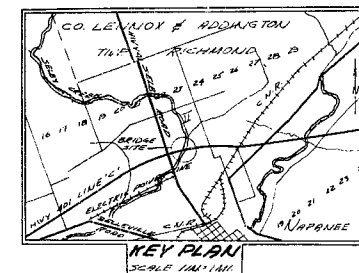
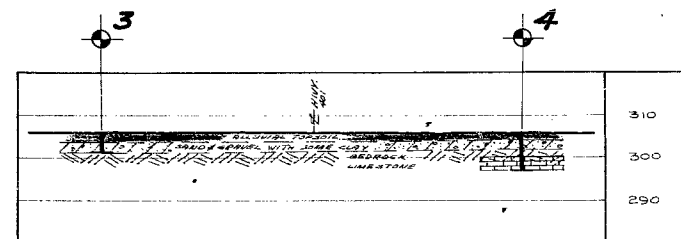
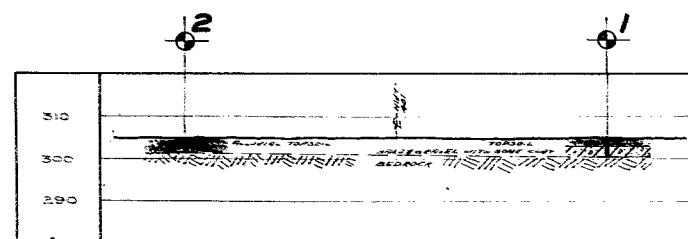
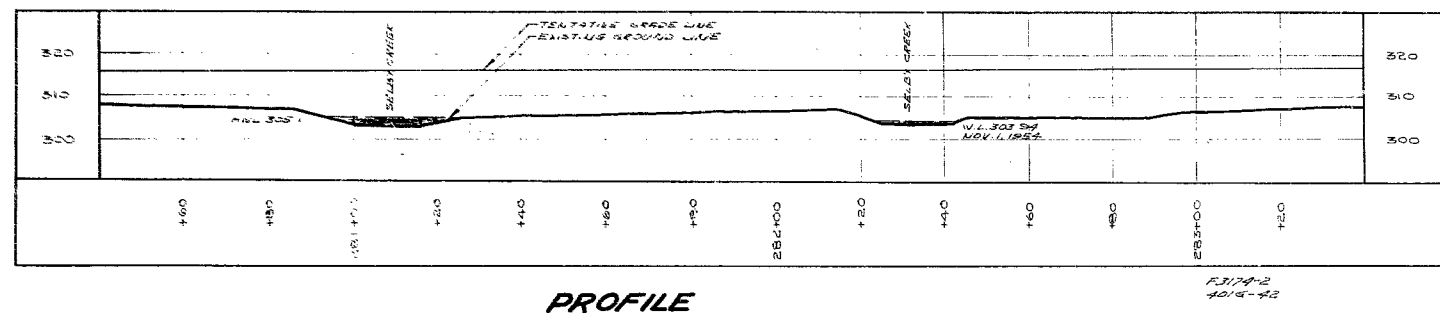
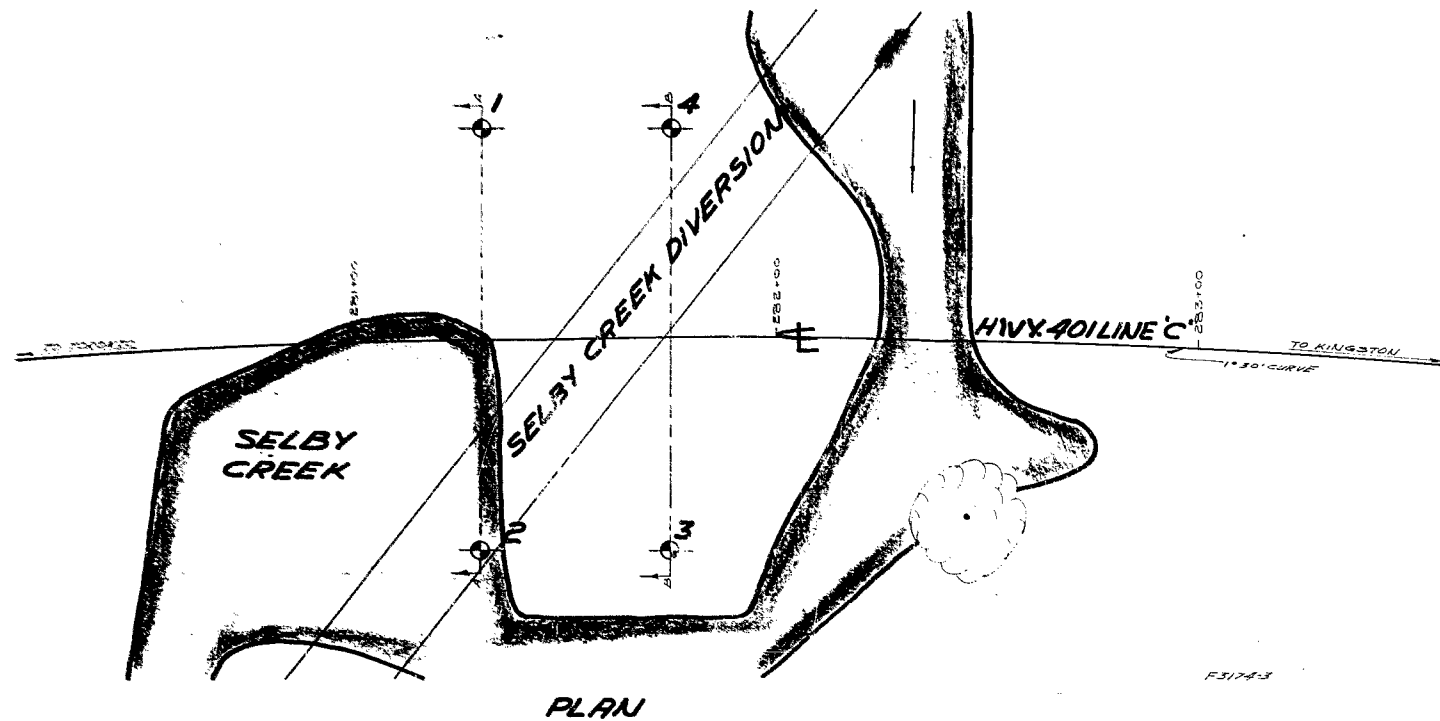


