



Requirements for a Geotechnical Assessment,
landslide Risk Assessment or Landslide Hazard
Assessment prepared in support of a planning permit
application under the Erosion Management Overlay
Yarra Ranges Shire Council, March 2023

YARRA RANGES PLANNING SCHEME

Incorporated Document

**This document is an incorporated document in the
Yarra Ranges Planning Scheme pursuant to section
6(2)(j) of the Planning and Environment Act 1987**

1.0 INTRODUCTION

This document is an Incorporated Document to the Schedule to Clause 44.0 and Clause 72.04 of the Yarra Ranges Planning Scheme (the Scheme), pursuant to section 6(2)(j) of the *Planning and Environment Act 1987* (the Act).

This document sets out the requirements for geotechnical assessments and reporting in support of planning applications required under the provisions of the Yarra Ranges Erosion Management Overlay – Schedule 1.

The documentation described herein is to be prepared by a Geotechnical Practitioner, being an Engineer or Engineering Geologist who has experience in the management of slope stability problems and landslide risk management as a core competence, is degree qualified, and who has current professional status as a:

- Chartered Professional Engineer (CPEng); or
- ;
- Registered Professional Engineer, Victoria (*meaning a person who is registered under Part 2 of the Victorian Professional Engineers Registration Act 2019*); or
- Chartered Professional Geologist (CPGeo); or
- Registered Professional Geologist (RPGeo).

There are different assessment and reporting requirements for Subdivision and Buildings and Works, where:

- Subdivision – is a subdivision as specified in the *Subdivision Act 1988*;
- Buildings and works – is Buildings or Works as specified in the *Planning and Environment Act 1987*.

The geotechnical documentation required to inform the assessment of landslide risk for subdivision or buildings and works is set out below. If there is any inconsistency between the specific controls in this document and the general provisions of the Scheme, the specific controls will apply.

2.0 LAND DESCRIPTION

This Incorporated Document applies to all land covered by the Erosion Management Overlay in the Yarra Ranges Planning Scheme.

3.0 APPLICATION OF PLANNING SCHEME PROVISIONS

In the event of any inconsistency between the specific controls contained in this document and the general provisions of the scheme, the specific controls contained in this document will prevail.

4.0 EXPIRY OF THIS SPECIFIC CONTROL

No expiry provisions apply.

5.0 PURPOSE

The purpose of this document is to provide additional detail on Application Requirements to the requirements of Clause 44.01-6 of the Erosion Management Overlay and Clause 4.0 of the Erosion Management Overlay Schedule 1.

6.0 CONTROLS:

6.1 Buildings and works

6.1.1 Assessment Requirements

If the geotechnical practitioner assesses that the site has:

- A slope angle of less than 9 degrees at and within 20 m of the proposed new development; and
- Has not previously been affected by landslide, and;
- There are no credible landslide or debris flow hazards that could affect the proposed development, including debris flow;

a Geotechnical Assessment (as described at 6.1.2) may not be required. However, the Geotechnical Practitioner should provide written advice stating that these requirements have been met. Written evidence should include a site description and evidence to support the advice. Where these requirements have not been met, a Geotechnical Assessment prepared in accordance with the requirements set out in Section 6.1.2 is required.

A written Landslide Risk Assessment prepared in accordance with the requirements of Section 6.1.3 is required in addition to a Geotechnical Assessment if any of the following apply:

- the Geotechnical Assessment or other landform data (a detailed site survey) indicates natural slopes on or immediately adjacent to the subject lot which:
 - are steeper than 11 degrees (20%) in areas underlain by Tertiary Older Volcanics or Quaternary Colluvium; or
 - are steeper than 22 degrees (40%) in all other geologies including the spatially extensive Devonian Volcanics; or
 - exhibit evidence of possible or past landsliding on or immediately adjacent to the site; or
 - the Geotechnical Assessment concludes there are landslide or debris flow hazards affecting the new development that require a Landslide Risk Assessment; or
 - in the opinion of the Responsible Authority, the Geotechnical Assessment is not sufficient to determine that the development can be carried out in a manner which will not adversely increase the landslide risk to life or property affecting the subject lot or adjoining or nearby land.

6.1.2 Geotechnical Assessment

Where a Geotechnical Assessment is required, it must be prepared in accordance with the methodology described below and with reference to the Australian

Geomechanics Society Practice Note Guidelines for Landslide Risk Management 2007. The Geotechnical Assessment must be for the development proposed in the application, and include:

- Details of the Geotechnical Practitioner and their qualifications and experience including but not limited to experience in the management of slope instability problems and landslide risk management.
- A statement that the assessment is based on field survey measurements undertaken not more than 12 months prior to the relevant application for development.
- A detailed site description.
- Site assessment plans and cross-sections of the subject lot and relevant surrounds for the area potentially subject to landslide or debris flow hazards. Plans and cross sections are to be based on field measurements, with measured ground slopes shown and drawn to scale and dimensioned. Where applicable, plans should show the areas of the site subject to landslide or debris flow hazards.
- A detailed assessment of subsurface conditions, including the underlying geology.
- A statement indicating whether there are natural slopes on or immediately adjacent to the subject lot which exhibit evidence of landslide potential, or past landslide.
- Relevant entries in the Yarra Ranges landslide inventory.
- Details of all site investigations and any other information used in preparation of the Geotechnical Assessment.
- A statement indicating whether subsurface investigation involving boreholes and/or test pit excavations or other methods is necessary to assess the geotechnical/geological model for the subject lot and details of all such investigations, boreholes, test pits or other methods.
- A statement indicating that in the opinion of the Geotechnical Practitioner, the proposed new development is not subject to significant landslide or debris flow hazards and is not expected to be subject to significant landslide or debris flow hazards over the design life of the development such that a Landslide Risk Assessment (as described in the following section) is not required. Where significant landslide hazards are identified and this statement cannot be made, a Landslide Risk Assessment undertaken in accordance with the requirements of Section 6.1.3 is required and a statement should be made in the Geotechnical Assessment that a Landslide Risk Assessment is required.
- A statement indicating whether or not new development should only be approved subject to conditions, and if so recommend what conditions are required that may be related but not limited to:

