UR1976-62

1976/62. Investigation of a proposed subdivision at Upper Scamander.

D.J. Sloane

At the request of the regional health inspector an inspection was made of a proposed subdivision of land owned by Mr J. Wigram at Upper Scamander [FQ032086].

Some delay was experienced in this inspection as although subdivision plans were available the blocks could not be located on the ground. The absence of a contour map and block corner pegs therefore required a check survey by our departmental surveyor.

TOPOGRAPHY

The accompanying map (fig. 1) shows the general topography of the subdivision site. To the south and east slopes are moderate to steep (18-24°) from a ridge crest along the proposed subdivision road towards the Upper Scamander road to the east and a low-lying swampy area to the south. Slopes in the northern and western section of the subdivision are moderate to gentle (7-17°). A large gully crosses blocks 39, 40 and 41; slopes here are about 20-25°.

GEOLOGY

The area is entirely underlain by quartz sandstone and mudstone (Mathinna Beds). Bedrock is believed to be close to the ground surface near the ridge top. Solid bedrock is covered by a weathered mantle (regolith) which ranges from broken bedrock with a yellow-brown clay matrix at depth, to almost pure clay at the surface. Test pits dug by the Division of Public Health indicate a depth of at least 1-2 m of weathered material over most of the subdivision. This mantle is much thicker at the base of the slopes as a result of mass movement. Thicknesses of at least 2-3 m are apparent in P.M.G. excavations and in the road cutting adjacent to the Upper Scamander road. The high clay content and impermeable nature of the weathered regolith is demonstrated by the pools of water that have collected in the test pits.

STABILITY

Two embankment failures have occurred adjacent to the Upper Scamander road. These are a direct result of artificial oversteepening of the regolith material. Although no failures have been observed on natural slopes in the area, some caution must be exercised where subdivision development is associated with steeply sloping areas to ensure that stability is not impaired by building development. Undue disturbance through cut and fill techniques, the infiltration of water from sewerage systems and storm water runoff, and the removal of vegetation all contribute to potential instability of land formerly stable under natural conditions. Owing to the increased thickness of the regolith along the south-eastern boundary of the subdivision and the steep slopes, this area is potentially unstable as are the steep slopes adjacent to the gully on block 40.

CONCLUSIONS AND RECOMMENDATIONS

The factors described above indicate potential instability of the south-eastern area of the subdivision and the sides of a gully to the north-west. The threshold of stability for development is considered to be a slope of 18°. Therefore blocks 22, 23, 24, 25, 28, 29, 30 and 40 are considered unsuitable for development. Blocks 21, 31, 39 and 41 are considered

suitable *only* if building is conducted in the shaded portion of the blocks on the accompanying map; except for block 41, buildings should be sited as close as possible to the subdivision road.

If the subdivision road were to be re-located 15 m further west blocks 22-30 could be considered suitable for development. Although this would probably necessitate fewer building blocks on the western side of the road, all seven blocks on the eastern side could then be developed. If the layout of the subdivision is altered, a re-inspection by a geologist from this department would be necessary.

[22 September 1976]

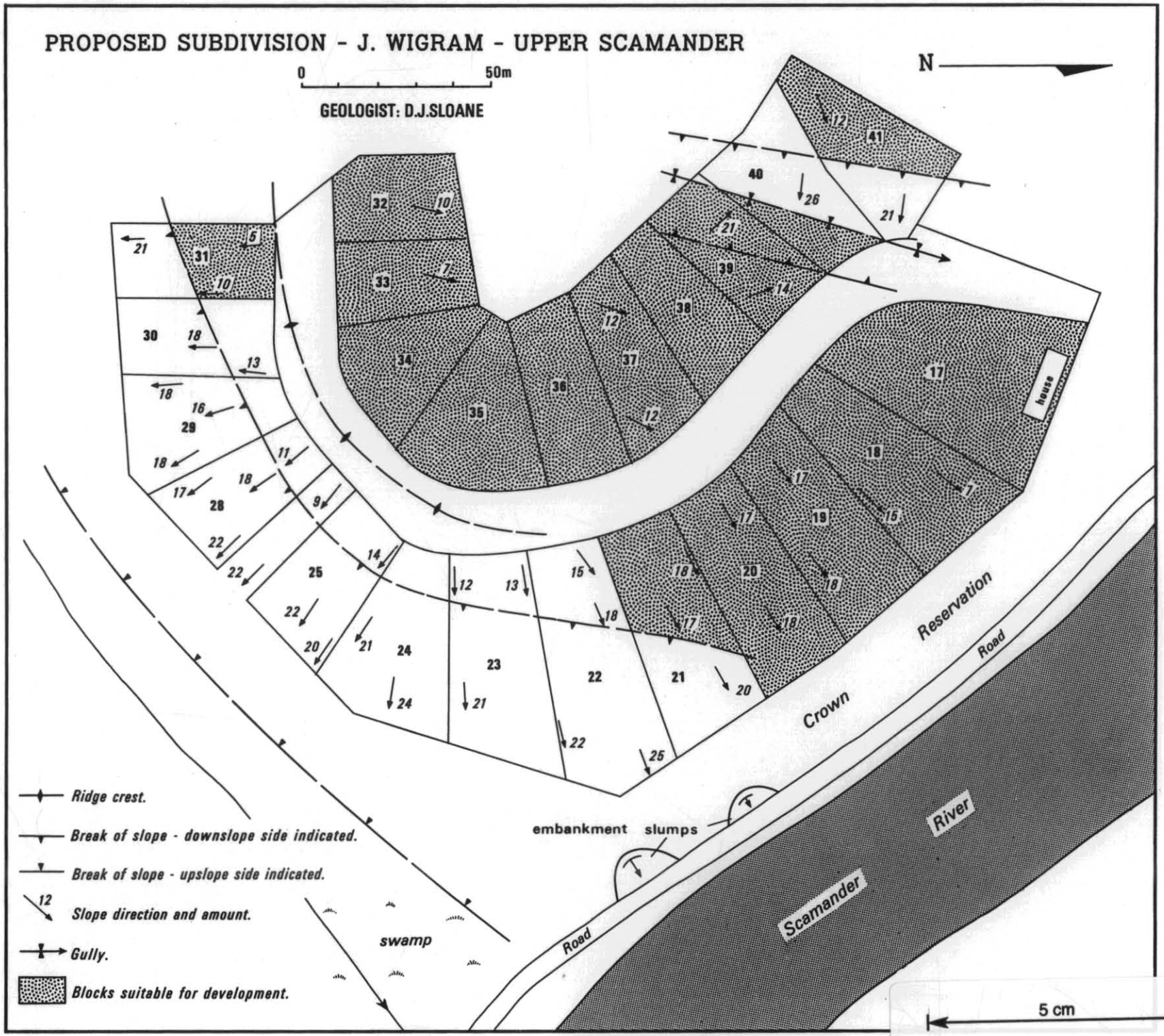
PROPOSED SUBDIVISION - J. WIGRAM - UPPER SCAMANDER
0
50m
GEOLOGIST: D.J.SLOANE
N
Ridge crest.
Break of slope - downslope side indicated.
Break of slope - upslope side indicated.
12
Slope direction and amount.
Gully.
Blocks suitable for development.
swamp
embankment slumps
Crown Reservation Road
Road
River
Scamander
house
5 cm

Figure 1.