



ISSN 1178-5888

CETANZ

Civil Engineering Testing Association of New Zealand



Issue 028, December 2016

The official newsletter of the Civil Engineering Testing association of NZ

In this issue...

- From the chair
- Safety Alert
- Caption Competition
- Christchurch Networking Event
- GPS allowed rapid detection of land movements due to M7.8 earthquake
- Working group update
- Puzzle time
- Conference Watch

Issue 028, December 2016

From the Chair...

Hello and welcome to the last issue of CETANewZ for 2016 and possibly the last issue under the name of CETANewZ. Early in the New Year we will be holding a competition to rename the newsletter so get your ideas brew in preparation for this.

The industry has continued to be very busy. With the rain finally easing off and the temperature starting to heat up, the traditional earthworks season is kicking off in earnest. I imagine there will be some long hard hours put in by our members this season once again.

The events in both the Northern South Island and Southern North Island have once again put our significance in the grand scheme of things into perspective. Living in such a geologically active zone will mean that this is likely to continue. Images that stood out for me were a house in Kaikoura that had seemingly shook its brick cladding off like fleas, massive vertical and horizontal displacement, whole hill sides down and last but not least, precious Crayfish and Paua left high and dry due to the uplift. We had some very tired staff who had been sitting at high points throughout the night in the Wellington region with their young families the day after the big shake. Let's not forget the massive flooding event that followed in this area also. It was awesome to see how, as an industry, we provided a great response to the Christchurch 2010/11 earthquakes through the TC3 project. Many of our CETANZ member companies provided resources and services that allowed us to provide a faster turnaround for the community. We will be looking to encourage this approach as we move forward with the Kaikoura/Wellington earthquakes once the emergency response turns into a recovery process. Paul Burton from Geotechnics will look to provide co-ordination where required so please make yourself known if you have the resources.

Elsewhere, October saw Brigitte Curwin and myself in Christchurch for the 'South Island catch up' this was ably hosted by Isaac's construction driven by Greg Rolston. The event started off with drinks and networking at the Harewood Golf course and was followed by a drive around Isaac's facilities and rehabilitation projects. CETANZ would like to thank Greg and Isaac's for organising this event, hopefully the first of many.

If you have any ideas for an event such as this in your region we would love to hear from you and will support the success of this as best we can.





From the Chair cont...

The 'Careers and events' group has met, focus here was largely around ways to celebrate the 10th anniversary of CETANZ next year look for information on what is happening near you in the new year.

The 'Technical Group' meets next week and looks to host a high profile visitor from NZTA. Once again this is recognition of our efforts and the value in both our opinions and the work we are doing in this area.

The CPT checklist is now available and we encourage all members working in this area to be proactive in providing comment back to Marco and the CPT team.

In September Worksafe released their Approved Code of Practice for Air Quality in the Extractives industry, something to consider assessing for relevance to civil labs.

Have a happy and safe Xmas/ New Year break and once again, enjoy reading the rest of the information provided in this newsletter.

Regards

Danny

Advertising in the
CETANewZ is a great way
to get your message out

Reach your target audience
for just \$75 per half page
or \$150 per full page
advertisement.

Contact the editor for
further details or to
make a booking

info@cetanz.org.nz

**ADVERTISE
WITH US**

Safety alert

Roller vs NDM Collision



What happened?

- Technician completed a test and stood by the side of the road to do paperwork
- A roller from distance came back all the way from the end of the mat and pushed the NDM gauge out of the position
- The top of the gauge handle is scraped. The pin is bent slightly

Why did it happen?

- The roller driver did not see the gauge nor the red flag on the gauge
- Not enough controls around the gauge, e.g., safety zones, barriers

Actions required

- Complete hazard identification form to identify the hazards on the job site
- Identify the traffic flow and draw a traffic management plan for the job
- Before testing is started, communicate with site supervisor and roller driver with the site hazards and hazards that testing crew brings on site and safety requirements for testing.
- Place physical barriers (cone or trolley) between roller and the gauge at least 5 meters from the gauge

Photo Competition



*Photo supplied thanks to Daniel Stewart from Heavy Trax Hire
www.rjstewart.co.nz/hire.html*

Send your caption to info@cetanz.org.nz by December 20th. The best caption will win a \$50 voucher of your choice for Farmers, iTunes, Countdown, Pak n Save or Hunting & Fishing. Judges decision is final.

