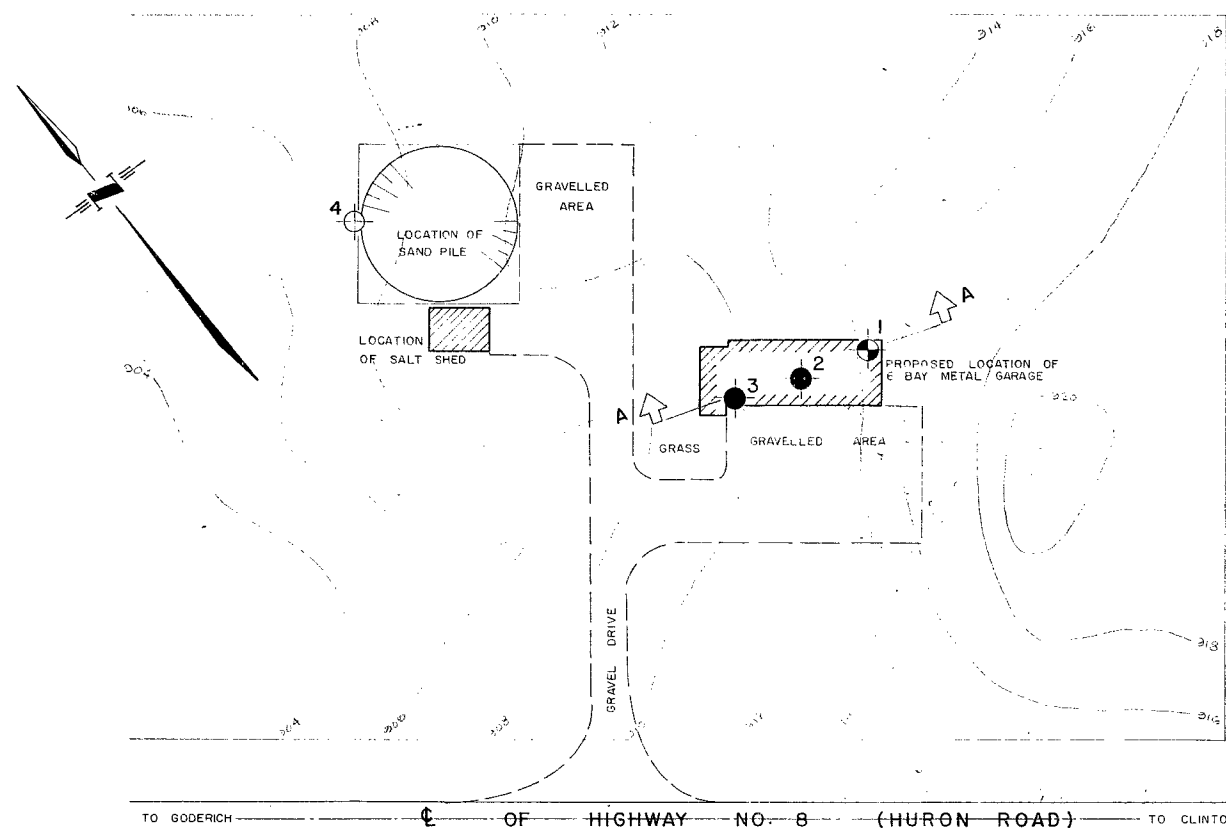
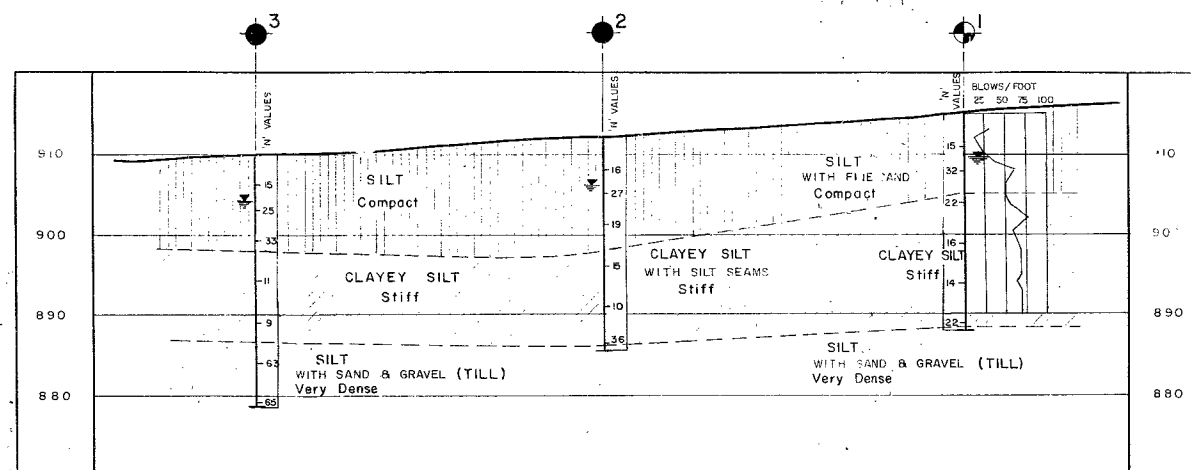


