REPT.BK.NO. 73/82

GROUNDWATER SURVEY

Hd. Adelaide, Pt. Sec. 986, Lots 19 & 20

E. Christensen -

A.F. WILLIAMS

Department of Mines
South Australia —

DEPARTMENT OF MINES
SOUTH AUSTRALIA

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by

A.F. WILLIAMS

Geologist

HYDROGEOLOGY SECTION

26th March, 1973

Rept.Bk.No. 73/82
G.S. No. 5088
Hyd. No. 2515
D.M. No. 351/73

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GROUNDWATER SURVEY

Location

General: About 1 km N.E. of Crafers

Region: 4

County: Adelaide

Hundred: Adelaide

Section: Pt. 986, Lots 19 and 20

Owner: Miss E. Christensen

Postal Address: Vantage Way,
CRAFERS, S.A. 5152

Telephone: 391104

Requirements

Water required for: Gardening and domestic use.

Quantity: Not stated - presumably not more than 0.6 l/sec.

Quality: Less than 8000 mg/l for the above uses.

HYDROGEOLOGICAL REPORT

Physiography and Land Use

The applicant's land lies in the Adelaide Hills on a lower part of the ridge which has Mount Lofty as its highest point (some 700 m above sea level). The property is itself some 500 m above sea level and is rather flat.

It consists of a house, garden and a small area of stringy bark scrub.

Climate

Nearest rainfall station: Stirling West.

Mean annual rainfall: 1190 mm.

Remarks on rainfall pattern: Rainfall is expected to be very similar to that recorded at Stirling West. Most rain falls in the months April to October (over 95 mm per month). Bore water is required for a variety of uses during the drier summer months.

Surface Hydrology

Creek name(s): None on the property since it lies almost at the crest of a ridge.

Springs: None on the property.

Surface storage: At present, the owner relies on two large rainwater tanks for all sources of water.

Geology

Soil Cover: Top soil is a dark grey silty sandy soil overlying a mottled red brown and yellow brown clayey soil of streaked appearance possibly due to differential weathering. Bedrock fragments of quartz and sandstone occur throughout. Thickness varies from 0 to 0.7 m.

Rock Units: Torrensian Stonyfell Quartzite.

Lithology: Bedrock is composed of white medium grained felspathic quartzite and softer sandstone beds.

Joints and fractures are prevalent.

Direction and Amount of dip: About 20° to the south east.

Aquifer Assessment

Type: Free water table. Water is expected to be stored in the pore spaces, fractures and joints of the sandstones and quartzites.

Extent: The aquifer underlies the whole of the property.

Potential Recharge: Although the property is near the top of a hill, the excellent rainfall should provide sufficient recharge to a bore which will only be required to pump about 0.7 l/sec. Soil cover varies in thickness from zero to about 0.7 m and it is considered that sufficient amounts of rainwater should percolate down to the water table to replenish the supply.

Borehole Site Location

General: No specific site was chosen on geological evidence as conditions are the same over the whole of the property which is only about 0.2 hectares in area. A site was chosen such that a drilling rig would have the minimum amount of trouble with access and such that it suited the owner.

Reason for location: See above. A bore anywhere on the property should intersect quartzite or sandstone at the water table and should provide adequate supplies of good quality water. However it is

anticipated that the bore will need to be fairly deep due to the fact that the property is on such a high ridge and thus the water table should be at a greater depth than if the bore were sited at a lower level.

Proposed Depth: Possibly up to 100 m.

Expected Yield: 0.7 l/sec or more.

Expected Quality: Should be less than 800 mg/l.

Probable Log: 0 - 0.3 m - Top soil

0.3 m - 100 m - Stonyfell quartzite - sandstones and quartzites.

Drilling and Testing Recommendations

Drilling Hazards: No real hazards are expected but it is recommended that a rotary drill be used to drill this bore because of the hard quartzite bands which will be intersected.

Sampling: Samples of any waters cut should be brought into this Department for testing (free of charge). A geological log would be appreciated.

Pump Test: This service can be provided by the driller or pump distributor.

