

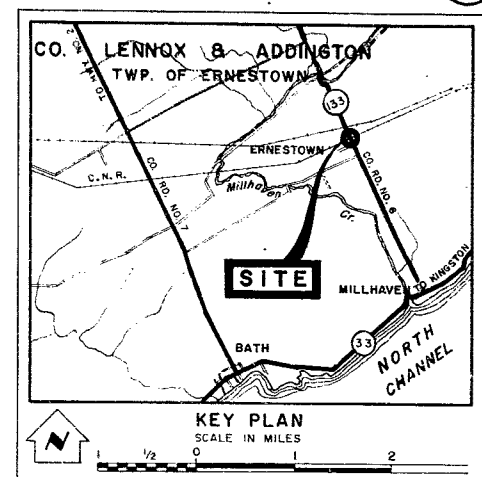
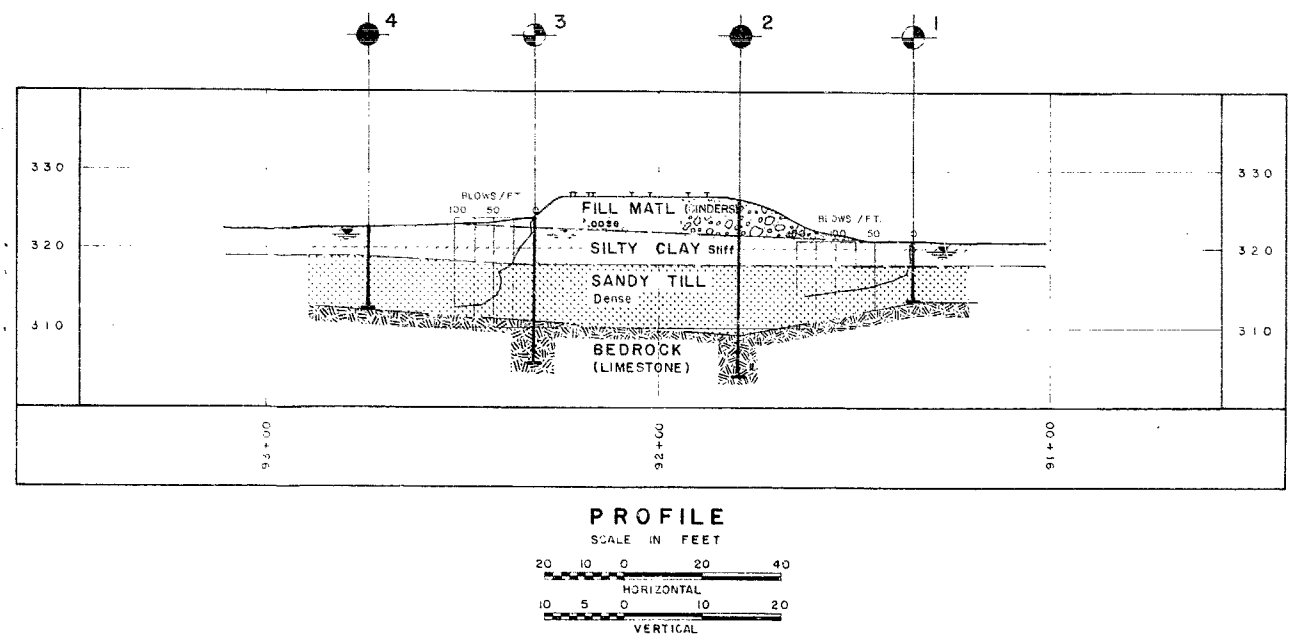
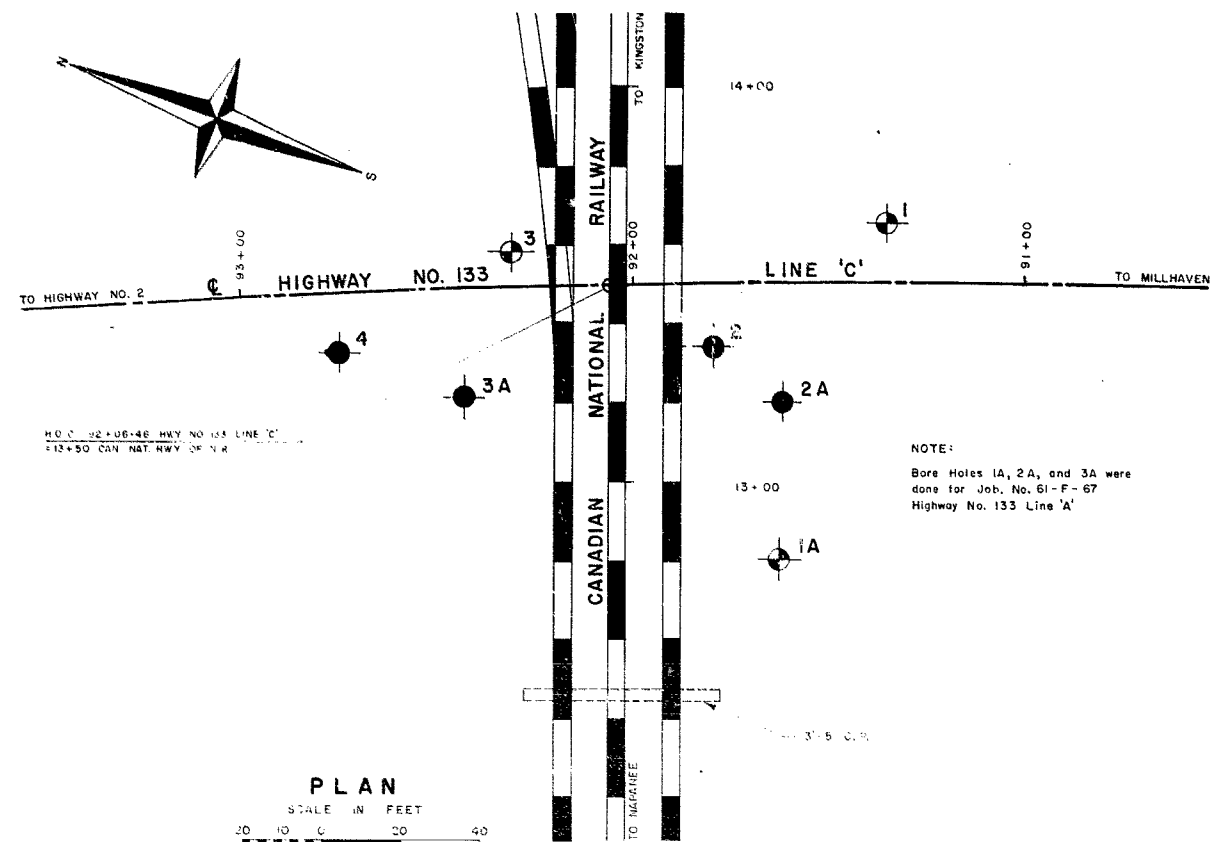
# 62-F-5

