

MEMORANDUM

23-68-24.
W.P. 279-65

TO: Mr. B. R. Davis,
Bridge Engineer,
Bridge Division,
Admin. Bldg.

FROM: Foundation Section,
Materials & Testing Div.,
Room 107, Lab. Bldg.

Attention: Mr. S. McCombie

DATE: June 30, 1967

OUR FILE REF.

IN REPLY TO

JUL 10 1967

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

Proposed Bridge #61
Mimico Creek at Hwy. #401
Hwy. #401 and #27 Interchange
District #6 (Toronto)
W.J. 67-P-52 -- W.P. 279-65

Attached, we are forwarding to you, our detailed foundation investigation report on the subsoil conditions existing at the above structure site.

We believe that the factual data and recommendations contained therein, will prove adequate for your future design requirements. Should additional information be required, please feel free to contact our Office.

AGS/MdeF
Attach.

cc: Messrs. B. R. Davis (2)
H. A. Tregaskes
D. W. Farren
G. K. Hunter (2)
F. Allen
W. S. Melinyshyn
T. J. Kovich
B. A. Singh

Foundations Files
Gen. Files

A. G. Sternac
A. G. Sternac
PRINCIPAL FOUNDATION ENGINEER

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-

FOUNDATION INVESTIGATION REPORT

For

Proposed Bridge #61
Mimico Creek at Hwy. #401
Hwy. #401 and #27 Interchange
District #6 (Toronto)

W.J. 67-F-52 -- W.P. 279-65

1. INTRODUCTION:

In a memo dated June 12, 1967, Mr. W. J. Melinyshyn, Regional Bridge Location Engineer, requested a foundation investigation at the site of the proposed Bridge #61. Originally, this bridge belonged to Contract #7 (Yellow), which in turn, is part of the proposed interchange of Hwy. #401 and Hwy. #27. In the referred memo, we were advised that the alignment of Mimico Creek diversion had been modified in the meantime, and the bridge was scheduled to be constructed ahead of the Yellow contract.

At the time of writing this report, two alternative proposals were being considered for the crossing. One proposal called for the complete replacement of the existing barrel arch, while the other called for the extension of the existing barrel arch.

According to the request, a field and laboratory investigation was undertaken by this Section in order to establish existing soil conditions at the location of the proposed structure.

Presented in this report are the findings of the investigation as well as the recommendations as to the foundation of the proposed 45-ft. span concrete arch structure.

2. DESCRIPTION OF THE SITE AND FIELD INVESTIGATION:

The north side of the proposed structure location is occupied by the existing Hwy. #401 westbound embankment; farther south, it roughly coincides with the existing creek. The extreme

cont'd. /2 ...

2. DESCRIPTION OF THE SITE AND FIELD INVESTIGATION: (cont'd.) ...

south end cuts into the high ground, forming the cliff-like east bank of Mimico Creek.

A total of 7 boreholes was placed along the proposed footing locations. Boreholes #1, 2 and 6, were also intended to establish soil conditions in the vicinity of the existing barrel arch. The borings were carried out by means of a continuous flight auger and one conventional diamond drill rig, adapted for soil sampling purposes. Split-spoon samples were taken at regular intervals, and the number of hammer blows required to drive the sampler 1 ft. into the soil, under an impact of 350 ft.-lbs., was recorded as Standard Penetration 'N' values.

The locations and elevations of the boreholes as well as the stratigraphical profiles along the proposed footings, are presented on Drawing #67-F-52A.

3. SOIL CONDITIONS:

3.1) Overburden:

The overburden within the investigated area was found to consist of layers of clayey silt to silt with sand and traces of gravel and boulders, also well graded gravels and sandy silts. Numerous shale fragments were found at the lower elevations. Some organic matter was occasionally observed within the overburden. The consistency of the heterogeneous subsoil ranges from very stiff to hard, the relative density of the granular portion being compact to very dense. No further details of the subsoil are given here, since the previous foundation reports on the structures of the proposed Hwy. #401 and #27 interchange dealt with the soil conditions in depth. (See Reports #66-F-102, #67-F-38, and #67-F-35.)

