

## MEMORANDUM

To: Mr. A. Stermac,  
Principal Foundation Engineer,  
Materials & Research Section,  
Dept. of Highways,  
DOWNSVIEW, Ontario

From: G.C.E. Burkhardt,

Date: July 31st, 1962

Our File Ref.

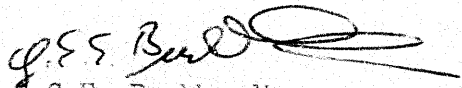
In Reply To

Subject: United Counties of Stormont, Dundas  
& Glengarry,  
Bridge over Hoople Creek,  
Twp. of Osnabruck, Lot 28, Con. VI,  
County of Stormont,  
Our File # BA 1467. 62-F-302M

We are enclosing herewith one copy of the Foundation Report, by John D. Paterson, and one copy of the Preliminary Plan for your comments.

We intend to approve the design not later than August 9th, 1962. We would appreciate it very much, if we could have your comments prior to this date.

GCEB/dm

  
G.C.E. Burkhardt,  
for K.L. Kleinsteinber,  
Municipal Bridge Liaison Eng.

*No change! After 4/4/62 - received no day  
report. The only exception possibility of boiling  
during construction. by phone. after 2/5/62*

INSPECTION SERVICES  
LABORATORY TESTING  
APPRAISALS, RESEARCH  
SOIL INVESTIGATIONS

JOHN D. PATERSON, B.Sc., P.Eng.

CONSULTING ENGINEERS & GEOLOGISTS  
OTTAWA, CANADA

MEMBERS:

ASSOC. OF PROFESSIONAL ENGINEERS OF ONTARIO  
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REPORT OF SOIL INVESTIGATION

PROPOSED NEW STRUCTURE

HOOPLE CREEK

COUNTY ROAD NO. 18

TOWNSHIP OF OSNABRUCK

FOR

UNITED COUNTIES OF STORMONT, DUNDAS & GLENGARRY

\* \* \* \* \*

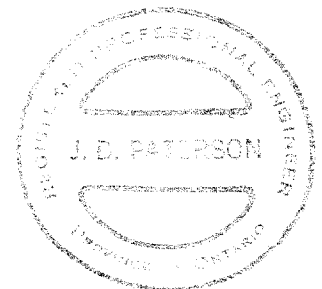
G. C. PARKER & ASSOCIATES

DESIGN CONSULTANTS

\* \* \* \* \*

REPORT NO. S 255 - 62

OTTAWA, MAY 9, 1962



## Introduction:

At the request of C. G. Parker & Associates, Ltd. on behalf of the United Counties of Stormont, Dundas & Glengarry, a soil investigation was conducted at the site of a small bridge on Road No. 18, Township of Osnabrock, County of Dundas.

The present structure rests on log cribwork abutments which are in very poor shape.

It is probable that the bridge will be replaced by a culvert.

## Fieldwork Procedure:

Two test holes were put down at diagonally opposite sides of the bridge. Each hole consisted of a cone probe driven to refusal to check the uniformity of the soils and a sample hole where casing was driven and the soils sampled to 16 feet.

The firm of F. E. Johnston Drilling Company was employed for all drilling operations and their work was supervised at all times by a member of our staff. The equipment used consisted of a standard drilling rig fully equipped for soils testing and mounted on a trailer.

## Sampling and Testing:

Granular soils only were encountered. Samples were therefore taken by means of the split spoon sampler, classified and retained in plastic bags. With each split spoon sample taken the standard penetration test was conducted and the results are recorded as "N" values.

A core sample of a limestone boulder was recovered from Hole 1 by diamond drilling.

## Observations:

### (a) Soil Types.

All the material encountered aside from the topsoil, is classified as glacial till. The till near the surface is weathered and variable in composition but below elevation 87 the till is very dense and bouldery.

Details of the bore holes are shown on the Soil Profile and Laboratory Test Sheets included in this report.

### (b) Groundwater.

Hole 2 became a flowing well when a depth of 12.3 feet was reached. It continued as an artesian well at the completion of the investigation.

