

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

W.P. 100-57.

T.L. 403A-4

To: Mr. B. R. Davis,
Bridge Engineer,
Bridge Division.

From: Foundation Section,
Materials & Testing Div.,
Room 107, Lab. Bldg.

Attention: Mr. S. McCombie

Date: July 12, 1965

Our File Ref.

In Reply To

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

Structure at the Crossing of Hwy. 403
(Line 'D') and Mohawk Rd., (Line 'D'),
Twp. of Ancaster, Con. II, Lot 50,
District 4 (Hamilton)
W.J. 65-F-30 -- W.P. 100-57

Attached, we are forwarding to you, our detailed foundation investigation report on the subsoil conditions existing at the above structure site.

We believe that you will find the factual data and recommendations contained therein, adequate for your design purposes. Should you require additional information, please feel free to contact our Office.

KYL/NdeF
Attach.

cc: Messrs. B. R. Davis (2)
H. A. Tregaskes
D. W. Farren
G. K. Hunter (2)
H. Greenland
T. J. Kovich
A. Watt


K. V. Lo,
SUPERVISING FOUNDATION ENGINEER

Foundations Office
Gen. Files ✓

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FOUNDATION INVESTIGATION REPORT

For

Structure at the Crossing of Hwy. 403
(Line 'D') and Mohawk Rd., (Line 'D'),
Twp. of Ancaster, Con. II, Lot 50,
District 4 (Hamilton)
W.J. 65-F-30 -- W.P. 100-57

1. INTRODUCTION:

At the request of Mr. W. S. Melnyshyn, Regional Bridge Location Engineer (memo dated February 5, 1965), a foundation investigation was carried out at the site of the proposed underpass structure, where Hwy. 403 (Line 'D') crosses Mohawk Road revised Line 'D', approximately 2.5 miles south-east of Ancaster. This report contains the results of this investigation, together with our recommendations for the foundations of the proposed structure.

A previous foundation investigation, close to this site, for the proposed Line 'B' intersection, was carried out during June 1960, (see Foundation Report W.J. 60-F-50).

2. DESCRIPTION OF SITE:

The topography at this area is undulating and hilly with farm pastureland and some bedrock outcrops in the vicinity.

The site is situated at the southern boundaries of the physiographic region referred to as "Norfolk Sand Plain".

cont'd. /2 ...

3. DESCRIPTION OF FIELD AND LAB. WORK:

The field investigation consisted of 7 sampled boreholes. In granular soils, samples were obtained with a 2" O.D. split-spoon sampler. The dimensions of this sampler and the energy used in driving it, correspond to the requirements of the Standard Penetration test. The bedrock was drilled and AXT core samples extracted.

Samples were visually examined and representative ones tested for natural moisture content and grain size distribution. The location of boreholes, together with elevations, are shown on Drawing No. 65-F-30A.

4. SUBSOIL CONDITIONS:

4.1) General:

The investigation at this site indicates that the subsoil is mainly silty sand at the top, changing to silt which overlies the bedrock.

4.2) Silty Sand to Silt with Occasional Seams of Clayey Silt:

This material was intersected in all the boreholes. It exists in irregular beddings with interlayers of silty fine sand in the upper portions, and occasional seams of clayey silt occurring at greater depths.

The natural moisture content ranged from 9% to 28%. The material is in a loose to very dense state of compaction having an 'N' value range of 3 to more than 100 blows per foot.

cont'd. /3 ...

4. SUBSOIL CCNDITIONS: (cont'd.) ...

4.3) Bedrock:

The bedrock was drilled and AXT core samples extracted. The rock is identified as dolomitic limestone. The bedrock elevation varied from elev. 717 ft. to 715 ft., sloping north to south.

5. GROUND WATER:

The ground water level was measured in each borehole and the observed elevations are shown on the attached borehole log sheets.

6. DISCUSSION AND RECOMMENDATIONS:

The subsoil at this site is quite uniform. It is mainly silt interbedded with silty sand at the top and with occasional seams of clayey silt at lower elevations. The whole deposit overlies dolomitic limestone bedrock.