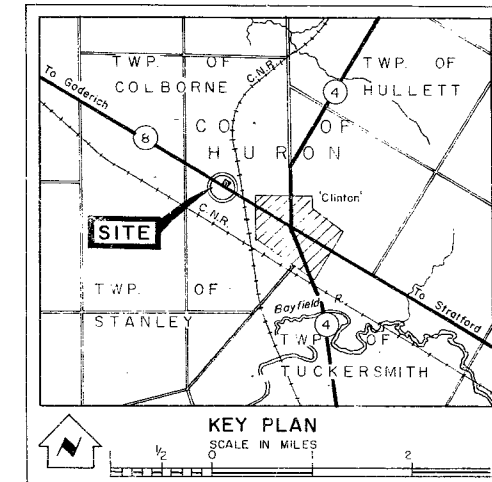
#  
62-F-74  
Hwy #8  
CLINTON  
PATROL YARD



PLAN  
SCALE IN FEET  
50 25 0 50 100 150



A - A  
SCALE IN FEET  
10 5 0 10 20 30



#### LEGEND

- Bore Hole
- ⊕ Cone Penetration Hole
- ⊕ Bore & Cone Penetration Hole
- Water Levels established at time of field investigation, June 28, 1962.

NO.	ELEVATION	STATION	OFFSET
1	915		
2	912		
3	910		
4	907		

#### 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

CLINTON PATROL YARD

ORIGINATED T. WIDDIS	DISTRICT NO. 3	DATE JULY 25, 1962
DRAWN F. CLARK	W.P. NO. —	JOB NO. 62-F-74
CHECKED [Signature]	CONT. NO.	DRAWING NO.
APPROVED [Signature]		62-F-74A

list. 28-2.



ONTARIO  
DEPARTMENT OF HIGHWAYS

Memo to Mr. F. E. Cavell,  
Superintendent,  
Special Services Section. Date July 19, 1962.  
Subject D.H.O. FOUNDATION INVESTIGATION  
REPORT.  
From Materials & Research Division. W.J. 62-F-74 -- W.P. (Nil).  
(Foundation Section).

RE: PROPOSED PATROL YARD ON HWY. #8 AT CLINTON, LOT 22,  
HURON ROAD CONCESSION, TWP. OF GODERICH, DIST. #3.

It is proposed to construct a D.H.O. patrol yard on Hwy. #8 at Clinton. For design purposes, a foundation investigation of the site was requested by the Special Services Section in a memo dated June 18th, 1962.

To determine the subsoil conditions at the site, three sampled boreholes and two dynamic cone penetration tests were carried out using a small core drill. The locations and elevations of these boreholes, together with the inferred stratigraphical profile, are shown on drawing #62-F-74A, which also shows the proposed layout of the patrol yard.