3.2) Bedrock:

Bedrock was observed in the boreholes at relatively shallow depths. The upper surface of the bedrock lies between el. 458 - 454 ft. The rock was proved in five locations by diamond drilling to

cont'd. /3 ...

3. SOIL CONDITIONS: (cont'd.) ...

3.2) Bedrock: (cont'd.) ...

depths of 5 - 10 ft. It is identified to be grey shale with intermittent shaley carbonate and calcareous shale of the Dundas formation. (Borelogs are attached at the end of this report.)

3.3) Groundwater:

The water level in the boreholes was found to be at somewhat higher elevations than the creek level. The height of the groundwater varies according to the ground elevation and the permeability of the subsoils, as shown on the cross sections of Drawing #67-F-52A.

4. DISCUSSION AND RECOMMENDATIONS:

Two proposals are being considered for this structure:

- a) Complete replacement of the existing barrel arch along a new alignment.
- b) Extension of the existing barrel arch, depending on the functional and structural adequacy for the additional fill and channel lining.

In either case, the proposal calls for a concrete arch of 45-ft. span.

According to the site plan, supplied by the consultant Fenco Ltd., the channel bottom at the crossing is designed to be around el. 457 - 454 ft. As discussed under Section (3), shale bedrock underlies the overburden at the proposed footing locations at around el. 458 - 454 ft. Spread footings are recommended, therefore, within the bedrock. The base of footings should be placed some four ft. below river bottom for frost protection. At the above elevations, a safe load of up to 10 t.s.f. may be utilized on the footing bases.

cont'd. /4 ...

4. DISCUSSION AND RECOMMENDATIONS: (cont'd.) ...

The shale bedrock weathers badly when exposed to the atmosphere; therefore, it is recommended that in the case of leaving the excavation open for a longer period of time, it be protected by pouring lean concrete to cover the excavation bottom.

A fair amount of groundwater is anticipated to enter the excavations; it is believed, however, that open pumping from sumps will be effective for dewatering.

5. MISCELLANEOUS:

The field work, carried out during the period June 19 - 26, 1967, was supervised by Mr. Kim Liljefors, Project Foundation Engineer. Equipment used was owned and operated by Canadian Longyear Ltd.

This report was prepared by Mr. A. K. Barsvary, Senior Foundation Engineer, and reviewed by Mr. K. G. Selby, Supervising Foundation Engineer.

June 1967

APPENDIX I

MATERIALS & TESTING DIVISION

FOUNDATION SECTION

JOB 67-F-52

LOCATION 971,200 N 979,468 E

ORIGINATED BY KAL

W.P. 279-65

BORING DATE June 19, 1967

COMPILED BY BRG

DATUM Geodetic

BOREHOLE TYPE Cont. Flight Auger & Core Drill

CHECKED BY

[illegible]

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

JOB 67-F-52

LOCATION 971,134 N 979,666 E

ORIGINATED BY KAL

W.P. 80-9 279-65

BORING DATE June 22 1967

COMPILED BY BG

DATUM Geodetic

BOREHOLE TYPE Drive NX Casing & Wash

CHECKED BY

[illegible]

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 3

FOUNDATION SECTION

JOB 67-F-52

LOCATION 971,010 N 979,680

ORIGINATED BY KL

W. P. 279-65

BORING DATE June 20, 1967

COMPILED BY BG

DATUM Geodetic

BOREHOLE TYPE Cont. Flight Auger

CHECKED BY _____

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT ——— WL		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT	SHEAR STRENGTH P.S.F.	PLASTIC LIMIT ——— WP	WATER CONTENT ——— W		
466.6	Ground Level											
0.0	Organic Clayey silt with some sand & gravel to shaley clayey silt.		1	SS	16	460						
	Compact to very dense		2	SS	99							
454.1												
452.5	Dundas Shale		3	SS	105/100"							
14.1	End of Borehole					450						