The proposed new Hwy. 403, Line 'D' will underpass revised Mohawk road having grade elevation \pm 716 ft. which corresponds to the approximate existing bedrock elevation. It appears that the pier footings of the proposed structure will be placed on or into the bedrock. For these footings, a safe bearing value of max. 10 t.s.f. may be used. The abutments will be placed on approach fill embankments and should be supported on short piles driven to bedrock.

No approach stability problems are anticipated for the standard 2:1 slopes.

cont'd. /4 ...

7. SUMMARY:

A foundation investigation at the site of the proposed underpass structure where Mohawk Rd. (proposed Revision Line 'D') crosses Hwy. 403 (Line 'D'), is reported.

Subsoil at the site consists of some 12 ft. to 40 ft. of silty sand to silt overlying limestone bedrock. It is recommended to found the proposed structure directly on the bedrock with an allowable pressure of 10 t.s.f. As an alternative, the proposed abutments may be constructed within the approach fills and supported on end-bearing piles driven to bedrock.

8. MISCELLANEOUS:

The field work was carried out during March 26 to April 2, 1965, under the supervision of Mr. V. Korlu, Project Foundation Engineer, who also wrote this report. The report was reviewed by Mr. M. Devata, Senior Foundation Engineer.

The field investigation equipment was provided by Johnston Drilling Co. of Toronto.

July 1965

APPENDIX I.

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

JOB 65-F-30

LOCATION Hwy 403 & Mohawk Rd Sta 28+84.45' Rt.

ORIGINATED BY V.K.

W. P. 100-57

BORING DATE April 1, 1965.

COMPILED BY V.K.



DATUM Geodetic

BOREHOLE TYPE Drive BX Casing & wash.

CHECKED BY M.D.

RECORD OF BOREHOLE NO. 8

FOUNDATION SECTION

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT _____	LIQUID LIMIT _____ W _L PLASTIC LIMIT _____ W _P WATER CONTENT _____ W <div style="text-align: center;">W_P ———— W ———— W_L</div>			BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.	WATER CONTENT % 15 30 45				
736.8	Groundlevel											
0.0	Topsail											
1.0	Clayey silt to silt with traces of sand.		1	SS	9	730						
			2	SS	19							
			3	SS	30							
	(Stiff or compact)		4	SS	12	720						
716.8												
20.0	(Bedrock)		5	AXT	100% recovery							
711.8	Limestone											
25.0	End of borehole.					710						

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 9

FOUNDATION SECTION

JOE 65-F-30

LOCATION Hwy 403 & Mohawk Rd Sta 29+80 45' Rt.

ORIGINATED BY V.K.

W.P. 100-57

BORING DATE March 30, 1965.

COMPILED BY V.K.

DATUM Geodetic

BOREHOLE TYPE Drive BX Casing and wash.

CHECKED BY M.D.

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE				LIQUID LIMIT — WL PLASTIC LIMIT — wp WATER CONTENT — w				BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.				WATER CONTENT % wp — w — WL 15 — 30 — 45					
756.0	Groundlevel															
0.0	Topsoil															
1.0	Silty sand to sandy silt with traces of clay. (Compact to v. dense)		1	SS	11	750									Sa 70 Si) 30 Cl)	
			2	SS	18											
			3	SS	20	740									Sa 67 Si) 33 Cl)	
			4	SS	145											
			5	SS	100	730										
			for 5"													
			6	SS	86											
			7	SS	32	720										
715.5																
40.5	End of borehole (Refusal)															

729.0
27.0

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT ——— WL		BULK DENSITY	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT	SHEAR STRENGTH P.S.F.	PLASTIC LIMIT ——— wp	WATER CONTENT ——— w		
738.5	Groundlevel											
0.0	Topsoil											
1.0	Stratified clayey silt and silt.											
732.5	(Loose)		1	SS	3							
6.0	(Brown)					730						
727.0	Sandy silt		2	SS	30							
11.5	(Grey) to silt with occasional seams of clayey silt.		3	SS	20							
						720						
	(Compact)		4	SS	24							
22.0	(Bedrock)											
	Limestone		5	AXT	100% recovery							
27.0	End of borehole.					710						

FOUNDATION SECTION

CHECKED BY M.D.

Sa 66
Si)
Cl) 34
Sa 2
Si 92
Cl 6

Gr 6 Cl 23
Sa 20
Si 51

Sa 4
Si 91
Cl 5

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 12

FOUNDATION SECTION

JOB 65-F-30

LOCATION Hwy 403 & Mohawk Rd Sta 30+18 36' Lt.

