

People, pavements and sustainable progress



Jayden Ellis.

Welcome to the first edition of Aggregate News for 2022.

We can only hope it's less of a roller-coaster than last year. Enduring 119 days of lockdown with my fellow Aucklanders is not something I would want to repeat again in my lifetime. But who knows?

As AQA Technical Adviser Mike Chilton notes in his commentary on production statistics (see page 38) it was actually 2020 where Covid-19 had its big impact on quarries. We were down to around eight tonnes per capita from 10 tonnes. Thankfully, things did begin to pick up in 2021 and as our CEO Wayne Scott notes, 2022 should see the start of a bumper five years for quarries as the infrastructure build starts to ramp up.

It's also interesting to see that our New Zealand sector is not alone in faring pretty well through the pandemic's impacts. Our friends across the ditch are picking demand this year could be as high as 50 percent more than 2021. (See page 39)

We won't bounce that high but I agree with Ken Slattery, CEO Cement, Concrete & Aggregates Australia that finding the staff we need will be a huge challenge.

One speed bump I'm pleased to see we are starting to address is the pavement problems such as those affecting the Waikato & Kapiti expressways a few years back. The Crossen review which came out in March 2020 saw a steering group formed – including Wayne Scott – to pick up on the report's nine recommendations. Our story on page 40 indicates that from now on we will start seeing the changes necessary to avoid the rutting and other problems affecting new state highway projects. That will be good news for every one of us who play a role from the aggregates to the asphalt (acknowledging design is a key component here too).

As the Crossen report confirmed, one reality of modern-day business is the increasing scrutiny and expectation we face in seeking to continue to produce. A topical reminder of this is the opposition to sand extraction which has been going on for decades at Pakiri beach in Northland. The operation avoids all of the usual issues of noise, dust and trucking because it's barged. The high-quality sand is desperately needed for Auckland's growth but faces a welter of opposition

even though the effects of extraction to date on the seabed and coast have been assessed as very minor.

As an organisation, the AQA has worked with MIMICO for many years to get quarries acknowledged for the work they do on improving their environments and/or relationships with their community. Entries for the 2022 MIMICO Environment & Community Award are now open – and it's a simple one pager, so if you've done some good stuff, help us showcase it.

I also hope to see many of you later in the year at the QuarryNZ Conference in New Plymouth (see page 37). It's an extra challenge to bring together our large conference in a regional centre but I'm sure Brian Bouzaid and his committee will pull out all the stops to make it another success.

Jayden Ellis, Chair, AQA



The TransDiesel dinner always caps the conference – and yes, Steve Davis is returning as MC.

Taranaki's time to turn it on



You can't move a mountain but quarry people can move themselves to the stunning backdrop of Mt Taranaki next July for the 2022 QuarryNZ Conference. Registrations opened in late January.

Melissa Bahler, who ran her first QuarryNZ Conference in Wellington last year, is back as the organiser for the New Plymouth event and says it will be as memorable a conference – with perhaps some better weather and the return of international attendees.

Brian Bouzaid, who chaired the Wellington conference committee, is back in the saddle, bringing his calm and experience to ensuring another success for the July 13-15 event.

With Covid-19 still a reality, Melissa says all conference and hotel bookings are refundable if there are lockdowns or other issues which prevent people from attending.

Many North Island people are likely to drive to New Plymouth but for those flying in, early bookings are recommended as the regional airport only enjoys a limited number of flights a day. Brian also notes New Plymouth flights can be subject to wind-related cancellations so driving there, where possible, is a good option.

The conference itself will take place at the TSB Stadium starting early afternoon on Wednesday July 13 with the AQA and IOQNZ AGMs. The opening Terra Cat dinner will be held in the Grand Auditorium of the Devon Hotel, which will also host the Friday night TransDiesel Volvo awards.

Entries for the various IOQNZ awards are due to be in by

May 31 along with those for the *Quarrying and Mining* future leaders' awards. The AQA's MIMICO Environment & Community Award entries are due by May 27 (see separate story).

There will be a full programme of speakers emerging on the QuarryNZ website in coming weeks.