Congratulations to Jordan MacKinnon of Opus Hamilton who was the winner of the August-caption competition

Christchurch Networking Event



On behalf of CETANZ, the Management Committee would like to thank Isaac Construction Limited for sponsoring and organising our recent Christchurch networking event.

Hosting over 30 people, this event was organised by Laboratory Operations Manager Greg Rolston thanks Greg!! Attendee's got to catch up over drinks and nibbles and enjoyed a brief tour of the site where many decades ago a study in conservation began and continues today.

In 1957 Sir Neil and Lady Isaac's plans for their McLean's Island property were intricate, determined and visionary. Over half a century later, as a quarry reclamation project the landscape is internationally recognized as one of the best.

The work being carried out by The Isaac Conservation and Wildlife Trust is quite remarkable and well worth taking a look at <http://www.isaacconservation.org.nz/>

Once again, thanks to the Isaac Team for bringing us this event





Three tips to get the most out of your MCC calibration

- 1** Pre book your Airmeter, Shearvane, Impact tester or Schmidt hammer for calibration with The MCC
- 2** Request a hire unit while yours is being calibrated to keep your down time to a minimum
- 3** Use the hire equipment until you receive your re-calibrated unit

We understand how disruptive sending equipment away for calibration and/or repair can be. We want to minimise this down time by offering you this new option to use a hire unit at a discounted rate - up to 50% off.

THE MEASUREMENT & CALIBRATION CENTRE

Tara Lee-Shield

e. calibration@themcc.co.nz

p. 09 356 7893

www.themcc.co.nz

GEOTECHNICS HIRE

Jordan Widodo

e. hire@geotechnics.co.nz

p. 09 352 2967

www.geotechnics.co.nz



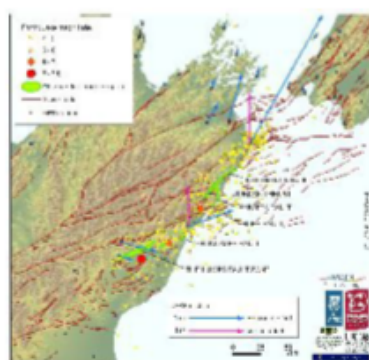
GPS allowed rapid detection of land movements due to M7.8 earthquake

GeoNet, with funding from LINZ (Land Information New Zealand), operates a large network of continuously recording GPS sites in New Zealand to track land movements on a daily basis. Within a couple of hours of the M7.8 earthquake, GeoNet was able to use the GPS data to estimate the initial displacements of the Earth's surface that occurred during the earthquake. Tracking these types of land movements as the result earthquakes is a critical piece of the puzzle needed to determine which faults ruptured, and by how much.



GPS site in Cape Campbell that recorded land movements from the earthquake

Shifting of the land near the earthquake



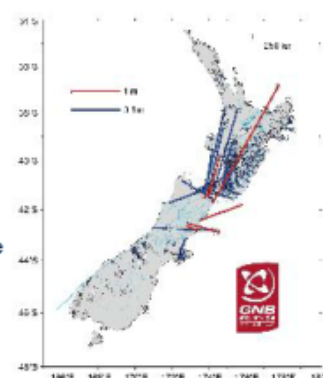
Detailed view of northern South Island GPS site displacements, locations of active faults, earthquakes and observed fault surface ruptures.

What the GPS revealed was astonishing. It turns out that the earthquake shifted the land at Cape Campbell (the northeast tip of the South Island) to the north-northeast by more than 2 m, and up vertically by almost 1 m. This means that Cape Campbell is now more than 2 m closer to the North Island than it was before the earthquake. Similarly, Kaikoura has moved to the northeast by nearly a metre, and has been lifted upwards by 70 cm. Hanmer Springs, which was our closest GPS site to the quake epicentre, jumped eastward by approximately 50 cm. All of this movement happened during the earthquake in a matter of seconds.

Movements of the Earth's surface near the earthquake recorded from GPS have been incredibly important to help diagnose what motions were involved in the earthquake. A key observation is that although the earthquake fault rupture began near Culverden, by far the largest motions of GPS sites occurred at Cape Campbell. This supports the idea that the ruptured north over a very long distance from where it started.

A lot of New Zealand has moved

Not only did the earthquake shift landmasses in the northern South Island, but it also caused movements across most of the country. In the lower North Island, the East Coast has shifted west by 1-5cm, while the Wellington and Kapiti regions were shunted 2-6 cm to the north. Christchurch and Banks Peninsula didn't miss out on the action, either—they are now approximately 2 cm further south than they were the day before the quake. Some parts of the west coast of the South Island have been shifted eastward by as much as 10 cm. The northern North Island and southern South Island only moved a few millimeters.



