Tasmania Department of Mines — Unpublished Report 1988/43

Site investigations at the Riverside Retirement Village

by R. C. DONALDSON

The site of a proposed subdivision in Cormiston Road, Riverside, was examined on 2 August, with the aim of establishing a safe building limit line. It was recommended that several backhoe trial pits be dug to reveal soil sections and allow samples to be taken. This additional site investigation work was carried out on 15 August.

The published geological map covering the Tamar region (Longman, 1964) indicates that the area is underlain by Tertiary sediments with small dolerite bodies in close proximity to the northwest and southeast. The surface soils over the site are dominantly grey silty sand (SM) and sandy clay (SC). Dolerite boulders were noted scattered over the surface on the balance of land only some 20–30 m beyond the southeast boundary of lot 1.

The land steepens progressively towards the River Tamar. The slopes range from gentle (<5°) through to moderately steep (15°). From a stability point of view, the area has been mapped as three basic slope classes; 0–5°, 5–10° and 10–15° (fig. 1).

Taking into consideration the results of previous Department of Mines investigations in the area, and the overall simple morphology of the more gentle slope segments, it is our opinion that those areas of < 10° slope are stable and there are no basic objections to development.

It is considered that the steeper 10–15° slope segment has the potential to fail, depending on the nature of the materials and the groundwater conditions. Five test pits dug by backhoe showed this steeper area to be underlain by highly weathered, low strength sandstone at about 1.5–2.0 m depth. A mottled yellow brown and grey high plasticity clay overlies the sandstone which is in turn overlain by between 0.3 and 0.5 m of topsoil. A detailed description of the materials encountered is contained in the engineering logs. The location of the test pits is shown on Figure 1.

The series of small bench-like structures noted occurring in the vicinity of test pits 2, 3 and 4 are considered to be related to bedrock (sandstone) and not associated with old landslide features. It is important to note that some of this steeper area was wet underfoot. Trenching indicated this was very much a surface soil situation; water inflow was not observed from the sandstone.

Obviously it is preferable to plan development on those areas designated as having <10° slopes. However the investigation has indicated that it would be possible to safely site additional units on the steep slope segment (10–15°) provided they were founded on sandstone and not on the overlying clay materials. Attention would have to be given to ensuring the slope is adequately drained; saturated soil conditions on moderate slopes such as these have the potential to fail. Finally, it should be noted that the clays are likely to be moderately to highly expansive and consideration should be given to this in the design of the units.

Reference

LONGMAN, M. J. 1964. *One mile geological map series. K/55-7-39. Launceston*. Department of Mines Tasmania.

[19 August 1988]

TASMANIA DEPARTMENT OF MINES

ENGINEERING LOG – EXCAVATION

excavation no. 1
sheet 1 of 1

project RETIREMENT VILLAGE location CORMISTON RD, RIVERSIDE

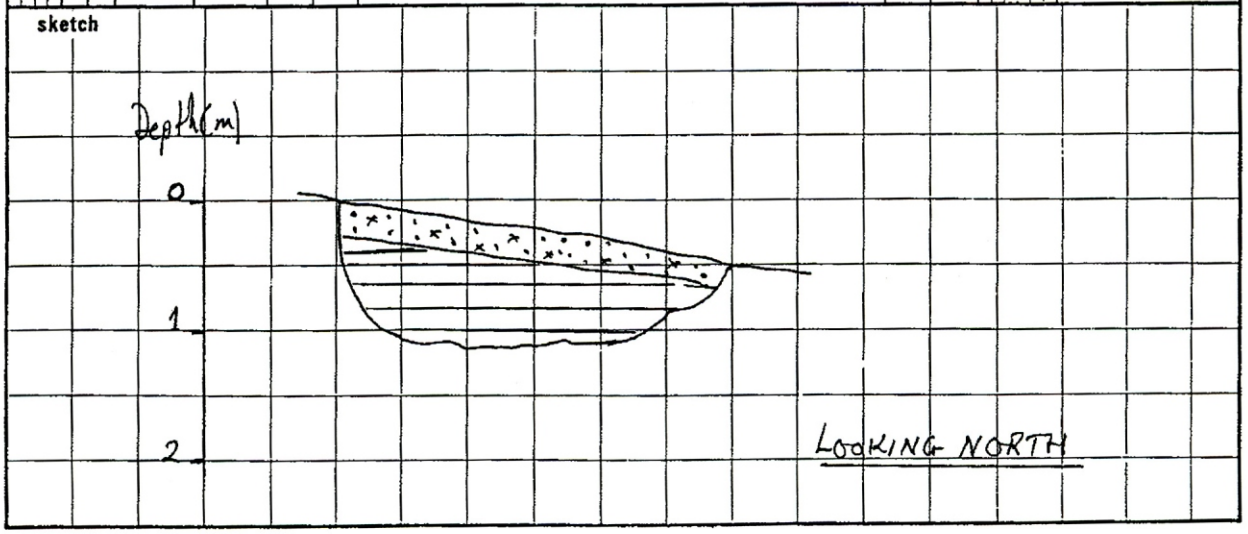
co-ordinates Refer Plan.
R.L.
excavation dimensions 2·8m x 0·9 x 1·1m deep

