

SCHEDULE 1 TO CLAUSE 44.01 EROSION MANAGEMENT OVERLAY

Shown on the planning scheme map as **EMO1**.

1.0**Erosion management objectives to be achieved**

To manage the risk of slope instability.

To ensure that development can be carried out in a manner which will not adversely increase the risk to life or property affecting the subject land or adjoining or nearby land.

To ensure that on land where a Landslip Risk Assessment is required, development is not carried out unless the risk associated with the development is at least a Tolerable Risk.

To ensure that applications for development are supported by adequate investigation and documentation of geotechnical and related structural matters.

To ensure that applications for development are assessed in the light of relevant information on slope instability within the area including monitoring data and take account of the actual effectiveness of any remedial works installed for the purpose of slope stabilisation.

To ensure that development is only carried out if identified geotechnical and related structural engineering risks to life and property are effectively addressed.

To ensure that development is appropriate to be carried out either conditionally or unconditionally, having regard to the results of those geotechnical and related structural investigations.

To ensure that approved development is thereafter appropriately maintained.

Definitions

AGS Guidelines 2007 means the article entitled *Practice Note Guidelines and the Commentary to the Practice Note Guideline for Landslide Risk Management 2007* published in the Journal of the Australian Geomechanics Society, Vol. 42 No 1 March 2007 also known as AGS (2007c).

AGS Practice Note means the article entitled *Commentary on Practice Note Guidelines for Landslide Risk Management*, published in the Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007 also known as AGS (2007d).

Geotechnical Practitioner means a specialist Geotechnical Engineer or Engineering Geologist who is degree qualified, is a member of a professional institute, and who has achieved chartered professional status as a:

- Chartered Professional Engineer (CPEng); or
- Chartered Professional Geologist (CPGeo); or
- Registered Professional Geologist (RPGeo);

with experience in the management of slope stability problems and landslip risk management as a core competence to the satisfaction of the Responsible Authority.

Landslip means the movement of a mass of rock, debris or earth down a slope. Such movement may take many forms and is included under the more general term **Slope Instability**.

Tolerable Risk means for new development or changes to existing development a risk to life and/or a risk to property which:

- For loss of life for the person(s) most at risk, is taken as having a probability of no greater than 10^{-5} (1:100,000) per annum calculated in accordance with AGS Guidelines 2007;
- For property loss is 'Low' or 'Very Low' assessed qualitatively using AGS Guidelines 2007 and specifically Appendix C to that document.

2.023/05/2019
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Olivers Hill is an area of historically documented significant slope instability. This instability has caused significant damage to infrastructure including roads and houses since the 1870's.

Numerous geotechnical studies and investigations have been conducted in the Olivers Hill area within distinct zones or domains of instability. The main area is sometimes known as the *Olivers Hill South Slip* whilst smaller but significant instability has also been noted in the *Olivers Hill North Slip* and adjacent coastal cliff areas located below Landslip Point and further south to Kackeraboite Creek.

All land within EMO1 has been identified as being areas of past and potential slope instability. The potential for ongoing movement is dependent on a range of factors which warrants a specific review of the risks for any future development within these areas. The control and ongoing maintenance of environmental factors such as vegetation cover, surface and subsurface drainage, slope stabilisation measures, rock and soil disturbance, effluent and stormwater disposal and provision of services such as electricity, gas and telecommunications are critical in managing the potential for slope instability in these areas.