Map of nationwide horizontal displacements of the land surface caused by the M7.8 earthquake, as detected by continuously operating GPS sites throughout New Zealand. Note the difference in scale between the red and blue arrows.

Article provided thanks to Natalie Balfour and Laura Wallace from GNS Science. This and further articles are available by visiting <http://info.geonet.org.nz/x/roA5AQ>



SaferRoads2017

5th International Conference

21 – 24 MAY 2017

AUCKLAND, NEW ZEALAND

**MAKE A CONTRIBUTION TO GLOBAL
ROAD SURFACING, CYCLE AND
PEDESTRIAN SAFETY**

REGISTER NOW

Join world leading practitioners, product providers and researchers as we gather to share knowledge, ideas, concepts and innovations. Our sector's work is making travel on the global road network safer and more sustainable.

ABSTRACTS OPEN

Abstracts are open for the International SaferRoads Conference. Make a contribution to global road, cycle and pedestrian safety.

SPECIAL GUEST SPEAKERS

Leaders in the fields of **pavements, driver behaviour, safety and innovation** will be speaking at next year's conference. Speakers include **Carey Griffiths**, road safety expert and national president of the Institute of Advanced Motorists, NZ and **Sir Ray Avery**, scientist, inventor and social entrepreneur.

We look forward to seeing you there!

DOWNLOAD THE CONFERENCE APP



SEARCH: SAFERROADS 2017

**MAKE A REAL DIFFERENCE
TO SAFER ROADS**



DELINEATION



ROAD SAFETY



MOTORCYCLE AND
CYCLE SAFETY



SHARED SPACES
AND SAFE SURFACES



MONITORING,
MEASUREMENT
AND ANALYSIS



INNOVATION
AND RESEARCH
ADVANCEMENTS



TECHNICAL AND
TECHNIQUES



ASSET MANAGEMENT,
POLICIES AND
GOVERNANCE



BUSINESS
SUSTAINABILITY
AND KNOWLEDGE
TRANSFER



QUALITY AND
VALUE FOR MONEY

WITH THANKS TO OUR SUPPORTERS



**SAFE AND SUSTAINABLE
ROAD SURFACES**

VISIT WWW.SAFERROADS.CO.NZ
FOR MORE INFORMATION

From the working groups



CPT Update

The CPT Working Group is working through the process of establishing a minimum quality assurance level across the CPT industry. At a meeting at the CETANZ conference in August, it was decided that this would be achieved by having the member contractors audited to the relevant ASTM and/or ISO standard by a third party auditor. The guidelines for the audit are to be established by the members of the Working Group, based on the checklist developed by Tonkin and Taylor during the EQC investigation work in Christchurch. That checklist has now been made available and we are looking for comments from CETANZ members prior to our next meeting (early next year – date to be confirmed). For a copy of the checklist, please contact Marco Holtrigter, marco@g-i.co.nz. Please also send any comments you may have on the document to the same email address.

Technical Group

Last Technical Group meeting was 21 July 2016.

Next Technical Group Meeting date 29th November 2016

Proficiency Program

Proficiencies are currently progressing slowly. A number of IANZ laboratories are undertaking large and more comprehensive Intralab's these days, so the need for CETANZ led schemes has reduced somewhat. The Technical Group will be reviewing the program and looking to focus on some of the more difficult / complex or mission critical proficiencies and leaving the simpler ones to members going forward. The Technical Group desperately needs volunteer labs to organise proficiencies. If you are wanting to get involved there is funding available for those that want to volunteer their Laboratory as a potential organiser. Please contact us info@cetanz.org.nz

A member recently took part in the recent Australian pta organised concrete compression strength proficiency. Their results were compared to 50 other laboratories using the AS test standards. The outcomes and reports were very good and the member recommends more NZ Labs think about participating. The CETANZ Technical Group will forward notifications as they come to hand.

NZTA M/4 Quality Control Project

NZTA continues work on its NZTA M/4 Quality Control project which will definitely see an increase in the demands for testing of M/4. Quarries will be expected to adopt the use of control charts and submit data for independent review. More information is expected to be released in the coming months.

Sampling of Basecourse UoM

As part of the NZTA M/4 Quality Control review NZTA had planned to carry out a substantial Sampling and Testing project to identify UoM and how much effect it was having on final stockpile acceptance. Unfortunately this has now been removed from the project scope. CETANZ will now be looking to complete this work in conjunction with the AQA.

