

Tasmanian Geological Survey Record 2002/02

Monitoring bore holes at the Rosetta landslip and recommendations for bore hole maintenance repairs

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The groundwater regime at the Rosetta landslip is monitored by a network of vertical bore holes. This report was prepared at the request of the Glenorchy City Council Landslip Committee, to identify maintenance works required to maintain the scientific integrity of the monitoring network.

Infrastructure

Twenty-one vertical bore holes were originally monitored at the site. Two of these holes (BH11 and BH13) have been recently destroyed by the construction of houses. Three pumping bore holes are cased with 168 mm PVC, fourteen bore holes are cased with 40 mm PVC, and two bore holes are cased with 100 mm PVC.

Nine sub-horizontal bore holes also exist at the site and are cased with 56 mm pipe. The sub-horizontal bores are grouped in two clusters of four and five bores, at 25 and 32 Crosby Road respectively. The four bore holes at 32 Crosby Road have a combined discharge into the stormwater gutter on Crosby Road. The other five bore holes discharge into a sump at the base of 25 Crosby Road. The location of the above infrastructure is shown on Figure 1.

Table 1 is a summary of the infrastructure at the Rosetta landslip inspected during the Mineral Resources Tasmania (MRT) February 2002 monitoring run.

Current hydrogeological data observations

Monthly standing water levels are recorded in all vertical bore holes where blockages do not exist.

During the February 2002 MRT monitoring run, blockages in six bore holes prevented the measurement of the standing water level. Three other bore holes contained blockages within half a metre of the standing water level.

At the discharge sump of the five sub-horizontal bores on 25 Crosby Road, a monthly flow measurement is also recorded and a water sample collected for analysis by MRT.

Maintenance works required on vertical bore holes

Fourteen of the nineteen remaining vertical bore holes require a range of maintenance works to retain their integrity as groundwater monitoring points. Required maintenance for each bore hole is outlined in Table 1 and individual maintenance specifications are summarised in Table 2.

Summary and conclusions

As the current situation allows stormwater to flow into existing monitoring bore holes, maintenance works should be undertaken as soon as resources permit. Direct recharge of surface water to groundwater via any of the monitoring bore holes is considered to be unacceptable in the local area of this recently active landslip.

[22 February 2002]