ORIGINATED BY V.K.

W. P. 100-57

BORING DATE March 31, 1965.

COMPILED BY V.K.

DATUM Geodetic

BOREHOLE TYPE Drive BX Casing & wash.

CHECKED BY _____ M.D.

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT ——— W _L PLASTIC LIMIT ——— W _P WATER CONTENT ——— W		BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.		<div style="text-align: center;"> W_P ——— W ——— W_L WATER CONTENT % 15 30 45 </div>			
744.5	Groundlevel					740						Sa 72 Si 21 Cl 7 Sa 6 Si 86 Cl 8 ▽ 730.0 W.L. 14.5
0.0	Topsoil											
1.0	Silty sand & trans. of clay. (Loose)		1	SS	6							
738.5	(Brown)		2	SS	43							
6.0			3	SS	69		730					
725.5	Silt											
19.0	(Grey)											
	(Compact to v. dense)											
716.0						720						
28.5	End of borehole.					710						

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 13

FOUNDATION SECTION

JOB 65-F-30

LOCATION Hwy 403 & Mohawk Rd Sta 31+08 36' Lt.

ORIGINATED BY V.K.

W. P. 100-57

BORING DATE April 9, 1965.

COMPILED BY V.K.

DATUM Geodetic

BOREHOLE TYPE Drive BX casing & wash.

CHECKED BY M.D.

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT ——— WL PLASTIC LIMIT ——— WP WATER CONTENT ——— W		BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT		SHEAR STRENGTH P.S.F.			
735.5	Groundlevel											
0.0	Topsoil											
1.0	Silty sand and with traces of clay.		1	SS	3	730						
725.5	(V. loose)		2	SS	43							
10.0	(Grey) Silt with occasional seams of clayey silt.		3	SS	69	720						
716.5	(Dense to v. dense)											
19.0	(Bedrock)											
711.5	Limestone		4	AXT	100% recovery							
24.0	End of borehole.					710						

ABBREVIATIONS USED IN THIS REPORT

PENETRATION RESISTANCE

STANDARD PENETRATION RESISTANCE 'N' - THE NUMBER OF B.OWS REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES INTO THE SUBSOIL, DRIVEN BY MEANS OF A 140 POUND HAMMER FALLING FREELY A DISTANCE OF 30 INCHES.

DYNAMIC PENETRATION RESISTANCE - THE NUMBER OF BLOWS REQUIRED TO ADVANCE A 2 INCH, 60 DEGREE CONE, FITTED TO THE END OF DRILL RODS, 12 INCHES INTO THE SUBSOIL, THE DRIVING ENERGY BEING 350 FOOT POUNDS PER BLOW.

DESCRIPTION OF SOIL

THE CONSISTENCY OF COHESIVE SOILS AND THE RELATIVE DENSITY OR DENSENESS OF COHESIONLESS SOILS ARE DESCRIBED IN THE FOLLOWING TERMS:-

<u>CONSISTENCY</u>	<u>'N' BLOWS / FT.</u>	<u>c LB. / SQ. FT.</u>	<u>DENSENESS</u>	<u>'N' BLOWS / FT.</u>
VERY SOFT	0 - 2	0 - 250	VERY LOOSE	0 - 4
SOFT	2 - 4	250 - 500	LOOSE	4 - 10
FIRM	4 - 8	500 - 1000	COMPACT	10 - 30
STIFF	8 - 15	1000 - 2000	DENSE	30 - 50
VERY STIFF	15 - 30	2000 - 4000	VERY DENSE	> 50
HARD	> 30	> 4000		

TYPE OF SAMPLE

S.S.	SPLIT SPOON	T.W.	THINWALL OPEN
W.S.	WASHED SAMPLE	T.P.	THINWALL PISTON
S.B.	SCRAPER BUCKET SAMPLE	O.S.	OESTERBERG SAMPLE
A.S.	AUGER SAMPLE	F.S.	FOIL SAMPLE
C.S.	CHUNK SAMPLE	R.C.	ROCK CORE
S.T.	SLOTTED TUBE SAMPLE		
	P.H.	SAMPLE ADVANCED HYDRAULICALLY	
	P.M.	SAMPLE ADVANCED MANUALLY	

