cc: GEN. FILES
23-62-62-2

Mr. A. M. Toye,
Bridge Engineer,
Materials & Research Section.

April 21, 1961.

D.H.O. Subsoil Investigation
Materials & Research Section
(W.P.205-60,) W.J.61-F-24.

Attention: Mr. S. McCombie.

Re: Ballantyne's Creek Crossing,
Hwys. 60 & 35, Line C,
District #11.

A culvert is planned to take Ballantyne Creek through the embsnkment of the proposed Line C of Hwys. No. 60 and 35. In order to determine the subsoil conditions at the mentioned site and decide on the type of footings to be recommended, an investigation consisting of two sampled borings was carried out.

Attached to this report is a plan showing the boring locations and the determined subsoil stratigraphy.

As can be seen from the borehole logs which are also attached to this report and from the shown subsoil stratigraphy, the foundation conditions are very favourable.

cont'd. /2 ...

A relatively shallow deposit of granular material overlies granite gneiss bedrock. The granular layer consists of silty sand, gravel and some boulders. It is brown-grey in colour and it is very dense. The thickness of this layer, including 1 to 2 ft. of topsoil, is approx. 8 feet.

The ground water was found some 3 feet below the ground surface.

Spread footings are recommended. A safe bearing load of 4 T/sq. ft. can be used if the footings are placed in the granular material. A load of 6 T/sq. ft. and more can be used if the footings are brought down to bedrock. The minimum footing depth to provide adequate frost protection would be 5 feet below ground surface. Another criterion for determining footing depth would be scour protection but sufficient information and data are not available to make concrete recommendations.

It is believed that the water which will be entering the open excavation can be handled by pumping and no problems are anticipated.

cont'd. /3 ...

We trust that the above given recommendations are sufficient for your future design work. However should there be any additional questions you would like to discuss, please feel free to call on our Office.

REPORT PREPARED BY: B.M.Ghadiali.....
B. Ghadiali,
Project Foundation Engineer

REPORT APPROVED BY: A.G.Stermac.....
A. G. Stermac,
Supervising Foundation Engineer

Attach.
BMG/tt
c.c. Messrs. A. M. Toye (2)
H. A. Tregaskes
H. D. McMillan
G. K. Hunter
H. C. Dernier
T. J. Kovich
A. Watt
Foundations Office
General Files

APPENDIX I

FORM OB—ML-222
FEB 59
IM-58-5569

SUMMARY OF FIELD & LABORATORY TESTS

JOB 61-F-24
W.P. 205-60

HOLE NO.	SAMP NO.	SAMPLE DEPTH (FEET)	MATERIAL DESCRIPTION	PENET'N RESIST. BLOWS FT	MOIST. CONT. %	PLASTIC LIMIT %	LIQUID LIMIT %	SHEAR STRENGTH p.s.f.	UNIT WEIGHT p.c.f.	REMARKS
1	S1	3'-4.5'	Silty sand & gravels with some decayed material. V. Dense. Black to Br. grey.	71	-	-	-	-	-	
	S2	5'-6.5'	Silty sand & gravels. V. Dense. Brown.	50	-	-	-	-	-	
	RC3	7.1'-7.5'	Boulder stones.							
		7.5'-12.5'	Granite Gneiss rock Hard. D. Grey.	-	-	-	-	-	-	
	RC4	12.5'-17.5'	Granite Gneiss rock. Hard. D. Grey with black spots.	-	-	-	-	-	-	
2	S1	6.5'-7.3'	No recovery. (Sand-gravels)	64-9"	-	-	-	-	-	
	RC2	7.3'-13.3'	Granite Gneiss rock. Hard. D. Grey & reddish.	-	-	-	-	-	-	
			S denotes split spoon sample.							
			RC " rock core sample.							

FORM OB-ML-126 (REV. 1959.) — 59-5008

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS AND RESEARCH SECTION

W.P. 205-60 BORE HOLE NO. 1

JOB 61-F-24 STATION 279+80 (10' Lt.)

