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GEOCRES No. 31 F-87

G.I.-30 SEPT. 1976

W.P. No. _____

CONT. No. _____

W. O. No. _____

STR. SITE No. _____

HWY. No. _____

LOCATION PROP. NEW CULVERT, LOT 26, CON'S 2 & 3, MARCH TWP.

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. NONE

REMARKS: _____

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REPORT OF SOIL INVESTIGATION

PROPOSED NEW CULVERT

LOT 26, CONCESSIONS 2 AND 3

TOWNSHIP OF MARCH

* * * * *

A. J. GRAHAM, P. ENG.

CONSULTING ENGINEER

REPORT NO. S 274-62

OTTAWA, JUNE 7, 1962

Introduction:

At the request of Mr. A. J. Graham, P. Eng., on behalf of the Township of March, a soil investigation was conducted at the site of a proposed culvert to be located on Lot 26, Concessions 2 and 3, Township of March.

The south wall at the footing level of the present structure is failing badly and the culvert as a whole is in poor repair.

The new structure is to be located about 8 feet north of the existing culvert.

Fieldwork Procedure:

At the northwest and southeast corners cone probes were driven to refusal to check the uniformity of the soils. As well, at Hole No. 1, casing was driven, the soils sampled and bedrock located.

The firm of F. E. Johnston Drilling Company was employed for all drilling operations and their work was supervised at all times by a member of our staff. The equipment used consisted of a standard drilling rig fully equipped for soils testing and mounted on a trailer.

Sampling and Testing:

Samples of the various soils were taken at Hole No. 1 by means of Shelby thin-walled tubes (for cohesive soils) and by split spoon sampler (for granular soils). A core sample of bedrock was recovered by diamond drilling, classified and retained in a core box.

The Shelby tubes were extruded at the laboratory and tested for unconfined compressive strength. Split spoon samples were retained in plastic bags. With each split spoon sample taken the standard penetration test was conducted and the results are recorded as "N" values.

Observations:

(a) Soil Types.

In Hole No. 1 the following soil profile occurs:

0	-	1'	Topsoil.
1'	-	4'	Medium stiff, weathered, sandy clay.
4'	-	9.5'	Stiff, silty, grey clay interbanded with thin lenses of silt and very fine-grained sand.
9.5'	-	13.1'	Loose glacial till becoming very dense till at 12.5'.
13.1'	-	18.2'	Bedrock - dense limestone with minor shale lenses.

Details of Bore Hole No. 1 and an interpretation of Hole No. 2 based on cone blows per foot are shown on the Soil Profile and Laboratory Test Sheets.

(b) Groundwater.

The ground water level in Hole No. 1 at the completion of the investigation was found to be 3.5 feet below ground surface. Hole No. 2 was plugged and dry at 6 feet.

(c) Test Results. .....

(c) Test Results.

Because sample TW 3 broke easily into short lengths along thin, granular lenses the unconfined compressive strength was determined by means of the pocket penetrometer. The unconfined compressive strength of TW 4 was determined in the normal manner. The results of both tests indicate a clay of stiff consistency.

The "N" values of the glacial till indicate a glacial till of loose density to 12.5', and very dense thereafter.