59-F-25
W.P. # 29-59
Hwy. # 401
SELBY CREEK
DIVERSION
CON. # 2
1 MILE N. OF
NAPANEE



LEGEND			
BORE HOLE			
PENETRATION HOLE			
BORE & PENETRATION HOLE			
HOLE NO.	ELEVATION	STATION	DISTANCE FROM E
1	305.0'	281+30	50 FT.
2	305.0'	281+30	50 FT.
3	306.0'	281+75	50 FT.
4	306.0'	281+75	50 FT.

NOTE

THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN ESTABLISHED ONLY AT BORE HOLE LOCATIONS. BORE HOLES THE BOUNDARIES ARE AS SHOWN. EVIDENCE AND MAY BE SUBJECT TO ERROR.

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION

**SELBY CREEK DIVERSION
PROPOSED CROSSING**

SHOWING POSITIONS & ELEVATIONS OF HOLES

HWY 401	DISTRICT 8	COUNTY LENOX & ADDINGTON
TOWNSHIP RICHMOND	LOT 22	CON II
LOCATION R.R. 1 MI. N. OF WARRBUR		
DRAWN BY T. MELLORE	CHECKED BY	W.P. 23-59
DATE AUGUST 1959	APPROVED BY	DRAWING NO.
SCALE 1/4" = 20 FT.		F59-25A

cc: Mr. A. M. Toye

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

June 18, 1959.

FOUNDATION REPORT -

Attention: Mr. S. McCombie.

Re: Hwy. 401 Line 'C' & Selby Creek
Diversion Crossing -
Approx. One Mile N. of Napanee,
Lot 22, Con. II, Twp. of Richmond,
W.P. 29-59.