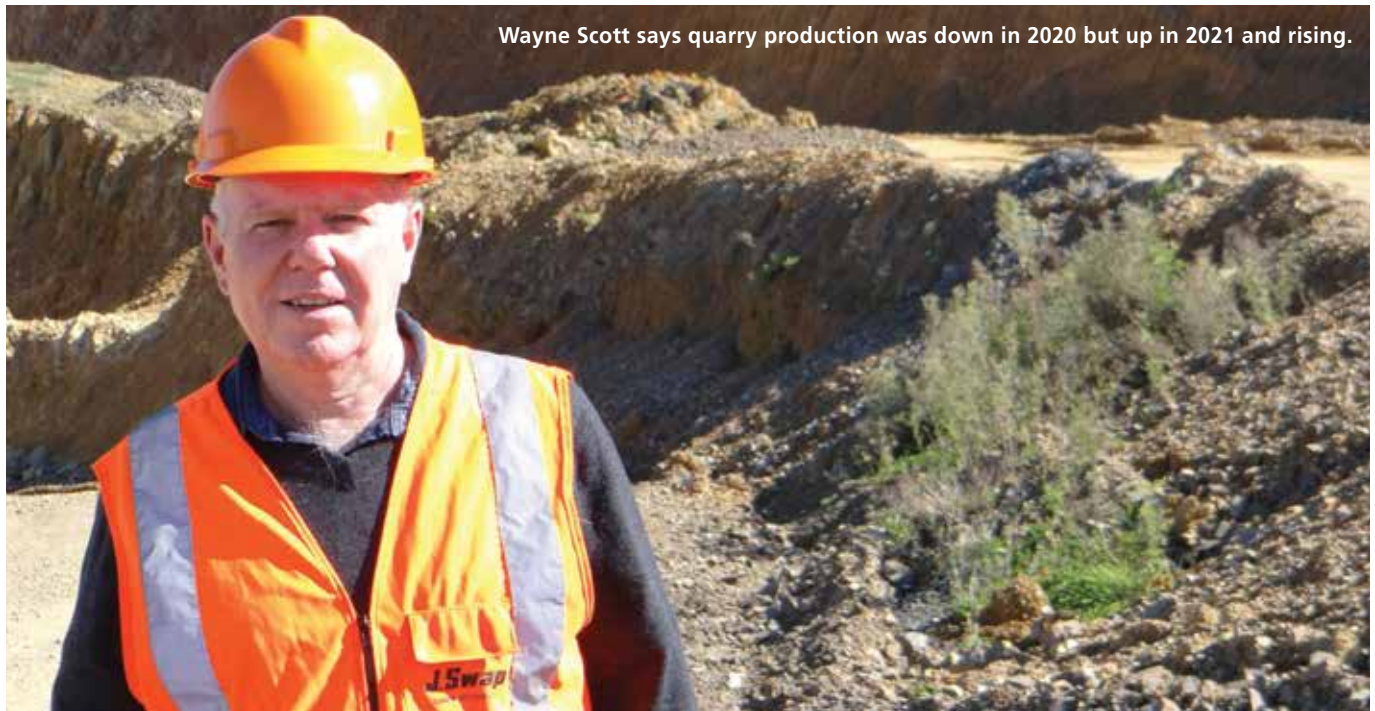
Melissa Bahler says the partners programme will include a visit to New Plymouth's stunning Len Lye Centre featuring the famous sculptor's luminous works as well as a lunch at a Taranaki winery.

She says if delegates want to come early or stay over after the conference, special deals can be arranged at the four hotels booked for the conference.

One benefit of the TSB Stadium is that it can host all events other than conference dinners and there is maximum space for exhibitors and their machinery, allowing good engagement with delegates.

AQA CEO Wayne Scott reminds those attending that as well as QuarryNZ Conference providing a full array of speakers, dinners and events, it also brings four hours restricted CPD and up to 15 hours of unrestricted CPD.

"Sometimes there are challenges hosting our growing conference in a regional centre, but Taranaki is pulling out the stops to make this a success for everyone," says Wayne. **AQA**



Wayne Scott says quarry production was down in 2020 but up in 2021 and rising.

We are all down by quite a few wheelbarrows

Quarry production dropped by nearly an estimated two tonnes per New Zealander in 2020, as Covid-19 lockdowns impacted. The drop is in line with that being reported by other countries.

The annual production statistics from NZ Petroleum & Minerals are complicated by the continuing failure of many quarries, including at least one major producer, to report what goes out the gate.

For calendar year 2020, quarries reported a total production of 34.1 million tonnes, or 6.7t/person.

AQA Technical Advisor Mike Chilton says of NZP&M's survey of 552 quarries on production, only 456 reported back – noting there are 1100 quarries nationally.

He calculates the total actual quarry production in 2020 is 8.1 tonnes per person; usually it's around 10t – or about a truckload of quarried materials (including limestone/dolomite, clay and building rock including schist) for every Kiwi.

The value of quarried materials in 2020 was \$611 million – in 2019 \$655m and \$679m in 2018 – so you can see the impact on industry financials.

Average production per quarry was down to 75,000t from 96,000t in 2019.

