

MEMORANDUM

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

FROM: Bridge Division,
Downsview, Ontario.

Attention: Mr. A. Barsvary

DATE: June 7th, 1967.

OUR FILE REF.

IN REPLY TO

SUBJECT: Bridge No. 3, W.P. 37-65, Site No. 37-231,
Highway 27 Underpass at Bloor St.,
District No. 6.

Attached for your information is one copy of bridge
site plan #6832 for Bridge No. 3.

RDT/aw
Attach.

J. C. McAllister
J. C. McAllister,
for W. S. Melinyshyn,
Regional Bridge Location Engineer.

Department of Highways Ontario

Copy for the information of

Mr. A. Stermac, Principal Foundation Engineer,
Room 107, Lab. Building

Mr. W. Melinyshyn,
Regional Bridge Location Engineer,
Central Region,
Administration Building

Bridge Division,
Downsview, Ontario

July 6, 1967

Bridge No. 3
Hwy. 27 Underpass at Bloor St.
W.P. 37-65, Site No. 37-231
Dundas Interchange, District 6

Attached herewith are prints of the Preliminary Bridge Plan
Drawing D-6198-P1 for the above-mentioned structure.

The estimated cost of the proposed structure is \$800,000.
This cost includes tender, materials, engineering and sundry construction.

Any comments or revisions you may have should be submitted
within three weeks.

CSG:rd

C.S. Grebski,
Bridge Design Engineer

Attach.

c.c. S. McCombie
A. Stermac
R. Forreast
E. Cross

afp

Mr. C. S. Grebski,
Bridge Design Engineer,
Bridge Division,
Admin. Bldg.

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

July 17, 1967

-- Bridge No. 3 --

Hwy. 27 Underpass at Bloor St.,
 W.P. 37-65 -- Site No. 37-231,
 Dundas Interchange, Dist. 6 (Toronto).

66-F-103

We have reviewed Preliminary Plan D-6198-P1 for the above mentioned structure. Our comments are as follows:

(1) No elevations of footings are shown on the plan; nevertheless, we have scaled these from the existing ground line, and it appears to us that the pier footings are as recommended in our report.

(2) The drawing shows the abutments to be supported on spread footings. Please note that our foundation report recommends piled foundations for the abutments.

K. C. Selby

KCS/adeF

K. C. Selby,
SUPERVISING FOUNDATION ENGR.
For:
A. G. Sternac,
PRINCIPAL FOUNDATION ENGR.

cc: Messrs. S. McCombie
W. S. Melinyshyn

Foundations Files
Gen. Files

Department of Highways Ontario

Copy for the information of

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

Mr. V. Malinswain,
Reg. Bridge Location Engineer,
Bridge Division,
Admin. Bldg.

Bridge Division,
Downsview, Ontario.

November 28th, 1967.

Bridge No. 8,
Brown Line H.E., over
Richview Side Road,
H.P. 379-65, Site No. 37-230,
Rwy. No. 401 & 27, District No. 6.

66-F-102

Attached herewith are prints of the Preliminary
Bridge Plan Drawing B-6850-P for the above-mentioned
structure.

The estimated cost of the proposed structure is
\$146,000.00. This cost includes tender, materials,
engineering and sundry construction.

Any comments or revisions you may have should be
submitted within three weeks.

CSB/cc

Attach.

C.S. Grebaki,
Bridge Design Engineer.

c.c. J. Anderson
A. Stermac
S. McCombie

NO COMMENTS

NOV 30 1967

A K B

(Signature)

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DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

To: Mr. C. S. Grebski,
Bridge Design Engineer,
Bridge Division,
Admin. Bldg.

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

DATE: July 10, 1968

OUR FILE REF.

IN REPLY TO

SUBJECT:

Hwy. #27 and Dundas St. Interchange
and C.P.R. Overhead North of Q.E.W.
and Hwy. #27 Interchange.
W.J. 65-F-104 and W.J. 66-F-103,
District No. 6 (Toronto).

We have reviewed your designs for the proposed bridges of the above interchange and our comments pertaining to footings are as follows:

Bridge #1 and #2 (W.P. 279-64-1 and 279-64-4)

No comments.

Bridge #3 (W.P. 37-65)

No comments concerning spread footings beneath the piers. It is suggested, however, that - in view of recent experiences at the site of Hwy. #401 & #27 - pile lengths be provided for the abutments according to the Table below:

Location	No.	Piles Supplied	Type	Design Load
East Abutment	20	33 Ft.	12 BP @ 53	70 T/Pile
West Abutment	20	22 Ft.		

The above pile lengths include a one-ft. allowance for cutting off buckled ends.

Bridge #4 (W.P. 266-66)

No comments.

Bridge #5 (W.P. 267-66)

No comments.

cont'd. /2 ...

11. HWY. #27 UNDERPASS AT BLOOR STREET:

(W.P. 37-65)

11.1) Soil Conditions:

The soil stratigraphy is based on 7 boreholes drilled at the site of the proposed bridge. Boreholes #8 to 12 were carried out during the recent investigation, whereas holes #6 and 7 were lowered last year by the Foundation Section.

An 8 - 10 ft. thick mixed fill forms the uppermost zone of the stratigraphy, consisting of clayey silt with sand and gravel with some organic contamination. The fill has firm to very stiff consistency, corresponding to penetration 'N' values of 5 - 24 blows/ft.

Below the fill, the cohesive clayey silt with sand and traces of gravel was encountered, extending down to el. 404 - 417 ft. The overall thickness of the hard stratum is between 10 and 18 ft. Very dense sandy silt to silty sand with traces of clay and gravel underlies the clayey silt. The boreholes were terminated within this layer between el. 380 and 400 ft.

The groundwater level was observed to be around el. 417 - 425 ft., being higher at the east side of the crossing.

The locations and elevations of the borings as well as the soil stratigraphy, are given on Drawing #66-F-103F.

11.2) Recommendations:

The underpass at Bloor St. is to be a six-span structure; the assumed design grade of Hwy. #27 being around el. 426 ft.

Spread footings appear to be the most economical proposition for the piers as well as for closed type abutments. The bottom of the footings may be placed at or below el. 422 ft. except for the extreme easterly pier, where it should be at or below el. 421 ft. and for the east abutment, where it is to be at or below el. 420 ft. Safe design loads up to 4 t.s.f. may be employed at above elevations.

cont'd. /12 ...

11. HWY. #27 UNDERPASS AT BLOOR STREET: (cont'd.) ...

(W.P. 37-65)

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

If the design calls for perched type abutments, the footings may be placed within the approach fills and supported on piles.

In using 12-inch BP at 53 steel H-piles or 12-3/4 inch x 1/4 inch steel tubes driven to approx. el. 405 - 408 ft., a design load of 70 T/pile may be assumed for design purposes.

No dewatering problems are foreseen for the footing excavations. It is believed that any water accumulated in the excavation may be eliminated by conventional pumping from open sumps.

12. ETOBICOKE CREEK BRIDGE ON DUNDAS STREET:

(W.P. 277-66)

12.1) Soil Conditions:

Six sampled boreholes and some eleven cone penetration tests were carried out at the site of the proposed new bridge. Boreholes were numbered from 39 to 44, inclusive.

The uppermost layer was found to be a mixed fill of sand, gravel, clayey silt and sandy silt. The relative density of the fill ranges from loose to compact, the consistency from stiff to hard.

Predominantly granular sandy silts and silty sands underlie the fill with a fair percent of cobbles and boulders. The stratum is very dense with 'N' values of well over 100 blows/ft.

In the boreholes placed at the north side of the existing bridge (B.H.'s #40, 42, 43), shale bedrock with intermittent limestone, was encountered around el. 350 - 354 ft. The upper 3 - 6 ft. of the bedrock is badly weathered. At the south side of

cont'd. /13 ...

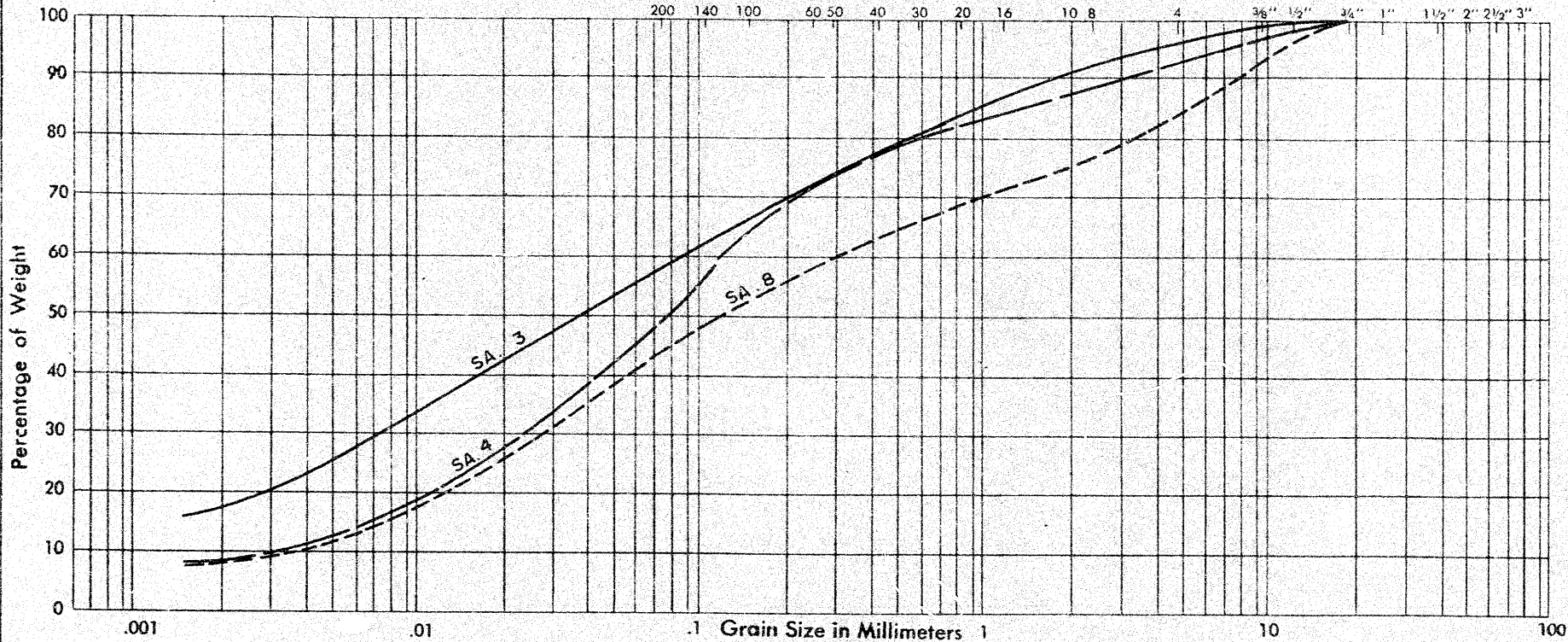
DOMINION SOIL INVESTIGATION LIMITED

GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6 - 12 - 13

UNIFIED SOIL CLASSIFICATION
SYSTEM

SILT AND CLAY	SAND			GRAVEL		
	FINE	MEDIUM	COARSE	FINE	COARSE	



PROJECT: W. J. 66 - F - 103

LOCATION: ETOBICOKE, ONT.

