

Mr. E. H. Saint,
Regional Materials Engineer,
Regional Office (North Bay).

Foundation Section,
Materials and Testing Div.,
Room 137, Lab. Bldg.

July 26, 1966

Proposed District #14 Office Location
Our File No. 66-P-66

The Foundation Section has completed a limited field investigation at the site of the proposed District #14 office and yard.

A brief summary of the findings, together with recommendations, are as follows:

Since the engineering properties of the varved clays beneath the area are fairly well known by our Section, the main purpose of the recent investigation was to establish the depth of the overburden within the whole site. For that reason, only one sampled borehole and five cone penetration tests were carried out.

The conclusions, however, are based not only upon the recent field work, but upon the previous explorations in the neighbourhood. On the attached plan, the present boreholes as well as the ones put down during the past years by the Foundation Section and by consultants, are marked.

It was quite clearly established that the entire area is covered by a thick deposit of varved clay, extending down to depths of 80 - 110 ft. below ground level. Underlying the varved clay, some hard sandy till and limestone bedrock was found.

The upper eight ft. of the varved clay is preconsolidated by desiccation, having shear strength values of 800 - 1000 p.s.f. Below this crust, the values of shear strengths drop considerably, being in the order of 500 p.s.f. at the depth of 20 - 30 ft. The shear strength below 30 ft. gradually increases again with depth. The material is very sensitive, having an average value of sensitivity of $S = 10$. (For detailed description of the New Liskeard varved clays, see: Lo and Stermac - "Failure of an Embankment Founded on Varved Clay" - D.H.O., 1964).

cont'd. /2 ...

July 26, 1966

Based upon the available information, we believe that the site chosen for the proposed District #14 office and yard - from the foundation point of view - cannot be considered a very favourable one.

It is likely that settlement problems will arise under the buildings. Beneath the 18-ft. high embankment of the proposed Hwy. #11 Tri-Town bypass, some 500 - 1000 ft. north-east of the office site, settlements in excess of 2 ft. were observed within approx. 2.5 years. Naturally, underneath the proposed buildings, smaller loads will be imposed on the soil, and stresses will penetrate to much shallower depths. Therefore, settlements of smaller magnitude are anticipated.

While for a detailed foundation report, additional bore-holes and laboratory tests will be necessary at the exact locations of the buildings, the following general recommendations may be given:

a) Buildings supported on spread footings would have a design load of approx. 1000 p.s.f. The depth of footings should be kept as high as frost penetration permits. If time of 1 - 2 years is available between the design layout of the buildings and the construction, some preloading of the soil might be considered at the building locations. (Material will be available from the proposed partial removal of the bypass fill.)

b) Buildings might also be supported on friction piles. Approx. 12 in. diameter timber piles with an embedded length of 50 ft., will support roughly 10 Tons/pile. Settlements, of course, will not entirely be eliminated by the piled foundations, either.

If our further assistance is required, please feel free to contact this office.

AB/MdeF
Attach.

a J. J. J.
A. Barsvary,
SENIOR FOUNDATION ENGINEER
For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

cc: Foundations Office
Gen. Files

66-1-66

No report

required

MEMORANDUM

To: Mr. A. Stermac,
Pr. Foundations Eng.,
materials and Testing,
Downsview.

FROM: Materials and Testing,
Northern Region,
North Bay.

DATE: June 23, 1966.

OUR FILE REF.

IN REPLY TO

SUBJECT: Re: Proposed District 14 Office Location.

Attached is the request for a foundations investigation, and property plans for a proposed District Office and Storage yard. I am forwarding this project to you due to the complex nature of the soils in this area. Your office has carried out extensive subsoil investigations in the immediate area and can probably give a fair appraisal of the property from this information.

E.R. Saint
Regional Materials Engineer



ERS/tf
C.C. D. Baird
B. Gayman
file

REQUISITION NO. 3623

TO: DISTRICT ENGINEER

DISTRICT: DIST. #13 N. Bay

DATE **June 21/66**

NOTE: THIS FORM MUST BE USED FOR ALL PROJECTS FOR WHICH SPECIAL SERVICES ARE RESPONSIBLE

PLEASE INDICATE WHICH OF THE THREE FOLLOWING CATEGORIES APPLY

AN EMERGENCY PROJECT

ALL PROJECTS OF THIS NATURE MAY
BE UNDERTAKEN AT THE DISCRETION
OF THE DISTRICT IN WHICH CASE THIS
FORM WILL BE USED AS A CONFIRM-
ING DOCUMENT ONLY.

NORMAL MAINTENANCE

ALL PROJECTS OF THIS NATURE MAY BE UNDERTAKEN AT THE DISCRETION OF THE DISTRICT BUT EACH ITEM MUST NOT EXCEED AN ESTIMATED COST OF \$200.00 IN WHICH CASE THIS FORM WILL BE USED AS A CONFIRMING DOCUMENT ONLY.

MAJOR PROJECTS (NON-EMERGENCY - EXCEEDING \$200,00)

ALL PROJECTS OF THIS NATURE MUST
BE APPROVED BY THE REGIONAL
SPECIAL SERVICES INSPECTOR BE-
FORE UNDERTAKEN.

MULTIPLE PROJECTS MAY BE INCLUDED ON ONE FORM PROVIDED THEY ARE CONCENTRATED AT ONE SITE

REQUIRED FOR Soils & Foundation report
New Liskeard

REQUESTED BY

SIGNED _____
DISTRICT ENGINEER

SIGNED R. H. Gorman
REGIONAL SPECIAL SERVICES INS.

DISTRICT OFFICE SUPERVISOR

GAYMAN

*Prepared Dist. 14
Office Location & Patrol
yard.*

Mr. E. R. Saint,
Regional Materials Engineer,
Regional Office (North Bay).

Foundation Section,
Materials and Testing Div.,
Room 107, Lab. Bldg.

July 26, 1966

Proposed District #14 Office Location
Our File No. 66-F-66

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Mr. E. R. Saint,
Regional Materials Engr.,
North Bay.

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A. Barsvary,
SENIOR FOUNDATION ENGINEER
For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

cc: Foundations Office
Gen. Files ✓

66-F-66

DISTRICT #14

OFFICE &

PATROL YARD

LOCATION