Of course, Covid lockdowns were the likely cause of the production losses.

New Zealand's drop in 2020 is not out of line with those reported to a meeting of GAIN – Global Aggregates Information Network – which AQA CEO Wayne Scott Zoomed into late last year. India reported an 18 percent

decline in aggregate production in 2020, Mexico 19 percent, Malaysia 40 percent, while Europe, USA and Canada all reported modest declines. China was two percent up. Most nations were reporting a better 2021 and even brighter results in 2022 as various governments' stimuli for economies to recover from Covid's impacts kicked in.

Wayne Scott says our lack of reporting makes it difficult to predict what will happen this year and beyond, though he's picking 10 percent annual increases in aggregate demand for the next five years as the Government's \$10b+ per annum infrastructure spend-up ramps up.

He notes Australia is among countries with mandatory production reporting; the AQA has recently backed the call of the NZ Infrastructure Commission – Te Waihanga – for reporting to be mandated here.

"It'd be really helpful to have more accurate data. It's just a question of how we get there."

Overseas data suggests about 40 percent of aggregate is used in roading internationally, but in NZ this had climbed to around 60 percent. However, in 2020 it dropped 4m tonnes (to 20.3m) while construction rose from 5.8m to 6.1m.

Wayne Scott expects both roading and construction use of aggregate to rise in 2022 and beyond. **AQA**

Aggregates doing well in this time of Covid-19

An early December meeting of GAIN – Global Aggregates Information Network – shows despite Covid-19 lockdowns around the world, the aggregate industry has fared well though there are concerns on wider health and safety issues.

South Africa's representatives on the GAIN Zoom noted that industry fatality numbers had unfortunately increased, probably due to Covid-related distraction and reduced training.

GAIN's convenor Jim O'Brien commented this was a global trend, requiring a new heightening of safety awareness.

The South Africans also said the Omicron variant was also impacting business, though lockdowns were being avoided. Only 35-40 percent of the South African population is vaccinated and efforts are being made to extend this.

AQA CEO Wayne Scott indicated New Zealand construction was cautiously opening up again after 119 days of lockdown in Auckland. Vaccination rates were now very high. While 2020 had seen a drop of around four percent in aggregate production, a strong upswing would likely see a 10 percent growth in 2021. The main challenges were spare parts and labour shortages, both indirectly caused through international travel and freight restrictions. The outlook for 2022 remained positive, Wayne told GAIN.

Similarly, Ken Slattery, CEO Cement, Concrete & Aggregates Australia said their economy was now doing reasonably well, thanks to vaccination rates of around 90 percent. Melbourne had experienced 270 days of lockdown, the longest anywhere, and some states were slower opening up again. Economic stimulus was now driving infrastructure; the challenge was to fill the 3-400,000 jobs being created. The next four years are anticipated to be very busy for Australia, with 2022 demand anticipated to be 120-150 percent of that of 2021.

China's aggregates output in 2021 was said to be around 20b tonnes and this was expected to decrease slightly or remain the same as 2021. The Chinese government was reported to be attaching importance to the comprehensive management of river sand extraction and ecological restoration. In parallel, natural sand is



GAIN Convenor Jim O'Brien – aggregate industries worldwide have had proved 'remarkably resilient' during Covid-19.

being increasingly replaced by manufactured sand.

Dirk Fincke from the European Union's aggregates team in Brussels said many EU countries had launched the booster vaccination and vaccination will actually become a legal obligation in some EU states. While European production had dropped heavily at the beginning of the pandemic, the 2020 final outcome was only one percent down on 2019, with modest recovery seen in 2021, while several (but not all) countries see ongoing recovery into 2022. Supply chain constraints remain a concern.

Jim O'Brien says the GAIN meeting showed surprisingly similar experiences across the globe:

- Vaccination rates were reaching high levels bringing optimism the Covid virus could be significantly contained in the coming months, despite the emergence of new variants.
- Despite lockdowns, the aggregates industry has proven itself remarkably resilient during the pandemic, the final global 2021 figure being back on a par with 2019.
- Demand is expected to increase in 2022 and beyond, driven by stimulus packages, increasing populations and infrastructural needs although the industry continued to face significant labour and parts supply issues.

Supply chain restrictions have also led to significant energy price hikes in developed economies, increasing the importance of energy, carbon and production efficiency in quarries.





Quality assurance from quarry to pavement was one key finding of the Crossen report.

Pavement improvement progress starts to emerge

Almost two years after the release of the Crossen report reviewing State Highway Pavement Delivery, various workstreams are about to start delivering recommendations to help avoid future pavement defects.

