

Mr. A. Toye,

August 15, 1957.

Bridge Engineer.

Materials & Research Section.

Foundation Report -
Reg. No. 401 and Road Allowance
between Conc. 1 & 2, Toronto Twp.
W.P. 73-57 W.J. F 57-14

We are forwarding herewith two copies of the above mentioned Foundation Report. The subsoil conditions consist of a fairly dense till and spread footing foundations for the structure will be satisfactory. The approach fills do not present any subsoil stability problems.

F. C. Brownridge,
MATERIALS & RESEARCH ENGR.

Per:



AR/MSF
Attach.

(A. Rutke,
Principal Soils Engr.)

cc: Messrs. H. Tregaskes
D. G. Ramsay
J. E. Wilkes

Foundation Section ✓
File

FOUNDATION REPORT

ON

Overpass Bridge at Highway 401 crossing
Road Allowance (Den. I and II), two
miles east of Meadowdale.

Site Plan: P-352209
Station: 397+37.68

Distribution

Mr. A. Foye
Bridge Engineer (2)

Mr. H. Krogaske
Construction Engineer (1)

Mr. A. C. Ramsay
Design Engineer (1)

Mr. J. B. Silken
Dist. Eng. Toronto (1)

Foundation Section (1)

File (1)

B.P. 73-57
C.D. P-57-14

INTRODUCTION

An investigation was carried out to determine the bearing values of the subsoil for supporting the foundations of the proposed structure.

The location is some 2 miles east of Meadowvale, where the new Highway 401 crosses the road allowance between concessions I W and II, Township of Toronto, County of Peel, (Profile No. P-3522-2, Station 397+37.68).

The work started on June 5, 1957 and was completed on June 10, 1957.

PROCEDURE

The investigation was carried out by means of a skid mounted coredrill machine. In the course of investigations 2 boreholes with dynamic penetrations and 2 separate dynamic cone penetration tests were made.

Boreholes No. 1 and 4 were located at the north side, and No. 2 and 3 were located at the south side of the proposed Hwy. 401 centre line.

The locations of the boreholes are shown in drawing No. P57-14A and their logs under Appendix I.

SUBSOIL FINDINGS AND ANALYSIS

The terrain is till plain. The subsoil investigations revealed the stratigraphy as hard bouldery clay till. Down to elevation about 608 ft. the till is brown and below that it has grey colour.

The samples extracted from the boreholes were tested in the laboratory. The test results showed the average values for liquid limit 22%, plastic limit 14%, natural moisture content 13%, and density p.c.f. The soil is inorganic clay of low plasticity. Some unconfined compression tests were attempted but the gravelly nature

of the soil makes the results unreliable. The standard penetration results have confirmed the very hard nature of the layer.

In the boreholes some infiltration water was detected. However, the indications are that the layer is impervious.

The above findings will qualify the layer for supporting spread footing foundations. For this purpose at elevation about 614 ft. the layer can provide 2.5 T.s.f. of bearing value with a safety factor of 3.

CONCLUSIONS AND RECOMMENDATIONS

From the above discussion it will follow that:

1. The terrain is till plain. The subsoil is hard bouldery clay till, as such it is suitable for supporting spread footing foundations.
2. It will be convenient to support the proposed structure on spread footing foundations placed at elevation about 614 ft. At this elevation the soil can provide a bearing value of 2.5 T.s.f. with a safety factor of 3.
3. The approach fills do not present any stability problem.

V. Korlu
Foundation Engineer

APPENDIX I

DEPARTMENT OF HIGHWAYS - ONTARIO
 MATERIALS & RESEARCH BRANCH - FOUNDATIONS SECTION - DOWNSVIEW
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 54-2 OPERATION PENETRATION
 CASING BX (standard samplers to fit unless noted)
 SAMPLER HAMMER WT. 250 LBS. DROP 26 INCHES

JOB F-57-10 WP 73-57 BORING 2 STA. 397+08.5 (38' LT.)
 DATUM GEODETIC DATE REPORT JUNE 1957
 COMPILED BY H.S. CHECKED BY A.L. DATE BORING 7 JUNE 1957

