

Staying ahead of the shocks

Not long before I was born, American futurist Alvin Toffler wrote a book which, in short, said it was not looming change we humans would find difficult but the pace of change.

In recent weeks we've seen the worst European war since WW2, Australia hit by one in a thousand-year floods and Omicron sweeping its way across our workforce and families.

That's certainly in line with Toffler's *Future Shock*.

I just wish a bit of this speed of change would rub off on some of our government officials. The review of mining and surface mining (including quarry) regulations was promised in 2013. Nine long years we've been waiting across successive governments.

Meantime, even Environment Minister David Parker is publicly voicing frustration that the revised wetland regulations he said would be with industry in draft by Christmas, are yet to emerge.

The longer it takes, the more likely it will impact on supply like that which I helped manage at Drury; land ear-marked for expansion sits idle while the new pathway for consenting grinds through the hoops.

Auckland is not the only region where the supply/demand ratio for aggregate is, at best, finely honed. Our colleagues in the Waikato help supply Auckland and much of the central North Island. With the infrastructure boom starting to be felt, every tonne of quarry production is going to be needed.

I'm pleased to see the profile of AQA

Technical Adviser Mike Chilton (page 42). As a techie myself, I believe our industry can only progress if we have the best technical information and data. Mike has led this for our industry for seven great years. No-one can afford to miss his regular updates (see page 45).

Mike's QuarryNZ Conference presentations are also one of its highlights and now we are firmly into autumn, it's time to register for our mid-July Taranaki event. We should be through Omicron's worst by then; registration and accommodation are refundable if not.

It's also time to consider if you might enter the 2022 Mimico Environment & Community Award. We all mutter about not getting enough credit for our industry so here's an easy one-page way to showcase what you are doing at your quarry.

Equally, you could be hosting a local school as part of this year's Rock our Future competition. We hosted at Drury a group of pupils from a nearby school last year and they were a delight; not only that, they took out prizes.

I'd like to acknowledge the new chair of our sister organisation, Straterra. I sit on its Board with Alison Paul from OceanaGold and believe she'll provide sound and strategic leadership in replacing as Chair Brent Francis, who we are retaining on the Board.

The AQA continues to be based at the Straterra office, while operating entirely independently. We consistently see real benefit from being set up in that office; as well as sharing the resources



Jayden Ellis.

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of some talented staff, we benefit from the discussions, shared thinking and stimulation that comes from being based within a stone's throw of Parliament, government departments and many other national organisations.

We now also host the NZ Limestone Producers Association and it's great to see one of our oldest limestone companies, Parkside Quarries, featured in this edition of Aggregate News (page 43).

Quarrying has been going on at Parkside since well before WW1; a signal perhaps that we can all survive the shocks and ensure our futures if we take change in our stride.

Hope to see you in New Plymouth.

Jayden Ellis
Chair, AQA



Filling this 40 metre deep pit is just one of the many challenges being faced as part of the Kiwi Point quarry remediation.

Complex Kiwi Point rehabilitation

You can't miss Kiwi Point. Whether you fly into Wellington and look down or drive just a few kilometres north and look left near the summit of Ngauranga Gorge (a.k.a SH1), it's unmistakably a quarry. Except it's recently become much more, and quarry production is now secondary to an array of other requirements in this unique urban location.

A JV of Paeroa-based quarry company HG Leach and waste management/civil contracting specialist Leach & Co took on Kiwi Point last June after Holcim relinquished the lease from owners, Wellington City Council, after over a dozen years of operating the site.

Eric Souchon is the JV's principal and is regularly at the quarry from his Paeroa base. He says the 14-hectare site, 10 kilometres from Wellington's CBD, presents a complex mix of challenges.

"It's in the middle of a residential area, State Highway One sits on one side, a meat works on the other and the Wellington Airport flight path goes over the top."

The council's requirements are to develop the site to handle recycled concrete and asphalt, rehabilitate the existing quarry – including filling a 40 metre deep pit – continue residual quarrying on the existing northern face and complete assessment of the viability of extraction from the southern face.

