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Our Ref: MJE:PSM

11 January 2021

Minister for Better Regulation and Innovation
NSW Government

RE: STAKEHOLDER FEEDBACK ON THE DRAFT DESIGN AND BUILDING PRACTITIONERS REGULATION 2020

1. Introduction

This submission provides feedback on the Draft Design and Building Practitioners Regulation 2020. Pells Sullivan Meynink (PSM) is a major geotechnical consultancy and as such is a stakeholder in this proposed Regulation.

PSM agrees with the overall intention of the new regulation. We believe this is in the best interests of public safety and will play an important role in enhancing consumer protection. However, there is a key element we believe should be incorporated into the Regulation which involves the contribution of the Professional Engineering Geologist in the planning, investigation, design and construction of buildings and civil infrastructure. Our recommendation is the Regulation is amended to make sure the role of Engineering Geologists is adequately recognised.

This submission provides context around the need for an amendment to the Regulation to incorporate the role of Engineering Geologists.

2. Background on PSM

PSM is a major geotechnical, hydrogeology and hydrology consultancy with 27 years' experience in building and major civil infrastructure engineering. We are based in Sydney with regional offices in Perth, Brisbane and Melbourne. We have a total staff of 180 people comprising geotechnical engineers, engineering geologists, hydrogeologists and hydrologists, together with associated support staff. This places PSM as one of the largest geotechnical consulting groups in Australia.

PSM is recognised by Government, industry and our peers as a national and international leader in geotechnical engineering. This is illustrated by our appointments as experts to carry out investigations and enquiries when the unexpected happens. Two examples of these appointments are:

- Thredbo landslide disaster, 1997. PSM was engaged by the New South Wales Police to carry out the official investigation into the causes of the landslide for the New South Wales Coroner. The thoroughness and understanding that PSM brought to the technical investigation led to all findings being accepted by the Coroner.
- Somersby culvert collapse, Pacific Highway, 2007. PSM was commissioned by the NSW Roads and Traffic Authority to investigate the causes of the collapse which resulted in the death of five people. Results of the PSM investigation lead to checks on the integrity of road culverts across the state.

A prime emphasis of the services provided by PSM is on engineering design supported by appropriate analysis and leading to an ongoing program of monitoring and mapping to check that the design assumptions are borne out of reality during construction. Our fundamental tenet is that accurate engineering geological models must be established for any analytical, design and construction work to be meaningful. It is this emphasis on the

engineering geological model which is key to our position in the industry as being recognised as eminent in geotechnical engineering.

As such the formulation of models, and their contribution to analysis and design, as carried out by the Engineering Geologist, is critical to our work. We have found that the ramifications to a project of poor models are often missed, which can lead to increased risk to the owner and the public.

PSM recognises the importance of professional accreditation and we encourage our staff to obtain accreditation for their speciality and expertise. We acknowledge this provides Government and society with an ability to ensure a requisite level of professional conduct, knowledge and expertise in areas of practice over which professionals provide direction on behalf of PSM.

3. PSM and AGS Contact Details

If you would like to discuss any aspect of this submission from PSM, please contact the following:

- Mark Eggers, Chief Engineering Geologist
- Email: [redacted]

Mark is the immediate past Vice-President for Australasia of the International Association of Engineering Geology and the Environment (IAEG), which is the international society that represents the profession of Engineering Geology worldwide. The IAEG is one of three international societies (the other two being the International Society of Soil Mechanics and Geotechnical Engineering, ISSMGE, and International Society of Rock Mechanics and Rock Engineering, ISRM) which is represented nationally by the Australian Geomechanics Society, AGS. As such the AGS is the peak professional body that represents Engineering Geology and Geotechnical Engineering in Australia.

PSM is a corporate sponsor of the AGS. Should you wish to contact the AGS, the details are as follows:

- Secretary: Peter Robinson
- Email: [redacted]

4. Amendment to the Regulation

4.1 Proposed Amendment

In its current form, PSM considers the Regulation will unnecessarily limit the contribution that Engineering Geologists make to the design of building structures to the detriment of engineering outcomes, as outlined in Section 5 of this submission. The type of design work undertaken by Engineering Geologists are covered by the role defined as 'Design practitioner – Geotechnical engineering' in Schedule 1 of the Regulation.

