

Mr. A. Toye

March 14, 1956

Bridge Engineer

Foundation Report: C.A.W. & Log
of C.E.W.: W.P. 47-56: F.W. #10:
Project P 55-48.


Materials & Research Section 75, Downsview

Attached herewith are two copies of the above-mentioned Foundation Report, which are self-explanatory.

The subsoil can support the approach fills with a wide margin of safety.

F. C. Brownridge
Materials and Research Engineer

For:


(A. Rutka)

AR:GMP
Encls

Copies to: Mr. A. Toye
Mr. H. A. Tregaskes
Mr. J. Walter
Mr. R. E. Richardson
Foundations
File :

Department of Highways

COPY

For the Information of:

TORONTO 2, Mar. 13/56.

O.C. Parker & Assoc. Ltd.,
P.O. Box 113-795 Main St. West,
HAMILTON, Ontario

W.P. 47-56
FW10 Project 55-48
RE: YOUR JOB H 417
NELSON TWP. BRIDGE FW10
WP 47-56.
DIST. 4.
FREEMAN TO WOLFE ISLAND HWY.

Dear Sir:

Copies of the soil report for this structure will not be available until some new equipment is installed at Downsview.

Meanwhile Mr. A. Rutka reports that there is 10 feet of poor, loose sand overlying clay which is good for 4 tons per square foot. He states that rigid frames will be suitable on this site.

If you would like further information please contact Mr. Rutka at CH.4-2571.

The delay in providing this information is regretted.

Yours sincerely,

F.I. Hewson,
for A.M. Toye,
Bridge Design Eng.

FIH/cd
c.c. for A. Rutka,
Soils Lab.
Downsview.

REPORT ON
FOUNDATION INVESTIGATION
AT
C.A.H. & TRUMPET LEG OF C.B.W. NR. FURLINGTON
C.A.H. CHATHAM SECTION 27/80

Dispersment:

Mr. A. Toye, (2)
Bridge Engineer

Mr. H. Tregeskes (1)
Const. Engineer

Mr. J. Walter (1)
Design Engineer

Mr. R. R. Richardson (1)
Dist. Engineer, Hamilton

Foundation Section (1)

File (1)

W.D. #47-56
F.W. #10
Project # F-55-48

INTRODUCTION:

The following report concerns the foundation for the bridge carrying the proposed C.A.W. to Niagara over the N. Trumet leg joining the old C.F.W. to this highway at Furlington.

Spread footings with a bearing value of 4 tons/sq. ft. and bearing on the clay layer are recommended.

PROCEDURE:

A mobile core drill unit was maintained at this site from the 10th January, 1956 to the 17 January, 1956. During that time two exploratory borings were carried out.

The following is a discussion of the results of tests carried out on the samples taken from these boreholes.

Some difficulty was encountered in sampling at this site owing to the hardness and stoniness of the material.

SOIL CONDITIONS AND TESTING:

From ground level to about 10 ft. below ground level there is a layer of very loose to medium sand with "N" values varying between 3 and 14 blows.

The water content material has an average value of 20%.

Below this and extending down to bedrock at 42 ft. below ground level there is a layer of stiff stoney glacial clay. This clay has the following properties:

Average water content: 12% down to 27 ft.

Average shear stress: 4000 lb/sq. ft.

Average density: 140 lb/c. ft. approx.

Consolidation estimating or testing could not be carried out on this material because of the number of stones it contained. Settlement has been considered and is discussed in the paragraph below on results.

SOIL CONDITIONS & TESTING (cont.)

In borehole #2 there was a layer of gravel on top of the clay layer, but it did not exceed about 1 ft. in thickness.

Underlying the clay layer is shale rock. This rock is very broken and soft. Recovery in the core barrel was small but was considered sufficient to prove the rock.

ANALYSIS OF RESULTS:

Sand Layer-

The sand is in a loose to medium state and has a bearing capacity of 1ton/sq. ft. against failure. However, for a maximum differential settlement of 3/4 in. a bearing capacity of only 500 lb/sq. ft. could be tolerated.

As the sand layer has a maximum depth of 11 ft. it is suggested that it be excavated and that the footings be founded on clay.

Clay Layer-

The clay at this site has an average bearing capacity of 4 tons/sq. ft. Using this load no appreciable settlement is anticipated.

Bedrock-

No testing was carried out on the bedrock as insufficient material was returned, however, it is not considered important as the clay will be supporting the footing.

RECOMMENDATIONS:

Spread footings can be used with a bearing value of 4 tons per square foot.

These footings should be brought down to the clay layer.

