

13 November 2024

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Tēnā koe Minister Bishop

## **FOLLOW-UP TO OUR MEETING ON 10 OCTOBER 2024**

Thank you for meeting with us on Thursday 10 October 2024. We really appreciate the insightful discussion with you, Andy Hagan from the Infrastructure Commission and Hannah Ouellet from your office regarding increasing infrastructure productivity, the long-term engineering skill shortages and AI.

This letter expands on some of the points we discussed in relation to the things we are seeing and hearing from our members about the challenges with the current environment and what could help optimise the next phase of the Government's reforms. The top priorities we raised with you were the need to rapidly use your levers to advance the Government's infrastructure work, and we welcome your desire to discuss addressing the funding and management of standards with Minister Bayly and discussing incentivising universities to prioritise the training of engineers with Minister Simmonds. This letter also provides the additional information you requested.

### **Engineering New Zealand's Role**

Engineering New Zealand, as both a membership and regulatory organisation, is an active participant in the infrastructure system, including via our learning partnerships, programmes of work with MBIE and NZTA, advocacy, and technical practice advice. Our members and technical groups also bring expertise to many government forums on a volunteer basis. We welcome the chance to have an increased role in helping address the key infrastructure issues we are facing.

You asked about our regulatory role. Engineering New Zealand is the Registration Authority under the Chartered Professional Engineers New Zealand Act 2002. This means we maintain the Register of Chartered Professional Engineers and manage applications and assessments. A Chartered Professional Engineer is an experienced engineer who has been assessed as meeting a quality mark of competence. It shows the engineer can deal with complex engineering problems requiring expert technical knowledge.

## **Increasing infrastructure productivity**

We acknowledge the work the Government is doing to improve the planning and delivery of infrastructure, such as the moves to secure bi-partisan support for infrastructure and development of the 30-year National Infrastructure Plan.

### *Systemic opportunities*

We talked about the benefits of the Government considering the following initiatives:

- Standard contracts: The use of standard contracts for both design and building and civil engineering construction (NZS 3910:2023) - without special conditions.
- Increased direction from Government: A long-term infrastructure vision and funding horizon, as well as empowering Departments to make decisions, getting work to market quicker and using longer contracts to give greater certainty to industry. There are also options for procurement guidance and a library of exemplar contracts.
- Government Departments being a more informed and smarter client, including:
  - bringing in technical experts early and at the decision-making table
  - better quality scoping of projects, including more realistic upfront project estimates and assumptions
  - more appropriate assessment/sharing of risk
  - reliable and knowledgeable procurement and project teams, that undertake due diligence
  - pre-approval and bundling to create an even flow of work.

### *Accountability tools*

During our meeting on 10 October, we discussed the possibility of using existing accountability tools to assist Crown entities and Departments address improvement opportunities. The tools mentioned were Letters of Expectations to Departments (including the new Infrastructure Agency), Crown Entity Statement of Performance Expectations and further monitoring of expenditure and performance.

We also suggested the Government adding infrastructure targets to the Quarter 1 Action Plan, particularly around the amount of Government projects that make it to market in certain sectors. This would be welcomed by the industry to give them more certainty.

### *Standards*

You mentioned you would be interested in learning more about the outdated Standards New Zealand processes and the consequences of this. Here is a summary of the key points:

- New Zealand is suffering from a lack of investment and inefficiencies within the Standard system, with outdated (or non-existent) standards creating risk for design and manufacture.
- Updating these standards is expensive, and funding is limited, with only a small proportion of the building levy used on standards. We understand the levy funding only covers Standards New Zealand costs, with technical expert input expected to be on a volunteer basis. This leaves updates unplanned, ad hoc and often - dependent on private funding, which is not readily available or risks industry capture.
- New Zealand's participation in joint Australian/New Zealand standards is minimal.

- There is a disconnect between standards and regulations – so even when standards are updated, those updates may languish as uncited in regulation.
- New Zealand is getting left behind in safety standards and practices and could also become uncompetitive or unsafe.

We have written to Minister Bayly with our concerns on the funding and development of standards. This letter is attached for your reference. His reply mentions work by MBIE at some point exploring a more sustainable fit for purpose funding model. We welcome you meeting with Minister Bayly to discuss our concerns and initiatives that could occur in the interim to address this growing problem.

I note a recent example of good planning and process for the update to the Technical Specification Structural Design (Earthquake actions) TS1170.5. But ongoing investment is needed to ensure this is not a one-off event.

Greater use of the building levy to fund a standards revamp, accompanied by a strategy and programme of prioritised work addressing the key issues and gaps would go a long way to fixing this issue.

