

#62-F-325 M

NEW STRUCTURE

CREEK , CON. 8/9

EAST HAWKESBURY TWP.

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REPORT OF SOIL INVESTIGATION

PROPOSED NEW STRUCTURE

OVER CRPEK

CONCESSIONS 8 & 9

EAST HAWKESBURY TOWNSHIP

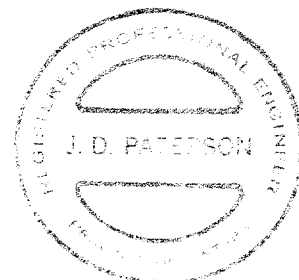
FOR

A. J. GRAHAM, P. ENG.

CONSULTING ENGINEER

REPORT NO. S 265 - 62

OTTAWA, MAY 7, 1962



Introduction:

At the request of Mr. A. J. Graham, P.Eng., on behalf of the Township of East Hawkesbury, a soil investigation was conducted at the site of a proposed culvert to be located on the West half of Lot 2 on the road allowance between Concessions 8 and 9 in East Hawkesbury Township.

The present bridge consists of boulder-filled wooden cribs supporting steel "I" beams and a wooden deck.

It is understood that the new structure will be erected somewhat to the west of the existing bridge to eliminate a sharp bend in the stream south of the road.

The stream which is unnamed on the County map empties into the East Rigaud River.

The investigation was undertaken to determine the soil conditions as an aid in deciding the best type of structure and for foundation design.

Fieldwork Procedure:

Two test holes were put down to the west of the existing bridge as shown on the Test Boring Plan.

Each hole consisted of a cone probe driven to refusal to check the uniformity of the soils and a test hole in which casing was driven and the soils sampled.

The firm of George Downing Estate Drilling, Ltd., was employed for all drilling operations and their work was supervised at all times by a member of our staff. Equipment used consisted of a standard drilling rig equipped for soil testing and mounted on a truck.

Sampling and Testing:

Samples of the various soils were taken at Holes 1 and 2 by means of Shelby thin-walled sample tubes (for cohesive soils) and the split spoon sampler (for granular soils).

The Shelby tube sample recovered was taken to the laboratory, extruded and tested for unconfined compressive strength.

The split spoon samples were retained in plastic bags. With each split spoon sample taken the Standard Penetration Test was conducted and the results are recorded as "N" values.

Observations:

(a) Soil Types.

Two soil types were encountered in the bore holes. A layer of clay 11.5 to 15 feet thick becoming softer with depth overlies dense to very dense glacial till. Details of the bore holes are shown on the Soil Profile and Laboratory Test Sheets included in this report.

(b) Groundwater.

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The groundwater level at the completion of the investigation was one foot below ground surface in Hole 1 and 4 feet below ground surface in Hole 2.

(c) Test Results.

Several attempts were made to recover Shelby Tube samples. Because the clay was very soft below the elevation of the bottom of the stream only one sample remained in the tube after removal from the test hole.

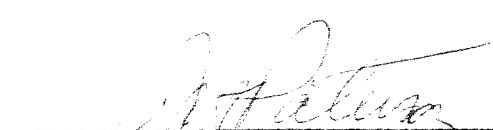
The unconfined compressive strength of this sample was only 0.17 ton per square foot.

Conclusions and Recommendations:

The underlying clay at and below the elevation of the bottom of the creek is extremely soft and of very low strength. Because of this it will be necessary to transfer the weight of any type of concrete structure to the glacial till which lies at Elevation 75.2, approximately 7 feet below the creek bottom.