W.P. # 146-61

Hwy. # 133

C.N.R. OVERHEAD

AT ERNESTOWN



LEGEND			
	Bore Hole		
	Cone Penetration Hole		
	Bore & Cone Penetration Hole		
	Water Levels established at time of field investigation		
NO.	ELEVATION	STATION	OFFSET
1	322.0	91+35	15' RT.
2	326.0	91+80	16' LT.
3	324.0	92-31	9' RT.
4	323.0	92-75	15' LT.

**- NOTE -**  
The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

DEPARTMENT OF HIGHWAYS - ONTARIO MATERIALS & RESEARCH DIVISION - FOUNDATION SECTION		
<b>CANADIAN NATIONAL RAILWAY AND HIGHWAY NO. 133 LINE 'C'</b>		
ORIGINATED I. HOLUBEC	DISTRICT NO. 8	DATE 1 MARCH 1962
DRAWN D. MUMFORD	W.P. NO. 146-6	JOB NO. 62-F-5
CHECKED <i>[Signature]</i>	CONTRACT NO.	DRAWING NO.
APPROVED <i>[Signature]</i>		<b>62-F-5A</b>

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

March 2, 1962

D.H.O. FOUNDATION INVESTIGATION  
REPORT.  
W.J. 62-F-5 -- W.P. 146-61.

Re: Hwy. #133, Line 'C', C.N.R. Overhead  
at Ernestown, District #8.

Attached, we are forwarding to you, our report  
on the additional borings carried out at the above site.  
This report should be read in conjunction with our previous  
foundation report W.J. 61-F-67.

We believe this report contains all the information  
necessary for your future design work. However, should further  
assistance be required, please feel free to call on our Office.

AGF/MdeF  
attach.