Engineering New Zealand has just met with Andy Hagan and John Hemi from the Infrastructure Commission to discuss our concerns and give them some more detail on the impact of the standards problems. We also have ongoing communications with Standards New Zealand and MBIE and are connecting the Standards team to our technical group leaders.

### **Addressing the long-term shortage of engineers**

As mentioned, despite the recent downturn in infrastructure work, we have a long-term engineering skills shortage and the halt to major projects (and resulting loss of engineers) is compounding this.

PWC estimated in 2021 that we need at least 2,300 new engineers in the workforce each year to sustain the economy. This is problematic because we don't produce and retain enough engineers in New Zealand each year and we have an aging workforce. We are heavily reliant on immigration.

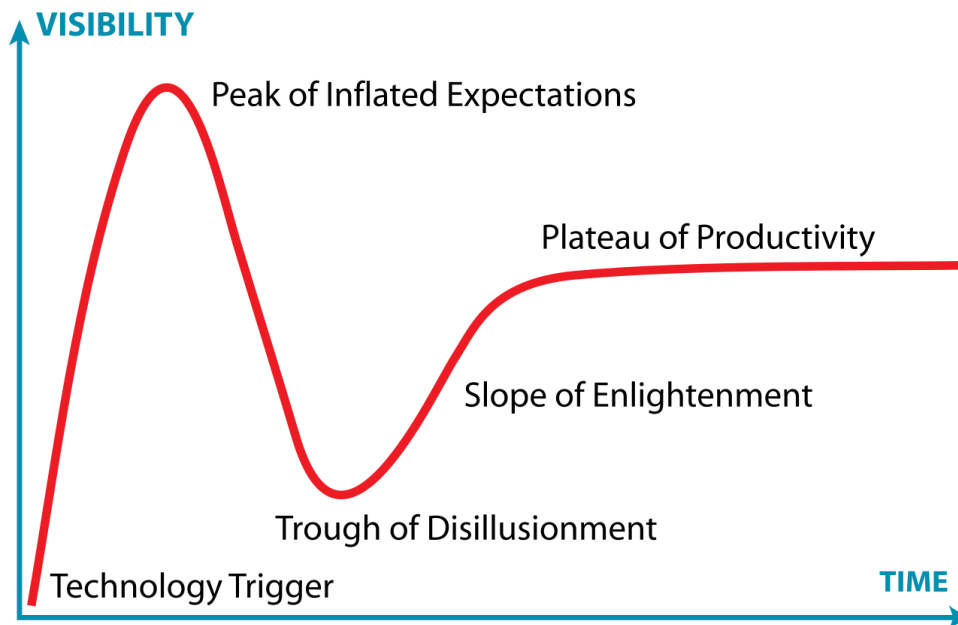
There are many challenges throughout the education and workforce pathway for future engineers. Engineering New Zealand and its technical groups have an increasing programme of work to address this. This is a systemic issue where wide levers are needed.

We welcome your interest in meeting with Minister Simmonds to discuss the need for better pricing signals in tertiary education to help incentivise universities to prioritise the training of engineers.

We have followed-up with the Ministry of Education on how they see industry supporting the new science, technology and maths curriculums but they have advised that they do not have any strategy or funding to support industry initiatives. There is significant potential benefit in Government and industry working in partnership on this. As mentioned, we want to ensure the longevity and continued alignment of our successful free programme in schools (the Wonder Project) where engineers and scientists bring our practical, engaging and curriculum-aligned projects into schools to inspire young students to pursue STEM careers. The Wonder Project also supports teachers to be confident to teach STEM. We will continue to seek industry sponsors but are concerned at the level of unmet need in schools with nearly 500 teachers on our waitlist in 2024 who we did not have funding to support. Any support you can give to this work would be most appreciated.

## AI

During our meeting we had a brief discussion about AI and its impact on infrastructure. We talked about AI in relation to the Gartner hype cycle (see below).



We believe that AI is currently still moving towards the peak. In the medium to long term AI will change the way most businesses operate and will change how engineering is done. If you are interested in further information, please do not hesitate to contact us.

## Conclusion

Thank you for your engagement with us and your openness to further discussions on these important issues. Anything you can do to rapidly advance the Government's infrastructure work, address the funding and management of standards and help universities to prioritise the training of engineers would be of great assistance. Please let us know if there is anything we can do to support.

We are keen to take you up on your offer of meeting again in the New Year and you attending our Fellows dinner on Friday 28 March 2025, if your diary permits. We will liaise with your office to set these up.

Ngā mihi nui

**Dr Richard Templer**  
Chief Executive