

DOCUMENT MICROFILMING IDENTIFICATION

GEOCRES No. 31 G 5-119

W.P. No. \_\_\_\_\_

CONT. No. \_\_\_\_\_

W. O. No. \_\_\_\_\_

STR. SITE No. 3-32

HWY. No. \_\_\_\_\_

LOCATION NEW STR., TOWN LINE  
BETWEEN HUNTLEY & MARCH  
TWP'S.

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. NONE

REMARKS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

BA 1510

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INSPECTION SERVICES  
LABORATORY TESTING  
APPRAISALS, RESEARCH  
SOIL INVESTIGATIONS

3165-119  
GEOCRES No.

REPORT OF SOIL INVESTIGATION

PROPOSED NEW STRUCTURE

TOWN LINE BETWEEN HUNTLEY AND MARCH TOWNSHIPS

FOR

COUNTY OF CARLETON

REPORT NO. S 278-62

OTTAWA, JULY 25, 1962

STRUCTURE SITE No. 3-32



## Introduction:

At the written request of Mr. Alex. J. Graham, P. Eng., on behalf of the County of Carleton a soil investigation was conducted at the site of a proposed bridge on Lot 8, Concession 1, Township of Huntley. The present structure is located on the town line between March and Huntley and traverses a small branch of the Carp River.

The concrete in the structure has deteriorated badly and there is considerable scour of the banks and streambed indicating restriction of the flow during run-off periods.

## Fieldwork Procedure:

Two test holes were put down on diagonally opposite sides of the bridge, No. 1 to the southwest and No. 2 to the northeast, as shown on the Test Boring Plan.

Cone probes were driven to refusal at each hole to check the uniformity of the soils. Casing was then driven, the soils sampled and bedrock located.

The firm of F. E. Johnston Drilling Company was employed for all drilling operations. 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 soil testing and mounted on a trailer.

## Sampling and Testing:

Samples of the cohesive soils were taken by means of Shelby thin-walled tubes. These were taken to the laboratory, extruded and tested for unconfined compressive strength. One split spoon sample was taken in the clay to aid in field classification. This sample was retained in a plastic bag. A core sample of bedrock was recovered from Hole No. 1 by diamond drilling. The core was classified and retained in a core box.

## Observations:

### (a) Soil Types.

The soil encountered below Elevation 90 is a varved, silty, grey clay with a tendency to break easily along the silt varves. This layer of clay five feet thick, more or less, overlies a 45'-50' thick band of similar clay with less tendency to fail along the varves. The clay rests directly on bedrock at Hole No. 1. At Hole No. 2 the clay rests on a wedge-shaped layer of loose glacial till pinching out toward Hole No. 1. The bedrock dips to the north about one foot in six.

Details of the bore holes are shown on the Soil Profile and Laboratory Test Sheets.

### (b) Groundwater. .....

(b) Groundwater.

The groundwater level at the completion of the investigation was found to be one foot and four feet below ground surface in Holes Nos. 1 and 2 respectively.

(c) Test Results.

Shelby tube samples TW4 and TW5 broke into lengths too short for compressive strength tests. The remaining Shelby tube samples tested indicate a clay with a soft to medium stiff consistency and fairly low compressive strength.

Conclusions and Recommendations:

From field observations it appears that the present structure has failed because of poor quality concrete and because the bridge was too narrow and restricted the flow.

It would appear that a new structure should be about five feet wider.

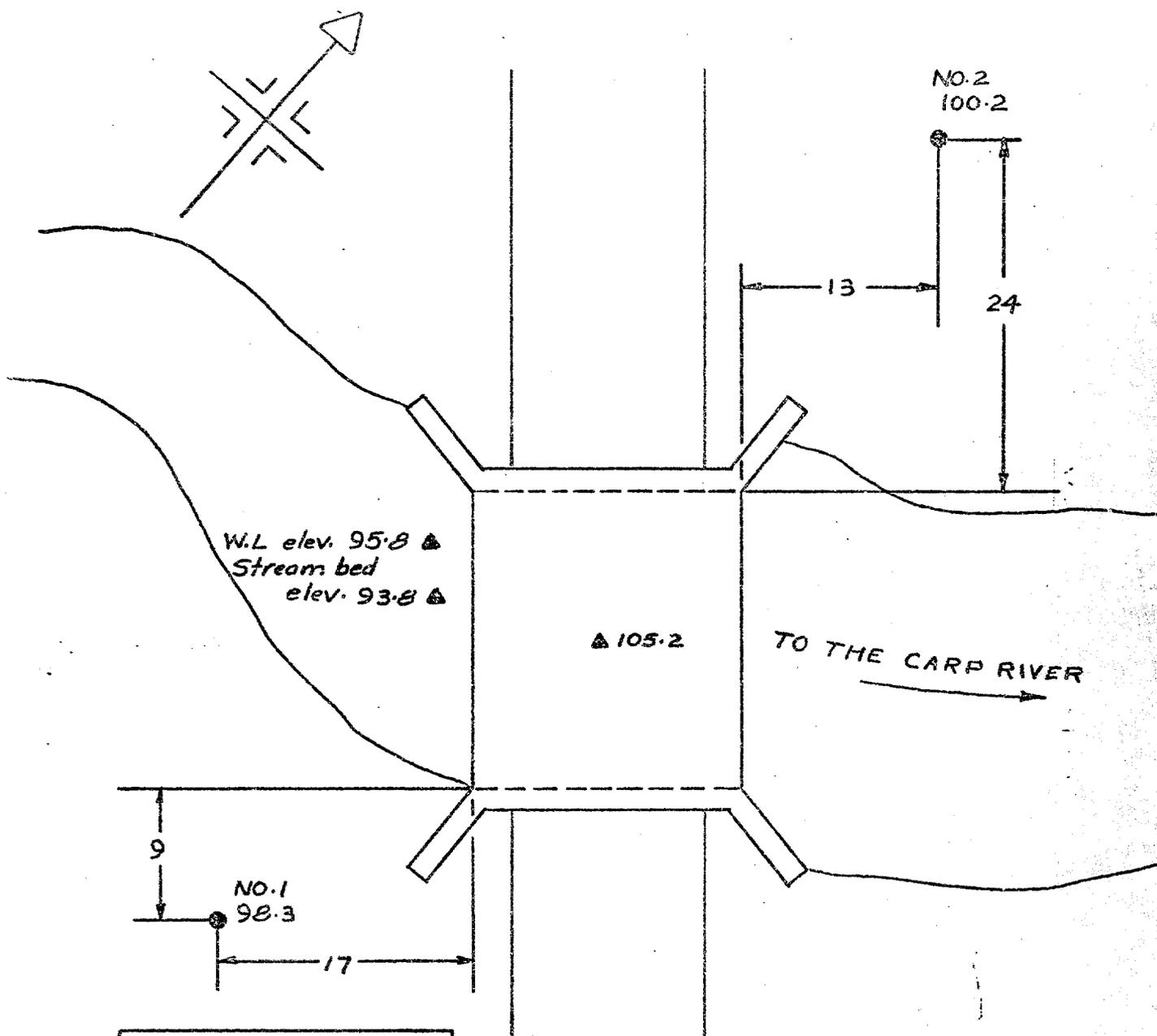
The soil at a depth of about five feet below the stream bed (Elev.89) is capable of being loaded to 1500 lbs. per square foot under bridge footings and this figure incorporates a factor of safety of 3. Care should be taken to ensure that the footings are placed on undisturbed soil.