Hole 1 .....

Hole 1 which was put down to approximately the same elevation showed no signs of artesian pressure. This hole collapsed with withdrawal of the casing and remained plugged and dry two feet from the surface.

Conclusions and Recommendations:

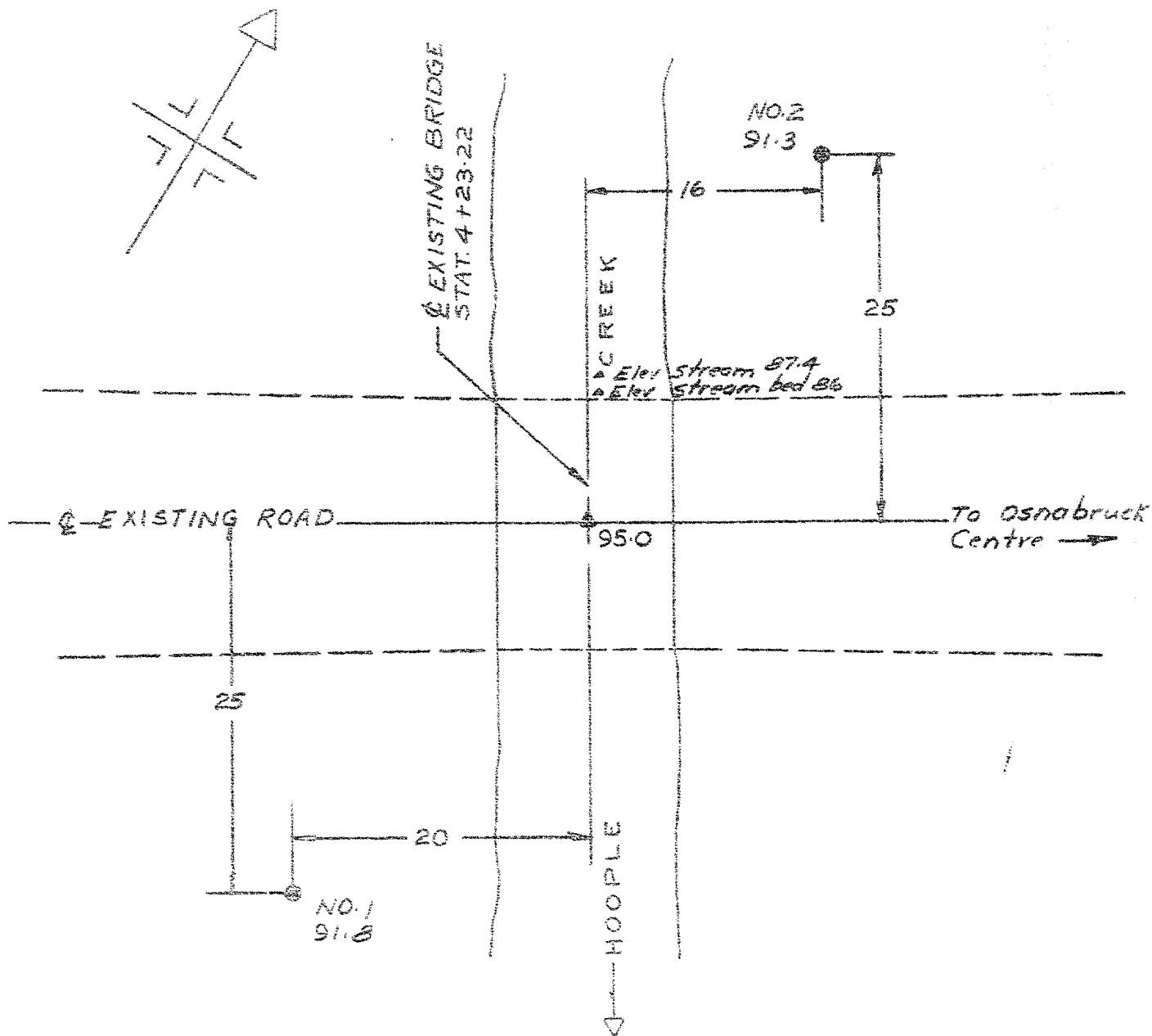
The glacial till at and below Elevation 85 is quite suitable on which to place the wall footings of a concrete culvert. The soil can be safely loaded to 4,000 pounds per square foot providing the till on which concrete is placed is undisturbed and not allowed to become saturated. The road grade can be safely raised at least six feet without danger of shear failure in the underlying soil.