NZ Vibrating Hammer

NZTA has decided to fund some initial research on exploring potential solutions / alternatives for the NZ Vibrating Hammer Compaction test and its use in NZTA B/2. CETANZ will be helping with the review and providing input.

Working Group Update Cont.....



Technical Guides in progress

Test Pit Guide for Road rehabilitation and Design
Uncertainty of Measurement
Proficiency Data Analysis
Significant numbers v decimal points in LIMS systems
Assumed and Derived accreditation guide.

Ethylene Glycol

NZTA has reviewed CETANZ comments and suggestions on the latest method draft. NZTA's research continues with more aggregate testing on South Island taking place now. Once data has been reviewed we can expect the first official version to be released to Laboratories sometime around Christmas. Debate continues over the usefulness of the test and application. NZTA's final report should go some way to addressing issues raised to date.

NZTA F/1 Earth Works

NZTA now has the NPTG's final version of the new F/1 spec which CETANZ commented on. We expect general consultation will start early in the New Year.

NZTA T/1 Benkelman Beam

The final updated draft test method has been submitted to NZTA. The NPTG has been asked to add a note on the application of the test method ...i.e. when and where it can and should be used. Likely that UoM will need to be covered. NZTA are investigating and comparing to their own newly devised Electronic Deflection Measurement device.

Independence of Testing Providers

It has been noted at the last CETANZ AGM that some members have concerns around the perceived lack of 3rd party testing on government projects. Some have questioned the validity of contractors using their own labs and conversely others have questioned consultants using theirs. CETANZ continues to advocate for 3rd party accreditation with NZTA and local authorities. At this stage the committee is not going to change this approach. We also note the work that NZTA are currently carrying out around the Z series of NZTA quality standards will likely address some of these concerns with more emphasis on RVT on roading projects.

Liaison with NZTA

NZTA officials have indicated their strong support for CETANZ and the work it carries out on behalf of the civil testing industry. Indications are that NZTA are wanting to get involved in several new initiatives in the near future. More information will be shared as it comes to hand.

Careers and Events

We're happy to report a profit from the 2016 conference of \$2000. We don't usually expect to make profit from our conferences so this was a nice surprise!

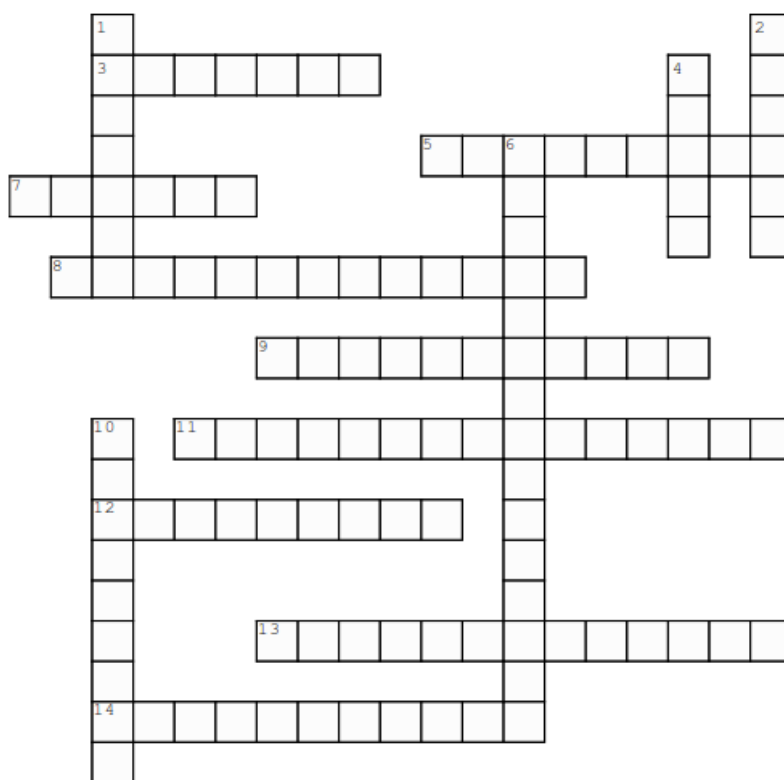
A recent meet & greet in Christchurch involved a tour of the Isaacs laboratory and site visit. The event was a success, with a good turnout and a great opportunity for our Southern contingent to catch up and meet some new people.

