

Environmental
Geotechnical
Specialists



insite

ISSUE
57

October 2020



#RGSolidGround
16 YEARS DRILLING & ADVICE

REGULAR NEWS AND VIEWS FROM **ROGERS GEOTECHNICAL SERVICES**

> **ACCELERATING. UPSKILLING.**

CONSTRUCTION ON THE UP!

MENTAL HEALTH AT WORK

GET AHEAD OF THE CROWD

GRANNY ROGERS KNOWS

LAB REPORT: UPDATE & TESTS

KIRBY KNOWLE

Welcome to RGS insite issue 57

Our regular newsletter celebrates more than 15 years of drilling and keeps you up to date with RGS and industry news.

Rogers Geotechnical Services Ltd are **site investigation specialists** offering ground investigation and geotechnical services to developers, builders, structural and consulting engineers, architects, insurance companies, local authorities, piling and foundation engineers, private individuals and other geotechnical consultants.

IT'S OFFICIAL: CONSTRUCTION IS ON THE UP!



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“UK construction took off in September, soaring ahead of both the manufacturing and service sectors in terms of **output growth** and recording the **fastest rise in purchasing activity since 2015**.”

Duncan Brock, Group Director, CIPS

- 1 In September 2020, FIRMS INCREASED THEIR PURCHASING ACTIVITY at the **FASTEST RATE SINCE 2015**
- 2 The headline seasonally-adjusted HIS Markit/CIPS UK total ACTIVITY INDEX FOR CONSTRUCTION **SCORED 56.8% IN SEPTEMBER** compared with 54.6 in August. ANY FIGURE ABOVE 50.0 INDICATES GROWTH.
- 3 NEW ORDERS ROSE FOR THE FOURTH TIME in as many months, with the increase in demand at its **STRONGEST SINCE FEBRUARY**
- 4 Both house BUILDING and COMMERCIAL CONSTRUCTION projects **EXPANDED STRONGLY**
- 5 Although STAFF NUMBERS CONTINUED TO FALL in September, the workforce contraction rate was the **SLOWEST IN 7 MONTHS**
- 6 CONFIDENCE FOR THE COMING YEAR across the construction sector was at its **STRONGEST SINCE FEBRUARY**

At RGS, we've certainly seen a **substantial upturn in work and opportunities** in recent weeks. Right now, we're involved in discussions about some particularly **exciting large-scale projects with national brands** - mostly arising from the **great reputation and trust** we've built with repeat clients. Even so, our **excellent capacity and capability** means we're ready and able to take on further projects large and small, nationwide.

So whether you're planning or fulfilling a build, need help with a problem or simply want expert advice and guidance, our friendly, helpful team are here for you.

JUST GIVE US A CALL ON **01484 604354**

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ENVIRONMENTAL



TRAINING AND CPD

Get ahead of the crowd: **upskill your staff with RGS**



The positive forecast for our industry is great news, and makes it all the more important to ensure that your people have all the knowledge, insights and skills they need to **maximise the outcomes for your clients and your business.**

With his first-class team of specialists, **RGS Technical Director** and geotechnical guru, **Steve Rogers**, ensures that the **wide-ranging training** we normally offer at your sites or our own is now **delivered smoothly and easily online**. You get the benefits of traditional, face-to-face CPD - the same experts and the same **thorough, trusted and value-packed training** for any number of delegates, wherever they may be.

In addition to our course portfolio, we're always happy to create **bespoke programmes** for your own specific needs, so the options are endless.

The construction industry is once again surging ahead: **make sure you and your people are ready to roll!**

STRENGTHEN YOUR TEAMS WITH RGS TRAINING!

SIMPLY GIVE US A CALL ON **01484 604354**

DESCRIBE YOUR GOALS: WE'LL HELP YOUR PEOPLE EXCEL.



INDUSTRY STANDARDS

Lab report: updated accreditations for classification tests



We take great care to keep all our compliance and accreditations refreshed and up-to-date, and this month, UKAS gave us the welcome news that [our soil classification test accreditations have been updated](#) to the most recent BS EN ISO 17892 standard.

The RGS laboratory is equipped, accredited and available for an extensive range of tests for all kinds of projects which we carry out for with construction companies of all sizes, property developers, site owners - and even archaeologists. However, few people will know what actually goes on during geotechnical lab tests, and given their central importance to the success of your projects, we thought that you might like to find out a little more!

