

SUPPLEMENTARY
FOUNDATION INVESTIGATION REPORT
For

E.E.W. and Hwy. #22 Interchange,
Twp. of Etobicoke, County of York,
District #6 (Toronto).
W.P. 275-64-1 and W.P. 275-64-4
W.J. 65-P-104

INTRODUCTION:

Since the original foundation investigation report for the above mentioned interchange was prepared, we have received the preliminary plans for the individual structures involved which show the exact locations of each. We have reviewed these plans with respect to the available soil information, and as a result of this review, we arranged for more borings to be carried out in the field to obtain additional information.

Field work, laboratory work, and the preparation of the Record of Borehole sheets, for the additional borings, were undertaken by Dominion Soil Investigation Ltd. at our request and according to a program decided upon by us.

The following pages contain a description of the subsoil conditions prevailing at each structure location, together with our final recommendations for the structure foundations.

This report was prepared by Mr. A. Barsvary, Senior Foundation Engineer, under the general supervision of Mr. K. G. Selby, Supervising Foundation Engineer.

STRUCTURE #6 - W.P. 277-64 -

1. Soil Conditions:

Four boreholes were carried out in the vicinity of the proposed Hwy. #27 and Evans Ave. underpass. Boreholes #1 and #2 were drilled under the supervision of the Foundation Section, whereas holes #45 and #46 were drilled by Dominion Soil Investigation Ltd.

Subsoil conditions were found to be very similar at each borehole location. Below ground level a five-ft. thick layer of fill material, consisting of silty sand to fine sand was observed, having a compact relative density. Underlying the fill, a glacial till deposit of clayey silt with sand, gravel and shale fragments was revealed. The consistency of this stratum was established to be generally hard.

Shaley limestone with intermittent limestone, underlies the glacial till, the upper surface of which was found between el. 348 ft. and el. 343 ft. The bedrock was proved by diamond drilling to depths of 2 - 7 ft. below rock surface.

Groundwater level in the boreholes was observed to be between el. 355 ft. and 360 ft.

Locations and elevations of the boreholes as well as the stratigraphical profile, are plotted on attached Drawing No. 65-F-104D.

2. Recommendations:

The proposed structure should be supported on spread footings within the sound shaley limestone bedrock, at a minimum depth of four ft. below the finished grade of Hwy. #27 (el. 341 ft. or below). At this elevation an allowable bearing pressure of 10 t.s.f. may be assumed for design purposes.

cont'd. /5 ...

STRUCTURE #6 - W.P. 277-64 - (cont'd.) ...

2. Recommendations: (cont'd.) ...

Due to the cohesive nature of the clayey silt stratum, and because of the structure being supported within the bedrock, no major dewatering problems are foreseen.

STRUCTURE #16 - W.P. 278-64 -

1. Soil Conditions:

A total of six sampled boreholes was carried out at the site of the proposed C.P.R. overhead. Two of the boreholes (No's 21 and 22) formed part of the preliminary soils investigation, while B.H.'s 99, 100, 101 and 102 were drilled in June 1966, in order to obtain more detailed information.

The existing Hwy. 27 embankment is approximately 30 ft. high consisting of gravelly sand material, having loose to dense relative density.

Below the highway fill at the west abutment, a thin (2 - 4 ft.) layer of organic sandy silt was revealed, which probably is the original topsoil.

Underlying the fill and the organic layer, a heterogeneous mixture of gravel, sand, silt and clay was encountered (glacial till). Depending upon the grain-size distribution of the deposit, it may be classified as clayey silt with traces of gravel and sand or sandy silt with traces of gravel and clay. The stratum exhibits a very dense relative density or hard consistency.

Below approximate el. 373 - 370 ft., intermittent weathered shale was observed within the glacial till, extending to the full depth of the layer, el. 366 - 347 ft.

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DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 1

FOUNDATION SECTION

JOB 65-F-104 LOCATION 177,495 N 209,600 E ORIGINATED BY P. Mc
W. 275-64-1 BORING DATE Oct. 19, 1965. COMPILED BY H.S.
DATUM G.S.C. BOREHOLE TYPE Washboring - NX Casing. CHECKED BY all

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		25	50	75	100	125	Wp — W — WL				
							SHEAR STRENGTH P.S.F.					WATER CONTENT %				
360.4	Groundlevel					360										
0.0	Topsoil														Blocked dry 1.5'	
358.9																
1.5	Fine sand. Brown Fill														Gr12%Sa34% Si36% Cl 18%	
356.0	Compact		1	SS	22											
4.4	Clayey silt with some sand & gravel.															
	Very dense		2	SS	35											
	(Glacial Till) with fragments of shale below El. 349.0		3	SS	74	350										
346.4			4	RC	55% Rec											
14.0	Shaley limestone with intermittent limestone.		5	RC	44% Rec											
			6	RC	100% Rec											
			7	RC	89% Rec											
339.9						340										
20.5	End of borehole.															

