

SUPPLEMENTARY
FOUNDATION INVESTIGATION REPORT

For

Q.E.W. and Hwy. #27 Interchange,
Twp. of Stoblooke, 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.

cont'd. /2 ...

STRUCTURE #3 - (Ramp E-S over Hwy. #27) - W.P. 238-61-2 -

1. Soil Conditions:

Boreholes #8 and 90 were placed at the site of the proposed bridge. The soil stratigraphy revealed by the borings is fairly uniform, consisting of a layer of silty sand underlain by sandy and clayey glacial till, which in turn, is followed by shale bedrock.

The uppermost silty sand exhibited compact to dense relative density. The granular portion of the glacial till was found to have very dense relative density, whereas the cohesive portion displayed a hard consistency. The surface of the shale bedrock was observed to be at el. 358 ft. in borehole #90 and el. 356 ft. in hole #8.

The groundwater level was established at el. 365 ft. within the upper silty sand deposit.

The locations and elevations of the boreholes, together with the soil stratigraphy, are presented on Drawing #65-F-104P.

2. Recommendations:

Bridge #3 is proposed to be a 2-span structure with closed type abutments. The design grade of Hwy. #27 is around el. 343 - 345 ft., well below the surface of the shale bedrock.

It is recommended that both abutments be supported on bedrock at or below el. 357 ft. at the west abutment, and at or below el. 356 ft. at the east. The pier will necessarily be placed on rock at a minimum depth of four ft. below finished grade. The safe design pressure at the recommended elevations is estimated to be 10 t.s.f.

Since excavations will advance to the bedrock, no major dewatering problems are expected to occur.

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 8

FOUNDATION SECTION

JOB 65-F-104

LOCATION 178,658 N 209,540 E

ORIGINATED BY P. Mc

W.P. 275-64-1

BORING DATE Oct. 1, 1965.

COMPILED BY H.S.

DATUM G.S.C.

BOREHOLE TYPE Washboring - BX Casing.

CHECKED BY SK

SOIL PROFILE		SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT					LIQUID LIMIT ——— WL PLASTIC LIMIT ——— WP WATER CONTENT ——— W			BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE		25	50	75	100	125	wp	w	wL		
369.0	Groundlevel														
0.0	Silty sand. Loose.		1	SS	5										
5.0	Clayey silt with some sand & gravel. (Glacial Till) Very dense.		2	SS	88 for 9"										
			3	SS	50 for 3"										
356.0			4	RC	59%										
13.0	Shaley limestone with intermittent limestone.		5	RC	94%										
349.0															
20.0	End of borehole.														

Refusal at 5.4'

Blocked dry
4.0'

DOMINION SOIL INVESTIGATION LIMITED
27 CROCKFORD BOULEVARD - SCARBOROUGH ONTARIO CANADA - TELEPHONE 421-2567

BRANCH
369 QUEENS AVENUE
LONDON, ONTARIO
TELEPHONE GE. 3-3851



FOUNDATION ENGINEERS

ASSOCIATED COMPANY
SOIL TESTING AND ENGINEERING LTD.
34 BRENTFORD ROAD,
KINGSTON 5, JAMAICA, WEST INDIES
TELEPHONE: 66896

August 17, 1966.

Our Ref. No. 6-6-14
Your Ref. W. P. 238-61-2

Mr. A. G. Stermac,
Principal Foundation Engineer,
Materials & Testing Division,
Department of Highways,
Downsview Avenue,
Downsview, Ontario.

Attention: Mr. K. Selby, P. Eng.

Re: Soil Investigation for Q. E. W. and Hwy. #27,
Bridge No. 3.

Dear Sirs:

Enclosed are eleven (11) copies of the records of Borehole No. 90, which was put down in connection with the above project. For full information about the subsurface conditions in the area of this structure reference should be made also to your Borehole No. 8.

We trust that the information contained on the borehole log and the enclosed grain size distribution sheet is sufficient for your requirements.

