

61-F-67

W.P. # 146-61

Hwy. # 133

C.N.R.

Mr. A. M. Toye,
Bridge Engineer.
Materials & Research Section,
(Foundations Office).
Attention: Mr. S. McCombie.

July 18, 1961.

D.H.O. FOUNDATION INVESTIGATION
REPORT.
W.P. 146-61 -- W.J. 61-F-67.
(Bridge Office Plan #E-3986-1).

Re: Hwy. 133, Line 'A' & C.N.R. Overhead
N.E. Bath, Kingston, Ont., District 8.

A subsoil investigation was carried out to determine the subsoil characteristics at the proposed site of the above proposed C.N.R. Overhead on the proposed Hwy. 133, Line 'A'. Accompanying this memo is Plan #61-F-67A, showing the location of the boreholes and the estimated stratigraphical profile.

As can be seen in the Plan, the soils profile consists of a 4.0' thick layer of stiff grey to brown clay overlying a very dense sandy till varying in thickness from 5.0' in B.H. 1 to 9.0' in B.H. 2. An 'N' value of 80 has been chosen as representative of this material. Beneath the till is limestone bedrock.

The position of the water levels as found in the boreholes, is shown on the Plan. However, as these were observed to fall slowly over a period of three days, they may not be representative of the level of the water table.

cont'd. /2 ...

Spread footings with a maximum safe bearing load of 3.0 T/ft.² may be placed in the very dense sandy till at an elevation of 316.0' or lower.

Due to the fact that the till is so very dense, dewatering should not be a serious problem and any water seeping into the open excavation, may be removed by the use of a sump pump.

TW/ldc

L. G. Roderman,
PRINCIPAL FOUNDATION ENGR.
Per:

REPORT PREPARED BY *Robert Widdis* (R. Widdis,
PROJECT FOUNDATION ENGR.)

REPORT APPROVED BY: *L. G. Roderman* (L. G. Roderman,
SUPERVISING FOUNDATION ENGR.)

cc: Messrs. A. H. Foye (2)
H. A. Freguskes
H. E. Oxillian
J. Ford
L. E. Cash
J. E. Gruenier
J. Ray
T. J. Kovich
C. L. Haint
R. Forman
A. Watt

Foundations Office
Gen. Files. ✓

RECEIVED 2.

Mr. A. M. Toye,

Bridge Engineer.

Materials and Research Division,

(Foundation Section).

Attention: Mr. J. Curtis.

December 6, 1961.

REVIEW OF PRELIMINARY PLAN

D 4962 P1

(Foundation Ref. #61-F-67)

Re: W.P. 146-61,
C.N.R. Overhead,
Ernestown, 1.8 Miles
North of Millhaven,
Hwy. 133, District #8.

We have reviewed the Preliminary Plan for the above-mentioned structure, and herewith submit our comments for your consideration:-

We were advised by the Materials and Research Office in Kingston Region, that the line has been moved approximately 50 feet to the East by the Regional Road Design Office. We have also obtained borehole logs from 4 borings carried out at the new location. The borings are shallow and do not establish the depth of bedrock - i.e., bedrock elevations. Because of the uneven bedrock surface at the first location, irregularities can also be expected at the new location.

Because of the very dense nature of the till material that is overlying bedrock, it may happen that refusal to pile driving is met before bedrock is reached.

We believe that the main reason for choosing this kind of construction lies in the fact that excavation adjacent to the existing railroad tracks is impracticable. However, we think that the abutment footings could be placed on well-compacted fill and piles here, be dispensed with.

If additional information is required, please do not hesitate to contact our Office.

AGS/MdeF

cc: Messrs. E. Davis

J. Gruspier

Foundations Office

A. G. Stermac
A. G. Stermac,

PRINCIPAL FOUNDATION ENGINEER

-- Gen. Files.



OFFICE LOCATION -
DOWNSVIEW AVE.,
KEELE ST. - HIGHWAY 401
TORONTO, ONTARIO.

ONTARIO
DEPARTMENT OF HIGHWAYS

POSTAL ADDRESS -
DEPARTMENT OF HIGHWAYS
PARLIAMENT BUILDINGS,
TORONTO 5, ONTARIO.

Bridge Division,
December 1, 1961.

MEMORANDUM TO:

Mr. A. G. Stermac,
Principal Foundation Eng.,
Department of Highways,
Room 107, Lab. Bldg.,
DOWNSVIEW, Ontario.

RE: W.P. 146-61
C.N.R. O'Head at Ernestown
1.8 Miles North of Millhaven
Hwy. No. 133 - Dist. No. 8
Foundation Reference #61-F-67

Enclosed find one copy of the Preliminary Plan for
the subject structure (D4953-P2).

The designer has chosen to use 12" diameter steel
tube piles driven to bedrock rather than spread foot-
ings as recommended in the foundation report.

Please comment if you feel it is necessary.

JBC/ea
cc. D. Smith

J. B. Curtis,
Bridge Location Engineer.



ONTARIO

DEPARTMENT OF HIGHWAYS

Memo to Mr. A. Stermac Date Nov. 24, 1961
Principal Foundation Eng. Subject Re: W.P. 146-61, Hwy. 133,
C.N.R. Overhead, Fdn.
From M. & R. Section, Kingston Report W.J. 61-F-67

The line at the proposed C.N.R. crossing has been moved approximately 50' to the east by the Regional Road Design Office.