A handwritten signature in dark ink, appearing to read "J. D. Paterson", is written over a horizontal line.

J. D. Paterson, P. Eng.

Ottawa, May 9, 1962.

JDP/MMC.



TEST BORING PLAN  
 PROPOSED CULVERT  
 LOT 28 CON IV  
 ROAD NO. 18  
 TWP. of OSNABRUCK  
 COUNTY of DUNDAS

SCALE 1"=10'

MAY 1962

## SOIL PROFILE AND LABORATORY TESTS

Location: Lot 28, Concession IV,  
Road No. 18, Twp. of Osnabruck.

Elevation (Zero Depth): No. 1, 91.8; No. 2, 91.3.  
Remarks: Cone Probe and Test Boring.

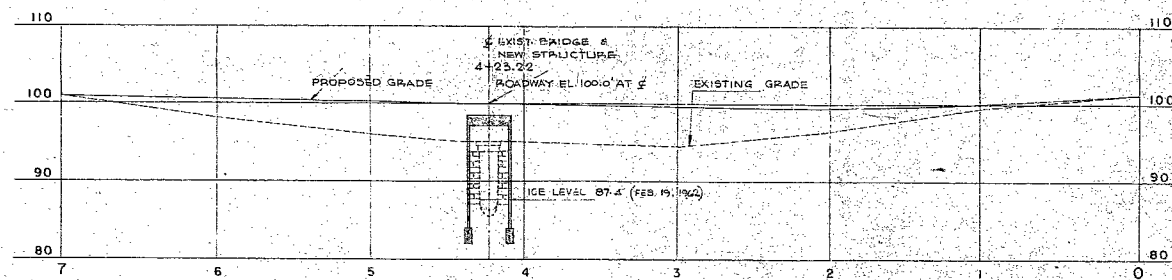
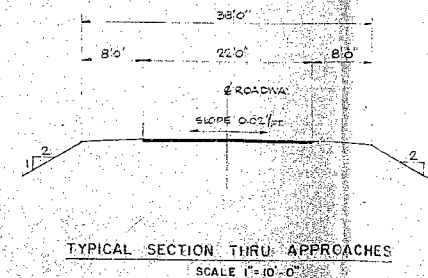
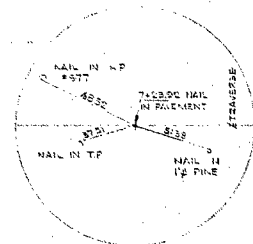
Sheet No: 1 of 1

Borings by: F.E. Johnston Drilling Co., Ltd. Date: April 24 & 25, 1962.

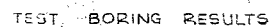
Holes Nos : 1 and 2

Blows per Foot	Soil Description Hole No. 1	Samples		U/c T/m'	N	Depth in Feet	Elev.	Moisture Content Per Cent.				
								30	40	50	60	70
Cone	Ground Surface											
1	Black loamy topsoil with	BX	1			0	91.8					
3	boulders. 2											
23	Weathered clayey silt. 3	BX	2									
88	Very dense weathered sand											
64	and gravel. 5					5	86.8					
90		SS	3		102							
87	Very dense, stony (broken	Core										
60	limestone) glacial till											
for 0.3'	with boulders.	SS	4		122	10	81.8					
	16	SS	5		113	15	76.8					
	<u>Hole No. 2</u>											
	Ground Surface											
2	Loam topsoil. 1	BX	6			0	91.3					
12	Weathered, bouldery glacial											
5	till. 3											
12	Very dense, gravelly glacial											
29	till.					5	86.3					
62		SS	7		54							
56												
60	8	SS	8		35							
for 0.5'												
	Very dense, stony glacial	SS	9		71	10	81.3					
	till with boulders.											
		SS	10		109							
	15.7	SS	11		60	15	76.3					

#62-F-302 M  
CTY. RD. #18  
HOOPLE CREEK  
LOT #28, CON IV & VI  
STORMONT CTY.  
OSNABRUCK TWP.



