/97

GROUNDWATER SURVEY

Hundred Noarlunga; Sec. 525

- J. L. Parker -

S. R. BARNETT

Department of Mines
South Australia —

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GROUNDWATER SURVEY

Hundred Noarlunga, Section 525

- J.L. Parker -

by

S.R. BARNETT
GEOLOGICAL ASSISTANT
HYDROGEOLOGY SECTION

Rept.Bk.No. 73/97
G.S. No. 5103
Hyd. No. 2519
D.M. No. 341/73

9th April, 1973.

DEPARTMENT OF MINES
SOUTH AUSTRALIA

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GROUNDWATER SURVEY

Location

General: 1/2 km south of Longwood.

Region: 4

County: Adelaide

Hundred: Noarlunga

Section: 525

Owner: J.L. Parker

Postal Address: Longwood Road,
LONGWOOD.

Telephone: 88-2358 (Business 51-2731)

Requirements

Water required for: Household use and watering of garden, lawn and vegetables.

Quantity: 0.4 l/sec.

Quality: As good as possible.

HYDROGEOLOGICAL REPORT

Physiography and Land Use:

The inspected property lies on rounded hillslopes of moderate relief between 410 metres and 465 metres above sea level. It is only partially cleared with native scrub and pine trees covering much of the property.

Climate

Nearest rainfall station: Stirling West.

Mean annual rainfall: 1,190 mm.

Remarks on rainfall pattern: The mean monthly distribution over the past 80 years to 1964 has been in mm.

Month	Jan	Feb	Mar	Apr	May	June
Mm	39	37	43	95	143	183
Month	July	Aug	Sept	Oct	Nov	Dec
Mm	161	156	124	99	61	49

The rainfall at the property in question is thought to be about 1,015 mm with a similar mean monthly distribution as above.

Surface Hydrology

Creek name: Unnamed high order tributary of Leslie Creek.

Characteristics: A small ephemeral creek flowing eastwards in a steep gully from the eastern portion of the property.

Springs: There are no springs or surface storages on the property.

Geology

Soil Cover: A cover of light brown silty soil is complete throughout the property with weathered sandstone float and minor outcrop near the tops of the hills.

Rock Units: Proterozoic-Torrensian (Aldgate sandstone).

Lithology: Medium grained argillaceous sandstone with an interbedded shale bed trending north-east through the property as indicated by areas of low relief.

Direction and Amount of dip: The bedrock is dipping southeast at approximately 30°.

Structural Features: Where exposed, the sandstones appear well jointed.

Aquifer Assessment

Type: Free water table. Water is stored in joint and fractures in the underlying bedrock. The storage capacity is therefore dependent on the degree of fracturing and also on the degree of weathering of the interbedded shales. The clay weathering products infill the joints and fractures and hence decrease the storage capacity. This is why the existing bore on the property has a small supply.

Potential Recharge: Recharge results from infiltration of rainfall and downward percolation of run-off provided by drainage lines. High rainfall and low salinities in the area suggest good recharge.

Borehole Site Location

General: A borehole site was recommended on top of the ridge along the northwestern boundary of the property. The precise location is left to the discretion of the owner.

Reason for location: The dip of the interbedded shales to the southeast necessitates drilling as far as possible to the north-west in order to drill through the minimum thickness of interbedded shale.

Proposed Depth: Possibly up to 140 m.

Expected Yield: Approximately 1.3 l/sec.

Expected Quality: Less than 500 mg/l.

Probable Log: Hard sandstone overlying soft interbedded shales followed by hard sandstone.

Drilling and Testing Recommendations

Drilling Hazards: The bore should be cased to the top of unweathered rock with the casing extending 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 increase in salinity with depth. A geological log of the bore would be appreciated by the Department.

