GROUNDWATER SURVEY

Hundred: Noarlunga Pt. Section: 87

- H.F. Hastwell -

S.R. BARNETT

Department of Mines
South Australia —

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GROUNDWATER SURVEY

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- H.P. Eastwell -

by

S.E. BARNETT, B.Sc.
GEOLOGIST

Rept.Bk.No. 74/70
G.S. No. 5389
Hyd. No. 2637
D.M. No. 183/74

5th March, 1974

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SOUTH AUSTRALIA

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GROUNDWATER SURVEY

Location

General: 0.5 km southeast of Bridgewater

Region: 4

County: Adelaide

Hundred: Noarlunga

Pt. Section: 87

Owner: H.F. Hastwell,

Postal Address: 17 Finniss Tce.,
BURNSIDE. S.A. 5066

Telephone: 79-1869

Requirements

Water required for: Household use, irrigation of walnuts, stock.

Quantity: Not specified.

Quality: As good as possible.

HYDROGEOLOGICAL REPORT

Physiography and Land Use

The property inspected lies on an easterly facing rounded hillside of moderate relief between 365 and 410 metres above sea level. It is partially cleared of natural vegetation with the intention of planting walnut trees in several months time.

Climate

Nearest rainfall station: Bridgewater.

Mean annual rainfall: 1050 mm (41.33 ins.).

Remarks on rainfall pattern: Most of the annual rainfall (80%) falls between April and October with each of the winter months receiving 125 mm (5 ins.).

Surface Hydrology

Creek name: Unnamed tributary of Cox Creek.

Characteristics: A southerly flowing creek close to the eastern boundary of the property - fed by numerous springs.

Surface storage and Springs: A small earth dam is situated on the creek and is fed by a spring upstream. There is also another springs immediately downstream from the dam.

Geology

Soil Cover: A cover of light grey silty soil is present over most of the property and thickens towards the base of the hillslope. Very little unweathered bedrock is visible.

Rock Units: Proterozoic - Torrensian Aldgate Sandstone.

Lithology: Aldgate Sandstone - a buff-coloured medium grained, moderately well sorted, porous sandstone.

Direction and Amount of dip: The regional dip is approx. 30° to the east.

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 degree of fracturing which is unknown due to the absence of outcrop.

Potential Recharge: Recharge results from infiltration of rainfall and downward percolation of runoff in drainage lines. Because of the high rainfall and low salinities recorded in the area recharge is expected to be good.

Borehole Site Location

General: A borehole site is recommended in the gully upstream from the small dam.

Reason for location: This location is near to the lowest point on the property and hence depth to the water table is minimal. Optimum recharge can be obtained from any runoff flowing in the creek.

Proposed Depth: About 60 m.

Expected Yield: 1.3 - 2.0 litres/sec. (1,000-1,500 galls/hr.)

Expected Quality: Less than 750 mg/l.

Probable Log: 0-3 m. Creek alluvium and weathered bedrock.

3 m ± Fresh sandstone.

Drilling and Testing Recommendations

Drilling Hazards: The bore should be cased to the top of unweathered rock to prevent collapse of the bore, with 0.5 metres of casing above ground level to prevent influx of sediment into the bore.

Sampling: All waters cut and at intervals in the aquifer to detect any salinity increase with depth. Samples (26 fl.oz.) should be brought into the Department of Mines for testing free of charge. A geological log would be appreciated.