BOREHOLE NO.: 8

SAMPLE NO.: 3 4 8

DEPTH OF SAMPLE: 10' 15' 35'

ELEVATION OF SAMPLE: 418.2' 413.2' 393.2'

COEFFICIENT OF UNIFORMITY
COEFFICIENT OF CURVATURE

NON APPLICABLE

PLASTIC PROPERTIES:

CL - ML

LIQUID LIMITED % = 26.6

PLASTIC LIMIT % = 16.2

PLASTICITY INDEX % = 10.4

MOISTURE CONTENT % = 12.2

ACTIVITY =

Classification of Sample and Group Symbol:

CLAYEY SILT
with sand and
trace of gravel.

SILT and SAND
with some clay
and gravel.

SA. 3 CL - ML

SA. 4 & 8 SP-SM

Enclosure No.

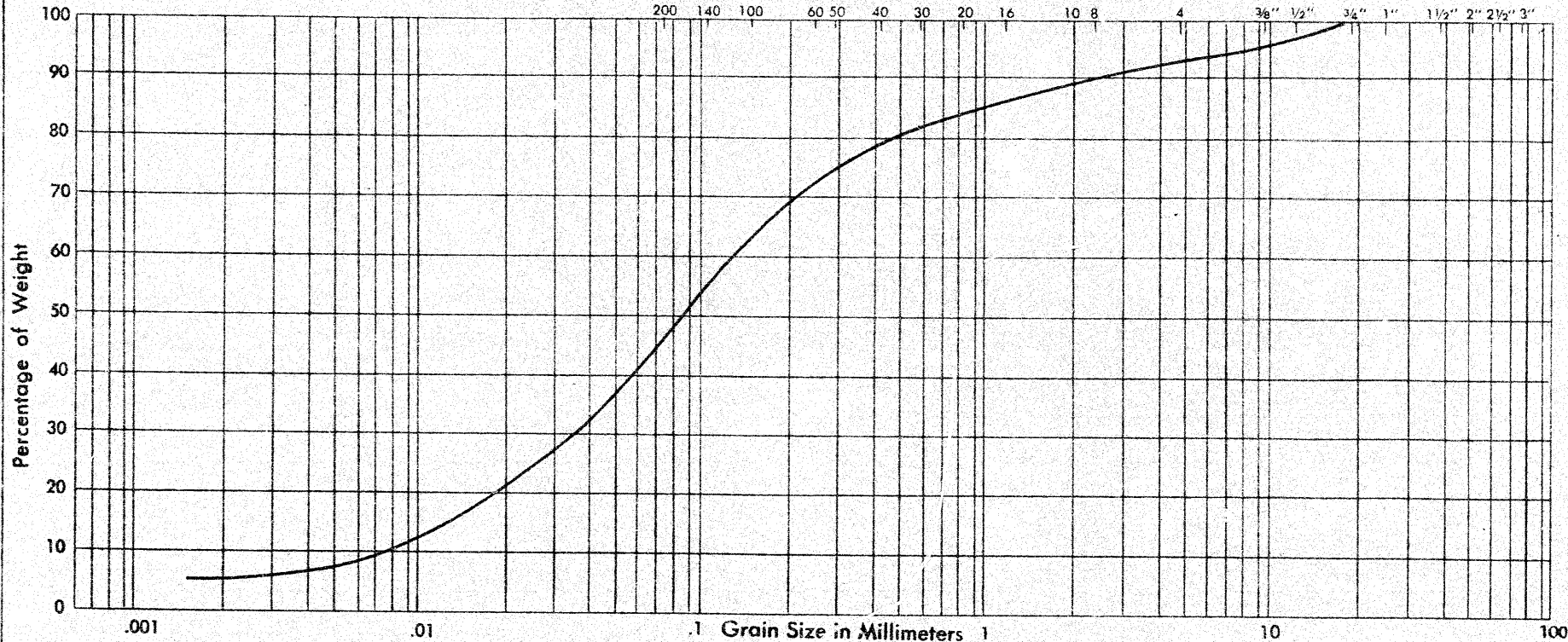
DOMINION SOIL INVESTIGATION LIMITED

GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6 - 12 - 13

UNIFIED SOIL CLASSIFICATION
SYSTEM

SILT AND CLAY	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE



PROJECT: W. J. 66 - F - 103
 LOCATION: ETOBICOKE, ONT.
 BOREHOLE NO.: 9
 SAMPLE NO.: 5
 DEPTH OF SAMPLE: 20'
 ELEVATION OF SAMPLE: 412.7'

COEFFICIENT OF UNIFORMITY Non Applicable
 COEFFICIENT OF CURVATURE

Classification of Sample and Group Symbol:

SILT and SAND with trace of
CLAY and GRAVEL

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

SM

Enclosure No.

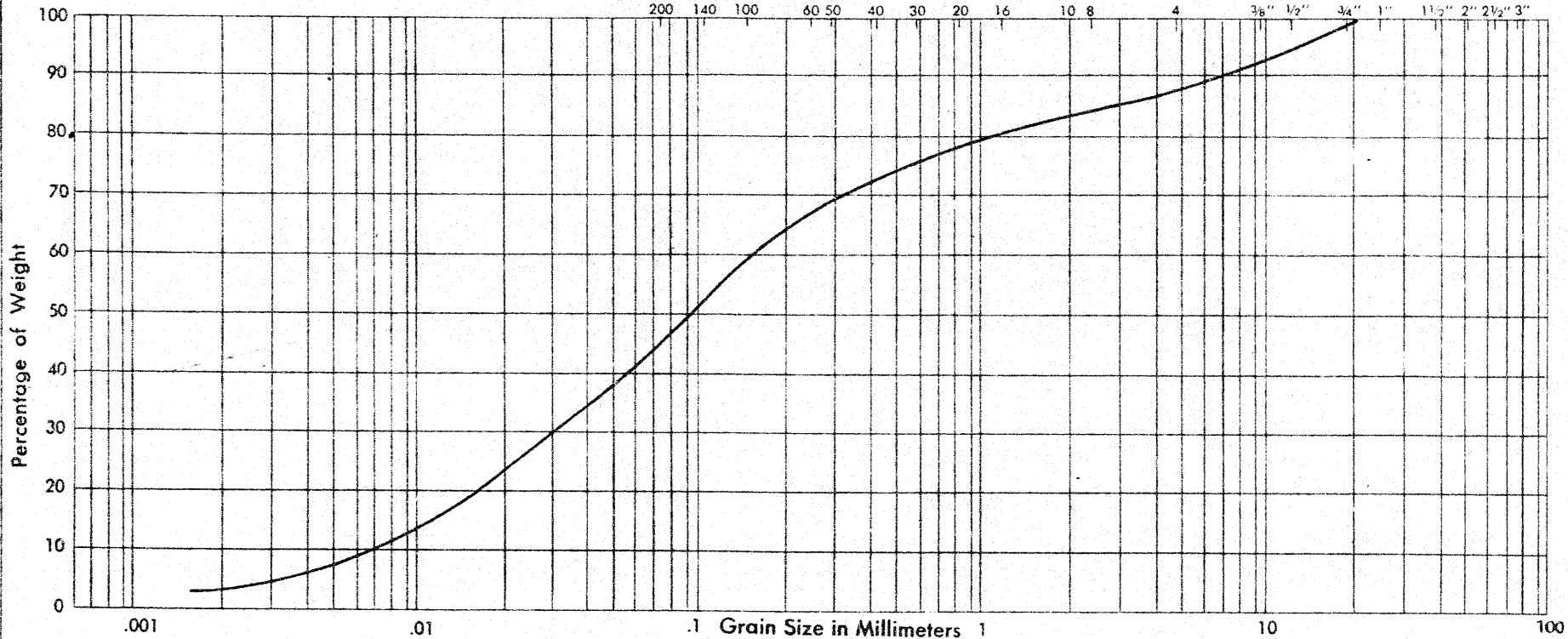
DOMINION SOIL INVESTIGATION LIMITED

GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6 - 12 - 13

UNIFIED SOIL CLASSIFICATION
SYSTEM

SILT AND CLAY	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE



PROJECT: W. J. 66 - F - 103
LOCATION: ETOBICOKE, ONT.
BOREHOLE NO.: 10
SAMPLE NO.: 5
DEPTH OF SAMPLE: 20'
ELEVATION OF SAMPLE: 410.8'

COEFFICIENT OF UNIFORMITY
COEFFICIENT OF CURVATURE Non Applicable

Classification of Sample and Group Symbol:

SAND and SILT with some GRAVEL and trace
of CLAY

SM

PLASTIC PROPERTIES:

LIQUID LIMITED % =
PLASTIC LIMIT % = Non
PLASTICITY INDEX % = Plastic
MOISTURE CONTENT % =
ACTIVITY % =

Enclosure No.