Blocked dry
1.5'

Gr12%Sa34%
Si36% Cl 18%

Refusal at 10.9'

DEPARTMENT OF HIGHWAYS - ONTARIO

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

MATERIALS & TESTING DIVISION

JOB 65-F-104

LOCATION 177.399N 209.331E

ORIGINATED BY P. Mc

W. P. 275-64-1

BORING DATE Oct. 19, 1965.

COMPILED BY H.S.

DATUM G.S.C.

BOREHOLE TYPE Washboring - NX & BX Casing.

CHECKED BY AF

[illegible]

MEMORANDUM

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

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

Attention: Mr. S. McCombie

DATE: August 9, 1966

OUR FILE REF.

IN REPLY TO:

SUBJECT:

FOUNDATION INVESTIGATION REPORT
For
Q.E.W. and Hwy. #27 Interchange,
Twp. of Etobicoke, County of York,
District #6 (Toronto)
W.J. 65-F-104 -- W.P. 275-64-1

Enclosed, please find the results of our final
foundation investigations for Structures No's 6 and 16.

Please attach these to your copy(s) of
Foundation Report #65-F-104.

AGS/MdeF
Attach.

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

Foundations Office
Gen. Files

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

GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 4.5.

OUR REFERENCE NO. 6-5-39

W.J. 56-F-47

CLIENT: D. H. O.

PROJECT: Q.E.W. & HWY No 27 INTERCHANGE

LOCATION: 177,385 N; 209,568 E.

DATUM ELEVATION: G.S.C.

METHOD OF BORING: WASHBORING

DIAMETER OF BOREHOLE: 2 3/8"

DATE: MAY 24 & 25, 1966

W. P. 275-64-4

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %					REMARKS
				NUMBER	TYPE	z or Advancement of Sampler	20	40	60	80	100	PL	W	LI			
360.6	0	GROUND SURFACE															
		4" ASPHALT Compact, Brown GRAVELLY to SANDY SILT FILL															
355.0	5.5	Grey CLAYEY SILT with some embedded coarse sand and fine gravel. (GLACIAL TILL)		1A B	S.S.	21											
350.0	10			2	S.S.	26											
	14.0	Very Stiff Very Hard															
345.0	15	Alternate layers of Hard CLAYEY SILT and SHALEY LIMESTONE		3	S.S.	10075											
342.6	18.0			4	R.C.												
340.0	20	Grey SHALEY LIMESTONE and SHALE BEDROCK		5	R.C.												
	25			6	R.C.												
335.0	25.5																

W.L. El. 355.6'
MAY 28, 1966

GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 46 . .

OUR REFERENCE NO. 6 - 5 - 39

W. J. 66 - F - 47

CLIENT: D.H.O.

PROJECT: Q.E.W. & HWY. No 27 INTERCHANGE

LOCATION: 177,440 N; 209,729 E.

DATUM ELEVATION: G.S.C.

METHOD OF BORING: WASHBORING

DIAMETER OF BOREHOLE: 2 3/8"