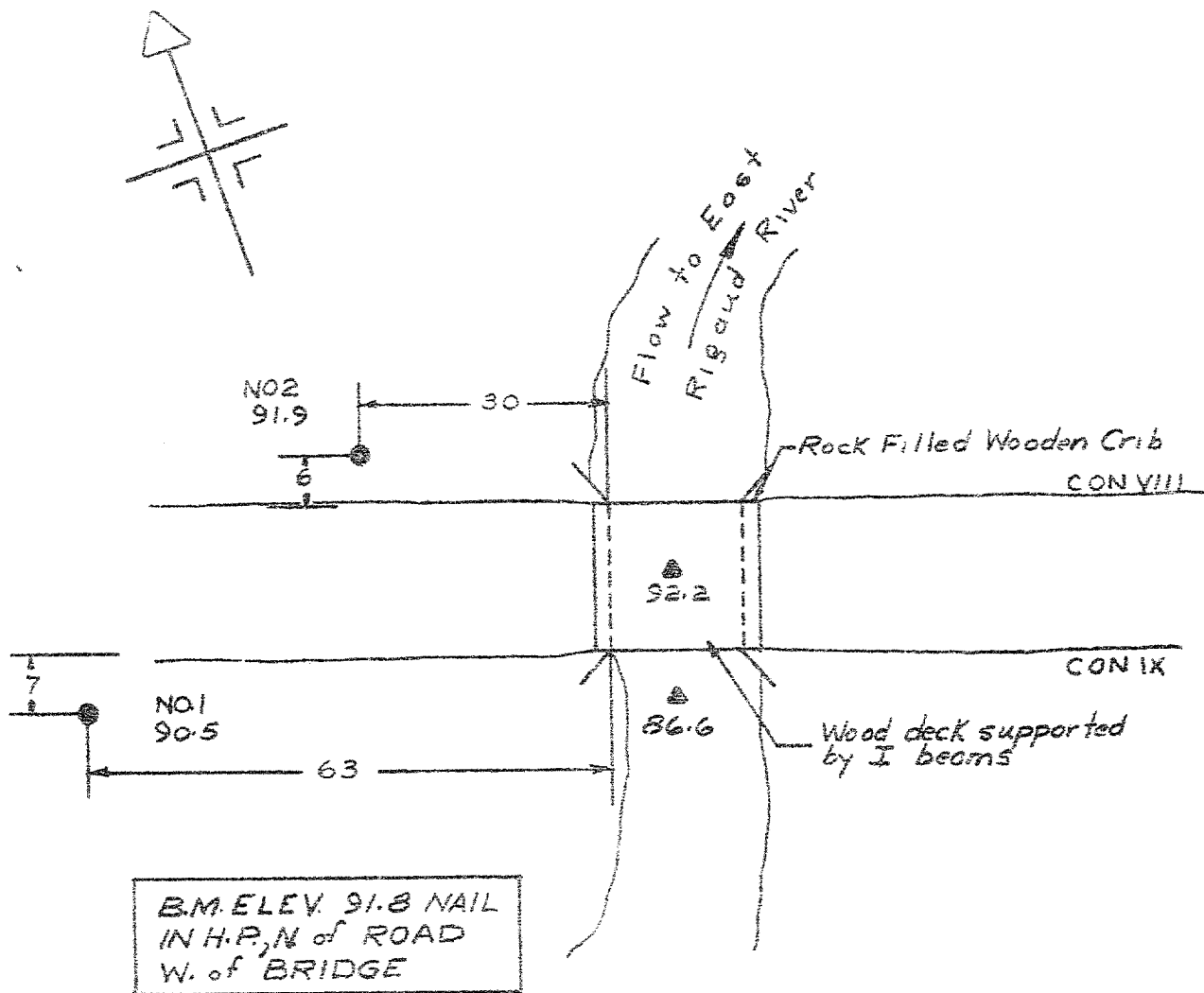
If a concrete culvert is considered then it will be necessary to extend pier footings down to the till and the recommended maximum safe soil loading on the undisturbed till is 4000 pounds per square foot.

In excavating to this depth it will be necessary to drive sheet piling in order to contain the soft clay which, otherwise, would slough into the excavation. Some means of keeping the excavation dry will also have to be provided.



J. D. Paterson, P. Eng.

JDP/MMC.



TEST BORING PLAN
 PROPOSED CULVERT
 WEST $\frac{1}{2}$ LOT 2
 CON VIII & CON IX
 TWP EAST HAWKESBURY
 COUNTY of PRESCOTT

SCALE 1"=20' MAY 1962