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 4

FOUNDATION SECTION

JOB 67-F-52

LOCATION 970,975 N 979,772 E

ORIGINATED BY KL

W. P. _____ 279-65

BORING DATE June 23, 1967

COMPILED BY _____ BG

DATUM Geodetic

BOREHOLE TYPE Cont. Flight Auger & Core Drill

CHECKED BY _____

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT	LIQUID LIMIT ——— WL PLASTIC LIMIT ——— WP WATER CONTENT ——— W			BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.	WP W WL WATER CONTENT %				
470.5	GROUND LEVEL											
0.0	Organic clayey silt, trace of sand & gravel to shaley clayey silt.					470						
			1	SS	19							
	Compact to very dense		2	SS	93	460						
454.7			3	SS	50/1"							
15.8	Dundas shale, layers of shaley carbonate & calcercus shale		4	RC EXL	85% Rec	450						
447.6												
22.9	End of Borehole											

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 5

FOUNDATION SECTION

JOB 67-F-52 LOCATION 970.875 N; 979.883 E. ORIGINATED BY KL
W.P. 279-65 BORING DATE June 19, 1967 COMPILED BY BG
DATUM Geodetic BOREHOLE TYPE Cont. Flight Auger CHECKED BY _____

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT				LIQUID LIMIT ——— WL PLASTIC LIMIT ——— wp WATER CONTENT ——— w			BULK DENSITY Y P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.				wp ——— w ——— WL WATER CONTENT % 10 20 30				
503.5	GROUND LEVEL														
0.0	Clayey silt to silt, some sand and trace of gravel and cobbles					500									
			1	SS	75										
			2	SS	103										
	Hard		3	SS	66										
			4	SS	73										
			5	SS	113										
472.6			6	SS	176/10"										
30.9	Silty sand to sand, trace of gravel and boulders.					470									
	Very dense.		7	SS	100/4 1/2"										
			8	SS	168/8"										
460.5						460									
43.0	Shaley clayey silt.		9	SS	100/2"										
457.9			10	SS	200/1"										
45.6	End of Borehole														

Gr.Sa.Si.Cl

0 68 26 6

467.0

June 27, 19

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION

LOCATION 971,227 N; 979,560 E.

BORING DATE June 20, 1967

BOREHOLE TYPE Cont. Flight Auger

FOUNDATION SECTION

ORIGINATED BY KL

COMPILED BY BG

CHECKED BY _____

[illegible]

MATERIALS & TESTING DIVISION

FOUNDATION SECTION

ORIGINATED BY KL

COMPILED BY _____ BC

CHECKED BY _____

[illegible]

ABBREVIATIONS USED IN THIS REPORT

PENETRATION RESISTANCE

STANDARD PENETRATION RESISTANCE 'N' - THE NUMBER OF BLOWS REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES INTO THE SUBSOIL, DRIVEN BY MEANS OF A 140 POUND HAMMER FALLING FREELY A DISTANCE OF 30 INCHES.

DYNAMIC PENETRATION RESISTANCE - THE NUMBER OF BLOWS REQUIRED TO ADVANCE A 2 INCH, 60 DEGREE CONE, FITTED TO THE END OF DRILL RODS, 12 INCHES INTO THE SUBSOIL, THE DRIVING ENERGY BEING 350 FOOT POUNDS PER BLOW.

