

Start



GROUNDWATER SURVEY
Hundred: Kanmantoo, Pt. Section: 5281 & 5299

- H.D. Hutton -

S. R. BARNETT

Department of Mines
South Australia —

73/77

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GEOLOGICAL SURVEY
ENGINEERING DIVISION

GROUNDWATER SURVEY

Hundred: Kanmantoo, Pt. Section: 5281 & 5299

- H.D. Hutton -

by

S.R. BARNETT
GEOLOGICAL ASSISTANT
HYDROGEOLOGY SECTION

MICROFILMED

Rept. Bk. No. 73/77
G.S. No. 5083
Hyd. No. 2509
DM. No. 319/73

13th March, 1973

DEPARTMENT OF MINES
SOUTH AUSTRALIA

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GROUNDWATER SURVEY

Location

General: One kilometre east of Nairne
Region: 3
County: Sturt
Hundred: Kanmantoo
Part Sections: 5281 and 5299

Name of Property: Nairne Golf Club
Owner: Mr. H.D. Hutton
Postal Address: 16 Pyrites Road,
BRUKUNGA, S.A. 5252

Telephone: 886511

Requirements

Water required for: Irrigation of grass
Quantity: 1.3 litres/sec or greater
Quality: Less than 1 300 mg/litre

HYDROGEOLOGICAL REPORT

Physiography and Land Use

The property inspected is situated on rounded hillslopes of moderate relief between 335 metres and 380 metres above sea level. It is mostly cleared and is covered by wild grasses on which sheep are grazing. There is a small quarry near the centre of the property.

Climate

Nearest rainfall station: Nairne

Mean annual rainfall: 27.27 inches (699 mm)

Remarks on rainfall pattern: The mean monthly distribution over the past 81 years to 1964 has been in points (1 inch = 100 points).

| | | | | | | |
|---------------|------|------|-------|-------|------|------|
| <u>Month</u> | Jan. | Feb. | March | April | May | June |
| <u>Points</u> | 103 | 103 | 109 | 215 | 308 | 364 |
| <u>Month</u> | July | Aug. | Sep. | Oct. | Nov. | Dec. |
| <u>Points</u> | 363 | 349 | 305 | 241 | 152 | 115 |

Surface Hydrology

Creek name: Unnamed tributary of Nairne Creek.

Characteristics: An ephemeral stream (i.e. flows only after heavy rain) flows south-easterly through the north-east corner of the property.

Springs: No springs were observed on the property.

Surface storage: There are two small surface storages on the property which are used solely for the watering of sheep.

Geology

Soil Cover: The soil cover is almost complete except for the quarry. It consists of a light brown clayey soil.

Rock Units: Quaternary - alluvium in stream valleys
Cambrian - Kanmantoo Group.

Lithology: Quaternary - alluvial sands, gravels and clays associated with stream beds
Cambrian - Kanmantoo Group: predominantly fine grained quartz mica schist.

Direction and Amount of dip: The dip is generally steeply to the east (approx. 70°).

Structural Features: The Nairne Fault trends north-south in the vicinity of the western end of the property but no evidence of its exact location could be observed.

Aquifer Assessment:

Type: Free water table. Groundwater is stored in joints and fractures in the underlying bedrock. The storage capacity is therefore dependent on the frequency of these fractures.

Extent: Throughout the property with the water table much shallower in gullies.

Potential Recharge: Recharge results from infiltration of rainfall and downward percolation of runoff provided by the drainage lines. Moderate to good recharge is expected because of the reasonably high rainfall and relatively large catchment area of the creek.

Borehole Site Location

General: A borehole site is recommended near the creek bed in the north east corner of the property as shown on the accompanying plan.

Reason for Location: Recharge potential is greatest at the site due to infiltration from run off.

Proposed Depth: 60-75 metres

Expected Yield: Approx. 1.3 litres/sec

Expected Quality: Less than 2 000 mgm/litre

Probable Log: Weathered quartz mica schist followed by fresh schist.

Drilling and Testing Recommendations

Drilling Hazards: The bore should be cased to the top of unweathered rock with the casing extending about 0.3 metres above ground level to prevent any influx of sediment into the bore.

Sampling: All waters cut and at intervals in the aquifer to detect any salinity increase with depth.

Pump Test: This service can be supplied by the driller and/or pump distributor.

