

DOCUMENT MICROFILMING IDENTIFICATION

GEOCRES No. 30 M12 - III

W.P. No. —

CONT. No. —

W. O. No. —

STR. SITE No. —

HWY. No. —

LOCATION C.P.R. U'PASS - BRITANNIA
SIDE RD., STREETSVILLE

=====
OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. NONE

REMARKS: —

—

—

—

RACEY, MACCALLUM AND ASSOCIATES
LIMITED

A COMPANY OWNED, DIRECTED AND OPERATED BY

Consulting Engineers
AND ASSOCIATED STAFF

MONTREAL  VANCOUVER

TORONTO

DONALD C. MACCALLUM, B.ENG., M.E.I.C., P.ENG.

H. JOHN RACEY, B.SC., M.E.I.C., P.ENG.

GEORGE L. HOUGHTON, A.M.I.MECH. E., M.E.I.C., P.ENG.

BA 1308

30M12-

0851
30M12-111
GEOCRE No.

TORONTO DIVISION
27 CARLTON STREET

Reference: S-610/T-2129
- Report -

19th February, 1960

County of Peel,
County Buildings,
BRAMPTON - Ontario.

Attention: Mr. J. Hubicki.

RE: SOIL INVESTIGATION FOR CANADIAN PACIFIC
RAILWAY UNDERPASS - BRITANNIA SIDE ROAD,
STREETSVILLE, ONTARIO.


Dear Sirs,

The enclosed report presents the results of our
soil investigation at the above location.

We hope the report is satisfactory to you; if you
have any questions about it please do not hesitate to get in touch
with us.

Thank you for this opportunity of being of service to
you.

Yours very truly,
RACEY, MACCALLUM AND ASSOCIATES LIMITED,


J. J. Schoustra, P.Eng.,
Divisional Soil Engineer.

JJS/YDP

EM. 6-5241

County of Peel,
County Buildings,
Brampton, Ontario.

SOIL INVESTIGATION FOR CANADIAN PACIFIC
RAILWAY UNDERPASS - BRITANNIA SIDE ROAD,
STREETSVILLE, ONTARIO.

Reference: S-610/T-2129
- Report -

Racey, MacCallum and Associates
Limited.

19th February, 1960

RACEY, MACCALLUM AND ASSOCIATES LIMITED

A COMPANY OWNED, DIRECTED AND OPERATED BY

Consulting Engineers
AND ASSOCIATED STAFF

MONTREAL  VANCOUVER

TORONTO

DONALD C. MACCALLUM, B.ENG., M.E.I.C., P.ENG.

H. JOHN RACEY, B.SC., M.E.I.C., P.ENG.

GEORGE L. HOUGHTON, A.M.I.NECH.E., M.E.I.C., P.ENG.

TORONTO DIVISION
27 CARLTON STREET

Reference: S-610/T-2129
- Report -

19th February, 1960

SOIL INVESTIGATION FOR CANADIAN PACIFIC RAILWAY UNDERPASS - BRITANNIA SIDE ROAD, STREETSVILLE, ONTARIO.

INTRODUCTION :

In accordance with your instructions, we have conducted three borings at the above site. In Boreholes No 1 and 2 a continuous flight power auger was employed, accompanied by split spoon sampling driven by means of a 140 lbs standard hammer having a drop of 30 inches. Adjacent to the boreholes we have performed a penetration test utilising a 2-inch penetration cone having a 60-degree point angle. Borehole No 3 was driven by power auger for visual inspection of the profile and to ascertain the depth of hardpan. The results of testing are shown on Enclosures No 2 to 4.

FIELD CONDITIONS :

The profile appeared quite identical in two boreholes, and was composed of a top layer of reddish-brown clay with silt. In this material some variations were observed in connection with Borehole No 1. This layer was found to be relatively soft and extended down to an average elevation of 93.5 feet. The top stratum was underlain by stiff, grey till having a silty-clay matrix intimately mixed with an abundant amount of small gravel. Larger gravel existed as occasional shale and limestone fragments. The till stratum exhibited a more gravelly appearance and extreme compaction with depth, until the proximity of Elevation 81.0 feet where the boring encountered a stiff hardpan formation approaching the hardness of shale.