ABBREVIATIONS

V - INSITU VANE SHEAR TEST Q - TRIAXIAL QUICK K - PERMIABILITY
 M - MECHANICAL ANALYSIS S - TRIAXIAL SLOW C - CONSOLIDATION
 U - UNCONFINED COMPRESSION WL - WATER LEVEL IN CASING CA - CASING
 Q_c - TRIAXIAL CONSOLIDATED QUICK WT - WATER TABLE IN SOIL γ - UNIT WEIGHT

SAMPLE TYPES

C.S. - CHUNK
 D.O. - DRIVE OPEN
 D.F. - DRIVE FOOT VALVE
 T.O. - THIN WALLED OPEN
 S.S. - SLEEVE SAMPLE
 P.S. - PISTON SAMPLE
 W.S. - WASHED SAMPLE
 R.C. - ROCK CORE

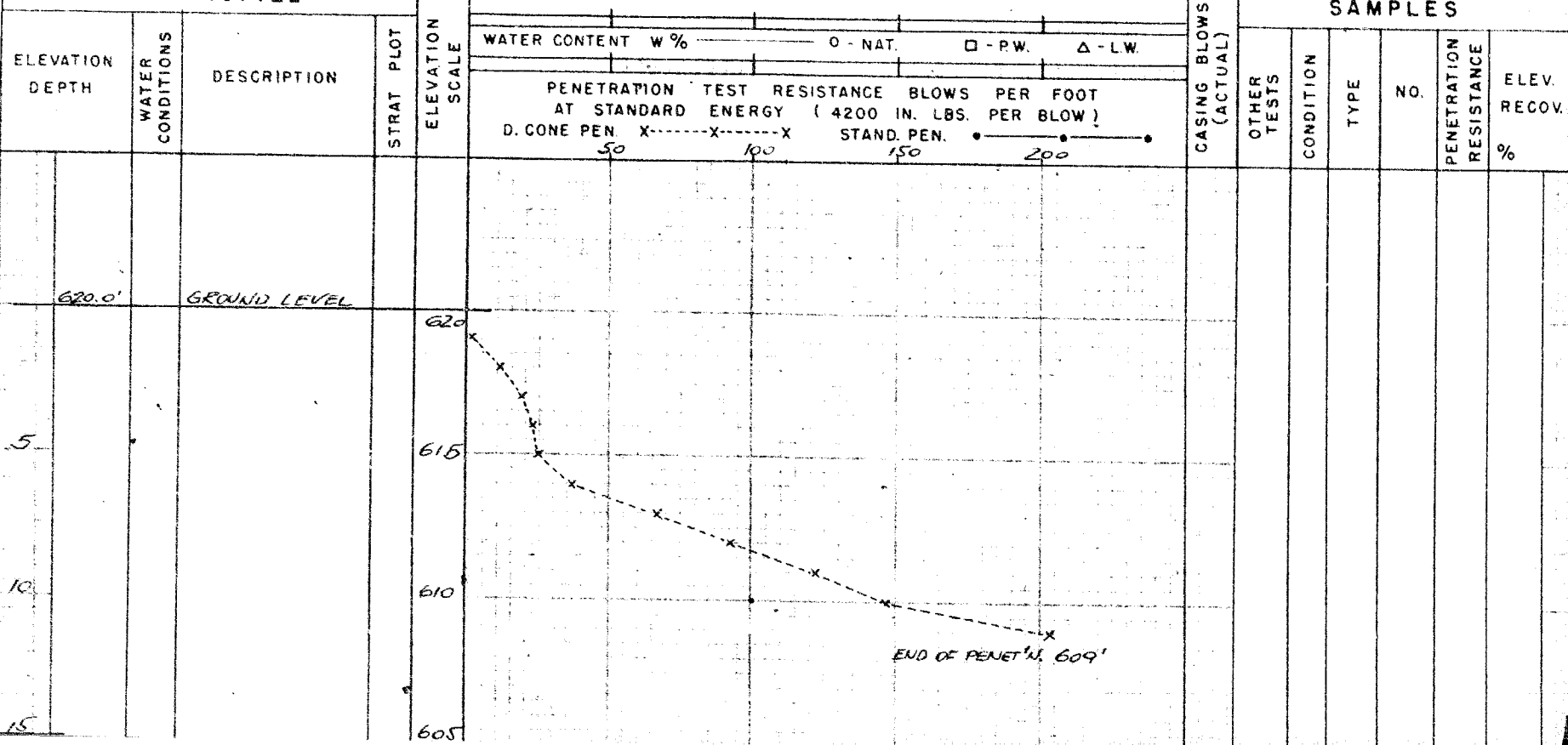
SAMPLE CONDITION



- DISTURBED
 - FAIR
 - GOOD
 - LOST

SOIL PROFILE

SAMPLES



DEPARTMENT OF HIGHWAYS - ONTARIO
 MATERIALS & RESEARCH BRANCH - FOUNDATIONS SECTION - DOWNSVIEW
