



## Strategy for us all to embrace

Ahead of our first meeting of the year in February, the AQA Board met and worked to develop our organisation's first strategic plan in several years.

We've embarked on some big and bold changes within the AQA in the last six months – a new Chief Executive, shared offices/resources with MinEx and Straterra, creating a new Planning Committee, engagement with Government Ministers to name just a few.

So, it had become important given, that even with improved efficiencies, we only have limited resources and we need to be as targeted as possible.

Our Strategic Plan, covering 2019-24, represents the thoughts of the Board and Chief Executive on where we should be focusing our energies.

It is, however, only a draft; we don't pretend to have a monopoly on wisdom that exists across our sector. We are open to your feedback as valued AQA members and key stakeholders.

Please look at the draft Strategy Plan available on the AQA website or ask for a copy – [office@aqa.org.nz](mailto:office@aqa.org.nz). We'd welcome your thoughts.

I think you as members have seen a lift in deliverables since Wayne took charge. As just one example, look at our story on page 37 about the AQA/GNS application to the Provincial Growth Fund to complete a national survey on aggregate resources. This has come about because Wayne rapidly picked up on comments at a meeting we had with Infrastructure/Regional Development Minister Shane Jones.

I'm hearing broad industry support for Wayne and for harnessing efficiencies between Straterra and MinEx.

Wayne also continues to lead our industry's focus on improving health and safety in his joint role as MinEx CEO.

His 20 regional workshops are well underway and it's good to see WorkSafe providing an extractives inspector at each meeting.

See one inspector's story on page 39. Also have a look at the revamped MIMICO award, where entries close at the end of May.

While we are getting some early results, there's a lot of work to do in our sector. Not least, calling a halt to any wider use of the new measure of M/4 until we've had research which confirms this addition is actually necessary." See story explaining SGE and our response on page 40.)

I'd hope we will see some outcomes here by the time we gather for our annual QuarryNZ conference in Invercargill in July. The jam-packed programme is a credit to the local organisers and registrations are now open. [www.ivvy.com.au/event/CNTGWQ/](http://www.ivvy.com.au/event/CNTGWQ/)

We've also got our 50th anniversary celebration in October and the Rock Our Future schools project to help mark that.

As much as we are lifting our game at AQA, we need you to come on board and assist with such things as helping a local school to see what a quarry does so they can complete their project.

That's all part of an industry-wide strategy we need to embrace, site by site, member by member.

Let's all stick our hands up.



**Jared Johnston.**

**Jared Johnston**  
Chair, AQA

# Wharf project may be a bridge too

A meeting the AQA had last year with Shane Jones, Minister for Regional Development and Infrastructure, has kick-started a chain of events that may provide a bridge into some long-term gains for the aggregate industry.

In the October meeting with AQA chair Jared Johnston and Chief Executive Wayne Scott, Shane Jones raised issues his Provincial Growth Fund (PGF) was having with development of wharf and harbour facilities at Opotiki.

This wharf is largely needed to support an emerging new industry of greenshell mussel production, with major marine farms underway off the Bay of Plenty town's coastline.

Minister Jones indicated that a blow-out in the cost of the wharf to \$140 million was in some measure due to the high cost of aggregates included in wharf estimates.

Wayne Scott promised to look into it and asked AQA Technical Advisor Mike Chilton to visit the Bay of Plenty area and review potential sources of supply.

Mike worked collaboratively with the Crown science agency GNS and they identified six additional potential sources of supply, with one site allowing the material to be extracted as part of much-needed road widening.

The AQA and GNS provided a report to Opotiki District Council identifying the potential sources of aggregate for the project, with considerable cost savings likely for the wharf project and other aggregate users.

Wayne Scott was meantime in contact with GNS to work on developing a proposal for the Provincial Growth Fund to support a stalled (through lack of funding) GNS project to complete a national survey of aggregate material.

It would appear that the very rapid progress at Opotiki has not gone unnoticed. Discussions are progressing on the national survey and will hopefully deliver funding for a detailed aggregates study, delivering real value to the regions.

He says its pleasing that the AQA's advocacy on issues is starting to be heard.

"The problems faced with rock and aggregate supply highlighted in the Opotiki project are nothing more than an illustration of our long-standing campaign to have local resources identified and planned for use.

"We've been able to move quickly and hopefully show the value to one project but there are hundreds of such bridges into the future to be had by Government, councils, businesses and families if we can ensure ongoing access to proximate aggregate resources."



Shane Hagai and Rex Davis at the MIMICO 2017 awards.