SCALES Horiz. 1" = 50' - 0"  
vert. 1" = 10' - 0"



FINCH

OSNABRUCK

TO MILLMARBURG

GALLINGER-TOWN

BRIDGE SITE

OSNABRUCK SEVEN

TO LUNDENBURG

HOLLIS

ST. LAWRENCE RIVER

U.S.A.

ROCKBOROUGH

CORNWALL

TO GERRARD

DATA

2. (A) UPSTREAM & DOWNSTREAM BRIDGES (GIVE LOCATION, LENGTH, HEIGHT ABOVE N.H.W.L., NET CROSS-SECTIONAL AREA AT HIGH WATER & ESTIMATED AGE).  
UPSTREAM: LOT 47, CONC. TIE X 1/4" CLEAR, CROSS-SEAL: 12' ABOVE N.H.W.L., NET AREA: 116 SQ. FT., 25 YEARS OLD.  
DOWNSTREAM: LOTS 214, 220, CONC. IN 1/4" CLEAR, STEEL BEAM, 3' ABOVE N.H.W.L., NET AREA: 200 SQ. FT., 25 YEARS OLD.  
(B) REASONS WHY THESE BRIDGES ARE, OR ARE NOT, FAIR INDICATIONS OF SIZE OF PROPOSED BRIDGE.  
UPSTREAM BRIDGE APPEARS TOO SMALL.
3. REASONS FOR CHANGES IN HEIGHT OR LENGTH FROM THAT OF OLD BRIDGE: LARGER OPENINGS REQUIRED.

4.	IS DITCH, STREAM, OR RIVER GRADIENT LIABLE TO BE LOWERED	YES
5.	NAVIGATION CLEARANCES REQUIRED, IF ANY	NONE
6.	RAILWAY CLEARANCE REQUIRED, IF ANY	NOT APPLICABLE
7.	IF STRUCTURE IS OVER OR UNDER A RAILWAY, HAS APPROVAL BEEN OBTAINED	
	(A) FROM RAILWAY CO	N.A.
	(B) FROM BOARD OF TRANSPORT COMMISSIONERS	N.A.
8.	HAS APPROVAL BEEN OBTAINED UNDER NAVIGABLE WATERS PROTECTION ACT	N.A.
9.	IS A TEMPORARY DETOUR REQUIRED?	YES
	WHO WILL BUILD IT?	COUNTIES
	WHO WILL MAINTAIN IT?	COUNTIES
10.	INFORMATION AND EVIDENCE OF EXTREME FLOODING WAS OBTAINED FROM	LOCAL RESIDENTS
	AND REFLECTS HIGHEST WATER ELEVATION IN THE AREA OF THIS CONSTRUCTION TO BE	95.0
	AND THE LOWEST WATER ELEVATION TO BE	87.0
11.	ROAD DESIGN INFORMATION:	
	ESTIMATED A.D.T. 250 (YEAR 1942) 530 (YEAR 1962)	
	DESIGN SPEED 50 M.P.H.	
	STOPPING SIGHT DISTANCE 350 FT.	