Eric says even with the skills within the JV, wider recycling expertise was required so Leach Kiwi Point is working with Rotomara Holdings, owned by Peter Fredericsen who used to own Material Processing, a pioneer in recycling.

The JV is on-target to process for sale about 50-70,000 tonnes of recycled concrete and asphalt in the year to June.

Small-scale aggregate production – 50,000 -70,000 tonne per annum – is also continuing as Kiwi Point's northern face and environs are tidied up. At its peak, Kiwi Point

was producing around 300,000 tonnes a year and is one of Wellington's three big quarries along with Horokiwi and Belmont.

Within a couple of months, attention will turn to backfilling the pit with cleanfill. It will take 600-700,000 tonnes.

When that is filled, Wellington City Council wants the area developed as commercial/industrial land. Flat ground in the city is at a premium and the area will cover a couple of precious hectares.

Meanwhile, the Wellington City Council is engaging Drill Force to drill additional holes on the southern face to help confirm and verify the extent and quality of the greywacke resource. Considerable work has already been done but given the proximity to SH1 and local residences, the Council wants all possible information before it considers whether to proceed with a consenting process.

When initially lodged six years ago, for a district plan change to include additional area to already consented area, the resource was estimated at around 5.8 million tonnes.

Eric Souchon says the council is providing a lot of goodwill and cooperation to the JV and there has been good progress.

The industry veteran of nearly 40 years including a term as AQA chair, says there are a lot of moving parts.

"This is one of the most challenging projects I've been involved in but great to see everyone coming together and making this work for Wellington." **AQA**

An hour's intro turns into a quarrying career

Mike Chilton's training to become the AQA's Technical Adviser started with an hour-long session on quarrying during the then Sydney-sider's four-year degree in mining engineering at the University of New South Wales.

These days, he regards himself as the AQA's Help Desk to assist members with any kind of technical issue.

Over the past 20+ years, he's developed a vast set of technical skills and knowledge on quarrying which would put his former tutors to shame.

"Quarrying was definitely looked down on. It was portrayed as the poor, dirty cousin of mining," Mike recalls.

He didn't fancy coal mining as a career and two summer holiday stints in a copper and gold mine in remote Queensland didn't set his wheels spinning for fly-in fly-out operations.

Luckily, he met Susannah during his studies, who was in Sydney doing a dental degree and after getting married in 2003, they returned to her hometown of Palmerston North at the end of 2004.

Apart from a brief stint in Sydney as an engineering consultant and his summer holiday work, Mike was without any extractive industry experience.

He was grateful to be taken on by Infracon as a graduate engineer which had several alluvial and hardrock quarries across Manawatu/Tararua/Hawke's Bay.

Mike stayed seven years and honed his skills, planning quarries, overseeing materials testing and helping the aggregates manager (Alan Brownell).

In 2012, he was offered a job at Higgins Aggregates by its Aggregates Manager, Cobus van Vuuren – and jumped at it.

"I really wanted to work with him. Cobus has forgotten more than what most people know about quarrying."

Cobus supported Mike to get his A Grade CoC and things went well until some management changes which saw Mike leave the company and start up his own consultancy, Aggretech.

"I'd thought I might become a consultant heading towards retirement but instead I was thrust into it at the ripe old age of 35."

He attended his first QuarryNZ conference as a consultant in 2015 and met up with some old friends he'd got to know through technical issues he'd had to get to grips with.

"People like Jayden Ellis (now AQA chair), Stacy Goldsworthy (now Technical Manager for Civil Contractors NZ) and the late Bill Bourke, then the AQA Technical Adviser."

After the conference, then AQA CEO Roger Parton rang Mike and advised Bill Bourke was in failing health



Mike Chilton with his wife Susannah at the 2019 AQA 50th anniversary event.

and would he be interested in taking on the Technical Adviser's role?

"That was a great blessing," says Mike, underscoring his strong Christian convictions.

"It gave me fixed work each month and access to quarry clients."

Mike threw himself into the new role working with the AQA Technical Committee and sitting in on critical industry issues like new M/4 basecourse specifications, the Sand Grading Exponent, Ethylene Glycol tests and pavement durability.

