

54-F-222C

Hwy. 401

ETOBICOKE CREEK

BA370
54-F22c

RACEY, MACCALLUM AND ASSOCIATES
LIMITED

A COMPANY OWNED, DIRECTED AND OPERATED BY

Consulting Engineers
AND ASSOCIATED STAFF

Affiliations:

THE E. B. ALLEN INSPECTION COMPANY
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ISOTOPE PRODUCTS LIMITED,
RADIOGRAPHERS
•
IRVING P. KRICK, PH.D.,
METEOROLOGIST
•
JACQUES POULIN,
QUEBEC LAND SURVEYOR
•
THE VIBRATION ENGINEERING COMPANY

Directors:

DONALD C. MACCALLUM, B.ENG., M.E.I.C., P.ENG.
H. JOHN RACEY, B.SC., M.E.I.C., P.ENG.
•
JOHN S. LOCHHEAD, B.ENG., M.E.I.C., P.ENG.
JOHN A. NORLIN, B.A., M.SC.
ROBERT H. GUNTAL, M.A.SC., M.E.I.C., P.ENG.
•
A. ERIC RANKINE, B.SC., A.M.I.E.E., M.E.I.C., P.ENG.
•
J. B. CHALLIES, D.ENG., LL.D., M.E.I.C., P.ENG.

MONTREAL: 4123 SHERBROOKE STREET WEST, FITZROY 5261
TORONTO: 33 BLOOR STREET EAST, WALNUT 2-9071

REPORT NO. S-500/54/T-13

September 14, 1954.

Messrs. T. G. Lazarides, Lount and Partners,
79 Scollard Street,
TORONTO 5, Ontario.

RE: FOUNDATION INVESTIGATIONS, BRIDGES OVER ROAD
BETWEEN TORONTO GORE AND TORONTO TOWNSHIPS,
OVER ROAD TO MALTON AIRPORT AND OVER ETOBICOKE
GREEK - PROPOSED HIGHWAY NO. 401

Dear Sirs:

In accordance with your instructions we have carried out soil test borings at the above-mentioned projects. We have examined the samples secured and studied the boring record.

We have separated the reports for the three bridges for your convenience.

Trusting this is satisfactory,

Yours very truly,

RACEY, MACCALLUM AND ASSOCIATES LIMITED


A. E. RANKINE,
Director, Ontario

RHQ/PW

c.c.: 3 - Lazarides, Lount and Partners, 79 Scollard St., Toronto, Ont.
1 - Inspector
2 - Montreal Office - Racey, MacCallum and Associates Ltd.,
4123 Sherbrooke St. W., Montreal.

REPORT NO. S-500/54/T-13BRIDGE SITE NO. 1 - ROAD ALLOWANCE, TORONTO AND TORONTO GORE TOWNS.

At your request, four bore holes were drilled at that site as shown on the attached location plan. Drilling operations began August 25, 1954 and were completed September 3rd. Bore hole number 1 was drilled to 25 feet, bore holes 2 and 4 to 26 feet and bore hole number 3 to 44.5 to study bedrock conditions.

The material in all four holes is a glacial till composed of brown, gravelly, silty, fine sand, very dense. Some boulders were encountered in the course of the operations. The penetration index of this material varies both with the depth and with the holes. As will be seen on the Engineering Data Sheets attached to this report, the penetration resistance at a depth of five feet is 38 in bore holes 1 and 2, 24 in bore hole 3 and 36 in bore hole 4. However, in all four cases the correlated resistance of the casing increases greatly immediately below this level.

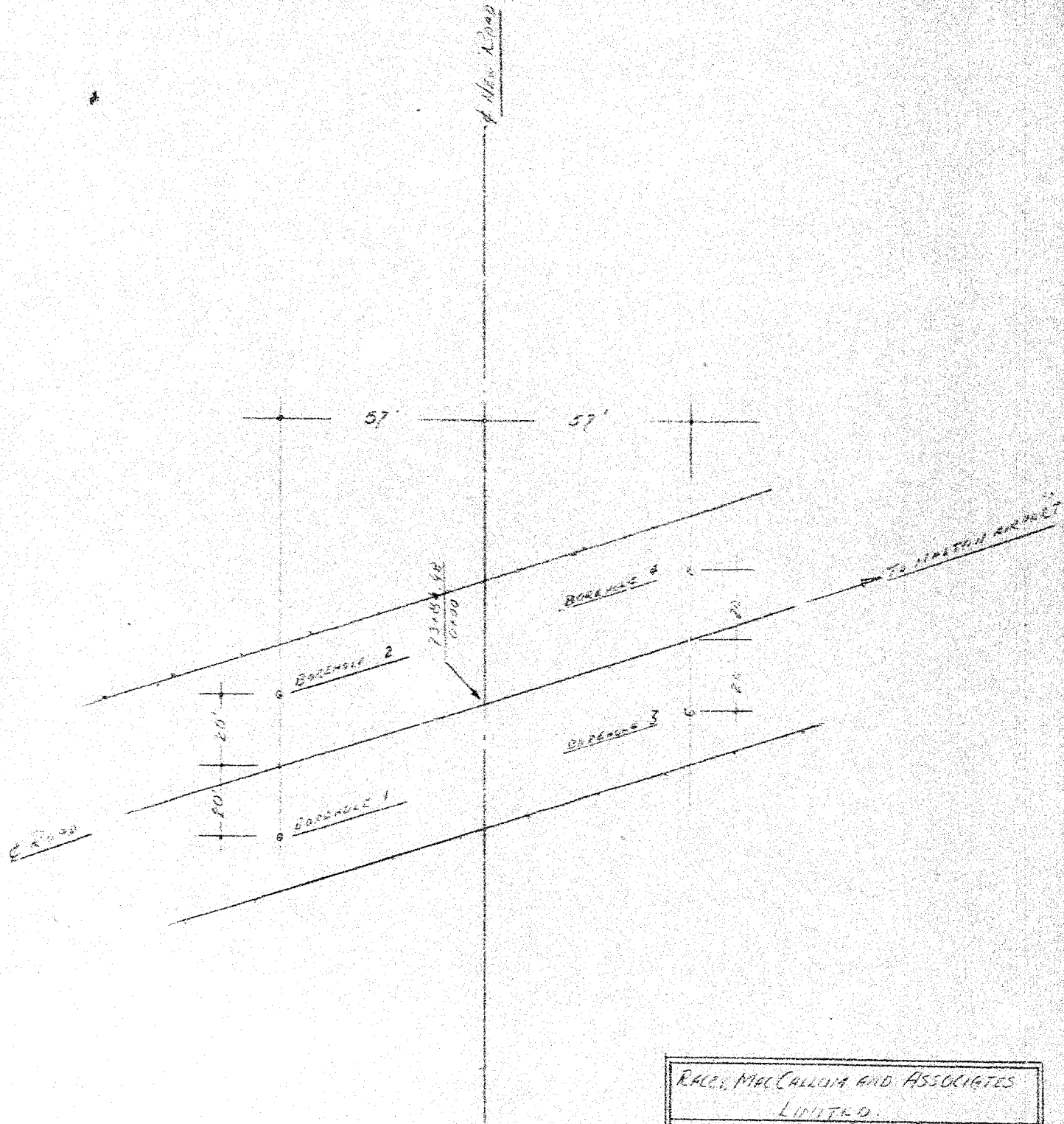
In both holes 1 and 3, a layer of stiff clay, one to two feet thick is encountered at 19 feet of depth. This material, although stiff, is not as resistant as the glacial till encountered above.

Underlying the stiff clay layer a silty, sandy, clay and gravel formation is encountered.

At a depth of 26 feet in bore hole No. 3 bedrock was met and diamond drilling was carried down to 44.5 feet. This bedrock is a bluish gray, very foliated clay shale with occasional beds of solid calcareous shale two to three inches thick.

From the above we feel that the foundations for the proposed bridge should be at least five feet below present grade. We feel that this glacial till will carry three tons per square foot in a satisfactory manner. However, if the footings were very large or if it were found necessary to place them at greater depth, some reduction might have to be made in view of the slightly softer clay formation encountered at nineteen feet.

However, even if these larger footings were to rest directly on the clay formation we feel that a bearing value of 2.5 tons per square foot would be adequate.



RACCO, MACCALLUM AND ASSOCIATES LIMITED.	
SOIL TEST BORINGS FOR	
OVERPASS, HWY #401 OVER ROAD ALLOWANCE BETWEEN TWP TORONTO AND TORONTO GORE.	
DRG 5500/54/T-13-1	SCALE 1" = 40.0'
PREP'D BY M. R. Q.	DATE SEP 11, '54

Order No.: S-507/54/T-13

Dated AUG. 31st, 1954

Day Month Year

Hole Begun 25/8/54

Hole Ended 26/8/54

RACEY, MacCALLUM AND ASSOCIATES
Limited

Foundation Engineering Division

Engineering Data Sheet for Borehole: 1

F. LUSK

Driller

A. MACCADDEN

Helper

Job Name: SOILS INVESTIGATION, MALTON, ONT. - BRIDGE SITE #1

K. TUBBESING

Job Located: ROAD BETWEEN TORONTO GORE TWP. AND TORONTO TWP.

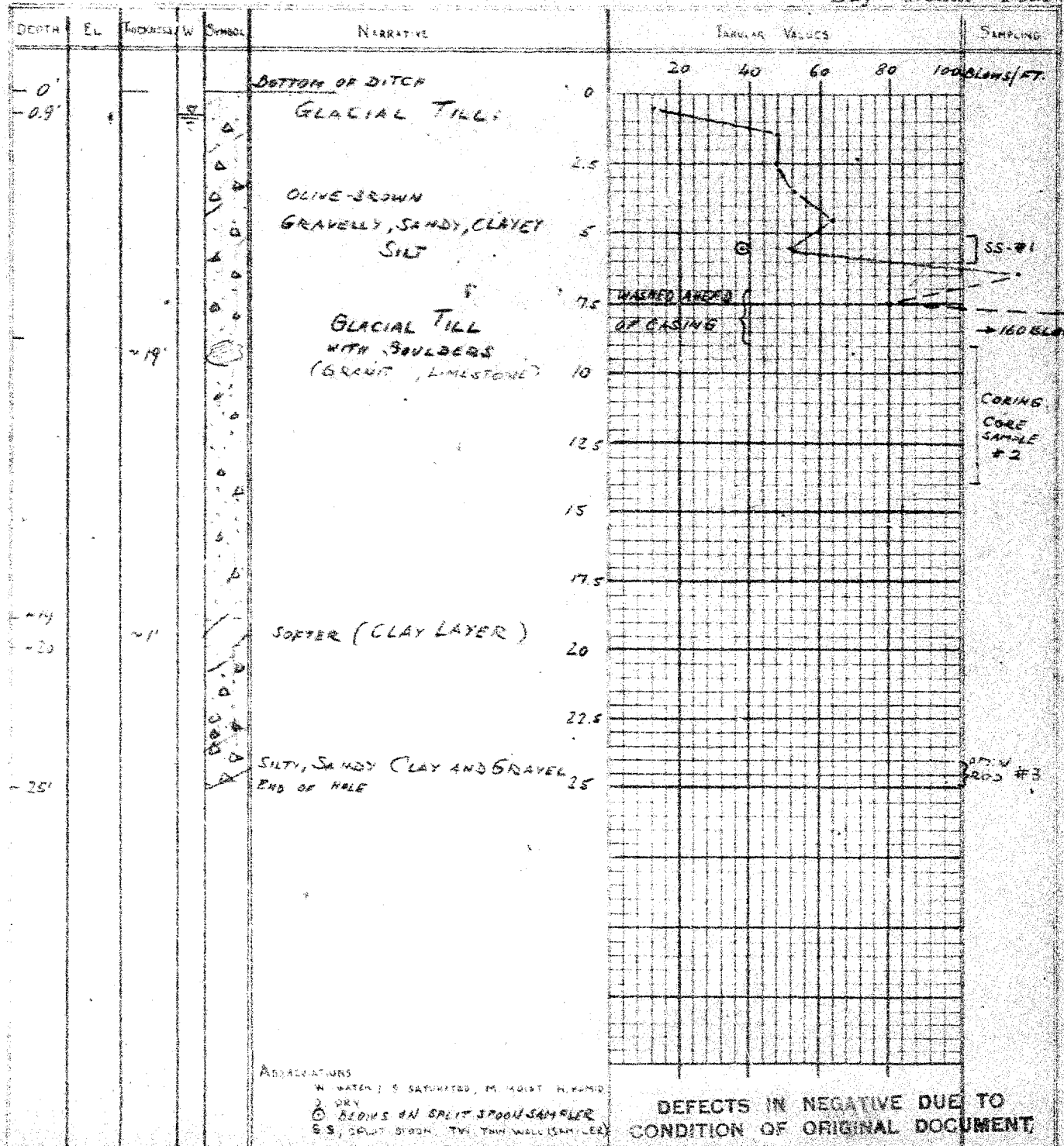
Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH