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

cc: Messrs. A. M. Toye (2)  
H. A. Tregaskes  
H. D. McMillan  
J. Ford  
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J. Roy  
E. B. Saint  
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Gen. Files.

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-

# FOUNDATION INVESTIGATION

For

Hwy. #133, Line 'C', C.N.R. Overhead  
at Ernestown, District #8.  
W.J. 62-F-5                      --                      W.P. 146-61

## 1. INTRODUCTION:

The Foundation Section carried out additional borings at the crossing of the C.N.R. and the proposed Hwy. #133 (line 'C'), near Millhaven, District #8.

The investigation became necessary because of a shift in line some 50 ft. to the east.

This report should be read in conjunction with our previous report W.J. 61-F-67.

## 2. SUBSOIL CONDITIONS:

The stratigraphy of the subsoil at the site was found to be quite uniform. The estimated stratigraphical profile Dwg. No. 62-F-5B is given in Appendix I of this report.

The subsoil consists of the following strata:-

- i) Fill Material
- ii) Silty Clay
- iii) Sandy Till
- iv) Bedrock

### 2.1) Fill Material (Cinders):

This material was found to a depth of 4 ft. in B.H. No. 2. It is generally poorly compacted with an 'N' value of 4 blows/ft.

cont'd. /2 ...

2. SUBSOIL CONDITIONS: (cont'd.) ...

2.2) Silty Clay:

This deposit contains traces of coarse sand and fine gravel. The stratum was overlain by a thin layer of topsoil in B.H. No's. 1, 3 and 4, and by fill material in B.H. No. 2. It was found to be 3 to 4 ft. in thickness, extending from elev. 322 to elev. 318. The consistency may be described as stiff and an average 'N' value of 13 blows/ft. was recorded.

2.3) Sandy Till:

The sandy till underlies the silty clay and extends from elev. 318 to bedrock, (elev. 313 to elev. 309). This deposit is essentially silty fine sand with traces of clay and angular gravel (max. size of  $1\frac{1}{2}$ " ). The material is generally dense with an average 'N' value of 36 blows/ft.

2.4) Bedrock:

The bedrock was found to vary between elev. 313 and 309. It is a fossiliferous limestone with seams of shale.

3. WATER LEVEL OBSERVATIONS:

Water level observations at the time of investigation in B.H. No's. 1, 3 and 4, indicated that the water level was at elevations 319.5, 321.5 and 322.0, respectively.

cont'd. /3 ...

4. DISCUSSION AND RECOMMENDATIONS:

Spread footings with a maximum safe bearing load of 3.0 T/ft.<sup>2</sup> may be placed in the dense sandy till stratum at elevation 316 or below.

As an alternative, 12 BP 53 steel 'H' piles may be driven to bedrock (between elevations 309 and 313) and a safe load of 60 tons/pile may be employed.

Because of the presence of relatively low permeable nature of the subsoil, no major dewatering problems can be anticipated during construction. However, any minor seepage can be readily controlled by low capacity pumps.

No stability problems are anticipated for the approach fills, provided they are constructed with side slopes of 2 horizontal to 1 vertical.

5. MISCELLANEOUS:

The field work was carried out from Feb. 2/62 to Feb. 8/62 by the Dominion Soil Investigations, Ltd., using a diamond core drill adapted for soil testing. The work was supervised by I. Holubec for the D.H.O.

February 1962

REPORT PREPARED BY:

I. Holubec  
I. Holubec,  
PROJECT FOUNDATION ENGR.

REPORT APPROVED BY:

M. Devata  
M. Devata,  
SR. PROJECT FOUNDATION ENGR.

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TORONTO, ONTARIO.



ONTARIO  
DEPARTMENT OF HIGHWAYS

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

Bridge Division,  
January 23, 1962.

62-F-5

*Murty*  
*Jan 24, 1962*  
*afg ?*

MEMORANDUM TO:

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

Attn: Mr. Marty DeVatta

RE: W.P. 146-61  
C.N.R. O'Head @ Ernestown  
Hwy. #133 - Line "C"  
1.8 mi. North of Millhaven  
District #8

Would you kindly arrange to have a further investigation carried out at the above site.

The line has been shifted 50' as indicated on the plan given to Mr. Hollubec of your office, January 22, 1962, and the designer feels more information would be desirable.

JBC/ea  
E. D. Smith  
Watone Lin

J. B. Curtis,  
Bridge Location Engineer.

*Investigation by D. Holubec*

*1.8 mi. North of Millhaven*