DATE: MAY 24, 1966

W.P. 275 - 64 - 4

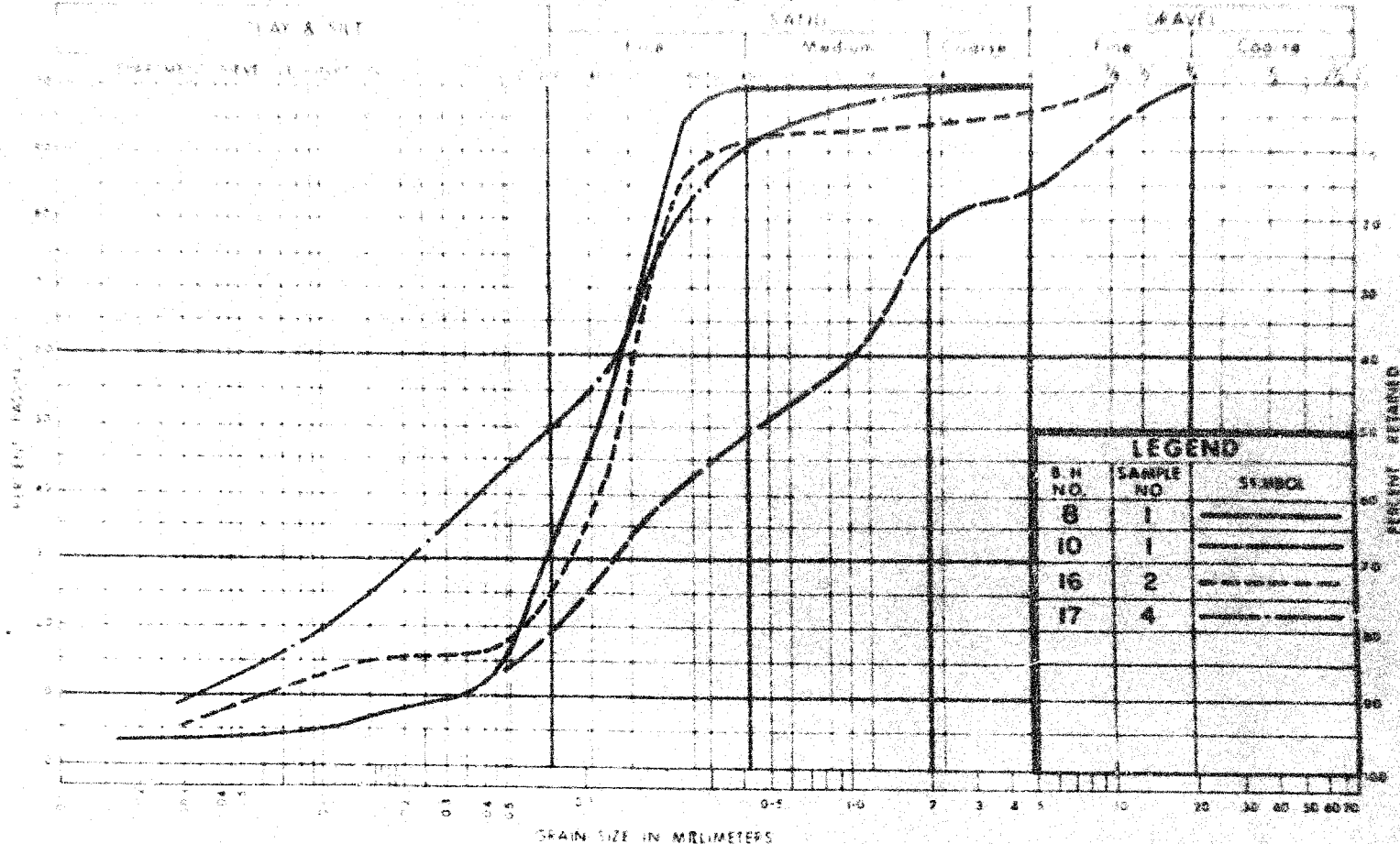
ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %				REMARKS
				NUMBER	TYPE	N- or Advancement of Sampler	2,0	4,0	6,0	8,0	100	PL	W	LI		
							SHEAR STRENGTH lbs/sq ft					10 20 30 40				
362.6	0	2" ASPHALT Loose														
360.0		SANDY SILT and GRAVEL FILL														
358.6	4.0	Compact, Brown Stratified		1	S.S.	21										
355.6	5	SILTY FINE SAND														
355.0	7.0	Grey		2	S.S.	40										
	9.0	Hard CLAYEY V. Stiff SILT		3	S.S.	25										
351.0	11.5	some embedded fine gravel.		4	S.S.	95/10"										
350.0		(GLACIAL TILL)		5	S.S.	100/11"										
347.6	15	Shale Fragments														
		SHALE BEDROCK		6	R.C.											
345.0	17.5	END OF BOREHOLE														
	20															
340.0																