The subsoil at the site consists of a layer of compact yellow silt varying in thickness from 10 feet in B.H. 1 to 14 feet in B. H. 2. An average penetration

cont'd. /2...

resistance 'N' value for this layer is 20. Underlying the silt is a stratum of stiff clayey silt varying in thickness from 11 feet in B. H. 3 to 16 feet in B. H. 1. An average penetration resistance for this material is 14. Beneath this clayey silt is a layer of very dense silt containing sand and gravel with an average penetration resistance of 58.

The water levels as recorded in the boreholes at the time of the investigation, are plotted on the drawing.

It is recommended that the garage be placed on spread footings placed in the compact silt with a safe design load of 1 ton per sq. ft.

The footings should be placed beneath the maximum depth of frost penetration in the ground.

Dewatering of the excavation during construction should not prove to be a problem.

For all service roads, parking lots and other areas to be paved or gravelled, the topsoil should be removed and replaced with 18 inches of G.B.C. class B and topped with 6 inches of G.B.C. class A.

Surfacing material for the roadways and parking areas should consist of a 3-inch layer of H.L. 4. The field work performed during the period from June 27, 1962 to June 29, 1962 together with the preparation of this report, was undertaken

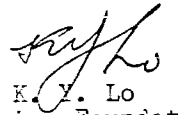
cont'd. /3...

by Mr. T. F. Widdis. The investigation was carried out under the general supervision of Mr. M. Devata, who reviewed this report.

We trust that these recommendations are sufficient for your design work. However, should there be any additional questions you would like to discuss, please feel free to call on our Office.

KVL/tt

cc: Messrs. F. E. Cavell (4)  
H. A. Tregaskes  
H. D. McMillan  
L. D. Barrett  
J. Roy  
T. J. Kovich  
J. E. Grusnier  
E. R. Saint  
F. Norman  
Foundation Office  
Gen. Files

  
K. Y. Lo

Supervising Foundation Engr.

For:  
A. G. Stermac  
Principal Foundation Engr.

APPENDIX A.

March 4th, 1957.

MEMO TO: Mr. A. Tove  
Bridge Engineer

FROM: F. C. Brownridge  
Per: A. Rutka

Re: Foundation Report  
Highway #24, Erin Creek  
Station 560+00  
W.P. 951-56 W.J. F-57-1

We are submitting herewith two copies of the above mentioned foundation report.

Satisfactory subsoil conditions were found for a spread footing foundation and this is recommended. The consultants who are preparing the structure design have briefly reviewed the soil's information in our office.

AR:JA  
Encl.

F. C. Brownridge  
MATERIALS & RESEARCH ENGINEER

Per:

*A. Rutka*  
A. Rutka

PRINCIPAL FIELD ENGINEER

C. C. to: Mr. H. Frankies  
Mr. J. C. Canney  
Mr. F. E. Whitely  
Foundation Section ✓  
File

FOUNDATION REPORT

on

New Bridge at Highway No. 24  
Crossing Erin Creek  
1½ miles east of Erin

Site Plan No: E-3209-1

Station: 540/00

Distribution:

Mr. A. Toye,  
Bridge Engineer (2)

Mr. W. Tregaskes  
Construction Engineer (1)

Mr. D. G. Ramsay,  
Design Engineer. (1)

Mr. F. B. Whiteley,  
District Engineer, (1)  
Owen Sound, Ontario.

Foundation Section (1)

File (1)

W.F. 551-56

W.J. F-57-1



New Bridge at Hwy. No. 24  
Crossing Erin Creek  
1 1/2 miles east of Erin

INTRODUCTION:

A subsoil investigation was carried out to determine the bearing values of layers for supporting the foundations of a proposed new bridge.

The location is about 1.5 miles east of Erin, where Highway No. 24 crosses the creek, (profile No. C-843, Station 560/00).

The work started on 14 January 1957 and was completed on 25 January 1957.

PROCEDURE:

The subsoil investigation was carried out by means of a skid mounted core drill machine. Two boreholes were made on the eastern side and one borehole was made on the western side.

