 1: Centralize knowledge

A central records system ensures companies know where all of their data and information is located.

Centralized systems often only include basic data, such as project information, date, location description and the project manager and perhaps

“Centralized systems often only include basic data, such as project information, date, location description and the project manager and perhaps some financial data.”

some financial data. However, engineering data is often to be found in another part of the network.

This includes some of the engineering data – such as the job type, exact location and the geological and geoenvironmental conditions – and can turn a centralized system into a powerful tool for the site investigation team. This

“Some companies use Excel, which can work but is also restrictive, in terms of functionality.”

Some companies use Excel, which can work but is also restrictive, in terms of functionality. A map-based system adds a whole new dimension, although it is essential that the needs of engineers are considered.

Step 2: Ensure teams are spatially aware

Keynetix has seen many mapping systems over the 20 years it has been helping organizations manage their geotechnical data.

‘Low tech’ solutions include sticky dots in a road atlas and pins on a map on a wall. Both work for very small teams but pins can fall out and dots can come off, reducing the reliability and value of the system.

‘Medium tech’ solutions, such as Google Earth, can take spatial awareness to the next level and some companies have created a KML that enables project lists to be viewed in Google Earth’s 3D viewer. However, the KML file production must be kept up-to-date for it to remain useful.

‘High tech’ solutions, such as ArcView or a GIS system, are common in large organizations that have the budgets and skill levels to use these ▶▶

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“These systems take spatial awareness a step further, as they allow project location information to be combined with many other datasets.”

powerful and complicated systems. These systems take spatial awareness a step further, as they allow project location information to be combined with many other datasets. This can also be their downfall, however, as they can

quickly become corporate ‘jack of all trades’ systems.

Step 3: Include the most important information on the map

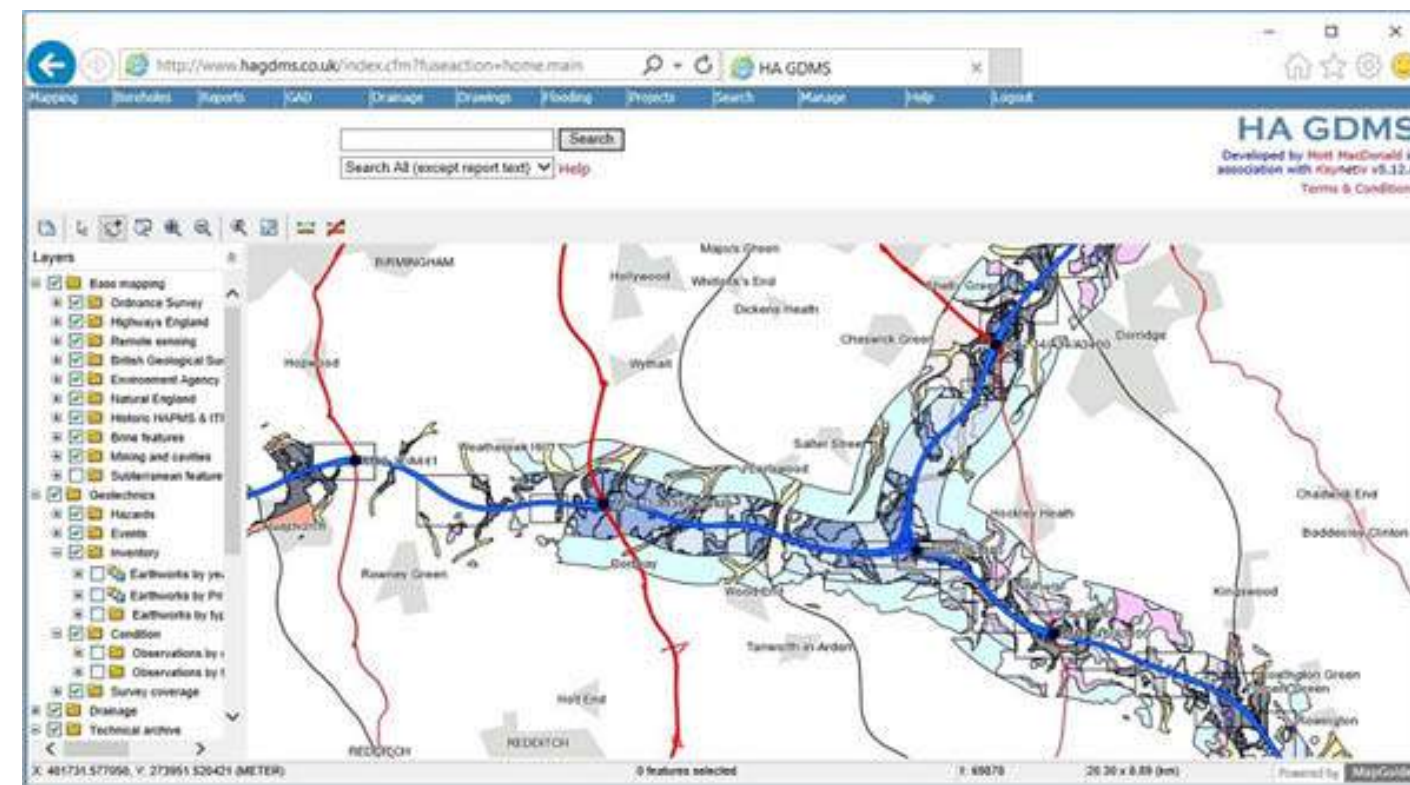
Regardless of whether it is a pin on a map, or a point on a computer screen, each ‘dot’ will have data attached to it about the project (called Meta Data) similar to an Excel spreadsheet. The most important information is the: “Where can I find more about this project?” field.