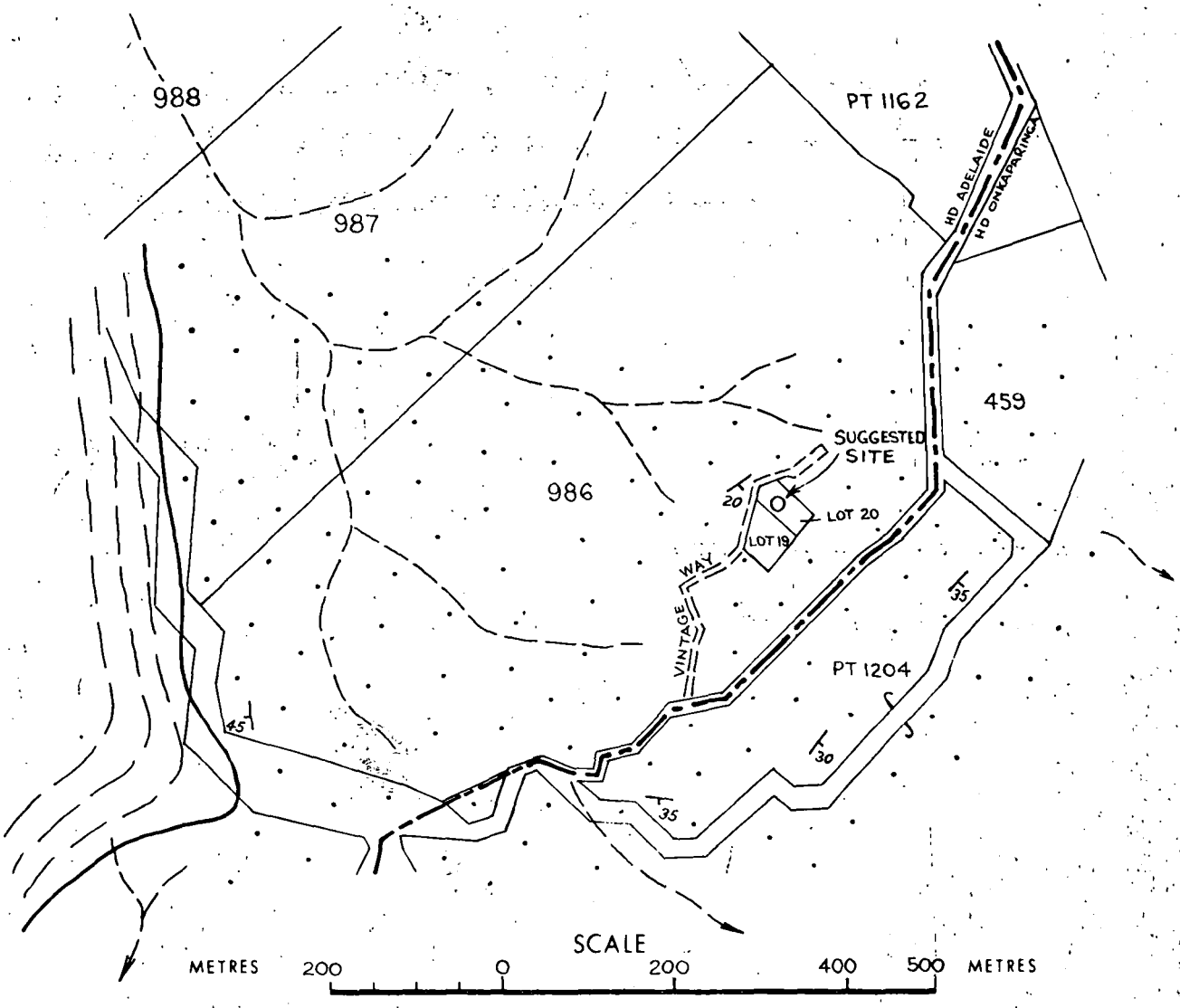
Summary: No specific site was recommended because the property is uniformly underlain by Stonyfell Quartzite probably to a depth of 120-180 metres. A bore about 100 m deep should intersect good quality water sufficient

to suit the owner's needs. Total cost including pump installation, could amount to $3000-3500. The owner does not wish to install more rainwater tanks.

26th March, 1973

A.F. WILLIAMS
Geologist

Survey Date: 20/3/73



LEGEND

Upper phyllites – Torrensian

Stonyfell Quartzite – hard and soft bands of white quartzite and sandstone

Existing borehole ● 160 – Depth in metres
2015 – Salinity in milligrams per litre
5000 – Supply in litres per hour
2-72 – Month, year

Well ■

Spring ✛

Abandoned borehole ✖

Proposed boresite O

Strike and dip of bedding 60

Strike and dip of jointing 50

Strike and dip of foliation 35

Strike and dip of cleavage 45

Geological boundary

Fault line

Drainage lines

Surface storage

DEPARTMENT OF MINES - SOUTH AUSTRALIA

HYDROGEOLOGY SECTION	GROUNDWATER SURVEY PT SEC 986 LOTS 19 & 20 HD ADELAIDE MISS E. CHRISTENSEN	Date. 29 March-1973
Compiled. A.F. Williams		Drg.No. S 10233 Ha 6
Drn. A.F. Ckd.		

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