

# Application Referral Environmental Development Planner - Response

<b>From:</b>	Rowan Moore Environmental Development Planner 17 January 2018
<b>Recommendation:</b>	Proposal is acceptable subject to conditions.
<b>Date Completed:</b>	
<b>Address:</b>	83 ATHLEEN AVENUE, LENA VALLEY
<b>Proposal:</b>	Multiple Dwellings
<b>Application No:</b>	PLN-17-691
<b>Assessment Officer:</b>	Adam Smee,

## Referral Officer comments:

## Codes Applicable:

Code	Applicable	Exempt	Permitted	Discretionary
E1.0 Bushfire-Prone Areas	No			
<b>E3.0 Landslide</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>Yes - E3.7.3 P1</b>
E9.0 Attenuation	No			
E10.0 Biodiversity	No			
E11.0 Waterway & Coastal	No			
E15.0 Inundation Prone Areas	No			
E16.0 Coastal Erosion	No			
E18.0 Wind & Solar Energy	No			
E20.0 Acid Sulfate Soils	No			

## Assessment:

Approval is sought for three multiple dwellings on a 1133m<sup>2</sup> lot at 83 Athleen Avenue, Lenah Valley.

The lot has a south-easterly aspect and moderate-steep slope (37%). It has been cleared of vegetation. A rough track traverses the site from north to south.

The land is within a Landslide Hazard Area. A Part 5 Agreement applies to the owners of the lot as a result of the subdivision approval. The Part 5 Agreement requires compliance with the recommendations of a geotechnical management plan.

## Landslide Code

The lot is located within a Landslide Hazard Area ('Low Landslide Hazard Area'). The land has

been included within a Landslide Hazard Area due to the modelled risk of deep-seated landslide.

The Code is unclear with regard to its application to works. The code exempts buildings within a Low Landslide Hazard Area pursuant to exemption clause E3.4, however this clause does not specifically exempt associated works.

Section E3.7 of the Code 'Development Standards for Buildings and Works' includes separate standards for 'Buildings and Works, other than Minor Extensions' (E3.7.1), 'Minor Extensions' (E3.7.2) and 'Major Works' (E3.7.3). Given that the separation of these standards, in my opinion it is reasonable to assume that the intention is to exempt works associated with buildings where the buildings themselves are exempt, unless the associated works constitute 'major works' (which must be assessed against the standards in E3.7.3). Informal advice from staff within the Department of Premier and Cabinet who coordinated the hazard mapping and interim Codes development confirms that is the intent.

The definition of 'major works' in the Code includes:

*(a) excavation of 100 m<sup>3</sup> or more in cut volume;*

*(b) excavation or soil disturbance of an area of 1,000 m<sup>2</sup> or more...*

Figures for the volume of excavation or the area of soil disturbance were not provided with the application. However, the submitted elevations suggest the volume of excavation is significant. Based on these elevations and the site plan, I estimate that the volume of proposed excavation to be somewhere around 250m<sup>3</sup>. It is also considered likely, based on the submitted site plan, that the total area of soil disturbance will exceed 1000m<sup>2</sup>. The proposal therefore involves 'major works' and must be assessed against the E3.7.3 standards.

There is no acceptable solution for E3.7.3 A1. Performance criterion P1 states the following:

*Major works must satisfy all of the following:*

*(a) no part of the works is in a High Landslide Hazard Area;*

*(b) the landslide risk associated with the works is either:*

*(i) acceptable risk; or*

*(ii) capable of feasible and effective treatment through hazard management measures, so as to be tolerable risk.*

No works are proposed within a High Landslide Hazard Area.

With regard to landslide risk, the site was subject to a thorough, peer-reviewed geotechnical and landslide assessment as part of the subdivision permit assessment. The assessment concluded that the the risk of deep seated failure on the property is acceptably low, but made a number of recommendations for development of the land. Following mediation, a permit was granted for the subdivision requiring the preparation of a geotechnical management plan, that included the recommendations of the geotechnical assessment and other requirements. The permit also required a Part 5 Agreement requiring landowners to comply with the geotechnical management plan. The landslide risk associated with the current proposal is therefore considered 'tolerable' subject to compliance with the recommendations of the geotechnical management plan. It should be noted that the landowners must comply with the management plan regardless under the terms of the Part 5 Agreement.