When Keynetix and Mott Macdonald started the HAGDMS project, a large online geotechnical data management system for the Highways Agency (now Highways England), the brief was to

“This system has been so successful that Highways England has funded the expansion of the system every year for the past 15 years...”

locate every geotechnical report on a map (and the office where it was held) and make it available to its large geotechnical team. This was the 80/20 rule in action, as the team immediately knew what regions it had information for and where to find the reports.

This system has been so successful that Highways



England has funded the expansion of the system every year for the past 15 years and it now covers all aspects of geotechnics, flooding and drainage for the network and there is currently more than 3TB of data available to clients.

Fortunately, the technology behind this incredibly powerful system is now affordable to most organizations, regardless of size.

Step 4: Remove the concept of a geotechnical archive to improve desk studies

Archiving data normally means changing its physical location: for example, putting paper documents into an archive box or on a library shelf or moving files from the server to a back-up device.

Archiving is usually done at a set time period, say 12 months after the job has finished, or to free-up space on the server or

in the office. Operational and technical information is usually archived together.

But there is no reason why the geotechnical knowledge gained during a project has to be archived (or worse, deleted).

“A multi-project geotechnical data management system should allow projects to be marked as ‘archived’, changing their status and nothing else.”

A multi-project geotechnical data management system should allow projects to be marked as ‘archived’, changing their status and nothing else. The beauty of this approach

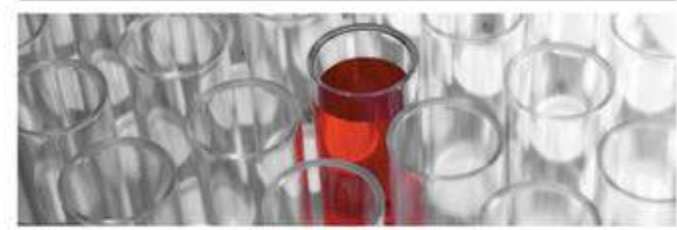
is that data never needs to be moved and in effect, it removes the need for physical archiving. The live system contains all the data from historical projects and there is no archive.

If the geotechnical management system takes advantage of web mapping services, then all project data and national datasets can be viewed in the same system used to log current projects. This means there is no learning curve for staff using the archive system.

