

MEMORANDUM

W.P. 85-59-4.

23-62-216

TO: Mr. A. M. Toye,
Bridge Engineer,
Bridge Division.

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

Attention: Mr. S. McCombie

DATE: June 14, 1965

OUR FILE REF.

IN REPLY TO

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

The Proposed Site of North York Hydro
Transformer Station at Pelmo Crescent
and Gary Drive, Metropolitan Toronto.
District #6 (Toronto)

W.J. 65-F-51 -- W.P. 85-59-4

1. INTRODUCTION:

The Foundation Section has recently carried out a number of borings at the above site. Following is a summary of subsoil conditions at the site, which is located on Pelmo Crescent at the corner of Gary Drive.

2. SOIL CONDITIONS:

About one foot of black organic topsoil covers much of the site, below which lies a layer of firm to hard brown silty clay, with its depth varying from 13 feet to 16.5 feet. On the Plasticity Chart this material is predominantly in the CI zone, and a mechanical analysis shows a grain size distribution of 3% sand, 50% silt, and 47% clay. The range of consistency is fairly wide, since 'N' values as determined from the Standard Penetration tests, ranged from

cont'd. /2 ...

2. SOIL CONDITIONS: (cont'd.) ...

7 to 45 blows/foot, with an average of about 26. The range was from 7 to 16 in boreholes #1 and #5, and between 32 and 45 in boreholes #2, 3, and 4. The natural moisture content ranges from 15% to 25% with an average of about 21%. It is estimated that the undrained shear strength ranges from about 800 - 2,000 lbs./sq.ft. Atterberg Limits, as determined from laboratory tests, were as follows:

Liquid Limit	.....	32 - 48% ,	average	38%
Plastic Limit	.....	18 - 23% ,	average	20%

Below this zone, the subsoil consists of a deposit of stiff to very stiff grey clayey silt, predominantly in the CL zone on the Plasticity Chart, with mechanical analyses giving an average value of 10% sand, 56% silt, and 34% clay. The overall deposit extended to a depth of at least 45 feet below original ground level, to elevation 387.5'. At elevation 413.5' in borehole #1, and elevation 410.0' in borehole #5, this deposit contains a thin seam of sand to sandy gravel, and in borehole #3, between the upper zone of brown silty clay and lower zone of grey clayey silt, lies a 3 feet deep deposit of very stiff to hard sandy silt. The water level was observed at elevation 416.0' in borehole #5. The undrained shear strength is estimated to range from 2,000 - 3,500 lbs./sq.ft., and further physical properties, as determined from field and laboratory tests, are as follows:

cont'd. /3 ...

2. SOIL CONDITIONS: (cont'd.) ...

'N' Values	14 - 25 blows/ft., average = 20
Moisture Content	17 - 22%, average = 20%
Liquid Limit	30 - 41%, average = 33%
Plastic Limit	16 - 21%, average = 19%
Bulk Density	128 - 132 lbs./cu.ft., average = 130
Unconfined Shear Strength	1,228 - 3,485 lbs./sq.ft., average = 2,038

The complete results of all tests are plotted on the borelog sheets attached to this report, and the location of all borings are shown on the accompanying Drawing #65-F-51A.

3. DISCUSSION:

At the present time, there is some uncertainty as to the type of structure to be built, and hence, the type of foundation required at the site. There is some variation, over the site, in the consistency of the upper brown silty clay, which must be taken into account when designing any foundations. Recommendations will be made at a later date when more information is available, and if necessary, further boreholes will be drilled.

cont'd. /4 ...

4. MISCELLANEOUS:

The boring programme was commenced on May 11, 1965, by the Johnston Drilling Company, under the supervision of Mr. Peter McGlone, Project Foundation Engineer, and completed on May 14. The preparation of the report was carried out by Mr. R. Pratt, and reviewed by Mr. K. G. Selby, Senior Foundation Engineer.

We trust the foregoing information will be adequate for your design requirements. Should additional information be required, please feel free to contact our Office.

RP/MdeF
Attach.

K. Y. Lo.
K. Y. Lo,
SUPERVISING FOUNDATION ENGINEER

cc: Messrs. A. M. Toye (2)
H. A. Tregaskes
D. W. Farren
G. K. Hunter (2)
J. C. Thatcher
T. J. Kovich
A. Watt

Foundations Office
Gen. Files

APPENDIX I.

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

To: Mr. A. M. Tove,
Bridge Engineer,
Bridge Division.

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

Attention: Mr. S. McCombie

DATE: June 14, 1965

Our File Ref.

IN REPLY TO

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

The Proposed Site of North York Hydro
Transformer Station at Pelmo Crescent
and Gary Drive, Metropolitan Toronto.
District #6 (Toronto)

W.J. 65-F-51 -- W.P. 85-59-4

1. INTRODUCTION:

The Foundation Section has recently carried out a number of borings at the above site. Following is a summary of subsoil conditions at the site, which is located on Pelmo Crescent at the corner of Gary Drive.

2. SOIL CONDITIONS:

About one foot of black organic topsoil covers much of the site, below which lies a layer of firm to hard brown silty clay, with its depth varying from 13 feet to 16.5 feet. On the Plasticity Chart this material is predominantly in the CI zone, and a mechanical analysis shows a grain size distribution of 3% sand, 50% silt, and 47% clay. The range of consistency is fairly wide, since 'N' values as determined from the Standard Penetration tests, ranged from

2. SOIL CONDITIONS: (cont'd.) ...

7 to 45 blows/foot, with an average of about 26. The range was from 7 to 16 in boreholes #1 and #5, and between 32 and 45 in boreholes #2, 3, and 4. The natural moisture content ranges from 15% to 25% with an average of about 21%. It is estimated that the undrained shear strength ranges from about 800 - 2,000 lbs./sq.ft. Atterberg Limits, as determined from laboratory tests, were as follows:

Liquid Limit	.....	32 - 48% ,	average	38%
Plastic Limit	.....	18 - 23% ,	average	20%

Below this zone, the subsoil consists of a deposit of stiff to very stiff grey clayey silt, predominantly in the CL zone on the Plasticity Chart, with mechanical analyses giving an average value of 10% sand, 56% silt, and 34% clay. The overall deposit extended to a depth of at least 45 feet below original ground level, to elevation 387.5'. At elevation 413.5' in borehole #1, and elevation 410.0' in borehole #5, this deposit contains a thin seam of sand to sandy gravel; and in borehole #3, between the upper zone of brown silty clay and lower zone of grey clayey silt, lies a 3 feet deep deposit of very stiff to hard sandy silt. The water level was observed at elevation 416.0' in borehole #5. The undrained shear strength is estimated to range from 2,000 - 3,500 lbs./sq.ft., and further physical properties, as determined from field and laboratory tests, are as follows:

cont'd. /3 ...

2. SOIL CONDITIONS: (cont'd.) ...

'N' Values	14 - 25 blows/ft., average = 20
Moisture Content	17 - 22%, average = 20%
Liquid Limit	30 - 41%, average = 33%
Plastic Limit	16 - 21%, average = 19%
Bulk Density	128 - 132 lbs./cu.ft., average = 130
Unconfined Shear Strength	1,228 - 3,485 lbs./sq.ft., average = 2,038

The complete results of all tests are plotted on the borelog sheets attached to this report, and the location of all borings are shown on the accompanying Drawing #65-F-51A.

3. DISCUSSION:

At the present time, there is some uncertainty as to the type of structure to be built, and hence, the type of foundation required at the site. There is some variation, over the site, in the consistency of the upper brown silty clay, which must be taken into account when designing any foundations. Recommendations will be made at a later date when more information is available, and if necessary, further boreholes will be drilled.

cont'd. /4 ...

4. MISCELLANEOUS:

The boring programme was commenced on May 11, 1965, by the Johnston Drilling Company, under the supervision of Mr. Peter McGlone, Project Foundation Engineer, and completed on May 14. The preparation of the report was carried out by Mr. R. Pratt, and reviewed by Mr. K. G. Selby, Senior Foundation Engineer.

We trust the foregoing information will be adequate for your design requirements. Should additional information be required, please feel free to contact our Office.



K. Y. Lo,
SUPERVISING FOUNDATION ENGINEER

RP/MdeF
Attach.

cc: Messrs. A. M. Tove (2)
H. A. Tregaskes
D. W. Farren
G. K. Hunter (2)
J. C. Thatcher
T. J. Kovich
A. Watt

Foundations Office
Gen. Files

APPENDIX I.

DEPARTMENT OF HIGHWAYS - ONTARIO

RECORD OF BOREHOLE NO. 1

FOUNDATION SECTION

MATERIALS & TESTING DIVISION

JOB 65-F-51

LOCATION Pelmo & Gary (Hwy 400 S.B. Sta 179+00 132' Lt.)

ORIGINATED BY P. Mc

W. P. 85-59-4

BORING DATE May 13, 1965

COMPILED BY R.P.

DATUM G.S.C.

BOREHOLE TYPE Penndrill

CHECKED BY AK

[illegible]

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

JOB 65-F-51

LOCATION Pelmo & Gary (Hwy 400 S.B. Sta 179+42 164' Lt.)

ORIGINATED BY P.Mc

W.P. 85-59-4

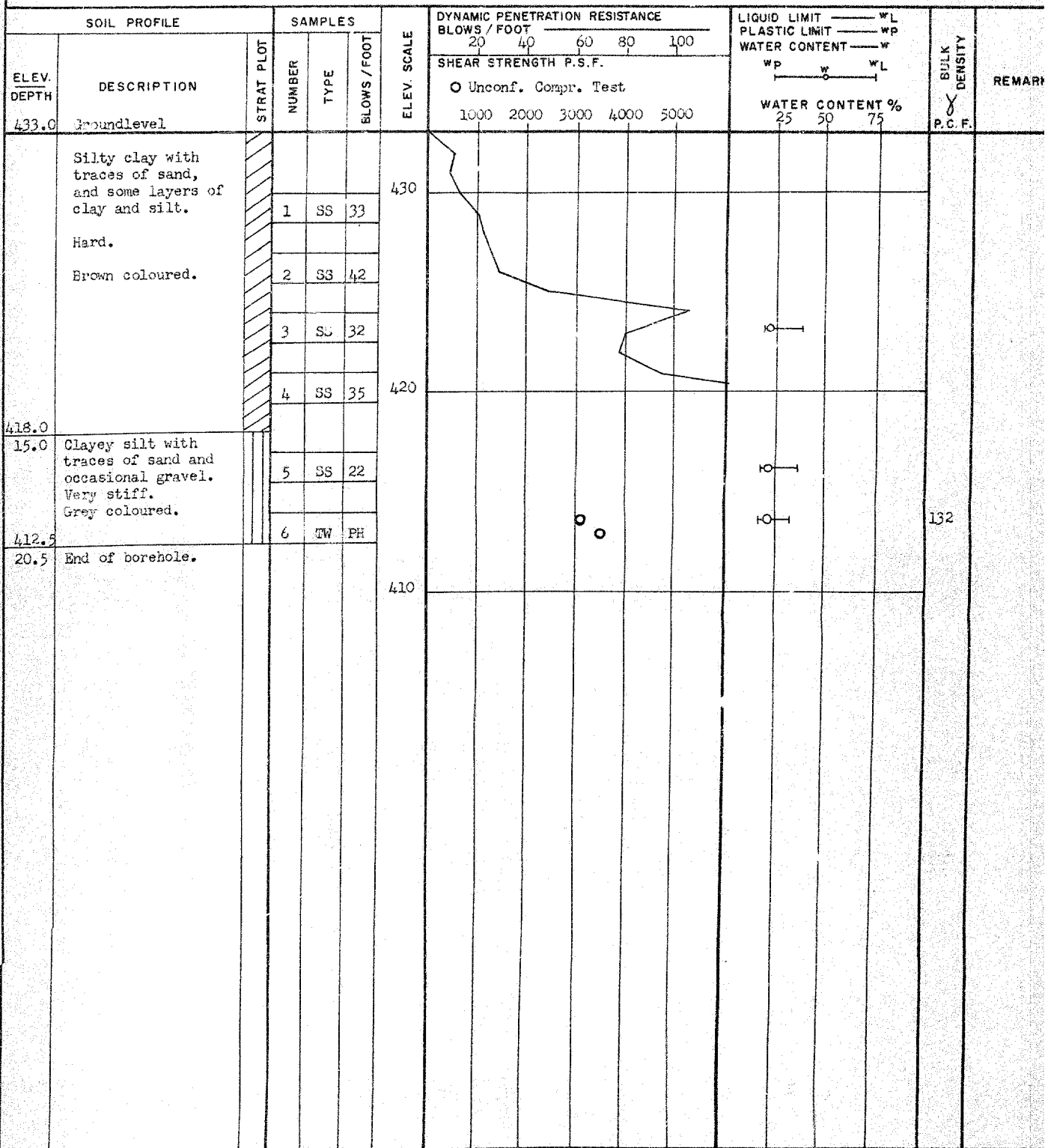
BORING DATE May 13, 1965.