However, Schedule 2 Part 3 requires that 'Design practitioner – Geotechnical engineering' must be qualified as a registered professional engineer in the class of geotechnical engineering. This class of registration is currently closed to most Engineering Geologists who do not have either an undergraduate or postgraduate engineering degree, and registration as a professional Engineer by a professional body representing engineers.

This will place a new restriction on Engineering Geologists undertaking their role in building design. This will also be a constraint on our ability as engineering consultants when undertaking our project work in building and construction. As such PSM would like to suggest two alternative amendments.

- Option 1 - amend 'Design practitioner – geotechnical engineering' to include a pathway for professionally accredited Engineering Geologists.
- Option 2 - add a new class of design practitioner covering professionally accredited Engineering Geologists.

Our preference is for the amendment to adopt Option 1.

4.2 Precedents for the Proposed Amendment

The important role played by professional Engineering Geologists is already recognized by the NSW Department of Infrastructure, Planning and Natural Resources in their Geotechnical Policy Kosciuszko Alpine Resorts. This policy is applicable for building work covered by State Environmental Planning Policy No. 73 Kosciuszko National Park - Alpine Resorts) 2007.

5. Engineering Geology in the NSW Building Industry

5.1 The Nature of Ground Engineering in the Building Industry

All types of building work cause a change of stress in the ground, either by applying a load from a new building structure or by removing soil and rock in an excavation for a building basement. As such it is important to understand:

- the nature, behaviour and performance of soil and rock under changes in ground stress conditions, and
- to accurately predict potential failure mechanisms that must be taken into account in engineering analysis and design.

These two objectives require skills and experience in both geology and engineering. The more complex the geology of the project site, the higher the level of geological skills required to design a successful outcome.

This specialist area of the building construction industry is serviced by both Geotechnical Engineers and Engineering Geologists.

5.2 The Role of Engineering Geologists

Engineering Geologist's carry out a broad range of building related work spanning:

- Design and implementation of geotechnical investigations
- Formulation of a ground model from results of the investigations which forms the basis of the engineering analysis
- Review of the engineering analytical results to ensure the analysis has correctly represented the ground model and potential failure mechanisms
- Design of excavation support measures
- Supervision and approval of construction of foundations to the required site classification for building developments.

These Engineering Geologists may work independently or as part of multi-disciplinary teams at large companies where they work closely with Geotechnical Engineers and other engineering professionals.

Engineering Geologists are the only professionals in the building industry with the in-depth education and training in geology that is required to fully understand the ground and its implications to building design and construction. Whilst some undergraduate degrees in civil engineering and most post-graduate geotechnical degrees include some classes in geology, these are substantially insufficient to provide adequate geological understanding for sound geotechnical design.

5.3 Professional Accreditation for Engineering Geologists

Professional accreditation as an Engineering Geologist typically requires an undergraduate degree in geology with either a post-graduate degree in engineering geology or significant practical engineering experience working in the geotechnical industry.

There are currently three professional bodies that provide accreditation for Engineering Geologists in Australia:

- The Geological Society of Australia (GSA), through their Accredited Geologist program (Ac.Geo),

- The Australian Institute of Geoscientists, through their Registered Professional Geologist program (RPGeo), and
- The Australian Institute of Mining and Metallurgy, through their Chartered Professional Geologist program (CPGeo).

Many of our employees are also accredited through international programs such as the UK's Chartered Engineering Geologist and Registered Ground Engineering programs.

Maintaining accreditation is dependent on strict adherence to the Society or Institution's Code of Ethics and Continuing Professional Development. It is a requirement of these accreditation schemes that its members only practice within their areas of experience and expertise. Failure to comply with this important element of the code of ethics risks the withdrawal of accreditation.

6. Closing

PSM believes that professional Engineering Geologists should be recognized by the proposed reforms in order that they may continue to provide their important contribution to the building industry in New South Wales. We strongly recommend the New South Wales Government consults with the Australian Geomechanics Society in refining the Regulation according to the Options summarised in this submission.

For and on behalf of
PELLS SULLIVAN MEYNINK

MARK FOWLER
MANAGING DIRECTOR

MARK EGGERS
CHIEF ENGINEERING GEOLOGIST AND
IMMEDIATE PAST VP OF IAEG