DATUM 1005.0' COMPILED BY B.K.

BORING DATE Mar. 27/61 CHECKED BY B.M.G.

2" DIA. SPLIT TUBE
2" SHELBY TUBE
2" SPLIT TUBE
2" DIA. CONE
2" SHELBY
CASING

LEGEND

1/2 UNCONFINED COMPRESSION (Qu) O
VANE TEST (C) AND SENSITIVITY (S) +S
NATURAL MOISTURE AND LIQUIDITY INDEX LI X
LIQUID LIMIT
PLASTIC LIMIT

SYMBOL	DESCRIPTION	ELEV. FEET	DEPTH FEET
	↓ Groundlevel	1005.0	0
	Top Soil	1003.5	
	Silty sand-gravels-boulders. V. dense. W.L. ▽ Br. grey.	1001.5	5
		997.5	
	Bedrock. (Granite Gneiss) Hard. D. Grey.		10
			15
		987.5	
	End of borehole		20

STRENGTH AND PENETRATION RESISTANCE P.S.F.

BLOWS/FT. 25 50 75 100

CONSISTENCY

MOIST. CONTENT - % DRY WT.

SAMPLE	NATURAL UNIT WT. P.C.F.
S1	-
S2	-
RC3	-
RC4	-

FORM OB-ML-126 (REV. 1959.) — 59-5008

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS AND RESEARCH SECTION

W.P. 205-60 BORE HOLE NO. 2

JOB 61-F-24 STATION 279+60 (10' Rt.)

DATUM 1006.6' COMPILED BY B.K.

BORING DATE Mar. 28/61 CHECKED BY B.M.G.

LEGEND

2" DIA. SPLIT TUBE
2" SHELBY TUBE
2" SPLIT TUBE
2" DIA. CONE
2" SHELBY
CASING

1/2 UNCONFINED COMPRESSION (Qu) O
VANE TEST (C) AND SENSITIVITY (S) +%
NATURAL MOISTURE AND LIQUIDITY INDEX LI X
LIQUID LIMIT
PLASTIC LIMIT

SYMBOL	DESCRIPTION	ELEV. FEET	DEPTH FEET
	↓ Groundlevel	1006.6	0
	Top Soil.	1005.0	
	Silty sand-gravels-boulders. W.L. ▽ V. dense. B. Grey.	1003.6	5
	Bedrock. (Granite Gneiss) Hard. D. Grey & reddish.	998.6	10
	End of borehole.	993.3	15
			20

STRENGTH AND PENETRATION RESISTANCE P.S.F.
BLOWS/FT. 25 50 75 100

64-9"

CONSISTENCY
MOIST. CONTENT - % DRY WT.

SAMPLE
S1 -
S2 -

NATURAL UNIT WT. P.C.F.