COMPILED BY R.P.

DATUM

BOREHOLE TYPE Penn.drill

CHECKED BY



MATERIALS & TESTING DIVISION

JOB 65-F-51 LOCATION Pelmo & Gary (Hwy 400 S.E. Sta 177+80 214' Lt.) ORIGINATED BY P.Mc
 W.P. 85-59-4 BORING DATE May 14, 1965. COMPILED BY R.P.
 DATUM _____ BOREHOLE TYPE Ferndrill CHECKED BY dl

SOIL PROFILE			SAMPLES			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	BLOWS / FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F.					WATER CONTENT %					
							O Unconf. Compr. Test 1000 2000 3000 4000 5000					WP	W	WL			
426.0	Groundlevel																
	Silty clay with pockets of silt and traces of sand and gravel.		1	SS	35	420											
	Hard.																
	Brown coloured.		2	SS	41												
			3	SS	39												
413.0	Sandy silt.		4	SS	43	410											
13.0	Hard to very stiff																
410.0	Brown coloured.		5	SS	24	400											
16.0	Clayey silt with traces of fine sand and gravel, and some silt pockets. Also present are occasional pockets of sand and gravel. Stiff to very stiff. Grey coloured.		6	TW	PH												
			7	TW	PH												
			8	TW	PH												
390.5			9	SS	14	390											
35.5	End of borehole.																

Ground elevation evaluated from contour lines.

129.5

130

64-3040

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

JOB 65-F-51

LOCATION Pelmo & Gary (Hwy 400 S.B. Sta 177+42 128' Lt.)

ORIGINATED BY P. Mc

W.P. 85-59-4

BORING DATE May 17, 1965.

COMPILED BY R.P.

DATUM

BOREHOLE TYPE

CHECKED BY

SOIL PROFILE			SAMPLES			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	BLOWS / FOOT	ELEV. SCALE		SHEAR STRENGTH P.S.F.				WATER CONTENT % 25 50 75
424.0	Groundlevel											
423.0	Black org. topsoil											
1.0	Silty clay with traces of sand and gravel, pockets of silt, and traces of oxidation.		1	SS	45	420						
	Hard.											
	Brown coloured.		2	SS	40							
						410						
			3	SS	36							
406.5												
17.5	Clayey silt with traces of sand and gravel, and pockets of silt.		4	SS	20							
	Very stiff.					400						
	Grey coloured.		5	SS	18							
392.5			6	SS	18							
31.5	End of borehole.					390						

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 5

FOUNDATION SECTION

JOB 65-F-51 LOCATION Pelmo & Gary (Hwy 400 S.B. Sta 178+29 160' Lt.) ORIGINATED BY P.Mc

W.P. 85-59-4 BORING DATE May 17, 1965. COMPILED BY R.P.

DATUM _____ BOREHOLE TYPE _____ CHECKED BY *dk*

[illegible]

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 7

FOUNDATION SECTION

JOB 65-F-51LOCATION Pelmo & Gary Hwy 400 S.B. Sta. 177/85 177' Lt.ORIGINATED BY R.P.W.P. 85-59-4BORING DATE June 18, 1965.COMPILED BY R.P.DATUM GeodeticBOREHOLE TYPE PennndrillCHECKED BY RP