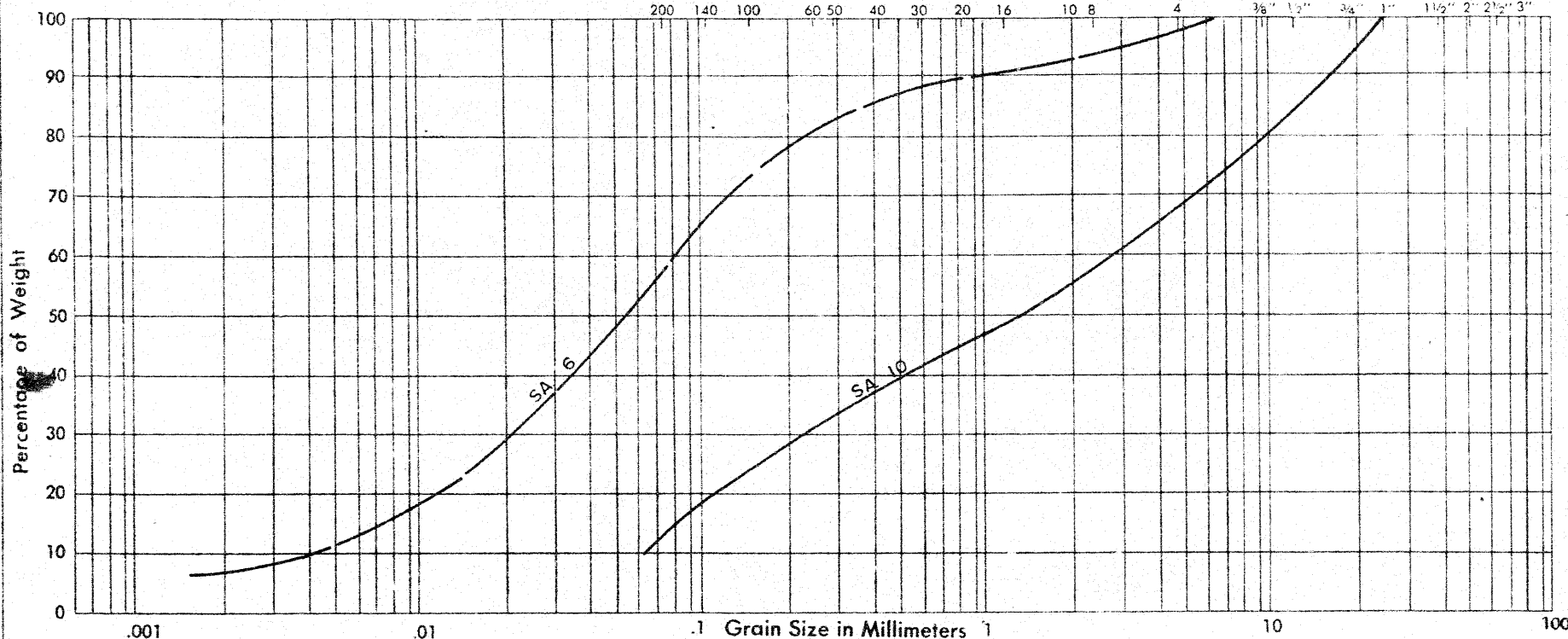
DOMINION SOIL INVESTIGATION LIMITED

GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO 6 - 12 - 13

UNIFIED SOIL CLASSIFICATION
SYSTEM

SILT AND CLAY	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE



PROJECT: W. J. 66 - F - 103
LOCATION: ETOBICOKE, ONT.
BOREHOLE NO.: 11

SAMPLE NO.: 6 10
DEPTH OF SAMPLE: 25' 45'
ELEVATION OF SAMPLE: 404.5' 384.5'

COEFFICIENT OF UNIFORMITY
COEFFICIENT OF CURVATURE

SA 10
15
0.4

PLASTIC PROPERTIES:

LIQUID LIMITED % ==
PLASTIC LIMIT % == NON
PLASTICITY INDEX % == PLASTIC
MOISTURE CONTENT % ==
ACTIVITY ==

Classification of Sample and Group Symbol:

SANDY SILT with trace
of CLAY and GRAVEL

GRAVELLY SAND
with some SILT

SA 6 SM

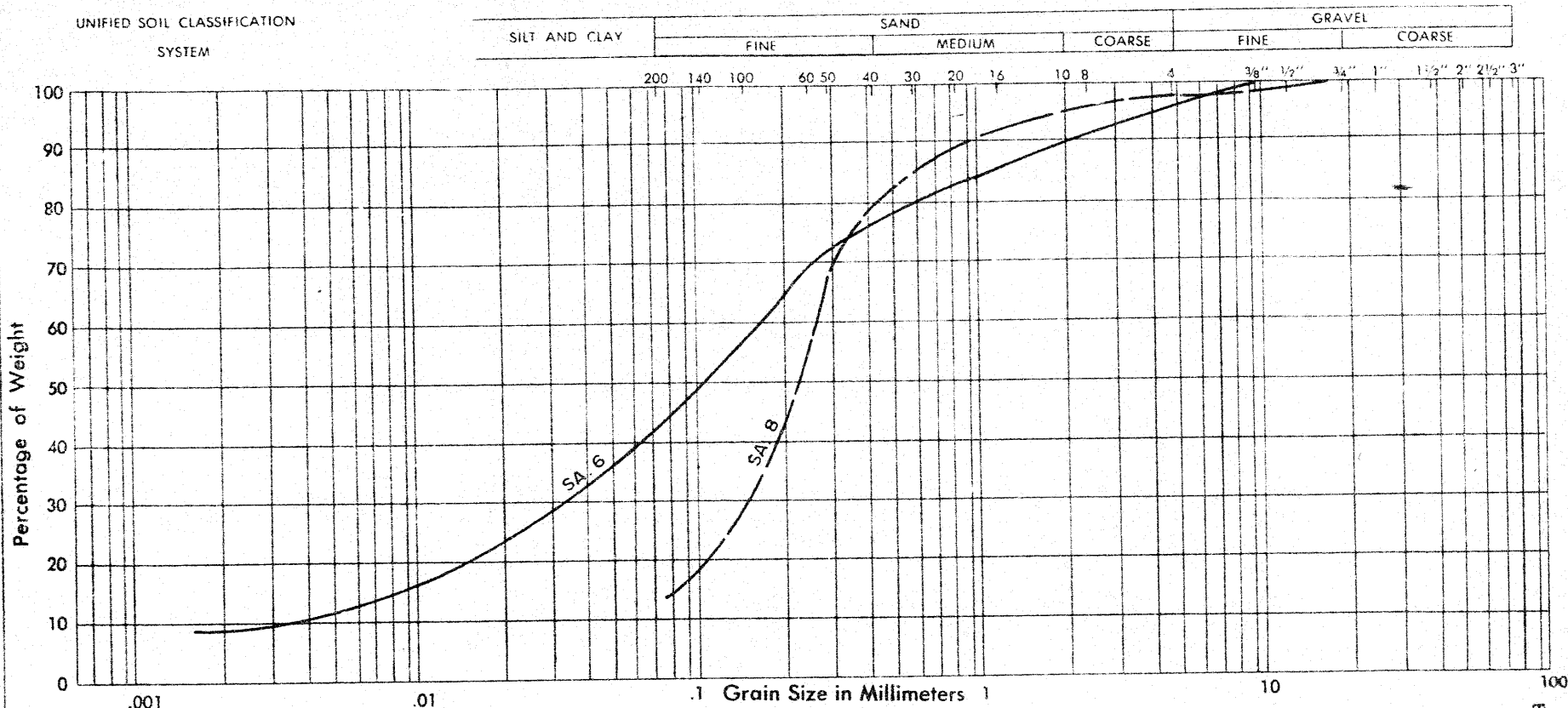
SA 10 SP-GP

Enclosure No.

DOMINION SOIL INVESTIGATION LIMITED

GRAIN SIZE DISTRIBUTION

OUR REFERENCE NO. 6-12-13



PROJECT: W. J. 66 - F - 103

LOCATION: ETOBICOKE, ONT.

BOREHOLE NO.: 12

SAMPLE NO.: 6 8

DEPTH OF SAMPLE: 25' 35'

ELEVATION OF SAMPLE: 404.6' 394.6'

COEFFICIENT OF UNIFORMITY

COEFFICIENT OF CURVATURE

SA. 8

4.5

1.45

PLASTIC PROPERTIES:

LIQUID LIMITED	%	=
PLASTIC LIMIT	%	= Non
PLASTICITY INDEX	%	= Plastic
MOISTURE CONTENT	%	=
ACTIVITY	=	

Classification of Sample and Group Symbol:

SILTY SAND with trace
of CLAY and GRAVEL

SAND with some silt
and trace of GRAVEL

SA. 6 SM

SA. 8 SP

Enclosure No.

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 6

FOUNDATION SECTION

JOB 65-F-120 LOCATION Co-ords. N. 186.724 E. 206.834 ORIGINATED BY P. Mc
W.P. 275-64-02 BORING DATE November 15, 1965 COMPILED BY A. K. B.
DATUM _____ BOREHOLE TYPE Washboring - N_x Casing CHECKED BY _____

SOIL PROFILE		STRAT. PLT	SAMPLES		ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — WL		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION		NUMBER	TYPE		BLOWS/FOOT	BLOWS/FOOT	PLASTIC LIMIT — WP	WATER CONTENT — W		
429.3	Ground Level										
0.0											
	Silty sand with traces of gravel and clay to clayey silt with sand and traces of gravel (glacial till)		1	SS	20						
			2	SS	13						
			3	SS	44						
			4	SS	112						
			5	SS	51						
			6	SS	74						
			7	SS	75						
					for 6"						
					70"						
					for 4"						
			8	SS	75						
					for 5"						
393.3	Stiff to hard and very dense		9	SS	89						
36.5	End of Borehole										

420
410
400
390

Gr 3%
Sa 45%
Sl 43%
Cl 9%

Gr 15%
Sa 78%
Sl & Cl 7%

G.L.
15'

DEPARTMENT OF HIGHWAYS - ONTARIO

RECORD OF BOREHOLE NO. 7

FOUNDATION SECTION

MATERIALS & TESTING DIVISION

JOB 65-7-120 LOCATION Co-ords. N. 186,753 E. 206,457 ORIGINATED BY P. McW.P. 275-64-02 BORING DATE November 5, 1965 COMPILED BY A. K. B.DATUM _____ BOREHOLE TYPE Washboring - Nx & Bx Casing CHECKED BY _____

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. PLT.	NUMBER	TYPE	BLOWS / FOOT		25	50	75	100	125	WATER CONTENT % 10 20 30				
430.3	Ground Level															
0.0																
	Silty Sand with Traces of gravel And Clay to Clayey Silt with Sand and traces of gravel (Glacial Till)		1	SS	4											
			2	SS	8											
			3	SS	13	420										
			4	SS	3											
			5	SS	11											
			6	SS	75 for 6"	410										
			7	SS	72											
	Soft to hard and very Dense.		8	SS	130 for 6"	400										
			9	SS	54 for 6"											
			10	SS	75 for 4"	390										
384.3	Boulders		11	SS	100 for 6"											
46.0	End of Borehole					380										

Blocked
Dry at 8.7'
BGL

Gr. 5%
Sa. 28%
Sl. 45%
Cl. 22%

Gr. 6%
Sa. 37%
Sl. 47%
Cl. 10%

Gr. 3%
Sa. 44%
Sl. 45%
Cl. 8%

GEOTECHNICAL DATA SHEET FOR BOREHOLE . 8 . . .

