VERNMENT OF BRITISH COLUMBIA

MEMORANDUM

TO.....Alan Kohut

Senit Geological Engineer

Groundwater Section

FROM M. Zubel Geological Engineer Groundwater Section

February 17 19.78

SUBJECT. Scott Point Waterworks District -Water Supply. OUR FILE 92-B-14

YOUR FILE.....

Introduction

Subsequent to my site investigation of Thursday, January 26, 1978, Bill Hodge (Technician, Groundwater Section) and I visited the proposed Scott Point Waterworks District drilling sites. We met with three members of the Ministry of Highways Drilling Section (Wayne Soglo, Chief Technician, and two assistants) who came from their Vancouver office to demonstrate the static cone penetrometer equipment and undertake several tests to determine the depth to bedrock at sites A,C,D and any other potential drill sites.

Penetrometer Testing

The first test was performed at site C which is a shaley, gravelly knoll. The depth to bedrock was found to be 0.6 metres (2 feet) (Figure 1). The next two tests were performed at site D. The first of these two tests encountered a very hard material after 1 metre of penetration. It was thought that a boulder may have been encountered, since it was expected that the depth to bedrock would be approximately 40 feet. This prompted us to move about 20 feet north of the site and try again. This time the same (relatively) hard material was encountered at 1.5 metres (5 feet). However, the technicians were able to penetrate through this and finally encounter bedrock at 8.7 metres (29 feet) (Figure 2).

I had planned to test site A (Figure 3), but uncovered a small shale outcrop about 1.5 metres (5 feet) from the proposed drill site. In light of this, the depth to bedrock at site A is probably less than 1.5 metres (5 feet). The last test was performed about 200 feet east of site A, approximately 10 feet north of the road bank (designated as site E) and still within the Ministry of Highways Department's right-of-way. Bedrock was encountered at 3.4 metres (11 feet) at this site (Figure 1). No testing was done at site B because of swampy conditions.

Results and Conclusions

The test results indicate that the depth to bedrock near site D in the valley north of the Long Harbour-Vesuvius Bay Road is approximately 30 feet. An interpretation of the read-out graphs indicates the following possible overburden profiles of sites C,D and E:

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Description

SITE C

Depth

0

shaley gravel

Description

5

shale concretions in mudstone

0 -5 10 shale

SITE E

sand, cr., some gravel and cobbles.

gravel, sandy, clayey

SITE D

0	<pre>sand, clayey, light br., med.</pre>
5	gravel (?) sandy, shaley
10	
15	<u>clay</u> , some sand, blue
20 -	
25	
30 -	shale

Based on the penetrometer test results, it is not likely that the overburden carries any significant amount of groundwater. It appears that the swampy conditions in the valley are partly due to the non-draining character of the underlying clayey overburden. Therefore, I concur with my previous recommendations in the February 3, 1978 Scott Point Waterworks District Water Supply report in which among other things, I suggested site C be the first choice for a well drilled at least 200 feet deep, using an air rotary drilling rig. This type of drilling rig is recommended because of its speed in drilling through bedrock.

Marc Zubel. M. Zubel

MZ/vm1

Depth



FIG. 1: TEST RESULTS: SITE C SITE E (200' EAST OF SITE A)



FIG 2: TEST RESULTS: SITE D.



SCOTT POINT WATERWOI DISTRICT WATER SUPPLY, SALTSPIC G ISLAND February 13, 1978

Penetrometer Testing of Proposed Drilling Sites by Department of Highways Personnel (Drilling Crew)

Clearing Site C -----





- Base Frame



Securing Frame -----

SCOTT POINT WATERWORDS DISTRICT WATER SUPPLY, SALTSPING ISLAND February 13, 1978

Penetrometer Testing of Proposed Drilling Sites by Department of Highways Personnel (Drilling Crew)



Securing Frame

Testing frame installation

SCOTT POINT WATERWORKS DISTRICT WATER SUPPLY, SALTSPRING ISLAND February 13, 1978

Penetrometer Testing of Proposed Drilling Sites by Department of Highways Personnel (Drilling Crew)

Testing frame installation

Static cone penetrometer and rods

SCOTT POINT WATERWORKS DISTRICT WATER SUPPLY, SALTSPERG ISLAND February 13, 1978

Penetrometer Testing of Proposed Drilling Sites by Department of Highways Personnel (Drilling Crew)

Penetrometer cone and rods in place -----

1

Recorder installation and adjustments ------

-Installation of recorder

SCOTT POINT WATERWOOD DISTRICT WATER SUPPLY, SALTSPOG ISLAND February 13, 1978

Penetrometer Testing of Proposed Drilling Sites by Department of Highways Personnel (Drilling Crew)

Recorder installation and adjustments ------

Crank mechanism -

- Close-up of recorder and chart read-out

SCOTT POINT WATERWON DISTRICT WATER SUPPLY, SALTSPEC ISLAND February 13, 1978

Penetrometer Testing of Proposed Drilling Sites by Department of Highways Personnel (Drilling Crew)

Site E, 200 feet east of Site A

Setting up on Site E

SCOTT POINT WATERWORKS DISTRICT WATER SUPPLY, SALTSPRING ISLAND February 13, 1978

Penetrometer Testing of Proposed Drilling Sites by Department of Highways Personnel (Drilling Crew)

View of Site D

February 13, 1978

Results of Penetrometer Tests

SCOTT POINT W.W.D. WATER SUPPLY, Saltspring Island January 26, 1978. Well No. 2, Pumping approximately 2.5 gpm

SCOTT POINT W.W.D. WATER SUPPLY, Saltspring Island January 26, 1978. Close-up of Well No. 1, Pumping approximately 20 gpm.

SCOTT POINT W.W.D. WATER SUPPLY Saltspring Island, January 26, 1978 View of marsh east of pond

SCOTT POINT W.W.D. WATER SUPPLY Saltspring Island, January 26, 1978 Pond near site A, looking west