

DOCUMENT MICROFILMING IDENTIFICATION

GEOCRES No. 31 B - 56

W.P. No. _____

CONT. No. _____

W. O. No. _____

STR. SITE No. 31 - 149

HWY. No. _____

LOCATION CO. RD. # 2
MATILDA TWP.

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OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. NONE

REMARKS: _____

313 map

BA. 1881

JOHN D. PATERSON & ASSOCIATES

CONSULTING ENGINEERS & GEOLOGISTS

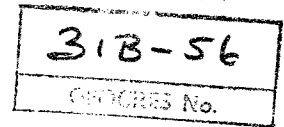
OTTAWA 3, CANADA

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INSPECTION SERVICES
LABORATORY TESTING
APPRAISALS, RESEARCH
SOIL INVESTIGATIONS

OFFICES AND LABORATORY:
1479 LAPERRIERE AVE.

21-149



REPORT OF SOIL INVESTIGATION

PROPOSED BRIDGE REPLACEMENT

COUNTY ROAD NO. 2

MATILDA TOWNSHIP

FOR

UNITED COUNTIES OF STORMONT, DUNDAS & GLENGARRY

ALEX J. GRAHAM

CONSULTING DESIGN ENGINEER

OTTAWA

REPORT NO. S361-64

APRIL 14, 1964.



INTRODUCTION:

At the request of Mr. Alex J. Graham, Consulting Civil Engineer, on behalf of the United Counties of Stormont, Dundas and Glengarry, a soil investigation was conducted at the site of a proposed bridge replacement.

The existing single lane bridge spans the South Nation River on County Road No. 2, Concession VI, Matilda Township, Dundas County.

A bench mark was established on the N.E. wing wall by a survey crew working for Mr. Graham.

FIELD WORK PROCEDURE:

Two test holes were put down at the locations shown on the Test Boring Plan.

Each hole consisted of a cone probe driven to refusal to check the uniformity of the soils and a test hole in which casing was driven, the soils sampled and bedrock located.

A drilling rig fully equipped for soils testing, mounted on a trailer, and operated by a crew of two was used in the field work. Their work was supervised and directed at all times by a soils technician from our staff.

SAMPLING AND TESTING:

Samples of cohesive soils recovered by means of Shelby thin-walled tubes were taken to the laboratory where they were extruded and tested for unconfined compressive strength. Samples which were above or far below a possible footing level were tested for compressive strength by the pocket penetrometer. One Shelby tube sample of peat was extruded for classification purposes.

Two split spoon samples, SS10 and SS11, were taken in the clay for classification purposes only.

Samples of granular soils were recovered by split spoon sampler. During the recovery of each split spoon sample the Standard Penetration Test was conducted and the results are recorded as "N" values.

Core samples of bedrock recovered by diamond drilling were logged and retained in core boxes.

Cont'd.../2

OBSERVATIONS:

(a) Soil Types

A very dense horizontal glacial till layer about six feet thick overlies flat lying bedrock at elevation 192 ± 0.5 . Over the very dense till is a thick wedge (10'-17') of loose to dense till overlain by a thick wedge of clay (20'-27'). The stream has cut approximately 8 feet into the clay wedge so that the banks and bottom of the stream are exposed clay.

Full details of the test holes are shown on the Soil Profile Sheets.

(b) Ground Water

The ground water level in hole 1 at the completion of the field work was found to be 2 feet below ground surface (el. 233.5). It is expected that the ground water level will fluctuate with the seasonal rise and fall of the stream surface and at the abutments the ground water level will be comparable to the stream surface.

(c) Test Results

The results of the unconfined compressive strength tests on the clay at or below a possible footing level indicate the clay is medium stiff to soft.

The Standard Penetration tests on the glacial till indicate it is loose to very dense in consistency with the very dense till concentrated in a layer overlying bedrock.