DESCRIPTION OF SOIL

THE CONSISTENCY OF COHESIVE SOILS AND THE RELATIVE DENSITY OR DENSENESS OF COHESIONLESS SOILS ARE DESCRIBED IN THE FOLLOWING TERMS:-

<u>CONSISTENCY</u>	<u>'N' BLOWS / FT.</u>	<u>c LB. / SQ. FT.</u>	<u>DENSENESS</u>	<u>'N' BLOWS / FT.</u>
VERY SOFT	0 - 2	0 - 250	VERY LOOSE	0 - 4
SOFT	2 - 4	250 - 500	LOOSE	4 - 10
FIRM	4 - 8	500 - 1000	COMPACT	10 - 30
STIFF	8 - 15	1000 - 2000	DENSE	30 - 50
VERY STIFF	15 - 30	2000 - 4000	VERY DENSE	> 50
HARD	> 30	> 4000		

TYPE OF SAMPLE

S.S.	SPLIT SPOON	T.W.	THINWALL OPEN
W.S.	WASHED SAMPLE	T.P.	THINWALL PISTON
S.B.	SCRAPER BUCKET SAMPLE	O.S.	OESTERBERG SAMPLE
A.S.	AUGER SAMPLE	F.S.	FOIL SAMPLE
C.S.	CHUNK SAMPLE	R.C.	ROCK CORE
S.T.	SLOTTED TUBE SAMPLE		
	P.H. SAMPLE ADVANCED HYDRAULICALLY		
	P.M. SAMPLE ADVANCED MANUALLY		

SOIL TESTS

Q _u	UNCONFINED COMPRESSION	L.V.	LABORATORY VANE
Q	UNDRAINED TRIAXIAL	F.V.	FIELD VANE
Q _{cu}	CONSOLIDATED UNDRAINED TRIAXIAL	C	CONSOLIDATION
Q _d	DRAINED TRIAXIAL	S	SENSITIVITY

ABBREVIATIONS USED IN THIS REPORT

SOIL PROPERTIES

γ	UNIT WEIGHT OF SOIL (BULK DENSITY)
γ_s	UNIT WEIGHT OF SOLID PARTICLES
γ_w	UNIT WEIGHT OF WATER
γ_d	UNIT DRY WEIGHT OF SOIL (DRY DENSITY)
γ'	UNIT WEIGHT OF SUBMERGED SOIL
G	SPECIFIC GRAVITY OF SOLID PARTICLES $G = \frac{\gamma_s}{\gamma_w}$
e	VOID RATIO
n	POROSITY
w	WATER CONTENT
S_r	DEGREE OF SATURATION
w_L	LIQUID LIMIT
w_p	PLASTIC LIMIT
I_p	PLASTICITY INDEX
s	SHRINKAGE LIMIT
I_L	LIQUIDITY INDEX = $\frac{w - w_p}{I_p}$
I_c	CONSISTENCY INDEX = $\frac{w_L - w}{I_p}$
e_{max}	VOID RATIO IN LOOSEST STATE
e_{min}	VOID RATIO IN DENSEST STATE
I_D	DENSITY INDEX = $\frac{e_{max} - e}{e_{max} - e_{min}}$
	RELATIVE DENSITY D_r IS ALSO USED
h	HYDRAULIC HEAD OR POTENTIAL
q	RATE OF DISCHARGE
v	VELOCITY OF FLOW
i	HYDRAULIC GRADIENT
k	COEFFICIENT OF PERMEABILITY
j	SEEPAGE FORCE PER UNIT VOLUME
m_v	COEFFICIENT OF VOLUME CHANGE = $\frac{-\Delta e}{(1+e)\Delta\sigma}$
c_v	COEFFICIENT OF CONSOLIDATION
C_c	COMPRESSION INDEX = $\frac{\Delta e}{\Delta \log_{10} \sigma}$
T_v	TIME FACTOR = $\frac{c_v t}{d^2}$ (d, DRAINAGE PATH)
U	DEGREE OF CONSOLIDATION
T_f	SHEAR STRENGTH
c	EFFECTIVE COHESION
ϕ'	EFFECTIVE ANGLE OF SHEARING RESISTANCE, OR FRICTION
c_u	APPARENT COHESION
ϕ_u	APPARENT ANGLE OF SHEARING RESISTANCE, OR FRICTION
μ	COEFFICIENT OF FRICTION
S_t	SENSITIVITY