GUR REFERENCE NO. 6 - 12 - 13

Your Ref. No. W.J. 66 - F-103

CLIENT: D. H. O.

PROJECT: FROM N. OF C.P.R. OVERHEAD TO N. OF BLOOR ST.

LOCATION: 186, 515 N; 206,280 E

DATUM ELEVATION: G.S.C.

METHOD OF BORING: AUGERING

DIAMETER OF BOREHOLE: 3 1/2"

DATE: JAN. 10, 1967

ENCLOSURE NO.

W. P. 275 - 64 - 2

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot		CONSISTENCY water content %		REMARKS	
				NUMBER	TYPE	N- Advancement of Sampler	2,0	4,0	6,0	8,0		100
428.2	0	GROUND SURFACE										
		Clayey Silt FILL										
425	1.5	CLAYEY SILT with sand and trace of gravel. (Glacial Till) Brown		1	S.S.	21						
	5			2	S.S.	58						
420	10			3	S.S.	117						
415	11.3	SILT and SAND with some clay and gravel. (Glacial Till) Very Dense Grey										
	15			4	S.S.	100/4"						
410	20			5	S.S.	80/6"						
405	25			6	S.S.	100/4"						
400	30			7	S.S.	100/5"						
395	35			8	S.S.	100/4"						
390	37.5	END OF BOREHOLE										
	40											

VERTICAL SCALE: 1 IN. TO 5 FT

DOMINION SOIL INVESTIGATION LIMITED

MADE: D. A. M. CHD.

GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 9 . .

OUR REFERENCE NO. 6-12-13
Your Ref. No. W.J. 66-F-103

CLIENT: D. H. O.

PROJECT: FROM N. OF C.P.R. O'HEAD TO N. OF BLOOR ST.

LOCATION 186,675 N.; 206,325 E.

DATUM ELEVATION G. S. C.

METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE 3 1/2"

DATE JAN. 20, 1967

W. P. 275-64-2

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %			REMARKS
				NUMBER	TYPE	N ₆₀ or Equivalent of Sampler	20	40	60	80	100	WP	W	WL	
432.7	0	GROUND SURFACE													
430	4.0	Silty Sand with trace of clay. (FILL) Compact, Brown		1	S.S.	18									
425	9.0	Clayey Silt (FILL) Very Stiff		2	S.S.	22									
420	15.0	CLAYEY SILT with sand (Glacial Till) Hard Brown		3	S.S.	59									
415	18.0			4	S.S.	106									
410	20.0	SILT and SAND with traces of clay and gravel		5	S.S.	72/6									7 46 41 6
405	25.0	Layered Structure Very Dense Grey		6	S.S.	100/9									
400	30.0			7	S.S.	66									
395	36.5	END OF BOREHOLE		8	S.S.	107									
	40.0														

GR	SA	SI	CL
----	----	----	----

— per cent —

GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 1.0 . .

OUR REFERENCE NO. 6 - 12 - 13

Your Ref. No. W.J. 66-F-103

CLIENT: D. H. O.

PROJECT: FROM N. OF C.P.R. O'HEAD TO N. OF BLOOR ST.

LOCATION 186, 660 N.; 206, 570 E

DATUM ELEVATION G. S. C.

METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE 3 1/2"

DATE JAN 20, 1967

W.P. 275-64-2

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %				REMARKS
				NUMBER	TYPE	N Advancement of Sampler	2.0	4.0	6.0	8.0	10.0	W _p	W	W _L		
430.8	0	GROUND SURFACE														
430		CLAYEY SILT with sand and trace of gravel FILL slightly organic Stiff Mottled Brown		1	S.S.	10										
425	5			2	S.S.	14										
420	10	CLAYEY SILT with sand and trace of gravel. (Glacial Till) Hard		3	S.S.	47										
415	15	Brown Grey		4 A B	S.S.	45										
410	20	SAND and SILT with some gravel and trace of clay (Glacial Till) Very Dense		5	S.S.	155										
405	25			6	S.S.	100/5										
400	30			7	S.S.	100/25										
30.2	30.2	END OF BOREHOLE														
35																

W.L. El. 416.8'
Jan. 25, 1967

12 41 43 4

GR SA SI CL
— per cent —

GEOTECHNICAL DATA SHEET FOR BOREHOLE . . .

OUR REFERENCE NO. 6-12-13
Your Ref. No. W.J. 66-F-103

CLIENT: D. H. O.
PROJECT: FROM N. OF C.P.R. O'HEAD TO N. OF BLOOM ST.
LOCATION: 186,775 N; 206,675 E.
DATUM ELEVATION: G.S.C.

METHOD OF BORING: AUGERING
DIAMETER OF BOREHOLE: 3 1/2"
DATE: JAN. 19, 1967
W.P. 275-64-2

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %				REMARKS
				NUMBER	TYPE	Advance- ment of Sampler	20	40	60	80	100	WP	W	WL		
429.5	0	GROUND SURFACE														
425	5	Clayey Silt with sand FILL slightly organic		1	S.S.	24										
				2	S.S.	9										
420	10	CLAYEY SILT with sand and trace of gravel (Glacial Till)		3	S.S.	119										
415	15	Brown Grey		4	S.S.	56										
410	20	Hard		5	S.S.	70/11"										
405	25			6	S.S.	70/6"										
400	30	SANDY SILT with trace of clay and gravel. grading to		7	S.S.	100/3 1/2"										
395	35	GRAVELLY SAND with some silt (Glacial Till)		8	S.S.	100/4"										
390	40	Very Dense		9	S.S.	80/6"										
385	45			10	S.S.	80/5"										
380	50	CLAYEY SILT with sand (Glacial Till) Hard		11	S.S.	100/2 1/2"										
380	50.2	END OF BOREHOLE														

C. I. El. 425'
Jan. 25, 1967

3 40 50 7

32 55 13 0

GR SA SI CL
— per cent —

GEOTECHNICAL DATA SHEET FOR BOREHOLE . . 12 . .

OUR REFERENCE NO. 6-12-13
Your Ref. No. W.J. 66-F-103

CLIENT D. H.O.

PROJECT FROM N. OF C.P.R. OVERHEAD TO N. OF RLOOR ST.

LOCATION 186, 830 N.; 206, 805 E.

DATUM ELEVATION: G. S. C.

METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE 3 1/2"

DATE JAN. 23, 1967

W.P. 275-64-2

ENCLOSURE NO.

ELEVATION ft.	DEPTH ft.	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot					CONSISTENCY water content %				REMARKS
				NUMBER	TYPE	Advancement of Sampler	2.0	4.0	6.0	8.0	100	W _P	W	W _L		
429.6	0	GROUND SURFACE														
		Clayey Silt (FILL) slightly organic		1	S.S.	5										
425	5	Firm Stiff		2	S.S.	11										
		Mottled Brown														
420	10	CLAYEY SILT with sand and trace of gravel. (Glacial Till)		3	S.S.	57										
415	15	Brown Grey		4	S.S.	58										
		Hard														
410	20	SILTY SAND with trace of clay and gravel		5	S.S.	100/6										
405	25	(Glacial Till) Very Dense		6	S.S.	100/25										
400	30	SAND with some silt and trace of gravel		7	S.S.	100/12										
395	35	Very Dense		8	S.S.	100/5										
390	40			9	S.S.	100/2										
40.2		END OF BOREHOLE														
385	45															

W.L. El. 424.6'
Jan. 25, 1967

4 50 38 8

3 84 13 0

GR SA S! CL
— per cent —

VERTICAL SCALE 1 IN TO 5 FT

DOMINION SOIL INVESTIGATION LIMITED

MADE: D.A.M. CHD

W. A. Sternan,
Principal Foundation Engineer,
Room 107, C.B. Building.

66-Fe-113

Bridge Division,
Downsview, Ontario.

Attention: W. A. Seely

September 30, 1965.


Preliminary Foundation Investigation
for Bridge Structures on Highway #27
between Q.E.W. and Lionview Side Rd.
S.P. 275-4-2 District # 6.

This is an extension of the preliminary foundation
investigation of the intersection of Q.E.W. and Highway 27
etc.

Confirming our telephone conversation with Mr. Seely of
September 30, this investigation should include 4 structures at
Highway 5 (Dundas Street) and one each at Alder St.,
Burnhamthorpe Road, and MacLure Road.

It was agreed upon that the only available information at
this time, namely the Functional Planning Report, will be
sufficient for this preliminary investigation.