The review was published in early 2020 following pavement problems which challenged the reliability of a number of recent capital projects. These included the Waikato Expressway where rutting began to appear after sections opened in 2012 and 2013 and the Kapiti expressway where pavement issues emerged within months of it opening in 2017.

The Review, led by Civil Contractors NZ life member Lindsay Crossen concluded that *“While Waka Kotahi’s organisational systems and processes for end-to-end pavements delivery are well formulated and sound, there are a number of matters where focussed refinement and discipline would improve design, delivery and reliability confidence”*.

The report made nine recommendations and a cross industry steering group was established to prioritise and action the recommendations. AQA CEO Wayne Scott has been part of that steering group. It has taken some time to fully understand the issues raised in the Crossen Report prior to engaging with appropriate resources to work on solutions.

One finding of the Crossen report was how it is critical that Waka Kotahi get value for money in all its service delivery. A project is underway, with a report expected early in 2022, to understand the pros and cons of different procurement & delivery models in terms of

pavement performance and risks.

Quality assurance was seen as a key to ensuring reliable pavements. Waka Kotahi is finalising the role out of changes to the Z1 and Z8 quality assurance standards and a workshop of stakeholders is being planned for the first quarter of 2022 to identify areas and opportunities for improvement in the end-to-end process for pavement delivery.

The Crossen report found that generally performance requirements were not well understood across the pavement delivery stakeholders and that technical issues were not well communicated. A group has developed a new process for cross-industry communication which will streamline the process for dealing with such issues in a transparent and well-communicated way. This process will be trialled in early 2022.

A need to develop and maintain industry-wide capability to support the New Zealand Pavement Delivery System was also identified. A project team has analysed current skills and competencies, and those required across the pavement delivery system and is currently completing a capability gap analysis for action and communication across the sector.

All workstreams are now seen to be progressing at some pace with a number due to conclude in 2022 locking in significant improvements in the Pavement Service Delivery Process. **AQA**

M/4

- The AQA Technical Committee has one more meeting to decide on dense-graded basecourse options to put to Waka Kotahi
- The draft M/4 specification and commentary have been prepared apart from this section.
- Some work has been done on costing the extra testing requirements under the current proposal which would see testing costs increase by about 35 percent for the lower-class aggregates and almost double for the higher-class aggregates.
- The main cause of the increased testing cost is bringing RLT and MDD/OMC testing into the M/4 specification rather than keeping it separate.

Roading Projects Analysis

- The AQA is looking at proportional costs of roading projects and the impact of cartage distance on environmental impacts – e.g. sourcing aggregates from outside a region to obtain the specified quality.
- For example, in Victoria about 40 percent of a roading project cost is related to concrete and aggregates.
- As infrastructure becomes a key focus for NZ's future and with AQA working more closely with the Infrastructure Commission, it's important to have some key metrics such as proportion of project cost that is aggregate-related is important.

Asbestos in Recycled Crushed Concrete (RCC)

- WorkSafe has been made aware of a couple of instances where asbestos product has made its way into recycled concrete that has been delivered to site as roading aggregate.
- At this stage it appears that the asbestos was fragments of asbestos-containing sheeting.
- The selling of asbestos contaminated product could find the supplier liable for breaches of the asbestos

regulations and liable for clean-up and disposal costs, so it is important that those involved in recycling concrete have good quality control to avoid contamination.

Concrete News

- Concrete production is running high around the country with material shortages starting to affect the market – reinforcing, specialist chemicals, fibres, pigments, etc. This is exacerbated by large infrastructure projects ongoing in the Auckland region with potentially several more nationally in 2022 and 2023.
- The revised TR3 Alkali Silica Reaction Guidelines was due to be published in December with the total alkali content revised from 2.5kg/m³ to 2.8kg/m³. This will be helpful for producers of potentially reactive aggregates.
- James Mackechnie has concluded representing ConcreteNZ representative on the AQA Technical Committee, as he heads back to Allied Concrete for 2022. James has been very helpful and proactive in sharing technical information from the concrete industry.

Dense Basecourse

- One of the technical concerns raised during the State Highway Pavement Delivery Review conducted by Waka Kotahi was the potential for reduced rutting using dense graded basecourse.
- The AQA Technical Committee agreed this investigation was worth committing resources to, particularly to research production capability & methods and any changes in placement.
- AQA will be looking more closely at research conducted in NZ at CAPTIF as well as Australian research on denser graded basecourses (acknowledging the different raw materials and climatic conditions).
- To this end, AQA will be sending the drafted M/4 specification to NZTA including comments on denser graded aggregate options to be investigated. **AQA**

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