

DOCUMENT MICROFILMING IDENTIFICATION

GEOCRES No. 31E-77

DIST. 11 REGION NORTHERN

W.P. No. 74-74-05

CONT. No. 78-106

W. O. No. _____

STR. SITE No. 42-168

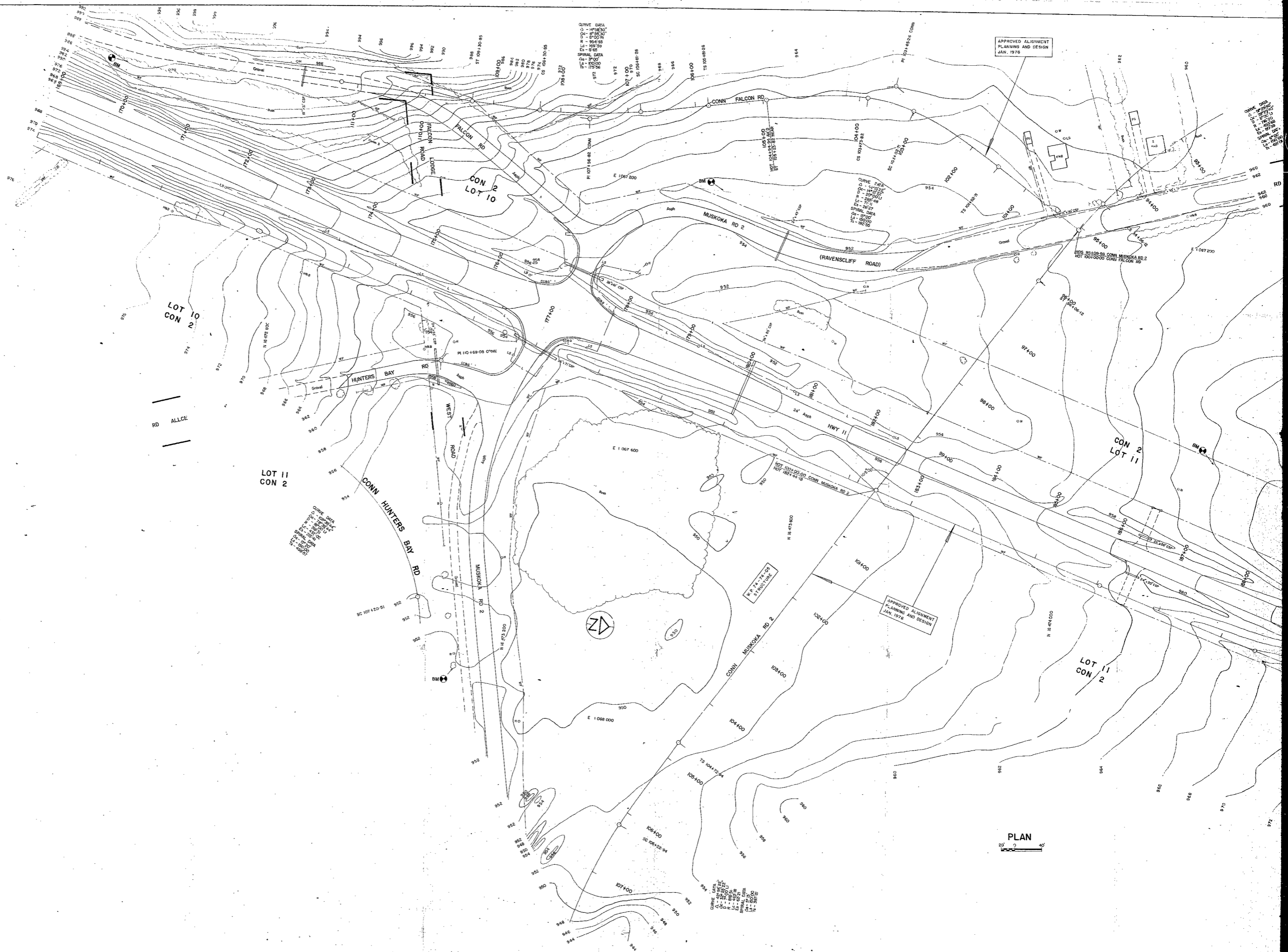
HWY. No. 11

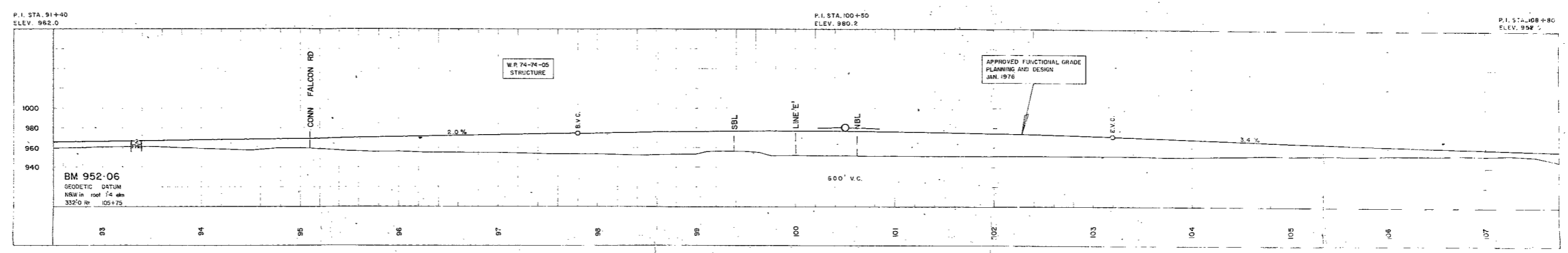
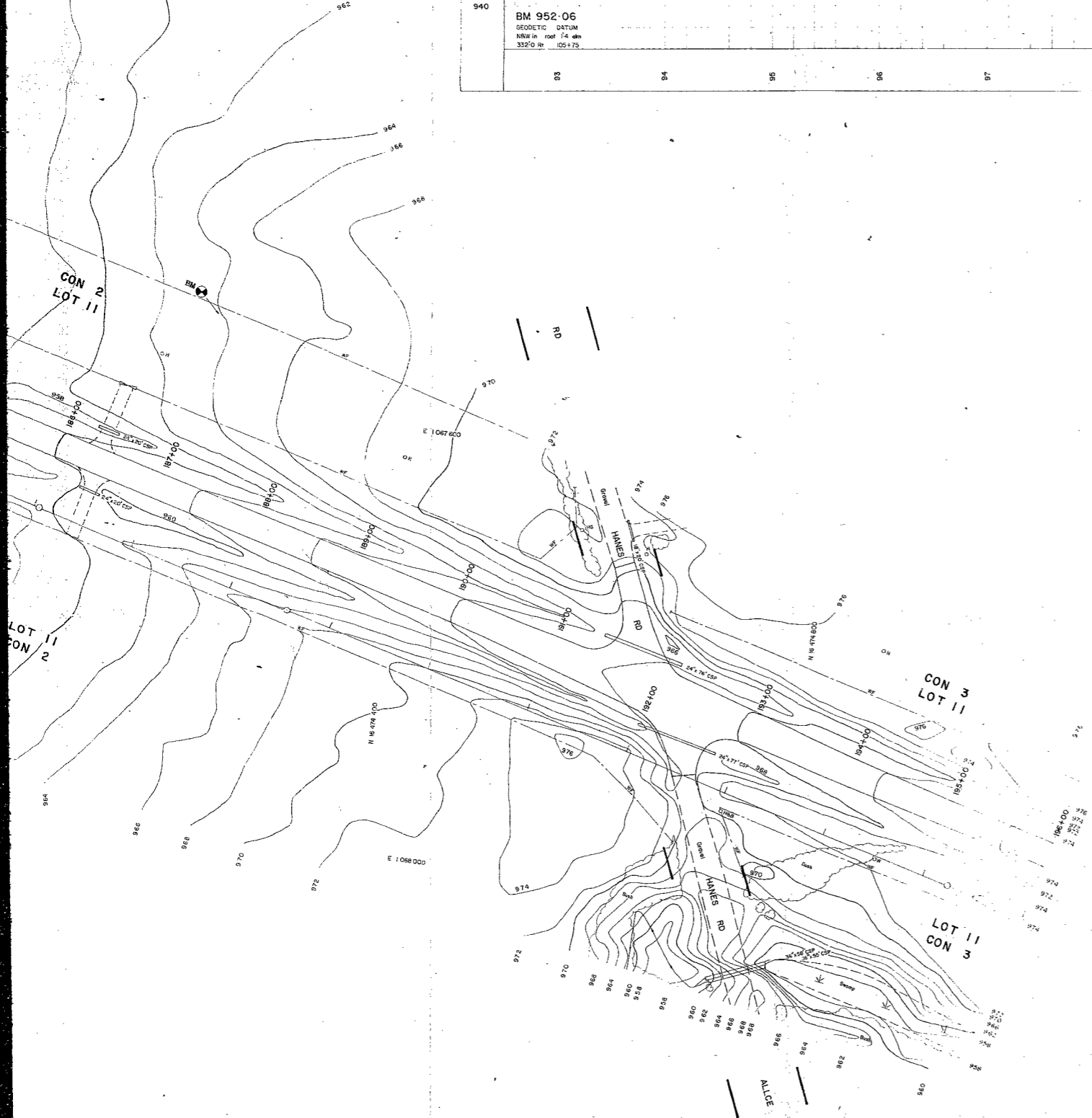
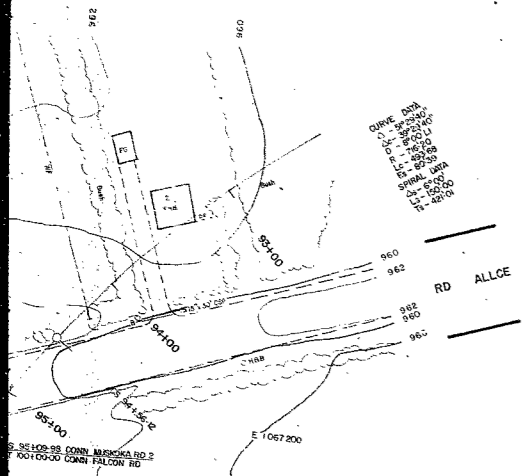
LOCATION RAVENSCLIFFE ROAD

