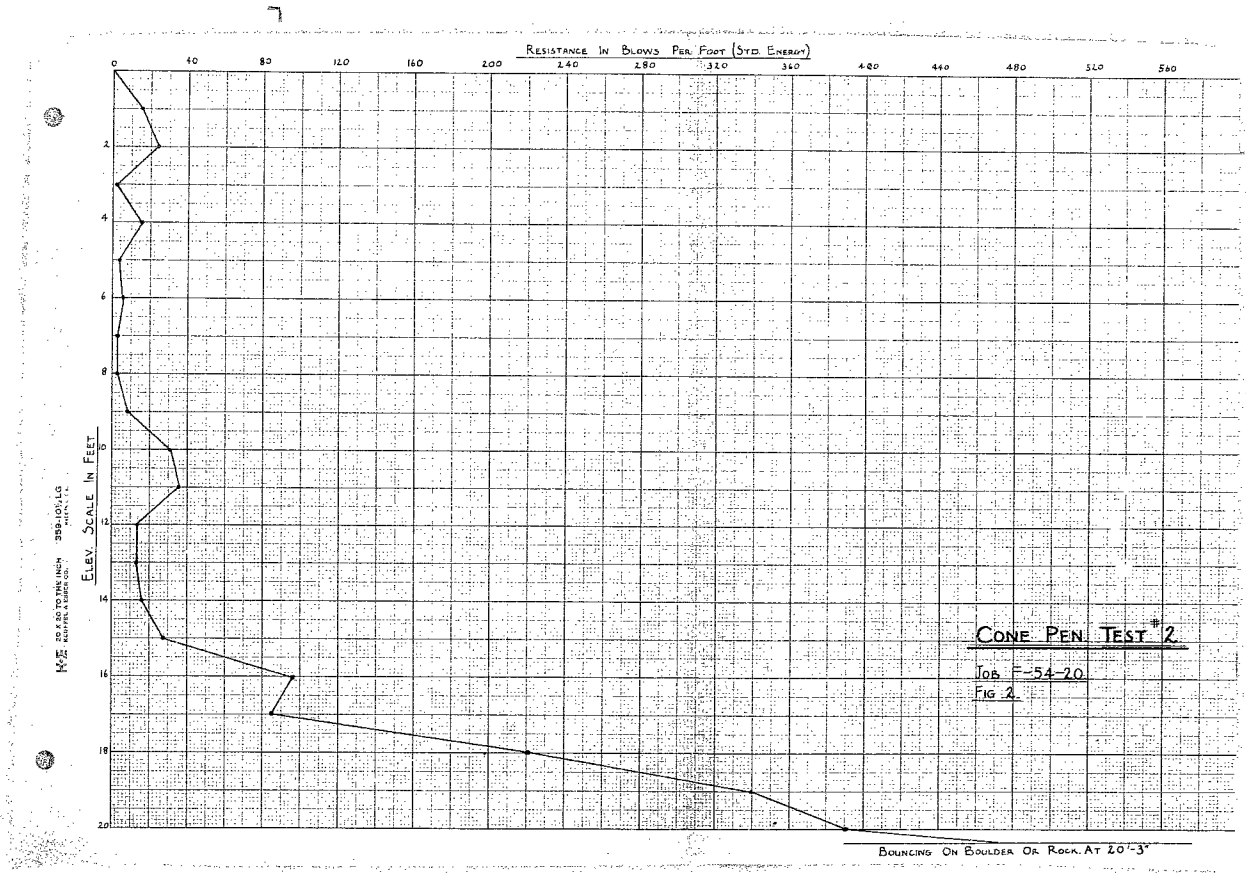