exposure type Backhoe Pit
equipment Hitachi 600mm bucket
operator H. G. Reid

pit commenced 15 Aug 88
pit completed 15 Aug 88
logged by R C Donaldson
checked by

penetration 1 2 3	support	water	notes samples, tests	metres R.L.	metres depth	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa 25 50 100 200 400	structure, geology
		NONE					SM	Silty SAND: fine, light grey, some clay	M < PL	L		TOPSOIL
					1		CH	CLAY: high plasticity, mottled yellow brown, red+grey, some fine sand	M > PL	St VSt		RESIDUAL CLAY
					2			BACKHOE REFUSAL @ 1·1m ON HARD IRONPAN LAYER				

sketch



TASMANIA DEPARTMENT OF MINES

ENGINEERING LOG – EXCAVATION

excavation no. 2
sheet 1 of 1

project RETIREMENT VILLAGE location CORMISTON RD, RIVERSIDE.

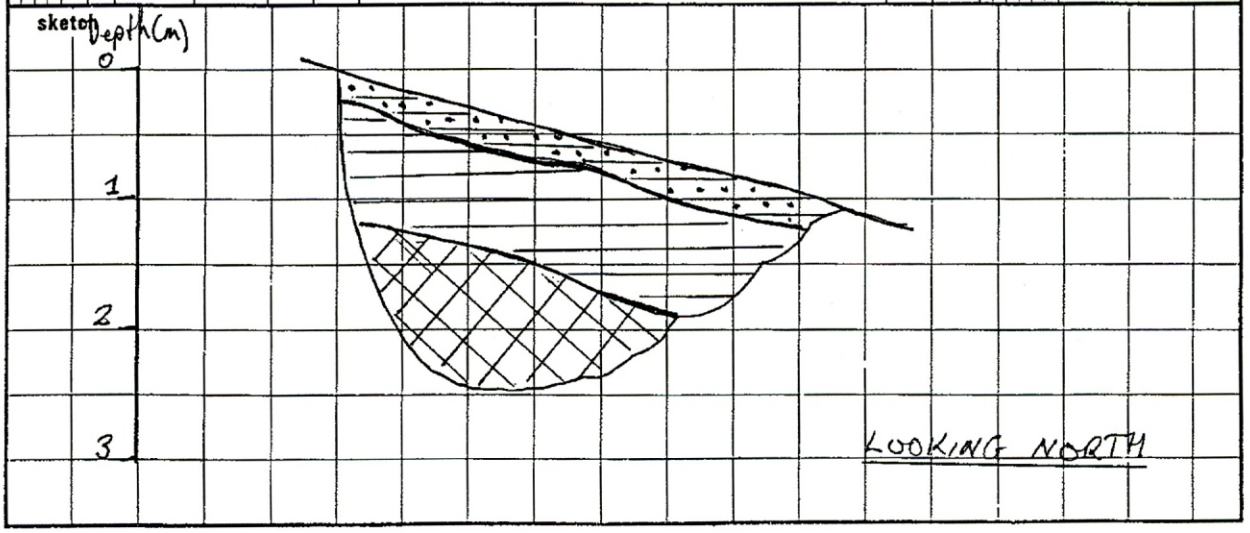
co-ordinates Refer Plan
R.L.
excavation dimensions 3.2m x 1.1m x 2.3m deep