Hole Elevation: Datum:

30-8-54

Day Month Year



73, 237

LEWIS

Founding Director's Division

A. MACCADDEN

Engineering Data Sheet for Purchase 2

1993

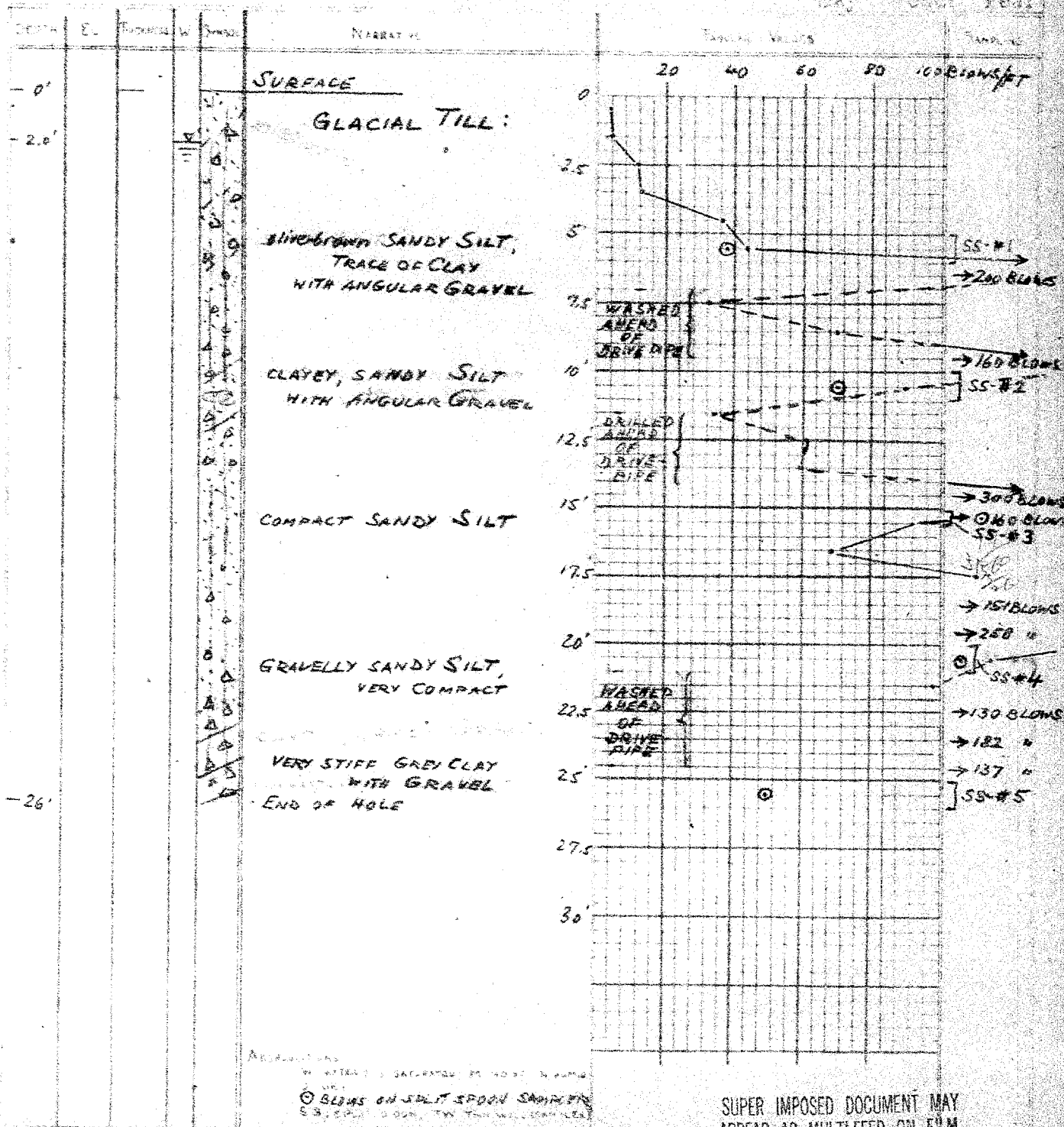
K. TUBGESING

...ed by

3/9/54

Hole Elevation: _____ Datum: _____

RECEIVED



SUPER IMPOSED DOCUMENT MAY
APPEAR AS MULTI-FEED ON FILM

SITE #1

Order No. S-500/54/T-13 RACEY, MacCALLUM AND ASSOCIATES

Dated AUG. 31st, 1954

Limited

F. Lusk

Driller

Day Month Year

Foundation Engineering Division

Hole Begun 26/8/54

A. Mac CAGDEN

Hole Ended 30/8/54

Engineering Data Sheet for Borehole: 3

Helper

Job Name: SOILS INVESTIGATION - MALTON, ONT. - BRISSE SITE #1 K. TUBBESING

Job Located: ROAD BETWEEN TORONTO GORE TWP. AND TORONTO TWP.

Checked by

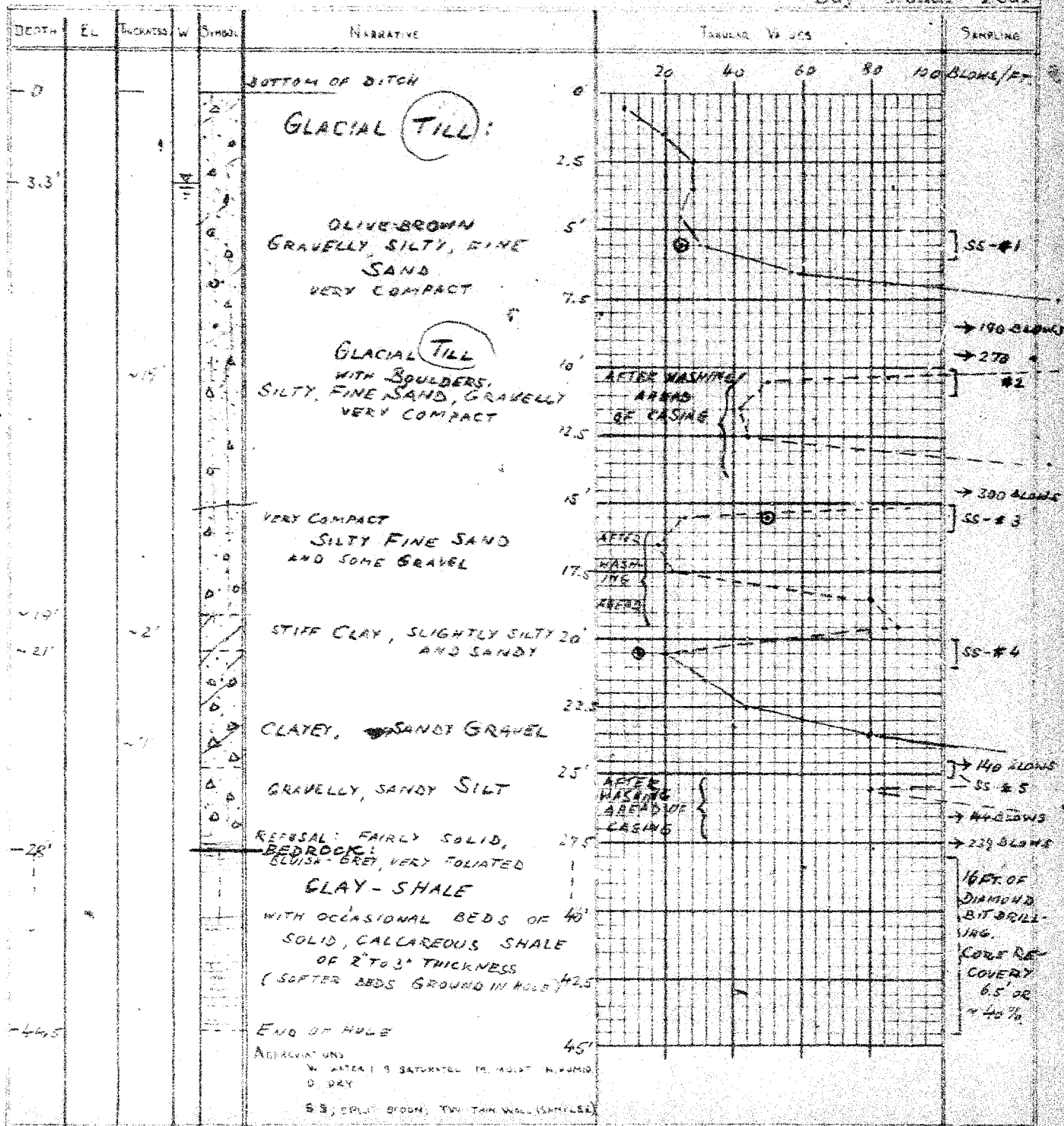
Hole Located: AS SHOWN ON ATTACHED SKETCH

Hole Elevation:

Datum:

30-8-54

Day Month Year



Order No.: S-500/54/T-13
Dated AUG. 31st, 1954

RACEY, MacCALLUM AND ASSOCIATES
Limited

F. LUSH
Driller

Day Month Year

Foundation Engineering Division

Hole Begun 2/9/54

Hole Ended 3/8/54

Engineering Data Sheet for Borehole: 4

A. MAC CADDEN
Helper

Job Name: SOIL INVESTIGATION - MALTON, ONT. - BRIDGE SITE #1

K. TUBBERING

Job Located: ROAD BETWEEN TORONTO GORE TWP. AND TORONTO TWP.