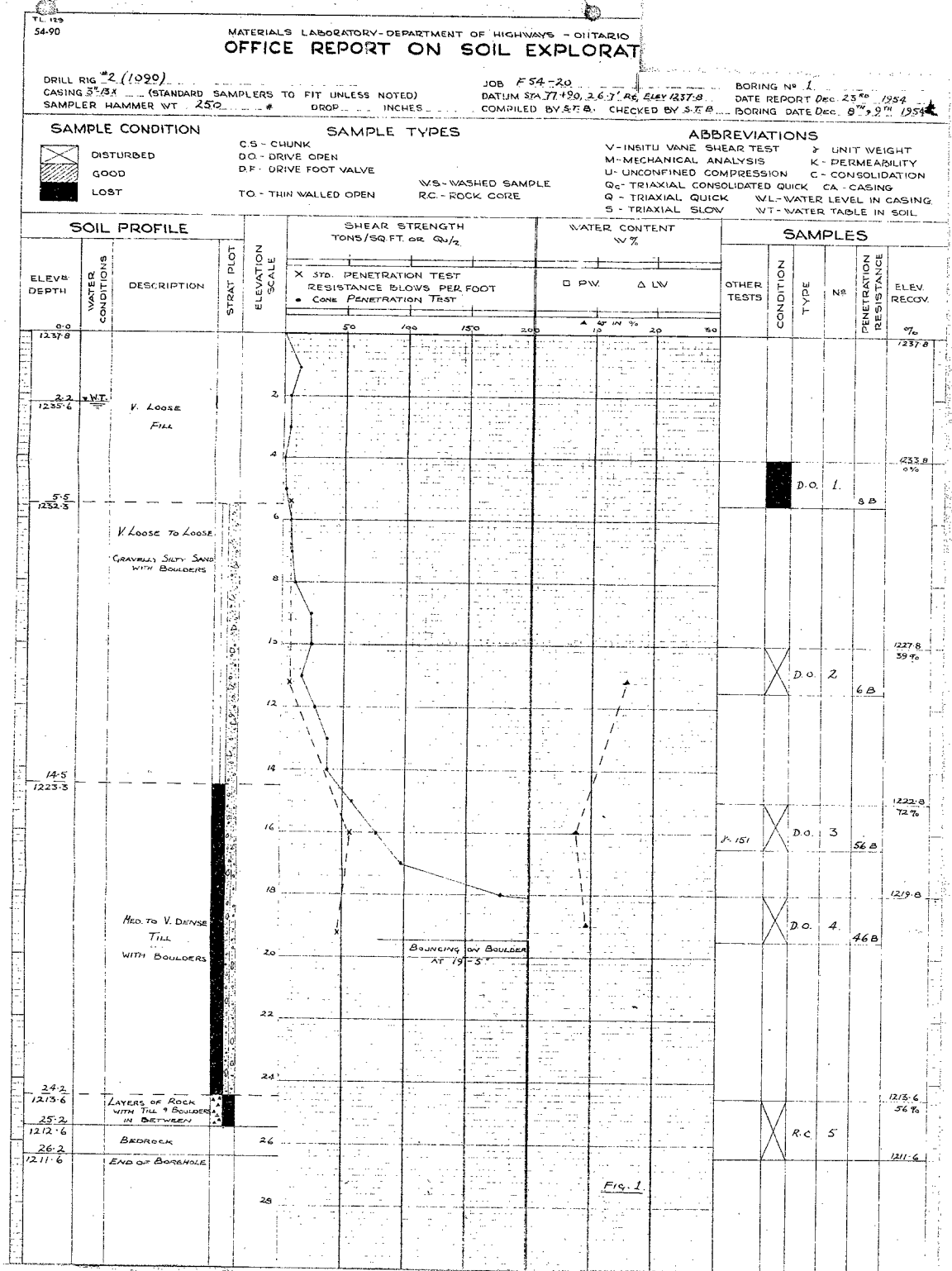