U. C. Prownridge,
Materials & Research Engineer.

Per:

(John Prown)

John Prown

#55-F-48
W.P. #47-56
C.A.H. & LEG
OF Q.E.W NEAR
BURLINGTON

EDITED
FOR MICROFILMING
BY RLC DATE 3/8/68

76-179
MATERIALS LABORATORY - DEPARTMENT OF HIGHWAYS - ONTARIO
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG: CASE 0811, NO. 1
CASING: B.X. (STANDARD SAMPLERS TO FIT UNLESS NOTED)
SAMPLER: HAMMER WT. 250
JOB: P-55-48, W.P. 47-56
DATUM: GEODETIC
COMPILED BY: J.B. CHECKED BY:
BORING NO. 1, STA. 27+16
DATE REPORT: MAR. 56
BORING DATE: 10 JAN. 56

SAMPLE CONDITION

DISBURSED
GOOD
LOST

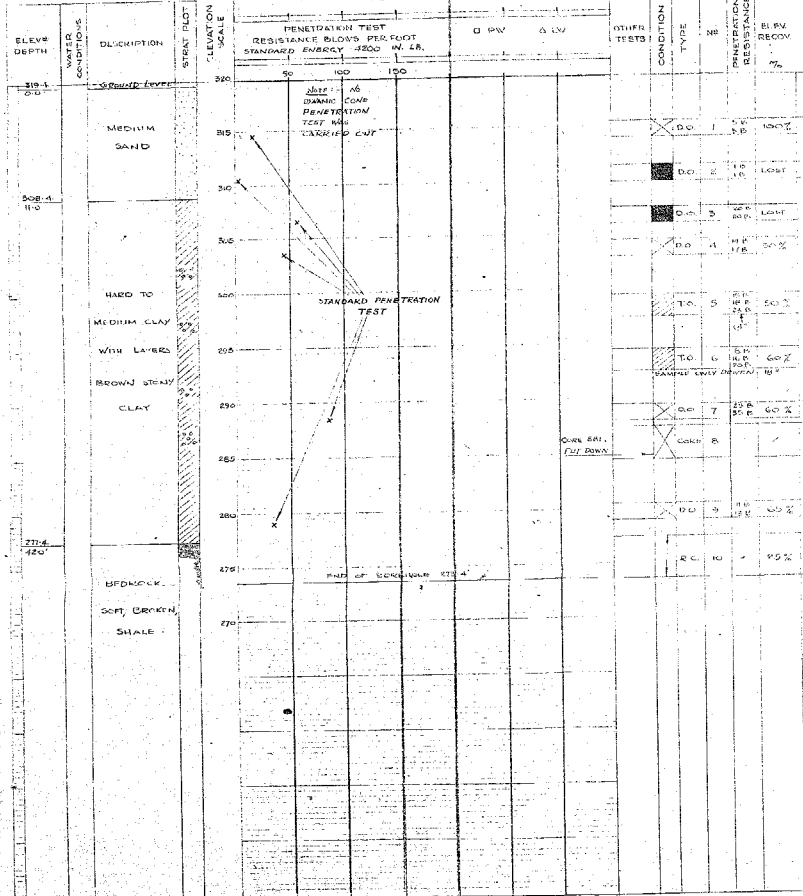
SAMPLE TYPES

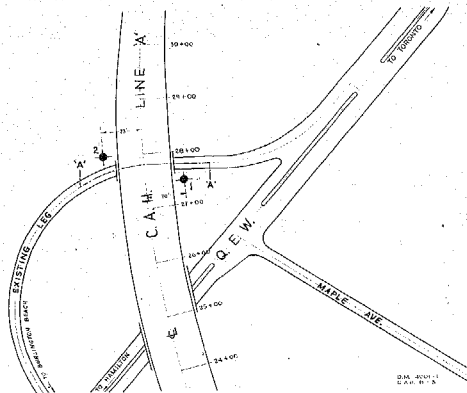
CS - CHUNK
DO - DRIVE OPEN
DF - DRIVE FOOT VALVE
TO - THIN WALLED OPEN
WS - WASHED SAMPLE
RC - ROCK CORE

ABBREVIATIONS

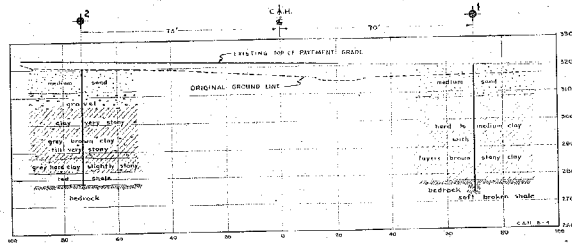
V - VIBRO WIRE SHEAR TEST
M - MECHANICAL ANALYSIS
U - UNCONFINED COMPRESSION
Q - TRIAXIAL CONSOLIDATED QUICK
Q - TRIAXIAL QUICK
S - TRIAXIAL SLOW
X - UNIT WEIGHT
K - PERMEABILITY
C - CONSOLIDATION
CA - CASING
WL - WATER LEVEL IN CASING
WT - WATER TABLE IN SOIL

SOIL PROFILE





PLAN
SCALE 1" = 100'



'A' - 'A'
SCALE - 1" = 20'

LEGEND		
Bore Holes		
Penetration Holes		
Bore & Penetration Holes		
Power Auger Holes		
HOLE NO.	ELEVATION	STATION
1	310.4	27+46
2	320.2	28+00

REVISION RECORD		
NO.	DATE	DESCRIPTION

DEPARTMENT OF HIGHWAYS-ONTARIO			
WATERLOO & BRANTFORD BRANCH			
C.A.H. LINE 'A' OVER EXISTING Q.E.W. LEG AT BURLINGTON			
THE KING'S HIGHWAY NO. Q.E.W.		REV. NO. 4	
CITY: NALTON	LOT:	SHEET:	
TWP: NELSON	Showing Positions and Elevations of Bore Holes		
APPROVED:			
DATE: 7 March 1956		F-55-48 A	