Yours very truly,

DOMINION SOIL INVESTIGATION LIMITED,

I. P. Lieszkowszky, P. Eng.,
Project Engineer.

IPL/ds

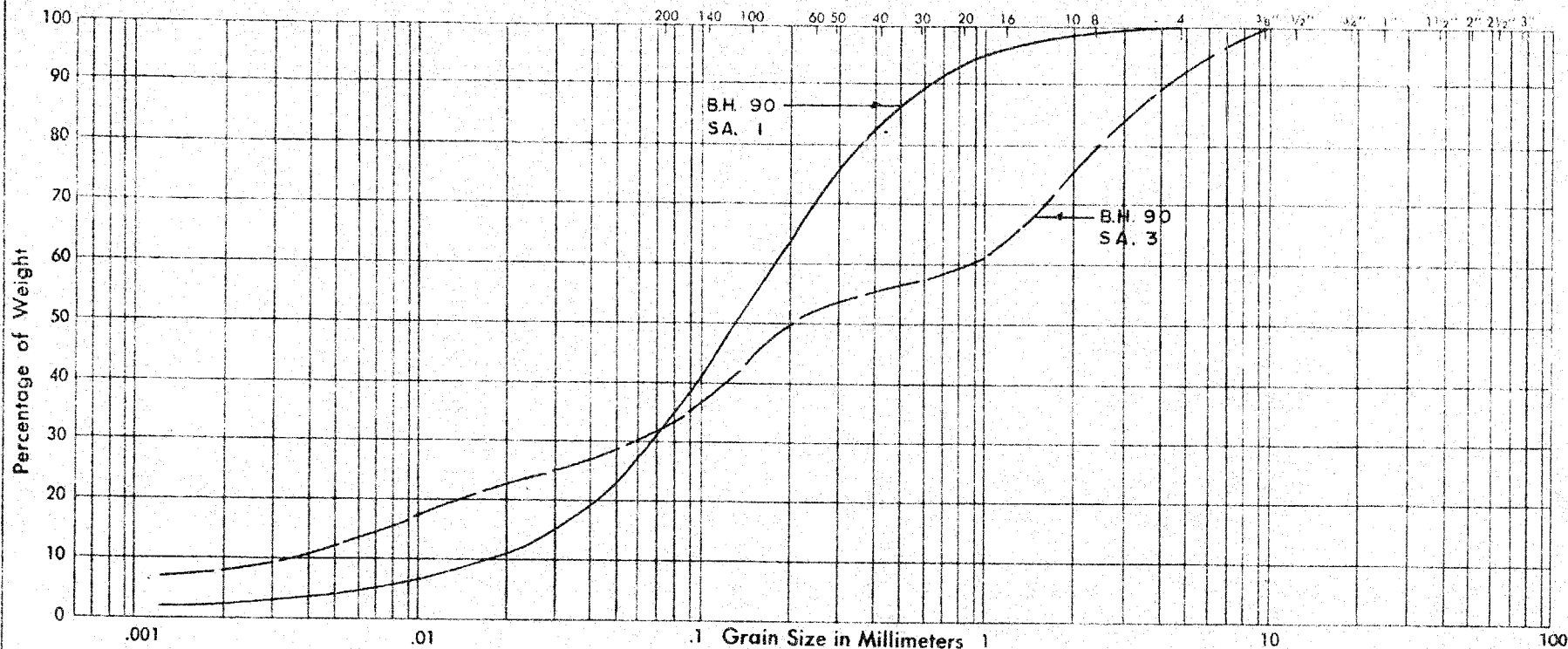
DOMINION SOIL INVESTIGATION LIMITED

GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-6-14
YOUR REF. W.P. 238-61-2

UNIFIED SOIL CLASSIFICATION
SYSTEM

SILT AND CLAY	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE



PROJECT: Q.E.W. & HWY. NO 27 INTERCHANGE
LOCATION: BRIDGE NO 3
BOREHOLE NO.: 90 90
SAMPLE NO.: 1 3
DEPTH OF SAMPLE:
ELEVATION OF SAMPLE:

COEFFICIENT OF UNIFORMITY
COEFFICIENT OF CURVATURE

Classification of Sample and Group Symbol:
SILTY SAND
with a trace of GRAVEL and CLAY
(GLACIAL TILL)