GENERAL

π	= 3.1416
e	BASE OF NATURAL LOGARITHMS 2.7183
$\log_e a$ OR $\ln a$	NATURAL LOGARITHM OF a
$\log_{10} a$ OR $\log a$	LOGARITHM OF a TO BASE 10
t	TIME
g	ACCELERATION DUE TO GRAVITY
V	VOLUME
W	WEIGHT
M	MOMENT
F	FACTOR OF SAFETY

STRESS AND STRAIN

u	PORE PRESSURE
σ	NORMAL STRESS
$\bar{\sigma}$	NORMAL EFFECTIVE STRESS ($\bar{\sigma}$ IS ALSO USED)
τ	SHEAR STRESS
ϵ	LINEAR STRAIN
γ	SHEAR STRAIN
ν	POISSON'S RATIO (μ IS ALSO USED)
E	MODULUS OF LINEAR DEFORMATION (YOUNG'S MODULUS)
G	MODULUS OF SHEAR DEFORMATION
K	MODULUS OF COMPRESSIBILITY
η	COEFFICIENT OF VISCOSITY

EARTH PRESSURE

d	DISTANCE FROM TOP OF WALL TO POINT OF APPLICATION OF PRESSURE
δ	ANGLE OF WALL FRICTION
K	DIMENSIONLESS COEFFICIENT TO BE USED WITH VARIOUS SUFFIXES IN EXPRESSIONS REFERRING TO NORMAL STRESS ON WALLS
K_o	COEFFICIENT OF EARTH PRESSURE AT REST

FOUNDATIONS

B	BREADTH OF FOUNDATION
L	LENGTH OF FOUNDATION
D	DEPTH OF FOUNDATION BENEATH GROUND
N	DIMENSIONLESS COEFFICIENT USED WITH A SUFFIX APPLYING TO SPECIFIC GRAVITY, DEPTH AND COHESION ETC. IN THE FORMULA FOR BEARING CAPACITY
k_s	MODULUS OF SUBGRADE REACTION

SLOPES

H	VERTICAL HEIGHT OF SLOPE
D	DEPTH BELOW TOE OF SLOPE TO HARD STRATUM
β	ANGLE OF SLOPE TO HORIZONTAL

401 & Keele St.
Downsview, Ontario

June 20, 1967

Johnston Drilling Co. Ltd.
377 Munster Ave.
Toronto, Ontario

Dear Sirs:

This is to confirm our request of June 16, 1967 for the supply of a Penn Drill and a Diamond Drill together with all necessary equipment as specified under the terms of our Contract Agreement, at Hwy. 401 and Hwy. 27, Mimico Bridge, Toronto, Ontario.

This project bears Job Number 67-F-52.

Yours truly,

K. L. Selby

KLS:mt

K. Selby
Supervising Foundation Engineer
for A. G. Stermac
Principal Foundation Engineer

401 & Keele St.
Downsview, Ontario

June 26, 1967

Canadian Longyear Limited
35 Brydon Drive
Rexdale, Ontario

Dear Sirs:

This is to confirm our request of June 20, 1967 for the supply of a Diamond Drill together with all necessary equipment, as specified under the terms of our Contract Agreement, at Hwy. 27 and Hwy. 401, Toronto, Ontario.

This project bears job number 67-F-52.

Yours truly,

K. G. Selby

KGS:mt

K. G. Selby
Supervising Foundation Engineer
for: A. G. Stermac
Principal Foundation Engineer

MEMORANDUM

To: Mr. A. Stermac,
Principal Foundation Engineer,
Room 107,
Lab. Building.

From: Bridge Division,
Downsview, Ontario.

Date: June 12th, 1967.

Our File Ref.

In Reply To

Subject: W.P. 279-65, Bridge #61,
Mimico Creek at Hwy. 401,
Hwy. 401/27 Interchange,
District #6.