BORE HOLE LOCATIONS — HONE ROAD, ROSETTA

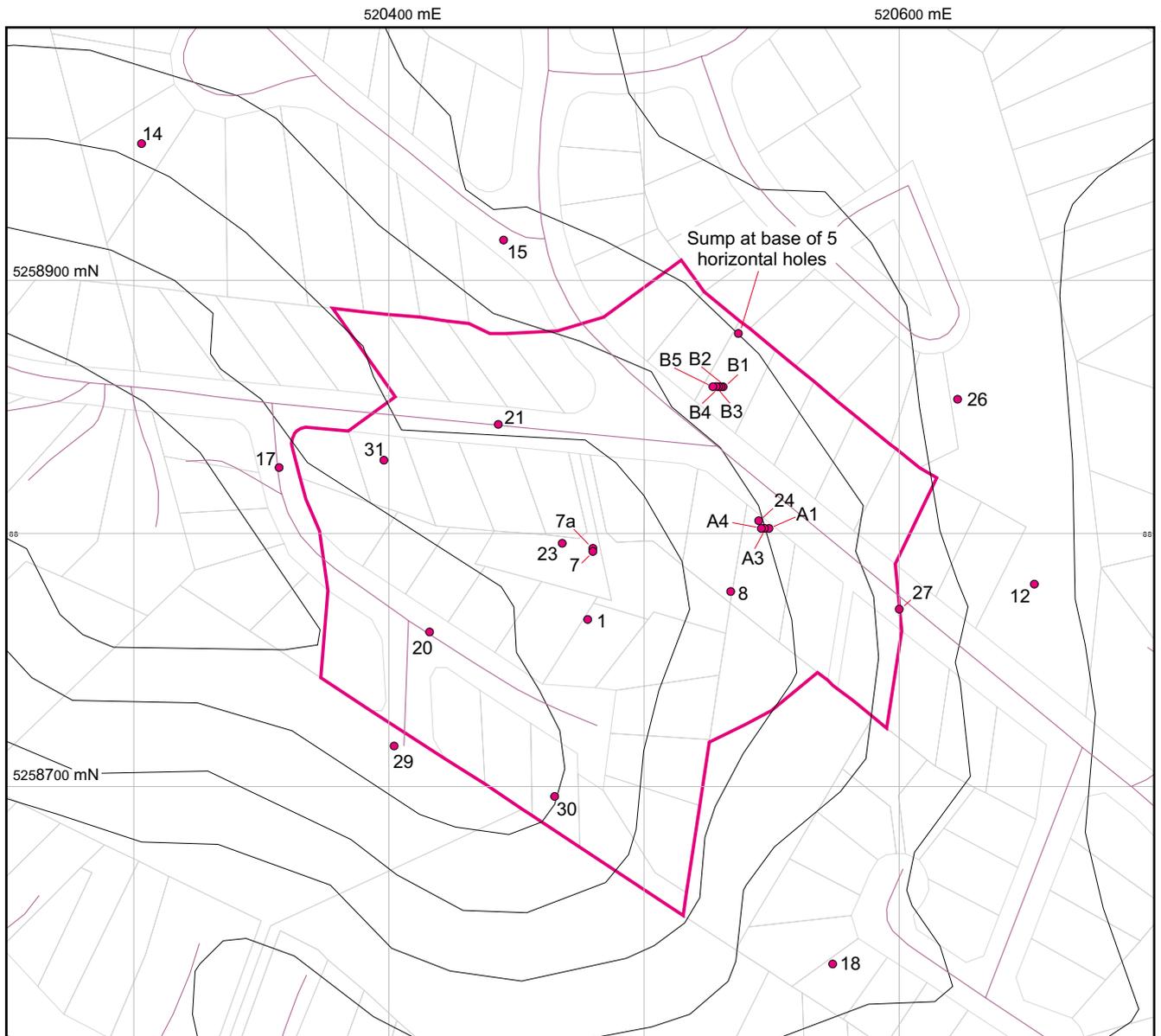


Figure 1

Table 1
Rosetta monitoring bores – February 2002

Bore hole	Easting	Northing	Location	Tyre of measurement recorded	Casing diameter (mm)	Current status	Works required
1	520478	5258766	12 Hone Road	Depth to water	40	Sewer plastic cover and 40 mm cap. Blocked at 15.38 metres	Air/water flushing
7	520480	5258793	5 Officer Street	Depth to water	100	No cap. Blocked by dead animal at 17.73 metres	Cap. Air/water flushing
7a	520480	5258794	5 Officer Street	Depth to water	40	No cap	Cap. Air/water flushing
8	520534	5258777	25 Crosby Road		100	No cap. Casing broken at 16 metres.	Try placing 50 mm casing into exiting 100 mm casing. Plastic sewer cover and appropriate cap size for collar.
11	NA	NA	Gunn Cresent	Nil	Unknown	House currently being built on block	Nil – bore destroyed
12	520653	5258780	In fenced area below Crosby Road	Depth to water	40	40 mm cap	Air/water flushing
13	NA	NA	NA	Nil	Unknown	House constructed over bore in 2000	Nil – bore destroyed
14	520303	5258954	Sherwin Cresent	Depth to water	40	Has cap and is in good order	Nil
15	520445	5258916	In stormwater cement road curve of Sherwin Cresent	Depth to water	40	Bore has broken collar with no cap	Slightly raised steel cover, 40 mm collar plug and air/water flushing
17	520357	5258826	In Hone Road	Depth to water	40	No cap. Casing filled to collar with soil.	Slightly raised steel cover, 40 mm collar plug and air/water flushing
18	520574	5258630	12 Taylor Cresent	Depth to water	40	40 mm cap	Nil
19	520210	5258860	25 Officer Street	Depth to water	40	40 mm cap with steel cover	Air/water flushing
20	520416	5258761	In Hone Road	Depth to water	40	40 mm cap. Blocked at 16.10 metres	Slightly raised steel cover, 40 mm collar plug and air/water flushing
21	520443	5258843	In Officer Street in front of No. 4	Depth to water	40	No cap	Slightly raised steel cover, 40 mm collar plug and air/water flushing
23	520468	5258796	5 Officer Street	Depth to water	40	No cap, blocked at 11.30 metres	Cap required. Try removing blockage using iron bar on rope. May need to be redrilled.
24	520545	5258805	25 Crosby Road	Depth to water	40	No cap, steel cover. Blocked at 6.38 metres.	Cap. Air/water flushing. Most likely will need redrilling, depending on air/water flushing.

Bore hole	Easting	Northing	Location	Tyre of measurement recorded	Casing diameter (mm)	Current status	Works required
26	520623	5258853	In fenced area below Crosby Road	Depth to water	40	40 mm cap	Air/water flushing
27	520600	5258770	In Crosby Road in front of No. 21	Depth to water	40	No cap with broken collar	Slightly riased steel cover, 40 mm collar plug and air/water flushing
29	520402	5258716	Top of branch off Hone Road	Depth to water	168	Pumping hole (No. 3) with steel lockable cover	Nil
30	520465	5258696	17 Hone Road	Depth to water	168	Pumping hole (No. 2) with steel lockable cover	Nil
31	520398	5258829	31 Officer Street	Depth to water	168	Pumping hole (No. 1) with steel lockable cover	Nil
4 horizontal bores			25 Crosby Road	Nil	NA	Combined discharge piped to road stormwater	NA
A1	520549	5258802	No 25 Crosby Rd	Nil	56	Dry. Water Metre cover	Nil
A2	525048	5258802	No 25 Crosby Rd	Nil	56	Dry. Water Metre cover	Nil
A3	520547	5258802	No 25 Crosby Rd	Nil	56	Dry. Water Metre cover	Nil
A4	520546	5258802	No 25 Crosby Rd	Nil	56	Dry. Water Metre cover	Nil
5 horizontal bores			No 32 Crosby Rd	Nil	NA	Piping network exposed	NA
B1	520531	5258858	No 32 Crosby Rd	Nil	56	Dry	Water meter covers?
B2	520530	5258858	No 32 Crosby Rd	Nil	56	Wet	Water meter covers?
B3	520529	5258858	No 32 Crosby Rd	Nil	56	Dry	Water meter covers?
B4	520528	5258858	No 32 Crosby Rd	Nil	56	Wet	Water meter covers?
B5	520527	5258858	No 32 Crosby Rd	Nil	56	Wet	Water meter covers?
Sump at base of 5 horizontal bores							
	520537	5258879	No 32 Crosby Rd	Flow rate (litres/minute), MRT water analyses	NA	Sump covered by steel grate	Nil

Table 2*Summary of individual bore hole maintenance specifications*

<i>Type of maintenance required</i>	<i>Bore hole numbers</i>	<i>Total number of bore holes</i>
Air/water jetting	1, 7, 7a, 12, 15, 17, 19, 20, 21, 23, 24, 26 and 27	13
Collar PVC cap	7, 7a, 8, 21 and 24	5
Collar plug (40 mm)	15, 17, 20, 21 and 27	5
Plastic sewer cover	8	1
Steel cover	15, 17, 20, 21 and 27	5
Possible redilling	23 and 24	2
No work required	14, 18, 29, 30 and 31	5