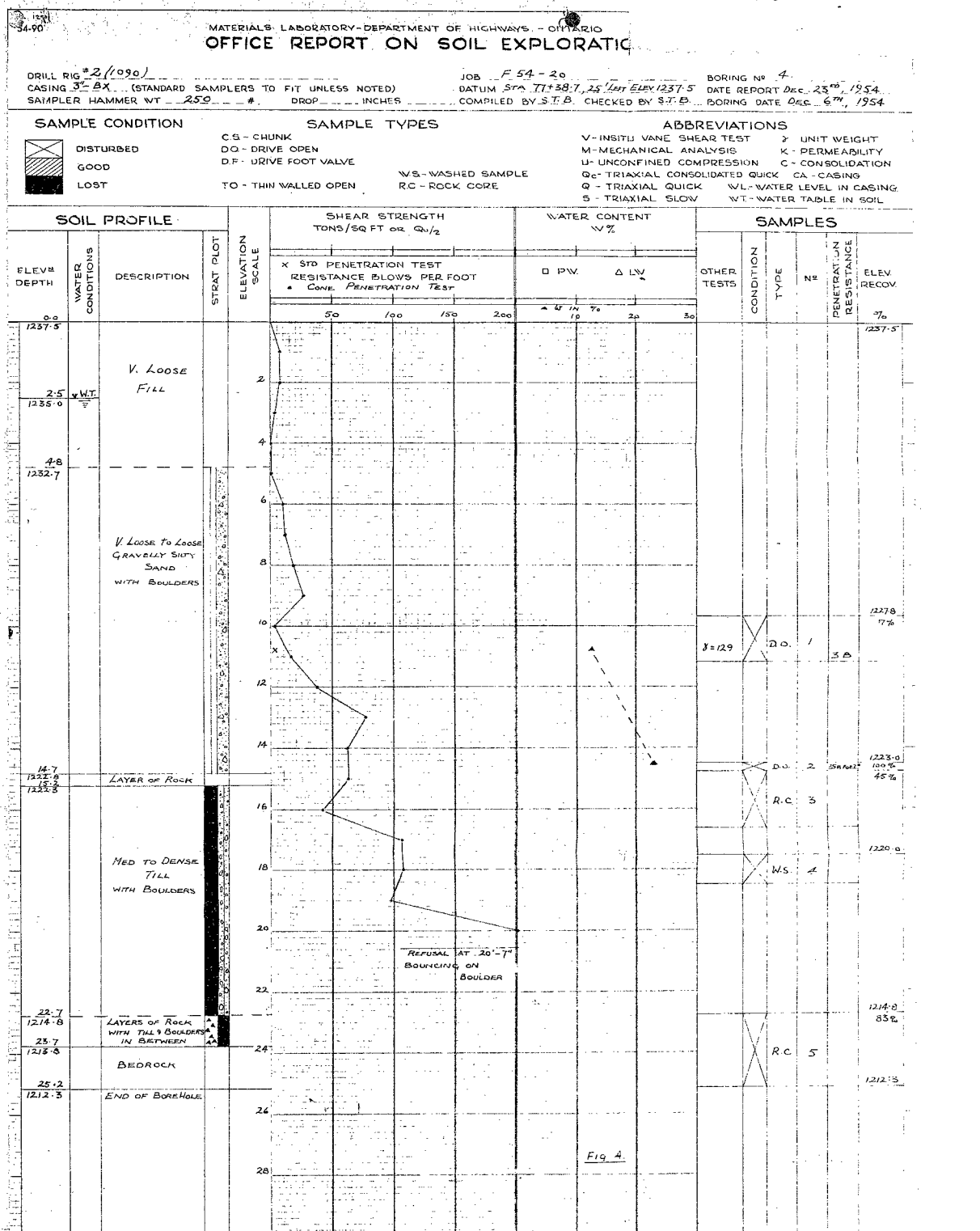
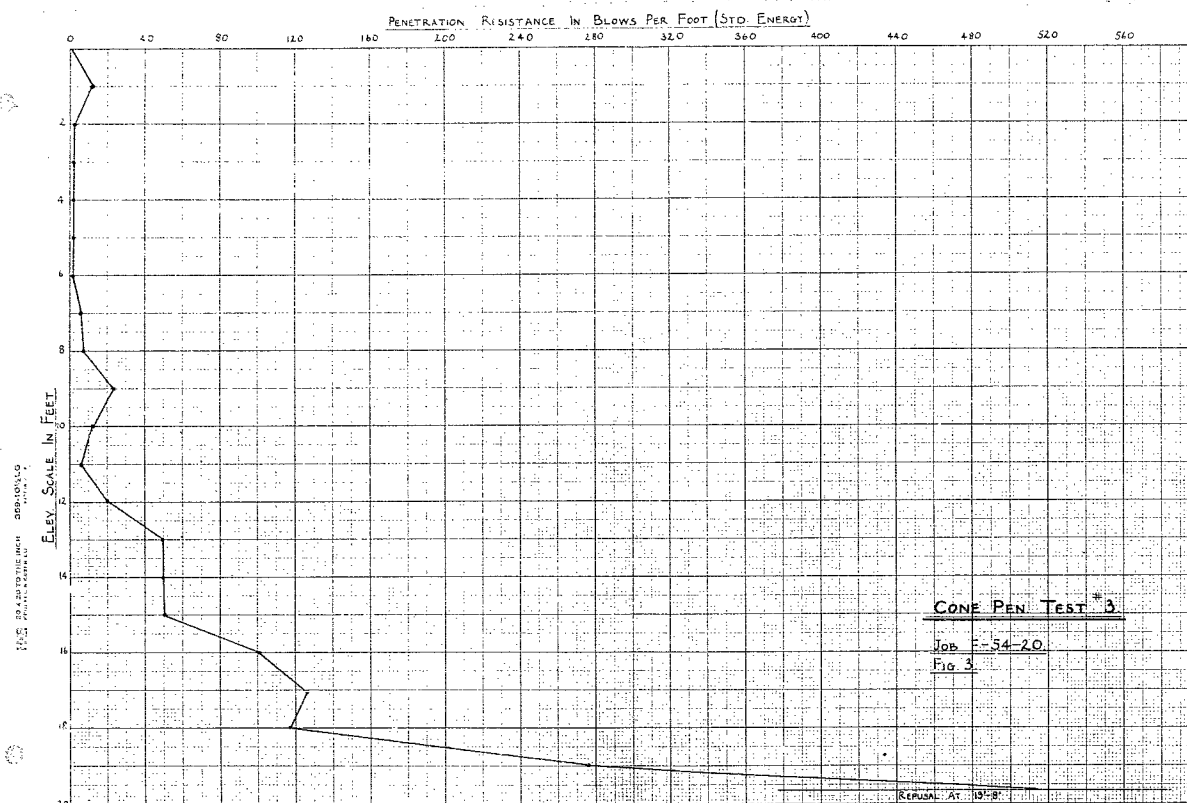