Each month, we'll give you **new insights** on a key test or two that we offer.

To begin our new feature series, we're spotlighting two of the geotechnical classification tests which carry our **newly updated BS accreditation**. Classification tests identify groups of soils with similar qualities (eg particle size, moisture content, liquid limits) and potentially similar behaviour. They contribute to the vital body of information that engineers need in order to decide on the additional detailed testing that should follow.

INDEX PROPERTIES TESTS

Index Properties (IP) tests determine the components and properties of a soil sample. This classification test explores a soil's plastic limit (PL) and its liquid limit (LL).

First, we measure the water content of the sample at each of these states. The range between the PL and LL gives its plasticity index (PI). We also compare the PI with the sample's in situ water content to assess the soil's consistency. For example, a sample with a water content higher than its liquid limit will probably be soft and may exhibit flow. Conversely, if its moisture content is below its plastic limit, the soil is likely to be desiccated and stiff.



This test can be performed in two ways:

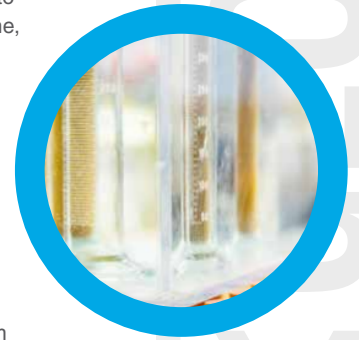
- (i) A **FOUR-POINT VARIATION** involves taking four different measurements up to and beyond the liquid limit and the plastic limit.
- (ii) IN A **ONE-POINT VARIATION**, the true liquid limit and plastic limit are each calculated mathematically using the moisture content data and a penetrometer test.



PARTICLE SIZE DISTRIBUTION TESTS

The Particle Size Distribution (PSD) of a material affects its strength and load-bearing properties. To explore these qualities, a PSD test grades soil particles by size. The results are represented in a graph which shows how much of each graded size grades is present in the strata tested. The test may comprise either one or two steps, known as sieving and sedimentation.

- (i) **SIEVING IS PERFORMED ON A SUITABLY SIZED SPECIMEN OF DRIED SOIL.** We first weigh and then dry the specimen. Next, we either break it down manually or chemically treat and wash it to allow the individual particles within the specimen to act independently. We then pass the specimen through sieves of reducing aperture sizes. These aperture sizes always include the particle size boundaries between the standard 'fine material' sizes, ie coarse, medium and fine gravels, sand, silt and clay. Measuring the percentage retained on each size aperture sieve allows us to draw a 'grading curve' that provides percentages of the sample's fine material (or 'fines') content. If the fines content is found to be above 10%, it may be necessary to continue the classification with a sedimentation test.
- (ii) **THE SEDIMENTATION TEST GIVES THE PERCENTAGES OF COARSE, MEDIUM AND FINE SILTS AS WELL AS THE RESIDUAL CLAY PRESENT IN A SAMPLE.** First, we create a soil and water solution using a chemical additive to disaggregate the sticky clay particles: these particles are placed in a cylinder and left to stand in a water bath at a constant temperature. Over time, gravity causes particles to fall out of the suspension. The larger or denser the particle, the more quickly it sinks to the bottom of the cylinder. By sampling the solution at given times, we can calculate the percentage of the specimen smaller than a given particle size that remains in suspension at any particular time.



By carrying out both sieving and sedimentation tests on a single sample, we can chart a full grading curve showing particle size percentages from boulders, cobbles, and coarse gravel at 63mm particle size all the way down to the 0.002mm clay boundary.



We hope that this brief overview has shone a brighter light on the **why, what and how of these two classification tests.**

We'll explore more tests in upcoming editions and meanwhile, **don't hesitate to call to discuss all your lab testing requirements.** At RGS, excellent service and friendly, helpful advice are guaranteed!

NEED EFFICIENT, RELIABLE AND UKAS-ACCREDITED GEOTECHNICAL TESTING TO INFORM YOUR PROJECT?