The Geotechnical Management Plan (GMP) recommendations relevant to this lot are:

1. All earthworks must comply with AS3798 - Guidelines on earthworks for commercial and residential developments.
2. All development must be undertaken in accordance with an approved soil and water management plan (SWMP).
3. Site specific soil assessment is required on each lot to determine appropriate foundation design for all structures in accordance with AS2870-Residential slabs and footings.
4. Construction on all lots must be based upon thorough investigation, reporting, and design by appropriately qualified persons.
5. All stormwater on site must be immediately directed to council mains upon the construction of hard surfaces to minimise the potential for uncontrolled stormwater flows affecting slope stability.
6. All design and construction must be undertaken in accordance with Australian Geomechanics Society Geoguides (2007) except where modified by condition of the subdivision approval or where structures are founded in underlying weathered gravels.
7. All design and construction must be undertaken in accordance with condition 10 of the subdivision consent agreement.
8. All permanent cutting and/or filling must be constructed with batter slopes certified by an engineer or a drained retaining wall designed by an appropriately qualified person must be constructed in accordance with the recommendations of condition 11 of the consent agreement.
9. All surface drainage upslope of site fill must be connected to council approved stormwater system or an approved stormwater management system to divert surface water away from any site fill.

Condition 10 of the subdivision permit states the following:

*All design and construction must be undertaken in accordance with the following:*

- i. All seepage waters encountered during the construction of excavations must be collected and directed to the Council stormwater drainage system or an approved stormwater disposal system;
- ii. All natural vegetation must be retained wherever practicable;
- iii. All natural contours must be retained where practicable;
- iv. All areas requiring fill must be prepared by stripping the vegetation and topsoil from the proposed fill area and by benching or keying the surface to receive the fill into the natural slope prior to filling;
- v. Only clean fill materials may be used and all fill material must be adequately compacted
- vi. Boulders exposed during excavation operations must be assessed by a suitably qualified person to determine slope stability risk and any boulders at risk of instability must be stabilised.

Condition 11 of the subdivision permit states the following:

*For all permanent cutting or filling up to a height of 1 m, cut and fill batters with a height no greater than 1 m must be constructed with a batter slope certified by a suitably qualified engineer. Where certified batter slopes are not possible, or where cutting and filling will exceed 1 m in height a drained retaining wall designed by an appropriately qualified person must be constructed to retain the permanent excavation of the fill materials as soon as possible after the cut/fill operation. The drainage must be directed to the Council stormwater drainage system or an approved stormwater disposal system. Prior to any permanent cutting of filling and/or construction of any retaining wall, drawings demonstrating compliance with this condition must be submitted to and approved by the Director Development and Environmental Services.*

*Advice: For all permanent cutting or filling up to a height of 1 m, cut and fill batters with a*

*height no greater than 1 m it is recommendation construction no steeper than 36 degrees from the horizontal.*

*Retaining walls are recommended where a slope of 36 degrees from the horizontal is not possible.*

*The drainage must be designed to include a graded floor to a trench constructed adjacent to the retaining wall footing. The trench must contain a slotted agricultural pipe wrapped in geotextile filter material and be surrounded by appropriate screened and sized filter materials such as coarse sand or crushed rock. The filter material must be continued from the base of the retaining structure to the top of the retaining structure. The outflow from the slotted pipe must be directed to the Council stormwater drainage system or an approved stormwater disposal system.*

I have not noted anything in the proposal plans that clearly contravenes the geotechnical recommendations, nor any reason that would prevent the geotechnical recommendations being implemented. While there is some significant excavation associated with the proposed dwellings, I believe this can be adequately managed with batters or retaining walls designed and constructed in accordance with the recommendations and that this would not contravene the AGS Geoguide relating to good and poor hillside engineering practices.

