Section
RB 63/138

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Rept. Bk. No. 63/138
G.S. No. 3610
Hyd. No. 1855
D.M. 201/56

REPORT ON GROUNDWATER PROSPECTS

Section 3, Hd. Wright

- Dolphin Bros. -

REQUIREMENTS AND LOCATION

A request was received for advice on the possibility of obtaining groundwater suitable for sheep, an estimated minimum quantity required being 50 gallons per hour.

The property is located one mile east of the township of Venus Bay and is bounded to the north by the main road to Elliston, while the southern boundary is formed by the coast line. The inspection was made on 23rd November, 1966.

TOPOGRAPHY AND GEOLOGY

Low and elongated fixed sand dunes form the main feature of the area. These dunes are separated from each other by shallow depressions. The southern boundary is formed by a relatively low coastal cliff. Recent mobile sand dunes occur in the southeastern and southwestern part of applicant's property.

Coarse-grained, current bedded quartz and felspar sandstones and grits with occasional gravel beds outcrop in the lower portion of the coastal cliffs. These grits form the basement in the area. Their age is uncertain, but they have been tentatively correlated with the Corunna Conglomerate of Cambrian age. They are overlain by a series of fine to medium grained impure aeolianites, which have been calcreted in part to form relatively thin hard bars. Recent mobile sand dunes are the youngest sediments in the area, they are well developed in the vicinity of Mt. Camel.

Recent sand dunes of lower elevation occur in the western portion of the property.

HYDROLOGY

Annual rainfall averages 15 inches.

Groundwater in this area is generally of very poor quality, evidenced by about 36 bores drilled by the applicant. These bores intersected groundwater with a salinity in excess of 21,000 parts per million of assumed total salts. Small supplies of saline water were obtained from 16 to 120ft. depth.

Seepages occur in the coastal cliff and the groundwater is discharged at the contact between the grits and the overlying aeolianites. The flow of these seepages is very small, probably being of the order of 2 gallons per hour. They vary markedly in quality, ranging from 8,000 parts per million to greater than 14,000 parts per million. These seepages could not economically be utilised. The applicant has drilled a borehole on the cliff immediately above the seepage yielding the best quality water. A very small supply of very saline water was encountered.

The only usable supply of groundwater on the property is obtained from a well sunk on the landward side of Mt. Camel, a large dune. At a depth of 57 feet a thin horizon of relatively fresh water has been intersected, containing 1,630 parts per million of assumed total salts. It lies on top of denser saline groundwater below. This well is in an area where there could be some concentration of rainfall, giving rise to downward percolation of rainwater to the aquifer, refreshing locally the groundwater.

It is probable that similar supplies could be obtained for one or two wells sunk also on the base of Mt. Camel, but well away from the present water well. It is suggested to sink new wells closer to the dune than the present one.

Prospects are poor of obtaining a usable water supply on any other parts of applicant's property.