exposure type Backhoe Pit
equipment Hitachi 600mm bucket
operator H.G. Reid

pit commenced 15 Aug '88
pit completed 15 Aug '88
logged by R.C. Donaldson
checked by

penetration 1 2 3	support	water	notes samples, tests	metres R.L. / depth	graphic log	classification symbol	material: soil type, plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25, 50, 100, 200, 400)	structure, geology
		NO INFLOWS NOTED				SC	Sandy CLAY: high plasticity, grey, sand fine-medium, some silt.	M > PL	F		TOPSOIL
				1		CH	CLAY: high plasticity, mottled yellow brown and grey, some fine sand.	M > PL	St - V.St		RESIDUAL CLAY
				2			SANDSTONE: fine-medium grained, light grey and yellow brown, some ironstone bands, low strength				HIGHLY WEATHERED SANDSTONE
				3			BACKHOE CLOSE TO REFUSAL @ 2.3m IN HIGHLY WEATHERED SANDSTONE.				

sketch



TASMANIA DEPARTMENT OF MINES

ENGINEERING LOG – EXCAVATION

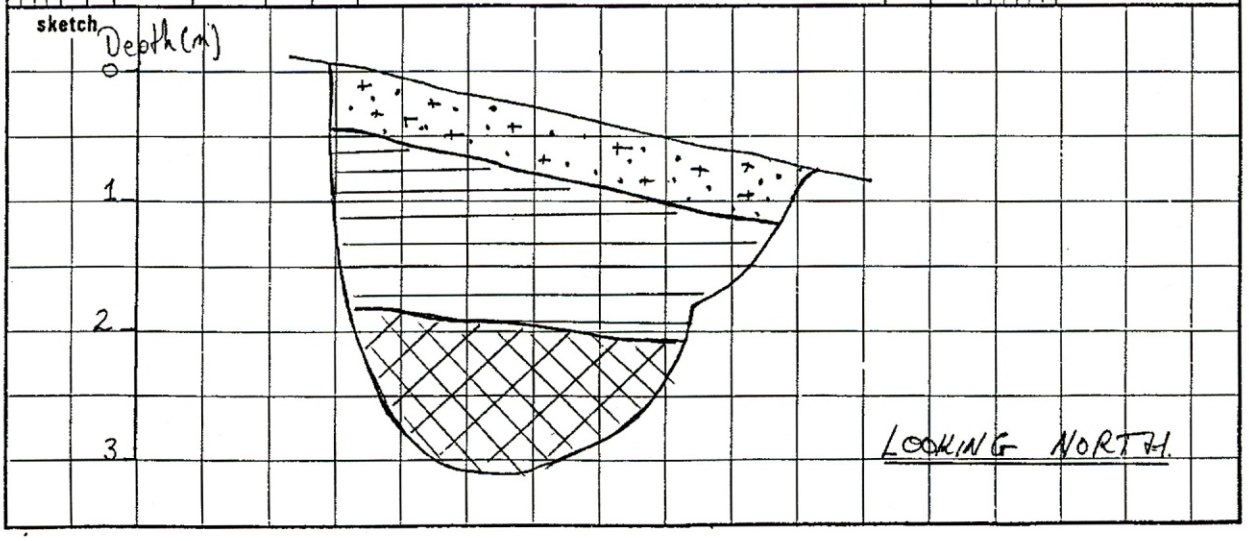
excavation no. 3
sheet 1 of 1

project RETIREMENT VILLAGE location CORMISTON RD, RIVERSIDE.