Reference: S-610/T-2129
- Report - Continued.

19th February, 1960

A definite ground water table has not been observed. However, as the site represents a depression, it would undoubtedly collect a considerable amount of surface water. The oxidation of the strata indicates the maximum rise of ground water table to be in the proximity of Elevation 93.5 feet.

DISCUSSION AND CONCLUSIONS :

The nature of the top layer indicates a sedimentary origin frequented by surface water. The removal of 5 feet of surface material and installation of a sewer would involve ordinary soil excavation, and should not create any difficulty in connection with the water table. If excessive water is encountered during excavation, a simple sump-pump installation would easily provide adequate drainage.

For the proposed new bridge foundation, the recommended safe bearing capacities are as follows :

<u>Elevation (feet)</u>	<u>Recommended Safe Bearing Capacity (psf)</u>
94.0	4,000
90.0	6,000
87.0	10,000

In connection with construction of the road, the sub-base of the proposed road is susceptible to frost damage. This situation creates the necessity of using selected coarse granular material, together with the provision of adequate drainage for the sub-base.

SUMMARY :

The above indicated conclusions may be summarised as follows :

1. The top layer of the formation is silty-clay and has an average thickness of 7 feet. The subsoil is composed of gray till with silty-clay matrix. The compaction and the percentage

Reference: S-610/T-2129
- Report - Continued.

19th February, 1960

SUMMARY :

1. Continued -

of pebbles increase with depth. Till is underlain by very stiff hardpan, approaching to shale in hardness.

2. Ground water should not present much difficulty and, if such occurs, an adequate drainage may be maintained by pumping during construction.

3. The removal of the top 5 feet of soil should create no special problems other than those likely to be encountered in ordinary soil excavation. This also applies to the excavation regarding the sewer installation.

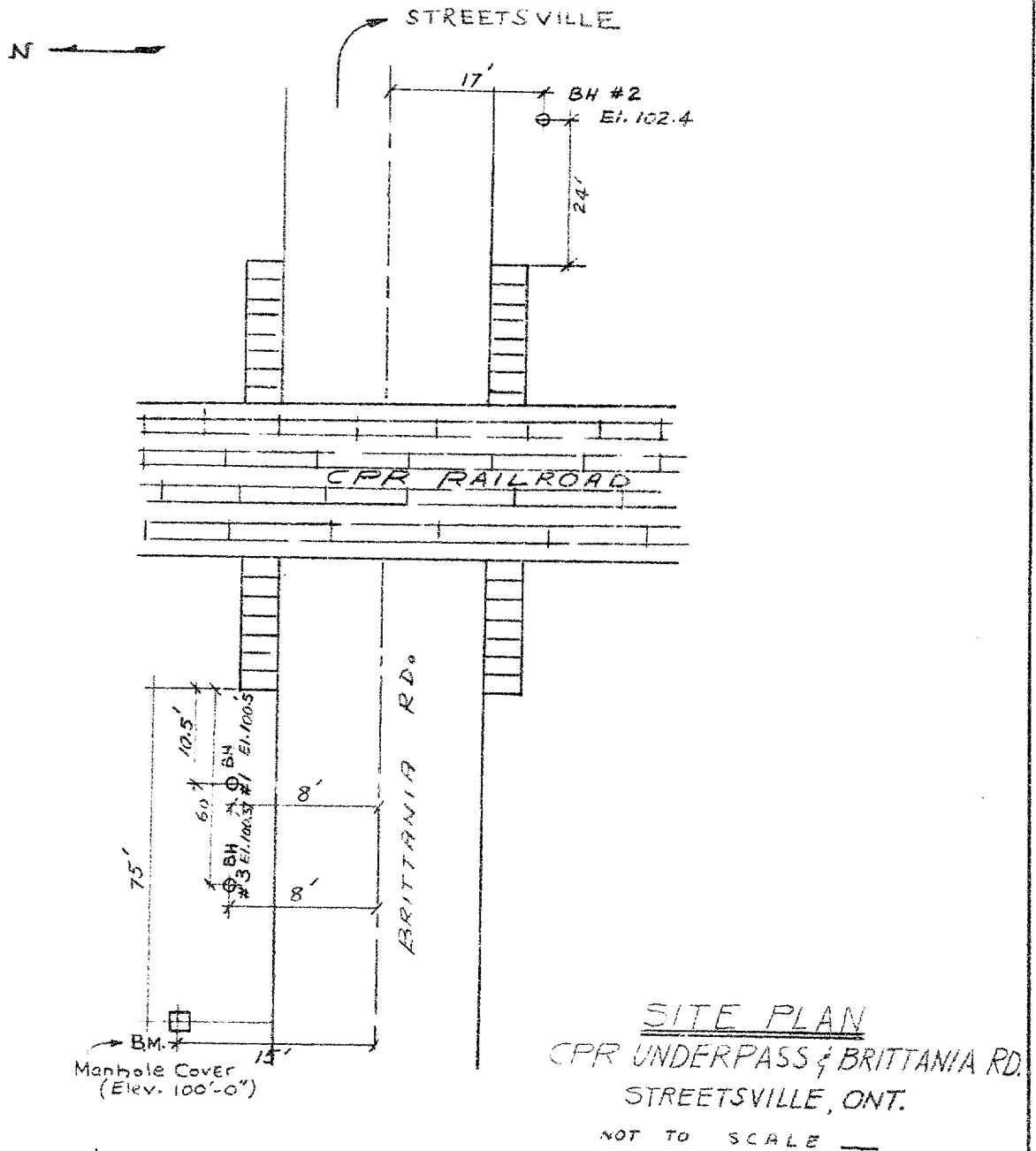
4. For the footing foundation of the proposed bridge the recommended maximum safe bearing capacities are :