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A permit is not required for the following:

- Earthworks, either separately or as part of a buildings or works proposal, provided:
 - No cut or fill greater than 0.6 metres in height or depth is required; and
 - No change is made to constructed drainage or fixed irrigation systems.
- A fence of:
 - Post and wire construction; or
 - Paling construction, supported by posts and rails, where the base of the fence is at least 75 mm above the ground surface.
- Extensions or internal alterations to an existing building provided:
 - If the land is unsewered, no additional bathrooms, toilets or kitchens are constructed; and
 - There is no increase in the ground surface area covered by roofed buildings or structures greater than 10 square metres; and
 - The internal floor area of any building is not increased by more than 10 square metres.
- Minor structures ancillary to a dwelling, including garden sheds, provided:
 - The ground surface area occupied by the structure does not exceed 10 square metres; and
 - The development would result in not more than two such structures existing on the subject property.
- A rainwater tank with a capacity of not more than 4500 litres provided it is constructed at ground level or above.
- A building:
 - Used for the storage of building materials and equipment; and not exceeding 10 square metres in floor area; and
 - Temporarily located on the subject property for the duration of building construction works allowed or approved under this scheme.
- A retaining wall that:
 - Does not exceed one metre in height; and

- Is not associated with other building construction work; and
- Does not provide landslip protection for any adjoining land.
- Landscaping water features provided they do not entail ponding of more than 500 litres of water and the pond is lined to prevent seepage or leakage to the subsurface soils.

No permit is required for the removal, destruction or pruning of the following vegetation:

- Removal or destruction of any vegetation, either separately or as part of a buildings or works proposal, provided it is:
 - Having a trunk circumference less than 0.35 metres at one metre above the ground, or the circumference of combined stems; or
 - Within 2 metres of an existing building; or
 - Dead and the roots below ground level are retained.
- Pruning provided it is for the purpose of improving a tree or shrub's health or structural stability in accordance with normal horticultural practice for the species involved.

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Application requirements

An application for a planning permit must be accompanied by, to the satisfaction of the responsible authority:

- Development Plans;
- A written report comprising a:
 - Geotechnical Assessment of the proposed development in relation to existing conditions; and
 - A written Landslip Risk Assessment of the proposed development in relation to existing conditions, if required by the Geotechnical Assessment.
- A completed Geotechnical Declaration and Verification Form (being the document within the AGS Guidelines 2007).
- A completed Checklist (being the document entitled 'Example Checklist for LRM Reports' within the AGS Practice Note) prepared and signed by an independent Geotechnical Practitioner after that Geotechnical Practitioner has reviewed the Geotechnical Assessment and, if required, the Landslip Risk Assessment prepared to be submitted with the application for planning permit.

Development Plans

Development plans, must be drawn to scale, dimensioned and based on survey, and show:

- The proposed development, including a site plan and building elevations, and any proposed cut and fill, retaining wall or effluent disposal system;
- Any existing development, including buildings, water tanks and dams on both the subject lot and adjacent land, cut and fill, stormwater drainage, subsurface drainage, water supply pipelines, sewerage pipelines or effluent disposal installations and pipelines and any otherwise identified geotechnical hazard;
- Details and location of existing vegetation, including any vegetation to be removed.
- Details of all access roads, tracks, paths, stairways and any other structures

Geotechnical Assessment

A written Geotechnical Assessment must be prepared or technically verified by a Geotechnical Practitioner and must include:

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- Details of the Geotechnical Practitioner and his or her qualifications and experience, including without limitation, experience in the management of slope stability problems and landslip risk management.
- A detailed site description.
- Site assessment plans and cross-sections of the subject site and related land from survey and field measurements with contours and ground slopes, as measured, shown and drawn to scale and dimensioned.
- A statement whether the site is monitored or not and a description of the monitoring where it has been undertaken.
- A statement whether the site has slope stabilisation measures installed or not and a description of the measures where they exist.
- A detailed assessment of subsurface conditions, including the underlying geology.
- A detailed description of any evidence of slope instability including a description of all credible hazards on or immediately adjacent to the site.
- Details of all site investigations and any other information including historical records used in preparation of the geotechnical report.
- Whether site investigation requires subsurface investigation that may involve boreholes and/or test pit excavations or other methods necessary to adequately assess the geotechnical/geological model for the subject lot and details of all such investigations, boreholes, test pits or other methods
- A statement that the assessment is based on field survey measurements and investigations which have been undertaken not more than six months prior to the application for planning permit.
- Details of all monitoring results for the site or immediate area including recent results which are not more than six months prior to the application for planning permit.