Checked by

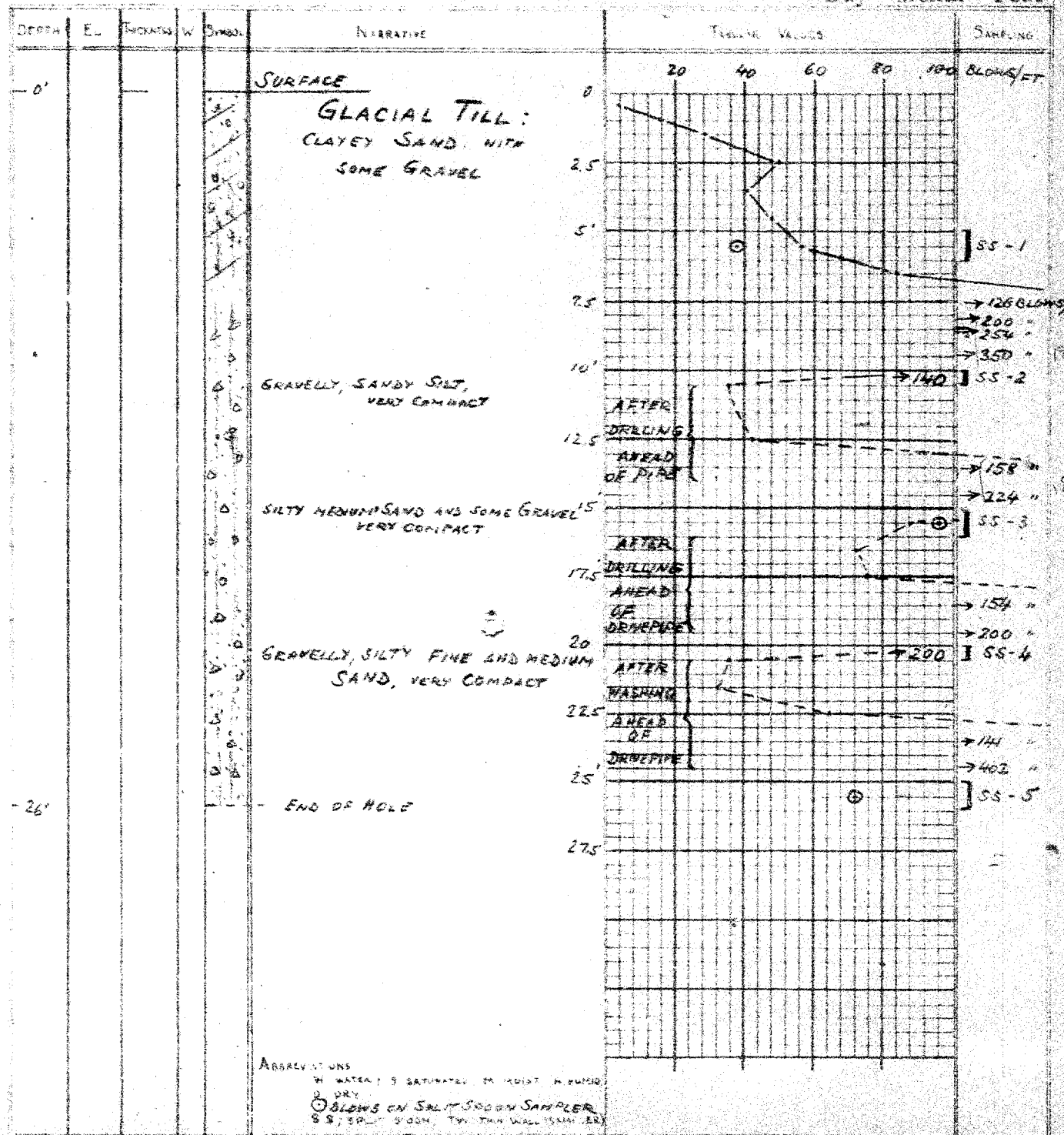
Hole Located: AS SHOWN ON ATTACHED PLAN.

Hole Elevation:

Datum:

10/9/54

Day Month Year



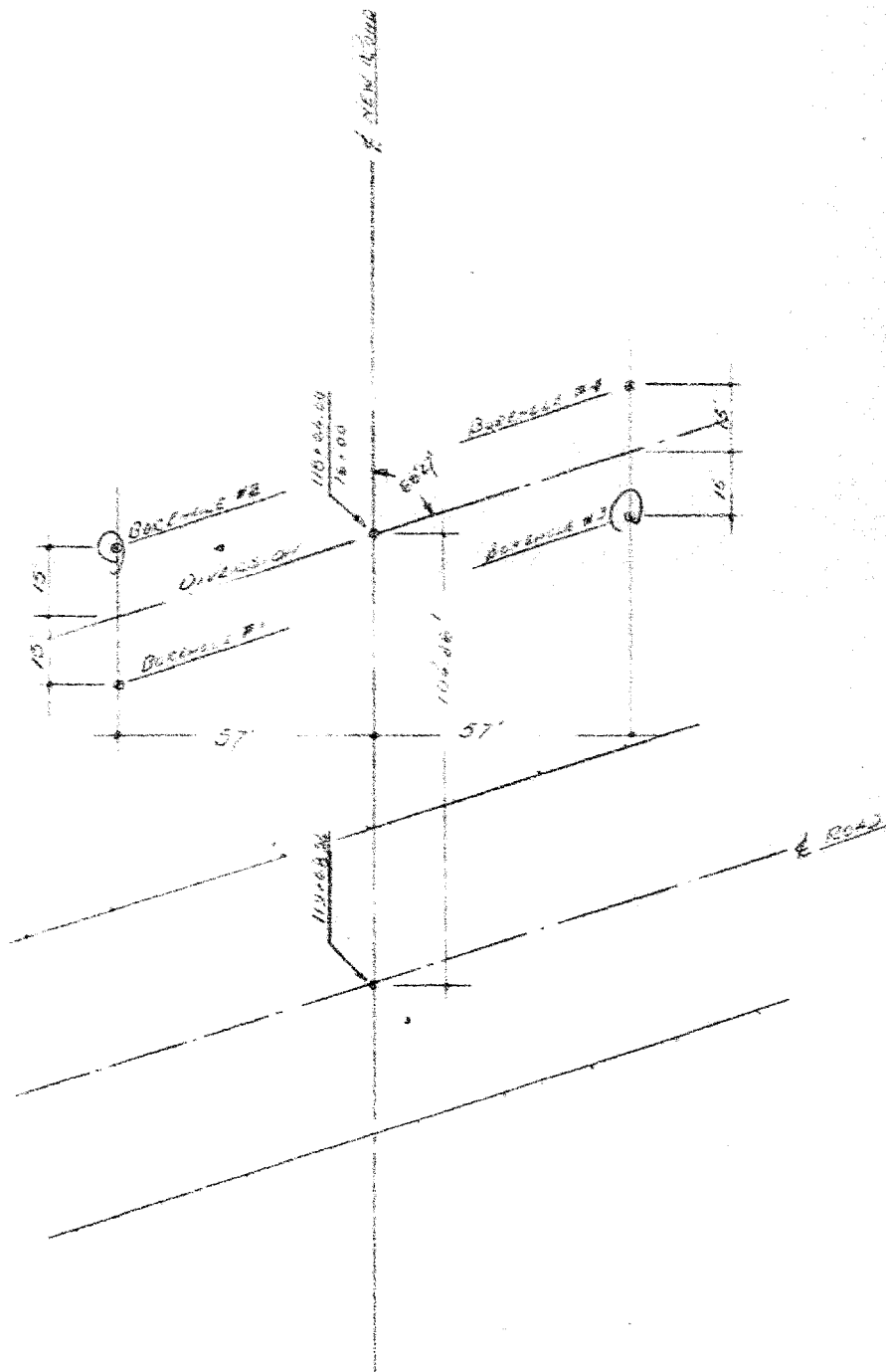
REPORT NO. S-50/54/T-13BRIDGE SITE NO. 2 - OVERPASS, COMMISSION ROAD V-2 and VI-2

The foundation investigation at this site consisted of the drilling of four soil borings as located on the attached plan. These borings were begun on August 3rd, 1954 and ended August 8th, 1954.

The surface soil is a glacial till composed of brown, clayey silt with some gravel, fairly stiff. In all four cases bedrock was encountered between six and seven feet.

This bedrock consists of a bluish gray non-calcareous clay shale, quite solid.

For all practical purposes we believe that the bedrock is sufficiently near the surface that the foundations of the proposed bridge should rest thereon. We feel that this shale could carry safely a load of the order of ten tons per square foot. Understandably, the actual strength of the material is higher than this value but possible internal shear planes should be taken into consideration.



RACEY, MACCALLUM AND ASSOCIATES, LIMITED.	
S.U.L. TEST DESIGNER.	
OVERPASS. D.H.O. HWY 401 AND CONCESSION RD V.E. & VI-E	
DES. 5-500/54/F-13	SCALE 1"=40'
PREP'D DRAWN: K.W.	DATE: SEPT 11 '94