Step 5: Ensure easy access and no learning curve

It may seem obvious that giving every member of the site investigation team access to the company’s knowledge means giving them access to information and ensuring that they know how to use (and get best value out of) the system storing the data.

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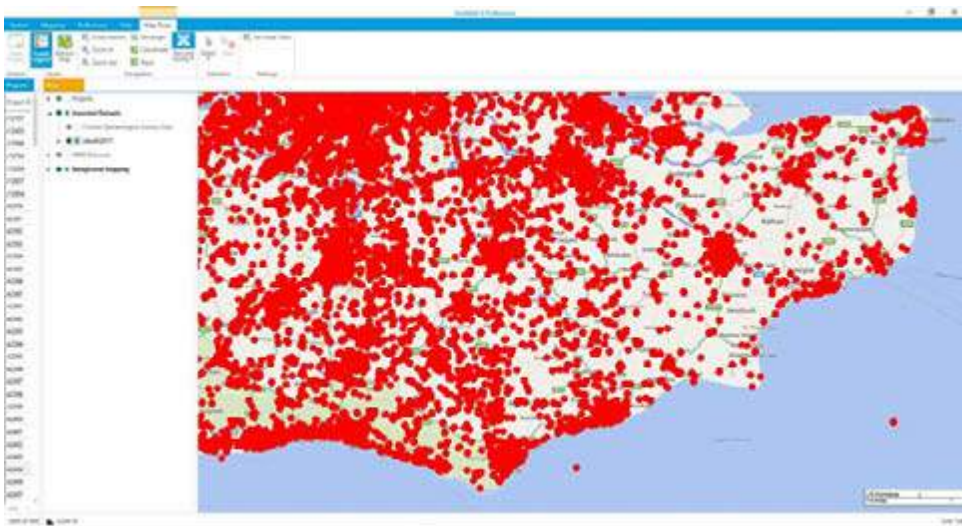
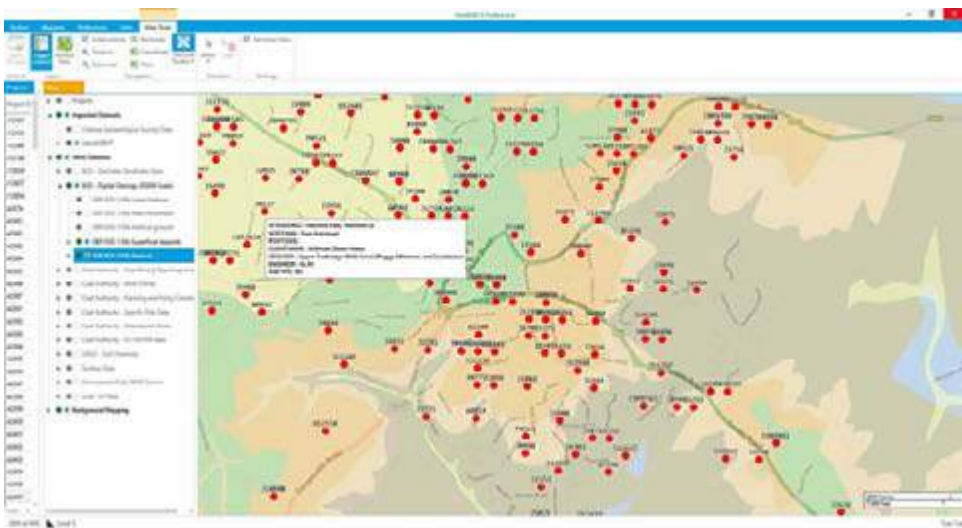
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“It is therefore important to aim for a system with a zero learning curve – one that is as easy to understand and use as pins on a map on the wall.”

GIS should stand for “Get Information Simply” but, more often than not, corporate GIS systems are difficult to use and companies restrict access. It is therefore important to aim for a system with a zero learning curve – one that is as easy to understand and use as pins on

a map on the wall.

A powerful system that takes no time to learn may seem an impossibility but, if it is based upon a system already being used by staff, then additional functionality can come with a zero additional learning curve.

