RB 37/67

DEPARTMENT OF MINES - SOUTH AUSTRALIA

D.M. 574/54.

Notes on Foundation Drilling for Caltex Co. Ltd. at Birkenhead.

Introduction.

Following urgent representations from Caltex Co. Ltd. a test bore was sunk during the period 25.3.54. - 27.3.54. to investigate foundation conditions at the site proposed for the erection of a large storage tank on the Company's property at Birkenhead. Diameter of the proposed tank is 100 feet.

Drilling.

One test bore only was sunk, to a total depth of 43 feet. A detailed log of the bore prepared by D. Thatcher, Assistant Geologist, is as follows:-

Bore 1. see attached.

Foundation Conditions.

The sequence of formations revealed in this bore is in general similar to that found in adjacent areas of the Birkenhead district tested during the last few years, viz. at the Shell Co., the Vacuum Co. and at the new Sulphuric Acid Plant. This is in essence a sequence of grey clayey sands and soft shelly sands containing spongy seaweed, extending from the surface to about 30 feet, giving way in depth to a much denser, more compact silty clay a few feet thick, lying on a cemented hard shelly limestone layer at depth 32-35 feet. Below this limestone is a 4 foot layer of coarse sand lying on a considerable thickness of dense, hard, sandy clay formation which extends to considerable depths.

The upper grey sands are spongy, waterlogged and compressible and thus have low bearing capacity (probably less than ½ ton/square foot). On the other hand the cemented limestone layer and underlying formations have relatively high bearing capacity and should make an excellent footing for piles. Experience has already found this to be the case at the site of the new Sulphuric Acid Plant near Cresco Fertilizers Ltd. at Birkenhead.

Without piles to reduce unit loadings on the proposed tank site, it is probable that a fairly broad raft structure would be required.

K.R.Miles.
Senior Geologist.

Engineering Geology & Mineral Resources Section.

KRM:GMT.
8.4.1954.

CALTEX CO. LTD.

Bore 1. Bore Serial No. PD 527/54.

Drilling commenced 25.3.1954. completed 27.3.1954. Driller: K. Corbell.

0	- 1'6"	Silty brown and grey clay.
1'6"	- 7'0"	Coarse sand - light sandy grey in colour, soft, waterlogge
7'0"	- 29'	Coarse sand - darker grey in colour. Micaceous.
10'	- 13'	Somewhat ferruginous in patches and rather spongy. Rich in shell fragments.
15'	- 23'	Rich in vegetable matter (spongy compressible).
27'	- 28'	Patch of grey silty clay.
29'	- 30'	Grey fine silty clay with patches of ferrigininous materia
30'	- 32'	Brown fine silt clay (fairly hard).
32'	- 35'	White shelly limestone, some well cemented (Hard).
35'	- 39'	Grey coarse sand.
36'	- 37'	Rich in shells.
39'	- 43'	Brown silt with coarse sand fragments of quartz. Flashes of white mica. Dense and hard.
	43'	End of Bore.