Krd/kp
c.c. E. McCabe
R. Forrest


A. J. Jones,
for J. J. Curtis,
Regional Bridge Location Engineer.

DEFECTS IN REPRODUCTION
CONDITION OF ORIGINAL DOCUMENT

FOUNDATION INVESTIGATION REPORT
For
The Proposed Dundas St. and Hwy. #27
Interchange and Bloor St. Underpass,
Hwy. #27 -- District #6 (Toronto)
M.J. 66-F-103 -- W.P. 275-64-2

1. INTRODUCTION:

A memo by the Regional Bridge Location Engineer, Mr. W. S. Melnyshyn, dated December 8, 1966, was received by this Section, requesting a foundation investigation at the site of the proposed Hwy. #27 and Dundas Street interchange and Bloor Street underpass.

The request calls for investigations at the site of seven structures, all of which are delineated in Contract #5, which in turn, is part of the several contracts covering the proposed improvement of Hwy. #27.

A limited scale field investigation, containing some 7 boreholes, was already carried out at the site by the Foundation Section in 1965, and some of these boreholes are also incorporated in this report. The recent field work as well as the laboratory testing and the compilation of the geotechnical data sheets, were performed by Dominion Soil Investigation Ltd.

Presented in this report are the results of this investigation, together with recommendations pertaining to the foundations of the structures.

In the first part of the report, a general description of the site and subsoil conditions are given; the second part deals with each individual structure separately, presenting a short description of the soils and detailed recommendations for the footings.

PART ONE

2. DESCRIPTION OF THE SITE:

Contract #5 covers the section of Hwy. #27 from north of the C.P.R. overhead to north of Bloor Street. The vicinity of the existing highway is generally flat, urban development with residential and light industrial buildings.

The area belongs to the "Iroquois Plain" physiographic region, formed by undulating till plains above the lowland, bordering Lake Ontario. This low-lying terrain was inundated by a body of water known as Lake Iroquois in late Pleistocene times. At this portion of the region, some alluvial terrace lands may be found behind huge baymouth bars.

3. FIELD AND LABORATORY INVESTIGATION PROCEDURE:

Thirty-seven boreholes, and adjacent to the holes, 37 cone penetration tests were carried out at the site of the seven proposed structures, during the recent field investigation.

The general layout of the site, showing the proposed structures, may be seen on attached Drawing #66-F-103A.

The borings were carried out by means of two conventional diamond core rigs adapted for soil sampling purposes, and two continuous flight augers. 2-in. O.D. split-spoon samplers were used to recover soil samples. The number of hammer blows necessary to advance the sampler one foot under an impact of 350 ft.-lbs. was recorded as the standard penetration 'N' value.

cont'd. /3 ...

3. FIELD AND LABORATORY INVESTIGATION PROCEDURE: (cont'd.) ...

Soil samples were visually examined and identified upon recovery and again in the laboratory. Laboratory tests of natural moisture content, Atterberg limits and grain-size distribution, were performed on representative soil specimens. The results of the laboratory and field tests are compiled on the geotechnical data sheets accompanying this report, together with the grain-size distribution curves.

4. GENERAL SOIL CONDITIONS:

The overburden within the entire area investigated was found to be a heterogeneous mixture of glacial till. Due to the nature of such glacial drifts, the classification of the various strata based on the individual samples, could sometimes be misleading. From the practical point of view, two main bodies of the glacial overburden may be differentiated. The coarse-grained portion was variously identified as silty sand to sandy silt, fine sand, silt, gravelly sand, etc. The fine-grained or cohesive portion is a clayey silt with some gravel and sand. At a few locations the uppermost ten-ft. zone exhibited firm to stiff consistency or loose to compact relative density. Otherwise, the deposit was found to be very dense or hard, corresponding to Standard Penetration 'N' values of much in excess of 100 blows/ft.

In order to ascertain the depth of the overburden, several boreholes were advanced into the bedrock. The bedrock was identified to be shale with intermittent limestone, the upper, approx. 3 - 10 ft. thickness of which was usually badly weathered. The surface of the weathered bedrock lies around el. 367 - 370 ft. The sound rock commences at el. 357 - 366 ft. Some 5 - 7 ft. depth of the sound rock was proved in a few locations by diamond drilling. The bedrock at the proposed crossing at Etobicoke Creek was observed to be somewhat lower.

cont'd. /4 ...

46-103

TABLE OF CONTENTS

PART ONE

1. INTRODUCTION.
2. DESCRIPTION OF THE SITE.
3. FIELD AND LABORATORY INVESTIGATION PROCEDURE.
4. GENERAL SOIL CONDITIONS.

PART TWO

5. GENERAL REMARKS ABOUT FOUNDATIONS.
6. HWY. #27 OVERPASS AT DUNDAS STREET (W.P. 279-64-1).
- Soil Conditions and Recommendations -
7. DUNDAS STREET UNDERPASS AT WEST MALL (W.P. 279-64-2).
- Soil Conditions and Recommendations -
8. DUNDAS STREET OVERPASS AT EAST MALL (Vickers Rd.) (W.P. 279-64-5).
- Soil Conditions and Recommendations -
9. NORTHBOUND BASKET-WEAVE JUST SOUTH OF BLOOR ST. (W.P. 266-66).
- Soil Conditions and Recommendations -
10. SOUTHBOUND BASKET-WEAVE JUST SOUTH OF BLOOR ST. (W.P. 267-66).
- Soil Conditions and Recommendations -
11. HWY. #27 UNDERPASS AT BLOOR STREET (W.P. 37-65).
- Soil Conditions and Recommendations -
12. ETOBICOKE CREEK BRIDGE ON DUNDAS STREET (W.P. 277-66).
- Soil Conditions and Recommendations -

13. SUMMARY.

14. MISCELLANEOUS.

MEMORANDUM

cc: GEN. FILE

23-67-83

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

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

Attention: Mr. S. McCombie

DATE: February 21, 1967

OUR FILE REF.

IN REPLY TO:

FEB 28 1967

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

The Proposed Dundas St. and Hwy. #27
Interchange and Bloor St. Underpass,
Hwy. #27 -- District #6 (Toronto)

W.J. 66-F-103 -- W.P. 275-61-2

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

We believe that you will find the factual data and recommendations contained therein, adequate for your design requirements. Should additional information be required, please do not hesitate to contact our Office.

AGS/KdeF

Attach.

cc: Messrs. B. R. Davis (2)

H. A. Tregaskes

D. W. Farren

G. K. Hunter (2)

P. Allen

W. S. Melnyshyn

T. J. Kovich

B. A. Singh

Foundations Files

Gen. Files

A. G. Sternac

A. G. Sternac

PRINCIPAL FOUNDATION ENGINEER

MEMORANDUM

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

FROM: Bridge Division,
Downsview, Ontario.

DATE: November 24, 1966.

OUR FILE REF. IN REPLY TO

SUBJECT: W.P. 275-64-2, Contract #5,
Dundas and Hwy. #27 Interchange and Bloor St. Underpass,
District No. 6.

This will confirm my verbal request for foundation investigation to be carried out for the structures within the Dundas interchange and the Bloor St. Underpass as delineated in Contract #5.

I have approached the consultants for drawings (100' scale) of this interchange and have been promised them by 30th Nov. 1966. Three copies will be forwarded to you as soon as mark up is completed.

The contract schedule of November 16, 1966 calls for a foundation report by 1st March 1966. In view of the work already done here and the reasonable time available consideration should be given to completing an individual report for each structure prior to preliminary structure plans. Within a few days after 1st December, 1966 we can supply you with borehole locations for the proposed structures. I trust you will give this your consideration.

J. C. McAllister

JCMca/im
cc. A. Crowley

J. C. McAllister,
for W. Melnyshyn,
Regional Bridge Location Engineer.

MEMORANDUM

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

FROM: Bridge Division,
Downsview, Ontario.

DATE: December 8th, 1966.

Our File Ref.

IN REPLY TO

SUBJECT: W.P. 275-64-2, Contract #5,
Dundas and Hwy. #27 Interchange
and Bloor Street Underpass,
Hwy. #27, District #6.

Attached are three prints of 100' schematic drawing of the proposed interchange at Dundas Street marked up to show the approximate location of bridge footings as promised in my memo of 24th November, 1966.

You will notice that the layout of the proposed structures differs somewhat from the structures indicated on Mr. Strain's program dated 16th, November 1966. Dundas Street at the west mall has been combined with S.B. ramp of Hwy. #27 under West Mall. (i.e. W.P. 279-64-2 and -3 are combined). Also a grade separation is now called for East of Hwy. #27 on Dundas Street as shown on the plan.

Mr. Strain will be revising his program in the near future. When it is available a copy will be forwarded to you.

The alignment for the widening or replacement is not yet decided. When it is, a layout will be forwarded to you for investigation.

JCAcA/cw
Attach.

J. C. McAllister
J. C. McAllister,
for W. S. Melnyshyn,
Regional Bridge Location Engineer.

Contract 5 (Dundas)

W.P. 273-64-2	GDGB Pav.	From N. of C.P.R. O'Head to N. of Bloor St.
W.P. 279-64-1	Struct.	Hwy. 27 O'Pass at Dundas St.
W.P. 279-64-2	Struct.	Dundas St. U'Pass at West Mall and S. Bd. ramp at Highway 27
W.P. 270-64-5	Struct.	Dundas St. O'Pass at E. Mall.
W.P. 256-66	Struct.	N. Bd. Basketweave just S. of Bloor St.
W.P. 267-66	Struct.	S. Bd. Basketweave just S. of Bloor St.
W.P. 37-65	Struct.	Hwy. 27 U'Pass at Bloor St.
W.P. 277-66	Struct.	Reconstruct present Lionelock Creek Bridge on Dundas Street just W. of Hwy. 27.

Program

Start Construction		Expend. 1968	2,500,000
Comp. Construction	Nov. 15/70	Expend. 1969	2,500,000
		Expend. 1970	1,500,000
		<u>Total Value</u>	<u>6,500,000</u>

Pre-Engineering Schedule

	Comp. Date
Planning	Comp.
Struct. Geometrics	Feb. 15/67
Foundation Report	Mar. 1/67
Preliminary Property Request	Jan. 18/67
Soils Report	Feb. 15/67
Final Property Request	Apr. 12/67
Bridge-Comp. IM & Plans	Sept. 13/67
Consultants - Comp. IM & Plans	Oct. 25/67
Supplement R101	Dec. 9/67
Head Office R101	Jan. 17/68
Property Acquired	Feb. 26/68
Ad. Price	Apr. 10/68
Asphalt	May 22/68

DOMINION SOIL INVESTIGATION LIMITED

100 ROCKFORD BOULEVARD - SCARBOROUGH ONTARIO CANADA - TELEPHONE 751-6555

BRANCH
266 QUEENS AVENUE
LONDON, ONTARIO
TELEPHONE GE. 2-5581



FOUNDATION ENGINEERS

ASSOCIATED COMPANY
SOIL TESTING AND ENGINEERING LTD.
54 BRINTFORD ROAD,
KINGSTON 5, JAMAICA, WEST INDIES
TELEPHONE: 66296

10th February 1967.

