



## Further investigations at a proposed subdivision at Freshwater Point, Legana

by B. D. WELDON

As recommended in an earlier report (Sloane, 1987), additional investigations have been conducted on Stage V of the Freshwater Point subdivision proposal at Legana.

Seven test pits were excavated and logged in the area. The logs are attached with the locations given in Figure 1.

The pits reveal that the majority of the site is covered by a silty clay topsoil which grades at various depths into a fine to medium size, poorly-graded sub-rounded quartzite gravel with low plasticity silty fines. The gravel is underlain at 0.5 to 1.2 m depth by clay of various texture, fabric and colour.

The gravel layer provides a suitable diffusion and filtering medium for the discharge from septic tanks. It is thin in places and in these areas the vegetation is of a type (reeds and rushes) which indicates seepages. During dry periods the vegetation apparently extracts moisture from the underlying clay, but where the gravel is thicker, the roots of the vegetation do not penetrate into the clay and only grassland vegetation is apparently supported.

The gravel is a potential construction material source. It appears to be poorly graded and may be slightly too plastic for use as a road base without modification. The gravel has not been sampled for laboratory analysis.

The clays underlying the gravel vary in colour, texture and fabric, but are usually medium to high plasticity and very stiff. The moisture content of the upper portion of the clay layer is usually drier than the plastic limit, but this changes

with increasing depth to moister than the plastic limit. The change occurred at about 1.6, 1.4, 1.4, 1.0, 1.4 and 0.9 m in test pits 1 to 6 respectively. Test pit 7 was terminated in gravel. The volume stability of the clay has not been tested (as per AS2870), but should the clay be expansive, footings founded above the depths mentioned above may be subject to movement.

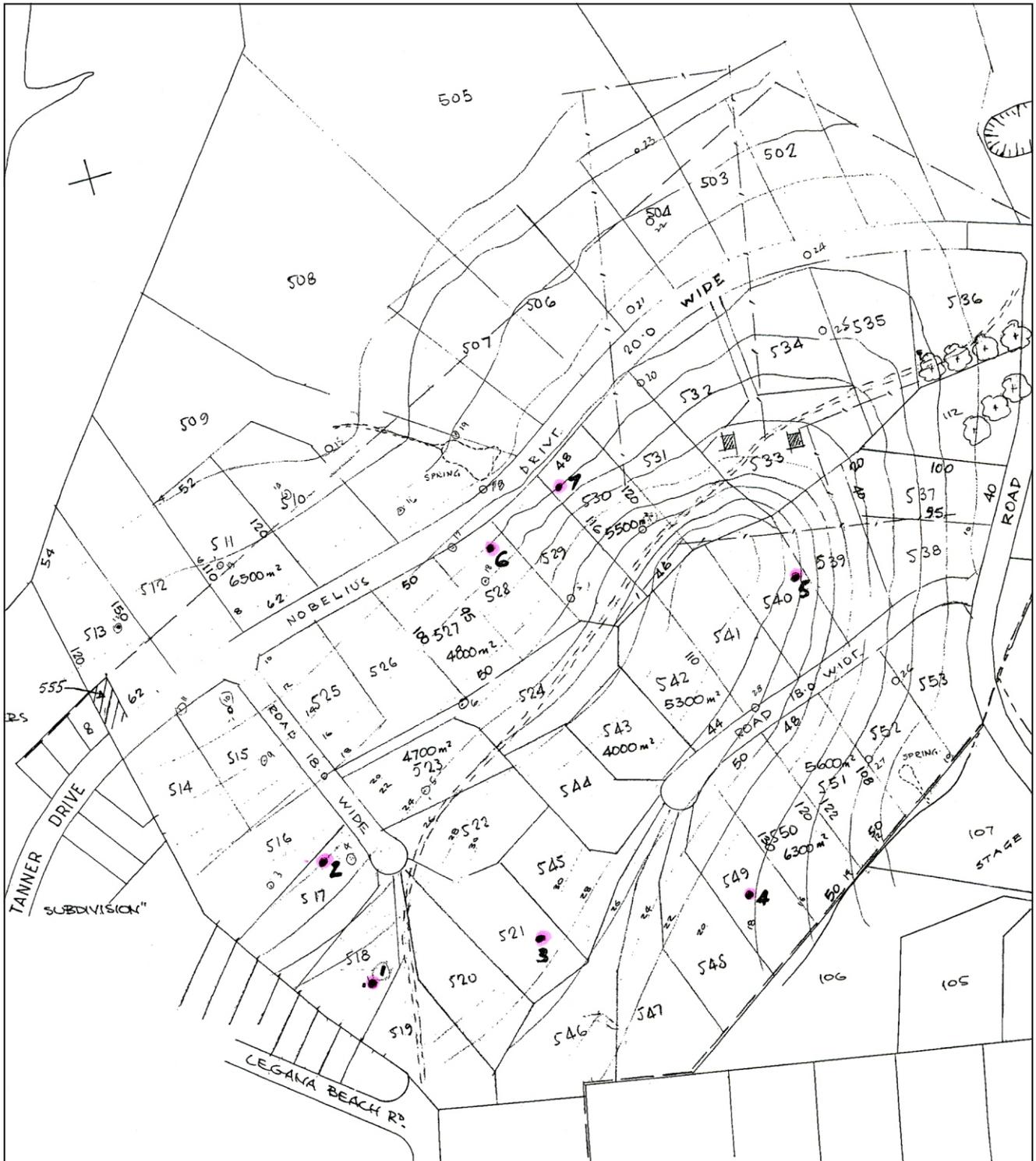
The structure of the clay (platy and small 3 mm cube peds) indicates that the clay has been stressed at some stage – possibly by over consolidation. Some sub-vertical lenses, lined with clay and sand, were noted in test pit 3. The infill does not appear to be of recent origin. There are no indications of shallow mass movement problems in the clay exposed by the test pitting.