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 54-2 OPERATION BORE & PENET'N JOB F-57-14 WP 73-57 BORING 3 STA 397+52 (43' LT.)
 CASING 8X (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT JUNE 57
 SAMPLER HAMMER WT. 250 LBS. DROP 26 INCHES COMPILED BY H.S. CHECKED BY A.L. DATE BORING 3 JUNE 57

ABBREVIATIONS

V - INSITU VANE SHEAR TEST Q - TRIAXIAL QUICK K - PERMIABILITY
 M - MECHANICAL ANALYSIS S - TRIAXIAL SLOW C - CONSOLIDATION
 U - UNCONFINED COMPRESSION WL - WATER LEVEL IN CASING CA - CASING
 Qc - TRIAXIAL CONSOLIDATED QUICK WT - WATER TABLE IN SOIL γ - UNIT WEIGHT

SAMPLE TYPES

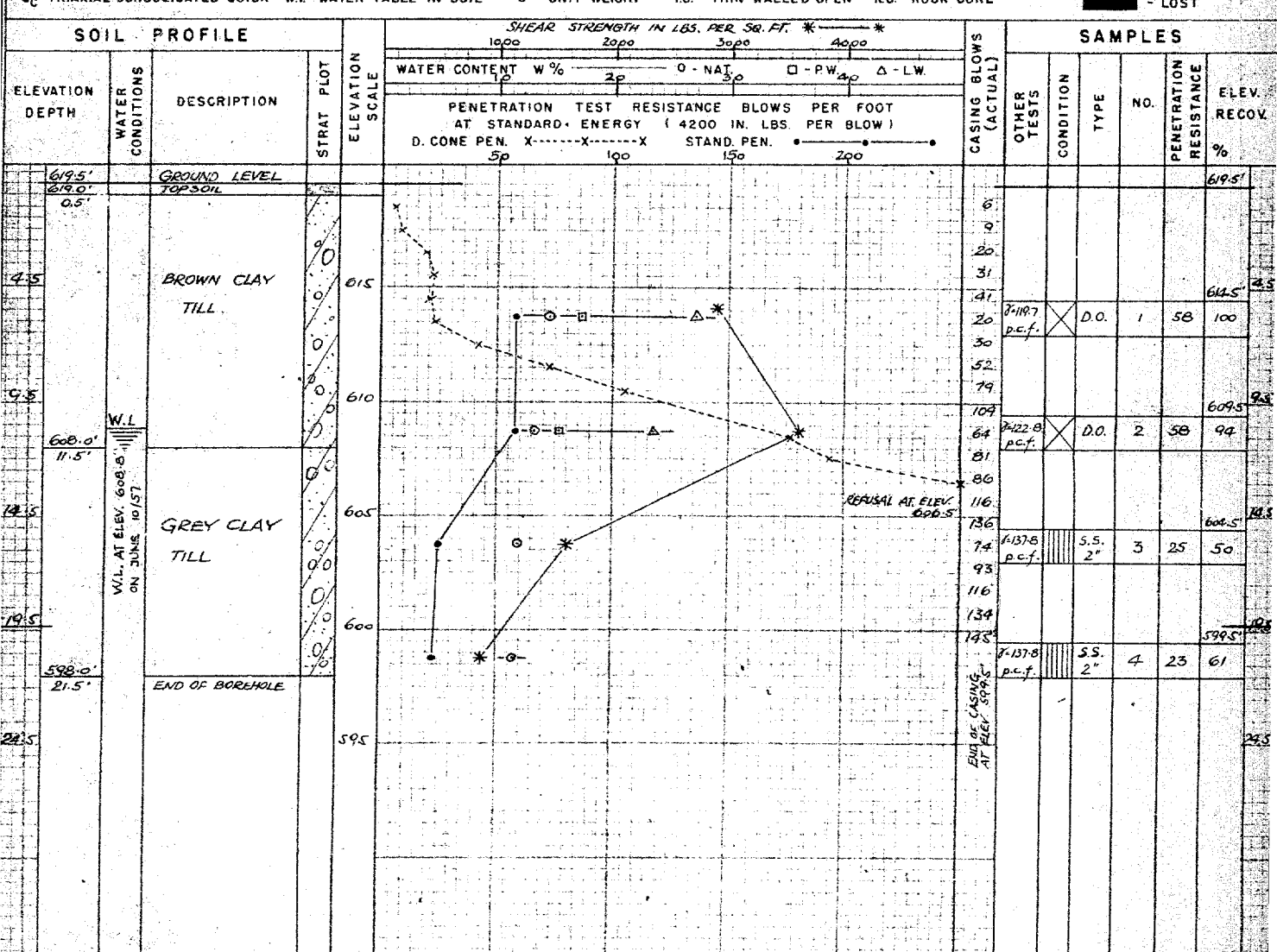
C.S. - CHUNK S.S. - SLEEVE SAMPLE
 D.O. - DRIVE OPEN P.S. - PISTON SAMPLE
 D.F. - DRIVE FOOT VALVE W.S. - WASHED SAMPLE
 T.O. - THIN WALLED OPEN RC - ROCK CORE