We are beginning to organise an event to celebrate the 10th Anniversary of CETANZ next year. The current proposal is to have multiple events around the country, which will make it easier for everyone to attend. Early comments have suggested that the events should involve food and beer. However we are open to suggestions and would love to hear from our members on what they'd like to see! Feel free to email jking@geotechnics.co.nz.

The latest membership report puts CETANZ at 144 members strong! One thing we have been discussing in the working group is how we can keep membership numbers up during non-conference years. Again any feedback on this is welcomed.

Puzzle Time

Earthquakes



Created with TheTeachersCorner.net [Crossword Puzzle Generator](http://TheTeachersCorner.net/Crossword-Puzzle-Generator)

Across

3. Earthquakes have moved chunks of the planet's _____ hundreds of miles.
5. The size of the earthquake is called its _____.
7. There are about 20 _____ that continuously move.
8. Measurement of an earthquake's magnitude is measured with a _____ (7) _____ (5)
9. _____ is an instrument used to record the intensity and duration of an earthquake.
11. Theory of continents drifting apart is called _____ (5) _____ (9)
12. the point on earth's surface directly above the source of the earthquake is _____.
13. _____ (7) _____ (5) are energy created by the quake that shakes the buildings and causes them to move horizontally.
14. _____ are the shaking, rolling, or sudden shock of the earth's surface.

Down

1. _____ is a large wave caused by underwater earthquakes.
2. The inner core, outer core, mantle and crust are the earth's major _____.
4. An area of stress in the earth where broken rocks slide past each other causing cracks is called a _____.
6. An earthquake occurs because of _____ (8) _____ (6) inside the Earth.
10. Earthquakes cannot be _____.

Answers can be found at the bottom of the last page of this newsletter

Conference Watch



New Zealand set to host 5th International SaferRoads Conference

Hundreds of experts and industry practitioners from across the globe will meet in Auckland next May at Auckland's Viaduct Events Centre, to share knowledge, ideas and innovations that will make travel on roads across the world safer and more sustainable.

Hosting the conference alternates between committee member countries in the northern and southern hemispheres every three years. Next year's conference is being held at the Viaduct Events Centre on Auckland's waterfront from May 21-24, 2017.

Committee Chair for the 2017 conference, Mark Owen from the New Zealand Transport Agency says the discussions and information shared at the conferences since they first began in 2005 has resulted in marked improvements in road surface safety and sustainability. "There is some really exciting stuff happening in the fields of road surface, cycle and pedestrian safety," says Mr Owen. "This really is a global think tank that has made a major impact on road safety since the first forum on skid resistance held in 2005."

The scope of the conference has been expanded to include areas such as delineation, safe pedestrian walkways and cycle paths. Leaders from the fields of pavements, driver behavior, safety and innovation will be speaking at next year's conference. "With our organizing committee being made up of members from across the globe, we are able to source some really exciting speakers," says Mr Owen. "We'll be announcing keynote speakers as planning for the conference progresses."

The extra benefit for those involved in the sector in New Zealand is that next year's conference is being held here in Auckland. "Whether you are from a local council, a supplier, a contractor, university or research Institute or central government, the scope of the conference and its location makes it even more attractive."

Next year's conference themes include road surface measurement, monitoring and treatment, delineation, innovation and research advancements, motorcycle and cycle safety, shared spaces, pedestrian areas, road safety, business sustainability and knowledge transfer, and quality and value for money.

For further information about the conference visit www.saferroads.co.nz or download the APP.

Contact:
Mark Owen
Organising Committee Chair
5th International SaferRoads Conference
mark.owen@nzta.govt.nz
www.saferroads.co.nz

A Word From The Editor



The silly season is here we all seem rushed off our feet both with work and Christmas preparations. I am most grateful to everyone who has contributed to bringing this issue together at such a busy time of the year.

CETANZ aim to publish four newsletters each year with the next being early in the new year. We are seeking content for the next issue now. so please email your articles, pictures, idea's or advertisements for submission to info@cetanz.org.nz

I hope you enjoy this issue and wish you all a safe and happy festive season. See you in 2017!

Brigitte Sargent



PRACTICAL TRAINING SOLUTIONS

for civil engineering

civiltrain

www.civiltrain.co.nz



Crossword answers:

Across : 3—surface, 5—magnitude, 7—plates, 8—richter scale, 9—seismograph, 11—plate tectonics, 12—epicentre, 13—seismic waves, 13—earthquakes

Down: 1—tsunami, 2—layers, 4—fault, 6—geologic forces, 10—predicted