

Paving our way into a more durable future

Nearly a millennium ago, French monk Abbot (later Saint) Bernard reputedly coined the phrase we now know as, "The road to hell is paved with good intentions".

I wonder if it's also true that the way to heaven is a well-paved road?

Certainly, there was much discussion on how to get good pavements at the recent Future Roads conference at which the AQA and the quarry sector in general was, rightly, well represented.

Quarries accept the need to lift our game in terms of the quality of materials we provide to ensure we have more durable roads.

The AQA has been part of the Pavements Steering Group established to assist the delivery of the multitude of changes identified in the Crossen review of pavement failures in Waikato and Kapiti.

You do have to observe, however, the comments to Future Roads from Jamie Egan who's had a quarter century of managing concrete and asphalt projects

in Australia (see story page 2).

He noted that there are no rutting or pothole problems with concrete roads, no need to resurface them and limited repairs as well as being able to be used for years even after damage caused by major floods.

It was interesting that Waka Kotahi's Lead on pavements, Adam Leslie, was the preceding speaker to Jamie Egan and noted there'd be no road repairs if we had the funding for concrete or asphalt roads.

Not far away, work is underway to remedy the road surface failure on the Ngaruawahia section of the Waikato Expressway. Waka Kotahi alone is putting in about \$30 million into the repair of this section. It's already had several repairs by the road constructor which now itself faces many millions of dollars more in costs.

The AQA welcomes and works to support any effort to improve chipseal construction and durability. To that end, our Technical Committee has recently produced some new guidelines to assist



quarries to meet the new specs expected soon for the supply of Hi-Lab roading material to Waka Kotahi highway projects (see story page 4).

But perhaps it's time that politicians of all stripes looked seriously at finding the funding to trial a 'maiden' section of concrete pavement on a busy stretch of state highway.

You might get to meet a few of them if you attend next year's conference which being election year will include a political panel of MPs. Although QuarryNZ 2023 is still many months off, it's suggested one way to beat some horrific rises in air travel cost is to book ahead. It's advice I'm following.

I'm also conscious that as we approach our annual holiday break, the chances of fatigue creeping into our work patterns also rises.

Take a moment to read the story in which our CEO Wayne Scott and Australian health and safety expert Jodi Goodall recount the need for quarry managers to maintain 'chronic unease' about their site's performance and listen every day to the frontline experts – our workers.

Here's hoping you all have a safe time through to the holidays before we pave our way with good intentions into 2023.

Jayden Ellis
Chair, AQA





The case for concrete roads

If New Zealand ever opts for its 'maiden' project in building a concrete road, Jamie Egan wants to be part of it.

The National Pavements Manager for Acciona in Australia spoke at November's Future Roads conference, following Adam Leslie, Lead Advisory Pavements for Waka Kotahi.

Adam told delegates that we wouldn't have problems with roading deterioration if we had concrete and asphalt roads, but there wasn't enough funding for these.

Jamie Egan, who has more than 25 years' experience in asphalt and concrete road construction, says both have their benefits but NSW data shows only 0.5 percent of concrete roading slabs need replacing every decade.

"Another benefit of concrete pavement is you don't need to resurface it every 10 years."

After rain events, concrete pavements do not rut nor pothole. Common concrete pavement defects such as cracking, do not rapidly deteriorate and can be addressed in time.

Having a shoulder whether flexible or rigid has eliminated the edge repairs.

"I've noticed in New Zealand you don't have shoulders," says Jamie, who commented that this was 'bizarre' to him.

He says Acciona is one of four big companies that would be capable of building a concrete pavement road for New Zealand, the others being Fulton Hogan Australia, CPB and Seymour Whyte.

AQA CEO Wayne Scott, who chaired this session of the Future Road conference, invited questions from the floor.

Fulton Hogan's Technical Director, Pavements & Laboratories, Bryan Pidwerbesky said having worked on both sides of the Tasman, he saw the case for concrete roads here.

Jamie Egan says New Zealand is missing out in not having tried. He says another benefit is the ability to blend in 15

percent of recycled glass into the sand mix needed for a concrete pavement.