The Geotechnical Assessment must:

- Provide conclusions which are supported by data and all stated assumptions contained in the assessment (including where available, recent monitoring results, stabilisation performance data and stabilisation maintenance records).
- Include a statement indicating that the risks for all slope instability hazards identified, are of a *low to very low* level and will remain at a *low to very low* level over the design life of the development such that a Landslip Risk Assessment (as described in the following section) is not required.
- Where it is considered that a Landslip Risk Assessment is not required, state that, in the opinion of the Geotechnical Practitioner, the development can be carried out in a manner which will not adversely increase the landslip risk to life or property affecting the subject lot or adjoining or nearby land.
- Provide justification, including any necessary calculations, for the conclusion.
- State whether or not the development should only be approved subject to conditions and, if so, states recommendations of what conditions should be required, including but without limitation conditions relating to:
 - The determination of appropriate footing levels and foundation materials and in any structural works, including all footings and retaining walls;
 - The location of and depth of earth 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 to minimise the effects of all identified geotechnical hazards;
- Retention, replanting and new planting of vegetation;
- Any drainage and effluent discharge;
- Any necessary ongoing mitigation and maintenance measures and any recommended periodic inspections, including performance measures;
- The time within which works must be completed after commencement and the location/s and period in which materials associated with the development can be stockpiled;
- Any requirements for geotechnical inspections and approvals that may need to be incorporated into a construction work plan for building approval purposes.

Landslip Risk Assessment

A written Landslip Risk Assessment must:

- Be completed by a Geotechnical Practitioner.
- Contain a copy of or include the Geotechnical Assessment prepared for the subject land and proposal and, if not prepared by the Geotechnical Practitioner preparing the Landslip Risk Assessment, contain a response by the Geotechnical Practitioner preparing the Landslip Risk Assessment that the findings and conclusions of the Geotechnical Assessment are agreed with.
- If the Geotechnical Practitioner preparing the Landslip Risk Assessment does not agree with the findings and conclusions of the Geotechnical Assessment for the subject land and proposal, another Geotechnical Assessment must be prepared by that Geotechnical Practitioner.
- Be based on field survey measurements and monitoring results which have been undertaken not more than six months prior to lodgement of the application for planning permit.
- Include a full assessment of the risk posed by all reasonably identified geotechnical hazards which have the potential to, either individually or cumulatively, impact upon people or property on the subject lot or related land. This assessment must be in accordance with AGS Guidelines 2007 and must include risk to property and risk to life as a minimum.
- Contain a conclusion as to whether the subject site is suitable for the proposed development. This must be in the form of a specific statement that the subject site is suitable, or can be made suitable, for the proposed development and that the subject site and/or the proposed development can meet the criteria for Tolerable Risk. The report must specify all conditions required to achieve this outcome.

At all times, any decision regarding the degree of investigations and assessment required must be dictated by the consideration of risk to life and property.

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Decision Guidelines

Before deciding on an application, the responsible authority must consider:

- The recommendations of the Geotechnical Assessment, and where applicable any Landslip Risk Assessment and any other information accompanying the application;
- The advice of any Geotechnical Practitioner who has reviewed the application;
- The risks associated with the development requiring ongoing monitoring and maintenance of all mitigation measures;
- The risks associated with non-compliance with any conditions of any permit which may be subsequently issued.

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Permit Conditions

The responsible authority must ensure that any permit issued for the construction of a building, works or the removal of vegetation contains those conditions recommended by the Geotechnical Assessment or, where applicable, the Landslip Risk Assessment or any Geotechnical Practitioner engaged to review those assessments.

Any permit must contain a condition which provides that, prior to the occupation of any building or structure or the commencement of any use authorised by the permit, the applicant must submit to the responsible authority a statement made by the Geotechnical Practitioner who prepared the Geotechnical Assessment or Landslip Risk Assessment, stating that the conditions have been complied with and the permitted development is suitable to be used or occupied for the purpose for which permission has been granted.