Department of Highways, Ontario,
Materials and Testing Division,
Downsview Avenue,
Downsview, Ontario.

Attention: Mr. A. Barsvary, P.Eng.

Re: Our Ref. No: 6-12-13
Your Ref: M.J. 66-F-103

Dear Sirs,

Enclosed please find fourteen (14) copies of the Geotechnical
Data Sheets and Grain Size Distribution sheets for boreholes No. 8 to 38 inclusive.

Yours very truly,

DOMINION SOIL INVESTIGATION LIMITED

J. Hewitt, P.Eng.

JH/me
Enclosures.

MEMORANDUM

To: Mr. H. R. Davis,
Bridge Engineer,
Bridge Division,
Admin. Bldg.

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

Attention: Mr. S. McCorble

DATE: May 26, 1967

Our File No.

IN REPLY TO

MAY 31 1967

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

The Proposed Bridge #2, Bridge #9,
And W.B. Basketweave,
Hwy. #27 and Dundas St. Interchange,
District #6 (Toronto).

W.J. 66-F-103 -- W.P. 275-64-2

In a memo dated April 25, 1967, Mr. W. S. Melingshyn, Regional Bridge Location Engineer, requested foundation investigations at the sites of three bridges. These structures belong to the proposed Hwy. #27 and Dundas St. interchange, but were recently changed or added; consequently, they were not included in our original Foundation Report W.J. 66-F-103.

Supplementary field and laboratory investigations were therefore undertaken by this Section to enable us to give recommendations for the requested structure foundations.

Attached, we are forwarding to you, our foundation reports for the above bridges, namely: Bridge #2 (W.P. 275-64-2), Westbound Basketweave (W.P. 266-66), and Bridge #9 (W.P. 275-64-3). Please insert these pages and drawings into your copy(s) of the original report W.J. 66-F-103.

Your attention is called to the section entitled: "General Remarks about Foundations" - Part Two (2), page four (4) of the original report. Suggestions given under this heading are valid for the foundations of the bridges sent to you hereby.

AGS/KdeF

Attach.

cc: Messrs. B. R. Davis (2)
K. A. Tragoskas
D. W. Peiren
G. K. Hunter (2)
P. Allen
W. S. Melingshyn
T. J. Kovich
B. A. Singh

A. C. Sternac
PRINCIPAL FOUNDATION ENGINEER

Foundations Files
Gen. Files ✓

- 4 -

PART TWO

5. GENERAL REMARKS ABOUT FOUNDATIONS:

5.1) Subsoil within the entire site investigated appears to exhibit sufficient strength for spread type foundations at relatively shallow depths. A four-ft. cover should be maintained above the base of the footings for frost protection.

5.2) Where perched abutments are supported on steel tube piles, it should be specified that no bouldery fill be placed at the locations of the footings. The working load on the piles must be checked during pile driving by means of the Hiley formula - (D.H.O. Standards DD 1218 and 1219).

5.3) Due to the high groundwater levels and the presence of the sandy silt to silty sand stratum, dewatering schemes for the footing excavations within this granular layer are likely to be necessary. Interlocking sheet piles, caissons, or well-point dewatering system, may be used. Sheet-piles or caissons should be lowered to a depth below the base of the excavation equal to the height of water above it, to prevent quick conditions of the soil.

5.4) No stability problems are foreseen for the approach fills and cuts with 2 horizontal to 1 vertical slopes.

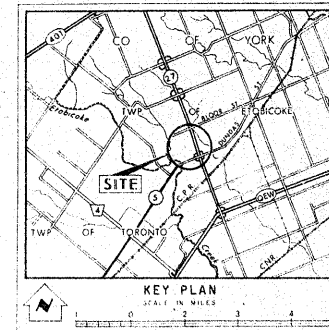
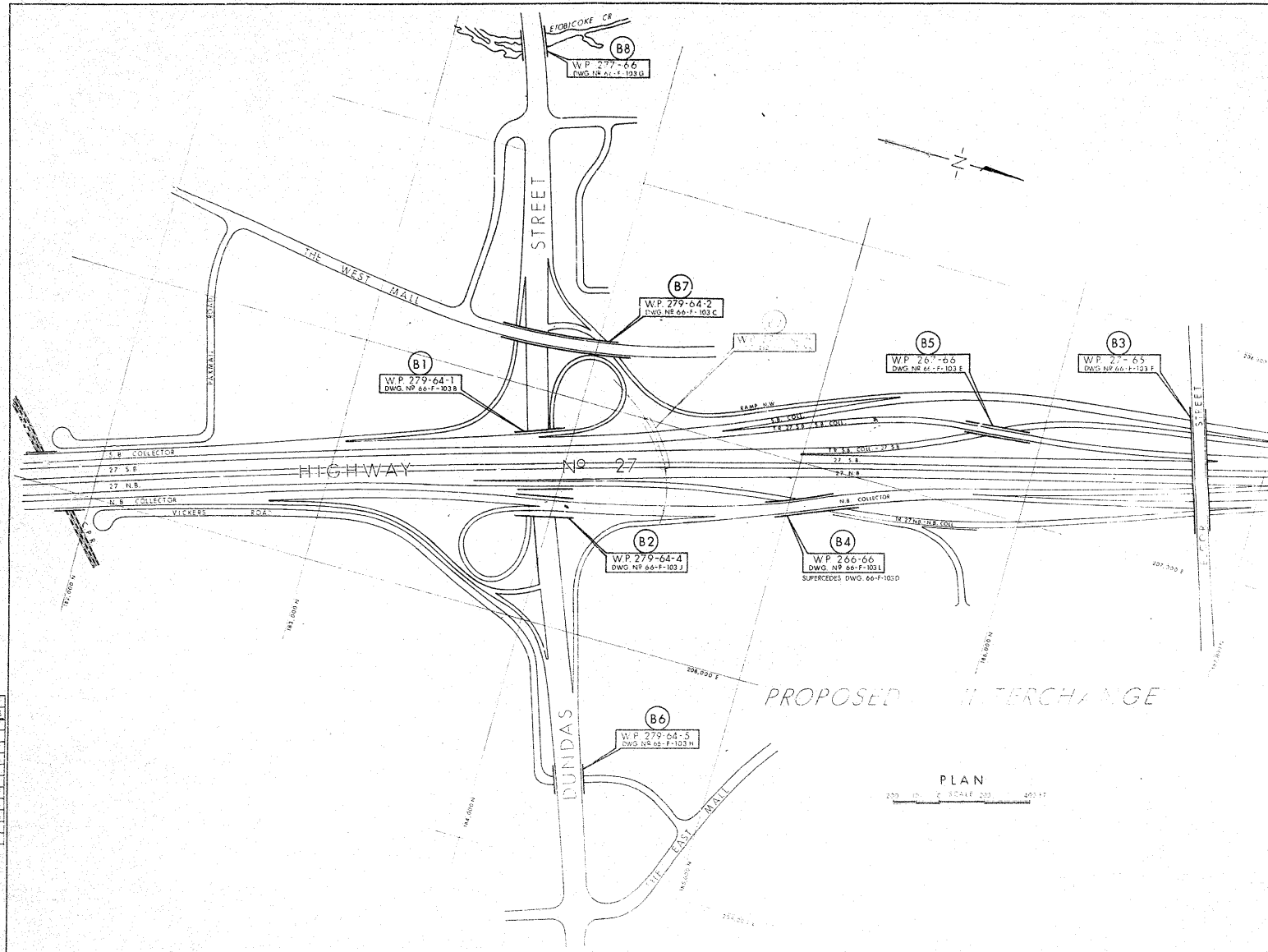
6. HWY. #27 OVERPASS AT DUNDAS STREET:

(W.P. 279-64-1)

6.1) Soil Conditions:

Some 8 boreholes were drilled at the site of the proposed structure during the recent field investigation, and they were numbered from 25 to 32, inclusive. Two borings numbered 1 and 2, drilled in October 1965, are also incorporated in the stratigraphy. Predominantly silty sand to sandy silt with some gravel and clay material was recovered by the samples. The granular type glacial deposit exhibited very dense relative density in almost every

cont'd. /5...



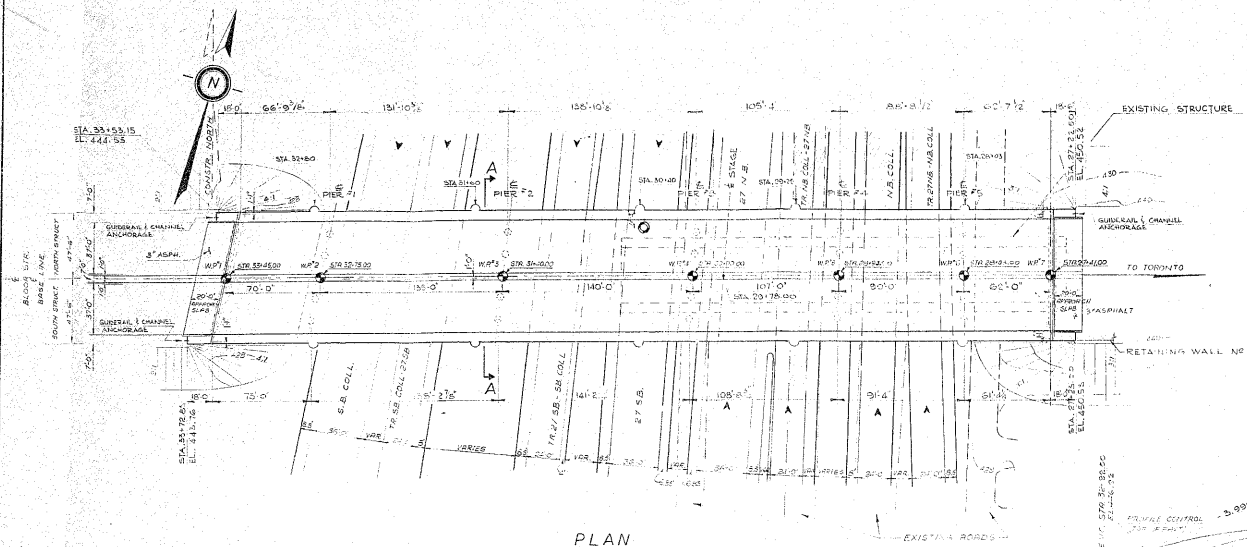
LEGEND			
	Bore Hole		
	Cone Penetration Hole		
	Bore & Cone Penetration Hole		
	Water Level established at time of field investigation		
NO.	ELEVATION	STATION	OFFSET

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.