67-F-52

It has been found necessary to construct the above structure in conjunction with Bridge #21. Both structures will be built ahead of the yellow contract to facilitate the staging of the interchange. The revised schedule of the 8th June, 1967 calls for:-

Completed Bridge Drawings - 6th Sept. 1967. This design is being issued to the consultants; McCormick and Rankin today, so a foundation report is necessary as soon as possible. Perhaps we could have the necessary information verbally prior to the completion of the report.

Two proposals are at present being considered for this site.

- (a) Complete replacement of the existing barrel arch on the alignment shown on the attached plans.
- (b) Extension of the existing barrel arch; if the existing structure can be considered functionally and structurally adequate for the additional fill and channel lining. This study will be undertaken by the consultant immediately. If it is feasible to extend the arch the channel alignment will be modified.

A foundation investigation carried out on the alignment shown on the attached plans should be adequate for the alternatives.

In either case the proposal is to use a 45' span concrete arch at this site.

RE: W.P. 279-65, Bridge #61,
Mimico Creek at Hwy. 401,
Hwy. 401/27 Interchange,
District #6.

In addition to the site plans I am forwarding you a copy of the Mimico Creek drainage report prepared by Fenco. Profiles at this crossing have previously been forwarded to you.

J. C. McAllister

JCMcA/csw
Attach.
cc R. Strain
A. Crowley

J. C. McAllister,
for W. S. Melnychyn,
Regional Bridge Location Engineer.

MEMORANDUM

TO: Mr. A. Stermac,
Principal Foundation Engineer,
Room 107,
Lab. Building.

FROM: Bridge Division,
Downsview, Ontario.

DATE: June 12th, 1967.

OUR FILE REF.

IN REPLY TO

SUBJECT: W.P. 279-65, Bridge #61,
Mimico Creek at Hwy. 401,
Hwy. 401/27 Interchange,
District #6.

67-F-52

It has been found necessary to construct the above structure in conjunction with Bridge #21. Both structures will be built ahead of the yellow contract to facilitate the staging of the interchange. The revised schedule of the 8th June, 1967 calls for:-

Completed Bridge Drawings - 6th Sept. 1967. This design is being issued to the consultants; McCormick and Rankin today, so a foundation report is necessary as soon as possible. Perhaps we could have the necessary information verbally prior to the completion of the report.

Two proposals are at present being considered for this site.

- (a) Complete replacement of the existing barrel arch on the alignment shown on the attached plans.
- (b) Extension of the existing barrel arch; if the existing structure can be considered functionally and structurally adequate for the additional fill and channel lining. This study will be undertaken by the consultant immediately. If it is feasible to extend the arch the channel alignment will be modified.

A foundation investigation carried out on the alignment shown on the attached plans should be adequate for the alternatives.

In either case the proposal is to use a 45' span concrete arch at this site.

RE: W.P. 279-65, Bridge #61,
Mimico Creek at Hwy. 401,
Hwy. 401/27 Interchange,
District #6,

In addition to the site plans I am forwarding you a copy of the Mimico Creek drainage report prepared by Fenco. Profiles at this crossing have previously been forwarded to you.

J. C. McAllister

JCMcA/cew
Attach.

cc R. Strain
A. Crowley

J. C. McAllister,
for W. S. Melinyshyn,
Regional Bridge Location Engineer.

MEMORANDUM

To: Mr. A. Stermac,
Principal Foundation Engineer,
Room 107, Lab. Bldg.

From: Bridge Division,
Downsview, Ontario.

Date: June 9th, 1967.

Our File Ref.

In Reply To

Subject: W.P. 279-65, Mimico Creek at Highway No. 401,
Bridge No. 61,
Highway No. 401/27 Interchange,
District No. 6.

67-F-52

Attached for your information is a print of site plans
3214-8A-61-1 and 2 received from the consultant for the
design of the above structure.

J. C. McAllister

JCMcA/co
Attach.