SOIL TESTS

Q _u	UNCONFINED COMPRESSION	L.V.	LABORATORY VANE
Q	UNDRAINED TRIAXIAL	F.V.	FIELD VANE
Q _{cu}	CONSOLIDATED UNDRAINED TRIAXIAL	C.	CONSOLIDATION
Q _d	DRAINED TRIAXIAL	S	SENSITIVITY

ABBREVIATIONS USED IN THIS REPORT

SOIL PROPERTIES

γ	UNIT WEIGHT OF SOIL (BULK DENSITY)
γ_s	UNIT WEIGHT OF SOLID PARTICLES
γ_w	UNIT WEIGHT OF WATER
γ_d	UNIT DRY WEIGHT OF SOIL (DRY DENSITY)
γ'	UNIT WEIGHT OF SUBMERGED SOIL
G	SPECIFIC GRAVITY OF SOLID PARTICLES $G = \frac{\gamma_s}{\gamma_w}$
e	VOID RATIO
n	POROSITY
w	WATER CONTENT
S_r	DEGREE OF SATURATION
w_L	LIQUID LIMIT
w_p	PLASTIC LIMIT
I_p	PLASTICITY INDEX
s	SHRINKAGE LIMIT
I_L	LIQUIDITY INDEX = $\frac{w - w_p}{I_p}$
I_c	CONSISTENCY INDEX = $\frac{w_L - w}{I_p}$
e_{max}	VOID RATIO IN LOOSEST STATE
e_{min}	VOID RATIO IN DENSEST STATE
I_D	DENSITY INDEX = $\frac{e_{max} - e}{e_{max} - e_{min}}$
	RELATIVE DENSITY D_r IS ALSO USED
h	HYDRAULIC HEAD OR POTENTIAL
q	RATE OF DISCHARGE
v	VELOCITY OF FLOW
i	HYDRAULIC GRADIENT
k	COEFFICIENT OF PERMEABILITY
j	SEEPAGE FORCE PER UNIT VOLUME
m_v	COEFFICIENT OF VOLUME CHANGE = $\frac{-\Delta e}{(1+e)\Delta\sigma}$
c_v	COEFFICIENT OF CONSOLIDATION
C_c	COMPRESSION INDEX = $\frac{\Delta e}{\Delta \log_{10} \sigma}$
T_v	TIME FACTOR = $\frac{c_v t}{d^2}$ (d, DRAINAGE PATH)
U	DEGREE OF CONSOLIDATION
τ_f	SHEAR STRENGTH
c'	EFFECTIVE COHESION
ϕ'	EFFECTIVE ANGLE OF SHEARING RESISTANCE, OR FRICTION
c_u	APPARENT COHESION
ϕ_u	APPARENT ANGLE OF SHEARING RESISTANCE, OR FRICTION
μ	COEFFICIENT OF FRICTION
S_t	SENSITIVITY

GENERAL

π	= 3.1416
e	BASE OF NATURAL LOGARITHMS 2.7183
$\log_e \sigma$ OR $\ln \sigma$	NATURAL LOGARITHM OF σ
$\log_{10} \sigma$ OR $\log \sigma$	LOGARITHM OF σ TO BASE 10
t	TIME
g	ACCELERATION DUE TO GRAVITY
V	VOLUME
W	WEIGHT
M	MOMENT
F	FACTOR OF SAFETY

STRESS AND STRAIN

u	PORE PRESSURE
σ	NORMAL STRESS
σ'	NORMAL EFFECTIVE STRESS ($\bar{\sigma}$ IS ALSO USED)
τ	SHEAR STRESS
ϵ	LINEAR STRAIN
γ	SHEAR STRAIN
ν	POISSON'S RATIO (μ IS ALSO USED)
E	MODULUS OF LINEAR DEFORMATION (YOUNG'S MODULUS)
G	MODULUS OF SHEAR DEFORMATION
K	MODULUS OF COMPRESSIBILITY
η	COEFFICIENT OF VISCOSITY

EARTH PRESSURE

d	DISTANCE FROM TOP OF WALL TO POINT OF APPLICATION OF PRESSURE
δ	ANGLE OF WALL FRICTION
K	DIMENSIONLESS COEFFICIENT TO BE USED WITH VARIOUS SUFFIXES IN EXPRESSIONS REFERRING TO NORMAL STRESS ON WALLS
K_0	COEFFICIENT OF EARTH PRESSURE AT REST

