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Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS
**SAUGEEN VALLEY
CONSERVATION AUTHORITY**

January 28, 1988

Our ref: 871-3349

Mr. R. Thede
R. R. #1
Site 3
P.O. Box 7
PORT ELGIN, Ontario
NOM 2C0

RE: GEOTECHNICAL ASSESSMENT
PROPOSED BUILDING LOTS
PART LOT 27, LAKE RANGE
TOWNSHIP OF SAUGEEN
COUNTY OF BRUCE

Gen. Mgr.	✓	✓	Comm. Rel.		
Sec. Treas.			Land Use	✓	
Supr. Tech.	✓		Asst. Tr.		
Eng. Serv.			Chmn.		
Con. Serv.			Exec.		
WM Proj.			AB		
			Asst. Sec.		

Dear Sirs:

This report presents the results of the geotechnical assessment carried out, as requested, at the above noted site. The purpose of the assessment was to determine the surficial soil and groundwater conditions at the site and to provide geotechnical comments on the development of these building lots for single family residences.

PROCEDURE

The investigation was carried out by a member of our engineering staff with the assistance of Mr. Thede on December 8, 1987. Nine auger holes were drilled manually at the locations shown on the attached Plan, Figure 1. In addition, manual probings were carried out in the auger holes as well as adjacent to the auger holes. Groundwater conditions were observed in the open auger holes. The results of the auger holes are summarized in Table I.

SITE DESCRIPTION

The site consists of a rectangular block of land on the south side of Snyder Street west of Jay Street in Port Elgin, Ontario. A 2 storey brick single family house is located on the westerly portion of the block. The remainder of the site is undeveloped and consists of a wooded area.

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SUBSURFACE CONDITIONS

The subsurface conditions encountered in the auger holes during the investigation consisted of a layer of peat with occasional roots and logs overlying a stratum of fine to medium sand. The thickness of the peat varied from 1.0 to 3.6 feet in the auger holes.

Groundwater levels were observed in the open auger holes during the investigation. The measured water levels varied between 1.3 feet and 2.3 feet below the existing ground surface.

Manual probings carried out adjacent to the auger holes using a 1.5 inch diameter pointed rod gave probe penetrations of 0.2 to 0.5 feet into the sand layer.

DISCUSSION

Based on the results of this assessment carried out at the site as detailed above. It is considered that the three lots can be developed for single family houses. Due to the presence of the peat and underlying sand with a high groundwater level, it is recommended that consideration be given to setting the founding grades for the footings above the groundwater level and replacing the peat with compacted granular fill beneath the house.

Groundwater control typically consisting of a series of properly filtered sumps will be necessary to preserve the integrity of the sand during excavation of the peat and construction of the granular raft. The raft should consist of at least 2 feet of Granular "B" material placed and uniformly compacted in a single lift to at least 95 per cent of standard Proctor maximum dry density. The raft should extend at least 5 feet beyond the limits of the exterior footings. It is recommended that the house be founded on conventional spread footings, bearing on the granular raft. The foundation walls should consist of nominally reinforced concrete to minimize the affects of any differential settlement. In addition, all exterior footings should be provided with at least 4 feet of soil cover for frost protection. Inspection and testing during construction of the granular raft is recommended.

The foundation should be provided with a conventional perimeter tile drain outletting to a permanently dewatered outlet. Further, a polyethylene vapour barrier immediately beneath slabs on grade should be provided.

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Similarly the peat should be removed from beneath any areas to be developed for settlement sensitive structures and replaced with well compacted fill. The final lot grading should be designed to provide drainage away from the house and to eliminate any ponding of surface water.

We trust that this report provides sufficient information for your present requirements. If there is any point requiring further clarification, please contact this office.

Yours truly,

GOLDER ASSOCIATES


Philip R. Bedell, P. Eng.

PRB/RK/jeb

Add'l Copy (1)

SUMMARY OF AUGER HOLES

Part Lot 27, Lake Range
Township of Saugeen, County of Bruce

<u>AUGER HOLE</u>	<u>DEPTH (ft)</u>	<u>SOIL STRATIGRAPHY</u>	<u>PROBE PENETRATION (ft)</u>	<u>REMARKS</u>
1	0 to 1.0	Black PEAT	-	Water level at 1.7 feet
	1.0 to 3.0	Brown fine to medium SAND	0.2	
2	0 to 1.8	Black PEAT	-	Water level at 1.3 feet
	1.8 to 3.5	Brown fine to medium SAND	0.4	
3	0 to 2.3	Brown to black PEAT	-	Water level at 1.3 feet
	2.3 to 4.0	Brown fine to medium SAND	0.2	
4	0 to 2.3	Black PEAT	-	Water level at 1.6 feet
	2.3 to 3.7	Brown fine to medium SAND	0.2	
5	0 to 2.5	Brown PEAT	-	Water level at 1.6 feet
	2.5 to 3.5	Brown fine to medium SAND	0.5	
6	0 to 1.7	Black PEAT	-	Water level at 1.8 feet
	1.7 to 3.2	Brown fine to medium SAND	0.2	

TABLE I (Continued)