MUSKOKA RD # 2

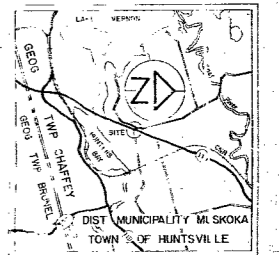
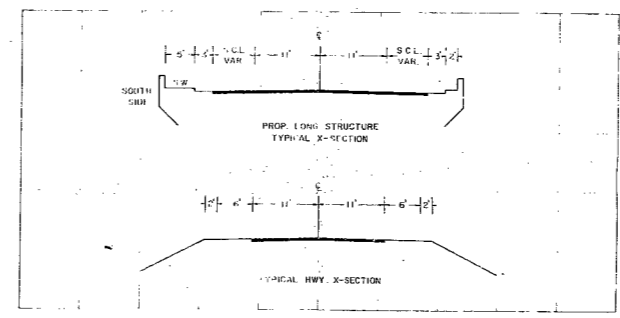
OVERSAMPLING TO BE INCLUDED WITH THIS REPORT. 4

REMARKS: _____





PROFILE OF CONN MUSKOKA RD 2



KEY PLAN

DATE: 3/15-77
REVISED: 0 ADDITIONS

Muskoka Rd 2.
74-74-05

MINISTRY OF TRANSPORTATION & COMMUNICATIONS
TOWN OF HUNTSVILLE SERVICES OFFICE
ENGINEERING SURVEYS SECTION

BRIDGE SITE PLAN
PROPOSED CROSSING
AT
CONN MUSKOKA ROAD 2
AND
KING'S HIGHWAY 11 LINE 'E'

CON 2
CON 3
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CON 100

AS SHOWN	11-HUNTSVILLE	NORTHERN
STUDY PLAN	PROFILE	PLAN
F-4155	C-625-11-1	B-625-11-1
DATE OF SURVEY: OCT 1975	DATE OF DESIGN: DEC 1975	SITE
DRAWN BY: 74-74-05		PLAN E-5053-1

31E-77

CONT No
WP No 74-74-05

MUSKOKA RD.#2
(RAVENSCLEIFF RD.) UNDERPASS
GENERAL LAYOUT

SHEET

NOTES

REINFORCING STEEL GRADE

50 K.S.I.

CLASS OF CONCRETE

DECK, SIDEWALK OVER DECK & BARRIER
WALLS 5000 PSI
PIER COLUMNS 4000 PSI
REMAINDER 3000 PSI

CLEAR COVER ON REIN. STEEL

FOOTINGS & ABUTMENTS 3"
PIER COLUMNS 2 1/2"
DECK TOP 2"
DECK BOTTOM 1 1/2"
SIDEWALK 2"
AND/OR 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".
TO ACHIEVE THE MINIMUM CLEAR
COVER OF 2" SPECIFIED THE TOP LAYER
OF DECK RE BARS SHALL BE PLACED
PRIOR TO CONCRETING WITH A CLEAR
COVER OF 2 1/2" ± 1/2" TOLERANCE.

LIST OF DRAWINGS

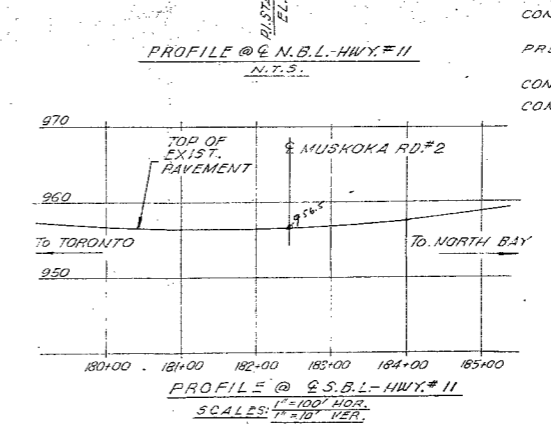
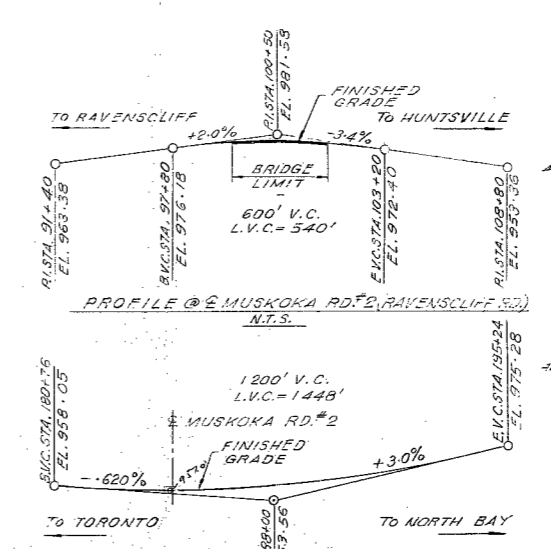
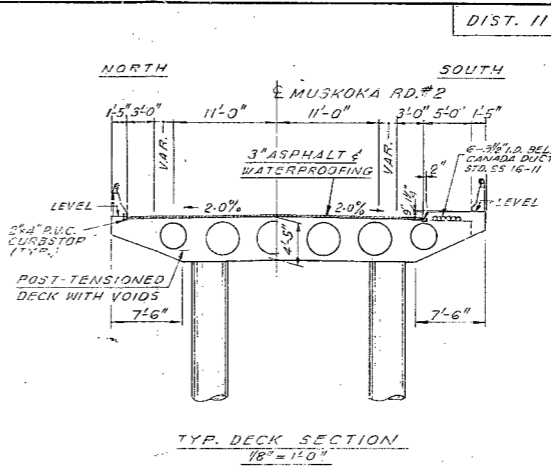
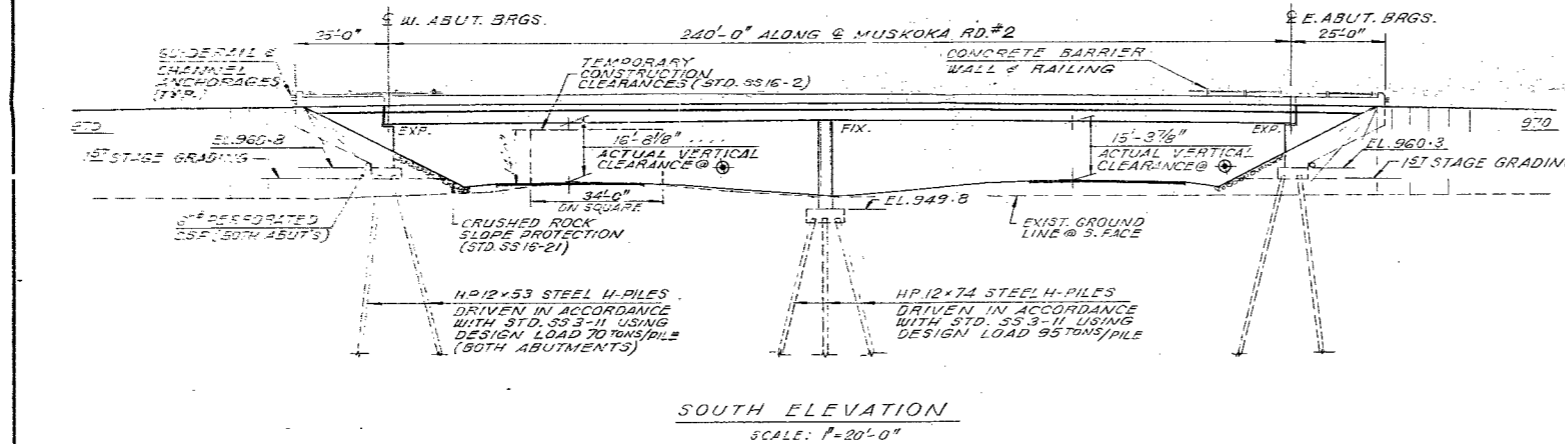
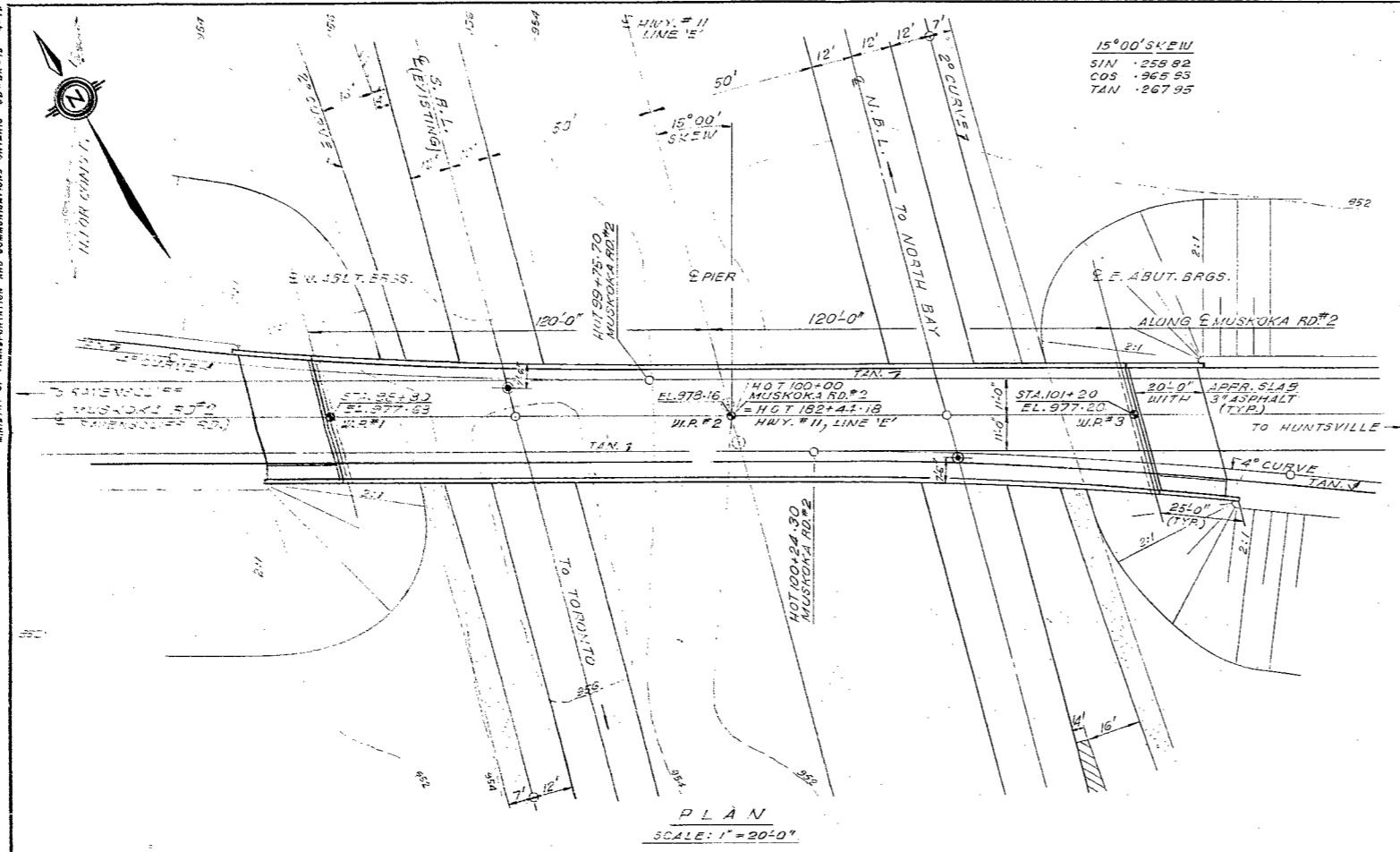
- 42-168-1 GENERAL LAYOUT
- 2 BORE HOLE LOCATIONS & SOIL STRATA
- 3 FOOTING LAYOUT
- 4 WEST ABUTMENT
- 5 EAST ABUTMENT
- 6 PIER
- 7 DECK LAYOUT, ELEVATIONS & ABUT. BRGS.
- 8 LONGITUDINAL CABLE DETAILS
- 9 TRANSVERSE CABLE DETAILS
- 10 DECK REINFORCEMENT
- 11 BARRIER WALL
- 12 BARRIER WALL WITH SIDEWALK
- 13 STEEL RAILING (SINGLE TUBE)
- 14 20 FT. APPROACH SLAB (BARRIER WALL)
- 15 STANDARD DETAILS I
- 16 STANDARD DETAILS II
- 17 STANDARD DETAILS III
- 42-168-18 AS CONSTRUCTED ELEV'S & DIM'S