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

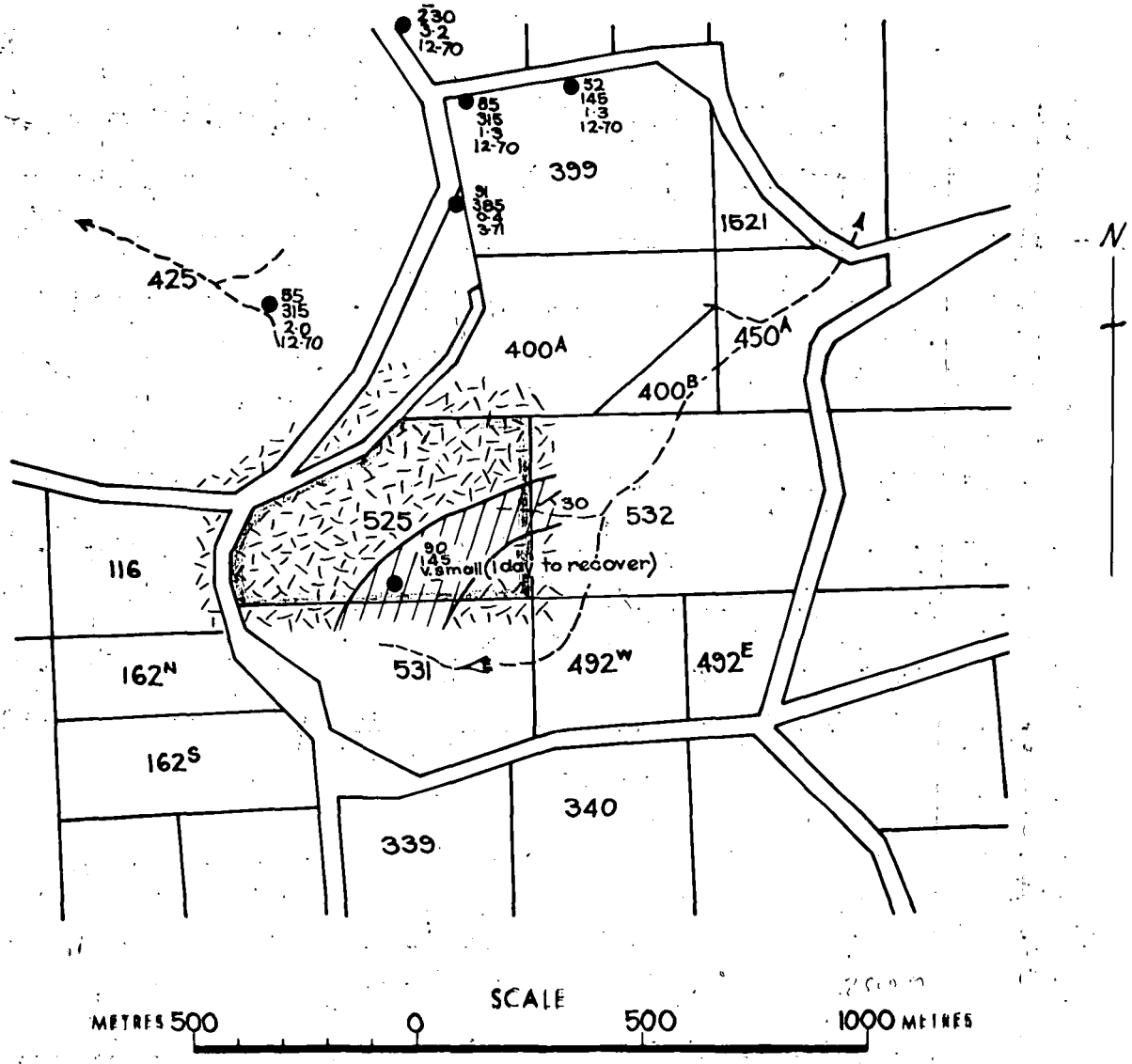
Summary

The property was inspected geologically and a borehole site was recommended on the top of the ridge near the northwest boundary of the property in order to encounter the minimum thickness of interbedded shale. The actual location is left to the discretion of the owner. Hard sandstone should be reached at a depth of the order of 140 m from which very good quality water of less than 500 mg/l at approximately 1.3 l/sec. should be obtained. An alternative source of water could be the construction of a dam in the gully on the southern boundary of the property. The owner would be well advised to investigate the economics of both alternatives as this is the deciding factor.

SRB:JS
9th April, 1973.

SRB
S.R. Barnett
Geological Assistant

Survey Date: 28.3.73.



LEGEND

Torrensian - Aldgate Sandstone - medium grained argillaceous sandstone.

Interbedded shale.

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

Well ■

Spring ✚

Abandoned borehole ✖

Proposed boresite ○

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 SEC 525 - HD NOARLUNGA J. L. PARKER	Date. 11th APRIL 1973
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Drn. S.J.C. | Ckd. A.F.		

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