

UR1975-63

Stability of land at Ambleside, Devonport.

W.L. Matthews

Part of this area has already been subdivided (Matthews, 1973) and the owners are preparing to subdivide the remainder. Pitt and Sherry, on behalf of the subdividers, requested that the additional areas be examined to determine which parts could be developed with reasonable safety. The area is situated to the south of the presently developed area on the eastern side of the Mersey estuary.

RELIEF AND GEOLOGY

The landsurface is very broken and steep over much of the property. It slopes steeply towards the Mersey estuary. To the east the land flattens after rising 70-90 m above sea level to a dissected plateau. Slopes in the steeper parts of the subdivision range up to about 25° and slopes of 15-20° are quite common. In the formation of the road along the foreshore and due to quarrying operations at some locations along the road, almost vertical cliffs have been formed and at other points the slopes have been artificially steepened.

The rock types occurring in the area are Permian mudstone, Jurassic dolerite, Tertiary sediments and Tertiary basalt with talus on the steeper slopes.

The Permian rocks occur in road cuttings along the foreshore and consist of mudstone interbedded with sandstone and a thin conglomerate bed. Outcrops are uncommon but where present the rocks are seen to dip at 26° NE. The Permian rocks are intruded by dolerite which occurs on most of the lower parts of the steep slopes. It is exceptionally deeply weathered and is quite often only represented by talus deposits on the slopes. Before the deposition of the Tertiary sediments and the extrusion of the basalt, the landsurface was uneven as is evidenced by the irregular top surface of the dolerite. Sand and clay underlie much of the flatter land and part of the slopes. Basalt areas also occur within these zones and appear to be interbedded with the Tertiary sediments, although the exact relationships are unknown. Clay beds were struck in test pits in that part of the subdivision already developed. Talus from the weathering of the dolerite and basalt cover many of the steeper slopes. All rock types are deeply weathered and there are few outcrops.

DISCUSSION OF STABILITY

As with many areas where unconsolidated material and weathered rock occur on steep slopes there is some risk of unstable conditions and there are, in fact, some old slips in the area. A large area occurs north-west of the waterhole marked on Figure 1 and a small one to the north of it. Around the waterhole itself, the land is very hummocky and this is almost certainly due to mass movements. In view of this it is doubtful whether any of the steeper area could be developed with safety. It would require considerable and extensive subsurface investigations to ensure that any parts of it could be safely developed.

The remainder of the area is relatively flat, although there are local steep areas. Some subsurface investigations should be undertaken to determine the subsurface material in these areas. It should be possible also to define more accurately the boundary between the unstable areas and those which could be developed without risk of landslip.

RECOMMENDATIONS

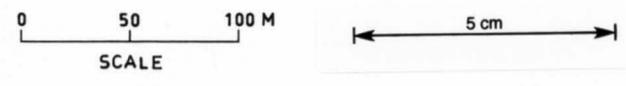
About 10-20 test pits should each be dug to a depth of 3-4 m to determine what underlies some of the steeper areas. It will also aid in delineating those areas which can be developed with reasonable safety.

REFERENCE

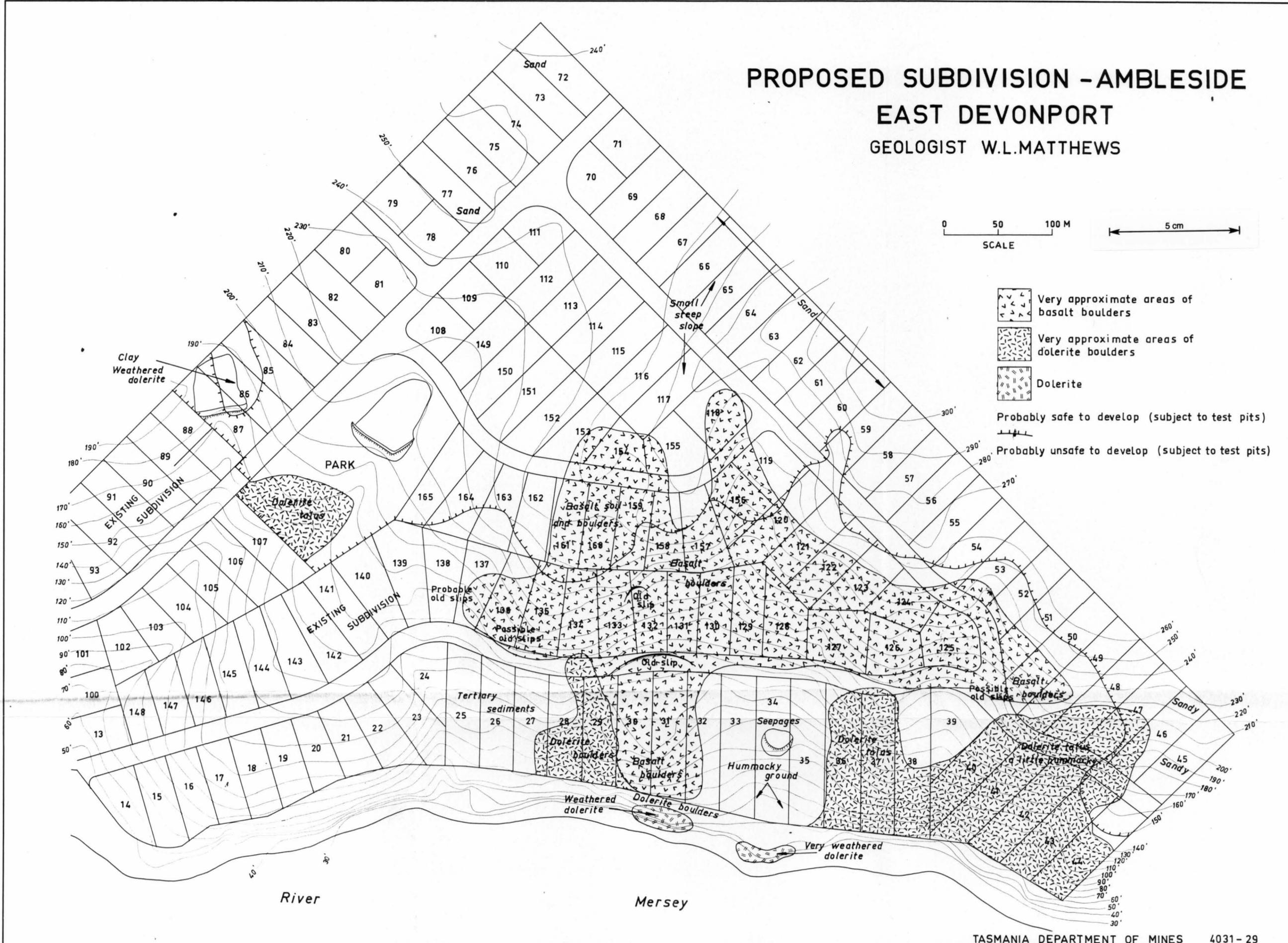
MATTHEWS, W.L. 1973. Examination of proposed subdivision, East Devonport.
Tech.Rep.Dep.Mines Tasm. 15:55-58.

[19 September 1975]

PROPOSED SUBDIVISION - AMBLESIDE EAST DEVONPORT GEOLOGIST W.L. MATTHEWS



- Very approximate areas of basalt boulders
- Very approximate areas of dolerite boulders
- Dolerite
- Probably safe to develop (subject to test pits)
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