Power auger borings were taken at four locations on the new alignment. The log of these holes is as follows.

Hole #1	Sta. 92+43	20' Lt. \emptyset	Elev. 322.51
	0 - 9"	Topsoil	
	9" - 28"	Br. Lt. Cl. (Moderately moist, moderately mottled)	
	28" - 60"	Gr. Br. Cl. Lo. Till - Dense & Stony	
	60" /	(Sample 61-Y-282)	
		NFP Probable dense till, unlikely to be bedrock at this depth, no trace of limestone.	
Hole #2	Sta. 92+43	20' Rt. \emptyset	Elev. 323.11
	0 - 11"	Blk. Tops.	
	11" - 36"	Br. Med. - H. Cl.	
	36" - 102"	Gr. Br. Cl. Lo. Till (Moderately moist, wet saturated at 8')	
		(Sample 61-Y-283)	
Hole #3	Sta. 91+54	20' Rt. \emptyset	Elev. 321.51
	0 - 15"	Dk. Br. Tops.	
	15" - 42"	Br. Med. - H. Cl. (Moderately moist)	
	42" - 84"	Gr. Br. Sandy Cl. Lo. - Sandy Lo. Till - Very Dense & Stoney - Moderately moist	
	84" /	(Sample 61-Y-281)	
		NFP Possible B/R. Could be dense Till	

Continued /2

Hole #4	Sta. 91/54	20' Lt. \checkmark	Elev. 321.01
	0 - 10"	Blk. Tops.	
	10"- 39"	Gr. Br. Med. - H. Cl. (moderately moist)	
	39"- 84"	Gr. Br. Sandy Cl. Lo. Till (moderately moist, dense & stony)	
	84"- 102"	Lt. Br. Sandy Lo. Till (very dense & stony)	
	102"/	NFP Possible B/R Could be dense till	

Note: Small limestone boulders brought up by auger at NFP depths in holes #3 & #4

These samples are being tested in Toronto for gradation, plasticity index and field moisture content. You may obtain the sample results from Don MacDonald's office.

Please notify this office as soon as possible of foundation recommendations for this site. We have a copy of your report for the original site and if no changes in recommendation are proposed, you may teletype this information.

26/11/54
E. J. MacMaster

for J. E. Gruspier
Regional Soils Engineer

MJM/jfj

c.c. G. A. Wrong
T. G. Smith

File



ONTARIO
DEPARTMENT OF HIGHWAYS

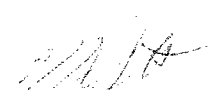
13712.
4002

11-F-67

Memo to Mr. A. Stermac, **Date** July 6, 1961.
Supervising Foundation Engr. **Subject** _____
From Materials & Research.

Re: WP146-61, Hwy. 133, C.N.R. O'Head N.E. of Bath, Kingston District.

Further to the memorandum from S. McCombie, dated June 22, 1961, I have reviewed the available data for this area and determined that although no foundation investigations have been undertaken in this vicinity, 7 wells have been drilled in the immediate area. These showed bedrock at or very near the surface, the maximum depth of overburden being 5 feet. A preliminary survey by a soils Engineer of the whole line of Hwy. 133 also indicated shallow depths of overburden. We are therefore arranging to have Joe Gruspier check the depths to bedrock at the proposed structure site, and it would appear that no other investigation would be required.


N. D. Smith
Soils & Materials Planning Supervisor

NDS/tt
c.c. J. E. Gruspier
NDS
Files

Mr. A. M. Toye,
Bridge Engineer.
Materials and Research Division,
(Foundation Section).
Attention: Mr. J. Curtis.

December 6, 1961.

REVIEW OF PRELIMINARY PLAN -

D 4963 P1

(Foundation Ref. #61-F-67)

Re: W.P. 146-61,
C.N.R. Overhead,
Ernestown, 1.8 Miles
North of Millhaven,
Hwy. 133, District #8.

We have reviewed the Preliminary Plan for the above-mentioned structure, and herewith submit our comments for your consideration:-

We were advised by the Materials and Research Office in Kingston Region, that the line has been moved approximately 50 feet to the East by the Regional Road Design Office. We have also obtained borehole logs from 4 borings carried out at the new location. The borings are shallow and do not establish the depth of bedrock - i.e., bedrock elevations. Because of the uneven bedrock surface at the first location, irregularities can also be expected at the new location.

Because of the very dense nature of the till material that is overlying bedrock, it may happen that refusal to pile driving is met before bedrock is reached.

We believe that the main reason for choosing this kind of construction lies in the fact that excavation adjacent to the existing railroad tracks is impracticable. However, we think that the abutment footings could be placed on well-compacted fill and piles here, be dispensed with.

If additional information is required, please do not hesitate to contact our Office.

AGS/MdeF

cc: Messrs. B. Davis
J. Gruspier
Foundations Office

A. G. Stermac
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

-- Gen. Files.