SOIL PROFILE

SAMPLES

DYNAMIC PENETRATION RESISTANCE
BLOWS / FOOT

LIQUID LIMIT ——— WL

PLASTIC LIMIT ——— WP

WATER CONTENT ——— W

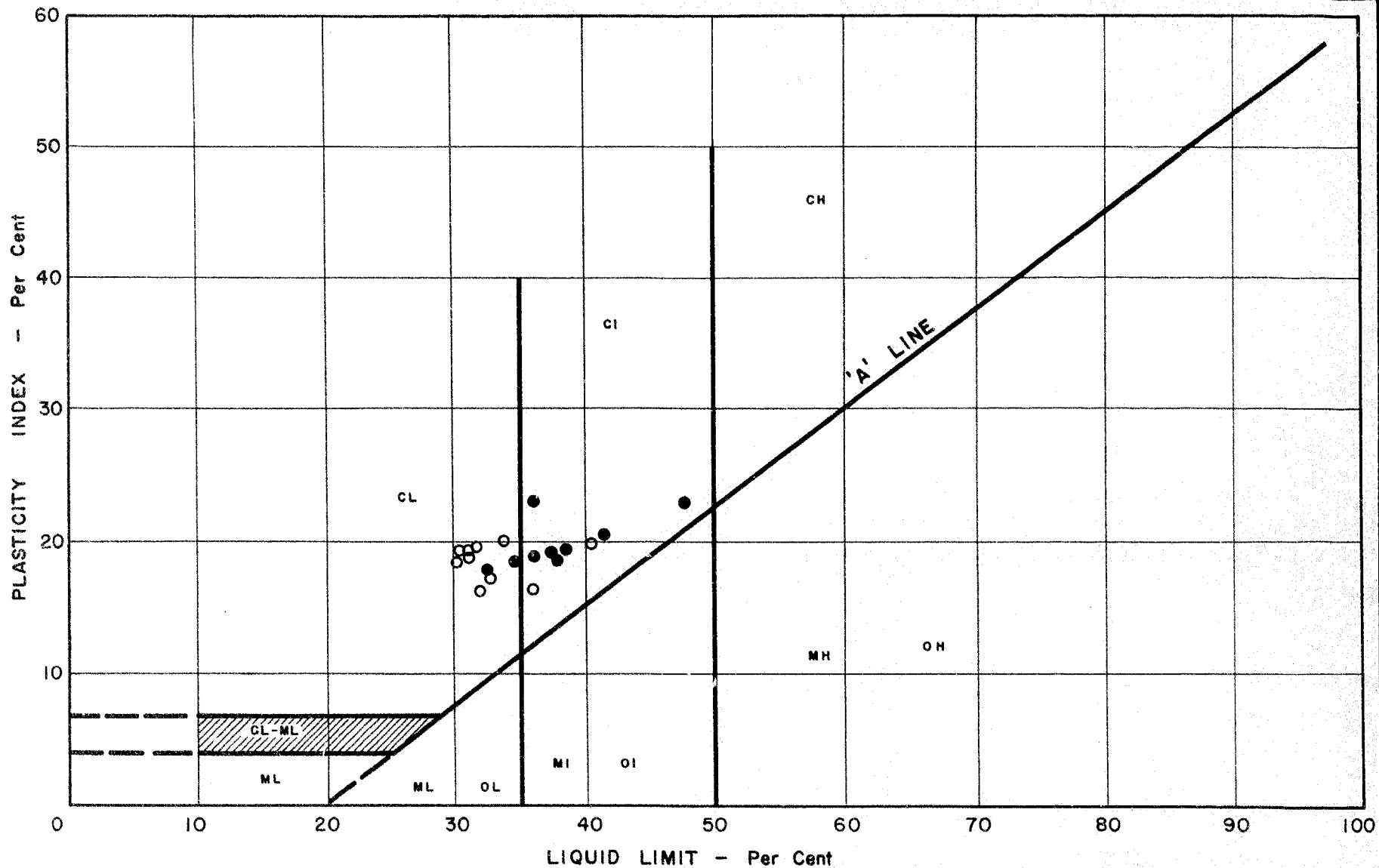
WP ——— WL

WATER CONTENT %

BULK
DENSITY
P.C.F.

REMARKS

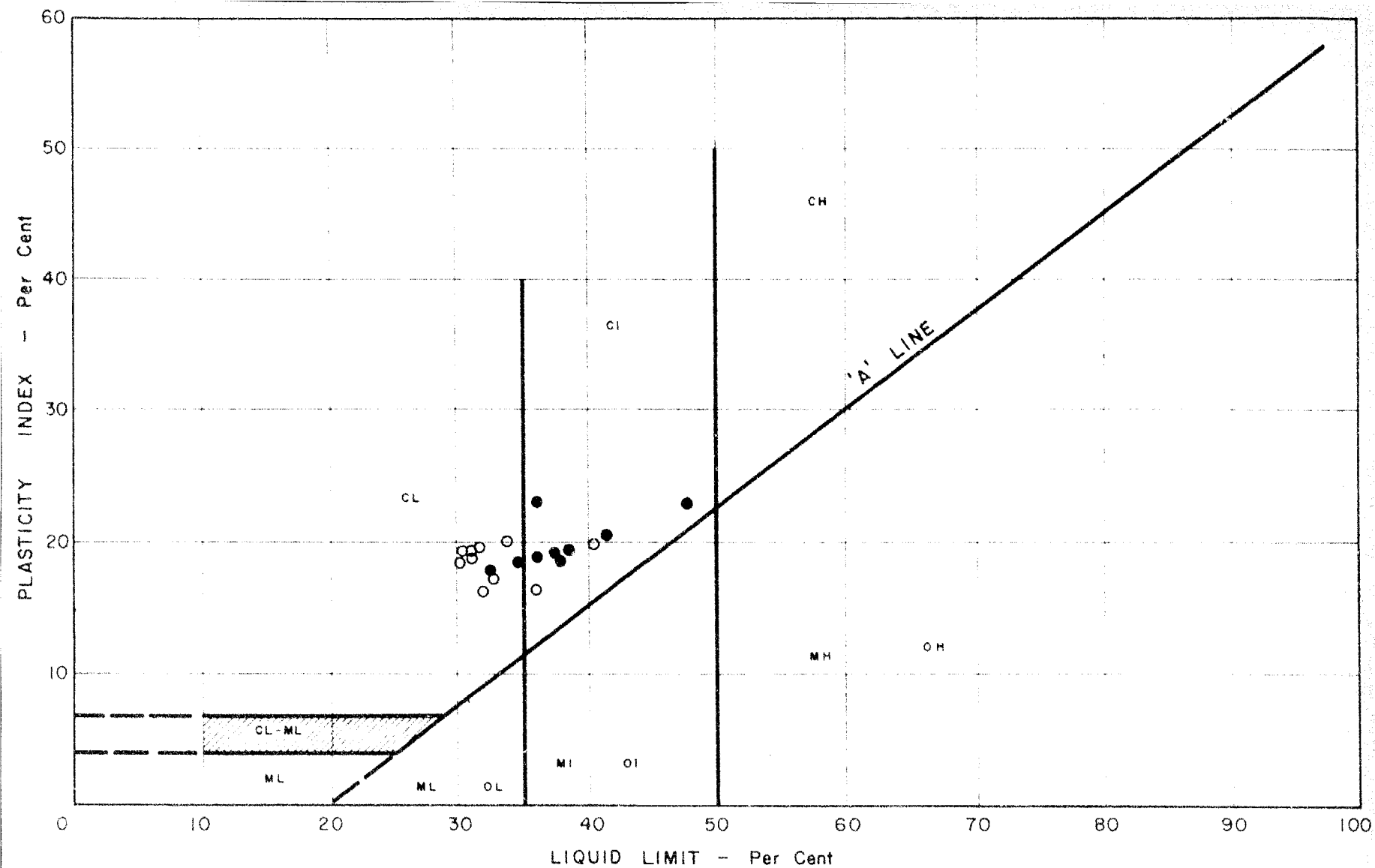
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT	LIQUID LIMIT ——— WL	PLASTIC LIMIT ——— WP	WATER CONTENT ——— W	WP ——— WL	WATER CONTENT %	BULK DENSITY P.C.F.	REMARKS
426.0	Groundlevel													
0.0	Silty clay with traces of sand and gravel. Hard. Brown coloured.		1	SS	32	420								
			2	SS	47									
415.5			3	SS	36									
10.5	End of borehole.					410								