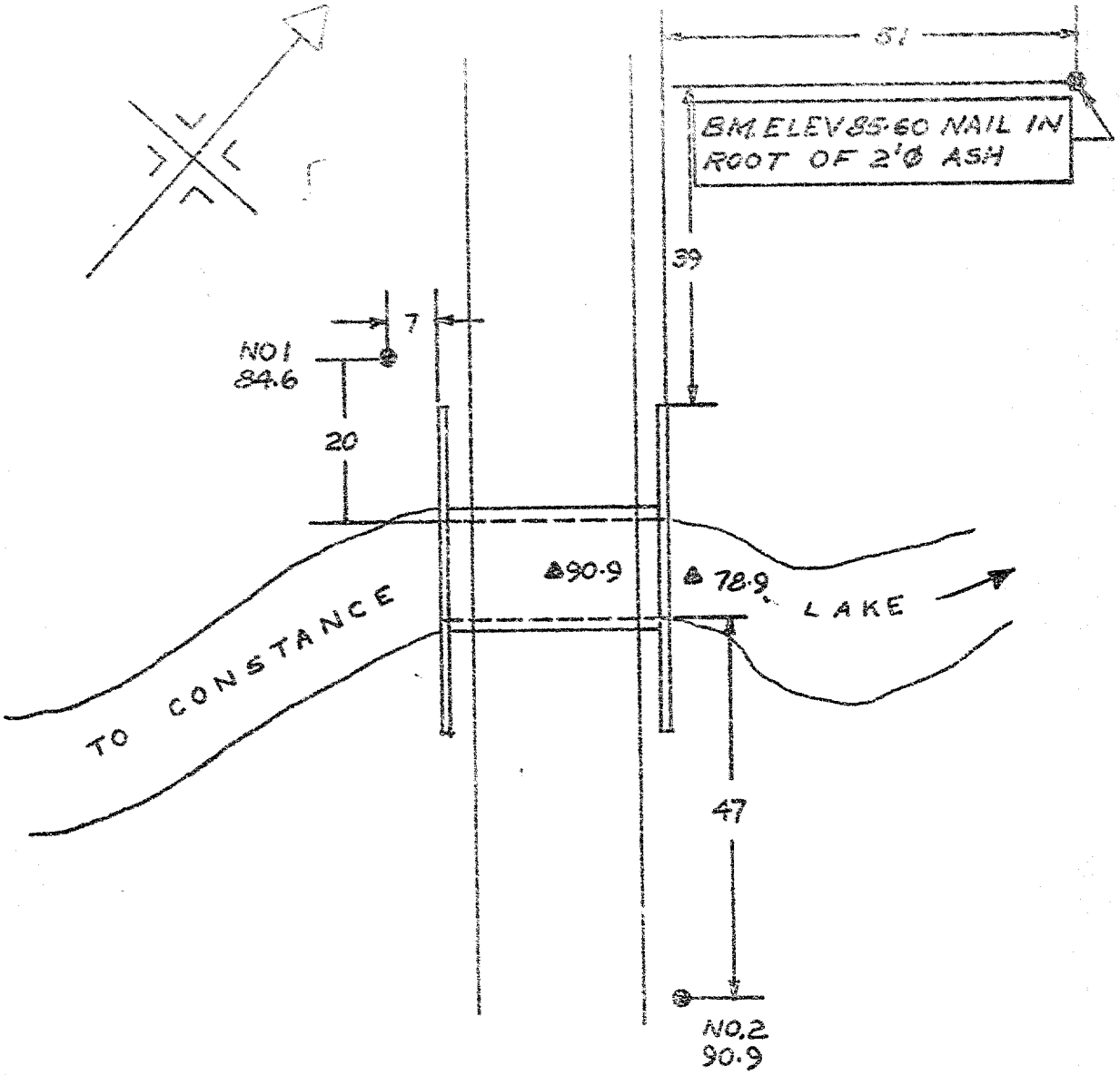
Conclusions & Recommendations:

The elevation of the creek bed is at 76.4 and the bedrock is at 71.5. Since, normally, footings would be placed approximately four feet below the bottom of the creek to avoid frost damage, it is recommended that the footings be carried a little deeper to bedrock. The rock can be safely loaded to 30,000 lbs. per square foot.

J. D. Paterson, P. Eng.

Ottawa, June 7, 1962.

JDP/MMC.



TEST BORING PLAN
PROPOSED CULVERT
LOT 26 CON 2 & 3
TOWNSHIP OF MARCH

SCALE 1"=20' MAY 1962.

JOHN T. PATERSON
CONSULTING ENGINEERS
OTTAWA CANADA

SOIL PROFILE AND LABORATORY TESTS

Location: Lot 26, Concessions 2 & 3, Township of March.

Elevation (Zero Depth): No. 1, 84.6; No. 2, 90.9
Remarks: No. 1 - Cone Probe and Test Boring.
No. 2 - Cone Probe only.
Borings by: F.E.Johnston Drilling Co., Ltd. - May 18 & 22, 1962.

Sheet No: 1 of 1
Hole No: 1

Blows per Foot	Soil Description Hole No.1	Samples		U'c T/m'	N	Depth in Feet	Elev.	Moisture Content Per Cent. 30 40 50 60 70
Cone	Ground Surface					0	84.6	
11	Topsoil 1							
6 7 4	Medium stiff, weathered, sandy clay. 4					3		Ground Water Level 3.5 Feet.
2 2 3 4	Stiff, silty, grey clay, interbanded with thin lenses of silt and very fine-grained sand.	SS	2		3	6		
		TW	3	1.5pp				Elev. of Stream Bed 76.4.
4 3	9.5	TW	4	1.0		9	75.6	
3 3	Loose glacial till becoming very dense till at 12.5'.					12		
42	13.1	SS	5		20 for 0.3'			
36 for 0.1	Bedrock. Dense limestone with minor shale lenses.	Core 99% Recovery				15		Note: P.P. = Pocket Penetrometer.
	18.2					18	66.6	
	Hole No. 2							
	Ground Surface					0	90.9	
1	Topsoil 1							
5 5 4 5 6	Medium stiff, weathered, sandy clay. 6					3 6		Hole plugged and dry at 6 feet.
3 2 3	Soft, silty clay. 9					9	81.9	
7 5 6 6 7	Interbanded, medium stiff, silty clay, silt and very fine-grained sand lenses. 14					12		Note: Interpretation based on cone blows per foot and associated bore hole.
7 7 7 6 20 for 0.5	Loose glacial till. 19.5 Bedrock.					15 18 21	72.9	