Dated Aug. 31st 1954

Day Month Year

Hole Begun 3/2/54

Hole Ended 7/9/54

RACEY, MacCALLUM AND ASSOCIATES

153-100

Foundation Engineering Division

Engineering Data Sheet for Borehole: /

上、中、下

Driller

A. MACCOSHEN

Helper

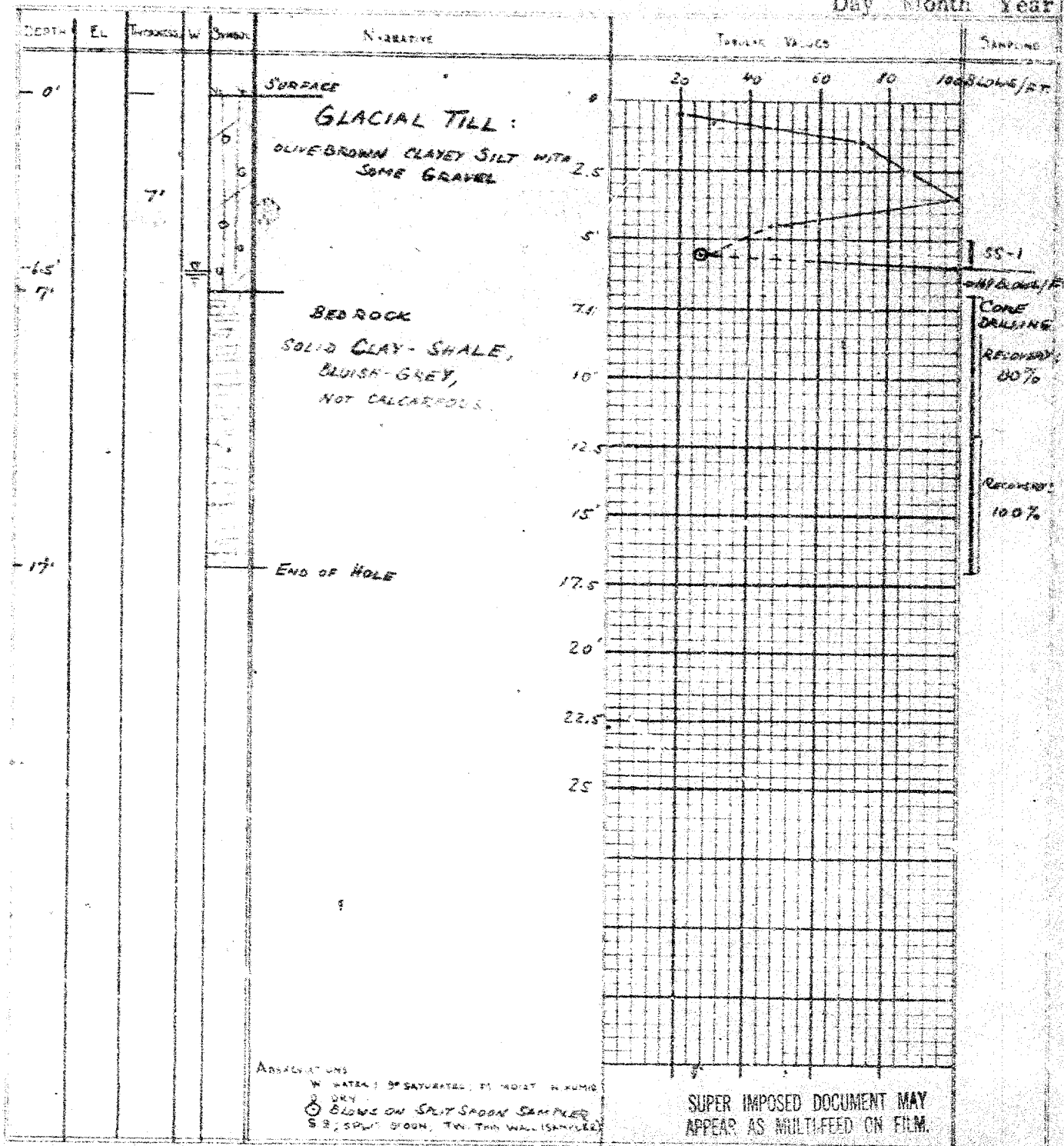
Job Name: SOILS INVESTIGATION, MALTON, ONT. - BRIDGE #2 K. TUPRESING

Job Located: CONCESSION RD. V.E & V.E.F. APPROX. 1 MILE SE OF GUN BANK Checked by _____

Hole Located: AS SHOWN ON ATTACHED SKETCH.

Hole Elevation: Datum:

Day Month Year



Order No. S-500/54/7-13

Dated AUG. 31st, 1954

Day Month Year

Hole Begun 7/9/54

Hole Ended 7/9/54

RACEY, MacCALLUM AND ASSOCIATES

Limited

Foundation Engineering Division

Engineering Data Sheet for Borehole: 2

F. LUSIK

Driller

A. MACCROBEN

Helper

Job Name: SOILS INVESTIGATION - MALTON, ONT. - BRIDGE #2 K. TUBBESING

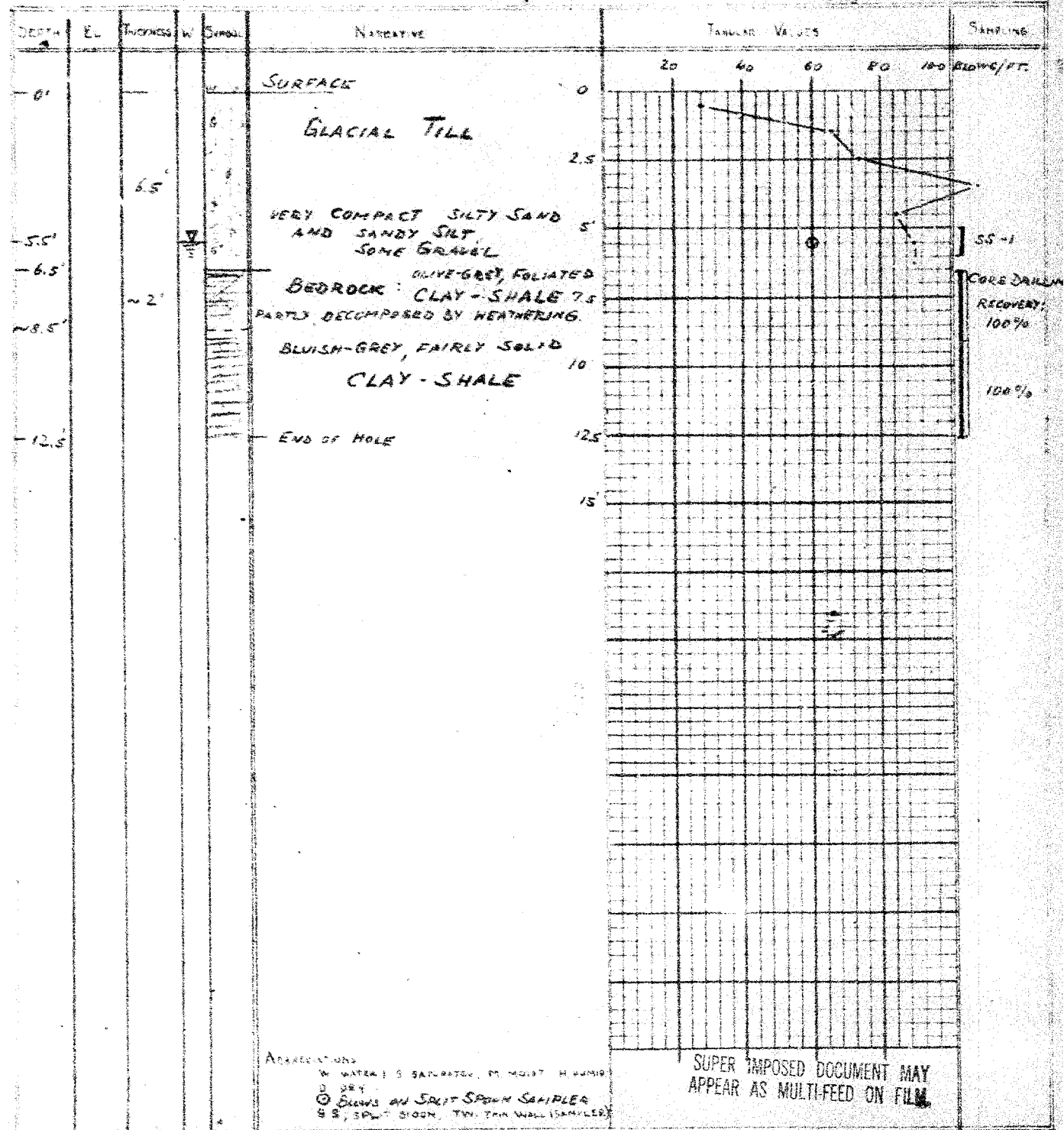
Job Located: CONCESSION RD. V.E. & V.I.E., APPROX. 1 MILE SE OF ELMBANK Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH.

Hole Elevation: Datum:

10/9/54

Day Month Year



Order No.: S-500/54/T-13 RACEY, MacCALLUM AND ASSOCIATES

Dated Aug. 31st, 1954

Limited

F. Lusk
Driller

Day Month Year

Foundation Engineering Division

Hole Begun 7/9/54

Hole Ended 8/9/54

Engineering Data Sheet for Borehole: 3

A. MacCadden
Helper

Job Name: SOILS INVESTIGATION - MALTON, ONT. - BRIDGE #2 K. TUBBSING

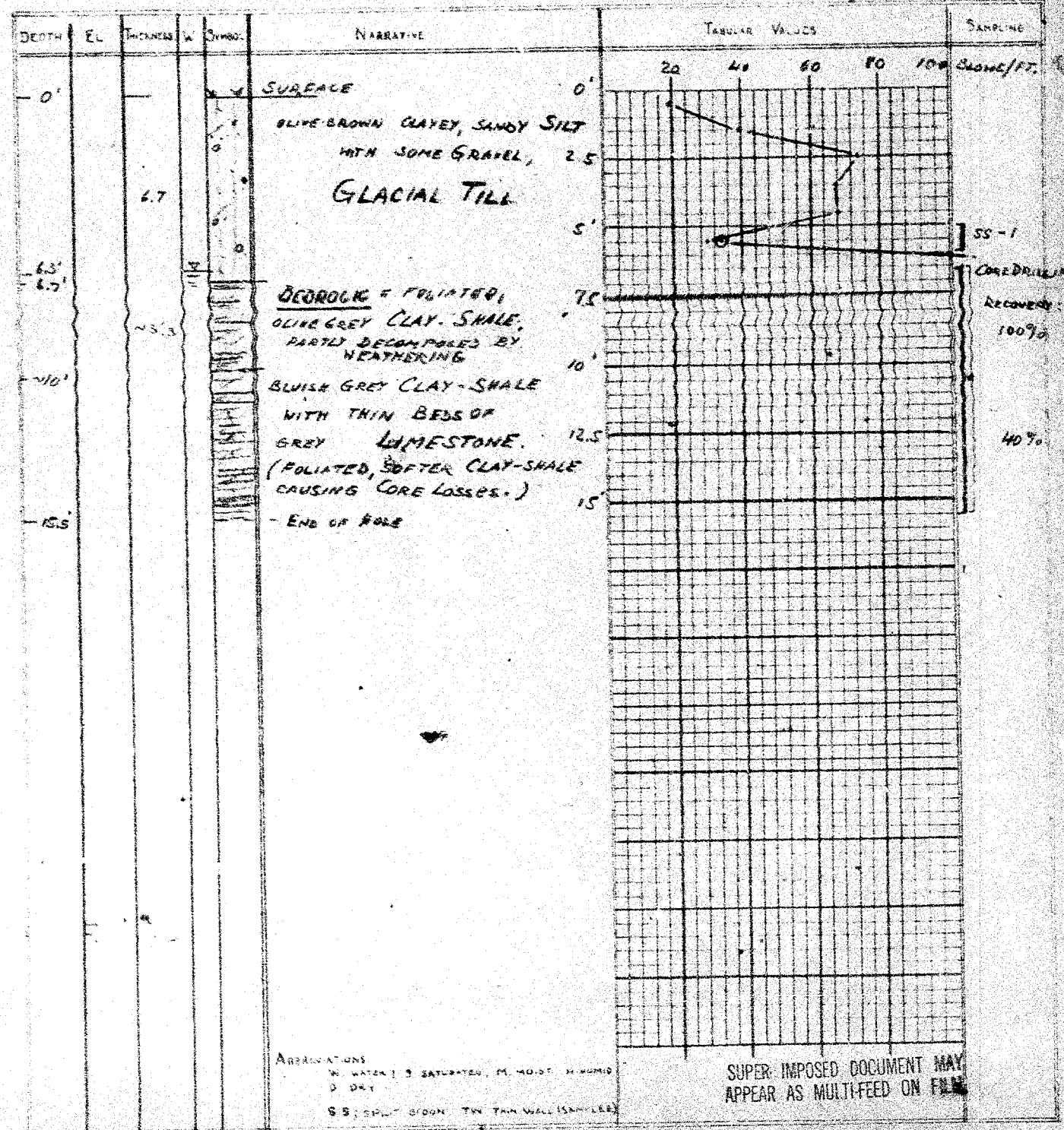
Job Located: CONCESSION RD. N.E. 1/4, APPROX. 1 MILE SE OF ELMHURST Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH.