4,000 psf at Elevation 94.0 feet
6,000 psf at Elevation 90.0 feet
10,000 psf at Elevation 87.0 feet.

5. The problem of frost susceptibility must be considered during the design of sub-base for the road and, accordingly, the selection of coarse granular materials and proper drainage are necessary.


A. S. Yalcin, P.Eng.,
Project Engineer.

Prep. By A.S.Y.



RACEY MacCALLUM AND ASSOCIATES LTD.

Foundation Engineering Division

Engineering Data Sheet for Borehole: 1

Project: C.P.R. UNDERPASS, BRITTANIA ROAD,
Location: STREETSVELLE, ONTARIO.

Hole Location: See Enclosure No 1.

Hole Elevation and Datum: 100.05 feet (B.M. Elev. 100'-0", See site plan)

Field Supervisor: H.G. Prep.: A.S.Y.

Driller: R.L. Checked: Date:

LEGEND

Shear Strength (C)

Unconfined compression

Vane test and sensitivity (S)

Penetration Resistance (P)

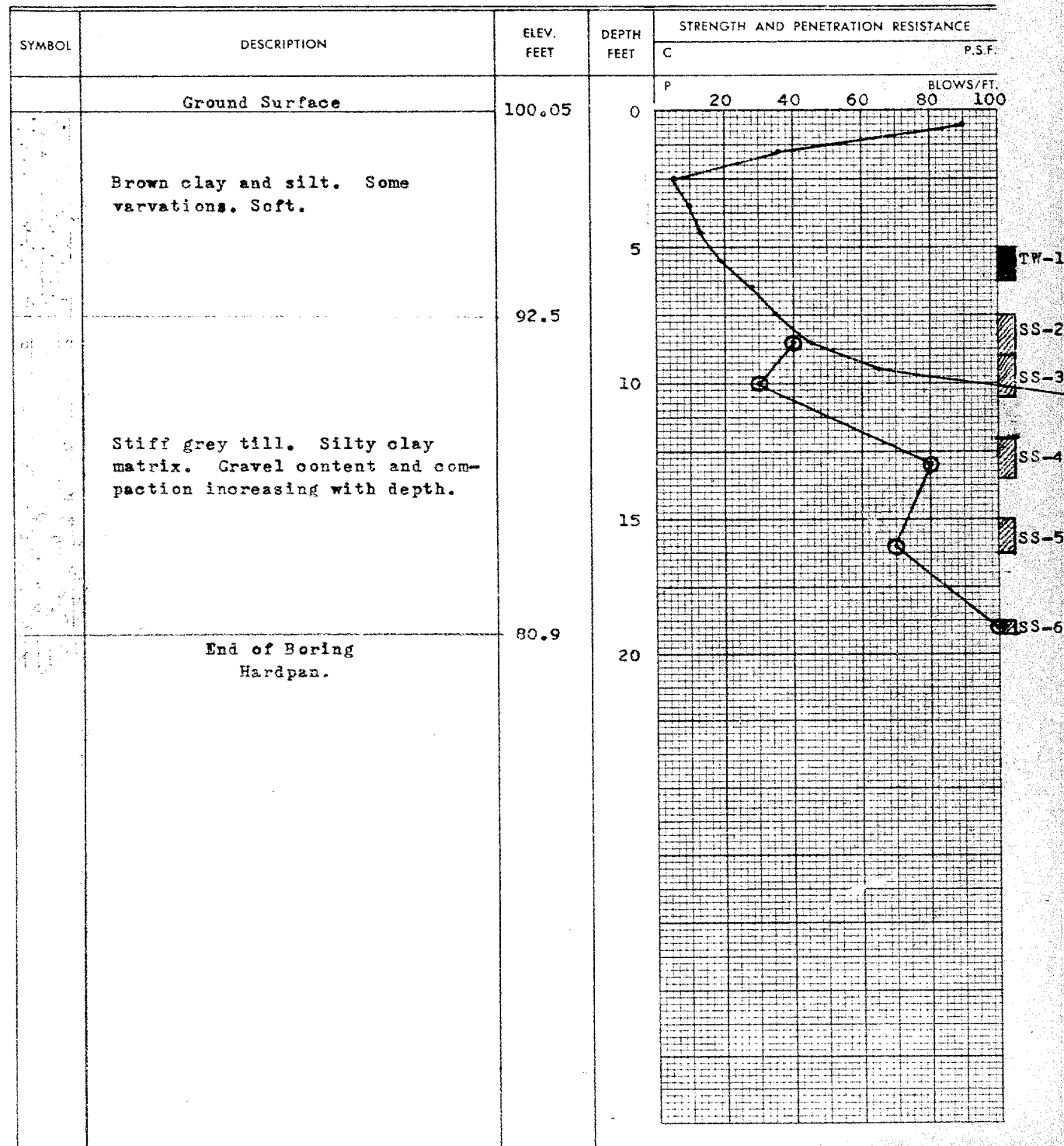
2" Split tube

2" Dia. Cone

Casing

⊕
+3

⊕ ⊕



RACEY MacCALLUM AND ASSOCIATES LTD.

Foundation Engineering Division

Engineering Data Sheet for Borehole: 2

Project: C.P.R. UNDERPASS - BRITTANIA ROAD.
 Location: STREETSVILLE, ONTARIO.
 Hole Location: See Enclosure No 1.
 Hole Elevation and Datum: 102.4 (B.M. Elev. 100'-0"; See file
 Field Supervisor: H.G. ft. A.S.Y. plan).
 Driller: R.L. Checked: Date:

LEGEND

Shear Strength (C)