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SUMMARY OF AUGER HOLES

<u>AUGER HOLE</u>	<u>DEPTH (ft)</u>	<u>SOIL STRATIGRAPHY</u>	<u>PROBE PENETRATION (ft)</u>	<u>REMARKS</u>
7	0 to 3.6	Black PEAT	-	Water level at 2.3 feet
	3.6 to 4.4	Brown fine to medium SAND	0.2	
8	0 to 2.3	Black PEAT	-	Water level at 1.3 feet
	2.3 to 3.6	Brown fine to medium SAND	0.2	
9	0 to 2.0	Black PEAT	-	Water level at 1.8 feet
	2.0 to 3.3	Brown fine to medium SAND	0.5	

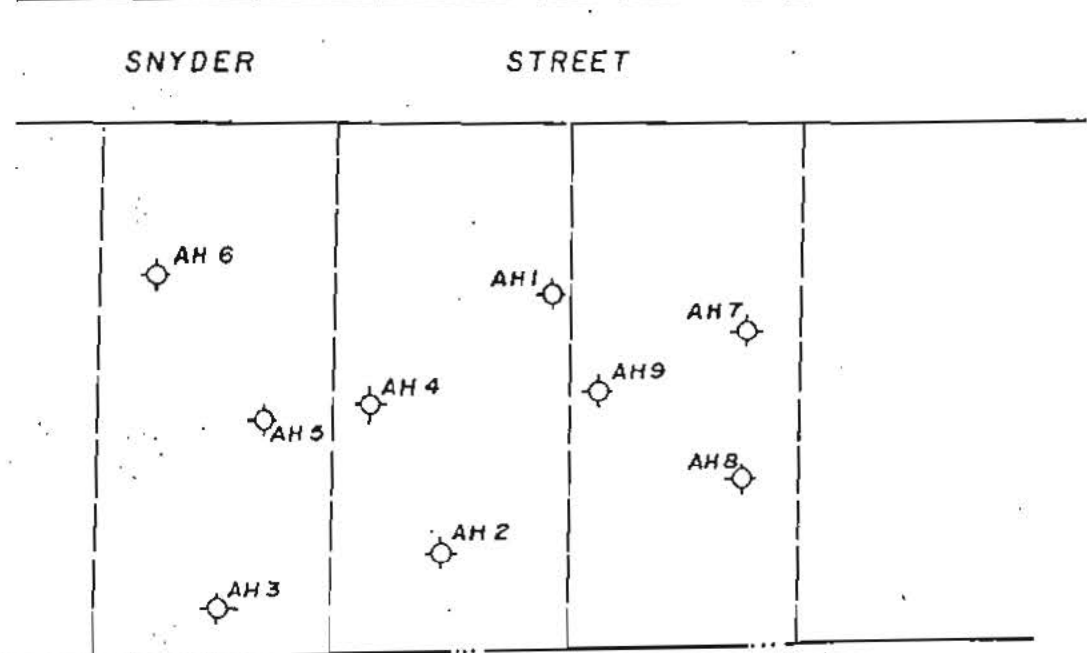
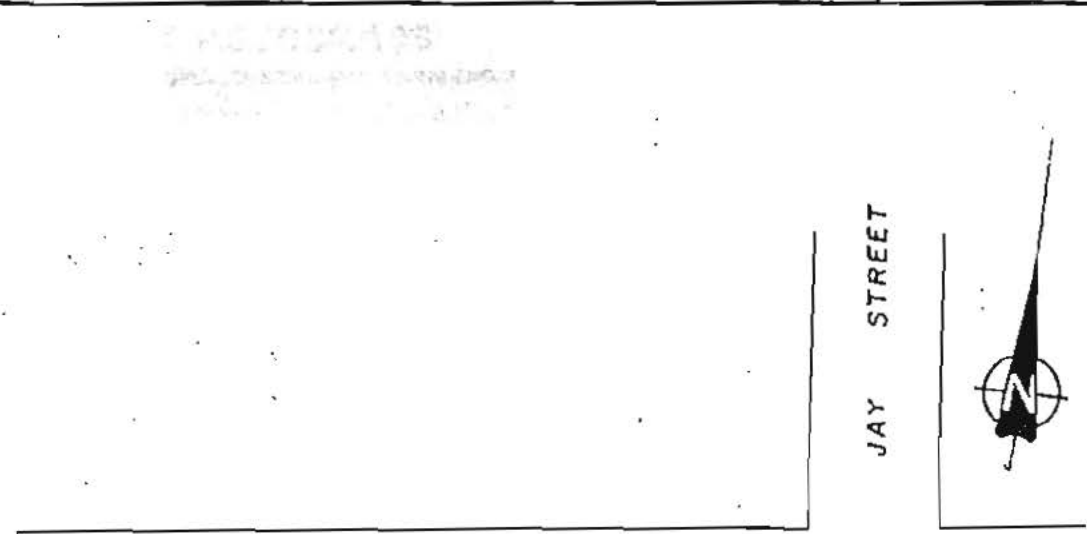
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PROJECT No. 871-3349

LOCATION

SKETCH

FIGURE 1



LEGEND

◇ AUGERHOLE LOCATION IN PLAN

NOTE

THIS DRAWING TO BE READ IN CONJUNCTION WITH ACCOMPANYING LETTER

Form G.A. - D. - 4.

Date JAN. 28, 1988
Project 871-3349

Golder Associates

Drawn C.C.T.
Chkd. _____