## MIMICO award restructure

Changes have been made for this year's MIMICO award.

AQA Chief Executive Wayne Scott says he talked to MIMICO and there was agreement that a re-refresh was needed of the structure and presentation of the awards which have been running since 2000.

In fact, there is now going to be just one award, replacing the previous Gold, Silver and Bronze categories. The MIMICO Environment & Community Award will recognise the successful applicant's achievements in caring for the environment and/or a community. The award will carry a \$3000 prize.

All entries will receive exposure through media promotion and extensive coverage during the QuarryNZ Conference.

Entries remain simple; an outline of your achievement needs to be provided, signed by the General Manager or CEO of the company. Judging continues to be done by the former Parliamentary Commissioner for the Environment, Dr Morgan Williams, who will visit your site.

All entries must be received by Friday May 31 at [office@aqa.org.nz](mailto:office@aqa.org.nz) or see [www.aqa.org.nz](http://www.aqa.org.nz)

## Q&M magazine is looking for tomorrow's leaders

The other AQA endorsed award is the Q&M magazine's Tomorrow's Leaders. These awards recognise up to three young workers (working for AQA members) showing promise as future leaders.

Each award is worth \$1000.

If you have a promising worker you would like to nominate – then please contact the editor Alan Titchall, 027 405 0338, [alan@contrafed.co.nz](mailto:alan@contrafed.co.nz). The winners of these two awards will be announced at the QuarryNZ Conference July 17-19. BTW, registrations for the Invercargill conference are now open.

# Support your local school

How many times are we called on to support our local schools? Well, now we have the chance to support ourselves and our own industry as well as helping a school in your area.

As part of its 50th anniversary celebrations the AQA is running a school project competition. **Rock our Future** is pitched at children in the last four years of primary school.

It came about after a conversation between AQA Chief Executive Wayne Scott and his daughter – Sarah – who is a primary school teacher in New South Wales.

She commented to Wayne that there are many industry-focused projects for schools to take part in but she'd seen nothing for the quarrying sector.

With her guidance, Wayne developed the Rock our Future competition.

"As part of our commitment to community engagement, we need to get kids into quarries. Every time this happens, it opens up a whole new appreciation of our industry – not just for the children, but their teachers and their families," says Wayne.

"That's simply the best way to engage and get our story across.

"We all know that many kids love machinery. So, we are asking you as AQA members to support any local school that wants to get involved in Rock our Future.

"They'll need to visit and engage with a local quarry to further their understanding of what we do and plan their entries."

The competition has a future focus. Children across years 5-8 (broadly 8-12 year olds) are being asked to design a quarry that crushes and loads aggregate without using fossil fuel.

Already, just about every primary teacher in the country has received a publication including a two-page outline – **The Importance of Quarrying Aggregate**.

This guides teachers into the issues around quarrying – how we all depend on aggregate, the challenges faced in securing on going supplies, how quarries can become



**Rock our Future** needs the support of quarries to help school children learn about our industry.

rehabilitated into public resources at the end of their working life.

There are links to video clips of former quarries including Waikato's Waitakaruru Aboretum sculpture park and Halswell Quarry park in Christchurch. There are also Canadian and Australian explanatory videos as well as links to AQA material.

Four prizes of \$1000 go to each school which wins in any of the four year by year categories with a lesser prize for winning students.

These will all be announced at a dinner in Christchurch in October marking the AQA jubilee.

"The big winners here, however, will be local quarries who get behind this project," says Wayne.

"Today's school student is tomorrow's worker or community leader. As we get interest from schools, I want to be able to call upon quarries in every region to help host and support Rock our Future. It's our future that's at stake here." **AQA**



# No doubting this inspector's pedigree

**Maria Baker grew up in quarries and as a qualified and experienced A Grade quarry manager, could easily have followed her Quarry Manager father Ross and civil engineer brother Paul into a career in extractives; instead she's using her background and qualifications to help ensure quarries keep their workers safe.**

Maria is one of WorkSafe's eight extractives sector inspectors and the only quarry inspector based in the South Island.

At a recent MinEx forum in Blenheim, she shared her approach and philosophy.

In little over a year, Maria has been to over 100 sites from her base in Canterbury, including a recent trip to Southland where 18 sites were visited. There are 650 notified quarry sites in the South Island and on top of that there are also a number of quarries which are not notified but were identified by a WorkSafe survey a couple of years ago.

"We sometimes turn up at sites and they say, 'Jeez, how did you find us?'"

One of her colleagues reached a site after crossing a couple of rivers – the owner was astounded.