As noted previously, some lots are relatively steep, and whilst no evidence of mass movement was disclosed by the test pits, homes built on these lots should be carefully located and designed so as to minimise the amount of cutting and filling required. The diffusion trenches for sullage and septic overflow should not be located immediately downslope of the houses but set off to one side.

### Reference

SLOANE, D. J. 1987. Inspection of a proposed subdivision at Freshwater Point, Legana. *Unpublished Report Department of Mines Tasmania* 1978/78.

[10 March 1988]



**Figure 1**  
*Location of test pits.*

# ENGINEERING LOG – EXCAVATION

excavation no.  
**1**  
 sheet **1** of **1**

project	FRESHWATER POINT - STAGE V		location		
co-ordinates		exposure type	test pit	pit commenced	4-2-88
R.L. ~ 30m		equipment	FORD 555	pit completed	4-2-88
excavation dimensions	0.6 m x 4.2 m	operator	P. HARDER	logged by	B. WELDON
				checked by	

penetration 1 2 3	support water	notes samples, tests	metres		graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetr- ometer kPa				structure, geology
			R.L.	depth						25	50	100	200	
				1.0		GP	GRAVEL: fine-medium size quartzite gravel with silty fines and trace of fine sand	D	D					
				1.6		CH	CLAY: med-high plasticity MC ~ PL. mottled brown-grey-red	M	VSC					very small ped's ~ 3mm cube
		END		2.0		GC	GRAVELLY CLAY: med-high plasticity, MC > PL, mottled brown-grey-red, fine quartzite gravel.	M	H					
<p><i>Pit terminated at 2.0m below ground surface</i></p>														

sketch														





# ENGINEERING LOG – EXCAVATION

excavation no. **4**  
sheet **1** of **1**

project <b>FRESHWATER POINT STAGE J</b>		location	
co-ordinates		exposure type <b>test pit</b>	pit commenced <b>4-2-88</b>
R.L. $\approx$ 18m		equipment <b>FORD 555</b>	pit completed <b>4-2-88</b>
excavation dimensions <b>0.6 x 4.5m</b>		operator <b>P. HARDER</b>	logged by <b>B. WELDON</b>
checked by			

penetration 1 2 3	support	water	notes samples, tests	metres		classification symbol	material soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetr- ometer kPa				structure, geology
				R.L.	depth					60	100	200	400	
				0.2	0.2	ML	TOPSOIL: GRAVELLY SILT, grey	D	F6					
				0.5	0.5	GM	SILTY GRAVELS white-grey fine-medium size quartzite gravel, low plasticity	D	D					
				1	1	CH	CLAY: yellow-red-brown, medium-high plasticity M.C. < P.L. to 1.0 m depth then M.C. > P.L. occasional quartzite gravel particles.	M	US					
			END	2.2	2.2	CH	CLAY: GREY-yellow, high plasticity M.C. > P.L.	M	US					
Test pit terminated at 2.4m below ground level														
sketch														



# ENGINEERING LOG – EXCAVATION

excavation no. **6**  
sheet **1** of **1**

project <b>FRESHWATER POINT</b>		<b>STAGE V</b>		location	
co-ordinates		exposure type <b>test pit</b>		pit commenced <b>4-2-88</b>	
R.L. <b>~14m</b>		equipment <b>FORD 555</b>		pit completed <b>4-2-88</b>	
excavation dimensions <b>0.6 x 4.3m</b>		operator <b>P. HARDER</b>		logged by <b>R. WELDON</b>	
checked by					

penetration 1 2 3	support	water	notes samples, tests	metres		graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetr- ometer kPa				structure, geology
				R.L.	depth						25	50	100	200	
				0.1			ML	TOPSOIL: dk grey-black silty clay	3	Fb					
				0.4			ML	SILTY CLAY: dark grey, med plasticity MC<P.L.	3	Fb					
				0.9			GP	GRAVEL: fine-medium size quartzite gravel white-cream, some sand, med-low plasticity	D	D					
				1.2			GC	GRAVELLY CLAY: medium plasticity yellow-brown- red MC>P.L. fine-med size gravel	M	VSb					
				1.4			CH	CLAY: medium-high plasticity yellow-red- brown MC>P.L.	M	VSb -H					
			END	2.5			CH	CLAY: medium-high plasticity, grey-brown- red, MC>P.L.	M	VSb					
Pit terminated at 2.5m below ground level															
sketch															

# ENGINEERING LOG – EXCAVATION

excavation no. **7**  
sheet **1** of **1**

project <b>FRESHWATER POINT</b>		<b>STAGE V</b>		location	
co-ordinates		exposure type <b>test pit</b>		pit commenced <b>4-2-88</b>	
R.L. <b>~ 14m</b>		equipment <b>FORD 555</b>		pit completed <b>4-2-88</b>	
excavation dimensions <b>0.6 x 3.5m</b>		operator <b>P. HARDEL</b>		logged by <b>B. WELDON</b>	
checked by					

penetration 1 2 3	support	water	notes samples, tests	metres		classification symbol	material soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetr- ometer kPa	structure, geology
				R.L.	depth						
				0	0.00	GP	GRAVEL: fine-medium size quartzite gravel with silty fines (low plasticity), some sand, subrounded particles	D	L		
				0.00	0.00						
				0.00	0.00						
				0.00	0.00						
				0.00	0.00						
				0.00	0.00						
				0.00	0.00						
				0.00	0.00						
				0.00	0.00						
				0.00	0.00						
			END	1.6				M	D		
Pit terminated at 1.6m below ground level											
sketch											