FOUNDATIONS

B	BREADTH OF FOUNDATION
L	LENGTH OF FOUNDATION
D	DEPTH OF FOUNDATION BENEATH GROUND
N	DIMENSIONLESS COEFFICIENT USED WITH A SUFFIX APPLYING TO SPECIFIC GRAVITY, DEPTH AND COHESION ETC. IN THE FORMULA FOR BEARING CAPACITY
k_s	MODULUS OF SUBGRADE REACTION

SLOPES

H	VERTICAL HEIGHT OF SLOPE
D	DEPTH BELOW TOE OF SLOPE TO HARD STRATUM
β	ANGLE OF SLOPE TO HORIZONTAL

Mr. S. McCombie,
Bridge Planning Engr.,
Bridge Division.

Foundation Section,
Materials & Testing Div.,
Room 107, Lab. Bldg.

Attn: Mr. W. S. Malinychuk

December 13, 1965

W.P. 194-61 - Hwy. #2 Underpass.
W.P. 499-64 - Bridge over Ramp 'A'.
W.P. 100-57 - Mohawk Rd. Underpass.
- Hwy. 403, District #4, Hamilton -

We have reviewed the preliminary bridge plans for the above-mentioned projects and submit the following comments:

Hwy. #2 Underpass - W.P. 194-61 -

The piles for the pier footings should be driven at least 15 ft. below the footing bases, even if the dynamic formula indicates that the required capacity has been attained at a higher elevation. This information should be given on the Contract drawings.

Hwy. #2 Structure over Ramp 'A' - W.P. 499-64 -

The estimated pile tip elevation for the abutments was not shown on the drawings. It should also be noted that the pile driving during construction, should be controlled by the use of the Hilley formula as per current D.H.O. standards DD 1218 and DD 1219.

Mohawk Rd. Underpass - W.P. 100-57 -

We have no comments pertaining to structure foundations.

MD/McC

cc: Foundations Office

Gen. Files

M. Devata
M. Devata,
SENIOR FOUNDATION ENGR.
For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGR.

MEMORANDUM

To: Mr. A. Stermac,
Principal Foundation Engineer,
Room 107, Lab. Bldg.

From: Bridge Division,
Downsview, Ontario.

Date: November 22, 1965.

Our File Ref.

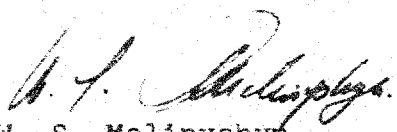
In Reply To

SUBJECT: ✓ Hwy. #2 Underpass W.P. 194-61,
Hwy. #2 Bridge over Ramp "A" W.P. 499-64,
Mohawk Road Underpass W.P. 100-57,
Hwy. 403 - Dist. 4.

Enclosed please find prints of the Preliminary Bridge Plans for the above proposed structures.

Would you please review our plans and inform us of your comments and/or approval.

WM/sp


W. S. Melinyshyn,
Regional Bridge Location Engineer.

65-F-30

00:27

B

HAMN DOWN 3 MAR 24/65 12:15P VR

W D HAM MAINT ENGR

RE: MOHAWK ROAD UNDERPASS HWY 403, DISTRICT NO. 4 W P 100-57

W J 65-F-30

THE FOUNDATION WORK WILL COMMENCE ON OR ABOUT 29TH OF MARCH 1965

THIS IS FOR YOUR INFORMATION

M DEVATA SR FOUNDN ENGR

PER A G STERMACK PRIN FOUNDN ENGR MAT G TESTG

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MEMORANDUM

To: Mr. A. Stermac,
Principal Foundation Engineer,
Room 107, Lab. Bldg.

FROM: Bridge Division,
Downsview, Ontario.

DATE: February 5, 1965.

OUR FILE REF.

IN REPLY TO

SUBJECT: Mohawk Road Underpass W.P. 100-57 *65-F-30*
~~Hamilton Drive Underpass W.P. 184-60~~
~~Hwy. #2 Underpass W.P. 194-61~~
Hwy. #2 Bridge over Ramp "A" W.P. 499-64
Hwy. #403 - District #4

Please find attached a print of the site plan for each of the proposed structures with the probable location of footings marked in red.