In one project alone, Acciona had used 10 million stubbies (beer bottles) as part of its pavement.

"That's a shit-load of beer bottles."

The ideal contractual model to build New Zealand's first concrete road would take a collaborative approach, with strong local engagement and training that developed local skills. "If you ever do a concrete pavement, I'd like to be part of it."

Jamie's father was an electrician from Gore and part of a band called 'A Gentle Feeling'.

"Playing in Invercargill, my father met my mother while she was here with my Latvian-born grandfather who'd settled in Australia but came here for a few years to work on the Manapouri tunnel as a concrete supervisor."

Wayne Scott said in later comments that our country needs to get past the initial higher costs of concrete pavements.

"I've just been part of a working group looking at the issues which caused the major failures on the Waikato and Kapiti expressways soon after completion.

"Yes, we can and will make better roads without using concrete or asphalt but we should also be looking at the longer-term durability these materials provide on high-traffic roads."

He says that is especially so given how concrete roads are more resilient in increasingly torrid rain events.

"I am in total agreement with Jamie about it being bizarre we don't have decently-formed shoulders on our roads. That would help improve the durability of chipseal pavements." **AQA**

Want to improve your site's safety? Consult your own experts

To improve our health and safety record in the extractives sector, managers and boards should consult frontline experts, a.k.a their workers.

That's among the advice from Jodi Goodall, a leading Australian figure in health and safety, who visited New Zealand in October at the invitation of MinEx CEO Wayne Scott.

After Jodi presented at the Resources 2022 conference and a MinEx seminar in Greymouth, the pair were interviewed for more than 20 minutes on the Nine to Noon programme on National Radio.

Host Kathryn Ryan introduced them, quoting earlier comments from Wayne that 12 years on from the Pike River mine disaster, there was still too much tolerance for workplace injury in New Zealand.

Jodi Goodall says that applied in Australia as well, where there was still too much belief that human error caused fatalities and serious injuries "and there was nothing you can do".

She played a role in bringing together the Brady Report into Queensland mining fatalities which showed the same injuries happening over and over again mostly through crush injuries, conveyor accidents and vehicle roll-overs.



Jodi and Wayne interviewed at Radio NZ.

"Once shit does happen, actually having a very good plan and practices on how to mitigate the risks will reduce the number of deaths."

She cited Pike River where a miner tried to access a self-respirator that they said didn't work and miners were not properly trained to use them.

Wayne Scott says health and safety in our extractives sector has made exceptional progress in the five years since he returned from Australia to become MinEx's CEO (and later AQA's).

"But I think we still have a long way to go. New Zealanders have a propensity to move on quite quickly from adversity. I don't think that helps because we don't always get to the bottom of what it was that failed."

He says WorkSafe does a good job with the resources it has but it was badly underfunded by Australian standards.

"One of the problems in New Zealand is we have a lot of regulations, but not a lot of regulators."

WorkSafe was unable to regularly visit many extractive sites, which contributed to a lack of industry awareness of health & safety requirements.

"People don't know what they don't know," says Wayne.

He says there are some senior executives in the extractive sector who are very engaged in health and safety but he still has concerns about some in middle management who feel the need to keep feeding good news.

Instead, they should be maintaining chronic unease about a site's performance and listening every day to their workers.

Both Jodi and Wayne also say that the extractive sector needs to keep communicating the critical importance of health and safety as a core fundamental for a business, not an add-on.

The RNZ interview was Jodi's first for radio and she also had coverage in the Greymouth Star, among other media sources, as well as this article. She's never been interviewed by Australian broadcast media.

You can find the interview by Googling Jodi Goodall and Radio NZ. **AQA**



If key controls were put in place, such injuries could be avoided. "Leaders design systems and expect them to work," says Jodi.

They need to recognise that systems don't always perform as expected and instead should become preoccupied with the risk of failure – something she calls 'chronic unease'.

"You also need to be in touch with the workers; we call them the frontline experts."

Additionally, extractive site managers and boards needed to be committed to resilient responses.

Meeting new specs for Hi-Lab supply

A new set of specifications is expected to be confirmed before the end of the year for the supply of Hi-Lab roading material to Waka Kotahi highway projects.