The locations and elevations of the boreholes are shown in Drawing No. F-57-1A, and their logs under Appendix I.

SUBSOIL FINDINGS AND ANALYSIS:

The terrain is referred to as Orangeville Moraine; one of the several spillways found in this area. The surrounding land is wooded and flat.

The investigations revealed the following:

The top layer is about 4 feet of sandy loam full of a decayed organic matter, in the form of muck. Underneath this layer the soil is sandy loam mixed with gravel and boulders in compact form.

SUBSOIL FINDINGS AND ANALYSIS: (cont'd.)

The penetrations were carried down 28 ft. in borehole No. 1 (elevation 1273.2 ft.) and 24.5 ft. in borehole No. 2 (elevation 1276.35 ft.) and 25 ft. in borehole No. 3 (elevation 1276.05 ft.). At the end of these boreholes the boulders were large and compact enough to refuse further penetrations.

Due to the nature and composition of the extracted samples no laboratory tests could be performed. However, the soil was classified and the layers identified as shown in log sheets.

From the findings the subsoil presents competence for supporting spread footing foundations. So, considering elevation 1295 ft. for placing the spread footing foundations, this gives a depth ratio very close to unity. Calculated from the standard penetration results (average 34 blows per foot), the layer at this elevation 1295 ft. has a bearing value of 3.7 t.s.f. for a settlement of one inch. The underground water table is only a foot below the ground surface, and all the indications are that the layer is submerged. This reduces the above bearing value to 2 t.s.f. for a one-inch settlement.

The land is flat and the creek water is overflowing with only 1 ft. increase during flooding season. From these indications, no scouring hazard is anticipated.

cont'd. /3

CONCLUSIONS AND RECOMMENDATIONS:

From the foregoing discussion it follows that:

1. The subsoil is competent to provide a conservative bearing value of 2 t.s.f. for spread footing foundations placed at elevation 1295 ft.
2. Although the flood water level and other indications minimize the hazard of scouring, this factor should not be entirely overlooked in the structure design.
3. The new grade line does not present any approach fill stability problem.

V. Vorlu,  
Foundation Engineer.

APPENDIX I

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-57-1 W.P. 551-56 BORING 1 STA. 559+82 (48' RT.)  
 CASING BX (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT JAN. 1957  
 SAMPLER HAMMER WT. 250 LBS. DROP 22 INCHES COMPILED BY H.S. CHECKED BY AL DATE BORING 15 JAN. 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  
 QC - TRIAXIAL CONSOLIDATED QUICK WT - WATER TABLE IN SOIL  $\gamma$  - UNIT WEIGHT