CONCLUSIONS AND RECOMMENDATIONS

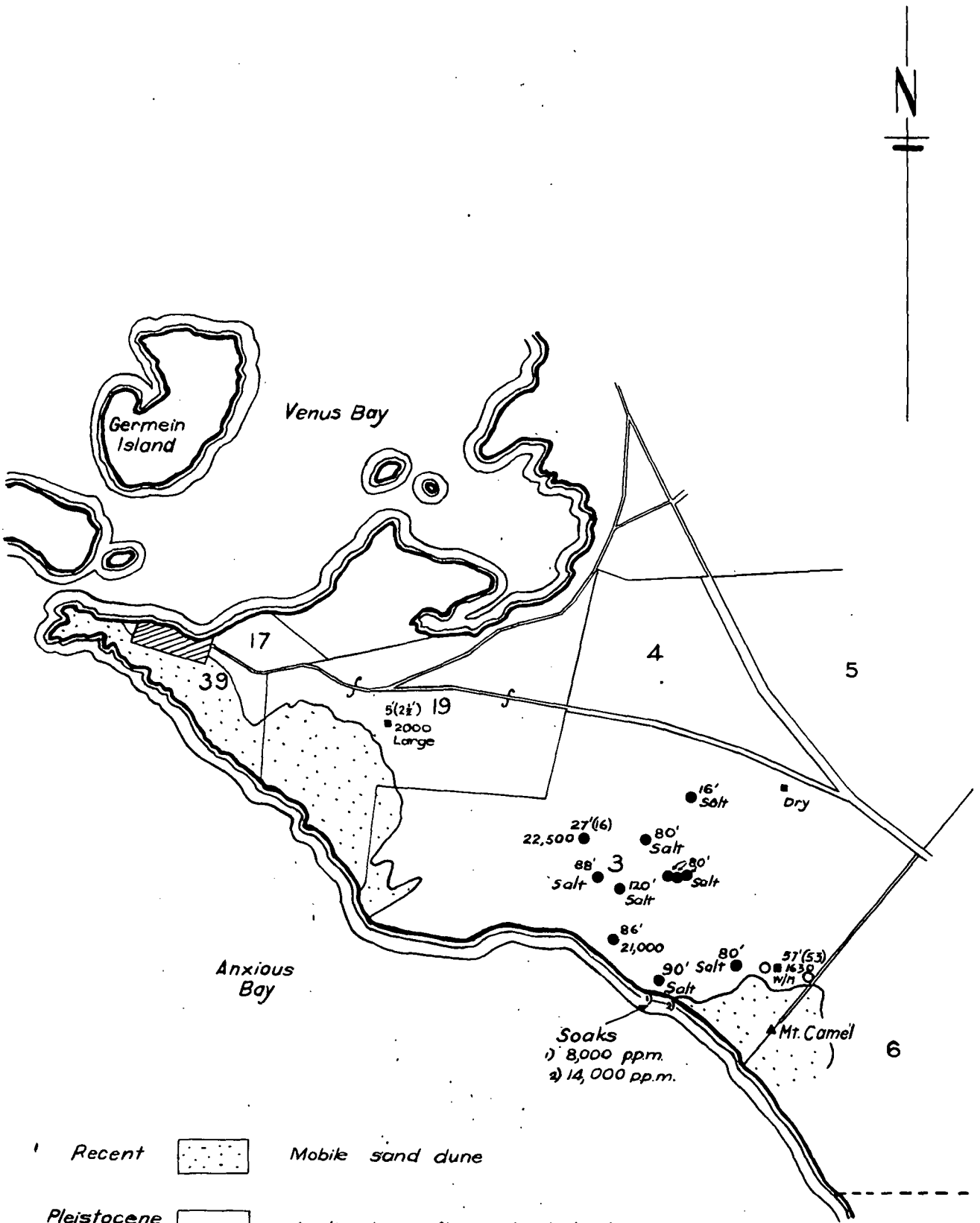
Groundwater occurring in this area is generally very saline and in excess of 21,000 parts per million. Such water unsuitable for stock has been obtained in now abandoned boreholes.

In the vicinity of Mt. Camel, prospects are somewhat better of obtaining a limited supply of usable water. It appears warranted to sink one or two wells at the base of the Mt. Camel dune. Large supplies could not be expected. If saline water is encountered during the construction, then digging should be discontinued, as there is no possibility of any fresher water occurring at depth.

Drilling or well sinking for groundwater elsewhere on the property cannot be recommended.

T.M. STEEL
GEOLOGIST
HYDROGEOLOGY SECTION

TMS:CB:CAE
20.12.1966



DEPARTMENT OF MINES — SOUTH AUSTRALIA

	Drn. T.M.S.	GROUNDWATER SURVEY SECTION 3 HD. WRIGHT (DOLPHIN BROTHERS)	SCALE: 1 Inch = 80 Chains
	Tcd. R.A.J.		S5648 Dg 21
	Ckd. L.V.W.		
	Exd.		DATE: 20 DEC. 1966