SPEAK TO OUR LAB TEAM TODAY ON [01484 604354](tel:01484 604354)

Do you need a **phase one environmental desk study report?**

RGS STANDARD **RGS PREMIUM**

Contact us for more details and to discuss your options for this service



THE ROGERS ARCHIVE

Granny Rogers' Musings



ONE OF GRANNY'S
FAMOUS AND OFTEN
QUITE EVENTFUL
'SLOPE PARTIES'

Our Technical Director, [Steve Rogers](#), has often considered producing a series of geotechnical articles based on the thoughts of his (entirely fictitious but astonishingly wise!) Granny Rogers. If you're one of the many who's attended Steve's training events, you may indeed have encountered this [legendary granny](#) before...

“ On a cold and dark winter's evening in 1958, I was sat on my fictitious Granny Rogers' lap. The candle was flickering as my father threw another chair leg on the fire (we were skint), when my Granny said, 'Steve... **Always remember that a little c goes a long way**, adding wistfully, 'in terms of effective stress, of course!' My initial thought was 'What's for tea?', and it was only many decades later that I realised the significance of her words.

She taught me that when considering slope stability analyses, it was important to adopt the fully softened effective stress parameters, just as her mentee, Skempton, had realised (the same **Professor Skempton**, of course, who back analysed failed slopes in London Clay).

Typically, **the effective stress of a cohesive soil will yield a significant angle of internal friction - ϕ ' (for London Clay between 20° and 21°) with a cohesion **c'** generally below 5kN/m². Stability analyses using the parameters as tested may suggest that a slope may be stable, but in fact, the degradation of the cohesion over time may cause the slope to become unstable. So you see... **a small change in cohesion will have a considerable effect on stability**. My granny was a wise old bird. ”**



TESTING THE
ROGERS TANDEM
BICYCLE DRILL IN 1917
WITH CEDRIC LETCH

CUSTOMER FEEDBACK

Kirby Knowle Castle: reflections

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“ I’m **deeply impressed** with HACS, who have done a truly fantastic job under RGS’s guidance. **Thank you!** ”

David Kempley, Owner, KIRBY KNOWLE CASTLE

You’ll no doubt recall last month’s case study of our work at this fine castle near Thirsk when owner **David Kempley** asked us to prevent his magnificent home from sliding down a hill... We’re pleased to acknowledge the reflections of our client and team colleagues on this exciting and successful project.

“ It’s been an honour to work on this job and help to **preserve a piece of Yorkshire’s heritage**. Kirby Knowle Castle is a stunning landmark: its location is second to none with unrivalled views over North Yorkshire. The teams at **RGS** and **Rose Consulting** have been a pleasure to work with and, we look forward to our **next project together!** ”

Mark Smith, Managing Director & Founder, THE HACS GROUP

“ Working with **Rogers Geotechnical Services (RGS)** and **HACS** on the remediation of the failed embankments at **Kirby Knowle Castle** was an **excellent experience**. This was an especially tricky project, but all parties met the challenge with professionalism, expertise and enthusiasm. Despite the **inevitable pressures** of this **major project**, **everyone has responded quickly and with accuracy**, resulting in a **sound and practical working solution**.

It’s been a pleasure to work with **RGS** and **HACS**, and we look forward to a **long association** with them both! ”

Dr Paul Rose, ROSE CONSULTING ENGINEERS



HEALTH AND WELLBEING

Supporting mental health: **practical resources at your fingertips**



This month we're keen to spotlight the wealth of [helpful videos, tools, strategies, presentations and more](#), available at the click of a button on the [Mental Health at Work \(MHAW\) Resources page](#).

With the continuing restrictions and local lockdowns, the pressure on employees, managers and business leaders continues, and mental health in the workplace has never been more important. The MHAW Resources page offers **help and guidance** on a huge variety of topics, including:

- // STAYING WELL DURING FURLOUGH
- // DIVERSITY NETWORKS
- // STARTING THE CONVERSATION IN CONSTRUCTION
- // OPEN THOUGHTS: THAMES WATER VIDEO
- // MENTAL HEALTH FIRST AID ... and lots more.

The support and help you'll find on the MHAW page is available to everyone who wants to use it. Why not grab a coffee and [click here](#) to take a look?

**MENTAL
HEALTH
AT WORK**

For more information about your investigation requirements please don't hesitate to contact us.
Telephone on 01484 604 354

[Click here to email us](#)

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CLIENT FEEDBACK

Talk to us

“ RGS were professional and courteous throughout the whole process. Highly recommended! ”

We're always keen to hear **what clients think** of our service and welcome feedback from our clients, colleagues and associates.

We're looking forward to hearing from YOU!

[Click here](#) to email us your comments.

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