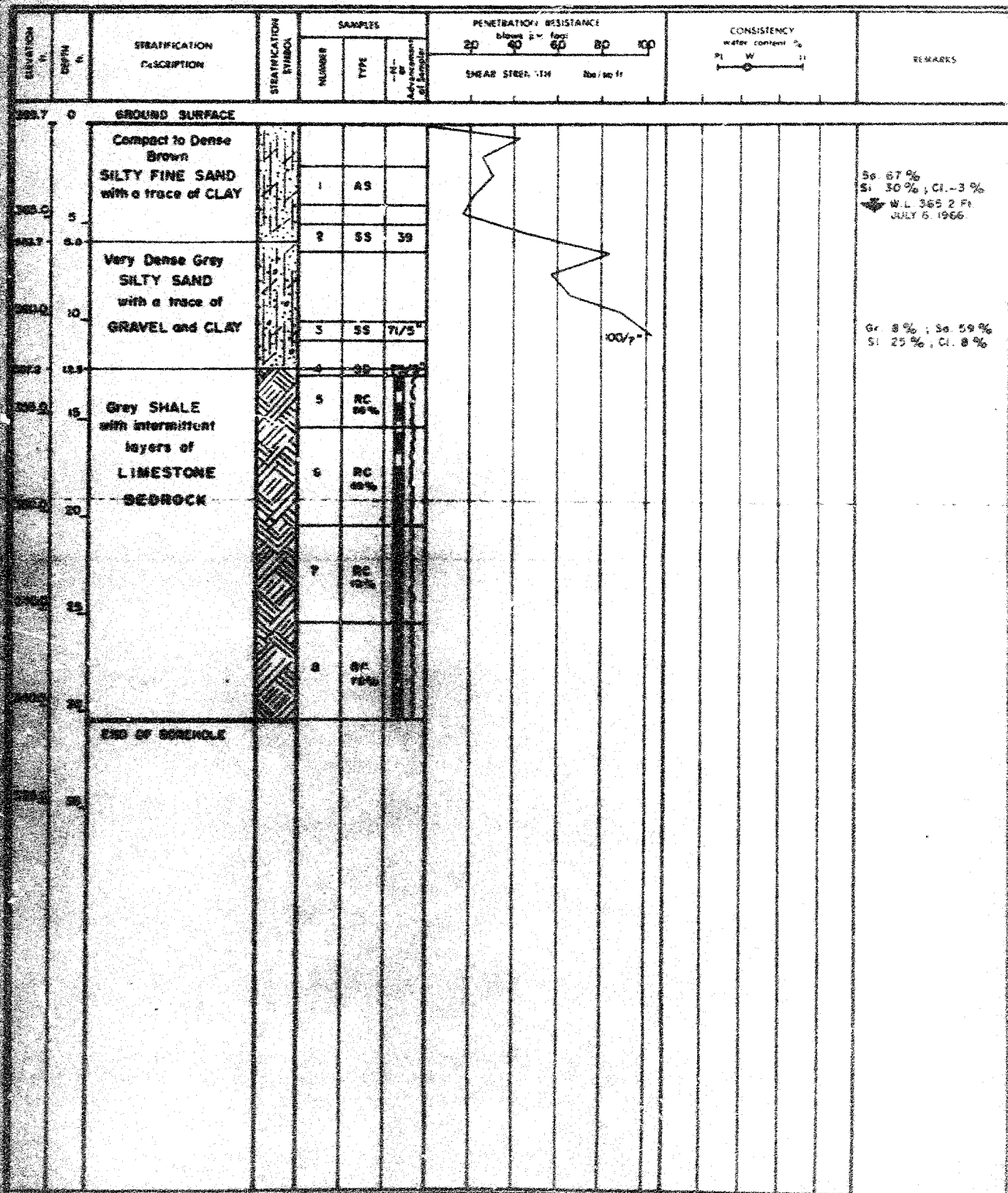
PLASTIC PROPERTIES:
LIQUID LIMIT % ==
PLASTIC LIMIT % ==
PLASTICITY INDEX % ==
MOISTURE CONTENT % ==
ACTIVITY ==

Enclosure No.

CLIENT: D.H.O.
 PROJECT: BRIDGE No. 3, O.E.W. & HWY. 27.
 LOCATION: 178,590 N ; 209,355 E
 DATUM ELEVATION: G.S.C.

METHOD OF BORING: AUGERING
 DIAMETER OF BOREHOLE: 4"
 DATE: JUNE 30, 1966
 W.P. 238-61-2

ENCLOSURE NO.



MEMORANDUM

To: Mr. B. R. Davis,
Bridge Engineer,
Bridge Division.
Attention: Mr. S. McCombie

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

Date: November 21, 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 2, 3, 8,
12, and 20.

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. Parren
G. K. Hunter (2)
P. Allen
T. J. Kovich
W.S. Melnyshyn
A. Watt

Foundations Office
Gen. Files

Alf Sternac
A.G. Sternac,
PRINCIPAL FOUNDATION ENGINEER