61-F-24

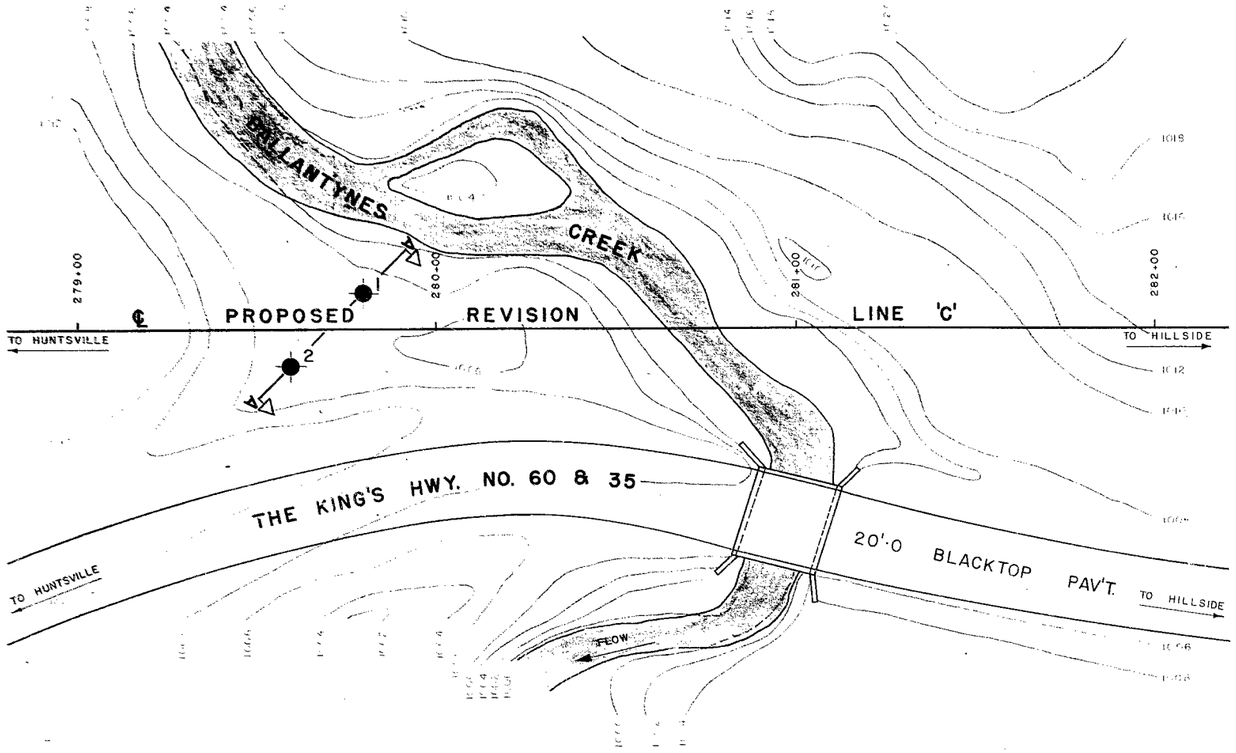
W.P. # 205-60

Hwy. # 60 &

Hwy. # 35

CROSSING

BALLANTYNE'S CR.

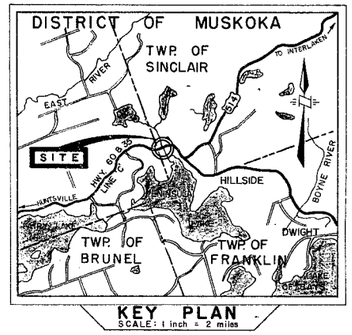


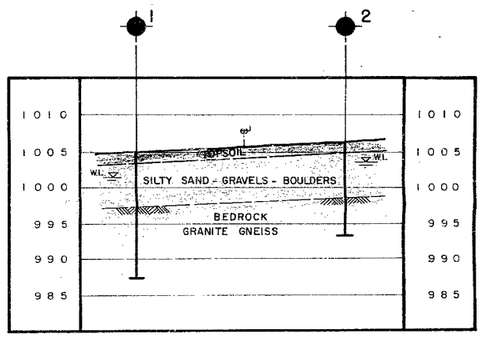
PLAN

SCALE : 1 inch = 20 feet

PROFILE

SCALE: 1 inch = 20 feet





A - A

SCALE: VERT CAL 1inch =10 feet
HORIZONTAL 1inch =10 feet

LEGEND

BORE HOLE

HOLE NO.	ELEVATION	STATION	DISTANCE FROM ℄
1	1005·0	279+80	10' LT.
2	1006·6	279+60	10' RT.

REF. No. E-3949-1

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION

BALLANTYNES CREEK
AND
HIGHWAY NO. 60 & 35
PROPOSED LINE 'C' REVISION

ORIGINATED B. GHADIALI	DISTRICT NO. 11	DATE 27 APRIL 1961
DRAWN D. MUMFORD	W.P. NO 205-60	JOB NO. 61-F-24
CHECKED J. C.	SCALE AS SHOWN	DRAWING NO 61-F-24A
APPROVED		