CONCRETE QUANTITIES

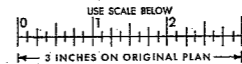
CONCRETE IN PIER 217 C.Y. (6,000 RS.)
ABUTMENTS & WING WALLS 2.0 C.Y. (6,000 RS.)
PRESTRESSED CONCRETE BRIDGE DECK 23.7 C.Y.
CONCRETE IN BARRIER WALLS 36 C.Y.
CONCRETE IN APPROACH SLABS 43 C.Y.



REVISIONS	DATE	BY	DESCRIPTION
1			
2			
3			



B.M. 952.06
GEODETIC DATUM
N. 8 W. IN ROOT 1.4' ELM
332'-0" RT. 105 + 75

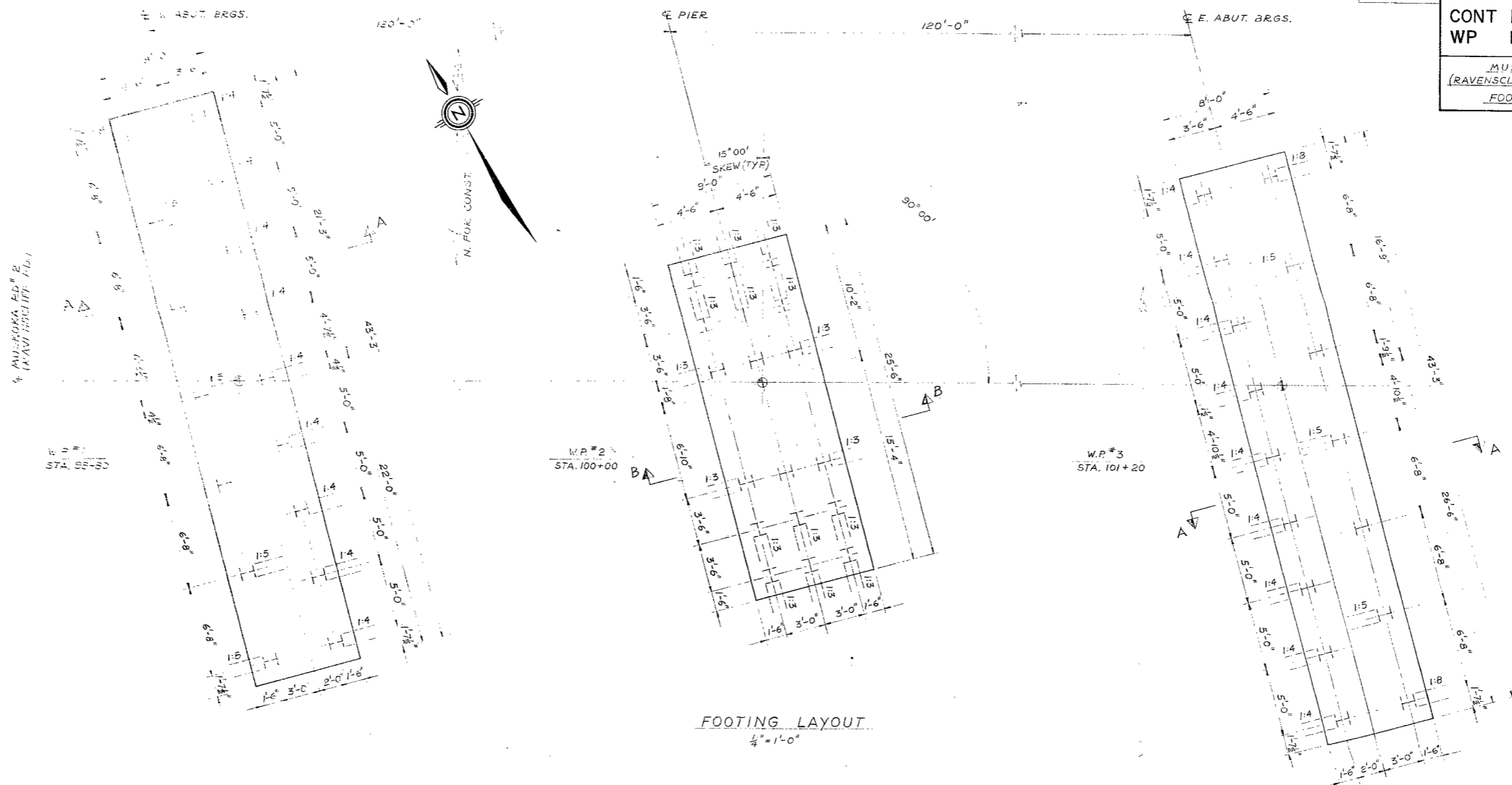


31E-77

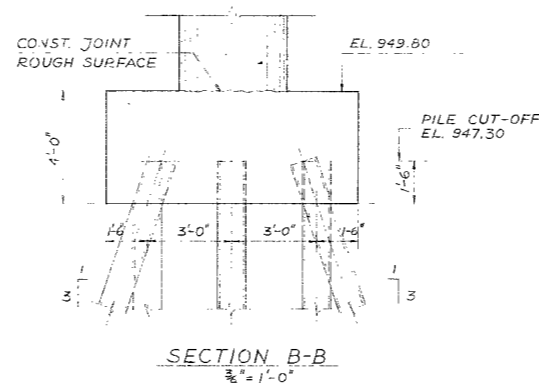
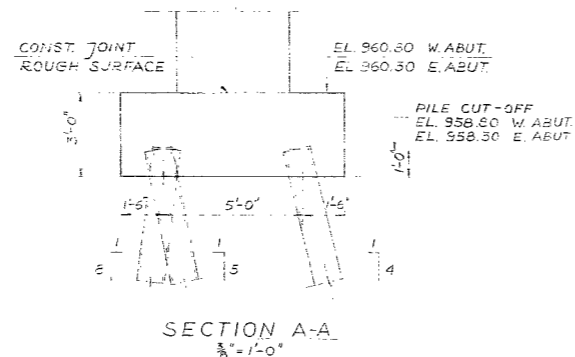
CONT No
WP No 74-74-05

MUSKOKA RD. #2
(RAVENSCLIFF RD.) UNDERPASS
FOOTING LAYOUT

SHEET

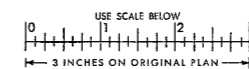


FOOTING LAYOUT
1/4" = 1'-0"