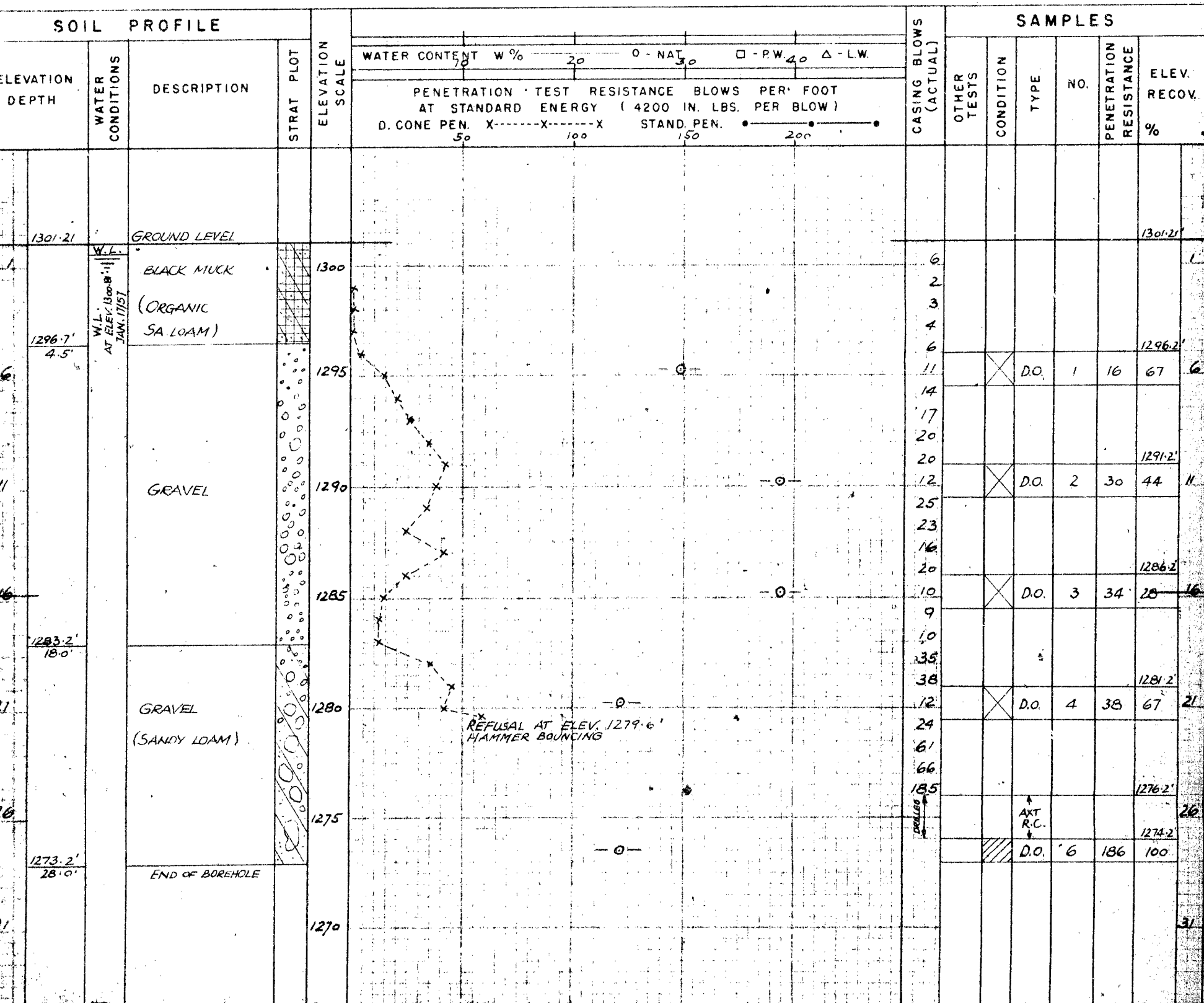
## SAMPLE TYPES

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

## SAMPLE CONDITION



- DISTURBED  
 - FAIR  
 - GOOD  
 - LOST



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-57-1 W.P. 551-56 BORING 2 STA. 560+42(195' RT)  
CASING Bx (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT JAN. 1957  
SAMPLER HAMMER WT. 250 LBS. DROP 22 INCHES COMPILED BY H.S. CHECKED BY DATE BORING 18 JAN. 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  
QC - TRIAXIAL CONSOLIDATED QUICK WT - WATER TABLE IN SOIL  $\gamma$  - UNIT WEIGHT