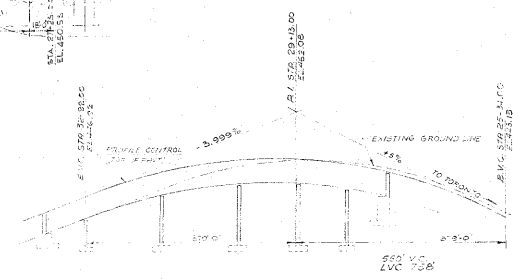
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DEPARTMENT OF HIGHWAYS - ONTARIO			
MATERIALS & TESTING DIVISION - TORONTO DIVISION			
CONTRACT No. 5 - DUNDAS			
NORTH of C.P.R. to NORTH of BLOOR STREET			
KING'S HIGHWAY NO. 27 IMPROVEMENT		DIST NO. 6	
CO. YORK		METROPOLITAN TORONTO	
TWP. ETOBICOKE		LOT	CON.
GENERAL LAYOUT			
W.P. 279-64-1	W.P. 279-64-2	W.P. 279-64-3	W.P. 279-64-4
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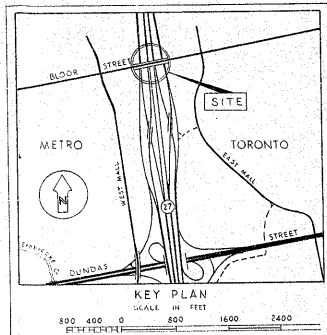
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PLAN
SCALE: 1"=20'-0"



PROFILE OF BLOOR STREET
N.T.S.

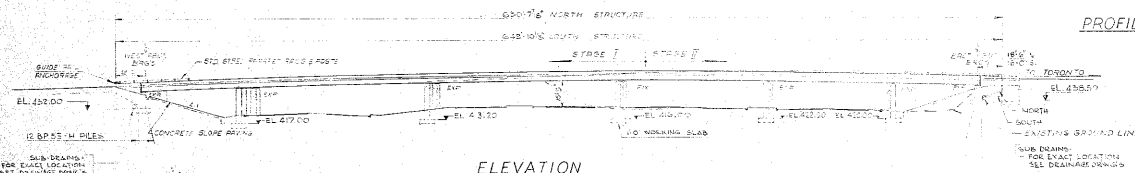


NOTES

CLASS OF CONCRETE
DECK, CURBS & PARAPET WALL 5000 P.S.I.
COLUMNS 4000 P.S.I.
REINFORCER 3000 P.S.I.

CLEAN COVER ON REINFORCING STEEL
FOOTINGS 3"
ABUTMENTS 3"
DECK 100" 100" 1"
COLUMNS 6"
PARAPET WALLS & END POSTS 1 1/2"
APPROACH SLABS 100" 100" 1"
ANCHORS AS NOTED ON DRAWINGS

CONSTRUCTION NOTES
THE CONTRACTOR IS RESPONSIBLE FOR FINISHING
THE BEARING SEATS DEAD LEVEL TO THE SPECIFIED
ELEVATIONS WITH A TOLERANCE OF 1/8"
NO CONCRETE SHALL BE PLACED ABOVE THE
AS NOTED 100" 100" 1" UNTIL THE CONCRETE
IN THE DECK HAS BEEN PLACED, STRESSED AND
GROUTED

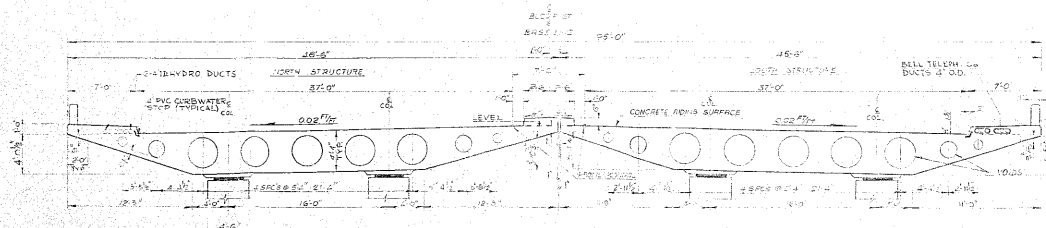


ELEVATION
SCALE: 1"=20'-0"

LIST OF DRAWINGS

- D-6188-1 - GENERAL LAYOUT
- 1 - FOOTING LAYOUT
- 2 - WEST ABUTMENT
- 3 - EAST ABUTMENT
- 4 - COLUMNS & BEARINGS
- 5 - SKEED ELEVATIONS
- 6 - DECK REINFORCING - SOUTH STRUCTURE
- 7 - DECK REINFORCING - NORTH
- 8 - DECK DETAILS - SOUTH STRUCTURE
- 9 - DECK DETAILS - NORTH
- 10 - CABLE DETAILS - SOUTH STRUCTURE
- 11 - CABLE DETAILS - NORTH
- 12 - APPROACH SLABS
- 13 - DETAILS OF CONCRETE SLOPE PAVING
- 14 - STANDARD DETAILS
- 15 - STANDARD STEEL PARAPET RAIL
- 16 - PARAPET WALL DETAILS

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	2	5/2/92	12/2/92



SECTION A-A
SCALE: 1"=20'-0"

REVISIONS	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS ONTARIO
BRIDGE DIVISION

BRIDGE No. 3

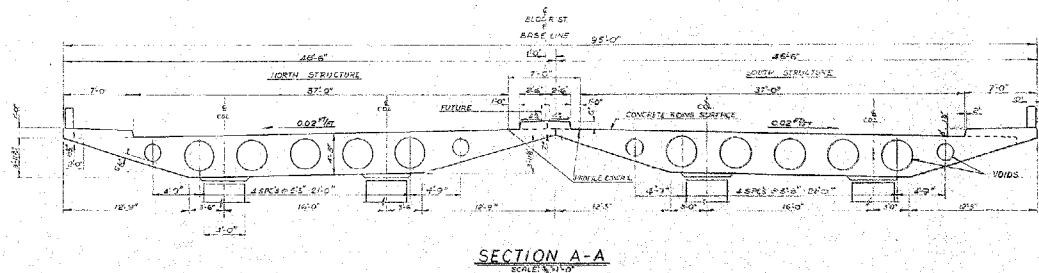
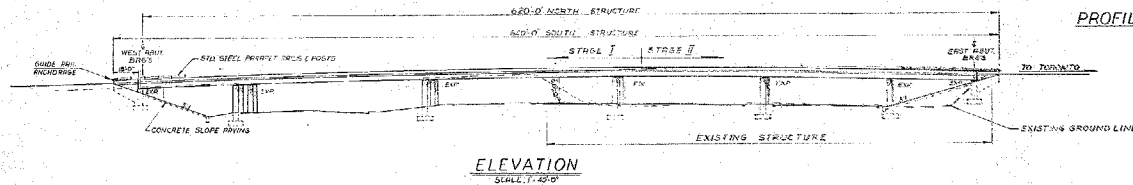
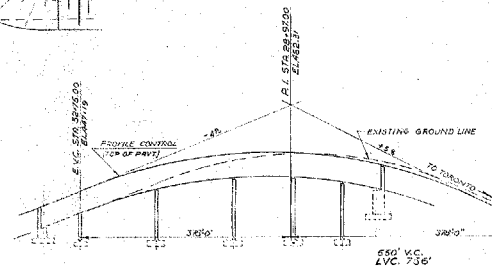
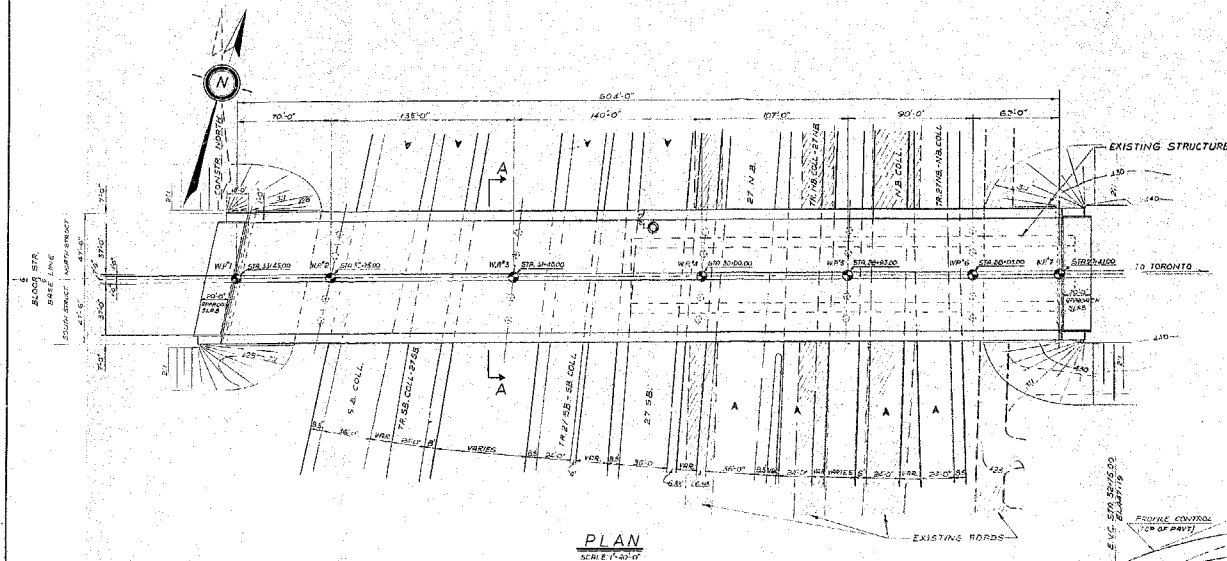
HWY 27 UNDERPASS AT BLOOR ST.