A condition is recommended requiring the development to be undertaken in accordance with the bulk of the GMP recommendations. Separate conditions are recommended to give effect to GMP recommendations 2, 7 and 8. To ensure the recommendations are incorporated into the design drawings and that the works carried out comply with the GMP recommendations, conditions requiring engineering certification of the design drawings and completed works are recommended for any permit granted.

### Representations

One representation was received raising geotechnical issues. The issues raised are addressed in the Table below.

Issue Raised	Response
Detailed drawings of excavations, and associated water management are not provided. The proposed excavations do not include indication of either a certified batter, or retaining wall with drainage directed in council storm water system. An informed assessment cannot be made in consideration of the potential impact of excavation on site stability. Site excavations must be compliant with Australian Geomechanics Society Geoguides (AGS 2007), and conditions of the part 5 agreement.	
The supplied plans do not provide detail of surface drainage works (other than that associated with pavement surfaces). Given the landslip and stability issues associated with the site, surface water management should be considered, including drainage design for the protection of footings and retaining walls. In addition, the part 5 agreement, through geotechnical plan, requires compliance with Australian Geomechanics Society <i>Geoguides</i> (AGS 2007).	Agree. Addressed by recommended permit conditions.

The site is classified within the Landslip Hazard Area overlay as Landslip Hazard Band Low – identified as being susceptible to landslip by Mineral Resources Tasmania.

The site stability and landslide risk associated with this site is not insignificant.

The proposed development and building design (incl. footing system) should take into account the ABCB Landslide Hazards Handbook and any professional advice, and a landscape management plan be developed for this site to address slope instability and landslip hazard.

The Part 5 agreement specifies compliance with the geotechnical report. Of particular relevance is:

- A summary of site conditions
- Specify all earthwork must comply with AS3798
- Specify that construction on all lots must be based on thorough investigation, reporting and design
- Specify that a site specific assessment to determine appropriate foundation design for all structures is required and must be undertaken in accordance with AS2870
- Specify that all stormwater from hard surfaces must be immediately directed to Council approved stormwater system immediately upon construction of hard surfaces
- Specify that all design and construction (including earthworks and drainage works) must be undertaken in general accordance with The Australian *GeoGuides for Slope Management and Maintenance*
- Specify that all design and construction must be undertaken in accordance with the requirements of condition 10
- Specify that all permanent cutting and filling must be constructed with batter slopes certified by an engineer or a drained retaining wall designed by an appropriately qualified person must be constructed in accordance with the requirements of condition 11
- Specify that all drainage on the up-slope or high side of fills must be provided to the Council approved stormwater drainage system or an approved stormwater disposal system to divert surface drainage away from the fill
- Specify that the landscape management plan approved pursuant to condition 14 must be complied with.

The geotechnical report attached to the part 5 agreement refers to “a summary of recommendations, and a copy of the applicable Australian Geomechanics Society *Geoguides* (AGS 2007)”.

Therefore, in consideration of the identified landslip risk, the development should be assessed against the conditions and requirements of the geotechnical plan, specifically in relation to AGS 2007 and the need for construction to be based on thorough investigation, reporting and design. Due attention should be given to the detail of the geotechnical plan to ensure the geotechnical issues are appropriately managed, and risks posed by the development are evaluated by a suitably credentialed party.

Implementation of the GMP

recommendations was assessed by a suitably qualified person as being adequate to ensure a tolerable level of landslide risk.

Agree. Addressed by recommended permit conditions.