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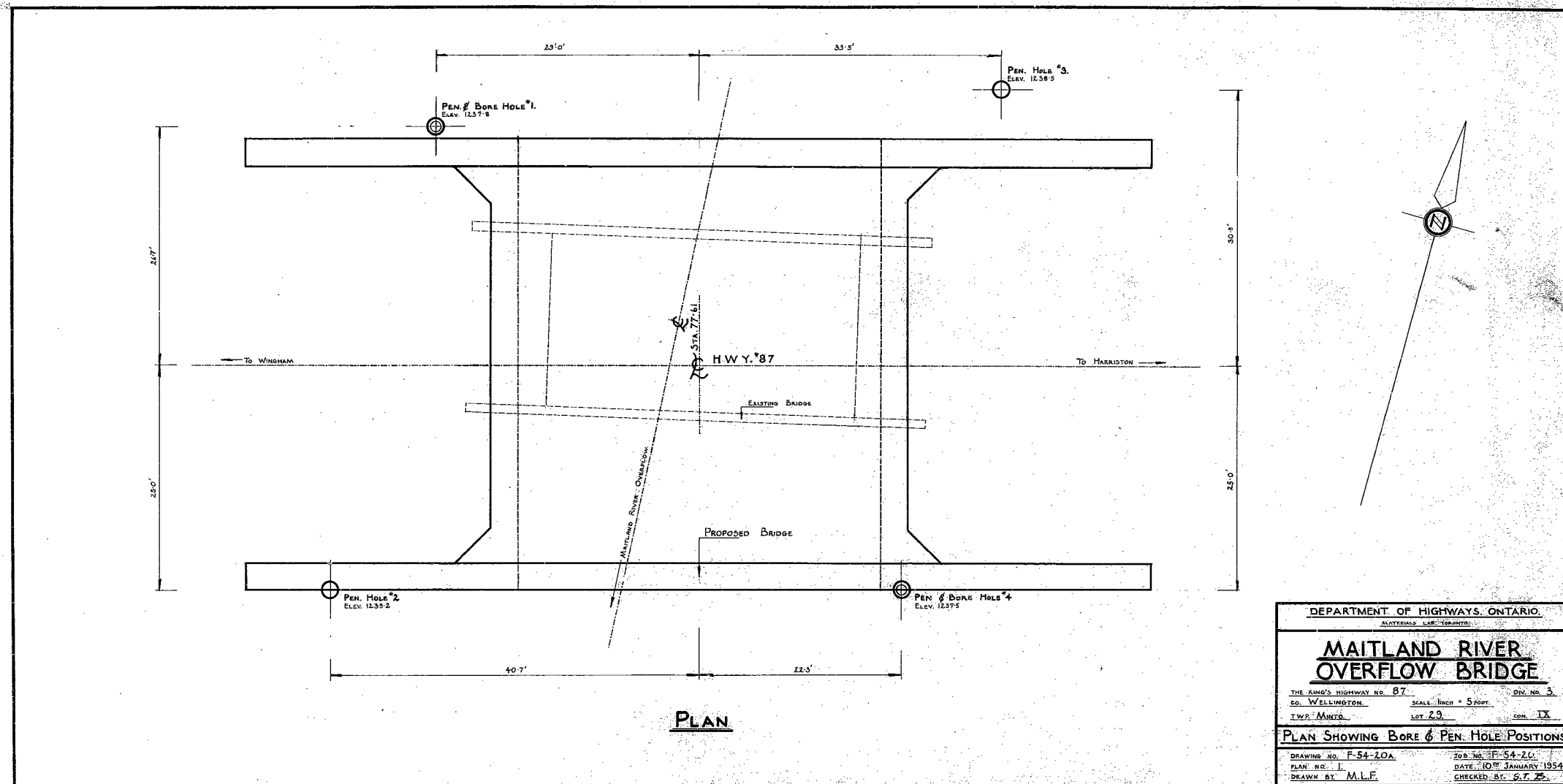
Hwy. # 87

