



Division of Mines and Mineral Resources — Report 1990/33

# Auger drilling near Coles Bay

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Six holes were auger drilled at a proposed septic tank effluent dispersal area at Coles Bay. The holes were drilled near the junction of the main road south of the Chateau and the road to Sleepy Bay (607500 mE, 5334200 mN). Quaternary sand deposits overlie granite in this area and the land slopes northwards at a shallow angle from the road to Sleepy Bay towards a small creek just to the north.

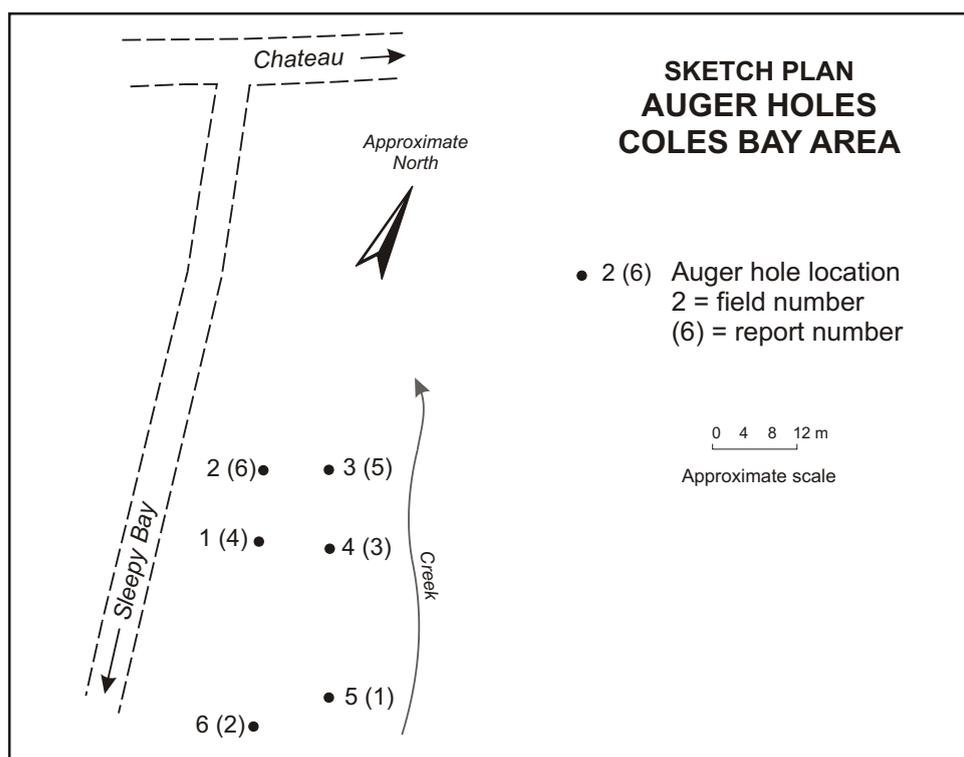
Brief descriptions of the materials encountered and a sketch plan of their location are attached.

The drilling showed that sand extends to depths of up to about six metres, with the lower part of each hole possibly penetrating weathered granite. In most holes the near-surface sand contains some clay while the lower sand has a smaller clay content. As a result, the sand to 4 to 5 m depth is expected to have a lower permeability than the material at greater depth.

The relatively deep water table (2.1–3.1 m from the surface) is favourable as far as the establishment of the

dispersion trenches is concerned. The near-surface more clayey sand will have some permeability and some seepage to the water table can be expected if the dispersion is confined to a small area in times of heavy use. An increase in nitrate in the groundwater underlying the site can be expected and this would probably also influence nitrate levels in the nearby stream and any springs nearer the shoreline. To minimise this it is suggested that the dispersion trenches are longer than proposed and kept as close to the road as possible (and away from the nearby creek). The button grass area just to the east of the area where the holes were drilled is probably underlain by similar materials and the trenches could be extended into this area. Monitoring of water quality in the creek should be undertaken from time to time so that quality can be checked, particularly in regard to nitrate and bacteria levels.

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## LOGS OF AUGER HOLES, COLES BAY

### Hole 1

From (m)	To (m)	
0	0.9	Grey and brown gritty sand
0.9	1.5	Brown organic-rich sand
1.5	2.1	Fine grained grey sand
2.1	3.4	Grey brown sand with some clay, damp
3.4	4.3	Light brown clayey sand
4.3	5.2	Brown gritty sand, some clay
5.2	6.1	Gritty wet sand
6.1	7.0	Grit, some sand, pink feldspar particles

Standing water level 2.90 m, conductivity of water 450 S/cm. The lower sand and grit may have relatively high permeability.

### Hole 2

From (m)	To (m)	
0	0.9	Mid grey coloured fine-grained sand
0.9	1.2	Brown organic or iron oxide rich cemented sand
1.2	1.5	Grey and brown sand
1.5	2.1	Grey and brown sand
2.1	3.4	As above, wet, some clay
3.4	4.5	Light brown sand, wet
4.5	5.2	Grey and brown sand, clayey
5.2	5.8	Grey sand, less clay
5.8	6.1	Becoming difficult to drill (weathered granite?, no sign of granitic material on augers on withdrawal).

Standing water level 2.8 m.

### Hole 3

From (m)	To (m)	
0	0.9	Light grey brown sand, a little clay
0.9	1.2	Brown clayey sand
1.2	1.5	Grey-fawn clayey sand
1.5	3.4	Grey sand, some clay, gritty towards end, all wet
3.4	6.4	Grey sand, clay content becoming less, occasional grit fragments
6.4	7.0	Weathered granite, grit fragments composed of pink feldspar

Standing water level 2.1 m, conductivity 480 S/cm. Lower sand may have relatively high permeability.

### Hole 4

From (m)	To (m)	
0	1.4	Fawn coloured fine-grained sand
1.4	1.5	Grey even-grained sand
1.5	2.4	Grey sand, occasional grit fragments, pink feldspar
2.4	6.4	Grey sand, some grit fragments, a little clay
6.4	7.0	Grey sand, abundant pink feldspar fragments

Standing water level 2.4 m. Some sand may have appreciable permeability.

### Hole 5

From (m)	To (m)	
0	1.5	Light brown to fawn coloured sand, fine, even grained
1.5	3.4	Dark grey sand, wet, clayey
3.4	5.2	Lighter grey sand, much less clay, layer of pink grit-size fragments
5.2	7.0	Lighter grey sand, variable amount of grit fragments, clay content lower

Standing water level 2-3 m. Lower sand may have appreciable permeability.

### Hole 6

From (m)	To (m)	
0	1.5	Light grey sand
1.5	2.4	Darker grey sand
2.4	4.0	Light grey sand, wet
4.0	5.5	Light brown sand, a few grit fragments
5.5	7.0	Light brown sand, pink grit fragments (feldspar) becoming abundant particularly in final one metre.

Standing water level 3.1 m.