NOTES ● - BROWN CLAY
○ - GREY CLAY

DEPARTMENT OF HIGHWAYS - ONTARIO
 MATERIALS & RESEARCH DIVISION
PLASTICITY CHART

Job No. 65-F-51 W.P. No. 85-59-4
 Location PELMO CRES. & GARY DR. (North York)



NOTES

- - BROWN CLAY
- - GREY CLAY

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION
PLASTICITY CHART

Job No. 65-F-51 W.P. No. 85-59-4
Location PELMO CRES. & GARY DR. (North York)

ABBREVIATIONS USED IN THIS REPORT

PENETRATION RESISTANCE

STANDARD PENETRATION RESISTANCE 'N' - THE NUMBER OF BLOWS 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
$\log_e a$ OR $\ln a$	NATURAL LOGARITHM OF a
$\log_{10} a$ OR $\log a$	LOGARITHM OF a 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

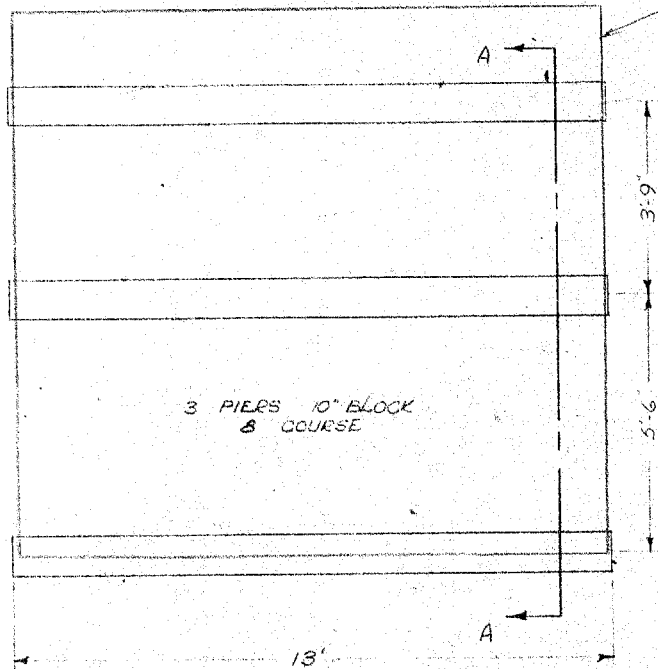
d	DISTANCE FROM TOP OF WALL TO POINT OF APPLICATION OF PRESSURE
δ	ANGLE OF WALL FRICTION
K	DIMENSIONLESS COEFFICIENT TO BE USED WITH VARIOUS SUFFIXES IN EXPRESSIONS REFERRING TO NORMAL STRESS ON WALLS
K_0	COEFFICIENT OF EARTH PRESSURE AT REST

FOUNDATIONS

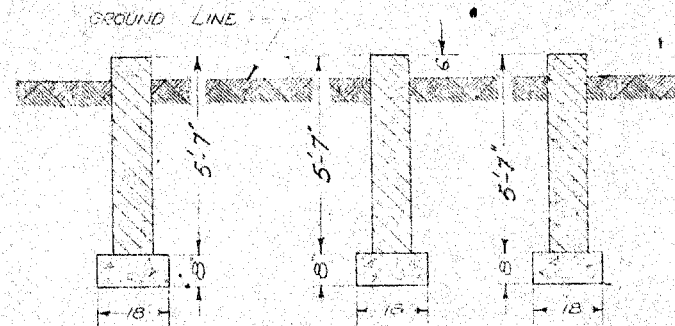
B	BREADTH OF FOUNDATION
L	LENGTH OF FOUNDATION
D	DEPTH OF FOUNDATION BENEATH GROUND
N	DIMENSIONLESS COEFFICIENT USED WITH A SUFFIX APPLYING TO SPECIFIC GRAVITY, DEPTH AND COHESION ETC. IN THE FORMULA FOR BEARING CAPACITY
k_s	MODULUS OF SUBGRADE REACTION