Added to that he handles a lot on technical inquiries from AQA members on issues like how to bring together production figures, reviews of quarry resources and meeting WorkSafe requirements.

"It's kind of a technical help desk."

Most of those he helps are small to medium-sized quarries which feel a bit over-run and need assistance.

"Things like dealing with the neighbours on noise, dust or trucking issues."

If Mike can provide some initial advice, that's all part of what the AQA provides to members.

In cases where more detailed assessment and advice are required, he can help through Aggretech or via referral to a specialist such as a geotechnical engineer or environmental consultant.

Mike juggles his work with that of Susannah who has taken over her father's dental practice – as well as sharing in the upbringing of their children Meg, 13 and Henry, 9. There's also a menagerie of animals on the lifestyle block on the outskirts of Palmerston North they share with Susannah's parents.

It's a busy life. The AQA role may only make up around 25 percent of his workload but he packs a lot into that day and a bit every week.

"I'm really pleased to work for the AQA." He says CEO Wayne Scott has 'turbo-charged' the organisation to deliver "really good work for the quarry industry."

Perhaps his former tutors from over the ditch should come and have a look. They might have to eat their words. **AQA**



Above: The Parkside lime works produces 60-70,000 tonnes a year for Otago/South Canterbury farms.

Left: Parkside encourages visitors, and its stone quarry can host a fleet.

Oamaru stone & lime business joins NZLPA



Parkside Quarries has been a part of the Oamaru community for well over a century and the family-run business sees joining the new NZ Limestone Producers Association as a well overdue step in its rich history.

Shane Toa King manages the Oamaru stone and limestone business that his grandfather Joe Mitchell had bought the rights for in 1974.

The link to Parkside goes back to 100 years earlier when in 1874 the family originally settled the farm on the outskirts of Oamaru.

By the 1860s, limestone was being quarried at various sites around North Otago to build some of New Zealand's most prominent architecturally designed buildings, many of them still lending their grandeur to Oamaru and well beyond. The current Oscar-nominated film *The Power of the Dog* was partly shot in the town.

The first stone was quarried from the current site on the Parkside farm in 1906. After he took over the rights, Joe Mitchell worked in the quarry most of his life: in fact, two quarries; the stone quarry, producing the Oamaru stone which enhances homes and buildings around the country – and the much bigger limestone quarry, which provides dried and undried lime to farms across Otago, the Mackenzie country and South Canterbury.

Shane, who grew up working his summer holidays at the quarry, worked alongside Joe at that time and later when he returned to run the business after getting a civil engineering diploma.

"Joe was still driving his bulldozer till he was 82" is now retired in Oamaru but there's still several members of the family involved in the business including Shane's brother Dustin, and his aunty Judy. He hopes his 15-year-old son,

Harry, a sixth generation of the family, might be too. "He's showing all the right signs."

Judy Mitchell-Oats is the public face for the business, managing the visitors which the quarry encourages to view an operating quarry and small collection of vintage dozers and tractors. That extended to hosting Oamaru Intermediate last year which saw pupil Olivia Morriss winning one of the prizes in the 2021 Rock our Future school competition (see AQA website for 2022 entry forms).

Until Covid struck, there was a steady stream of people wanting to see Parkside.

The stone quarry has a sheer 40m face with a CNC (Computer Numerical Control) saw cutting the finished product to client's exact design and specifications. The saw is one of the larger of the five axis CNZ saws and one of only two in Australia.

Shane says up to about 10,000 tonne of stone is cut each year, a volume that's dwarfed by the lime quarry on the opposite side of the same hill, which produces 60-70,000 tonnes.

This has remained reasonably constant despite the growth of the agricultural sector within the 200+km radius serviced by Parkside.

That's one reason for joining the new NZ Lime Producers Association, being hosted and supported by the AQA.

"We need something," says Shane. "We probably haven't been doing ourselves any favours on marketing the benefits of lime." **AQA**



PHOTO: BOP REGIONAL COUNCIL AND ANDY BELCHER, LEGEND PHOTOGRAPHY.

An aerial view of the work done by J Swap Contractors at Maketu estuary.

