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ACA NZ BRANCH AUCKLAND MEETING

An update and catch-up

On the 17th July the ACA NZ Branch held a meeting at the Mt Richmond Hotel, Mt Wellington, in conjunction with two CIP Level 1 courses and a CIP Level 2 course, held at the same venue over three weeks.

The two speakers were Kingsley Brown, ACA Board Chair, and Justin Rigby, ACA Coatings Technical Group Chair. The purpose of the meeting was to inform ACA members and visitors on a number of updates within the ACA. The meeting was also an opportunity for networking.

For the benefit of the visitors Kingsley, gave an outline on the ACA's background and the developments since the Covid era. He described the current staffing situation at the ACA Centre, the welcome revival of the

ACA journal 'Corrosion & Materials' and the updating of the by-laws and Constitution of the Association.

Justin then provided an overview of the role of the Coatings Technical Group (CTG) within the ACA. He discussed recent developments in applicator trade training, training of painters and blast cleaners, and the important role being played by new Standards.

The presentations were followed by a general discussion on different aspects of applicator training and how the CTG fitted into the ACANZ Branch structure. Refreshments and networking concluded the face-to-face meeting which was a welcome change from recent ACA zoom meetings. Matt Vercoe then thanked the two speakers for their interesting talks.



Kingsley Brown talking about recent ACA News and Updates

Justin Rigby discussing the ACA Coatings Technical Group



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MATERIALS SELECTION IN INFRASTRUCTURE

Over the course of three days in July, NZ media carried two stories of multi-million dollar costs of infrastructure repair and replacement following corrosion issues.



The first was a report by Radio New Zealand on July 19 of an anticipated \$4.5 million cost of repair of a 60-year old waste water pipe running under State Highway 2 in Lower Hutt, which carries all of Upper Hutt's sewage.

The Western Hills main sewer runs from Silverstream through Upper Hutt, along State Highway 2 near the Hutt River through to Petone, and then to the Seaview Wastewater Treatment Plant.

A survey has suggested the pipe is at high risk of failure and collapse due to ongoing corrosion from hydrogen sulphide gas in two places; near Taita Rock and under State Highway 2 near Melling Station. It suggested that if the pipe failed, it could cause large volumes of sewage to flow into the Hutt River for "extended periods" and trigger the collapse of a section of the road above the pipeline.

Failure could result in significant disruption on SH2 because of emergency works, and disrupt wastewater services to both Lower and Upper Hutt.

The second was a report in Hawkes Bay Today :[https://www.nzherald.co.nz/hawkes-bay-today/news/hawkes-bays-busiest-wastewater-](https://www.nzherald.co.nz/hawkes-bay-today/news/hawkes-bays-busiest-wastewater-plant-needs-10-m-replacement-pipe/)

[plant-needs-10-m-replacement-pipe/FCDKXQPTJBGLDDMGO3MHKDOA4A/](https://www.nzherald.co.nz/hawkes-bay-today/news/hawkes-bays-busiest-wastewater-plant-needs-10-m-replacement-pipe/) on July 22 that said 150 metres of the 2.75km-long outfall pipe which discharges treated wastewater into the sea in Hawke Bay from the East Clive Wastewater Treatment Plant, needs to be replaced due to corrosion - at an expected cost of around \$10 million.

The plant is the main wastewater facility serving the Hastings district. A Council spokesperson told Hawkes Bay Today that the original pipe was installed in the late 1970s to early 1980s, and various repairs have been made to this 150m section of the outfall from early 1990s to 2022, in the majority of cases because of minor leaks due to internal corrosion of the pipe. Now it will have to be replaced.

The importance of expert materials selection to avoid suspension of services and the expense of replacement – always higher than 'getting it right first time' – is brought home to community decision makers again.

As a corrosion community, we know that we should not be advocating 'gold plating', but there may be a case for biting the cost bullet and over-specifying in instances like these.

from John Duncan

ACA NZ AT BRIDGE CONFERENCE

Hamilton was the location for the 2024 NZTA Bridge & Geotechnical Conference held on 8-9 July with over 90 presentations and which attracted around 250 delegates and exhibitors.

These included three ACANZ past-Presidents; being Matt Vercoe from Auckland manning the Metal Spray Supplies stand (which included the ACA banner), Raed

El Sarraf from Christchurch who presented on bridge asset management systems, and Willie Mandeno from Wellington who presented on the use of thermal metal spray on NZ bridges.

Conference sponsors included ACANZ Corporate Members Aurecon, Beca, MSS and WSP.



Willie Mandeno (left) and Raed El Sarraf in discussion



The MSS exhibitor stand

from Willie Mandeno

TRAINING OPPORTUNITIES IN NEW ZEALAND

CP1 | NZ | 14-18 Oct 2024 Level 1 Tester

This course is the first of AMPP's Cathodic Protection series, covering both theoretical and practical CP techniques. For more details and to register, go to: <https://events.blackthorn.io/en/5j1hxgo7/g/3VggT5Ffm/ampp-cathodic-protection-level-1-tester-or-nz-or-14-18-oct-2024-4a2ZI7235y/overview>

CP2 | NZ | 21-25 Oct 2024 Level 2 Technician

This certification indicates intermediate-level knowledge of corrosion theory and CP concepts, types of CP systems, and advanced field measurement techniques. For more details and to register, go to: <https://events.blackthorn.io/en/5j1hxgo7/g/3VggT5Ffm/ampp-cathodic-protection-level-2-technician-or-nz-or-21-25-oct-2024-4a2ZI7236D/overview>

CSS | NZST | 21-23 Oct 2024

This course addresses the guidelines for writing paint coating specifications that are fit for purpose.