### **Recommended Conditions:**

**The development must be designed, constructed and carried out in accordance with the following requirements:**

- (i) All earthworks must comply with AS3798 - *Guidelines on earthworks for commercial and residential developments.***

**(ii) Site specific soil assessment must be undertaken to determine appropriate foundation design for all structures in accordance with AS2870 - Residential slabs and footings.**

**(iii) All construction must be based upon thorough investigation, reporting, and design by appropriately qualified persons.**

**(iv) All stormwater on site must be immediately directed to council mains upon the construction of hard surfaces to minimise the potential for uncontrolled stormwater flows to affect slope stability.**

**(v) All design and construction must be undertaken in accordance with Australian Geomechanics Society *Geoguides* (2007) except where modified by a condition of the subdivision permit that approved creation of the lot and where structures are founded in underlying weathered gravels rather than bedrock.**

**(vi) All surface drainage upslope of site fill must be connected to a Council-approved stormwater system or an approved stormwater management system to divert surface water away from any site fill.**

Reason for condition

To ensure that landslide risk is tolerable

**Sediment and erosion control measures, in accordance with an approved soil and water management plan (SWMP), must be installed prior to the commencement of work and maintained until such time as all disturbed areas have been stabilised and/or restored or sealed to the Council's satisfaction.**

**A SWMP must be submitted prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be prepared in accordance with the *Soil and Water Management on Building and Construction Sites* fact sheets (Derwent Estuary Program, 2008), available here.**

**All work required by this condition must be undertaken in accordance with the approved SWMP.**

*Advice: Once the SWMP has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*

*Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for Condition

To avoid the pollution and sedimentation of roads, drains and natural watercourses that could be caused by erosion and runoff from the development.

**All design and construction must be undertaken in accordance with the following:**

**(i) All seepage waters encountered during the construction of excavations must be collected and directed to the Council stormwater drainage system or an approved stormwater disposal system.**

**(ii) All natural vegetation must be retained wherever practicable.**

**(iii) All natural contours must be retained where practicable.**

**(iv) All areas requiring fill must be prepared by stripping the vegetation and topsoil**

from the proposed fill area and by benching or keying the surface to receive the fill into the natural slope prior to filling.

(v) Only clean fill materials may be used and all fill material must be adequately compacted.

(vi) Boulders exposed during excavation operations must be assessed by a suitably qualified person to determine slope stability risk and any boulders at risk of instability must be stabilised.

Reason for condition

To ensure that landslide risk is tolerable

**All permanent cutting and/or filling must be constructed with batter slopes certified by an engineer or a drained retaining wall designed by an appropriately qualified person. For all permanent cutting or filling up to a height of 1m, cut and fill batters with a height no greater than 1m must be constructed with a batter slope certified by a suitably qualified engineer. Where certified batter slopes are not possible, or where cutting and filling will exceed 1m in height, a drained retaining wall designed by an appropriately qualified person must be constructed to retain the permanent excavation of the fill materials as soon as possible after the cut/fill operation. The drainage must be directed to the Council stormwater drainage system or an approved stormwater disposal system. Prior to any permanent cutting of filling and/or construction of any retaining wall, drawings demonstrating compliance with this condition must be submitted to and approved.**

Reason for condition

To ensure that landslide risk is tolerable

**Prior to the commencement of works, and prior to the granting of building consent, comprehensive and detailed engineering designs prepared by a accredited Civil Engineer/Civil Designer for the development including drainage, services, earthworks, retaining structures and roads must be submitted for approval. The design documents must demonstrate compliance with all relevant geotechnical conditions of this permit.**

**The submitted design documents must be certified in writing by either a Civil Engineer, Civil Designer, Geotechnical Engineer or Engineering Geologist as being in full accordance with all relevant geotechnical conditions of this permit and that all relevant geotechnical conditions of this permit have been fully incorporated into the design documents.**

**The development must be undertaken in accordance with the approved design documents.**

Reason for condition

To ensure that landslide risk is tolerable

**Following completion of the development, and prior to a Certificate of Completion being granted, confirmation in writing by either a Civil Engineer, Civil Designer, Geotechnical Engineer or Engineering Geologist that all relevant geotechnical conditions of this permit have been fully complied with must be submitted for**

**approval.**

Reason for condition

To ensure that landslide risk is tolerable

**Recommended Advice:**

Please note that Part 5 Agreement E37907 applies to the owner(s) of the land. The Agreement requires the owner(s) to implement, maintain and comply with the recommendations of the Geotechnical Management Plan in relation to the land. The recommendations of the Geotechnical Management Plan have been incorporated into the conditions of this permit.