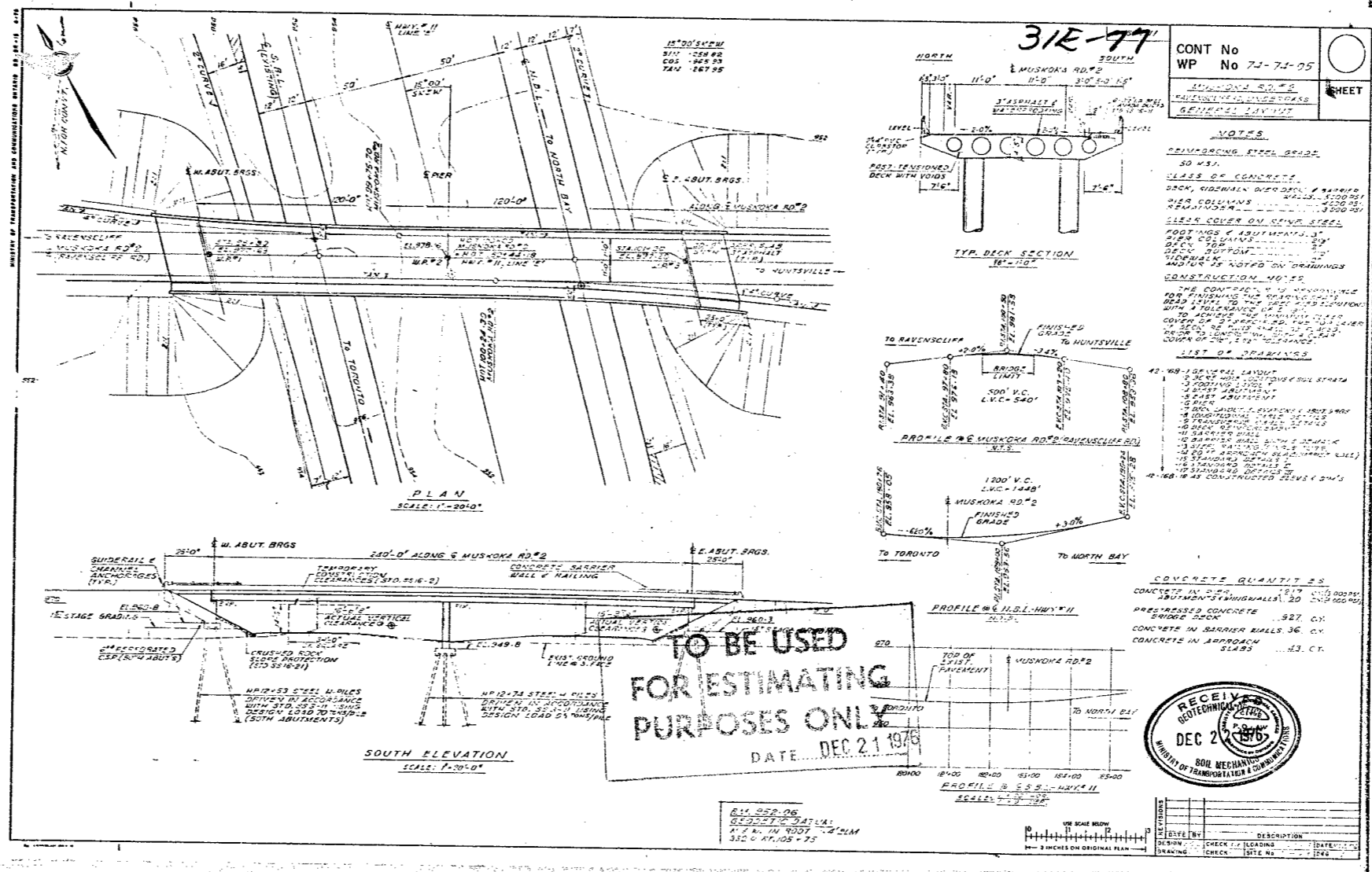
LIST OF STEEL H-PILES				
LOCATION	TYPE	Nº REQ'D	LENGTH	REMARK
WEST ABUT.	HP 12x53	16	102 FT.	WITH DRIVING SHCE
PIER	HP 12x74	18	90 FT.	
EAST ABUT.	HP 12x53	16	102 FT.	

FOR REDUCED PLAN



REVISIONS	DATE	BY	DESCRIPTION
DESIGN P.O.L. CHECK F.C. LOADING HS 20-44	DATE 5.01.76		
DRAWING D.J. CHECK P.O.L. SITE No 42-168	DWG 3		





DOCUMENT IDENTIFICATION

GEOCRES No. 31E-77

DIST 11 REGION Northern

W.P. No. 74-74-05

CONT. No. 78-106

W. O. No. _____

STR. SITE No. 42-168

HWY No. 11

LOCATION Ravenscliffe Road,
MusKoka Rd. #2

OVERALL DRAWINGS TO BE INCLUDED WITH THIS REPORT. 4

REMARKS: documents to be unfolded
before microfilming

FOUNDATION INVESTIGATION REPORT

W.P. 74-74-05
Site No. 42-168
Hwy. 11 District #11
Ravenscliffe Road, Muskoka Road No. 2
1.2 Miles South of Hwy. 60

1. INTRODUCTION

This report contains results of foundation investigations carried out at the following site:

W.P. 74-74-05, Site 42-168
Ravenscliffe Rd. (Muskoka Rd. No. 2)

Also contained in this report are comments and recommendations for the design and construction of the structure foundation, approach embankments and ramps.

2. SITE DESCRIPTION

The proposed structure site is located approximately 550 feet north of the intersection of the existing Muskoka Road No. 2 and Hwy. 11, on the west side of the town of Huntsville. Except for areas some 900 feet southwest of the site where a well-treed hill exists, the surrounding terrain is relatively flat and grass covered. At the time of the fieldwork the site was very wet because of heavy rain on the previous days. Under normal conditions the site would be well drained.

Geologically, the site is situated within the Canadian Shield, with bedrock of Precambrian Age. The overburden is believed to be lacustrine deposits of glacial outwash.

3. SUBSURFACE CONDITIONS

(3.1) General

Subsoil types revealed by our boreholes appear to be quite consistent. Generally, subsoil at the site consists of a layer some 15 feet thick of very stiff to firm silty clay, overlying 15 to 19 feet of stratified stiff clayey silt which becomes quite silty

with depths, and in turn is underlain by about 45 feet of uniform silty fine sand. The sand becomes somewhat coarser with depths and contains occasional stones. Underneath the silty fine sand is a layer of very dense sand with gravel. A brief description of subsoil types is given below, and a subsoil stratigraphy inferred from our boreholes is shown in Drawing 747405-A attached to this report.

(3.2) Silty Clay

It extends from immediately below the surficial topsoil (elevation 952±) to approximately elevation 936.5±, for a depth of some 15 feet. The upper 7 feet or so is desiccated and oxidized. On the basis of 'N' values, the consistency may be assessed as very stiff. Below the depth of 7 feet it becomes grey and firm, with an undrained shear strength in the order of 1200 psf. The liquid limits of this material range from 29% to 42%, plastic limits from 19% to 25%, and the moisture contents from 25% to 38%. A plot of plasticity indices versus liquid limits show that most of the points fall in the CL zone of the Plasticity Chart. For design purposes, the following undrained shear strengths may be assumed:

Elev. 952± to Elev. 945±	2000 psf.
Elev. 945± to Elev. 937±	1200 psf.

(3.3) Clayey Silt

This deposit is encountered in all boreholes from elevation 936.5± to elevation 921.0±. It is stratified, with frequent fine silt partings. Its 'N' values range from 15 to 22 blows per foot indicating a stiff consistency. Its undrained shear strength is in the order of 1600 psf. As depth increases it becomes more silty, and in this connection the 'N' values decrease to 4 or 6 blows per foot. The reduction in 'N' values is probably a reflection of the high dilatancy of this silty material.

(3.4) Silty Fine Sand

Underlying the clayey silt stratum is a deposit of silty sand. Its average thickness is approximately 45 feet. From the results of grain size analyses, this material can be classified as

uniformly graded silty fine sand. Because of its fineness and uniformity, this silty fine sand is susceptible to 'boiling' under unbalanced hydrostatic heads. This may affect the 'N' values substantially. In view of the frequent cave-ins encountered during our sampling process, the 'N' values recorded in this material, in our opinion, should not be taken at face value in order to assess the denseness. In Borehole No. 1 occasional stones were also encountered.

(3.5) Sand With Gravel

The aforementioned silty sand becomes coarser with depths and changes to sand with gravel below elevation 875-879. It also contains occasional boulders. It is well graded and has a very dense relative density. The lower boundary of this deposit is not developed. From results of our investigations at adjacent sites, we believe this deposit is probably underlain by bedrock.

4. GROUNDWATER CONDITIONS

The groundwater levels observed in the boreholes were 4 or 5 feet (i.e. elev. 947.5±) below ground surface. In view of heavy rains on the previous days, these observed water levels would be higher than the normal levels.

5. DISCUSSIONS AND RECOMMENDATIONS

It is proposed to construct at this site a 'skewed (75°), two-span (119 foot-119 foot) structure for the Muskoka Road No. 2 underpass. The clearance will be about 17 feet and the maximum height of the approach fills will be about 24 feet.

Based on the subsoil information the following recommendations are made:

The structure may be supported on end-bearing piles driven into the sand-gravel layer. The piles should be composed of steel H sections reinforced with flange plates at tips. The probable founding elevations of the pile tips are estimated to be at elevation 865-858 approximately.

If the pile driving is controlled by Hiley formula (M.T.C. Standard SS-3-11), the piles may be designed for their maximum allowable loads.

All lateral forces can be resisted by battered piles. For frost protection, the base of the pile cap should have a minimum 6 foot cover. According to the profile grade, the base of the excavation for pile caps would be one or two feet above the groundwater table. Therefore, no seepage or major dewatering problem is anticipated.

The 24 foot approach fill can be constructed without having stability problems if standard 2:1 forward slopes and side slopes are adopted. Because of the height of the fill, perched abutments appear to be preferable.

Settlement of the clayey subsoil induced by the 24 foot approach fill would be in the order of 2.0 inches. Because of the presence of frequent silt seams, most of the settlement would probably have completed in six month's time after construction of the embankments. The settlements in the cohesionless subsoil and within the fill itself, which is likely to be composed of non-cohesive material, would be immediate and would have no detrimental effect on the structure. In view of the above mentioned 2 inch differential settlement between the structure and the approaches, a 20 foot approach slab may be required.

Ramps at the interchange have been checked for stability, and they have been found to be stable if 2:1 side slopes are adopted.