"It's the little ones with one or two people we are really trying to get to. We haven't been to every site yet but we will get there."

She says sometimes operators are waiting for a visit – before they act.

"A lot of guys say, 'we were waiting for you'.

"We try to work with these operators to ensure they are running a safe operation and often they welcome it when we have to temporarily stop operations so they have the time to get up to speed instead of constantly worrying about production."

"Of course, the best thing to do from a worker health and safety perspective is get ahead of things, reducing the risk of an accident and the resulting stress of an injured worker.

"Talk to us. We are not that scary."

MinEx Chief Executive Wayne Scott notes that in spite of 10,000 accidents or incidents reported to WorkSafe last year, only 80 prosecutions ensued. Yet he knows of cases where inspectors turn up and are told to f-off – which is not only inappropriate but not allowed under law.

While most of the focus is on accidents and how to avoid them, Maria notes that 10 times more people die from workplace illnesses than injuries. Key health risks in the extractive sector include fatigue, dust and sun exposure.

Maria acknowledges ours is an industry where long hours are worked with big production and demand issues.

"It's looking at how you manage that workload."

A recent WorkSafe prosecution saw a rural contracting company ordered to pay \$80,000 in reparations to the family of a young man who crashed his tractor and died after working 200 hours in a fortnight.

Maria says WorkSafe seeks to have companies establish good feedback loops that involve workers and encourages them to speak up rather than just filling out paperwork.

"They [your workers] are going to give you the best information."

She urges people to use the appropriate gear such as respirators when handling hazardous substances.

"I get a little bit sad going to sites and seeing respirators hanging on a hook with paint on them."

For Maria, it's about ensuring people



**Maria Baker extractive sector inspector.**

*While most of the focus is on accidents and how to avoid them, Maria notes that 10 times more people die from workplace illnesses than injuries.*

*Key health risks in the extractive sector include fatigue, dust and sun exposure.*

go home safe.

"If you can't meet what's required, you shouldn't be operating."

Taking practicable steps to avoid injuries doesn't mean doing what you think, but doing what the Health and Safety at Work Act requires. And ignorance is no defence.

With father Ross still managing the Horokiwi Quarries in Wellington and brother Paul a senior manager for J Swap Contractors, you can imagine what gets discussed when the family gets together.

"Mum gets a bit sick of our chats about quarrying."

It would seem pretty hard to throw rocks at Maria's pedigree and commitment to the sector. **AQA**

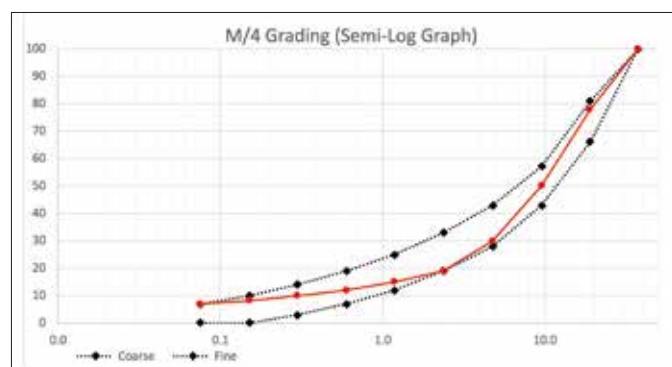
## A line in the sand

The AQA has taken a public stance against the NZTA's introduction of a new test for M/4 basecourse – the Sand Grading Exponent, SGE. In this expanded AQA Technical Report we explain how SGE is calculated – and what it could mean for our industry ...

Back in 2011, a research report for NZTA looked at premature failure of unbound pavements, collected a dataset of problem basecourses and subbases and looked for common issues, mainly identified as basecourses with a long-term high degree of saturation. (When moisture takes over all the air voids.)

The basecourses most likely to be saturated were those with a gap grading in the sand fraction. A gap grading means some of the particle sizes are missing or lower than they should be, which lets a basecourse pack down more easily and lose its air voids.

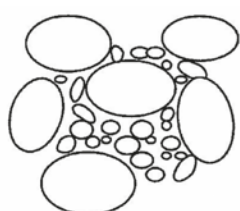
On a test report, a gap grading looks like the grading curve that has a kink in it, instead of being smooth (see picture below).



Example of gap graded particle size distribution – note the change from coarse to fine. This material is lacking fine sand but passes M/4.



