



Further subsurface investigations of land at Leam Road, Hillwood

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An inspection of land at Leam Road, Hillwood, has recently been undertaken. This land was examined previously (Weldon, 1989).

The land is near the boundary of dolerite and bauxitic material. Further examination of the landslip zone map suggests that only the southeast part of the lot is in the Class 4 landslip risk zone. These zones are advisory but there are definite signs of past unstable conditions around the creek to the east of the lot.

The most favourable area to site a house from the stability aspect appears to be the flatter land at the rear of the lot, as close to the northern boundary as possible. There should be little risk of landslip affecting such a site provided the slope to the road is not disturbed or excavated in a major way, i.e. with high unsupported cuttings. Drainage should be dispersed to the side of the house rather than directly downslope. If it is proposed to site a house on the steeper land, or near the edge of the flatter land at the top of the lot, the test pits suggested previously would be useful in assessing the risk of instability.

Test pits

Three test pits were dug on the lot. Each pit encountered quite stiff fissured clay, with laterite fragments and clay showing a remnant igneous texture (deeply weathered dolerite).

Tests on a sample from about 1.2 m depth in pit 3 gave the following results:

Liquid limit	80
Plastic limit	25
Linear shrinkage	16

Emerson Class number	5
Clay fraction (XRD) (%)	
Kaolinite	60
Goethite	15
Halloysite	10
Gibbsite	10
Haematite	5

Analyses by R. N. Woolley.

The nature of the material in the pits suggests that the landslip risk on the slopes is not high, but care should be taken to ensure good drainage, and deep unsupported cuts should be avoided. The above analyses show the material to be rich in iron oxides (goethite and haematite) and made up mainly of kaolinite, a mineral with low expansive properties. The linear shrinkage is only moderate compared to many clays in the Tamar region.

The proposed house site, on the flatter land at the rear of the lot, is unlikely to be affected by landslides. The precautions on drainage and excavations mentioned above should be followed. Septic tanks and sullage water should be discharged to the side of the house and not directly downslope (i.e. on the slope around the contour from the house or on the flat on which the house is built).

Reference

WELDON, B. D. 1989. Subsurface investigation of land at Leam Road. *Unpublished Report Department of Mines Tasmania* 1989/49.

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Appendix 1

Logs of test pits

Pit 1

- 0 – 0.2 Brown clayey soil, loose, some iron oxide pisoliths.
- 0.3 – 1.0 Red brown friable clay, some iron oxide pisoliths (abundant towards top). Clay is fissured, stiff, some possible remnant igneous texture, occasional small dolerite fragments.
- 1.0 – 1.75 As above but without obvious iron oxide pisoliths, becoming quite stiff at base.
No free water in pit.

Pit 2

- 0 – 0.3 Brown clayey silty soil, loose.
- 0.3 – 0.5 Red brown clay, slip surfaces, compact material.
- 0.5 – 1.8 Red and light brown clayey material, some zones of laterite material, other zones showing original dolerite texture, particularly towards base.
No free water in pit.

Pit 3

- 0 – 0.15 Brown silty clay soil.
- 0.15– 0.9 Red brown and light brown clay (red is fissured while brown zones have possible igneous texture).
Some large iron oxide centres.
- 0.9 – 1.75 Brick red clay, fissured and stiff, purple patches show igneous texture, becoming drier with depth.
No free water in pit.

All depths in metres.

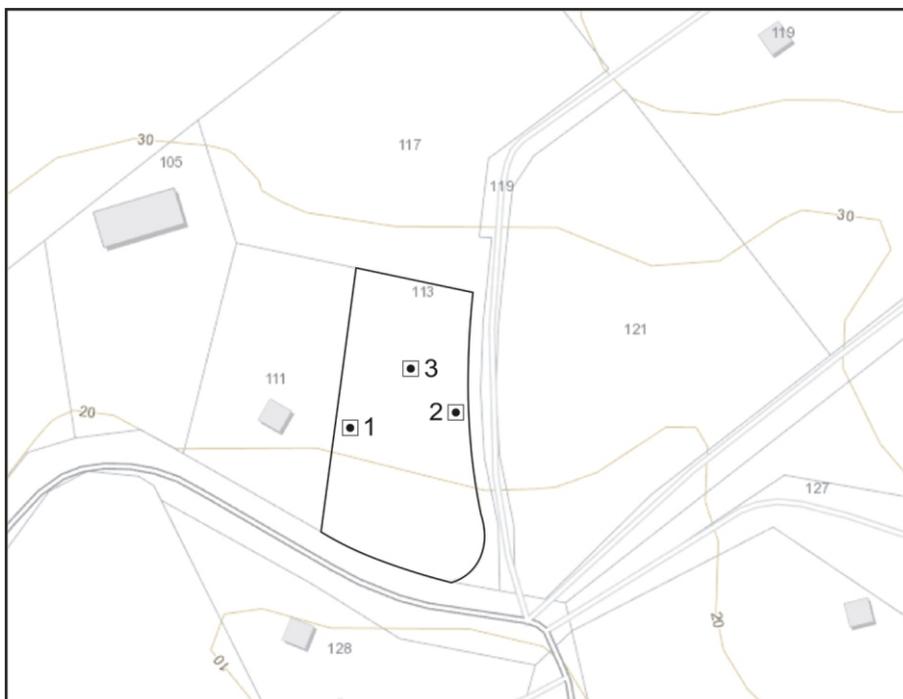


Figure 1

*Approximate locations
of test pits.*