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J. D. Paterson, P. Eng.

JDE/MMC.



B.M. ELEV. 100.0 LEDGE  
 CUT IN N. FOOT OF 3' Ø  
 ELM 48'S & 66' W OF  
 S.W. COR. OF BRIDGE

TEST BORING PLAN  
 PROPOSED BRIDGE  
 LOT 8 CON. 1  
 TOWNSHIP of HUNTLEY  
 TOWN LINE BETWEEN  
 HUNTLEY & MARCH

SCALE 1" = 10'      JULY 1962

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SOIL PROFILE AND LABORATORY TESTS

Location: Lot 8, Con. 1, Township of Huntley.  
Town Line between March and Huntley.

Elevation (Zero Depth): 98.3.  
Remarks: Cone Probe and Test Boring.

Sheet No:  
1 of 2

Borings by: F.E. Johnston Drilling Co., Ltd. Date: June 21, 1962.

Hole No:  
1

Blows per Foot	Soil Description	Samples	U'c T/w'	N	Depth in Feet	Elev.	Moisture Content Per Cent.							
							30	40	50	60	70			
Cone	Ground Surface													
4	Topsoil 1				0	98.3								
1	Loose weathered clayey silt													
1	5.5	TW 2												
2	Loose clayey silt with sand 8	TW 3	0.62	pp										
3	Soft, silty, grey clay breaking easily horizontally into bands 1"-2" thick 13	TW 4	}	See Text.	10	88.3								
2		TW 5												
3		TW 6	0.52											
3	Soft to medium stiff, silty. grey clay.													
4														
2		TW 7	0.76		20	78.3								
3														
3		TW 8		Disturbed										
4	27													
4														
3					30	68.3								
2														
4	Soft silty grey clay (assumed).													
5														
5					40	58.3								
5														
7														
6														
6					50	48.3								
5														
6														
5														
6														
7					60	38.3								
6														
7														
7														
7														
7					70	28.3								
65 for 0.3'	Bedrock. Sound shaly limestone 75.8				75									

Elev. Stream Bed  
93.8

Note:  
P.P. - Pocket Penetrometer.

JOHN D. PATERSON  
CONSULTING ENGINEERS  
OTTAWA CANADA

SOIL PROFILE AND LABORATORY TESTS

Location: Lot 8, Con. 1, Township of Huntley.  
Town Line between March and Huntley.

Elevation (Zero Depth): 100.2.  
Remarks: Cone Probe and Test Boring.

Sheet No:  
2 of 2

Borings by: F.E. Johnston Drilling Co., Ltd. Date: June 22, 1962.

Hole No:  
2

Blows per Foot	Soil Description	Samples	U'c T/n'	N	Depth in Feet	Elev.	Moisture Content Per Cent.							
							30	40	50	60	70			
Cone	Ground Surface				0	100.2								
4	Topsoil													
3	Loose brown clayey silt with some sand.													
3														
5	Medium stiff brownish grey silty clay with sand lenses.	TW 9												
6		SS 10		13										
5	Soft, silty, grey clay breaking into bands along horizontal planes of weakness.	TW 11	0.70		10	90.2								
6		TW 12	0.48											
6		TW 13	0.68											
6		TW 14	0.87											
7	Medium stiff to soft, silty, grey clay.													
8		TW 15	0.78		20	80.2								
7														
7														
9		TW 16	0.55	PP										
9														
10					30	70.2								
10														
8														
10														
10														
11	Soft, silty, grey clay to Elev. 24, overlying a layer of loose glacial till.				40	60.2								
9														
10														
8														
10														
9					50	50.2								
7														
7														
6														
7														
8					60	40.2								
6														
7														
7														
7														
8					70	30.2								
5														
5														
6	Cone refusal at Elev. 18.5 (probably bedrock).													
14														

Note:  
P.P. = Pocket Penetrometer