B. Ly
B. LY,
Project Engineer.

K. G. Selby
K.G. SELBY,
Supervising Engineer.



December, 1975

RECORD OF BOREHOLE NO 1

WP 74-74-05 LOCATION Co-ords. 16,473,771 N: 1,067,497E ORIGINATED BY BL
 DIST 11 HWY 11 BORING DATE September 24, 1975 COMPILED BY BL
 DATUM Geodetic BOREHOLE TYPE Washboring with NX-BX Casings CHECKED BY

SOIL PROFILE		STRAT. PLT	SAMPLES			GROUND WATER ELEV	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT — W _L PLASTIC LIMIT — W _P WATER CONTENT — W			UNIT WEIGHT γ	REMARKS
ELEV DEPTH	DESCRIPTION		NUMBER	TYPE	'N' VALUES		20	40	60	80	100	W _P	W	W _L		
952.8	Ground Level															
0.0	Silty clay; stiff to firm, brown, trace of oxidation.		1	SS	15	950										
	Grey below el. 946±		2	SS	26	940										
			3	SS	6											
936.8			4	SS	7											
16.0	Clayey silt; stratified with fine silt partings		5	SS	21	930										
	Stiff															
	becomes very silty															
921.8			6	SS	4	920										
31.0	Silty sand, fine and uniform. Compact		7	SS	100/6"	910										
	Occasional stones encountered.															
			8	SS	46	900										
						890										
877.8			9	SS	60/45"	880										
75.0	End of Borehole															

ENGINEERING SERVICES BRANCH-GEOTECHNICAL OFFICE-SOIL MECHANICS SECTION

RECORD OF BOREHOLE No 3

WP 74-74-05

LOCATION CO-ords. 16,473,658 N: 1,067,722 E.

ORIGINATED BY BL

DIST 11 HWY 11

BORING DATE October 1, 1975

COMPILED BY BL

DATUM Geodetic

BOREHOLE TYPE Washboring with NX & EX Casing

CHECKED BY

SOIL PROFILE			SAMPLES			GROUND WATER ELEV	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT w_L PLASTIC LIMIT w_p WATER CONTENT w			UNIT WEIGHT γ	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	N' VALUES		20	40	60	80	100	w_p	w	w_L		
951.5	Ground Level															
0.0	Silty clay; very stiff to firm, brown and oxidized		1	SS	14	950										
	Grey below El. 945+		2	SS	5	940										0 0 65 35
936.5																
15.0	Clayey silt, stratified with fine silt partings		3	SS	22	930										
	Stiff becoming very silty		4	SS	16	920										
921.5																
30.0	Silty sand, fine and uniform		5	SS	9	910										
	Compact becoming coarser		6	SS	2	900										
			7	SS	16	890										
879.5			8	SS	87/9	880										6 36 53 5
72.0	Sand with gravel															
876.5	Very Dense															
75.0	End of Borehole															
	Note: Tri-cone met refusal at El. 876.5															

ENGINEERING SERVICES BRANCH-GEOTECHNICAL OFFICE-SOIL MECHANICS SECTION

RECORD OF BOREHOLE NO 2

WP 74-74-05

LOCATION Co-ords. 16,473,710 N; 1,067,610 E.

ORIGINATED BY BL

DIST 11 HWY 11

BORING DATE September 25, 1975

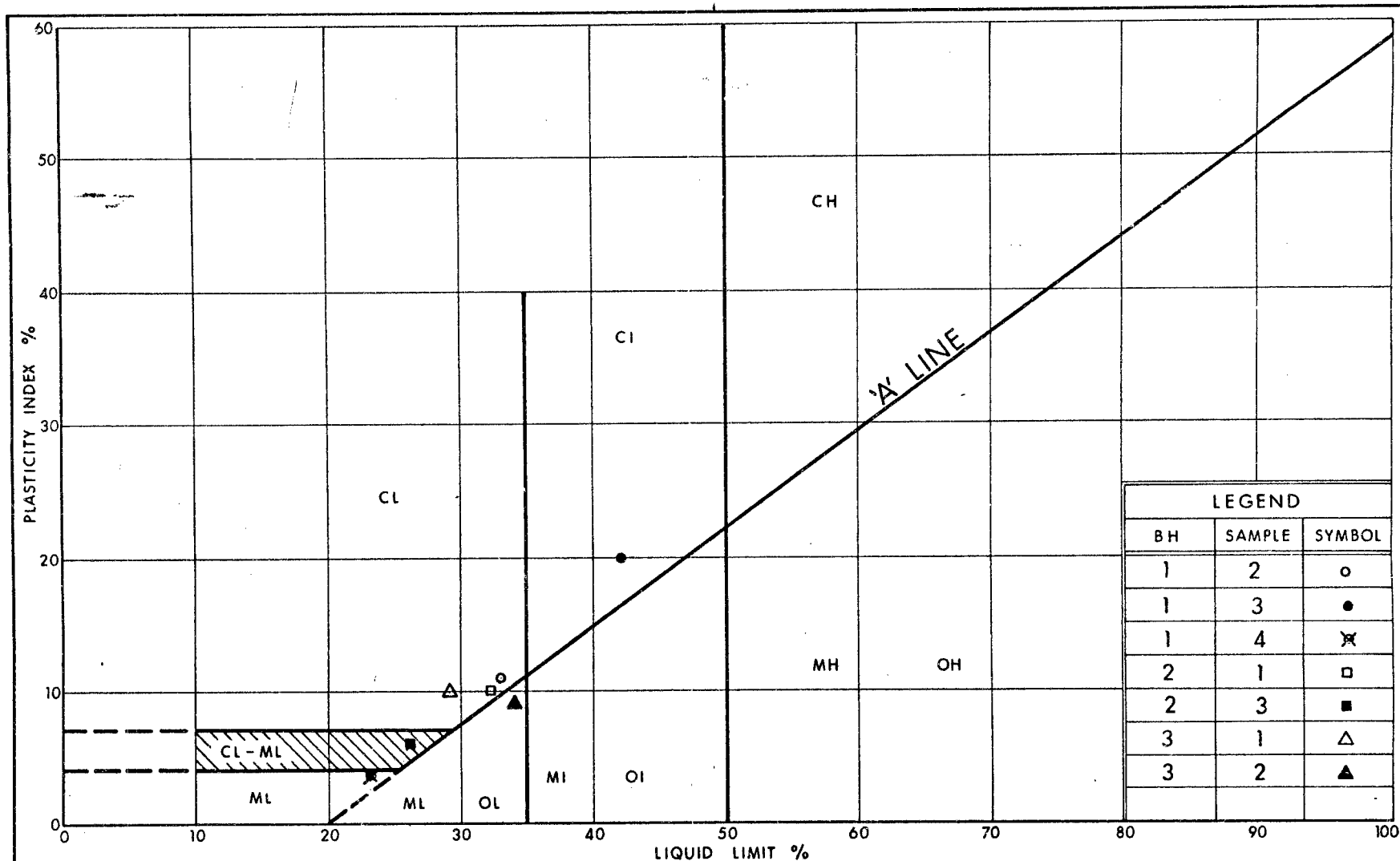
COMPILED BY BL

DATUM Geodetic

BOREHOLE TYPE Washboring with NX & BX Casings

 CHECKED BY *df*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV	DYNAMIC CONE PENETRATION RESISTANCE PLOT				LIQUID LIMIT W_L PLASTIC LIMIT W_P WATER CONTENT W			UNIT WEIGHT γ	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	W_P	W	W_L	
952.1	Ground Level														
0.0	Silty clay, stiff to firm, brown, & trace of oxidation.		1	SS	20	950									0 3 62 35
	Grey below El. 945±		2	SS	3	940									
938.1															
14.0	Clayey silt, stratified with fine silt partings		3	TW	PM										
	Stiff becoming very silty.		4	SS	15										
			5	SS	6										
919.1															
33.0	Silty Sand fine & uniform Compact		6	SS	3										
			7	SS	8										
	becoming coarser		8	SS	22										
875.1															
77.0	Sand with gravel Very Dense														
866.1															
86.0	End of Borehole														



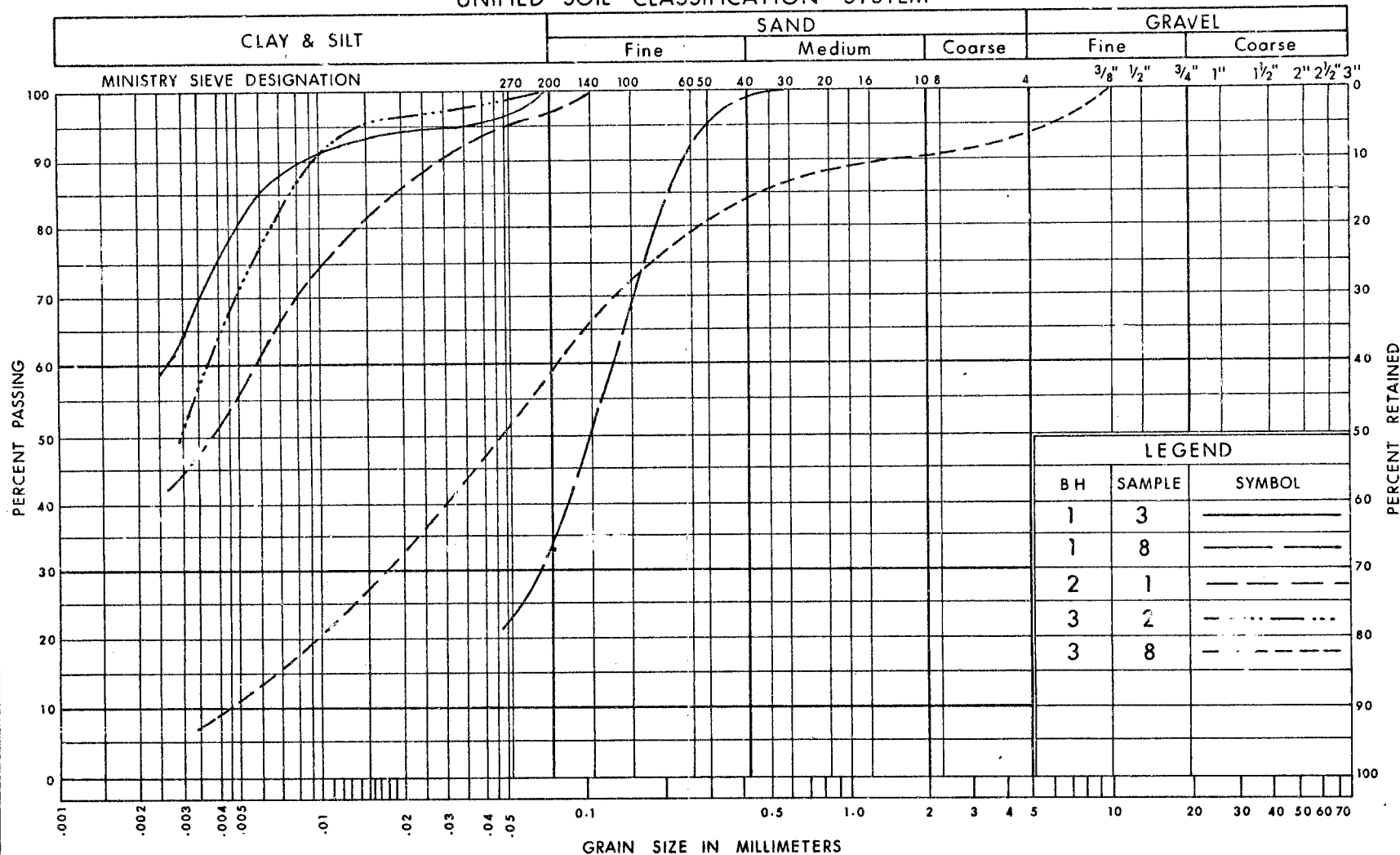
Ministry of
Transportation and
Communications
Ontario
ENGINEERING SERVICES BRANCH