1.	NET SPAN LENGTH AND TYPE OF BRIDGE	25' CLEAR
2.	CONC. ROAD FRAME	
3.	ROADWAY WIDTH ON BRIDGE	36 FT.
4.	NUMBER & WIDTH OF SIDEWALKS	NONE
5.	SKEW ANGLE	0°
6.	TOTAL LENGTH & TYPE OF PILING	NONE
7.	APPROX. VOLUME OF CONCRETE	CU YDS
8.	APPROX. WEIGHT OF STR. STEEL	TONS
9.	APPROX. WEIGHT OF REINFORCEMENT	TONS
10.	APPROX. VOLUME OF APPROACH FILL	CU YDS
11.	100' EACH SIDE OF STRUCTURE	
12.	DRAINAGE AREA	20 SQ. MILES

FIELD INVESTIGATION MADE FEB. 19, 1962  
BY N. HANLAN  
SURVEY ENGINEER

D. H. O.  
 TORONTO  
 RECEIVED  
 JUL 26 1966  
 PARKER & ASSOCIATES LTD.  
 BRIDGE CONSULTING ENGINEERS  
 HAMMILL OFFICE  
 ONTARIO

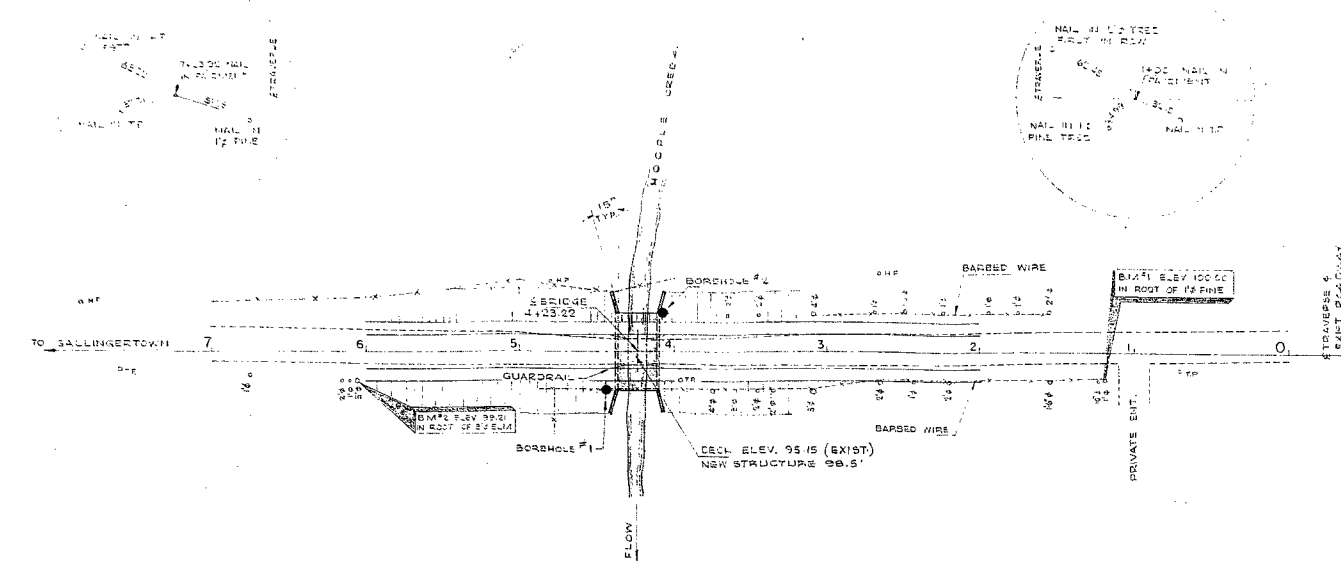
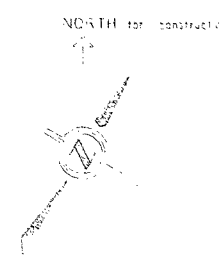
BRIDGE OVER HOOPLE CREEK	
OWNER UNITED COUNTIES OF STORMONT DUNDAS & G. HENRIE	MUNICIPAL DIST. NO. 9
CO. OF DUNDAS	ROAD NO. 18
TWP. OF OSNABRUCK	LOT 28 CON. IV

## SITE PLAN AND PROFILE

MAY 23, 1962  
DATE

LOADING	COUNTY JOB	DWG
H20-SIG	NO. 6230	NO. 1





SITE PLAN  
Scale 1"=50'-0"