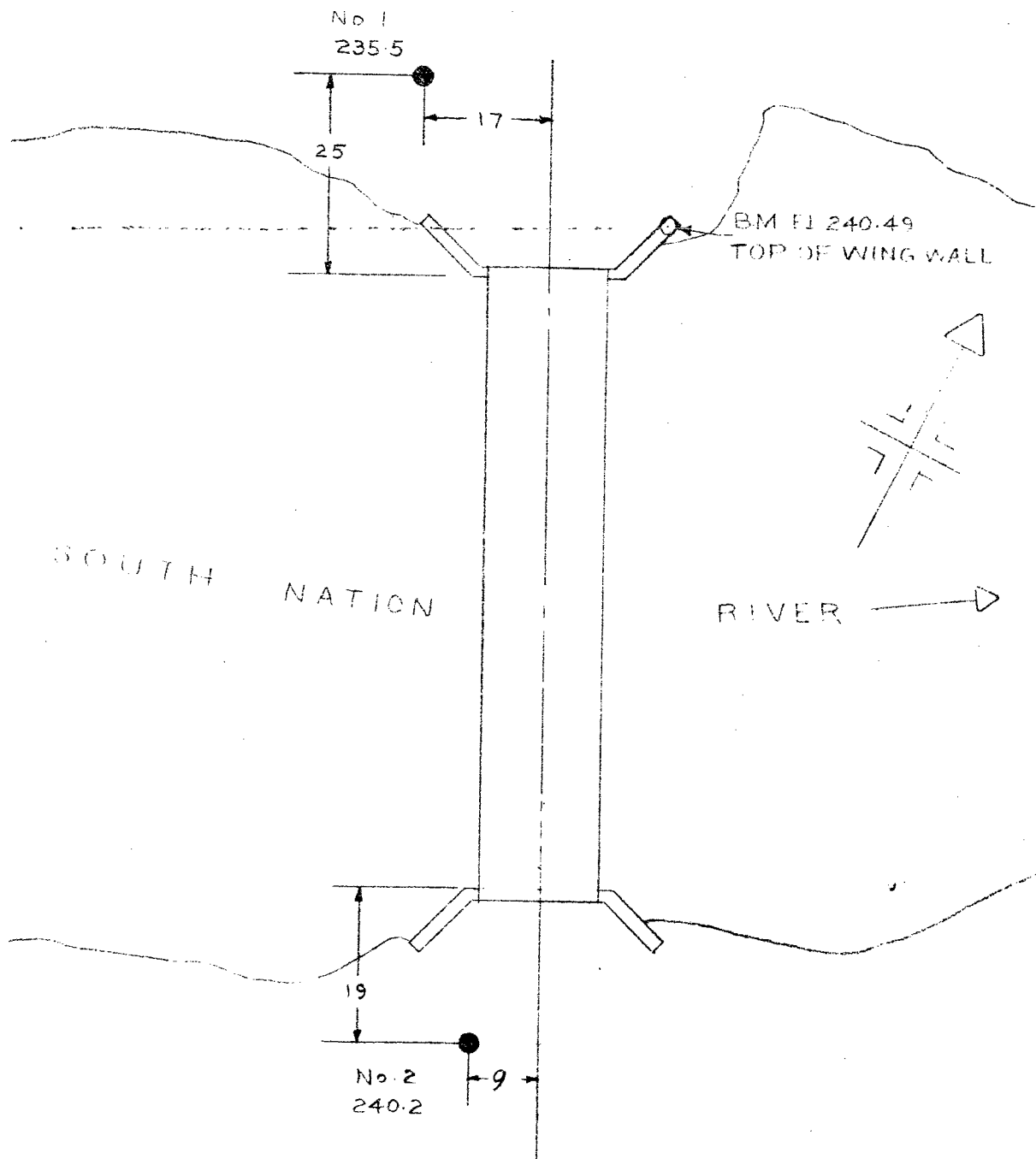
CONCLUSIONS AND RECOMMENDATIONS:

The medium stiff to soft clay at and below the approximate footing level of a new bridge structure is not considered suitable for the support of the structure on footings. Shear strength values are low and decrease in value with depth until the glacial till is reached.

It is our recommendation that the proposed new structure be founded on piles driven to refusal in the very dense till layer overlying bedrock. Pressure creosoted timber piles should be quite satisfactory for this structure with the pile caps placed at approximately elevation 221. The piles, when driven to refusal, will be from 25 to 28 feet in length from the cut-off point.

L. Bredeson, P. Eng.

L. Bredeson



TEST BORING PLAN
PROPOSED BRIDGE
LOTS 18 & 19 CON 16
TOWNSHIP of MATILDA
DUNDAS COUNTY

Scale 1" = 20'

Apr. 1964

SOIL PROFILE AND LABORATORY TESTS

OTTAWA

CANADA

LOCATION:

South Nation River
Township of Matilda
Dundas County

Elevation (Zero Depth): 235.5

Pocket

Sheet NO: 1 of 2

Remarks: Cone probe and test boring. P.P.= Penetrometer

Borings by: F.E. Johnston Drilling Co. **Date:** Mar. 21 & Apr.

Hole No:

[illegible]

CANADA

LOCATION:

South Nation River
Township of Matilda
Dundas County

Pocket.

Sheet NO:2 of 2

Remarks: Cone probe and test boring. P.P.=Penetrometer

Borings by: F. E. Johnston Drilling Co. **Date:** Apr. 1 & 2/64

Hole No: 22

[illegible]