For more details and to register, go to: <https://events.blackthorn.io/en/5j1hxgo7/g/3VggT5Ffm/aca-coating-selection-and-specification-or-nzst-or-21-23-oct-2024-4a2ZI7236S/overviewACA>

CTC | NZ | 25-29 Nov 2024

This is a great foundation course for all corrosion professionals. For more details and to register, go to: <https://events.blackthorn.io/en/5j1hxgo7/g/3VggT5Ffm/aca-corrosion-technology-course-or-nz-or-25-29-nov-2024-4a2ZI71kFV/overview>

**Q
&
A
CORNER**



Older ACA NZ members have probably seen a number of situations that may never have made it to a textbook.

If you have a question you'd like clarification on, email it to the Editor at lesboultonrust@gmail.com. We'll pose it to our panel of experts who will answer it in another Bulletin, so everyone can improve their knowledge.

Q:
Can the durability of ordinary concrete be increased?

& A:
Yes - by adding a resin

Large structures made of concrete and reinforcing steel are always subject to vibrations and stresses during service. Because of this, small cracks can appear in the concrete which may grow, and could eventually lead to fatigue failure.

At the same time, corrosion of the concrete and steel can occur under the influence of a corrosive environment. It is the combination of these two factors – fatigue and corrosion – that will determine the service life of any engineering structure.

To mitigate these effects, the concrete properties can be reinforced through the addition of various compounds, particularly epoxy resin.

Research has shown that epoxy-reinforced concrete samples subjected to fatigue testing in different environments (air, water, seawater, acid, alkali) perform better than ordinary concrete in a high-cycle fatigue testing machine. The concrete with epoxy resin coped better than ordinary concrete under the simultaneous influence of an environment and cyclic loading - the fatigue

strength of the resin-reinforced concrete increased by as much as 80percent.

Also, the compressive strength of reinforced concrete immediately after exposure to an aggressive environment was up to 12percent higher. Thus, ordinary concrete with an epoxy-resin addition can be made stronger and more durable in aggressive service environments.



A fatigue testing laboratory

Acknowledgement: Polymers journal, January 2024

A week in the life of a corrosion engineer specialising in cathodic protection

Advertorial

Not all weeks are the same says Grant Chamberlain of CPNZ, especially when you're in the field of preventing corrosion.

But if you like to travel, preventing corrosion is a fantastic job!



This particular week, Monday, was an admin day catching up on reports from the previous week. If you time it right, admin days are rainy days, and field days are sunny.

Tuesday morning was a flight from Christchurch to Auckland, another flight to Whangarei, then jumping into a rental car and off to Northport (close to Marsden Point). At Northport, there are several Impressed Current Cathodic Protection (ICCP) systems. These systems were retrofitted to the sheet piling and the H piles after the discovery of accelerated low water corrosion and microbiologically influenced corrosion (MIC), which has rapidly caused significant metal loss corrosion on the piles in just a few years.

The Cathodic Protection checks involved taking DC voltage readings between the piles and the reference cell floating in the water. To perform testing, you sit in a small boat and go from one pile to another. Ensuring you are not going to go for a swim, swimming with an ICCP system operating can be hazardous to your health.

Wednesday was a flight home to Christchurch.

Thursday was a flight to Invercargill, where there are also several CP systems on the wharves. One was installed after a truck driving beside the wharf fell into a hole. The metal under the tarseal had washed away

due to a corrosion hole in the sheeting piling. The tar seal looked great, but there was nothing under it. So it was CP to the rescue again with the retrofitting of sacrificial anodes.

The concrete bridge to the wharf was also suffering from corrosion, because the reinforcing steel was corroding. Steel, when it corrodes, expands and can grow to many times its original volume. So when reinforcing steel corrodes, it damages the concrete, causing it to crack and spall. Again, CP had to be fitted to the reinforcing steel.

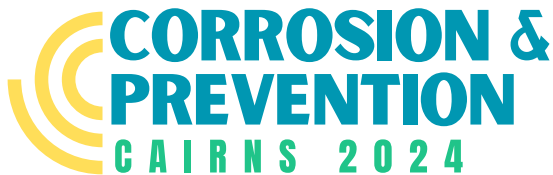
CP installation in concrete involves ensuring all parts of the reinforcing are electrically continuous, installing anodes which are separate for the reinforcing steel and reference cells, which are separate for the steel and anodes. The cables from all of these components go back to a transformer rectifier unit. Again, CP was the solution for this situation.

Finally, back home on Friday night for a beer.



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The Cairns Marine Precinct, which the Australian Government has committed \$180 million towards, is on track to begin later this year. This is expected to create 460 construction jobs while delivering a 5,000-tonne ship-lift, three ship hardstand areas and other components – which will support bigger ships

and contracts coming in, underpinning more revenue and local jobs.

Corrosion & Prevention 2024 will feature a full program of peer-reviewed papers and case studies, technical forums, research symposium, networking and more. The conference will be a platform for industry field practitioners who combat corrosion on a daily basis and researchers working in corrosion-related fields to share and exchange ideas.

ACA NZ BRANCH COMMITTEE & OFFICERS 2024-25

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