MAITLAND OVERFLOW BRIDGE

NEAR HARRISTON







Report on
Foundation Investigation
for
Maitland Overflow Bridge
at
Highway #87 near Harriston, Ontario

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Project F-54-20

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Introduction

A bridge is to be constructed on Highway #87 about 2 miles West of Harriston, over the Maitland River Overflow.

A subsurface investigation was undertaken to determine the type of foundation to be used for the proposed structure.

Procedure

The investigation started December 4, 1954 and ended December 10, 1954.

Four dynamic cone penetrations and two boreholes were done.

The location and log data of each borehole are shown on Plan F-54-20A and Appendix I respectively.

Soil Conditions and Testing

Borehole #1 and #2

Five feet of fill overlies a 9 to 10 foot layer of silty sand.

The dynamic cone penetration resistance as well as the standard penetration indicate that the silty sand is very loose.

Below the above strata a 7.5 to 10 foot layer of till overlies the bedrock. The dynamic cone penetrated this layer for about 4 feet. The standard penetration indicates a minimum number of blows per foot of 40 for this material.

Water Condition

The water table at the time of exploration was observed at elevation 1232.7.

The difference between high and low level of the water table as given by the Department of Highways is 4.6 feet.

Analysis of Results and Recommendations

Standard penetration tests and dynamic cone penetrations indicate that the subsurface material is very low on shear strength.

Classification tests of the material indicate that the silt and very fine sand content is very high. Heavy scouring is to be expected on this site.

It is suggested that timber piles with reinforced steel points be driven into the bedrock.

The length of the piles need not exceed 25 feet.

Conclusion

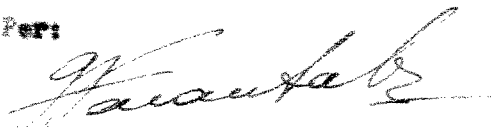
Owing to scouring and the low shearing resistance of the subsurface material, spread footings are not recommended.

It is suggested that timber piles with reinforced points be used. The piles should be driven down to bedrock to provide adequate bearing and at the same time obviate loss of the structure by scour.

According to C.S.A. Specifications, second grade timber piles will support a load of 10 tons each; the load for first grade piles may reach as high as 15 tons. The timber piles should not be driven through the till without reinforcing shoes or damage to the piles may result.

P. C. Brownridge
Materials and Research Engineer

Per:



(G. Farantatos)

GP:GCR

APPENDIX I

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