co-ordinates Refer Plan. exposure type Backhoe Pit pit commenced 15 Aug '88
equipment Hitachi pit completed 15 Aug '88
R.L. 600mm bucket logged by R.C Donaldson.
excavation dimensions operator H.G. Reid checked by
3·1 × 1·3 × 3·1m deep

penetration 1 2 3	support	water	notes samples, tests	metres R.L.	metres depth	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa 25 100 200 400	structure, geology
							ML	Silty SAND: fine, grey, some clay, roots and rootlets.	M < PL	L		TOPSOIL
		NO INFLOWS NOTED			1		CH	CLAY: high plasticity, mottled yellow brown, red and grey, some fine sand, some ironstone (fine gravel).	M > PL	St – VSt		RESIDUAL CLAY
					2			SANDSTONE: fine-medium grained, light grey, some red and yellow brown colouration. Remoulds to clayey SAND (SC). Minor mudstone beds. Very low strength.				EXTREMELY WEATHERED SANDSTONE
					3							
					4			TERMINATED AT REQUIRED DEPTH OF 3·1m IN EXTREMELY WEATHERED SANDSTONE.				

sketch



TASMANIA DEPARTMENT OF MINES

ENGINEERING LOG – EXCAVATION

excavation no. 4
sheet 1 of 1

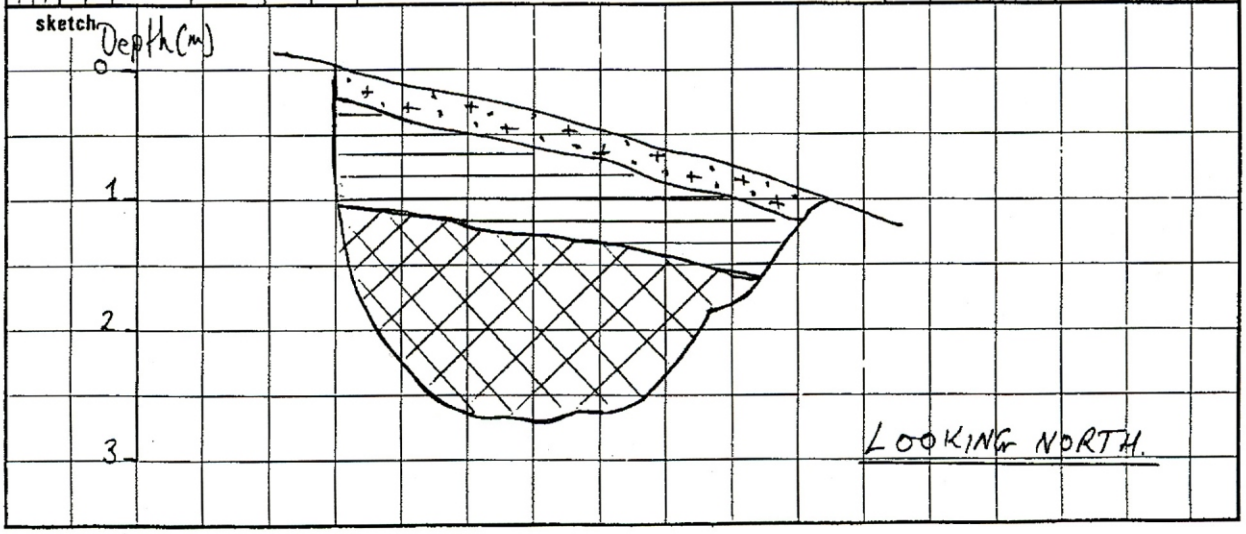
project RETIREMENT VILLAGE location CORMISTON RD, RIVERSIDE

co-ordinates Refer Plan. exposure type Backhoe Pit
equipment Hitachi 600mm bucket
R.L.
excavation dimensions 3.0m x 1.3m x 2.6m deep
operator H. G. Reid.

pit commenced 15 Aug 88
pit completed 15 Aug 88
logged by R.S. Donaldson.
checked by

penetration 1 2 3	support	water	notes samples, tests	metres R.L.	metres depth	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa 25 50 100 200 400	structure, geology
							SM	Silty SAND: fine, grey brown, some clay.	M<PL	F		TOPSOIL
		NO INFLOWS NOTED.			1		CH	CLAY: high plasticity, mottled yellow brown, red and grey, some fine sand and iron nodules.	M>PL	St - V.St.		RESIDUAL CLAY
					2			SANDSTONE: fine grained, yellow brown., low strength.				HIGHLY WEATHERED SANDSTONE.
					3			BACKHOE CLOSE TO REFUSAL @ 2.7m IN HIGHLY WEATHERED SANDSTONE.				

