NEW ZEALAND
GEOTECHNICAL
SOCIETY INC

A Collaborating Technical Society
of The Institution of Professional
Engineers New Zealand

BUILDING (EARTHQUAKE-PRONE BUILDINGS) AMENDMENT ACT 2016

SUBMISSION TO MBIE ON PROPOSALS FOR METHODOLOGY TO IDENTIFY EARTHQUAKE-PRONE BUILDINGS

27 January 2017

Introduction

The New Zealand Geotechnical Society (NZGS) is the affiliated organisation in New Zealand of the International Societies representing practitioners in Soil Mechanics (ISSMGE), Rock Mechanics (ISRM) and Engineering Geology (IAEG). The NZGS is also affiliated to the Institution of Professional Engineers NZ (IPENZ) as one of its Collaborating Technical Societies and currently has over 1000 members.

The aims of the Society are:

1. To advance the education and application of soil mechanics, rock mechanics and engineering geology among engineers and scientists
2. To advance the practice and application of these disciplines in engineering
3. To implement the statutes of the respective International Societies in so far as they are applicable in New Zealand
4. To ensure that the learning achieved through the above objectives is passed on to the public as is appropriate

The NZGS is very interested in earthquake hazards and the risk they pose to society, and in the performance of the ground and of structures that may be affected by it. The NZGS considers the Earthquake Prone Building (EPB) legislation a very important part of managing earthquake risk to society. We have been closely involved in the development of the Engineering Assessment Guidelines, and endorse where they have landed. This was a component of our submission on the underlying EPB legislation.

IPENZ Engineers New Zealand
Floor 3, 50 Customhouse Quay
Wellington Central
PO BOX 12-241, WELLINGTON 6144
NEW ZEALAND

e secretary@nzgs.org
www.nzgs.org

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The NZGS supports the general approach proposed, and in particular the inclusion of geotechnical considerations in the detailed assessment methodology.

The NZGS believes that the EPB system needs to consider a broader context of earthquake risk. Whilst the Building Act, Building Code, national standards, and guidelines exist to control the design and construction of new buildings, the NZGS considers that the evaluation process for existing buildings remains too narrow. As part of the EPB system, site and local hazards should be considered in conjunction with structural performance. Such hazards include rockfall, liquefaction, slope movement and ground rupture. These can cause damage to buildings and, in extreme cases, result in fatalities. These geological hazards were significant in the Christchurch and Kaikoura earthquakes.

Specific Recommendations

Identification of potentially earthquake-prone buildings at any time (Section 3.3, p.22)

Given the recent earthquake effects in Wellington, the NZGS considers that it would be valuable to add an additional reason for considering a building (whether previously assessed or not) as earthquake prone. That is: after an earthquake that results in shaking sufficiently beyond SLS levels to potentially initiate yielding of important structural elements.

Approach to profiling (Section 3.2, p.16)

The NZGS considers that a further category should be added, for buildings located on a steep slope or supported on retained ground where there is potential for substantial loss of support to occur under moderate earthquake shaking, or on ground that is likely to be subject to liquefaction and lateral spreading, where there is potential for significant "stretch" or differential settlement to develop across a building. Furthermore, it is suggested in the document that it would generally be good practice to complete a visual inspection of the building (p.21). This should be extended to include the site as well, and should be mandatory, given the importance of this initial profiling in prioritising the identification and management of earthquake prone buildings.

Conclusion

The NZGS appreciates the opportunity to make this submission. We would welcome the opportunity to speak to our submission.

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Please feel free to contact the undersigned if you require any clarification of this submission.

Yours faithfully

Gavin Alexander
Immediate Past Chair – Management Committee

Charlie Price
Chair – Management Committee

Email: gavin.alexander@beca.com
Phone: 0274 924 492

IPENZ Engineers New Zealand
Floor 3, 59 Customhouse Quay
Wellington Central
PO BOX 12-241, WELLINGTON 6144
NEW ZEALAND

e secretary@nzgs.org
www.nzgs.org

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