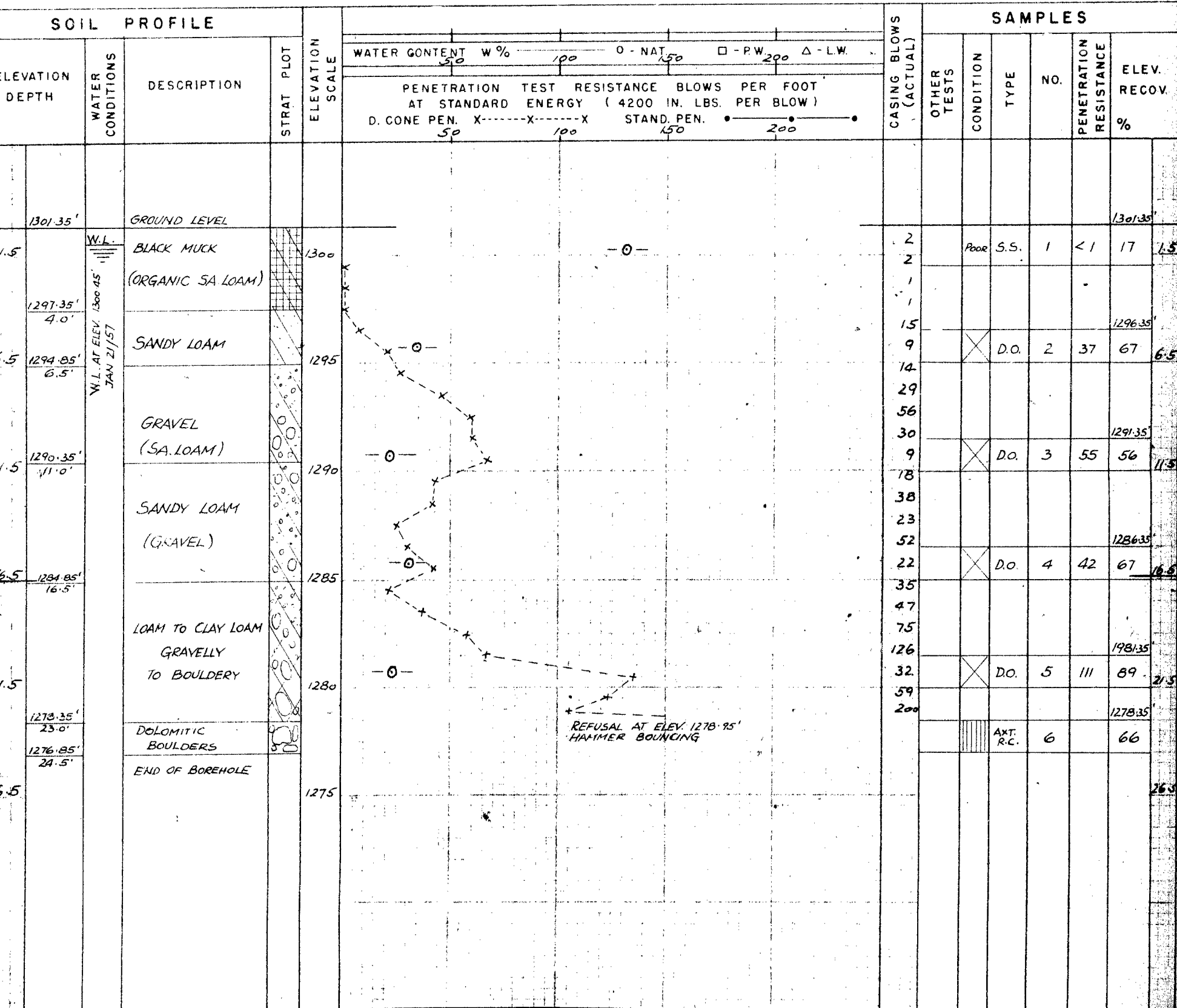
**SAMPLE TYPES**

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 R.C. - ROCK CORE

**SAMPLE CONDITION**



- DISTURBED  
- FAIR  
- GOOD  
- LOST



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

DRILL RIG 54-2 OPERATION BORE & PENETIN JOB E-57-1 WP 551-56 BORING 3 STA. 560+40 (195' LT.)  
CASING 8x (standard samplers to fit unless noted) DATUM GEODETIC DATE REPORT JAN. 1957  
SAMPLER HAMMER WT. 250 LBS. DROP 22 INCHES COMPILED BY H.S. CHECKED BY  DATE BORING 22 JAN. 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  
Qc - TRIAXIAL CONSOLIDATED QUICK WT - WATER TABLE IN SOIL γ - UNIT WEIGHT

**SAMPLE TYPES**

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

**SAMPLE CONDITION**

 - DISTURBED  
- FAIR  
- GOOD  
- BEST

