

MEMORANDUM

TO J. C. Foweraker, Head
Groundwater Section
Hydrology Division

FROM N. T. Lomas
Engineering Aide
Groundwater Section

Water Investigations Branch

October 15 1976

SUBJECT Water table levels on Saanich Peninsula

OUR FILE 0183613-B

YOUR FILE

There are two types of observation wells in Saanich, those completed in surficial deposits and those completed in bedrock. I will mention these separately to indicate similarities between them with respect to annual decline and recharge.

The surficial wells mentioned will be WR-102-71 (Gliddon Road), WR-16-66 (Airport), WR-15-66 (Littlewood Road). Bedrock wells used in this memorandum will be WR-119-75 (Pemberton Holmes), 72-1 (Whitebirch), 72-2 (Bowerbank), 72-3 (Beacon). Water level readings for the months June through October are shown in table (a).

In comparing the 1976 data with 1975 it can be seen quite clearly that water levels in the surficial wells are generally one foot higher in 1976 than in 1975. This is as expected due to the increased recharge over the 1975-76 winter and the unfavourable climatic conditions encountered in 1976, which would reduce evapotranspiration and groundwater demand.

From table (a) it can be seen that the bedrock wells in North Saanich have responded similarly to the surficial wells showing an increase in water level of over one foot for the 1976 season. Readings for Well 72-1 (Whitebirch) were omitted as it was felt that this well was influenced by artificial recharge into Sidney Water Works Ardwell Road well. In 1975 the water level dropped from a flowing condition to a depth of 20 feet below ground surface, however, in 1976 the well continued to flow until mid-May and then proceeded to drop only several feet. Wells 119-75 and 72-3 are still showing a seasonal decline which usually reaches its limit by mid-October, Well 72-2 seems to decline sooner and stay at this lowered level until late October when it recharges quite quickly.

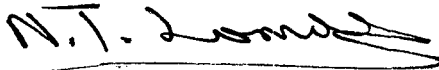
A phenomena noticed on the observation well hydrographs for the month of August 1976 readily shows that bedrock wells have immediate response to rainfall as do wells completed in surficial deposits. I have attached two hydrographs which best show this

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J.C. FOWERAKER
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effect; WR-122-76 and 72-3 (Beacon). WR-122-76 is located at Cordova Bay and is completed in surficial deposits. The hydrograph shows an immediate response to heavy rainfall (0.64") resulting in a two inch rise over a six hour period, the well returning to its normal trend after five days. Observation well 72-3 (Beacon) is completed in bedrock to a depth of 505'. It should be noted that the surficial material overlying the bedrock consists of 40 feet of clay and that the well is surface sealed and cased into the bedrock. This well also showed an immediate response to heavy rainfall (0.76"), not quite as dramatically as the well in surficial deposits but nevertheless a reasonable response of 0.37 inches was recorded. The amount of response in either case depends on the amount of rainfall reaching the aquifer and the permeability of the aquifer.

In summary the water table is higher in 1976 than in 1975 for wells completed in surficial deposits and bedrock wells. Both types of wells seem to show a rapid response to rainfall, and seem to be responding normally with seasonal influences.



N. T. Lomas

NTL/dmc

Table (a)

Saanich Observation Wells - Readings

Surficial

<u>Period</u>		<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>
WR-102-71	Gliddon Road					
1975		29.30	28.37	30.74	30.31	29.88
1976		27.18	28.72	29.12	28.66	28.46
WR-16-66	Airport					
1975		24.46	25.55	26.23	26.78	27.20
1976		24.05	24.95	25.30	25.70	25.81
WR-15-66	Littlewood Road					
1975		31.28	31.50	31.75	32.11	32.54
1976		30.00	30.42	30.74	31.04	31.35

Bedrock

WR-119-75	Pemberton Holmes					
1975				13.67	18.54	18.84
1976				9.91	13.52	15.12
WR-72-2	Bowerbank					
1975				13.89	13.39	13.47
1976				8.17	8.48	8.69
WR-72-3	Beacon					
1975				9.83	11.01	12.05
1976				8.87	9.81	10.72

72-3 (Benson)

→ ← 1 DAY

0.0315E rise

0.76" RAIN
19 AUG 76



METRIC CHART

→ ← 1 DAY

2.00 inch rise

0.64" RAIN
19 MAR '76

WB 122-76