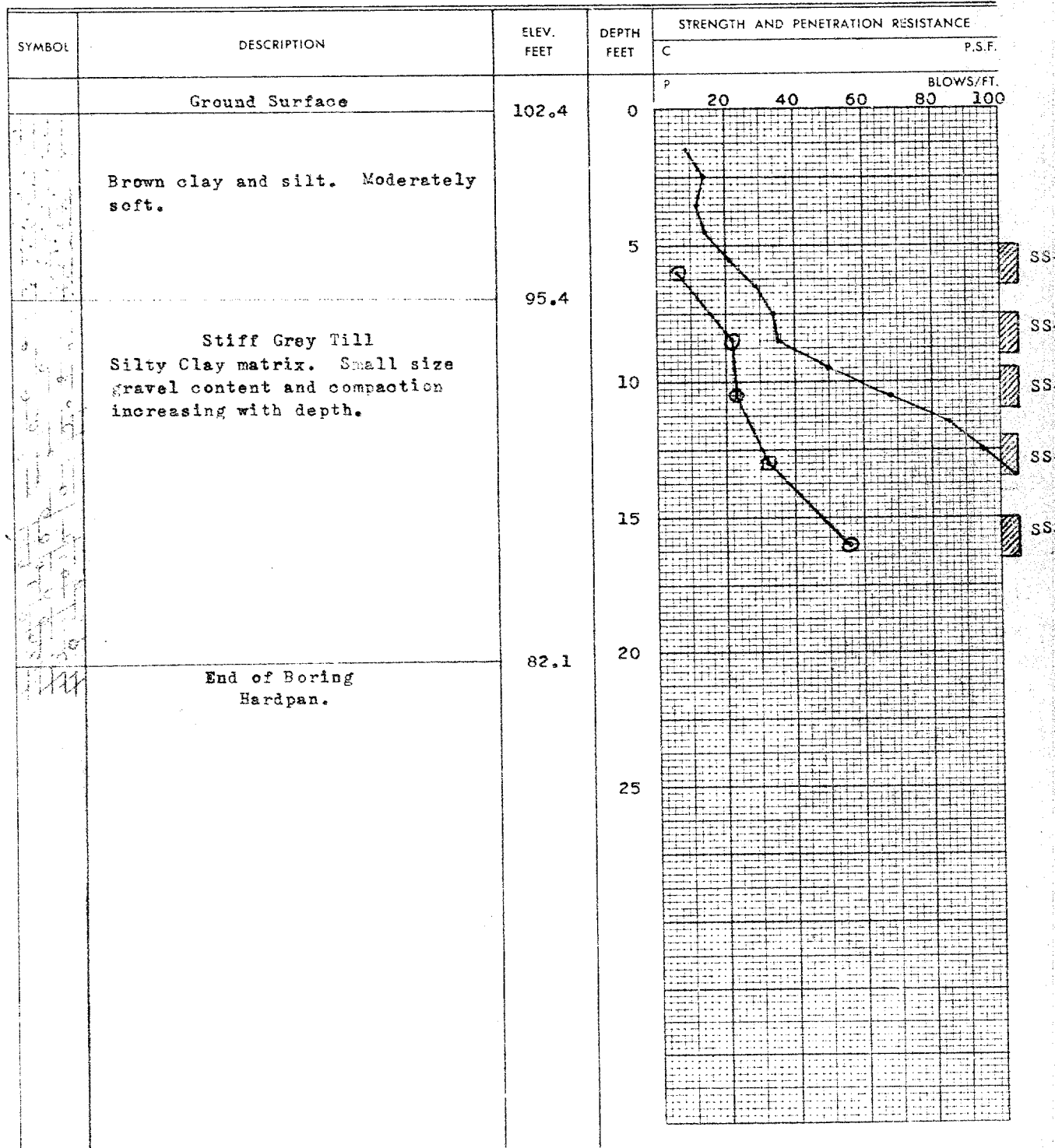
Unconfined compression
 Vane test and sensitivity (S)

Penetration Resistance (P)

2" Split tube

2" Dia. Cone

Casing

⊕
4^s

RACEY MacCALLUM AND ASSOCIATES LTD.

Foundation Engineering Division

Engineering Data Sheet for Borehole: 3

Project: C.P.R. UNDERPASS - BRITANNIA ROAD.
 Location: STREETSVILLE, ONTARIO.
 Hole Location: See Enclosure no 1.
 Hole Elevation and Datum: 100.37 feet (B.M. Elev. 100'-0"; See site plan).
 Field Supervisor: H.G. Prep.: A.S.Y.
 Driller: R.L. Checked: Date:

LEGEND

Shear Strength (C)

 Unconfined compression
 Vane test and sensitivity (S)

Penetration Resistance (P)

2" Split tube

2" Dia. Cone

Casing

⊕
+5

⊕ ⊕

SYMBOL	DESCRIPTION	ELEV. FEET	DEPTH FEET	STRENGTH AND PENETRATION RESISTANCE				
				C	P.S.F.			
	Ground Surface	100.37	0	P	20	40	60	BLOWS FT. 80 100
	Brown clay and silt with sand.							
		94.8	5					
	Grey till							
	Silty clay matrix % small size gravel content and compaction increasing with depth.		10					
			15					
	End of Boring	83.4						
	Bedrock (Hardpan).		20					