Previous Foundations Investigations have been done at the above first three sites; however, new interchange designs have altered the bridge spans and in some cases the crossing location.

NAME	W.P.	FOUND. REPORT		CHANGE
		M. and R. No.	Bridge No.	
Mohawk	100-57	W.J.60-F-50	BA 1106	new location different spans
Hamilton	184-60	Frankl of Canada	BA 1161	approx. same location different spans
Hwy. #2 and #403	194-61	W.J.62-F-100	BA 1508	same location different spans
Hwy. #2 and Ramp "A"	499-64	None	None	NEW

Would you kindly advise us if the recommendations as found in the existing reports are applicable to the proposed new footing locations and in the case of W.P. 499-64 arrange an investigation to provide us with the information necessary to design the new bridge.

WSM/lm
cc. R. Fitzgibbon
cc. N. D. Smith

W. S. Melnyshyn
W. S. Melnyshyn,
Regional Bridge Location Engineer.

4
Mr. W. S. Melinyshyn,
Regional Bridge Location Engr.,
Bridge Division.

Foundation Section,
Materials & Testing Div.,
Room 107, Lab. Bldg.

February 12, 1965

Mohawk Road Underpass -- W.P. 100-57
Hamilton Drive Underpass -- W.P. 184-60
Hwy. #2 Underpass -- W.P. 194-61
Hwy. #2 Bridge over Ramp "A" W.P. 499-64
Hwy. #403 -- District #4.

With reference to your memo of February 5, 1965,
please note the following:

For Jobs W.P. 184-60 and 194-61, the available
subsoil information and recommendations can be applied.

For Job W.P. 499-64, a subsoil investigation will
be carried out. While at this location, two boreholes will
be put down also at Job Site W.P. 100-57 in order to find out
whether the available information can be used.

AGS/MdeP

Alfred Sternac
A. G. Sternac,
PRINCIPAL FOUNDATION ENGINEER

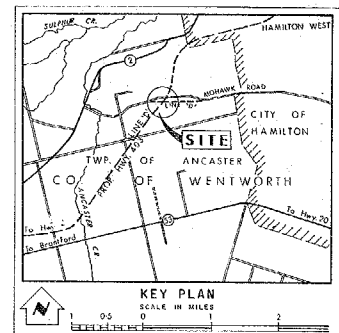
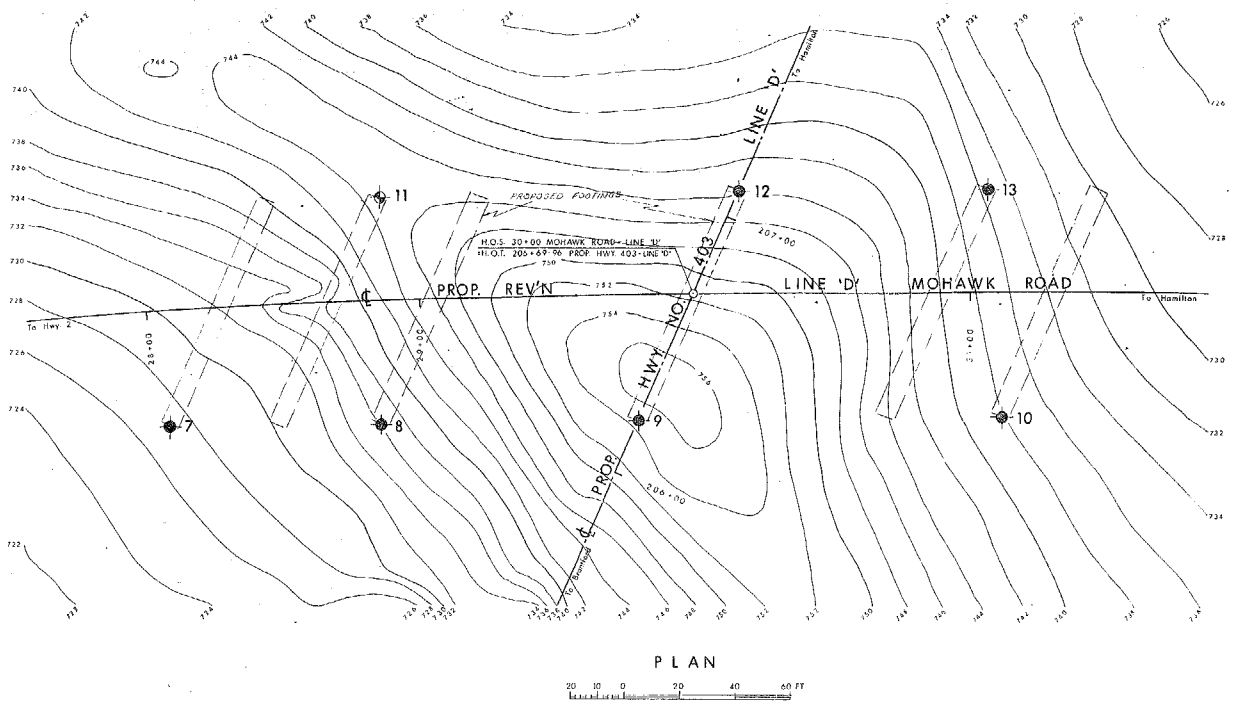
cc: Foundations Office
Gen. Files