Example of a Well-Graded Aggregates



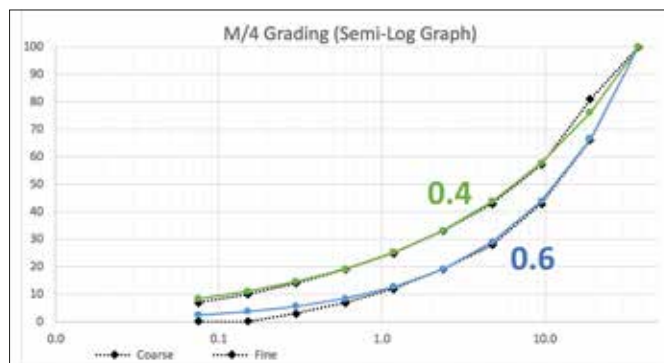
Example of a Gap-Graded Aggregates

In terms of aggregate sizes, the illustration above from *The Aggregates Handbook* shows the gap-graded example will be less stable and less desirable than the well-graded one.

The research calculated which sand grading curve shapes were most risky using their exponents.

Exponents are the number of times you multiply a number or calculation (raising to the power of...).

For example, 2 exponent 3 is  $2^3 = 8$ . If you look at it in terms of our M/4 grading limits in the next graph, you can see that the fine side closely follows an exponent of 0.4 and the coarse side closely follows 0.6. If your basecourse had a constant exponent of 0.5 you'd be very happy!



The M/3 Notes for subbase from 1986 talk about exponent limits on grading of 0.4 and 0.7 so this is not a new concept, just looking at the sand fraction (<4.75mm) more critically.

The 2011 research report also included recommended changes to M/3 and M/4 to include the SGE calculation. NZTA held off a requirement of passing the SGE until 2017 when it was introduced in the guide used for the rehabilitation of state highways, the Rehab Guide.

In 2018, Auckland Transport picked up the SGE and inserted it into their contract for the AMETI Eastern Busway contract.

### So what is SGE?

- It's a calculation of the grading shape exponent in the sand fraction of a basecourse
- It's free to work out – you just need to do some maths
- There are 4 calculations done on the sand fraction and the average of the lowest two is taken

Sieve size (mm)	%Passing	Critical Range	Grading Exponent
4.75	44	4.75 mm - 0.30mm	0.41
2.36	33	2.36 mm - 0.15 mm	0.43
1.18	25	1.18 mm - 0.15 mm	0.44
0.6	19	0.60 mm - 0.15 mm	0.46
0.3	14	Ave. of 2 Lowest Exp.	Pass/Fail
0.15	10	0.42	Pass

- According to the research, if your SGE result is less than 0.4, that flags that you might have a poor performing basecourse and you need to do something about it

For one major quarrying company, 26% of M/4 fails the SGE test when it would otherwise pass M/4. AQA believes this will be a good indicator of the non-compliance around the country and the scale of the issue if SGE becomes more widespread.

While it's not an instant fail, just a flag – you have to get a Repeated Load Triaxial (RLT) test done to show your material is acceptable, costing \$1000-\$1500 and taking some weeks.



The AQA Technical Advisory Group, which includes AQA Technical Adviser Mike Chilton, has been trying to get NZTA to listen to increasing industry concerns about the weight put on one research report. In January, AQA Chief Executive Wayne Scott took the issue public, saying the additional SGE requirements for M/4 basecourse were over the top and if put in place would blow out the cost of road building if adopted more widely.

NZTA's response was that *"additional checks' have been in place since mid-2017 for material used in key freight roads and we have consulted with industry on this issue."*

The NZTA confirmed the checks... *"have been introduced in response to research showing that where basecourse aggregate doesn't conform to necessary shape requirements it may cause a failure in the pavement."*

Wayne Scott says one report done eight years ago is not a sufficient basis to embark on potentially wide-ranging new requirements to the quarry sector.

"There were enough questions left unanswered in the research to mean that SGE wasn't adopted into mainstream M/4 basecourse specification at the time, only put into the Rehab Guide years later.

"Now, Auckland Transport has put SGE in a roading project specification. Very likely it will then be copied into the next spec, then the next and become very widespread.

"The NZTA says this is not its fault, but the agency is the leader in our pavement design, and everyone tends to follow suit."

Wayne Scott adds that the agency appears annoyed because he's saying it didn't listen to industry.

"They did actually listen to us, but ignored that we were against SGE and kept it in the Rehab Guide.

"Now it's poised to go wider and we want to see some research like RLT versus SGE that confirms it's necessary.

"Otherwise quarries are facing a lot of unwarranted expense and many may simply stop producing M/4." **AQA**



**Mike Chilton.**



**Wayne Scott.**

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