Hole Elevation: Datum:

10/8/54

Day Month Year



Order No. S-500/54/T-13

Dated Aug. 31st, 1954

RACEY, MacCALLUM AND ASSOCIATES

Limited

F. L. Lusk

Driller

Day Month Year

Foundation Engineering Division

Hole Begun 8/9/54

Hole Ended 8/9/54

Engineering Data Sheet for Borehole: 4

A. MacCadden

Helper

Job Name: SOILS INVESTIGATION - MALTON, ONT. - BRIDGE #2

K. TUBBESING

Job Located: CONCESSION RD. V.E. & R.E. APPROX. 1 MILE SE OF EMBANK

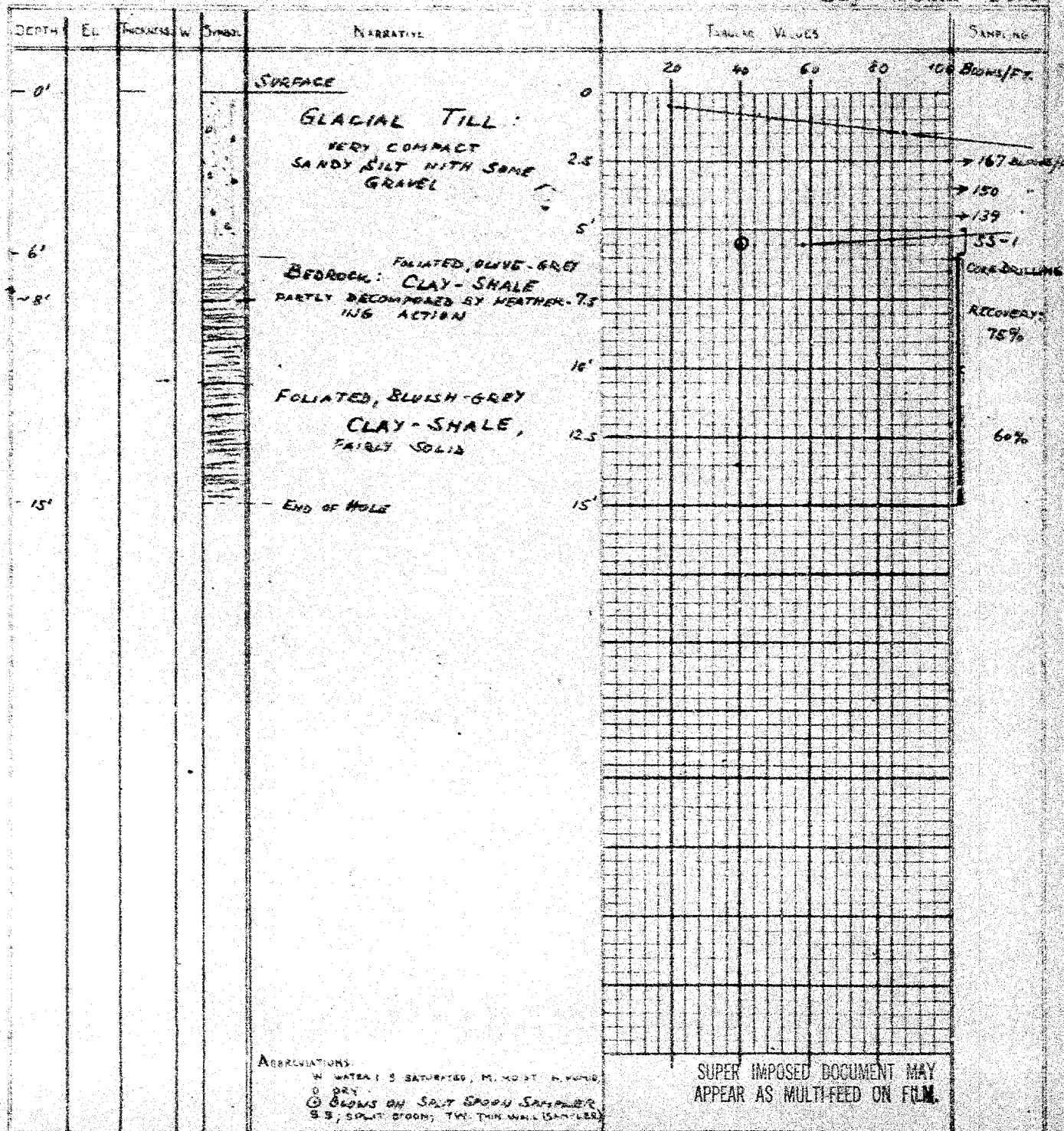
Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH.

Hole Elevation:

Datum:

Day Month Year



BRIDGE SITE NO. 3 - PROPOSED CROSSING OF KIOBICONE CREEK

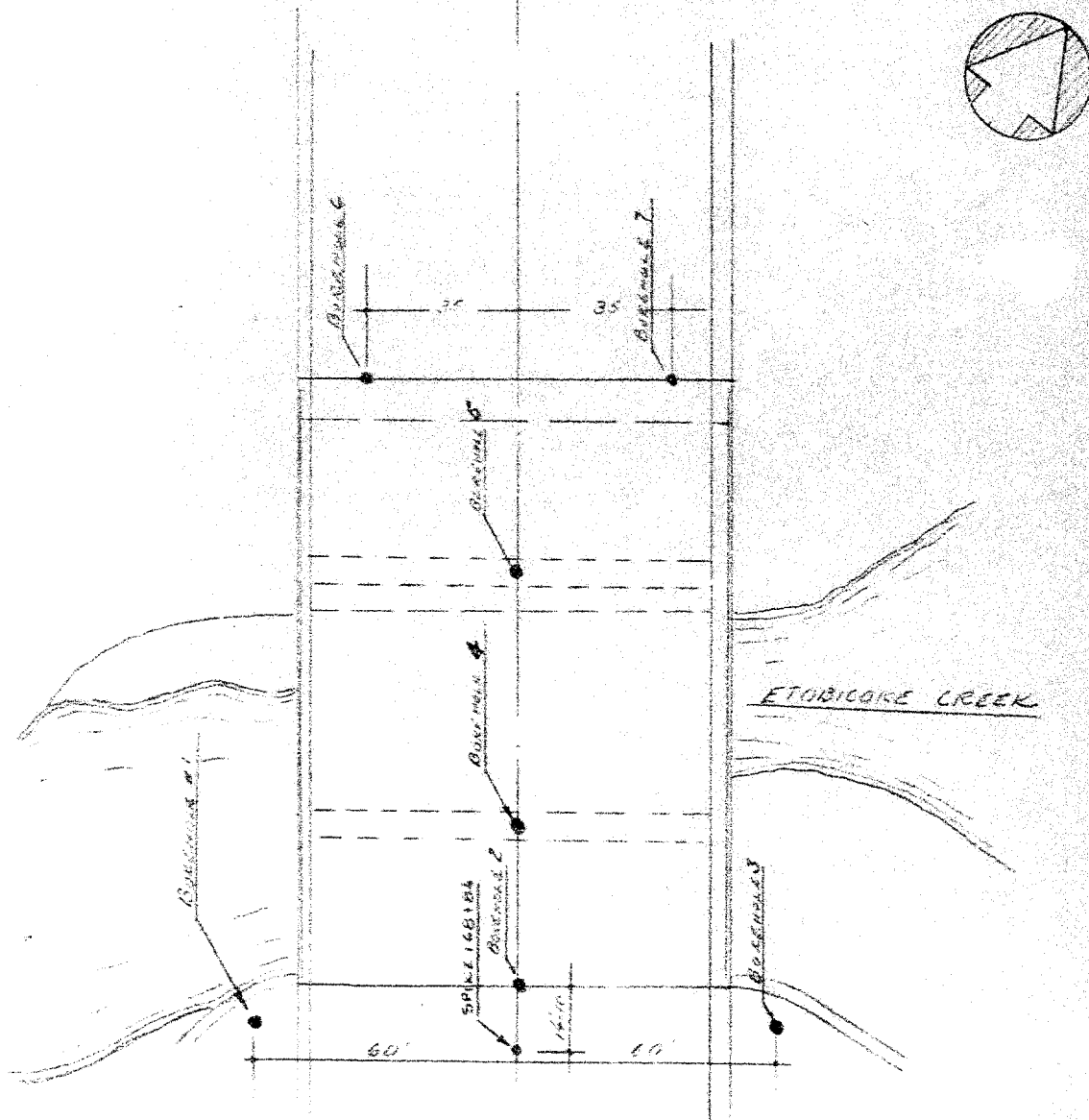
At the request of the designer seven bore holes were drilled on this site as located on the attached sketch plan.

The soil encountered in all holes was primarily of a gravelly texture and varied from a clay gravel to a sandy and silty gravel. Some boulders were encountered. The bore holes all encountered bedrock at shallow depth the maximum value being 15 feet for bore hole No. 2. Bore holes Nos. 1, 3, 4, 5 and 6 went down to approximately 11 feet before bedrock was encountered and bedrock No. 7 went down 6 feet.

The bedrock consists primarily of a foliated bluish gray clay shale inter-bedded with limestone layers.

At such a proximity to the bedrock, the bearing capacity of the soil will depend very extensively upon the size of the footings which are to be used. These footings must be at a certain depth below the surface both because of possible frost heaving and also because of possible scouring. A minimum value of 2.5 tons per square foot could be used in design provided the footings are approximately 7.5 feet below grade. We would suggest, however, that the possibility of building the structure directly on bedrock be investigated thoroughly. This bedrock would, in our opinion, support a load of 10 tons per square foot without any difficulty.

No water table was encountered in the bore hole partly because of the impervious nature of the soil. It should be noted, however, that when carrying out an excavation which will remain open a considerable period of time as compared to the duration of the water table in the bore hole, some seepage must be expected and the silty nature of some of the binder may result in slightly difficult working conditions.