WL. El. 358.7
MAY 24, 1966
CAVE IN El. 358.6
MAY 28, 1966
Sa 70% ; Si 30%

W.L. El. 358.7
MAY 24, 1966
CAVE IN El. 358.6
MAY 28, 1966
Sa 70% ; Si 30%

UNIFIED SOIL CLASSIFICATION SYSTEM



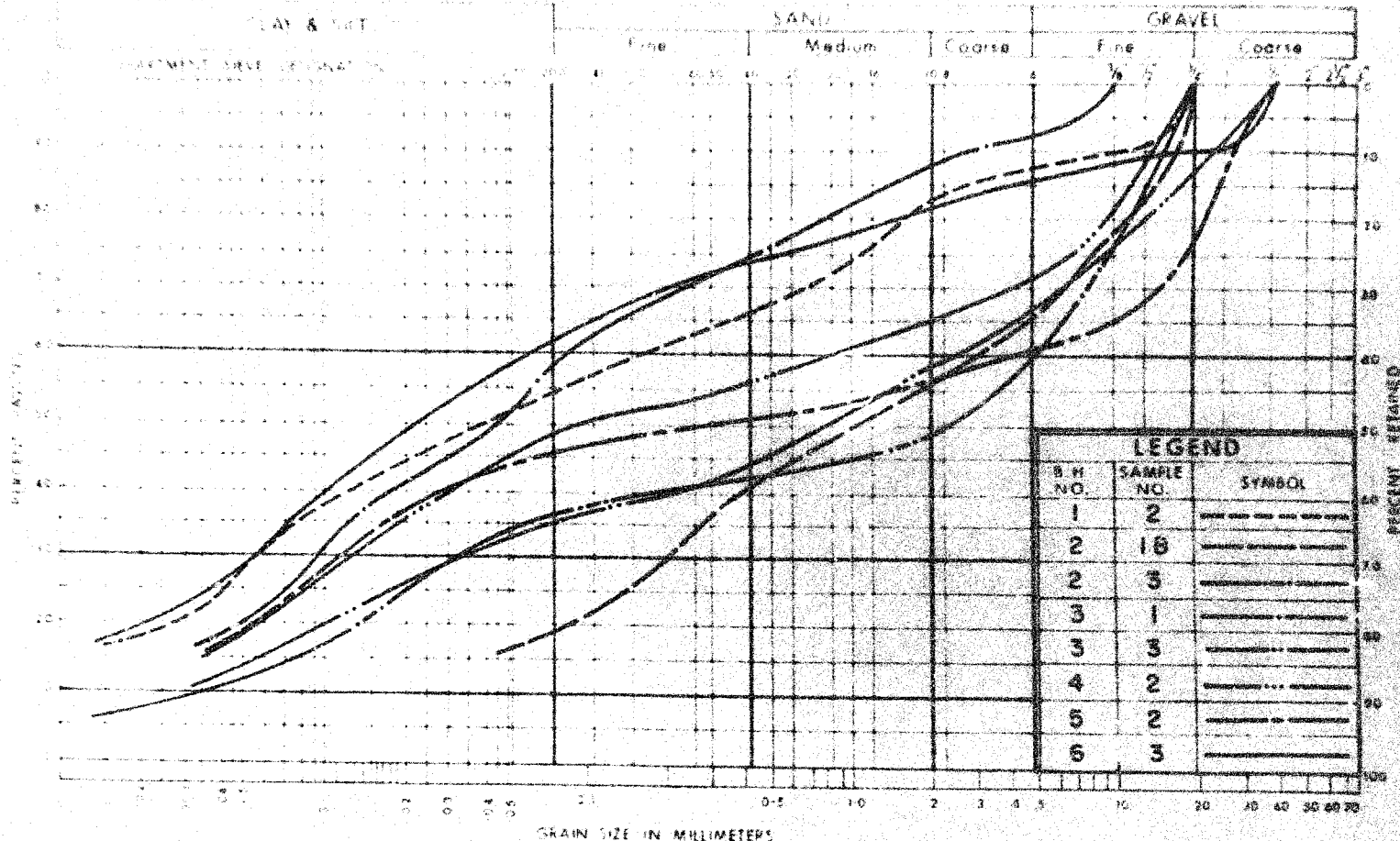
DEPARTMENT OF HIGHWAYS
MATERIALS and
TESTING
DIVISION

GRAIN SIZE DISTRIBUTION
SILTY SAND to SANDY SILT

WP No.

JOB No. 65-F-104

UNIFIED SOIL CLASSIFICATION SYSTEM



GRAIN SIZE DISTRIBUTION
CLAYEY SILT, SAND & GRAVEL
(GLACIAL TILL)

W.P. No.
JOB No. 65-F-104



DEPARTMENT OF HIGHWAYS
MATERIALS and
TESTING
DIVISION

ONTARIO