SAMPLE CONDITION



- DISTURBED
 - FAIR
 - GOOD
 - LOST

SOIL PROFILE



DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH BRANCH - FOUNDATIONS SECTION - DOWNSVIEW
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG 54-2 OPERATION PENETRATION JOB F-57-14 WP 73-57 BORING 4 STA. 397+84 (40.6' RT)
CASING 8X (standard samplers to fit unless noted) DATUM GEODETTIC DATE REPORT JUNE 1957
SAMPLER HAMMER WT. 250 LBS. DROP 26 INCHES COMPILED BY H.S. CHECKED BY A.L. DATE BORING 10 JUNE 1957

ABBREVIATIONS

V - INSITU VANE SHEAR TEST Q - TRIAXIAL QUICK K - PERMIABILITY
M - MECHANICAL ANALYSIS S - TRIAXIAL SLOW C - CONSOLIDATION
U - UNCONFINED COMPRESSION WL - WATER LEVEL IN CASING CA - CASING
Q_c - TRIAXIAL CONSOLIDATED QUICK WT - WATER TABLE IN SOIL γ - UNIT WEIGHT

SAMPLE TYPES

CS - CHUNK SS - SLEEVE SAMPLE
DO - DRIVE OPEN PS - PISTON SAMPLE
DF - DRIVE FOOT VALVE WS - WASHED SAMPLE
TO - THIN WALLED OPEN RC - ROCK CORE