RACEY, MAX CALLUM AND ASSOCIATES
 LIMITED
 SOIL TEST BORINGS FOR
 PROPOSED H'WAY #401 -
 BRIDGE OVER ETOBICOKE CREEK
 DRG S-500/54/T-13-3 - SEPT 14 1954
 PREP & DES. RQ SCALE 1" = 40'-0"

Order No. S-50454/T-13
Dated Aug. 31st, 1954

KACEY, MACCALLUM AND ASSOCIATES
Limited
Foundation Engineering Division

MAURICE LEBER
Driller

Job Order 30/8/54
Hole Order 30/8/54

Engineering Data Sheet for Borehole: 1

R. WRIGHT
Holder

Job Name: SOILS INVESTIGATION - MALTON, ONT. - BRIDGE #3

K. TUBBESING

Job Located: ETOBICOKE CREEK, APPROX. 1 MILE SOUTH OF ELM BANK, BRIDGE

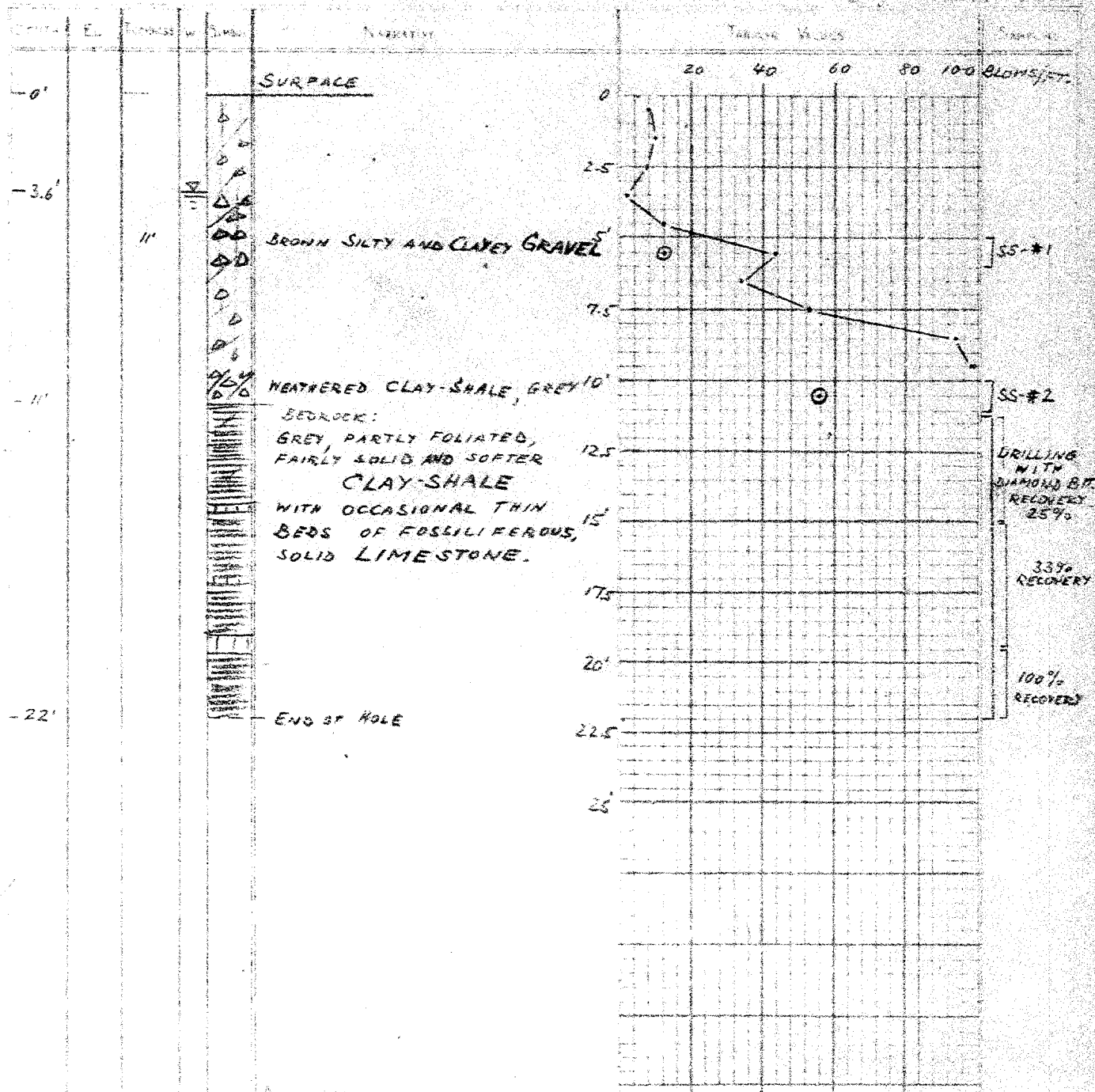
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Hole Located: AS SHOWN ON ATTACHED SKETCH.

#3

Hole Elevation: Datum:

3-9-54



3. 2. 1. 0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 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1016. 1017. 1018. 1019. 1020. 1021. 1022. 1023. 1024. 1025. 1026. 1027. 1028. 1029. 1030. 1031. 1032. 1033. 1034. 1035. 1036. 1037. 1038. 1039. 1040. 1041. 1042. 1043. 1044. 1045. 1046. 1047. 1048. 1049. 1050. 1051. 1052. 1053. 1054. 1055. 1056. 1057. 1058. 1059. 1060. 1061. 1062. 1063. 1064. 1065. 1066. 1067. 1068. 1069. 1070. 1071. 1072. 1073. 1074. 1075. 1076. 1077. 1078. 1079. 1080. 1081. 1082. 1083. 1084. 1085. 1086. 1087. 1088. 1089. 1090. 1091. 1092. 1093. 1094. 1095. 1096. 1097. 1098. 1099. 1100. 1101. 1102. 1103. 1104. 1105. 1106. 1107. 1108. 1109. 1110. 1111. 1112. 1113. 1114. 1115. 1116. 1117. 1118. 1119. 1120. 1121. 1122. 1123. 1124. 1125. 1126. 1127. 1128. 1129. 1130. 1131. 1132. 1133. 1134. 1135. 1136. 1137. 1138. 1139. 1140. 1141. 1142. 1143. 1144. 1145. 1146. 1147. 1148. 1149. 1150. 1151. 1152. 1153. 1154. 1155. 1156. 1157. 1158. 1159. 1160. 1161. 1162. 1163. 1164. 1165. 1166. 1167. 1168. 1169. 1170. 1171. 1172. 1173. 1174. 1175. 1176. 1177. 1178. 1179. 1180. 1181. 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SPT
#3

Order No. S-500/SPT-13

Dated Aug. 31/54

Day Month Year

Hole Began 25/8/54

Hole Ended 26/8/54

RACEY, MacCALLUM AND ASSOCIATES

Limited

Foundation Engineering Division

M. LEGER

Driller

R. WRIGHT

Helper

Engineering Data Sheet for Borehole: 2

Job Name: SOILS INVESTIGATIONS - MALTON, ONT. - BRIDGE #3

Job Located: ETOSICORE CREEK, APPROX. 1 MILE SOUTH OF ELM BANK

Hole Located: AS SHOWN ON ATTACHED SKETCH

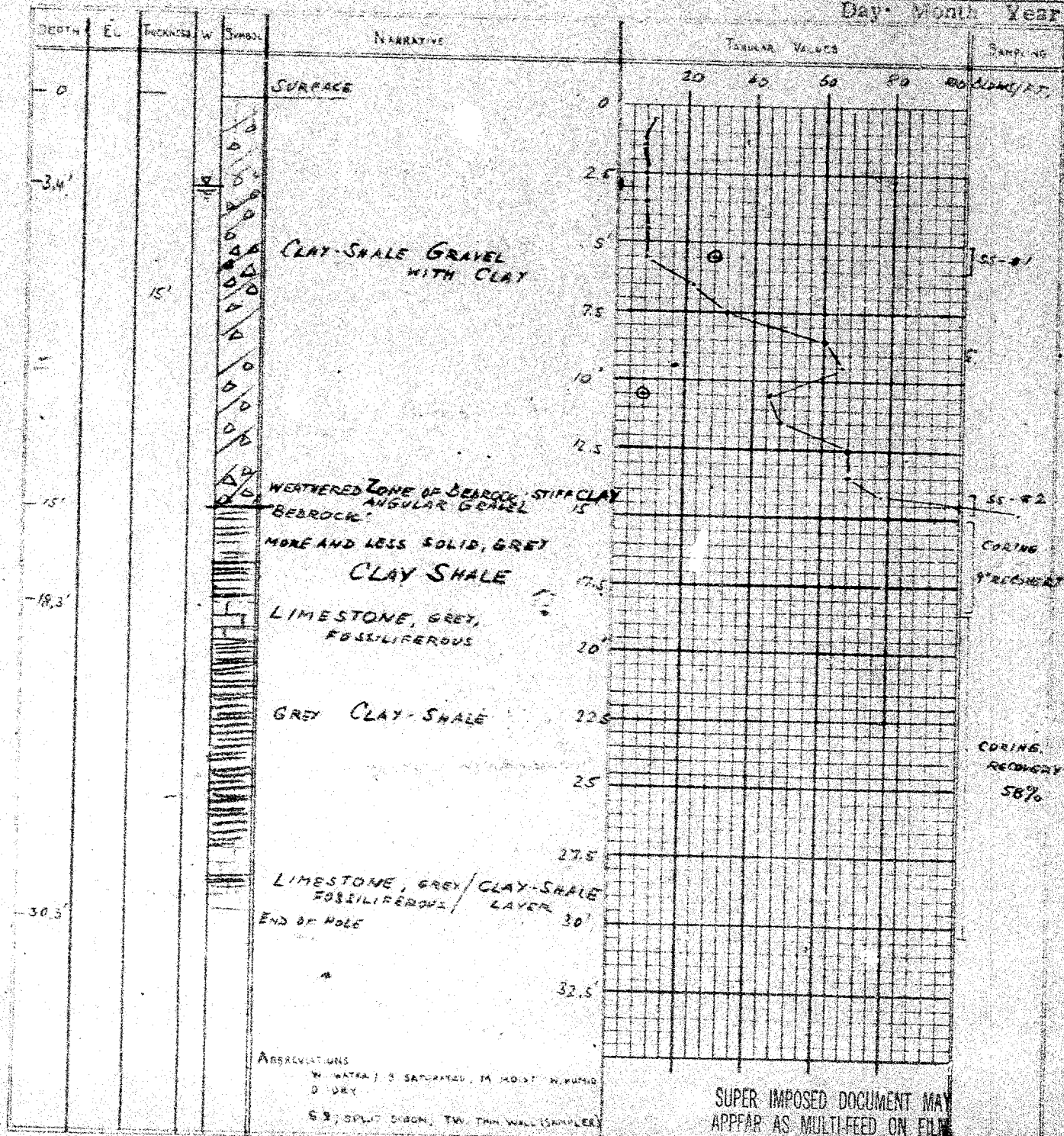
Hole Elevation: Datum:

K. TUBBSING

Checked by

30-8-54

Day Month Year



Order No. 5-500/54/T-13

Dated Aug 31/54 1954

Day 31/8/54

Hole Began 31/8/54

Hole Ended 31/8/54

FAVEY, MURPHY, LEE AND ASSOCIATES

Limited

Geotechnical Engineering Division

Engineering Data Sheet for Borehole: 3

M. LEE

Driller

R. WRIGHT

Supervisor

Job Name: SOILS INVESTIGATIONS - MALTON, ONT. - BRIDGE #3

Job Location: ETUCCOKE CREEK, APPROX. 1 MILE SOUTH OF ELMHURK

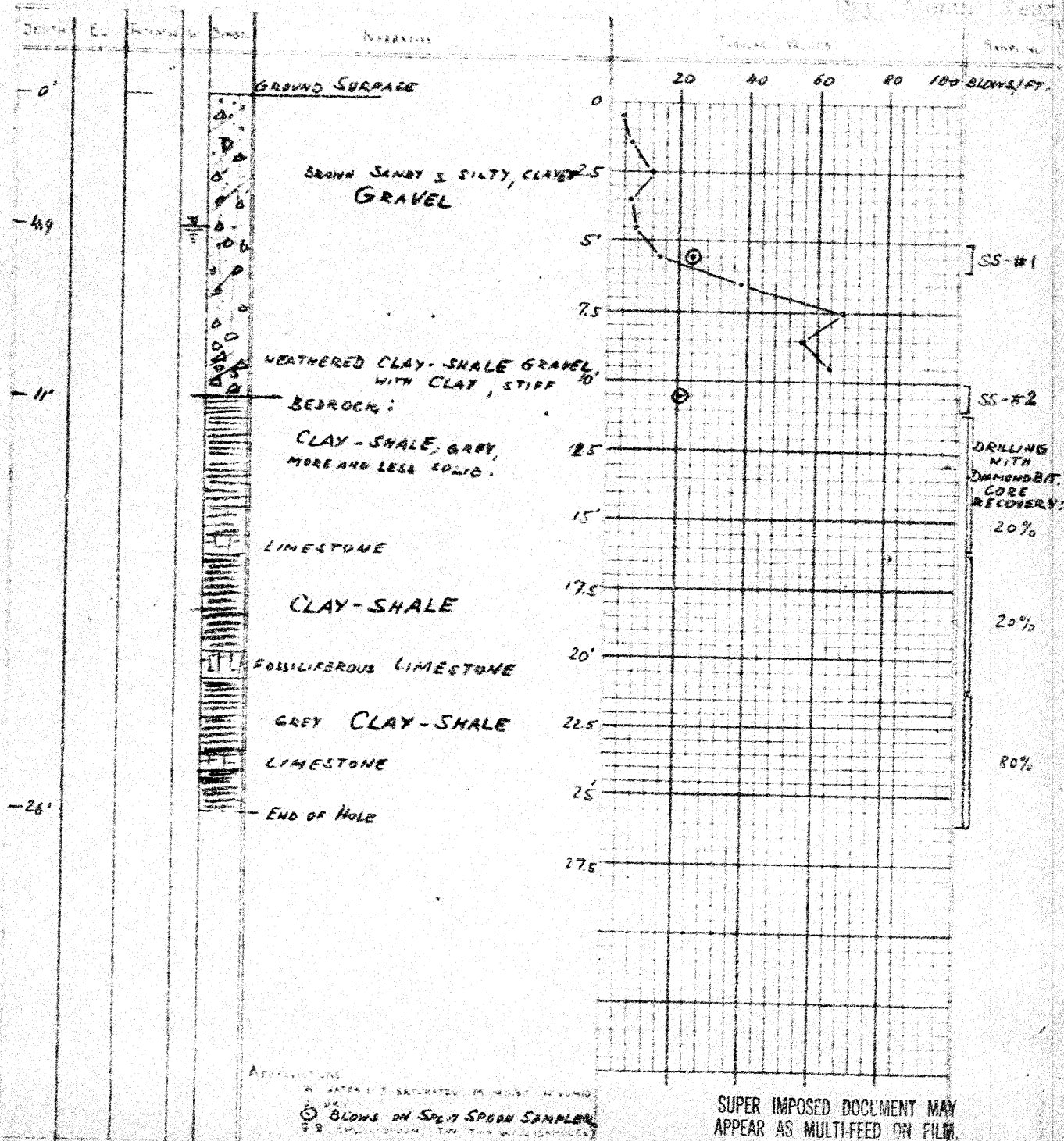
Hole Located: AS SHOWN ON ATTACHED SKETCH.

Hole Purpose: Routine

K. TUBBESING

Checked by

3/9/54



SITE #3

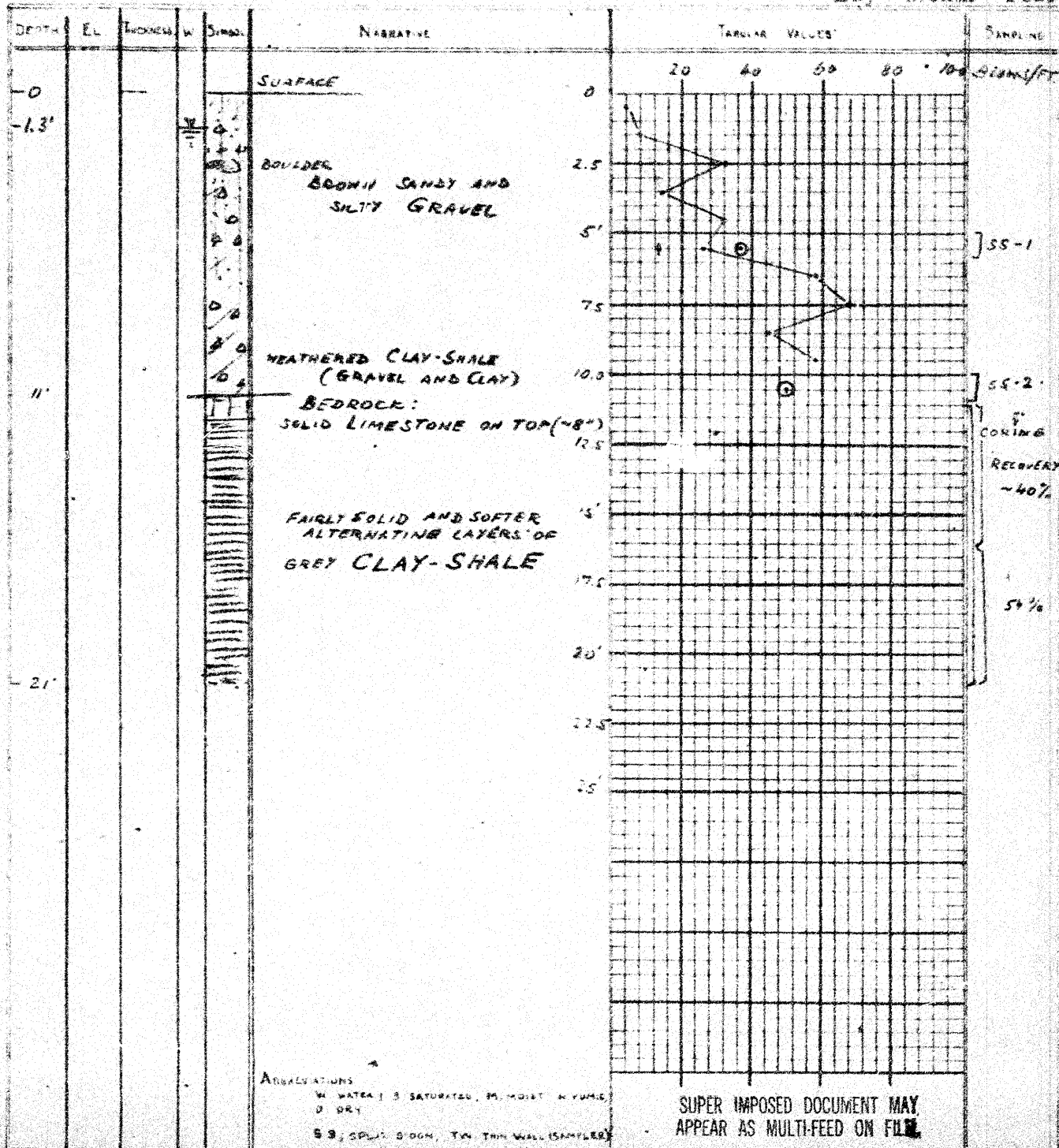
Order No.: S-500/SW/T-13
 Dated Aug. 31st, 1954
 Day Month Year
 Hole Begun 27/8/54
 Hole Ended 27/8/54

RACEY, MacCALLUM AND ASSOCIATES
 Limited
 Foundation Engineering Division
 Engineering Data Sheet for Borehole: 4

M. LEGER
 Driller
R. WRIGHT
 Helper

Job Name: SOILS INVESTIGATION - MALTON, ONT. - BRIDGE #3
 Job Located: ETOBICOKE CREEK, APPROX. 1 MILE SOUTH OF ELY BANK
 Hole Located: AS SHOWN ON ATTACHED SKETCH
 Hole Elevation: _____ Datum: _____

K. TUBESING
 Checked by
30 - 8 - 54
 Day Month Year



Order No. S-504/SY/T-13Dated AUG. 31st, 1954Day 10th Month 1st Year 1954Bore Began 1/9/54Hole Ended 2/9/54

PACKET, McCLELLAN AND ASSOCIATES

Limited

Foundation Engineering Division

Engineering Data Sheet for Borehole 5

M. LEGER

Inspector

R. WRIGHT

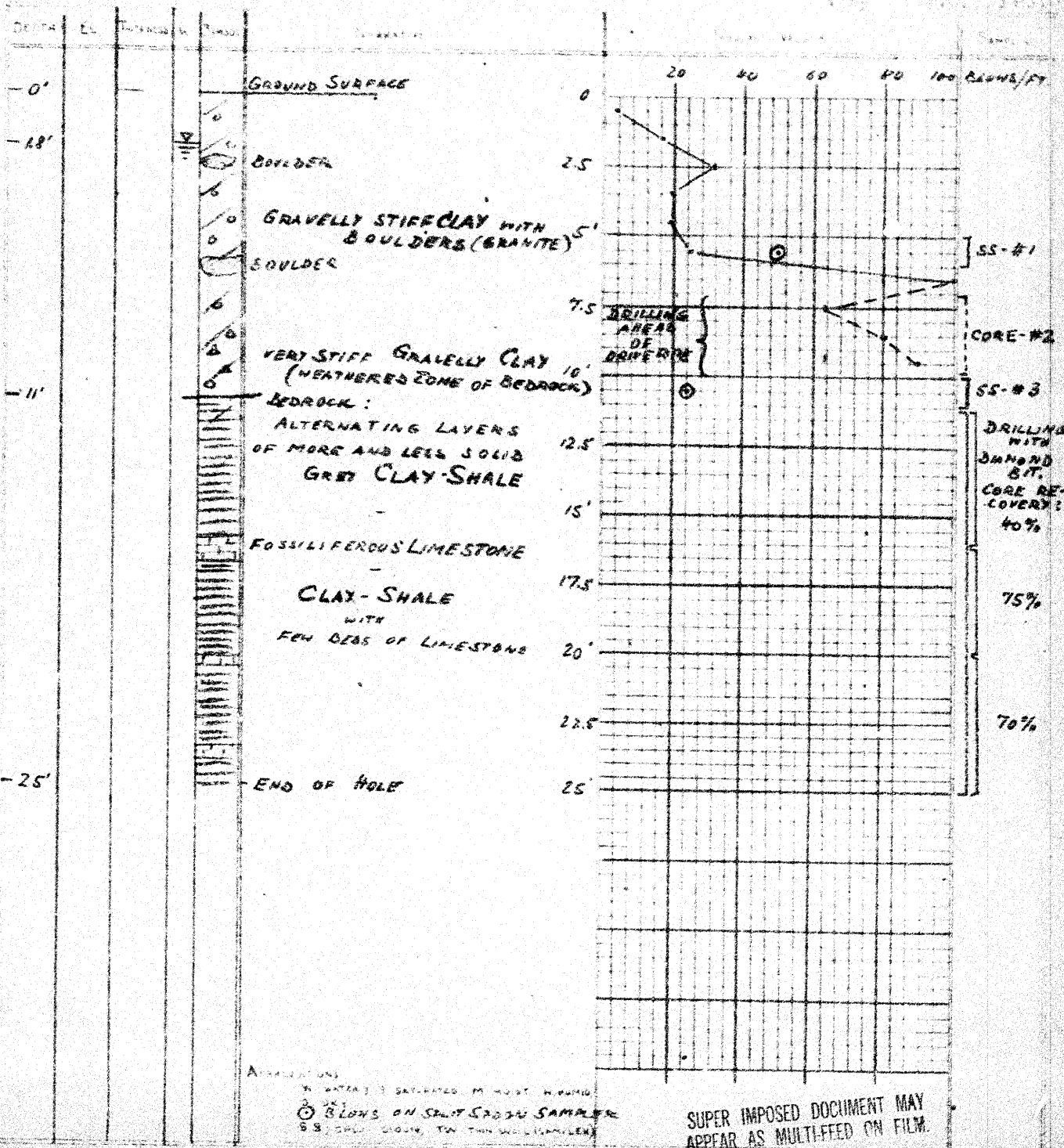
Helper

Job Name: SOILS INVESTIGATION - MALTON, ONT. - BRIDGE #3

K. TUBBESING

Job Location: ETOBICOKE CREEK, APPROX. 1 MILE SOUTH OF ELMBANK

Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCHHole Elevation: Datum: 3/9/54