- The positioning of buildings and works on site to avoid landslide and debris flow hazards.
- The provision of appropriate footing types and base levels and foundation materials in any structural works, including all retaining walls.
- The location/s of and depth/s of soil and rock cut and fill.
- The construction of any excavations and fill and the method of retention of such works.
- Any details of surface and sub-surface drainage.
- The selection and design of a building structure system.
- Retention, replanting and new planting of vegetation.
- Any effluent drainage and discharge.
- Any necessary ongoing mitigation and maintenance measures and any recommended periodic inspections, including performance measures and thresholds.
- The time within which works must be completed after commencement and the location/s and maximum time period that materials associated with the development can be stockpiled.
- Any requirements for geotechnical inspections and approvals to be incorporated into a construction work plan for building approval.
- Be accompanied by a Geotechnical Declaration and Verification Form (Form A).

6.1.3 Landslide Risk Assessment

A written Landslide Risk Assessment is to be prepared by a suitably qualified and experienced Geotechnical Practitioner in accordance with the methodology set out in the Australian Geomechanics Society Practice Note Guidelines for Landslide Risk Management 2007. The Landslide Risk Assessment must be for the new development proposed in the application and include:

- A copy of the Geotechnical Assessment prepared for the subject land and proposal and, if not prepared by the Geotechnical Practitioner preparing the Landslide Risk Assessment, contain a response by the Geotechnical Practitioner preparing the Landslide Risk Assessment, agreeing with the findings and conclusions of the Geotechnical Assessment.
- If reported in conjunction with a Geotechnical Assessment, include all the requirements of a Geotechnical Assessment as set out in Section 6.1.2 in addition to those of a Landslide Risk Assessment.
- If the Geotechnical Practitioner preparing the Landslide Risk Assessment does

not support the findings and conclusions of the Geotechnical Assessment for new development, the Geotechnical Practitioner must prepare an additional Geotechnical Assessment.

- An assessment supported by field observations and measurements that have been undertaken not more than 12 months prior to the lodgment of the application for a planning permit.
- A full assessment of the risk posed by all reasonably identified landslide, debris flow and slope degradation hazards which could impact or be caused by the new development and which have the potential to either individually or cumulatively impact upon people or property, in accordance with the AGS 2007 Guidelines.
- An assessment of the risk posed by potential future vegetation removal, including by bushfire or for bushfire protection if undertaken to the maximum extent permissible under the conditions of any planning permit and under permit exemptions in the Planning Scheme.
- A statement indicating that in the opinion of the Geotechnical Practitioner, the proposed new development can be undertaken such that the risk to life and property does not exceed a tolerable level and will not exceed a tolerable level over the life of the proposed development.
- Be accompanied by a Geotechnical Declaration and Verification Form (Form A)

6.2 Subdivision

Where subdivision is proposed, a Landslide Hazard Assessment should be prepared by a Geotechnical Practitioner in accordance with the methodology set out in the Australian Geomechanics Society Guidelines for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning 2007. The objective of the Landslide Hazard Assessment is to identify hazards affecting future development within a proposed subdivision and to recommend constraints on subdivision and future development. The Landslide Hazard Assessment should include as a minimum:

- A definition of scope establishing the purpose and scope of the hazard assessment.
- A data gathering / desktop phase assembling relevant data and recording the sources of the data. The Yarra Ranges landslide inventory should be consulted as part of the desktop study.
- Completion of investigations sufficient to establish a geotechnical model, identify geomorphic processes and associated process rates.
- Inspection of the site and surrounds including field mapping of the geomorphic features.

- A landslide inventory map covering the proposed subdivision and relevant surrounding areas and associated information on landslides in the inventory (if available) such as classification, location, time of sliding (if known), volume and a description of validation and limitations of the inventory.
- Landslide susceptibility zoning maps prepared in accordance with the AGS 2007 Guidelines including related information on how susceptibility was determined and a description of validation and limitations of the zoning.
- General commentary regarding the nature of the landslide or debris flow hazards, frequency and potential impacts or consequences and their implications for levels of associated risk.
- Recommendations as to whether the proposed subdivision is viable in its current format and an indication of areas that in the opinion of the geotechnical practitioner:
 - are not suitable for development;
 - are suitable for development subject to constraints or risk mitigation and an indication of those constraints;
 - are suitable for development without constraints;
- Discussion of potential impacts to adjacent land.
- Be accompanied by a Geotechnical Declaration and Verification Form (Form A).

7.0 References

- Guidelines for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning, Journal of Australian Geomechanics Society, Vol. 42: No 1, March 2007.
- Commentary on Guidelines for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning, Journal of Australian Geomechanics Society, Vol. 42: No 1, March 2007.
- Practice Note Guidelines for Landslide Risk Management 2007, Journal of Australian Geomechanics Society, Vol. 42: No 1, March 2007.
- Commentary on Practice Note Guidelines for Landslide Risk Management 2007, Journal of Australian Geomechanics Society, Vol. 42: No 1, March 2007.

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