sketch



TASMANIA DEPARTMENT OF MINES

ENGINEERING LOG – EXCAVATION

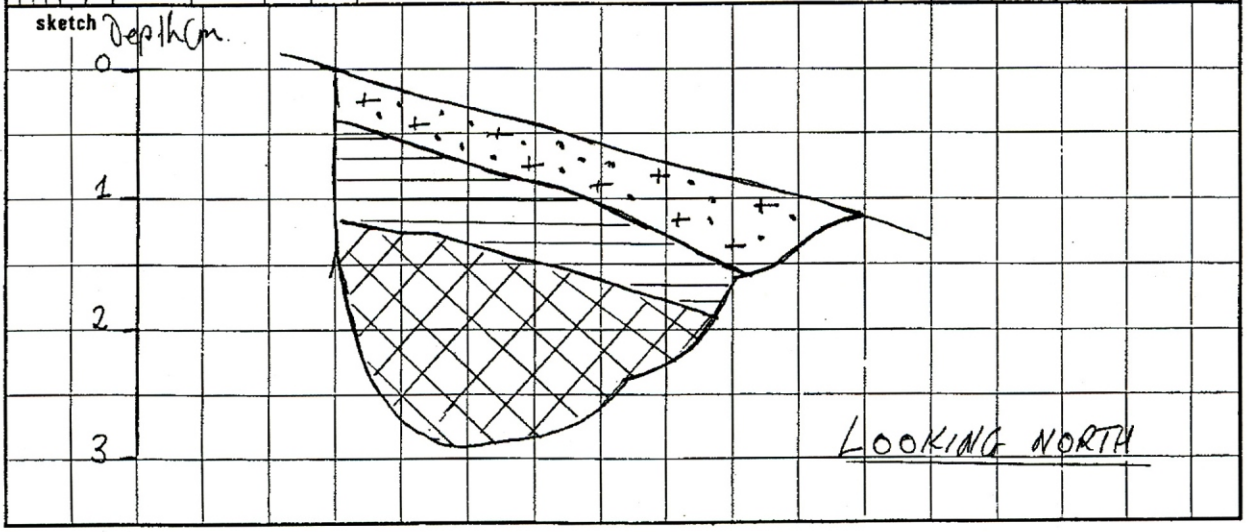
excavation no. 5
sheet 1 of 1

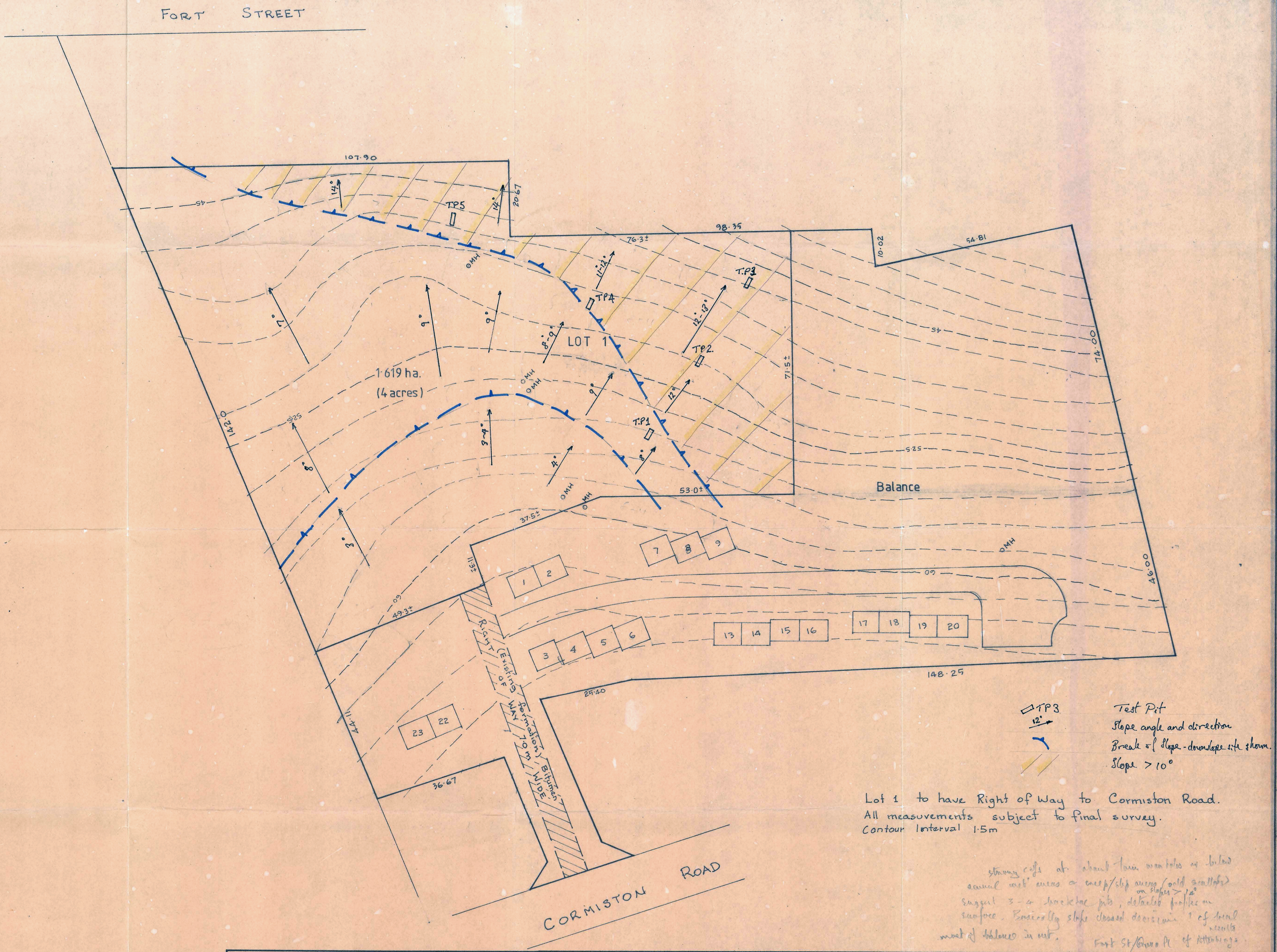
project RETIREMENT VILLAGE location CORMISTON RD, RIVERSIDE

co-ordinates Refer Plan. exposure type Backhoe Pit pit commenced 15 Aug '88
equipment Hitachi pit completed 15 Aug '88
R.L. 600mm bucket logged by R.C. Donaldson
excavation dimensions operator H. G. Reid checked by
3·1 x 1·2 x 2·9m deep

penetration 1 2 3	support	water	notes samples, tests	metres R.L	metres depth	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa 25 100 200 400	structure, geology
		NO INFLOW NOTED			0		SM	Silty SAND: fine, grey, some clay.	M< PL	F		TOPSOIL
					1		CH	CLAY: high plasticity, mottled yellow brown, red & grey, some fine sand.	M PL	St V.St		RESIDUAL CLAY.
					2			SANDSTONE: fine grained, yellow brown. Remolds to SAND (SP) and clayey SAND (SC), very low strength				EXTREMELY WEATHERED SANDSTONE
					3			TERMINATED AT REQUIRED DEPTH OF 2·9m IN EXTREMELY WEATHERED SANDSTONE				

sketch





AMENDMENTS

GRIGGS, LEARY & CO. PTY. LTD.

LAND & ENGINEERING SURVEYORS
DRAUGHTSMEN
295 ELIZABETH STREET HOBART 7000
PHONE 34 5053

5 cm

RIVERSIDE RETIREMENT VILLAGE

SCALE	
1:500	
DRAWN	DESIGNED
TRACED	SURVEYED
APPROVED	LEVEL BOOK

PROPOSED SUBDIVISION
Conv 62-0044

DATUM
AZMUTH:-
LEVEL

FILE NO. 8733

6738

DATE 7-7-1988
SHEET 1 of 1