SLOPES

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



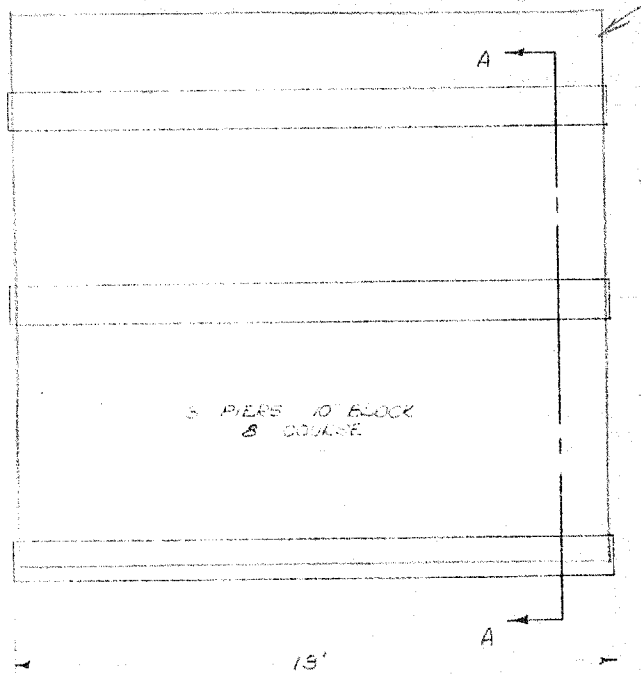
OUTLINE OF SUBSTATION
SWITCHGEAR
WEIGHT - 6000 lbs



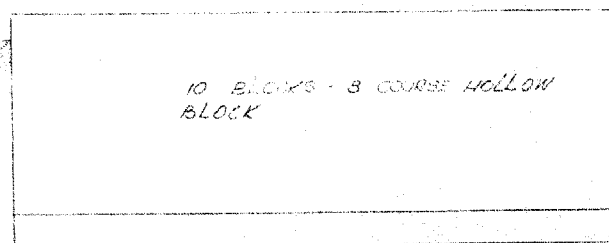
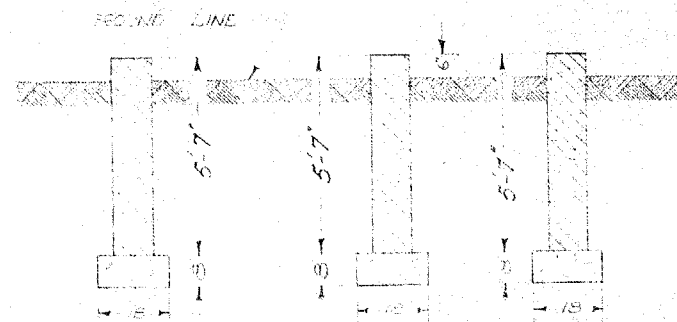
SECTION A-A

10 BLOCKS - 8 COURSE HOLLOW
BLOCK

REVISED HEIGHT OF PIERS, SEPT. 1961		DATE	CHECKED
REVISION		DATE	CHECKED
THE HYDRO ELECTRIC COMMISSION OF THE TOWNSHIP OF NORTH YORK			
SWITCH GEAR PAD FOR PELMO M.S.			
DRAWN R. SIMPSON	CHECKED A.M.	APPROVED [Signature]	DWG. NO.
DATE AUG 17/61	SCALE 3/8" = 1'-0"		SS 20-5



OUTLINE OF SUBSTATION
SWITCHGEAR
WEIGHT - 6000 lbs



REVISED HEIGHT OF PIERS		SEP 14/61	5
REVISION	DATE	CHECK	
THE HYDRO ELECTRIC COMMISSION OF THE TOWNSHIP OF NORTH YORK			
SWITCH GEAR PAD for PELMO M S			
DRAWN R. SIMPSON	CHECKED A. J. J.	APPROVED <i>[Signature]</i>	DWG. NO.
DATE AUG 17/61	SCALE 3/8" = 1'-0"		SS-30

MEMORANDUM

GEN. FILE #3-63-216
W.P. 85-59-4

TO: Mr. A. M. Toye,
Bridge Engineer,
Bridge Division.

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

Attention: Mr. S. McCombie

DATE: June 25, 1965

OUR FILE REF.

IN REPLY TO

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

The Proposed Site of North York Hydro
Transformer Station at Pelmo Crescent
and Gary Drive, Metropolitan Toronto.
District #6 (Toronto)

W.J. 65-F-51 -- W.P. 85-59-4

Further to our report of June 10, 1965, two more boreholes (#6 and #7) have been drilled on the site, at the approximate location of the proposed transformer station shown on Drawing #SK-L-59. Full details are shown on the enclosed borelog sheets.

It is recommended that a safe bearing pressure of up to 2 t.s.f. be applied at, or below, elevation 420.0', and that the foundation should be sufficiently deep to allow for protection against frost action.

Please enclose this memo with your copy(s) of Report W.J. 65-F-51.

K. G. Selby

KGS/MdeF
Attach.

cc: Messrs. A. M. Toye
H. A. Tregaskes
D. W. Farren
G. K. Hunter (2)
J. C. Thatcher
T. J. Kovich
A. Watt




K. G. Selby,
SENIOR FOUNDATION ENGINEER
For:
K. Y. Lo,
SUPERVISING FOUNDATION ENGINEER

Foundations Office
Gen. Files

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 7

JOB 65-F-51LOCATION Pelmo & Gary Hwy 400 S.B. Sta. 178/24 164' Lt.ORIGINATED BY R.P.W.P. 85-59-4BORING DATE June 18th, 1965.COMPILED BY R.P.DATUM GeodeticBOREHOLE TYPE PennndrillCHECKED BY AK

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		SHEAR STRENGTH P.S.F.					Wp ——— WL WATER CONTENT %					
						+ Vane Test 500 1000 1500 2000 2500										
430.0	Groundlevel					420										
0.0	Silty clay with traces of sand and gravel.		1	SS	16					+ →	2000					
	Stiff to very stiff.		2	SS	13					+ →	2000					
	Brown coloured.		3	SS	13					+ →	2000					
			4	SS	30					+ →	2000					
			5	SS	21											
412.25			6	SS	17	410										
17.75	Clayey silt with traces of sand, gravel, and pockets of silt.		7	SS	15					+ >	2000					
	Grey coloured.		8	SS	13					+ S=	1.45					
	Stiff to very stiff.		9	SS	9		400									
			10	SS	11						+ S=	2.09				
393.5						390										
36.5	End of borehole.									+ S=	2.08					