J. C. McAllister,
for W. Melinyshyn,
Regional Bridge Location Engineer.

c.c. R. Strain
A. Crowley

Copy for the information of

Mr. A. Stermac, Principal Roundation Engineer, Room 107, Lab. Bldg.

Mr. C. S. Grebski,
Bridge Design Engineer,
Admin. Building.

Bridge Division,
Downsview, Ontario.

June 9th, 1967.

W.P. 279-65, Mimico Creek,
Bridge #61,
Hwy. 401/27 Richview Interchange,
District #6.

67-5-52

Attached are prints of site plans 3214-8A-61-1 and -2 received from the consultant for the design of the above structure.

The structure recommended, a barrel arch, should be designed in accordance with the hydrology study for Mimico Creek which was carried out by Fenco. Factual information on footing, spring line and crown elevations of the existing barrel arch, which is of the same dimensions as recommended, have been requested from the District.

Considerable advantage from both the standpoint of economy and for staging can be obtained by using the existing arch. It will be necessary therefore to check the existing design for the added fill and the effect of the proposed channelization in order to determine if the arch can be extended rather than replaced. If the existing arch can be used a slight revision to the channel diversion will be required. A set of the existing drawings D-3346-1, -2, -3 and -4 with as built notations in red is attached.

RE: W.P. 279-65, Mimico Creek,
Bridge #61,
Hwy. 401/27 Richview Interchange,
District #6.

Staging requirements call for Bridges #21 and #61 to be constructed ahead of the major portion of the interchange. The revised schedule of 8th June 1967 calls for:

Completed drawings	6th Sept. 1967
Completed drawings and D4	20th Sept. 1967

The drawing number for the structure will be D-6244.

JCMcA/cew
Attach.

cc E.J. McCabe
S. McCombie
F.G. Allen
A. Stermac
N. Coy (Fenco)
R. Strain

J. C. McAllister,
for W. S. Melinyshyn,
Regional Bridge Location Engineer.

Department of Highways Ontario

67-F-52

Copy for the information of
Mr. A. Stermac,
Principal Foundation Engineer

Mr. W. Malinszyn,
Regional Bridge Location Engineer,
Central Region,
Administration Building

Bridge Division,
Downsview, Ontario

September 1, 1967

Nimico Creek Bridge No. 61
V.P. 279-65, Site No. 37-284
Highway 401/27 Interchange
District No. 5

Attached herewith are prints of the Preliminary Bridge Plan
Drawing D-6044-P1 for the above-mentioned structure.

The estimated cost of the proposed structure is \$475,000.
This cost includes tender, materials, engineering and sundry
construction.

Any comments or revisions you may have should be submitted
within three weeks.

CSO:rd

C.S. Greboki,
Bridge Design Engineer

Attach.

c.c. S. McCombie
A. Stermac
R. Forrent
E. Cross

COMMENTS ON SEPARATE SHEET.

A.K.B.

SPREAD EELS IN TILL UP TO 5 T.S.F.

cc: Foundations Files (Rm. 110)

alg

Mr. C. S. Grebski,
Bridge Design Engineer,
Bridge Division,
Admin. Bldg.

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

September 8, 1967

Mimico Creek Bridge #61,
W.P. 279-65, Site No. 57-284, W.J. 67-F-52,
Hwy. 401-27 Interchange, District No. 6 (Toronto).

We have reviewed Preliminary Plan D-6244-F1 for the above structure. We note that the footings are founded in the glacial till strata overlying the bedrock. For such a case, design pressures up to 5 t.s.f. may be assumed.

KCS/KaeP

H. L. Selby

H. L. Selby,
SUPERVISING FOUNDATION ENGR.
For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGR.

cc: Messrs. S. McCombie
W. S. Melnyshyn

Foundations Files
Gen. Files

67-F-52

W.P. #279-65

HWY. #401 AND

#27 INTERCHANGE

MIMICO CREEK

DIVERSION

AND HWY. #401