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

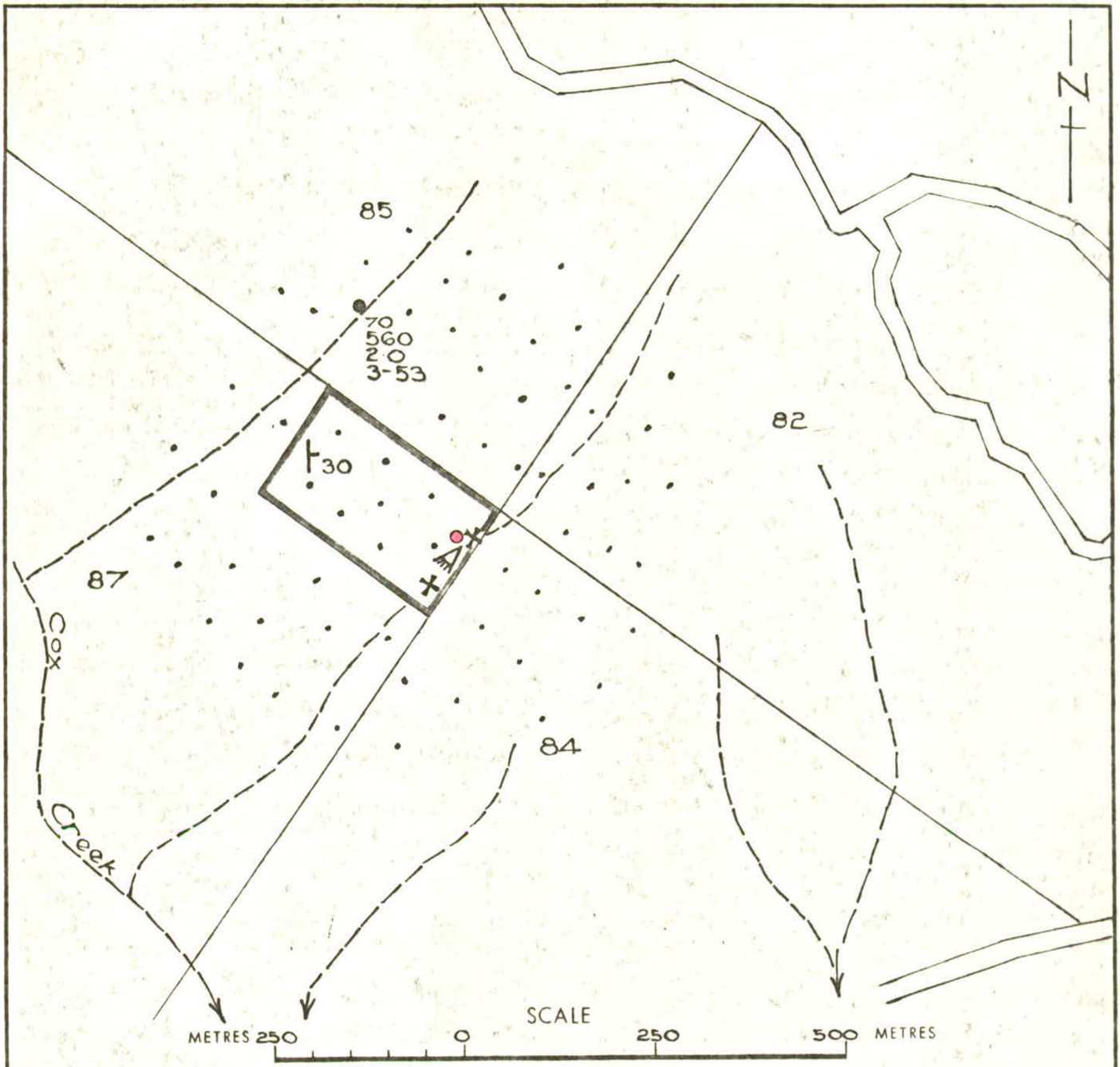
Summary:

The property was inspected geologically and a borehole site is recommended in the gully upstream of the small earth dam in order to obtain maximum recharge and minimal depth to the water table. A supply of 1.3 - 2.0 litres/sec. (1000-1500 galls/hr.) is expected after drilling to a depth of about 60 m. The probable salinity is less than 750 mg/l which is suitable for all general purposes and the irrigation of walnuts.

S.R. BARNETT, B.Sc.
GEOLOGIST

Survey Date: 27.2.74

SRB:TG
5.3.74



LEGEND

Existing borehole ● 160 —Depth in metres
2015 —Salinity in milligrams per litre
5·0 —Supply in litres per sec.
2-72 —Month , year

Torrensian - Aldgate sandstone

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 PT. SEC. 87 HP. NOARLUNGA H. F. HASTWELL.	Date. 4. MAR. 1974
Compiled. S.R.B		Drg.No. S10738 Ha 9
Drn. R.B. Ckd. A.F.		

P.F. No. S7359A MH
A4