#65-F-30

W.P. # 100-57

Hwy. # 403

MOHAWK RD.



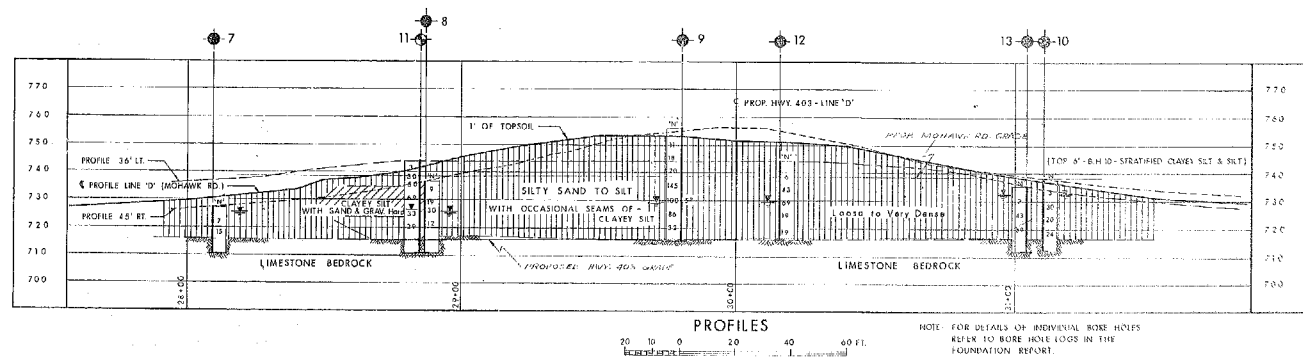
LEGEND

- Bore Hole
- Cone Penetration Hole
- Bore & Cone Penetration Hole
- Water Levels established at time of field investigation. APRIL, 1965

NO.	ELEVATION	MOHAWK RD. STATION	OFFSET
1-6	SEE FOUNDATION REPORT	60-F-50	
7	727.5	28+05	42' RT.
8	736.6	28+82	45' RT.
9	758.0	29+80	45' RT.
10	738.5	31+12	45' RT.
11	745.0	28+80	36' LT.
12	744.5	30+18	36' LT.
13	735.5	31+08	38' 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.



NOTE: FOR DETAILS OF INDIVIDUAL BORE HOLES REFER TO BORE HOLE LOGS IN THE FOUNDATION REPORT.

DATE: BY: DESCRIPTION:

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION - FOUNDATION SECTION

MOHAWK ROAD - PROPOSED REVISION
LINE 'D'

KING'S HIGHWAY NO. 403 - PROP. REV'N LINE 'D' DIST. NO. 4
CO. WENTWORTH
TWP. ANCASTER LOT 50 CON. II

BORE HOLE LOCATIONS & SOIL STRATA

SUBNO. V.K.	CHECKED	W.P. NO. 100-57	W.B. DRAWING NO.
DRAWN	CHECKED	JOB NO. 65-F-30	65-F-30A
DATE: APRIL 29, 1965	SHEET NO.	BRIDGE DRAWING NO.	
APPROVED	CONTR. NO.		