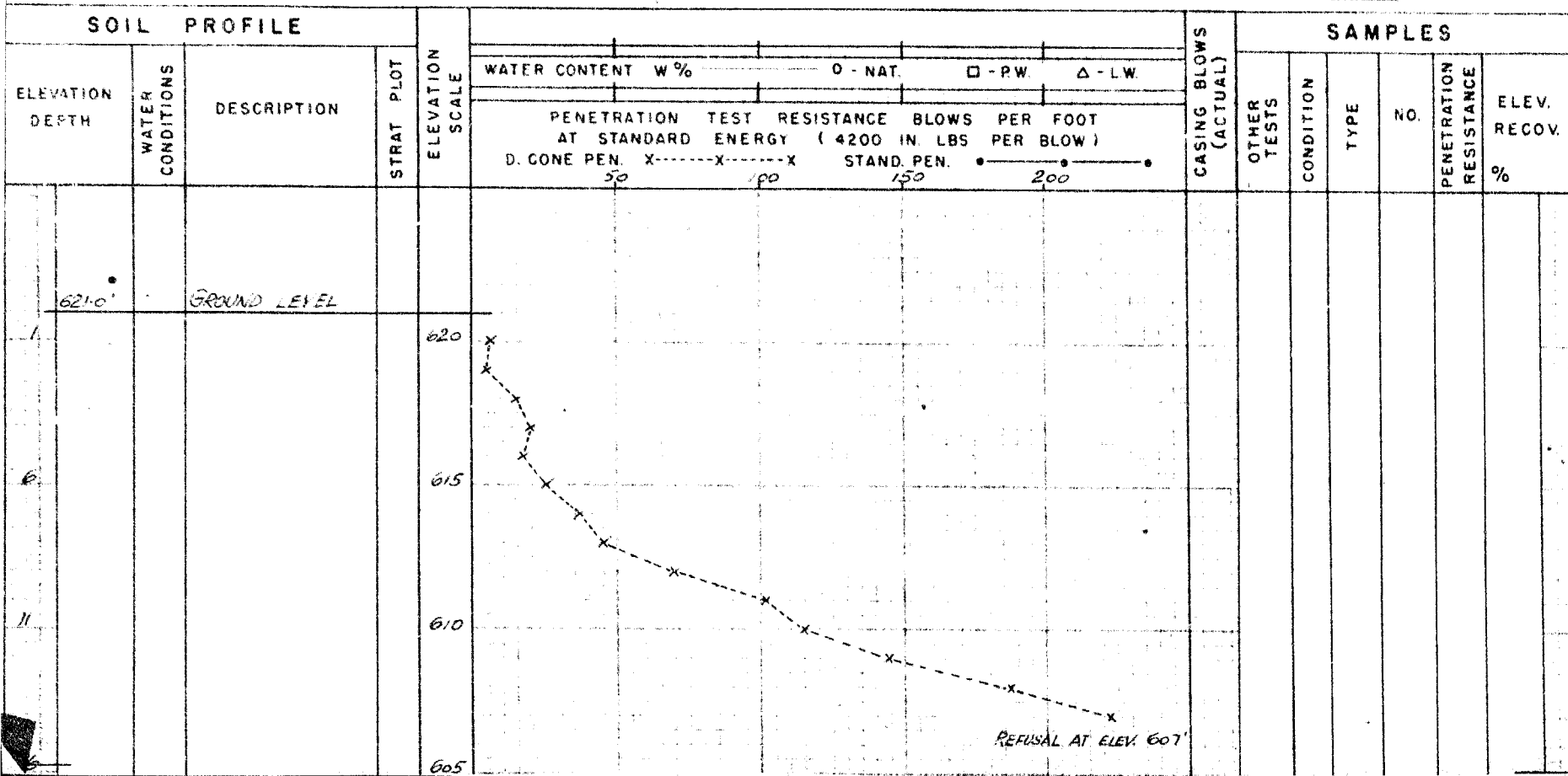
SAMPLE CONDITION



- DISTURBED
- FAIR
- GOOD
- LOST

SOIL PROFILE

SAMPLES





BA 633

DEPARTMENT OF HIGHWAYS

Memo to Mr. A. Toye, Date August 15, 1957.
Bridge Engineer. Subject _____
From Materials & Research Section. _____

