3 December 2018

Dear Alison

RE: Planning and design code: Environment and Natural Resources

Thank you for providing the opportunity to review and provide feedback to the Natural Resources and Environment Discussion Paper (August 2018).

Engineers Australia is the peak body of the engineering profession. We are a professional association with about 100,000 individual members. Established in 1919, Engineers Australia is a not for profit organisation, constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community. Engineers Australia is the trusted voice of the profession and the global home for engineering professional renowned as leaders in shaping a sustainable world.

Target 1 of the proposal calls for 85% of all new housing to be constructed in established areas in Metropolitan Adelaide. Target 5 calls for a 20% increase in the tree canopy. Engineers Australia is concerned that the proposed high density infill development scenario will make the 20% increase in the urban green cover extremely difficult to achieve. A failure to increase the canopy cover will result in a failure to mitigate the heat island effect, which has consequences for power costs for new and existing housing and infrastructure stock. Water Sensitive Urban Design (WSUD) is in the same category.

Whilst both the Green Infrastructure (GI) and WSUD targets aim to counter the urban heat island effect associated with development of the proposed density, our members have identified several technical and practical issues.

Australian Standard AS 2870 Residential slabs and footings establishes performance requirements and designs for reactive sites. Reactive sites are characterised by clay soils which swell on wetting and shrink on drying. This results in ground movement, which increases the risk of damage to lightly loaded structures. The risk increases when abnormal moisture conditions occur (as defined in AS 2870) due to factors such as the presence or removal of trees prior to or after construction and the growth of trees in close proximity to footings.

In consultation with our membership, the following issues associated with the implementation of these proposals are listed below:

- The GI proposal for a reserved tree planting area is unworkable within the deemed to comply requirements of the National Construction Code. Trees placed in close proximity to buildings on reactive soils will have an adverse effect on moisture in the soil, compromising footings performance and resulting in higher costs.
Similarly, when considering the WSUD proposals, Engineers Australia notes that the performance of footings is adversely affected on sites which are subject to abnormal moisture conditions. For example, stormwater retention within the road reserve may adversely affect footings performance.

A target to build 85% of new housing in established urban areas of metropolitan Adelaide will result in the heat island effect. However, proposed mitigation of a 20% increase in urban green cover may prove unworkable within the deemed to comply requirements of the National Construction Code.

Implementation of the proposed recommendations will result in home owners having to accept a higher level of risk and a lower level of performance of footing design due to the increased risks associated with footing design for abnormal sites as defined by the footings code, AS 2870.

Implementation of the proposed recommendations may expose home owners to financial risk. For example, in Guastalegname v Australian Motor Insurers Ltd [2017], the Victorian Supreme Court ruled in favour of the insurer, determining that heave of soil beneath a foundation slab following a storm constituted soil movement and any damage incurred to the building as result was excluded from cover under home building policy.

Engineers’, certifiers’ and builders’ Professional Indemnity Insurance (PII) may also be at risk.

Engineers Australia provides the following recommendations:

- The GI and WSUD targets should be delayed until sufficient research has been undertaken to determine the level of risk to footings performance.

- Consideration should be given to making the proposal for the 20% increase in tree canopy targeted at the precinct level, rather than the individual development allotments, due to the impact on the footing performance and cost.

- The implementation of increased GI and WSUD targets should be supported by master planned reserves and open space controlled either by the local council or the state government.

On behalf of our members, Engineers Australia would like to congratulate the Department of Planning, Transport and Infrastructure on the work and objectives in the Discussion Paper. Thank you once again for the opportunity to provide comment and for taking the time to consider the above.

Engineers Australia would greatly appreciate the opportunity to meet with you to discuss the above issues and recommendations further and would welcome the opportunity to assist in further consultation in regards to the proposed changes.

Yours faithfully

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Policy Advisor