KING'S HIGHWAY No. 10/24/2 INTERCHANGE DIST. No. 6
CO. V.P.R.
TWP. EITCHCOKE LOT CON.

GENERAL LAYOUT

APPROVED	CHECK	DESIGN	CONTRACT
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DATE	DATE	DATE	DATE
12/2/92	12/2/92	12/2/92	12/2/92





PRINT RECORD		
No.	FOR.	DATE

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BRIDGE DIVISION

100

66-2-103

BRIDGE N^o 3

HWY. 27 UNDERPASS AT BLOOR ST.

KING'S HIGHWAY No. 1XINDAS INTERCHANGE

DIST. No. 6

KING & HORN
CO. YORK

TWP. ETOBICOKE

107

CON

PRELIMINARY

APPROVED

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APPROVED

BRIDGE ENGINE

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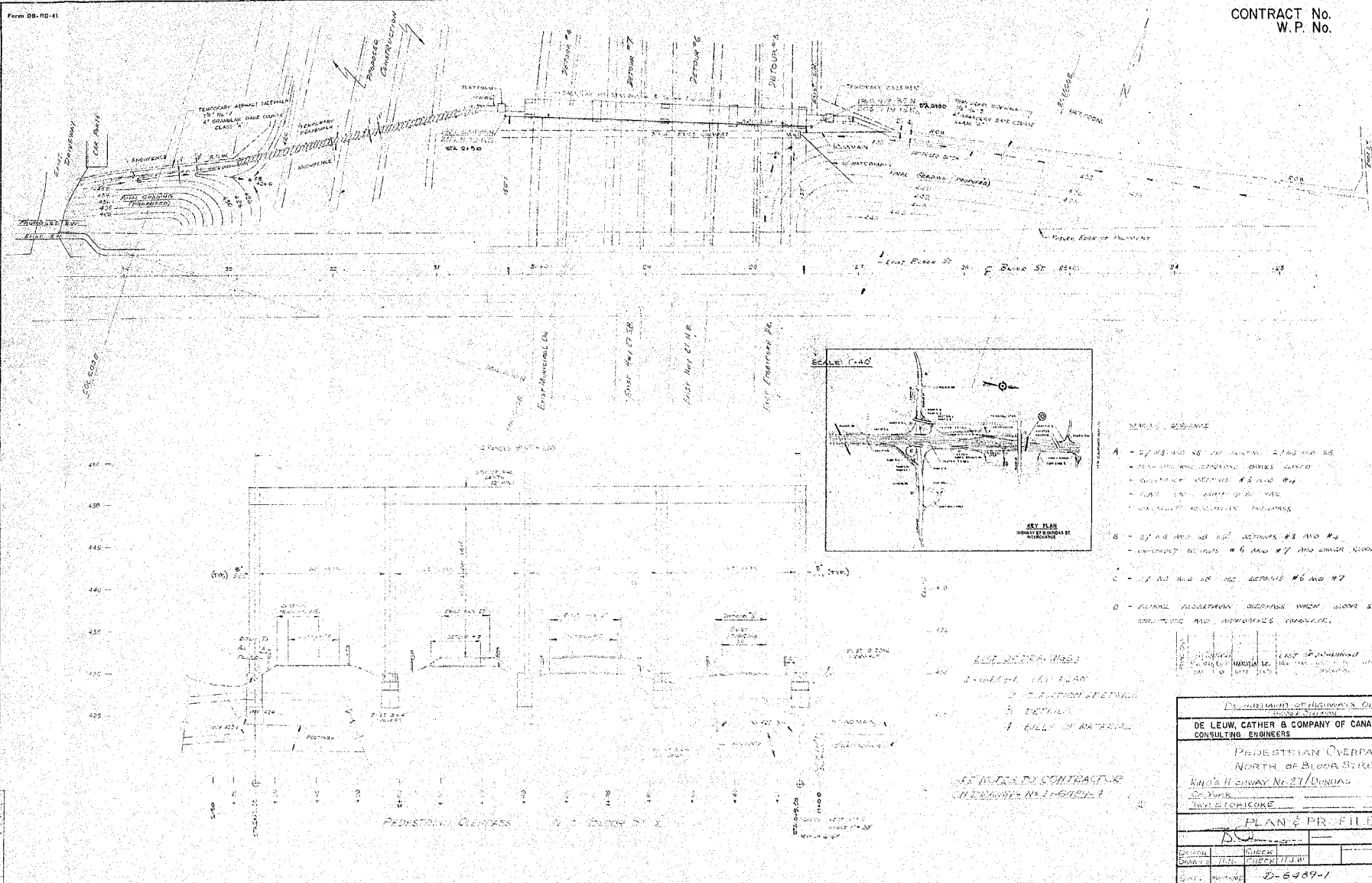
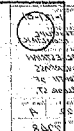
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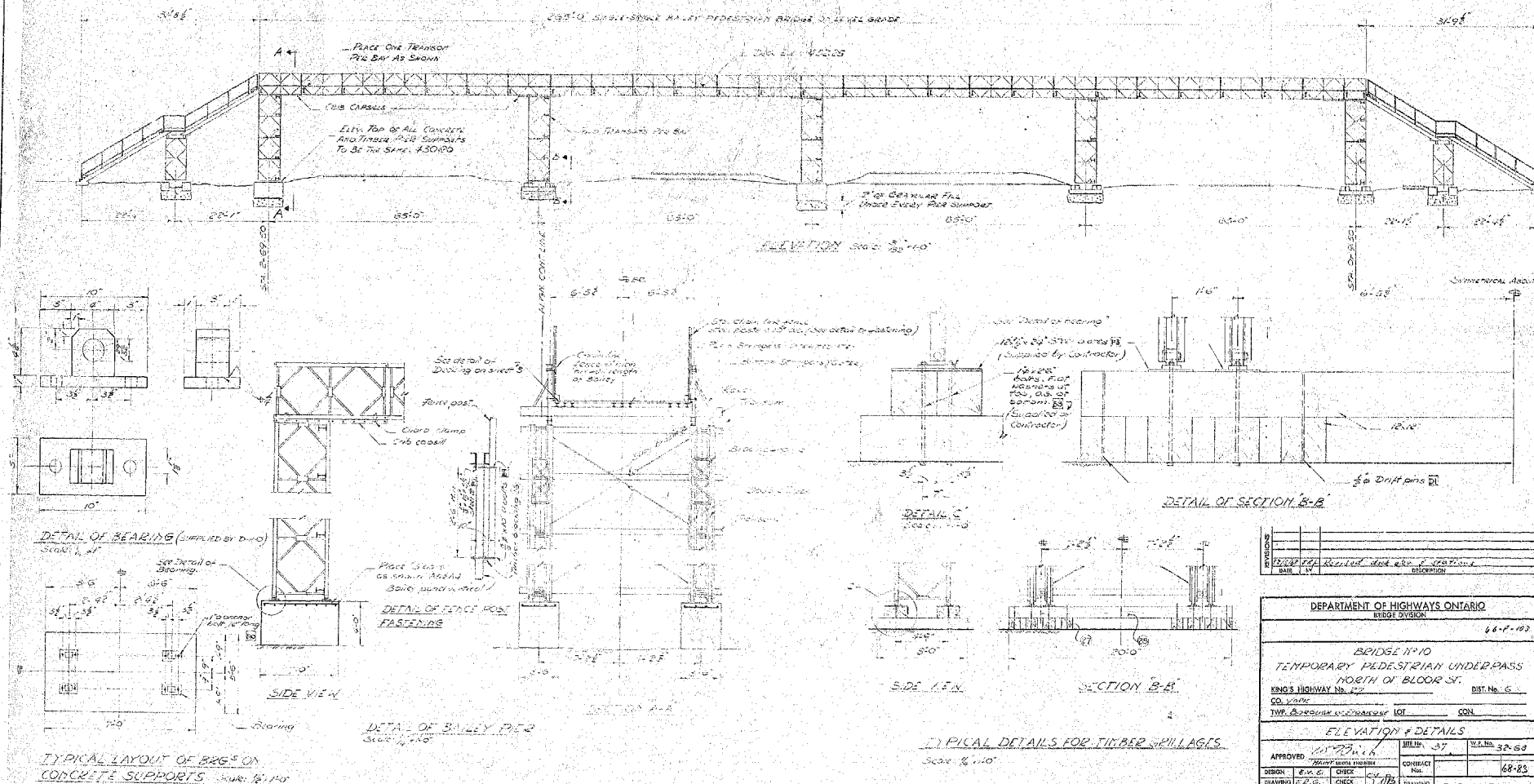
D-6.

D-6198-P1



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TO CONDITION OF ORIGINAL DOCUMENTS



REVISIONS	DATE	BY	DESCRIPTION
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8	10/10/00	10/10/00	10/10/00
9	10/10/00	10/10/00	10/10/00
10	10/10/00	10/10/00	10/10/00

DEPARTMENT OF HIGHWAYS, ONTARIO

46-2-10

BRIDGE #110
TEMPORARY PEDESTRIAN UNDERPASS
NORTH OF BLOOR ST.
KING'S HIGHWAY No. 27 DIST. No. 6
CO. York
TWP. BROUGH UNDERPASS LOT CON.

ELEVATION & DETAILS

APPROVED			1573 inch	ITH No. 37 W.P. No. 32-68
DESIGN			E.V.G.	CONTRACT No. 68-82
DRAWING			F.R.G.	
DATE			May 25	DRAWING No. D-6189-2