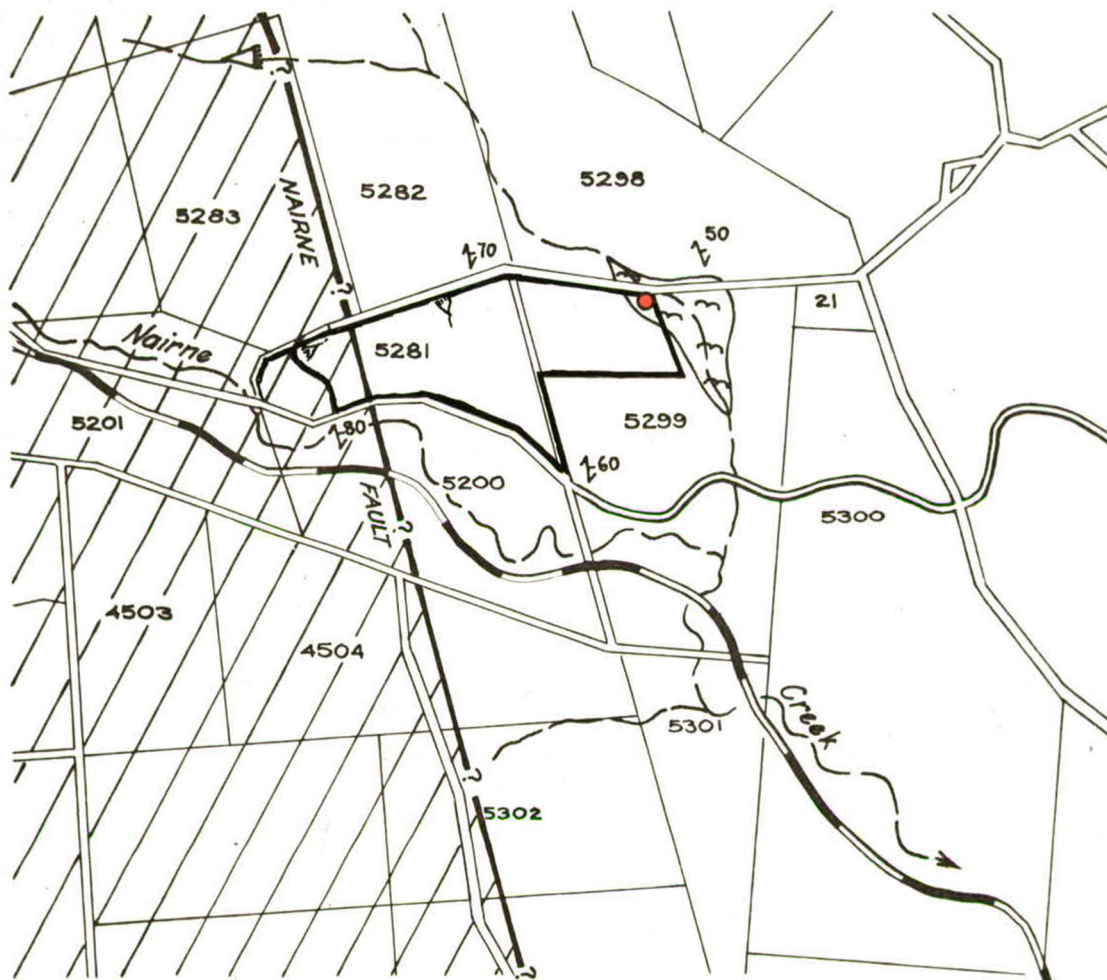
Summary

The property was inspected geologically and a site was recommended next to the creek in the north-east corner of the property. A supply of approximately 1.3 litres/sec is expected after drilling to a depth of 60-75 metres. The expected quality is less than 2 000 mg/litre. If the salinity of the waters cut is too high for the irrigation of grasses, dilution with mains water or water from the two surface storages is recommended.


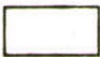
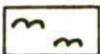
SRB:FdeA
13.3.73

S.R. BARNETT
GEOLOGICAL ASSISTANT

Survey Date: 7.3.73



LEGEND

-  Proterozoic - Marinoan Series, purple & brown slates.
-  Cambrian - Kanmantoo Group - quartz mica schist.
-  Quaternary - alluvial sands, gravels & clays.

- 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.....

- 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 borehole 

DEPARTMENT OF MINES - SOUTH AUSTRALIA

HYDROGEOLOGY SECTION

Compiled. S.R.B.

Drn. S.J.C. Ckd.

GROUNDWATER SURVEY PT. SEC. 5281 & 5299-HD KANMANTOO NAIRNE GOLF CLUB

Date. 9-3-1973

Drg. No.

S10205

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