Southern Testing gain competitive edge by unlocking data

Unlocking a company’s geotechnical archive by taking these 5 simple steps can make data more valuable and increase competitive advantage. Importantly, teams will be happier and more efficient.

We work with companies

like Southern Testing who is celebrating its 50th Anniversary in 2017. Their database now contains records for over 35,000 ground investigation projects.

This allows a unique insight into the likely geotechnical, geological and environmental characteristics of land, based on ‘factual borehole and trial pit records’, rather than reliance on just published or ‘anticipated’ conditions.

Such a wealth of data is instrumental in tackling the opportunities and problems that new projects may present. Their previous historical database was becoming dated and an alternative more visual map based solution was required.

“HoleBASE SI has enabled us to simply and quickly visualize our historical data, this combined with the live British Geological Maps and borehole archive as well as numerous other Web Mapping Server (WMS) feeds which HoleBASE SI can show has turned our historical data into a truly powerful resource.”

Start transforming your geotechnical archive today

Our aim with this article is to make you more efficient and help you maximize your competitive advantage and we hope it have given you some ideas to move your archive forward. To view our original blog post and for more information on Keynetix services, [click here](#). ■

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Figure 1. A site requiring sample collection

I FEEL THE NEED, THE NEED FOR SPEED

The third article for this month's issue of the *Geotechnica* comes from David Bowen, Laboratory Manager at [Terra Tek](#). Here, David asks: Why is it important to get your sample to the chemistry lab for testing as soon as possible, and what can the lab do to help?

Everyday consumable and household items such as food, drink, and medicine etc. will have a shelf life / expiry date and conditions of storage i.e. fridge, freezer, store in a cool dry place etc. which generally people adhere to.

For example, if you are a meat eater, you would not want to eat chicken which is a month out of date and/or not been kept in the fridge. That said, you may consider eating an apple a couple of days after the best before date if it looks okay. In the case of the apple,

“For each test a preservation, storage and stability time from sampling will be assigned.”

it would not be as fresh and as crisp as an in-date one, but on the whole, might not be too bad.

So the same principle applies with environmental samples. For each test a preservation, storage and stability time from sampling will be assigned. This can be quite varied, ranging from very short holding times to years, depending on the test and the preservation techniques employed.

“On exceeding the specified holding time, wrong storage conditions at the laboratory, and / or not preserved correctly, the sample would be flagged as deviating...”

On exceeding the specified holding time, wrong storage conditions at the laboratory, and / or not preserved correctly, the sample would be flagged as deviating, a requirement of UKAS¹, and recorded for which category. This indicates that the result could be compromised in some way, although does not specify whether this to be minimal, like the apple analogy (best before date), or significant like the chicken (expiry date).

Most people are aware of the importance of applying sample handling guidelines when taking environmental samples for analysis, although due to the short holding times of some tests, get confused



Figure 2. Sampling on-site into the correct containers (courtesy of James Brown - DTS-Raeburn)

and concerned when they find a deviating sample flag on their test reports. This can be for a whole range of reasons, although the speed at which the sample can be taken from the site to the laboratory with testing requirements scheduled, can be critical in reducing unwanted deviation flags on test reports.

So what can the laboratory do to try and alleviate this speed of transit pressure?

Most sample handling conditions are specified against reference documents approved by UKAS. However, internal stability trials can also be used, as this would be unique to the sample receiving laboratory

“Most sample handling conditions are specified against reference documents approved by UKAS.”

and the type of sample received by that laboratory, rather than a global standard.

With this in mind, the Chemistry department at Terra Tek has undertaken a series of stability trials for the most unstable contaminants. This was to assess whether holding times could be improved by good laboratory practice and using different ►►



Figure 3. Transport of the samples from the site to the laboratory in a timely manner



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“Not only did this assess when the stability of the test failed, but also indicated the consequences beyond the failure day...”

preservation techniques. Not only did this assess when the stability of the test failed, but also indicated the

consequences beyond the failure day, so that we can understand whether this is a minor or major change.