Enclosed herewith is our report on the subsoil conditions existing at the above noted creek crossing. Reference to the contents of this report shows that the subsoil conditions consist of a shallow deposit of alluvial material overlying sound limestone bedrock. Spread footings, founded directly upon the bedrock are recommended. A conservative bearing capacity of 10 tons/sq. ft. for footings placed directly upon the limestone has been indicated.

No problems need be anticipated with respect to embankment foundation instability. The topsoil should be removed prior to placing embankment fill.

Should any queries arise in connection with the above structure site, please contact our office.

LGS/Mdef
Encl.

L. G. Soderman
L. G. Soderman,
PRINCIPAL FOUNDATION & SOILS ENGR.

cc: Messrs. A. Toye ✓
H. A. Tregaskes
D. G. Ramsay
S. Markiewicz
L. E. Walker
J. Gruspier
Dr. P. Karrow
Foundation Section.
Gen. Files.

FOUNDATION REPORT

on

Hwy. 401 Line 'C' & Selby Creek Diversion Crossing,
Approximately One Mile North of Napanee,
Lot 22, Con. II, Township of Richmond.

Plan No: F-3174-3

Profile No: F-3174-2

Chainage: 281+60.

Distribution:

Mr. A. M. Toye,
Bridge Engineer.

Mr. H. A. Tregaskes,
Construction Engineer.

Mr. D. G. Ramsay,
Design Engineer.

Mr. S. Markiewicz,
Proj. Design Engineer.

Mr. L. E. Walker,
District Engineer.

Mr. J. Gruspier,
Regional Soils Engineer.

Dr. P. Karrow,
Department of Mines.

Foundation Section.

Gen. Files.

W.J. F-59-25

W.P. 29-59

INTRODUCTION:

An investigation has been carried out to determine the competence of the subsoil layers for supporting the foundation of the proposed structure located at approximately one mile North of Napanea, where Hwy. 401 Line 'C' crosses Selby Creek Diversion in Lot 22, Con. II, Twp. of Richmond (Station 281+60, Profile No. F-3174-2).

The field work commenced on April 16, 1959 and was completed on April 17, 1959.

DESCRIPTION OF THE SITE & GEOLOGY:

The site is located on the flood plain of Selby Creek. The topography is generally level. Selby Creek meanders at the site, flowing at a velocity of approximately one foot per second. The area surrounding the site is presently in pasture and woods. Limestone rock outcrops are visible in the vicinity of the site. Bedrock is outcropped at the bed of the creek at, and half a mile upstream from the site. During spring run-off, the site has been reported to be inundated.

Physiographically, the site is located on the Napanea Plain, a flat to undulating plain of limestone from which the glaciers stripped most of its overburden. At this site the limestone bedrock is covered by a shallow overburden of alluvial and stream-bed deposits.

FIELD WORK:

Field work consisted of 1 borehole with dynamic cone penetration test adjacent to the hole, and 3 separate dynamic cone penetration tests. The exploration programme was carried

FIELD WORK: (cont'd.) ...

out by a standard diamond drill adapted for soil sampling. Because of the shallow bedrock surface encountered, no sampling was carried out in the overburden. Bedrock was drilled and cored 5 feet to determine its quality and soundness. No sudden drops during pressure drilling were noted, indicating that no mud seams exist in the formation. Rock core samples were visually examined and identified in the field, as well as in the laboratory.

SUBSOIL CONDITIONS:

The site is underlain by shallow alluvial & stream-bed deposits of sand & gravel with some clay overlying bedrock. Bedrock is composed of fine-grained limestone of the Black River Series. The limestone is in a very sound condition with no sign of fracture or weathering. An allowable bearing value of 10 t.s.f. can be used for footing design.

Water table at the site was encountered at the ground surface - i.e., Elev. 306'. Bedrock is at approximately Elev. 301' to 302'.

