REPT.BK.NO. 74/22

GROUNDWATER SURVEY

Hd. Noarlunga Pt. Sec. 425

- S. Koci -

P.C. SMITH

Department of Mines
South Australia —

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GROUNDWATER SURVEY

HYDROGEOLOGY SECTION

Hundred: Noarlunga Pt. Sec. 425

- S. Koci -

by

P.C. SMITH
Geological Assistant

Rept.Bk.No. 74/22
G.S. No. 5338
Hyd. No. 2617
D.M. No. 1189/73

24th January, 1974

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Rept.Bk.No. 74/22
G.S. No. 5338
Hyd. No. 2617
D.M. No. 1189/73

GROUNDWATER SURVEY

Hundred: Noarlunga Pt. Sec: 425

Location:

General: approx.3.5 km south of Longwood.

Region: 4

County: Adelaide

Hundred: Noarlunga

Part Section: 425

Name of Property: —

Owner: S. Koci

Postal Address: 8 Lara Street,
INGLE FARM. S.A. 5098

Telephone: (Business) 45 4681 Ext. 367

Requirements:

Water required for: domestic purposes.

Quantity: approx. 225 litres per day.

Quality: less than 1000 mg/l

Other factors: Prefered site is adjacent to rain water tank on eastern side of house.

HYDROGEOLOGICAL REPORT

Physiography and Land Use: The property is situated at about 435 m above mean sea level on the northern slope of a hill of moderate to high relief.

The allotment has been partially cleared of native scrub

for the construction of a house.

Climate:

Nearest rainfall station: Bridgewater

Mean annual rainfall: 42.41 inches (1077 mm)

Remarks on rainfall pattern: The mean monthly rainfall distribution over the past 87 years to 1964 has been in points (1 inch = 100 points):

Month	Jan.	Feb.	Mar.	April	May	June
Points	124	116	147	314	523	649
Month	July	Aug.	Sept.	Oct.	Nov.	Dec.
Points	617	589	448	357	204	153

It is expected that the average yearly rainfall on the property is less than the above figure but with a similar monthly distribution.

Surface Hydrology:

Creek name: No creeks occur on the property. However an ephemeral drainage line with a northwesterly flow direction has been dammed just to the north of the house.

Springs: No springs were observed on the property.

Surface Storage: Surface storage is effected by a dam (mentioned above) constructed on the drainage line. A rainwater tank is to be erected adjacent to the house.

Geology:

Soil Cover: Soil cover is skeletal over sub-outcropping Aldgate Sandstone. It is a light grey sandy soil with a small silt fraction and numerous angular fragments of weathered sandstone.

Rock Units: Proterozoic (Torrensian) - Aldgate Sandstone

Lithology: Sub-outcropping on the block is the Aldgate Sandstone which locally is a yellow-orange, saccharoidal, ferruginous, feldspathic sandstone with some argillaceous (clayey) interbeds. The grain size of the rock decreases in the northern portion

of the block to become a very fine grained sandstone.

Direction and Amount of dip: In a road cutting just to the south of the house the sandstone trends in an east-west direction with a shallow dip (about 10°) to the south.

Structural Features: The rock in the cutting is well fractured and jointed with partial infilling of the fractures with clay. A major fault trending in a north easterly direction occurs about 1 km to the west of the property.

Aquifer Assessment:

Type: Free water table. Water is stored in the fractures within the underlying rock. The fracture density and the degree of interconnection of the fracture system(s) determine the potential storage capacity of the aquifer. A limiting factor is the degree of infilling of the fractures with clayey weathering products from the argillaceous interbeds. As was observed in the road cutting to the south of the house, infilling with clay is only partial.

Potential Recharge: Recharge is effected by the infiltration of rainfall and the downward percolation of surface water from the drainage line together with lateral groundwater flow. The relatively open nature of the fracture system coupled with the high rainfall of the area should provide adequate recharge.

Borehole Site Locations:

General: A site adjacent to the tank base on the eastern side of the house is recommended to be drilled. Its position is plotted on the accompanying plan.

Reason for location: The site was selected because:

1. the owner preferred a site in this position.
2. the potential hydrogeologic environment is favourable.
3. access for a drilling rig is good.

Proposed Depth: 100 to 120 m.

Expected Yield: greater than 2.5 litres/sec. (2000 gall./hr.).

Expected Quality: less than 1000 mg/l.

Probable Log: A thin veneer of soil followed by weathered sandstone then unweathered fractured sandstone with argillaceous interbeds and discordant quartz veins.

Drilling and Testing Recommendations:

Drilling Hazards: The bore should be drilled using the rotary method preferably with a down-hole hammer. The bore should be cased to the top of solid rock with slotted casing adjacent to any suitable water cut in the unstable weathered zone. Casing should extend about 0.3 m above ground level to prevent the influx of sediment into the bore.

Sampling: All waters cut should be sampled, thence periodically during drilling to detect any increase in salinity with depth. This Department analyses free of charge 26fl.oz. or 1 litre bottles of sample. A geological log would be appreciated.

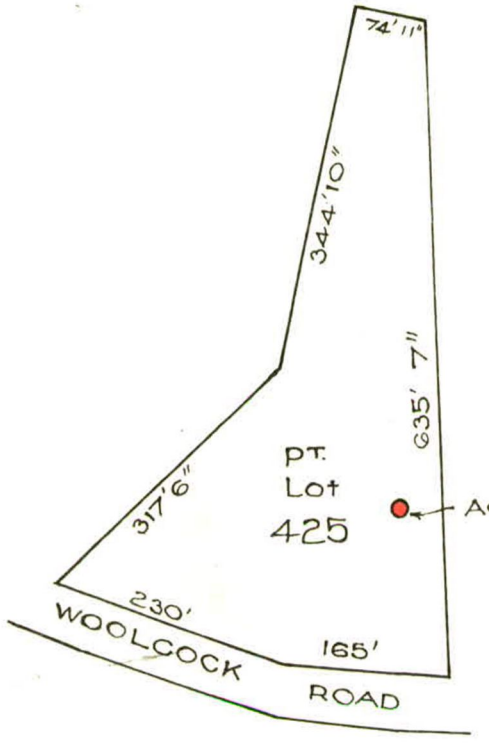
Pump Test: This service can be supplied by either and driller and/or pump distributor. The pump used by the distributor to develop the bore should not be purchased by the owner as the production pump.

Summary: The property was inspected geologically and one bore site recommended to be drilled. A bore drilled to about 100 m on the site indicated should supply water of sufficient quantity and of suitable quality for domestic use.

P.C. SMITH B.Sc.(Hons.)
Geological Assistant

Survey Date: 17.1.74

24.1.74
PCS:TG



N

Adjacent to rainwater tank

SCALE

METRES METRES

LEGEND

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

Well ■

Spring ✢

Abandoned borehole ✱

Proposed boresite ●

Proterozoic (Torrensian) – Aldgate sandstone, feldspathic, ferruginous, saccharoidal sandstone with argillaceous interbeds

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 .....

N.B. Not to scale

DEPARTMENT OF MINES - SOUTH AUSTRALIA

HYDROGEOLOGY SECTION	GROUNDWATER SURVEY	Date. 24 Jan. 1974
Compiled. P.C.S.	PT. SEC. 425 HD. NOARLUNGA S. KOCI.	Drg No. S 10687 Ha9
Drn. R.B. Ckd.		

P.E. No. 57359A MH