#65-F-51

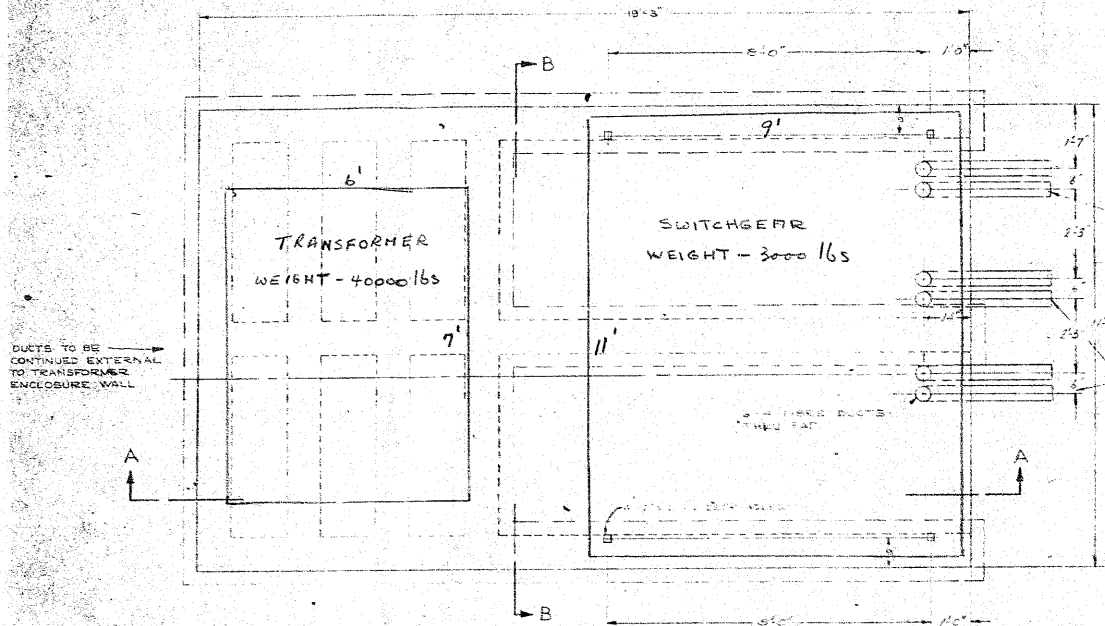
W.P. #85-59-4

HWY. #400

PELMO CRES.

& GARY DRIVE

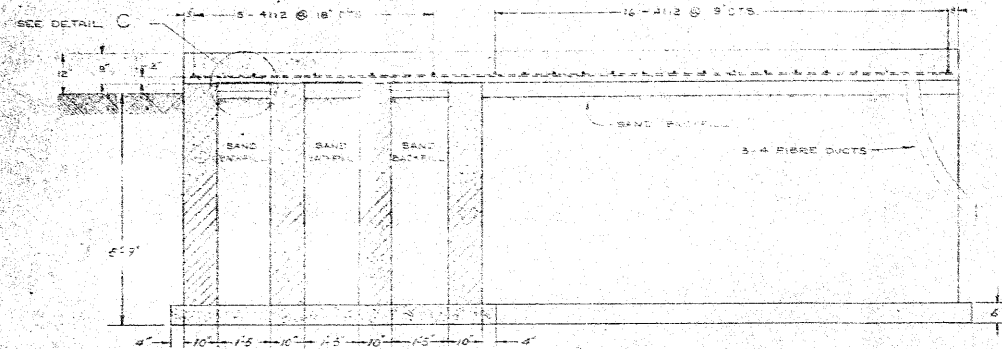
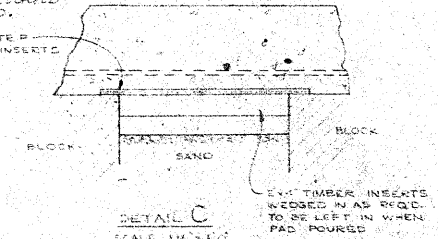
BILL OF REINFORCING					
NO	REQD	SIZE	MARK	LENGTH	DETAILS
7	1/2 #	479	7-9	STRAIGHT	
21	1/2 #	4112	11-2	STRAIGHT	
8	1/2 #	4181	16-11	STRAIGHT	



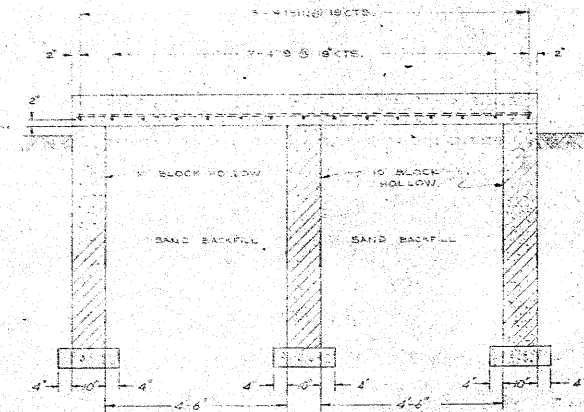
END TO BE PLUGGED AND CAPPED.

1/2 PLYWOOD STEP NAILED TO 2x4 INSERTS

END TO BE PLUGGED AND CAPPED.