CONCLUSIONS & RECOMMENDATIONS:

- (1) A creek diversion or channel improvement, as shown on Drawing No. F-59-25A, is necessary at this site.
- (2) The proposed structure can be founded on spread footings placed on sound bedrock at approximately Elev. 301' to 302'. To avoid undermining of the footings due to stream erosion and scour, footings should be founded 2 ft. into sound bedrock. An allowable bearing value of 10 t.s.f. can be used.

cont'd. /3 ...

CONCLUSIONS & RECOMMENDATIONS: (cont'd.) ...

- (3) No serious ground water problems are anticipated, but provision should be made for dewatering or pumping operations during footing excavations.
- (4) The proposed grade line does not present any approach fill stability problem. Prior to the placing of embankment fill, all topsoil should be removed. Bank slopes on the upstream side of the structure should be protected by rip-rap.

A. K. Loh
A. K. Loh,
Foundation Engineer.

APPENDIX I.

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS AND RESEARCH SECTION

W.P. 29-59 BORE HOLE NO. 1

JOB F-59-25 STATION 281/30 (50' Lt.)

DATUM Geodetic COMPILED BY B.K.

BORING DATE Apr. 16/59 CHECKED BY A.L.

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		LI
LIQUIDITY INDEX	---	X
LIQUID LIMIT	---	
PLASTIC LIMIT	---	

SYMBOL	DESCRIPTION	ELEV. FEET	DEPTH FEET	STRENGTH AND PENETRATION RESISTANCE	
				P.S.F.	
	↓ Groundlevel	305.0		10 20 30 40	
	Topsoil	303.0		BLOWS/FT.	
	Sand and gravel with some clay	300.6		7 BLOWS FOR	
	Bedrock	4.4	5	Refused @ Elev 300.6'	
			10		
			15		
			20		

[illegible]

Borenole, L.

OFFICE REPORT ON SOIL EXPLORATION

W.P. 29-59 BORE HOLE NO. 2

JOB F-59-25 STATION 281/30 (50' Rt.)

DATUM Geodetic COMPILED BY B.K.

DRILLING DATE Apr. 17/59. CHECKED BY A.L.

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)	---	+ S
NATURAL MOISTURE AND		
LIQUIDITY INDEX	---	X
LIQUID LIMIT	---	
PLASTIC LIMIT	---	

[illegible]

Borehole 2.

W.P. 29-59 BORE HOLE NO. 3
JOB F-59-25 STATION 281+75 (50' Rt.)
DATUM Geodetic COMPILED BY B.K.
BORING DATE Apr. 17/59 CHECKED BY A.L.

1/2 UNCONFINED COMPRESSION (Qu) _____	O
VANE TEST (C) AND SENSITIVITY (S) _____	+ ⁵
NATURAL MOISTURE AND LIQUIDITY INDEX _____	U X
LIQUID LIMIT _____	
PLASTIC LIMIT _____	

SYMBOL	DESCRIPTION	ELEV. FEET	DEPTH FEET	STRENGTH AND PENETRATION RESISTANCE	
				P.S.F.	
	↓ Groundlevel	306.0		10	20 30 40
	Alluvial topsoil	304.0		BLOWS/FT.	
	Sand and gravel with some clay	301.2'		REFUSAL AT Elev 301.2'	
	Bedrock	4.8'	5	10	15
			20		

[illegible]

Borehole 3.

W.P. 29-59 BORE HOLE NO. 4
JOB F-59-25 STATION 281+76 (50' Lt.)
DATUM Geodetic COMPILED BY B.K.
BORING DATE Apr. 17/59 CHECKED BY A.L.

LEGEND

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

Borehole 4.

SYMBOL	DESCRIPTION	ELEV. FEET	DEPTH FEET	STRENGTH AND PENETRATION RESISTANCE			
				P.S.F.			
	↓ Groundlevel	306.0'		10	20	30	40
	Alluvial topsoil	304.5'					
	Sand and gravel with some clay	302.3'					
	Bedrock	3.7	5				
	Limestone						
		297.2'					
	End of hole	8.8	10				
			15				
			20				

[illegible]