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Diamond drilling at Runnymede

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The Department of Mines drilled three cored diamond-drill holes at the proposed site of the University of Tasmania's radio telescope antenna at Runnymede.

The material in these three holes tended to be rather broken over most of the depth drilled and was variably weathered. The broken nature of the core made it difficult to measure core recovery accurately; for hole 1 overall there appeared to be complete recovery, for hole 2 a little over one metre of core loss and for hole 3 about 0.8 m loss. The reason for this loss is unknown but the most likely reason is that it is probably due to the broken nature of the rock, although thin clayey seams could also be present (as recovered towards the bottom of hole 3).

A feature of some sections of the core was the number of horizontal partings which probably represent bedding planes in the rock. In general the rock is less broken and of better quality material towards the bottom of each hole.

If thick widespread clay seams are absent, as appears from the material recovered, then the material encountered, particularly at depth, would support considerable loadings.

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Hole 1

Depth (m)	*Recovery (m)*	*Description*
2.44–3.90	1.38	~0.36 m brown clay with mudstone fragments throughout. ~0.32 m brown, moderately hard, broken siltstone pieces up to 50 mm long. ~0.32 m soft, deeply weathered sandy siltstone and dirty sandstone. ~0.38 m hard siltstone to fine micaceous sandstone, broken fragments up to 70 mm long.
3.90–4.54	0.9	Hard siltstone to fine micaceous sandstone, broken to small fragments mostly, but up to 80 mm long. About 170 mm fairly clean quartz sandstone, broken, passing into soft dirty fragmented sandstone. At end material completely disturbed.
4.54–6.60	2.35	Hard brown broken siltstone and sandy siltstone. Soft weathered layer (20 mm thick) at 0.25 m from start. Hard sandier band from 0.44–0.84 m from start followed by sandy siltstone which becomes more weathered and broken for final 100 millimetres. Many horizontal breaks throughout, occasional at 30° and 45° to horizontal. Longest unbroken piece of core 120 mm. Then the material becomes dominantly a dirty sandstone for final 0.9 — 0.50 m largely unbroken except for a vertical joint, followed by 0.17 m of very broken material, 0.22 m of sandstone with vertical joint.
6.60–7.2	0.57	Dirty sandstone with four horizontal breaks with 330 mm unbroken at end. ~0.15 m siltstone, very hard, at end.

Hole 2

Depth (m)	*Recovery (m)*	*Description*
2.40–4.14	1.75	0.32 m soft brown clayey material with mudstone pellets. ~0.2 m brown and grey mottled sandy siltstone, fairly hard, broken. ~0.32 m hard siltstone, two horizontal breaks, two joints at about 45°. ~0.27 m sandstone, dirty, brown, six horizontal breaks. ~0.62 m sandy siltstone and dirty sandstone, eight horizontal breaks and one almost vertical joint.
4.14–7.2	1.8	~0.3 m sandstone, mainly clear quartz, very broken. ~0.28 m brown siltstone and sandy siltstone. ~0.5 m sandstone, micaceous, dirty, platy, about 17 horizontal breaks, longest unbroken piece 90 mm. ~0.73 m sandy siltstone, brown (0.1 m) passing into mudstone (0.1 m), then alternating beds of mudstone and dirty sandstone to end. Three horizontal breaks. Unbroken pieces of core up to 0.2 m long.

HOLE 3

Depth	*Recovery*	*Description*
2.4–4.2	1.55	0.36 m brown clay. 0.12 m blue grey siltstone with some clay in the middle part. Remainder is brown and grey siltstone with 19 horizontal breaks and one near-vertical joint. Largest piece is 100 mm long.
4.2–6.3	2.06	~0.25 m siltstone and sandstone, very broken (no part with whole core diameter). ~0.75 m siltstone, grey and brown, broken. Nine horizontal breaks, two joints at about 45° and 60° to horizontal, thin bands of sandstone towards end. ~0.37 m sandy siltstone, very broken, fairly hard, passing into soft brown dirty sandstone.
6.3–8.0	1.20	~0.46 m sandy siltstone, very hard, brown, broken in some areas, one 60° joint. Largest piece of core 120 mm. ~0.30 m silty clay with rock fragments. ~0.43 m siltstone, very hard, broken only by two joints at about 30° to horizontal.