J Swaps leads a winner for community and environment

Waikato-based J Swap Contractors is among those recognised in a major award for restoring a Bay of Plenty estuary that included what was regarded as outstanding collaboration with local iwi and the local community.

The Association of Consulting and Engineering NZ (ACE) award was for the restoration of the Te Awa o Ngatoroirangi/Maketu estuary about 20 minutes west of Tauranga.

J Swap's civil construction arm was the lead contractor from start to finish on what Environmental Manager Dudley Clemens says was a very sensitive site.

"There was a high level of iwi, community and stakeholder interest and the tolerance for mistakes was very low," he says.

The Bay of Plenty Regional Council project involved restoring the estuary after earlier drainage to create farmland had significantly altered the flow of the Kaituna River directly out to sea; wetlands disappeared, and fish and shellfish stocks as well as water quality in the estuary plummeted.

Dudley says seven local iwi were consulted, then fishers, duck hunters with maimai in the area, farmers, boaties, barge operator and even the local Coastguard.

"The Coastguard launches its rescues from the estuary, so we had to ensure access to its boats even as we replaced their wharf."

Boat and barge access also had to be maintained for an avocado farm located on Motiti Island off the Maketu coastline.

A nearby car park also meant land-based fishers wanted constant access.

"That meant Joe Blogs turning up and driving through the construction site."

J Swap did all the primary earthworks as well as managing the project and providing the rock supplies.

Dudley says J Swap site managers Paul Baker and Sean Paterson did a stellar job managing all the issues through the 18-month project and weekly compliance meetings.

"There were no non-compliances at all."

J Swap oversaw the excavation of more than 150,000 cubic metres of earth for a new river channel.

The work included working at times below the water line, dredging, moving maimai and managing nutrients flowing from a dairy farm within the estuary's stop banks. It also extended to planting 65,000 native wetland plants with help from community volunteers.

The project was completed two years ago, five months ahead of time and on budget. It now sees more flow from the Kaituna River going through the estuary and the ecological harm being reversed.

In February, the project took out the ACE Special Award, which recognises outstanding collaboration, and engineering consultancy. The Special Award recognises outstanding collaboration leading to exceptional outcomes between J Swap Contractors, WSP, Beca, Bay of Plenty Regional Council, a range of other consultancies, and the local iwi community and residents. **AQA**

Concrete

Paul Donoghue from Firth Industries replaces James Mackechnie as the ConcreteNZ representative on the AQA Technical Committee, starting around April.

The revised TR3 Alkali Silica Reaction Guidelines were published in December with the total alkali content of normal concrete revised from 2.5kg/m³ to 2.8kg/m³. This will be helpful for producers of potentially reactive aggregates.

The new TR3 also updates the provisions covering the use of supplementary cementitious materials and test methods.

M/4

AQA's draft specification and notes have been submitted to Waka Kotahi for comment.

We have proposed two gradings each for AP40 and AP20 – a slightly tweaked version of the existing, and a finer (denser) grading option.

Research suggests the denser grading provides more rut resistance (less densification after laying) and is easier to lay (less prone to segregation) but is more susceptible to saturation.

Some investigation work will probably be needed as

to whether a denser grading is easier for the majority of quarries to produce and if there are any cost disadvantages.

Waka Kotahi is unlikely to agree to a denser grading without research as it is, on the whole, in favour of coarser, freer draining aggregates in New Zealand conditions.

As part of discussions with WK on M/4, AQA is expecting to also help update the M/3 notes which are now over 35 years old.

Sustainability of Aggregates

Almost every aspect of aggregate production and use these days involves a sustainability and environmental impact assessment. This will culminate in Waka Kotahi's Resource Efficiency Strategy.

WK is close to publishing the Life Cycle Analysis tool for pavements which will compare whole of life environmental impacts of different pavement options. In particular, it will be able to assess recycled and alternative materials against virgin aggregates.

WK is also collecting information on national aggregate supply and demand through a project with Auckland University. The report should be published soon and will feed into work done by the Infrastructure Commission. **AQA**

AQA works for the quarry industry – join us today

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

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Concrete NZ

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