The stability trials were based on the protocol used in Dutch validation studies². This protocol compares the results on day 0 after sampling, to each subsequent day, as set out in the study. Stability is assessed by comparing the difference between analysis day x and day 0, against the standard deviation, acquired from the original method validation.

If the difference is greater than two times the standard deviation, the preservation time was deemed to have been exceeded.

Global standards are often based on a whole array of sample types. Therefore, to make our trials relevant to the specific type of samples we receive, the experiments were restricted to only these types of water and soil. The sample handling recommendations resulting from these trials were therefore, only relevant to the

sample types investigated and our laboratory conditions of storage.

The results of the stability trials conducted generally displayed an increase in holding time when compared to the global standard.

In summary; to understand sample handling is to recognise that samples which are deviating are likely to be compromised, and we all have a duty of care to ensure that the integrity of analytical results remain intact. This

includes; sampling on-site into the correct containers (figure 1 and 2), immediately scheduling testing required, transport of the sample in a timely manner (figure 3), and on receipt at the laboratory (figure 4); samples are correctly stored (figure 5), and tested promptly to minimise deviations.

A team effort, from sampling to analysis, is therefore required to ensure that deviating sample flags in test reports are kept to a minimum.

References

1. <https://www.ukas.com/download/publications/Technical%20Policy%20Statements/TPS63%20Deviating%20samples%20Ed%201%20Jun%202013%20final.pdf>
2. BSI Standards Publication, Water quality – Sampling, Part 3 : Preservation and handling of water samples, ISO 5567-3:2012

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Rock Description Workshop - £275 + VAT per person

From 2007 new European Standards have started replacing the British Standards (Codes) under which investigations in the UK have been carried out. UK working practice will have to change to meet these new requirements but few practitioners are aware of the changes or the timetable. The workshop will comprise a series of lectures on the changes, and lectures on rock description followed by practical sessions describing rock and compiling mechanical logs of rock core.



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The course will cover both the theory and the practice of various In Situ Testing techniques used on typical geotechnical projects. In addition the courses will consider the effect that Eurocodes will have on the UK's current practice. This course provides an overview of in situ tests used in common practice and some of the more specialist tests together with their advantages and limitations.



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MARTELLO EXPANDS FLEET WITH PURPOSE BUILT RIG



Providing the final entry into this month's issue of the *Geotechnica* are [Martello Piling](#). In the following piece, Martello reveal details of their latest addition to their piling fleet - the MP 6000 which has been designed and built in-house in order to meet the increasing demands of the ever-expanding industry.

Martello Piling, one of the UK's contractors, has launched the leading rotary bored piling latest addition to its fleet – the

MP 6000 Rotary Bored Piling Rig - which has been designed and built by the Martello Group.

The MP 6000 is fitted with a Stage 4 engine, which delivers 160 kW and enables the

“The MP 6000 is fitted with a Stage 4 engine, which delivers 160 kW and enables the machine to construct piles of up to 1200mm dia, to a depth of up to 36m.”

machine to construct piles of up to 1200mm dia, to a depth of up to 36m. The rig's design follows the company's philosophy of producing machines with a small footprint and low tail swing radius.

The new addition to the fleet is part of Martello's on-going investment strategy and adds greater capacity and resource to its growing rotary bored piling business. The MP 6000 joins other purpose-built plant, allowing Martello to respond rapidly to its growing order book for both restricted headroom and large open site bored piling projects throughout the UK, particularly city centre locations.

Speaking about the launch of the new rig James Blackwell, Technical Director at Martello Piling said “Martello has the in-house capacity to design and manufacture its own piling rigs and has developed a range of machines which allow the construction of rotary bored

“Having our own in-house design and build resource allows us to be radical in our approach to meeting our clients' needs...”

piles in conditions ranging from headroom as low as 3.5m up to fully open sites. Having our own in-house design and build resource allows us to be radical in our approach to meeting our clients' needs, as we are able to alter rig configurations to suit their specific project requirements”. ■

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