Ahead of that, the AQA Technical Committee has issued some guidance for members supplying Hi-Lab.

AQA Technical Adviser Mike Chilton says Waka Kotahi had released a Draft Specification for Hi-Lab in 2020, several years after it emerged as a roading product. Previously, varying iterations of Hi-Lab specifications existed for various projects with parameters changed to enhance performance, constructability and manufacturability.

Mike says the AQA has been advised a revised specification will be published shortly but any changes from the draft are unlikely to affect aggregate suppliers.

The AQA's guidance to quarry operators wishing to produce Hi-Lab is in no way meant to replace any Waka Kotahi specification.

The draft specification describes aggregate materials and construction methodology for High strength Low fines Aggregate Base (Hi-Lab). It has a very specific aggregate particle size distribution of good quality crushed angular stone combined with low cement and fines which allows the layer to act as a solid mass, thereby enabling direct load transfer between larger stone particles.

The draft details both Hi-Lab 65 and Hi-Lab 40 specifications, although Mike says several recent projects have opted for Hi-Lab 65 only.

He says quarry operators need to think about several things in developing manufacturing methodologies for Hi-Lab.

"Given that the specification is still in draft only, you should assume that further changes could be made from project to project and that you will need to confirm requirements at tender stage."

Quarry operators need to meet specific Hi-Lab grading limits while the contractor installing Hi-Lab faces a slightly different grading, measured after hoeing.

Any supplier of Hi-Lab may need to vary the gradings at production or final mix design to ensure the contractor can meet the post-hoe grading requirements.

Quality of Fines (QoF) criteria are similar to typical NZTA M/4 requirements, although the ratio to fines and coarse material is quite different to M/4 and as

such, you may not always achieve similar QoF levels.

Mike advises that given the strength of Hi-Lab pavement relies heavily on the particle-to-particle contact, and particle shape is key. The quarry operator will need to trial different crushing methodologies to achieve the required shape characteristics.

The rock used to make Hi-Lab must be of good sound quality and the final product has to meet the new Ethylene Glycol Accelerated Weathering test.

Source property testing is required for every 20,000 tonnes of source material, with solid density testing requiring two results before construction as well as ongoing testing. This is one of the areas that could change with the specification update – the AQA is expecting an increase in frequency here.

A quarry will also need to demonstrate supplies comply with Repeated Load Triaxial testing carried out on NZTA M/4 AP40 from the same representative source rock.

AQA members can source the Technical Committee's guidance on Hi-Lab (and similar guidance on asphalt supplies) on the AQA website. It will be updated as soon as the revised specification is published. **AQA**



Good quality crushed angular stone is among the things needed for Hi-Lab supply.

Time to book for Christchurch

The Christchurch venue is first class and a lively programme is shaping up for QuarryNZ 2023 – so now might be a good time to book your airfares and accommodation.

AQA CEO Wayne Scott says a recent television news item about extortionate airfares confirmed what he is finding as a regular traveller.

"If you book many months ahead, you'll save a fortune on trying to book closer to departure; not only that, if you leave it too late, you risk missing out on flights altogether."

A quick look at the Air New Zealand website confirms that booking fully flexible (and refundable) airfares now for the July 5-7 conference makes sense.

Return airfares to Christchurch in early July from Auckland, Hamilton and Wellington are all available, fully flexi, for around \$300; even from smaller centres like New Plymouth and Napier you can book for under \$400.

Wayne says those fares may well double if you leave bookings until autumn.

"I'd rather that quarry owners and managers use the savings from advance fares and bring more of their staff. They'll get as much out of the conference as the boss."

The venue is Te Pae, Christchurch's magnificent new convention centre, located on the banks of the Avon River and a stone's throw away from the bars and restaurants of Oxford Terrace.

QuarryNZ conference organiser Melissa Bahler also recommends people book their accommodation now. She says deals have been negotiated with five hotels all within an easy walk of the conference venue. Any bookings can be cancelled without loss until a few days prior.

Early Bird registration for the conference will open in late January.

Melissa says she's already getting strong trade interest with nearly 100 booths available – the most ever for a QuarryNZ conference.