PLASTICITY CHART SILTY CLAY, & CLAYEY SILT

FIG No 1

W P 74-74-05

UNIFIED SOIL CLASSIFICATION SYSTEM



GRAIN SIZE DISTRIBUTION

FIG No 2

W P 74-74-05



Ministry of
Transportation and
Communications
Ontario
ENGINEERING SERVICES BRANCH

VOID RATIO - PRESSURE CURVES

- W. P. 74-74-05

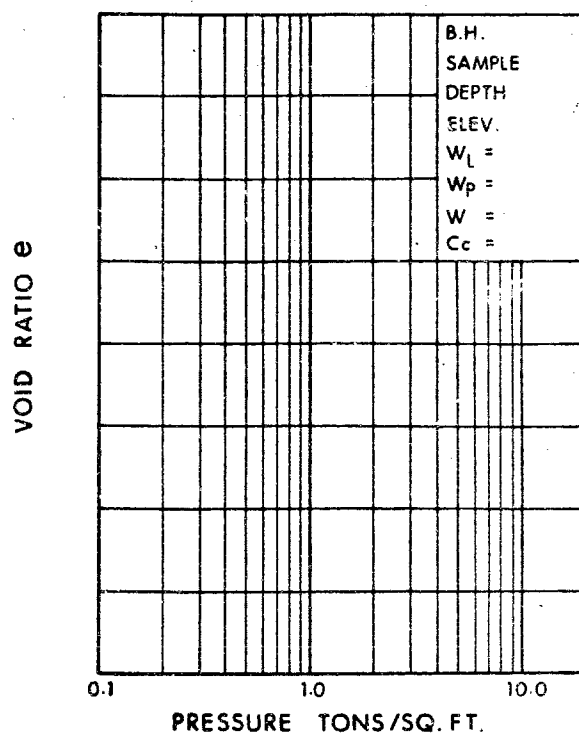
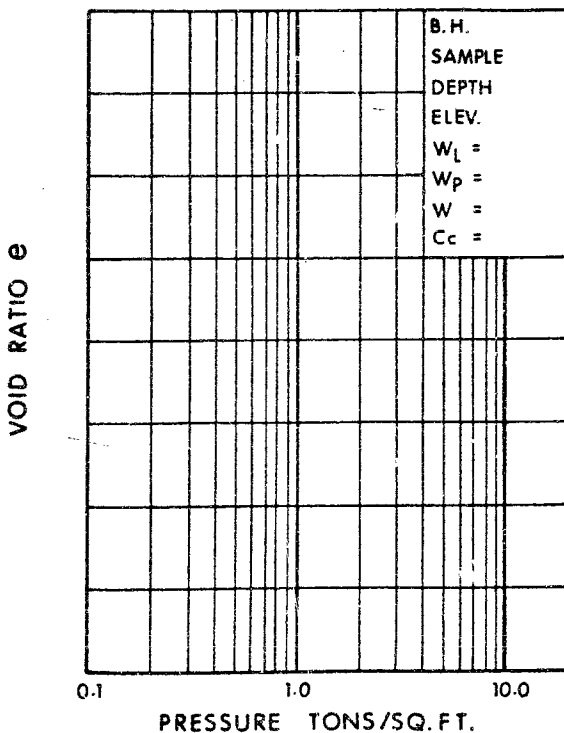
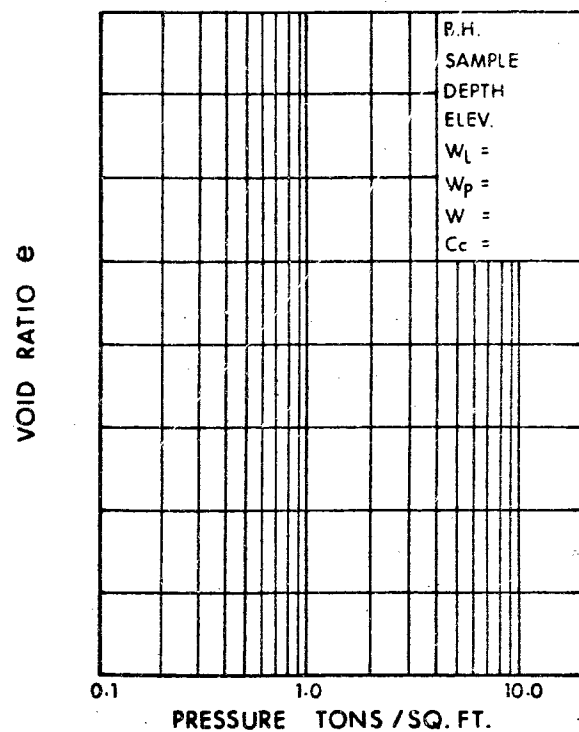
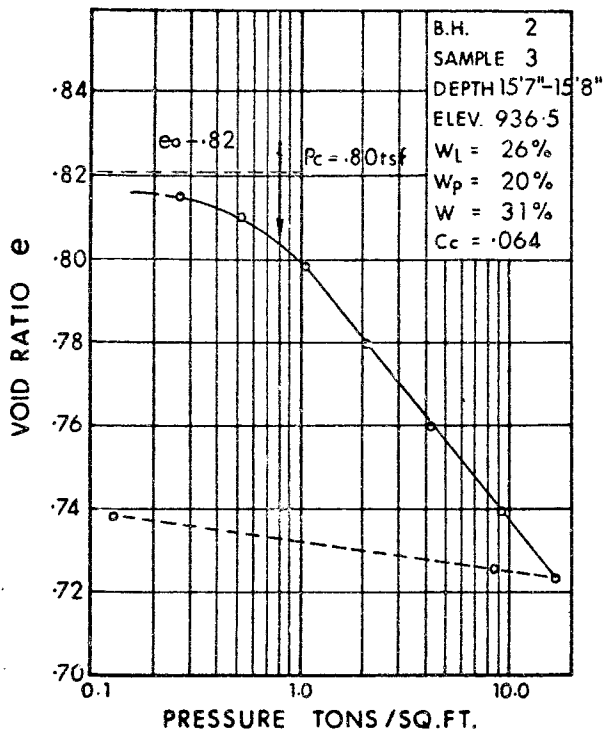
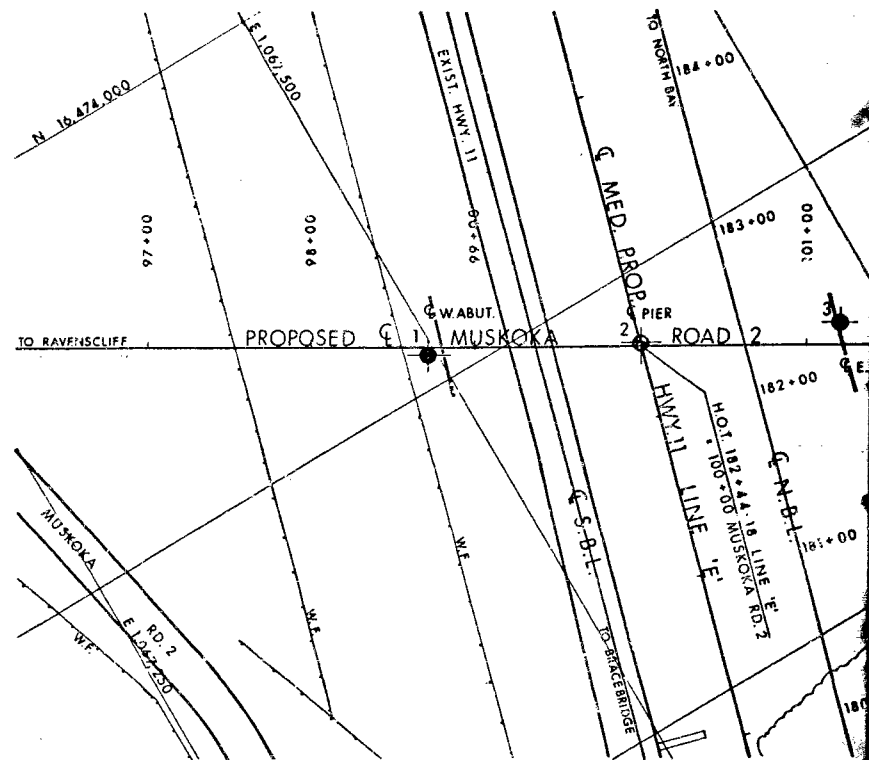
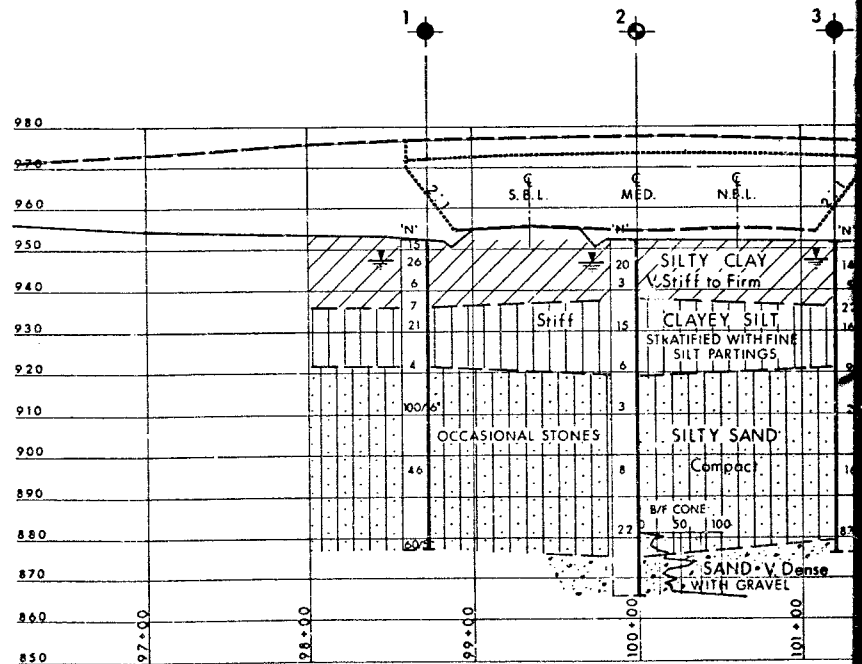