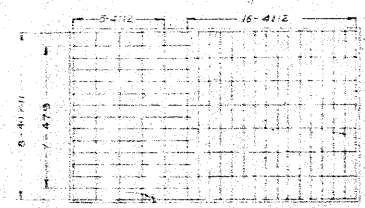


SECTION A-A



SECTION B-B

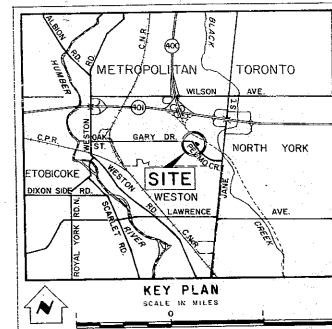
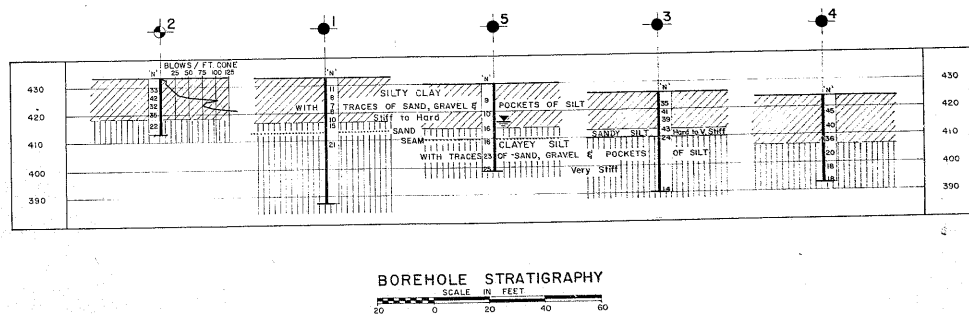
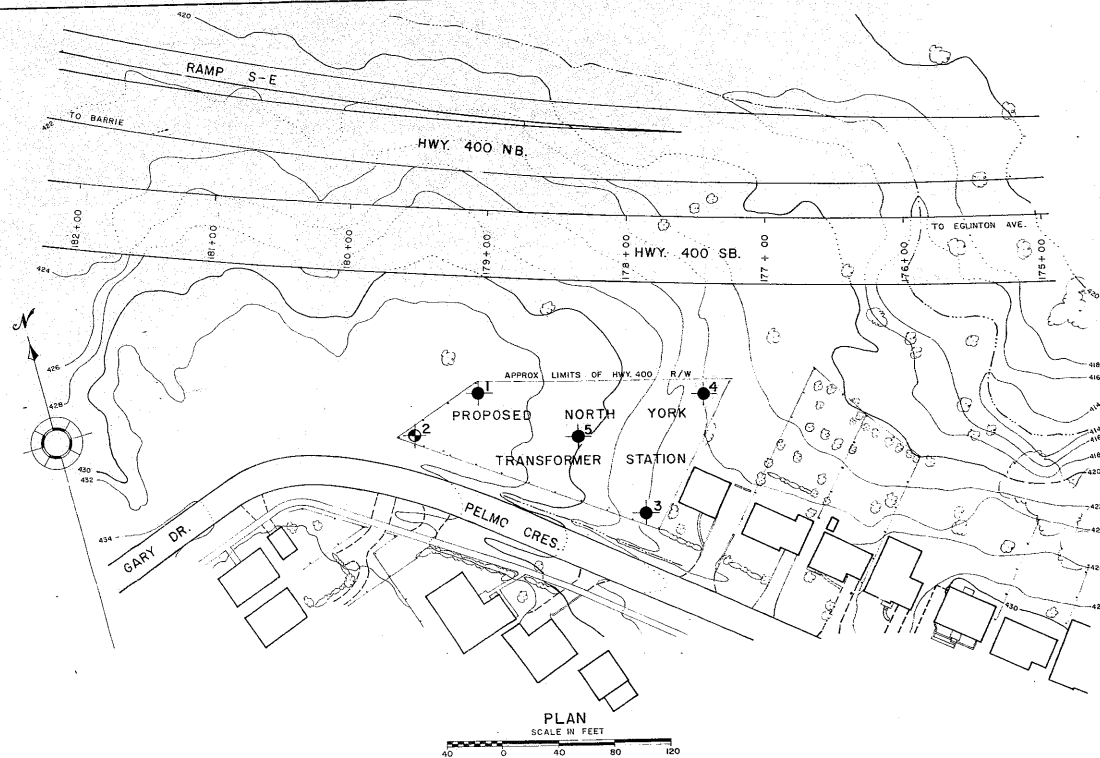
PAD USED AT DIMEY







REINFORCING DETAILS SCALE 3/4" = 1'-0"

THE HYDRO ELECTRIC COMPANY OF THE TOWNSHIP OF			
PLAN OF TYPICAL FOR 1/2 INCH DIA			
DRAWN	CHECKED	DATE	SCALE
D. W. H. H. H.		1/1/68	1/2" = 1'-0"
CHANGED SECTION V.P. & B. MADE CHANGE TO TOP VIEW	SEEN SO	DATE	CHECKED
REVISION			

SOME DEFECTS IN NEGATIVE DUE TO CONDITION OF ORIGINAL DOCUMENTS



LEGEND			
	Bore Hole		
	Cone Penetration Hole		
	Bore & Cone Penetration Hole		
	Water Levels established at times of field investigation: 17 May, 1965		
NO.	ELEVATION	HWY. N° 400 S.B.	STATION OFFSET
1	433-0	179 +00	132' L.
2	433-0	179 +42	164' L.
3	426-0	177 +80	214' L.
4	424-0	177 +42	128' L.
5	430-0	178 +29	160' L.

- 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.

[illegible]

DEPARTMENT OF HIGHWAYS - ONTARIO			
MATERIALS & TESTING DIVISION - FOUNDATION SECTION			
PROPOSED NORTH YORK TRANSFORMER STATION			
KING'S HIGHWAY NO.		DIST. NO. 6	
CO. YORK		PELMO. CRES.	METRO. TORONTO
TWP. NORTH YORK		LOT	CON.
BORE HOLE LOCATIONS & SKETCH STRATA			
DRAWN P.L.M.	CHECKED / /	WP. NO. 85-59-4	W.A.'S DRAWING NO.
SUBV. G.D.	CHECKED / /	JOB NO. 65-F-51	65-F-51A
DATE 12/7/65		SITE NO.	BRIDGE DRAWING NO.
APPROVED		CONT. NO.	