The draft programme for the conference is now online.

Day one on Wednesday July 5th sees the AQA and IOQNZ

A quick look at the Air New Zealand website confirms that booking fully flexible (and refundable) airfares now for the July 5-7 conference makes sense.

AGMs in the early afternoon with some spare time to follow before the opening night drinks and dinner at the conference centre.

Christchurch's new mayor Phil Mager, who until recently was himself a quarry owner, will open the conference at the dinner.

Day 2 will feature addresses from Australia's new Institute of Quarrying President Duncan Harris and another from Jim O'Brien who is convenor of the Global Aggregates Information Network.

GAIN is holding its own conference in Queenstown immediately prior to QuarryNZ and 20 or more international delegates are expected to flow on to the Christchurch meeting.

Thursday afternoon will feature a field trip to Canterbury quarries before the famous Happy Hour (or two) event takes place.

This leaves you a free night to wander around Christchurch's CBD and see how the rebuild is progressing after the devastating 2010/11 earthquakes.

On Friday, there are dual technical and Health & Safety streams available with international speakers in both. The afternoon focuses on an update on Government policy issues and then an election year panel discussion by various party representatives – National's Energy & Resources spokesman Stuart Smith has already confirmed.

The awards night dinner concludes the conference. **AQA**



Christchurch Conference centre – Te Pae, a magnificent new venue for QuarryNZ 2023.

AQA Technical update

Hi-Lab B10 Draft Specification

- Version 8 of the Hi-Lab Specification has been out for consultation. The AQA Technical Committee has provided thorough feedback to Waka Kotahi to consider.
- Any changes that come from the latest version of the Hi-Lab Specification will be relayed in an updated note from AQA to members.

Future Roads Conference

- AQA was well represented at the recent Future Roads conference in Hamilton.
- A panel on materials for sustainable roads looked at recycled aggregate challenges and opportunities as well as drivers for changing behaviours in production of virgin aggregates.
- The Materials Focus section discussed concrete roads from an Australian/New Zealand context and gave attendees an overview of the challenges faced when supplying a premium aggregate (in a Drury Quarry case study), noting the importance of managing the whole resource, not just “the best blue at the bottom”.

M/4 Specification Review

- AQA Technical Committee members continue to work with Waka Kotahi on this update to the M/4 specification and notes.
- The next meeting is mid-November following the AQA Technical Committee meeting.

Enhanced Rock Weathering

- Waikato University has been awarded \$1 million from MBIE’s Endeavour Fund to further investigate the potential for accelerating rock weathering in permanent pasture, with the goal of increasing carbon capture rates and contributing to carbon neutrality in farming.
- The focus of the research will be on finely ground dunite and basalt in the Waikato and Bay of Plenty Regions.
- AgResearch last year were performing a desktop study along similar lines and said that a field trial would be necessary to prove the theory. This Waikato University trial will be the first ever large-scale field trial of enhanced rock weathering.
- AQA will keep a watching brief. **AQA**

AQA works for the quarry industry – join us today

0800 469 272 | 021 944 336 | wayne@aqa.org.nz | www.aqa.org.nz

AGGREGATE & QUARRY ASSOCIATION OF NZ

Supporting New Zealand from the ground up

aqa

AQA Board

Chair

Jayden Ellis
Stevenson Aggregates

Tim Hazell
Winstone Aggregates

Ian Wallace
Winstone Aggregates

Deputy Chair

Mike Higgins
J Swap Contractors

Tony Hunter
Blackhead Quarries

Peter Walsh
Fulton Hogan

Brian Roche
Ravensdown

Technical Committee

Chair

Clare Dring
Fulton Hogan

Greg Arnold
Road Science

Jayden Ellis
Stevenson Aggregates

Paul Donoghue
Concrete NZ

Stacy Goldsworthy
Civil Contractors

David Morgan
Winstone Aggregates

Cobus van Vuuren
Aggresmith

Aggregate & Quarry

Association of NZ

PO Box 10668
Ground floor 93 The Terrace
Wellington 6143
0800 469 272

Chief Executive Wayne Scott
wayne@aqa.org.nz
021 944 336

www.aqa.org.nz

aqa