FIG. 3



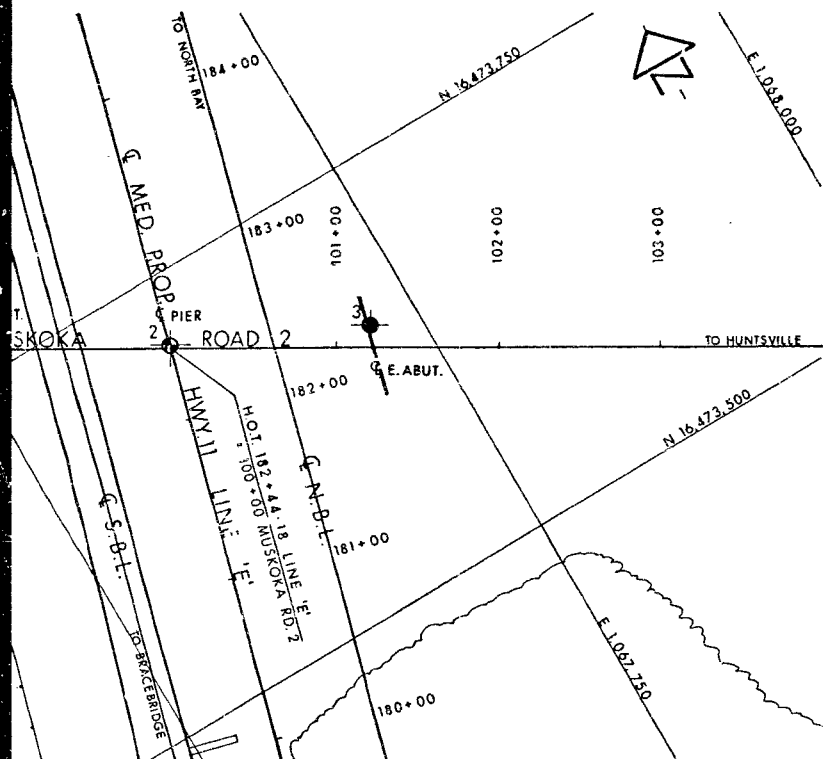
PLAN

SCALE 0 25 50 FT.



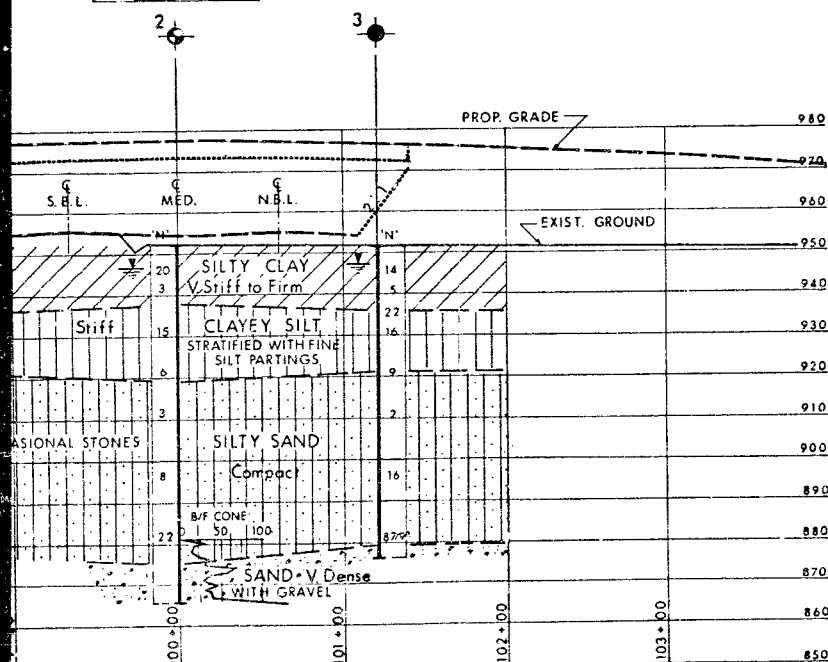
PROFILE

SCALE 0 25 50 FT.
HOR 50 25 0 25 50
VERT 20 10 0 20



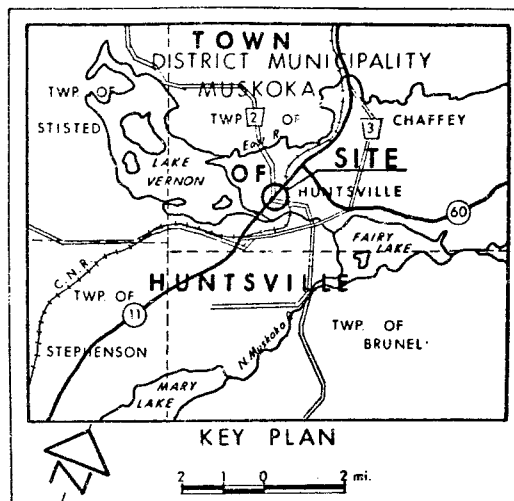
PLAN

SCALE
50 25 0 50 FT.



PROFILE

SCALE
HOR 50 25 0 50 FT.
VERT 20 10 0 20



KEY PLAN

LEGEND

- Bore Hole
- ⊕ Dynamic Cone Penetration Resistance Test
B/F CONE - Blows/Ft. Cone Test (350ft. lbs. energy/blow)
- ⊕ Bore Hole & Cone Test
- ≡ Water Levels established at time of field investigation.
SEPT. & OCT. 1975

NO.	ELEVATION	CO-ORDINATES	
		NORTH	EAST
1	952.8	16,473,771	1,067,497
2	952.1	16,473,710	1,067,610
3	951.5	16,473,658	1,067,722

NOTE: FOR CONTRACT DOCUMENTS

The complete foundation investigation report for this structure may be examined at the Structural Office and Foundations Office, Downsview, and at the HUNTSVILLE District Office.

— NOTE —

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence.

REVISION	DATE	BY	DESCRIPTION

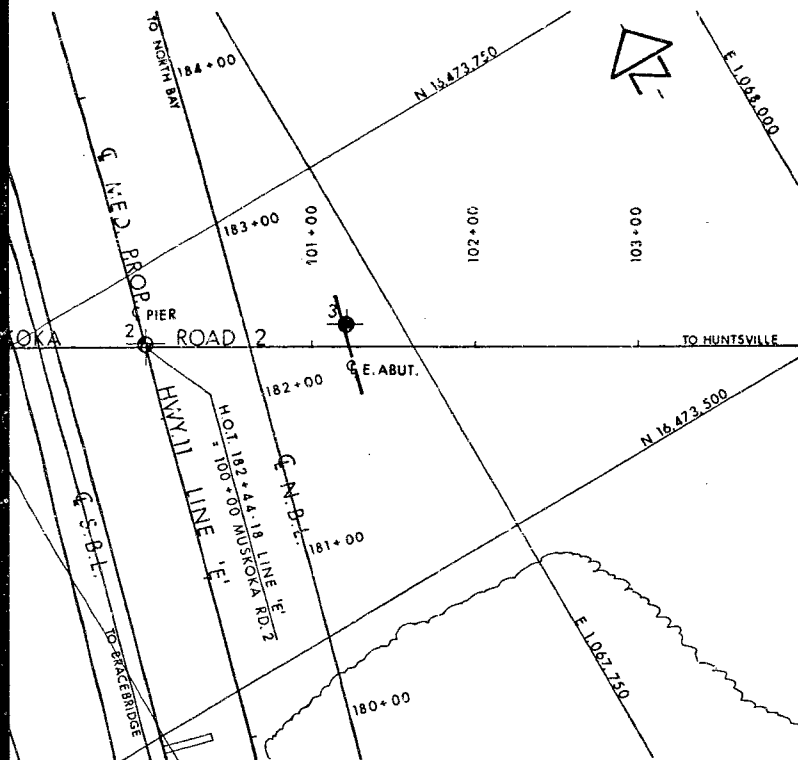
MINISTRY OF TRANSPORTATION AND COMMUNICATIONS—ONTARIO
ENGINEERING SERVICES BRANCH—GEOTECHNICAL OFFICE—SOIL MECHANICS SECTION