Order No. S-500/54/T-13

RACEY, MacGILLIVRAY AND ASSOCIATES

M. LEGER

Dated AUG. 31st, 1954

Limited

Driller

Day March 1954

Foundation Engineering Division

Bore Log No. 2/4/54

R. WRIGHT

Hole Depth 3/9/54

Engineering Data Sheet for Borehole: 6

Helper

Job Name: SOIL INVESTIGATION - MALTON, ONT. - BRIDGE #3

K. TUBBESING

Job Location: ETOBICOKE CREEK, APPROX. 1 MILE SOUTH OF ELMSBANK

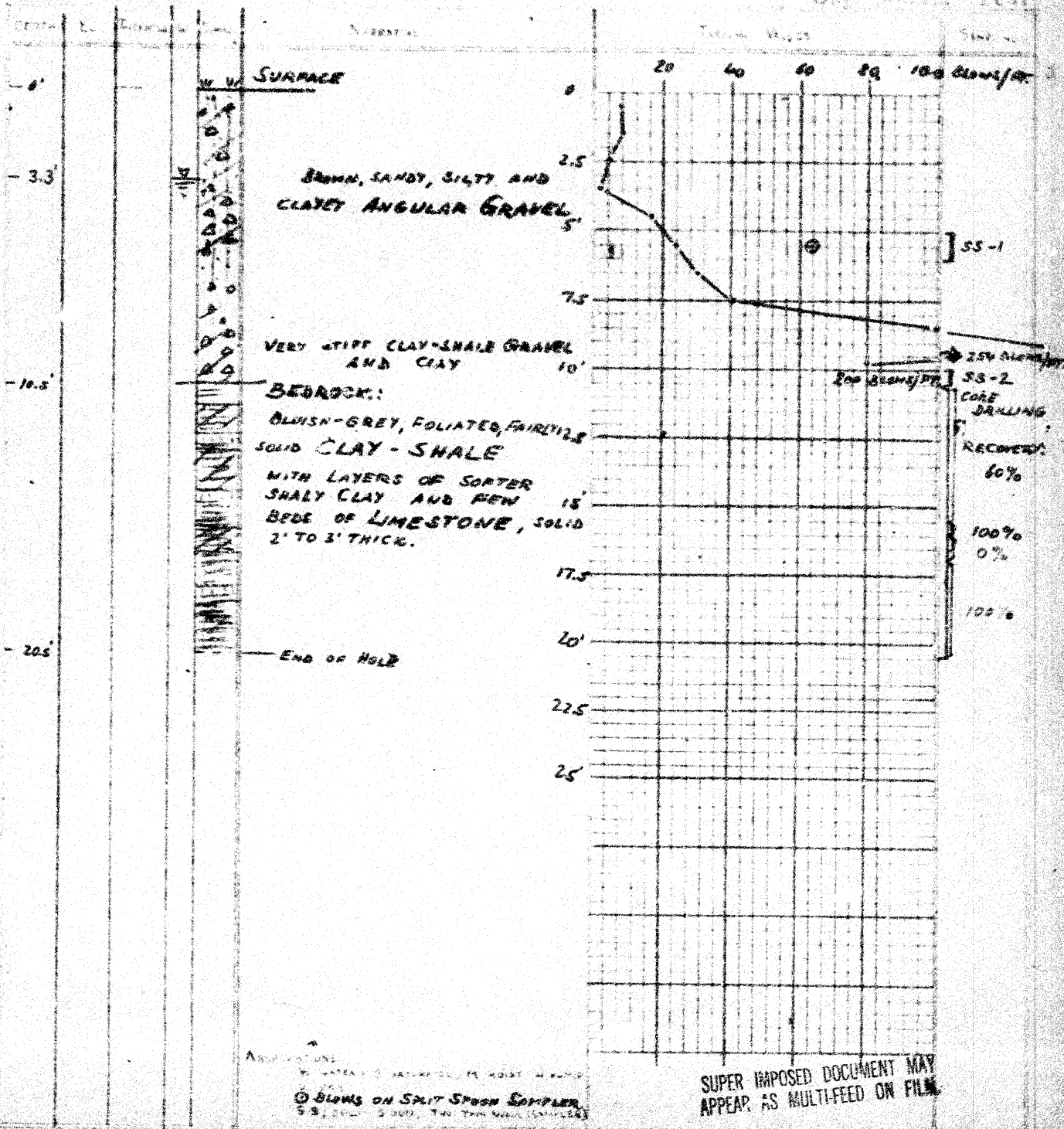
Checked by

Notes: AS SHOWN ON ATTACHED SKETCH

Hole Description: Rating

10/9/54

Day March 1954



Order No.: S-500/54/T-13 RACEY, MacGILLUM AND ASSOCIATESDated AUG. 31/54

Limited

M. LEGER

Driller

Day Month Year

Foundation Engineering Division

Hole Begun 3/9/54R. WRIGHTHole Ended 7/9/54Engineering Data Sheet for Borehole: 7

Helper

Job Name: SOIL INVESTIGATION - MALTON, ONT. - BRIDGE # 3K. TUBBINGSJob Located: ETOBICOKE CREEK, APPROX. 1 MILE SOUTH OF EMBANK

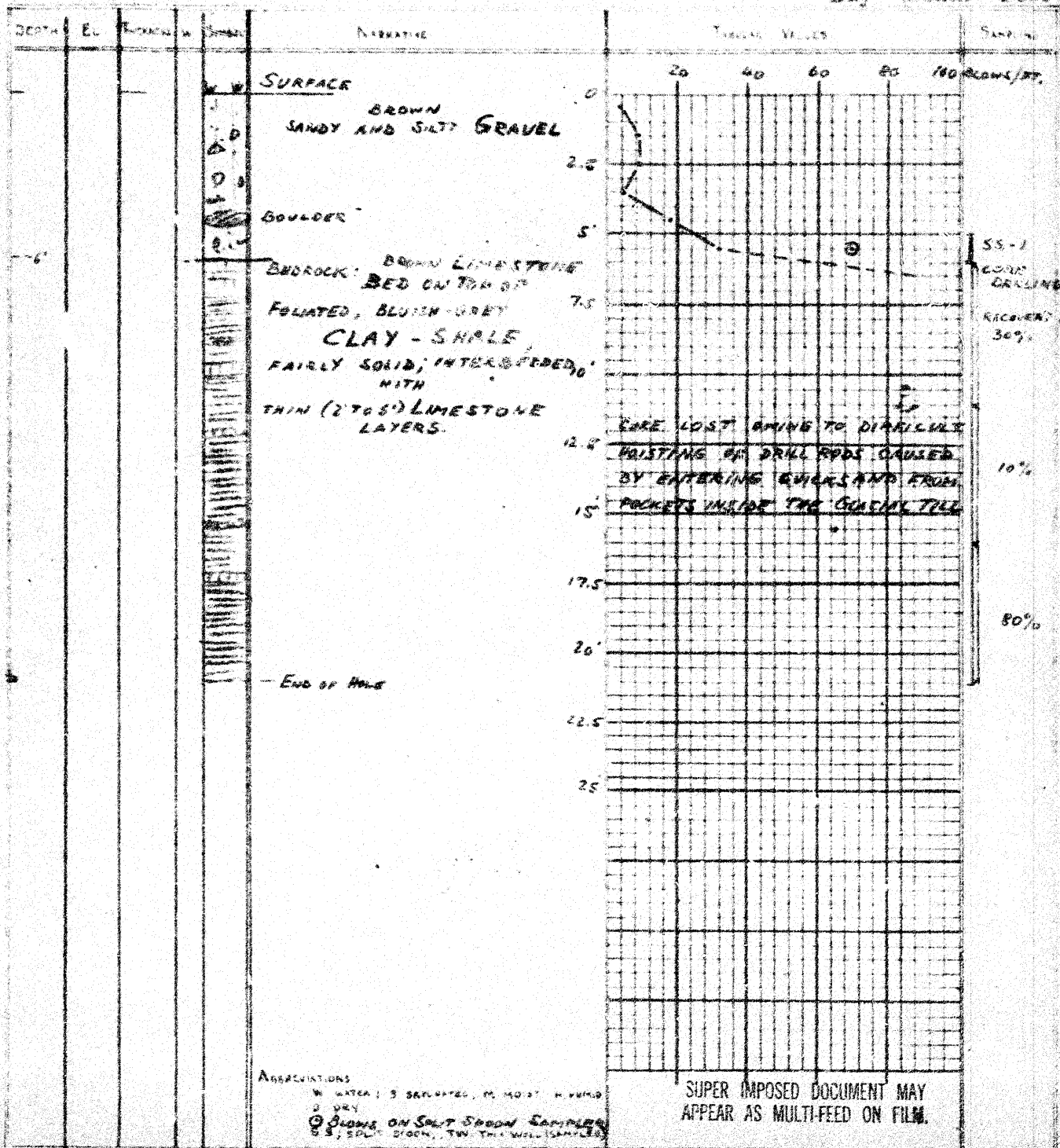
Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH

Hole Elevation: _____ Datum: _____

10/9/54

Day Month Year

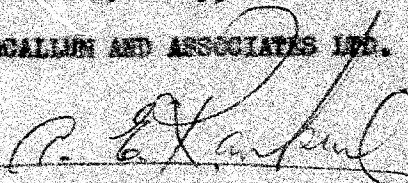


REPORT NO. S-500/54/T-13

We trust that the foregoing information will be satisfactory for your present needs. We have enclosed Engineering Data Sheets which digest the information for each of the bore holes at each of the sites. If you so desire, we shall be glad to forward transcripts of the actual field logs as kept by the engineer at the site. Samples and rock cores are being kept for your examination and that of the prospective tenderers who would care to examine them before submitting a bid. These can be delivered to your office if you so desire.

Yours very truly,

RACEY, MACCALLUM AND ASSOCIATES LTD.



A. E. RANKINE
Director, Ontario

RHQ/PW