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F. C. Brownridge,
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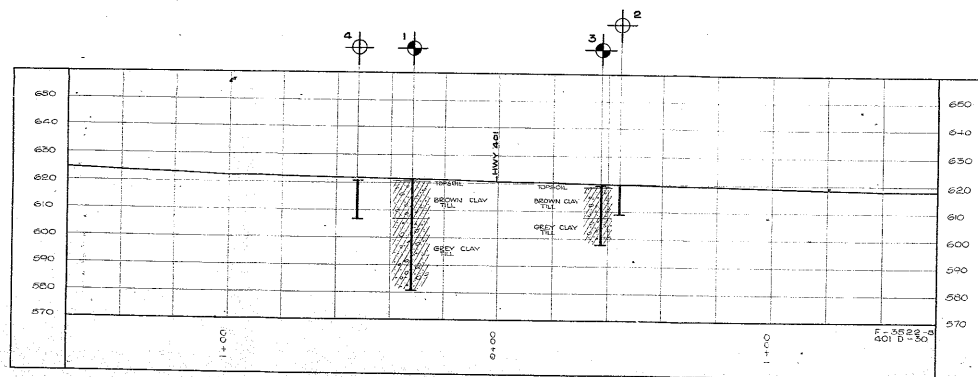
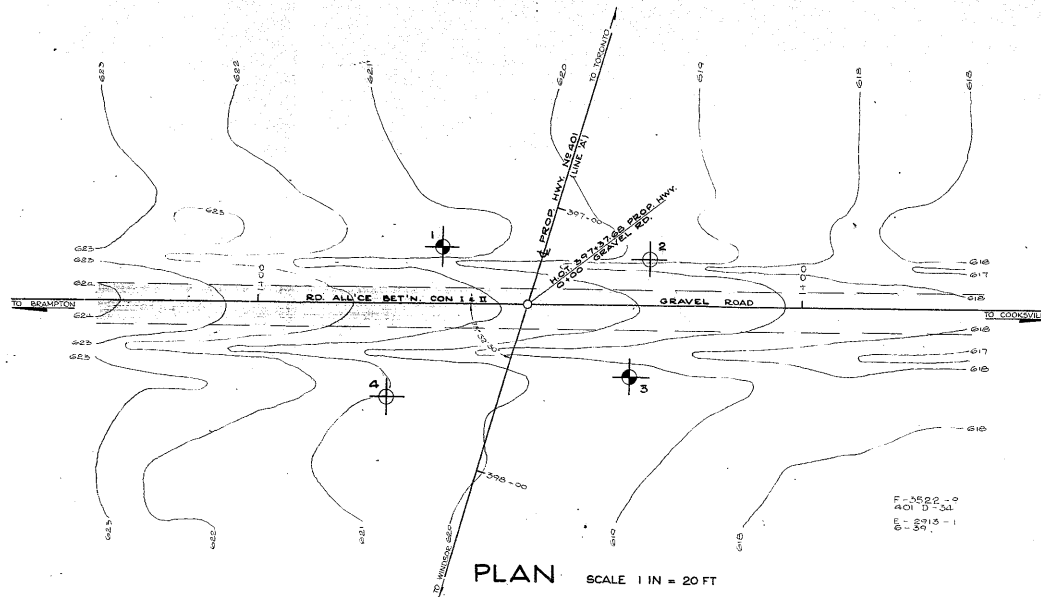
AR/MdeF
Attach.

cc: Messrs. H. Tregaskes
D. G. Ramsay
J. B. Wilkes

Foundation Section
File

57-F-14
W.P.# 73-57
Hwy.# 401
CON.# 1 W.# 2
2 MILES E. OF
MEADOWVALE





LEGEND			
BORE HOLE			
PENETRATION HOLE			
BORE & PENETRATION HOLE			
BORE NO.	ELEVATION	STATION	DISTANCE FROM 401 E
1	621.3	397+26	56' RT
2	630.0	397+05	38' LT
3	619.5	397+52	43' LT
4	621.0	397+84	40.6' RT

— 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.

DEPARTMENT OF HIGHWAYS - ONTARIO - MATERIALS & RESEARCH SECTION - DOWNSVIEW			
GRAVEL ROAD PROPOSED CROSSING 1.5 MILES E. OF MEADOWVALE			
THE KING'S HIGHWAY No. 401 [LINE A]		DRW. No. 6	
CO. PEEL		TWP. TORONTO LOT 7 CON. I.W. & II	
POSITION & ELEVATION OF HOLES			
APPROVED			
ENGINEER		CHIEF ENGINEER	
DESIGN	CHECK	CONTRACT	W.P.
D.F.	CHECK	75-57	
TRACING	CHECK	DATE	DATE
JULY 11, 1987			F-57-14 A