MUSKOKA ROAD NO. 2

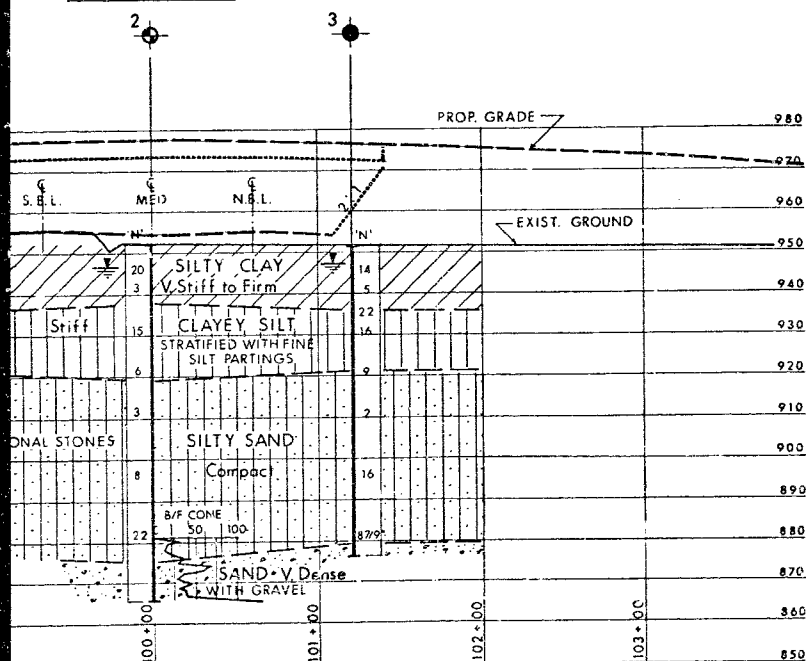
HIGHWAY NO 11 PROP. LINE 'E' DIST. NO 11
DISTRICT MUNICIPALITY OF MUSKOKA
TWP CHAFFEY LOT 10 & 11 CON 2

BORE HOLE LOCATIONS & SOIL STRATA

SUBMD B L	CHECKED	W P NO 74-74-05	DRAWING NO
DRAWN O J	CHECKED	W C NO	747405-A
DATE 26 NOV. 1975	SITE NO 42-168	BRIDGE DRAWING NO	
APPROVED	CONT NO		

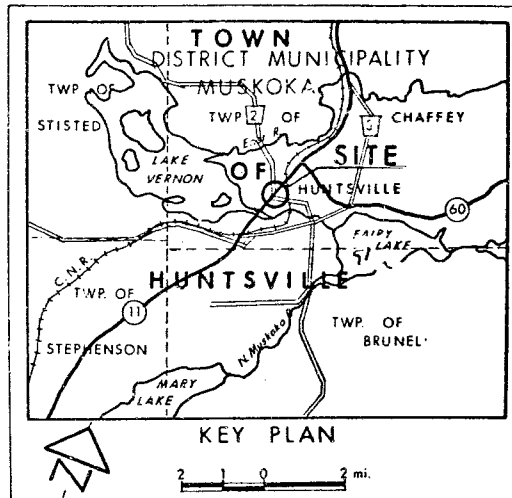


PLAN
SCALE
50 25 0 50 FT.



PROFILE

SCALE
HOR. 50 25 0 50 FT.
VERT. 20 10 0 20



KEY PLAN

2 1 0 2 mi.

LEGEND

- Bore Hole
- ⊕ Dynamic Cone Penetration Resistance Test
B/F CONE - Blows/Ft. Cone Test (350 ft. lbs. energy/blow)
- ⊕ Bore Hole & Cone Test
- ≡ Water Levels established at time of field investigation
SEPT. & OCT. 1975

NO.	ELEVATION	CO-ORDINATES	
		NORTH	EAST
1	952.8	16,473,771	1,067,497
2	952.1	16,473,710	1,067,610
3	951.5	16,473,658	1,067,722

NOTE: FOR CONTRACT DOCUMENTS

The complete foundation investigation report for this structure may be examined at the Structural Office and Foundations Office, Downsview, and at the HUNTSVILLE District Office.

— NOTE —

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence.

REVISIONS	DATE	BY	DESCRIPTION

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS—ONTARIO
ENGINEERING SERVICES BRANCH—GEOTECHNICAL OFFICE—SOIL MECHANICS SECTION

MUSKOKA ROAD NO. 2

HIGHWAY NO. 11 PROP. LINE 'E' DIST. NO. 11
DISTRICT MUNICIPALITY OF MUSKOKA
TWP. CHAFFEY LOT 10 & 11 CON. 2

BORE HOLE LOCATIONS & SOIL STRATA

SUBNO. B. L.	CHECKED	WP NO. 74-74-05	DRAWING NO.
DRAWN BY	CHECKED	WD NO.	747405-A
DATE	26 NOV. 1975	SITE NO. 42-168	BRIDGE DRAWING NO.
APPROVED		CONT. NO.	

H. K. Selby 1485

MEETING OF

STRUCTURAL REVIEW COMMITTEE

Time: 9:30 a.m., September 7, 1977

Place: Boardroom "B", West Building

Attending: Messrs.

A. E. McKim - Construction Branch
W. Hashizume - Construction Branch
K. Luczka - Construction Branch (part time)
K. Carter - Regional Construction Office
F. Chan - Structural Office (part time)
W. McFarlane - Structural Office (part time)
N. Zoltay - Structural Office
F. Gormek - Structural Maintenance Section
K. Selby - Soil Mechanics Section

Projects Reveiwed:

W.P. 74-74-05, Site 42-168,
Ravencliffe Rd. Bridge.
W.P. 74-74-06, Site 42-169,
Aspidin Road Bridge.
Highway 11, District 11.

W.P. 40-74-03, Site 1-171,
Erie Ave. O'pass.
W.P. 40-74-04, Site 1-186,
TH & B Railway O'head.
W.P. 40-74-06, Site 1-RW,
Retaining Walls.
W.P. 40-74-11, Site 1-185,
Lynwood Drive U'pass.
BSAR, District 4.



Mr. Chan and Mr. McFarlane presented the structures of District 11 and District 4 respectively.

The following points were put forth as noted below with recommendations where applicable.

Ravencliffe Road Bridge (W.P. 74-74-05)

Foundations

The design complies with the recommendations of the foundation report, however the economy of using HP 12 x 53 section of piles is queried. The Designer is to investigate the feasibility of using less piles with HP 12 x 74 section.

Structure

(a) Drawing #8.

- Two sets of data are to be provided, one for cables stressed each end non simultaneously and one for cables stressed both ends simultaneously.

(b) Standard: "Support and Tie Down for Void Forms" (SS-9-20) is to be included in the drawings.

(c) The alternate class or classes of acceptable joint assemblies are to be shown on the standard for the expansion joint assemblies.

(d) Standards are to be updated.

(e) The deck is to be machine finished.

Special Provisions and D4

The documents are to be updated.

Aspidin Road Underpass (W.P. 74-74-06)

Foundations

Muck excavations will be completed prior to commencement of bridge construction, therefore the bridge drawing shall not indicate muck excavation, however the existing grade line is to be shown.

The excavation quantity is to be adjusted in accordance with the final grade line.

Structure

(a) The diameters of the void tubes were questioned. The diameter of the void tubes for Ravencliffe Road Bridge differ from the subject bridge, nevertheless other factors are approximately equal.

(b) Same comment as for W.P. 74-74-05 (a)

(c) Same comment as for W.P. 74-74-05 (c)

(d) Same comment as for W.P. 74-74-05 (d)

(e) The deck is to be machine finished.

Special Provisions and D4

The documents are to be updated.

Erie Avenue Overpass (W.P. 40-74-03)

Foundations

The design complies with the recommendations of the foundation report.

Structure

- (a) The Designer is to review the proposed detour design and the need for roadway protection.
- (b) Note in Drawing #1. "Clear Cover to Reinforcing Steel". Change 1 1/2" to read "1 1/2" except as noted".
- (c) Standards are to be updated.
- (d) Drawing 5. Joint between retaining wall and wingwall is to be changed to expansion joint.
- (e) Drawing 7. A note to be added that screed elevation includes dead load deflection.
- (f) Machine finishing of the bridge deck is not required.

Special Provisions and D4

- (a) SP No. 909 (Machine finishing of the deck is not required) is to be added .
- (b) Documents are to be updated.

TH & B Railway Overhead (W.P. 40-74-04)

Foundations

The design complies with the recommendations of the foundation report.

Structure

- (a) Drawings 4 and 5: Indicate that polystyrene between ballast wall and deck and underside of deck and bearing seat is to be removed.
- (b) Standard SS 9-50 (Drainage of Asphalt Wearing Surface) is to be added.
- (c) The deck is to be machine finished.

* Lynwood Drive Underpass (W.P. 40-74-11)

Foundations

The design complies with the recommendations of the foundation report.

Structure

- (a) Drawing 1: Same comments as for W.P. 40-74-03 (b).
- (b) The Designer is to ensure that the hydro line will not interfere with the erection of the girders.
- (c) Drawing 3 and 4. The feasibility of two vertical construction joints in the abutments was questioned. Expansion joint is recommended between wingwall and retaining wall in lieu of construction joint.
- (d) The deck is to be machine finished.

Special Provisions and D4

The documents are to be updated.

Retaining Walls (W.P. 40-74-06)

Foundations

The design complies with the recommendations of the foundation report.

Structure

Standards are to be updated.

Special Provisions and D4

Documents are to be updated.

No further comments were made and the meeting adjourned at 11:45 a.m.

NZ/im


N. Zoltay,
Structural Contract
Specifications Engineer.

c.c. All present
J. B. Wilkes
R. A. Dorton
C. S. Grebski
K. Bassi
E. Van Beilen
M. R. Ernesaks
S. McCombie
D. E. Thrasher
M. Bernhardt
W. McFarlane